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Electrically ignited fires in Low Voltage Installations



Guidance to the world of standards IEC 60364

Low voltage electrical installations
IEC 60364-4-42:2014-11
Protection against thermal effects

EATON
Powering Business Worldwide

Hidden fire hazards ...

Help! Fire!



Cause of fire: faulty cable

Fire in a joiner's workshop

Blansingen, DE - The cause of the fire at the joinery in the town centre of Blansingen on Sunday evening has been clarified for the police: an electrical fault was the cause of the fire. "It is highly likely that the cause was a technical fault in live cables", reported the police. The fire expert on-site did not give indications of any other causes.

As reported, the fire broke out at around 5.30pm last Sunday in the building. A man had to be treated by the emergency services because of suspected smoke inhalation. Around 60 firefighters were sent. It took all night to put out the blaze, as more and more hot spots lit up, the police added. Even in the early hours of Monday morning, the fire was still breaking out repeatedly.

The police seized the scene of the fire. This is common when the cause of the fire is not evident and a fire expert has to be consulted. The expert assessed the location of the fire in the middle of the week with the police and identified an electrical fault as the cause of the fire.

The extent of the damage has not yet been determined exactly, added the police, who assume that it could be between 200,000 and 300,000 euros. The location of the fire has been released in the meantime. What the police positively commented in their concluding report was how helpful the local community was to those affected during and after the fire.

(Source: Badische Zeitung, March 2016)

Did you know: 95 per cent of fire victims die as a result of smoke inhalation?
(Source: GDV)



Major fire in secondary school

A challenging fire extinguishing for eight fire brigades

Perg, AT - A lengthy and challenging fire extinguishing took place in Perg township on a Sunday morning in May 2015. The fire was caused by an electrical fault, a local police spokesman said. The defect occurred in the electrical installation in the utility room and quickly spread towards the tin roof. The flames ate through the insulation of the extensive flat roof surface, and subsequently spread from the connecting duct to the new secondary school and the new event centre, which were set on fire as well.

(Source: Berzirksrundschau, meinbezirk.at, May 2015)

Did you know: 70 per cent of fire victims are killed in accidents at night in their own home.
(Source: GDV)

Office tower caught fire

Skyscraper collapsed after blaze



Madrid, ES - On a Saturday around midnight, a fire was detected on the 21st floor. The fire spread rapidly throughout the entire building leading to the collapse of the outermost steel parts of the upper floors. Firefighters needed almost 24 hours to extinguish it. While seven firefighters were injured fortunately nobody was killed in the fire, which was arguably the worst fire in Madrid's history. The city council of Madrid covered the cost of demolishing the remains of the building, thought to be approximately € 22M ($ 32.5M). A new tower called Torre Titania was finished 2011, replacing the collapsed Windsor Tower. After subsequent investigation the fire was blamed on an electrical fault.

(Source: Wikipedia, Torre Windsor)

Electrical fault in the children's room

Rescued just in time



Purbach, AT - At around 9 o'clock in the evening, a fire in a residential dwelling in the district of Eisenstadt was noticed by residents. When they reached the room it was already on fire, and attempts to extinguish the flames proved ineffective. After the fire brigade had arrived, two people were taken to hospital, it had been suspected that they had been suffering from smoke inhalation. Four fire brigades were in action to control the fire. According to the local police spokesman, the fire originated in the children's room due to an electric defect.

(Source: RegioNews.at)

After the blaze in a mountain inn

Electrical fault was definitely the cause of the fire



Unternberg, AT - "It is possible that the fire has already been smouldering a while behind the wooden ceiling. At the moment that fresh air was added, the fire was able to spread out instantly", the fire chief said after the blaze was finally extinguished. The police spokesman reported on Monday that it was definitely an electrical fault in a wooden ceiling structure that resulted in the fire. Due to the voids in the wall components the flames were able to spread out with significant speed, resulting in a large amount of damage. It is now unclear if an expensive restoration or demolition is the better option, the family with five kids and two workers running the mountain inn will have to seek alternative accommodation for at least a year.

(Source: Salzburger Nachrichten, January 2015)

31,7%
of all fires are caused by electricity [1)]

415
deaths as a result of smoke, fire and flames [2)]

€ 1.1 billion
property damage due to smoke, fire and flames [3)]

[1)] Institut für Brandursachenstatistik 2015, Schadendatenbank
[2)] Genesis-Online Datenbank 2013, Statistisches Bundesamt Deutschland
[3)] Brand- und Feuerschäden sowie Forderungen von Brandversicherern (world fire statistics, geneva association 2010)

Hidden fire hazards ...

The task: reducing the risk of fire

"Fire and water, they are good servants, but bad masters."
Roger L'Estrange

Even today, fire poses a great threat to people and their belongings. Fortunately, the consequent use of technical aids can reduce the risk of fire and its effects.

Thank goodness for smoke detectors
A good example of successful risk mitigation is the increased use of smoke detectors, which has reduced the number of annual deaths by fire in Germany over the past 15 years from over 800 to around 400 victims. Smoke detectors enable people in dangerous areas to recognise the danger within the critical 2 to 4 minute time window after beginning of the fire, in which the residents can evacuate to safety relatively unharmed. Smoke inhalation negatively affects health very quickly and often fatally, and poses the primary threat from fires. Consequently, 14 federal states in Germany have already decided on the mandatory use of smoke detectors.

Saxony and Brandenburg have now, after an extended testing period, implemented this statutory measure, with Berlin as the last federal state to be in the planning phase for a change to the law. Moreover, the more widespread use of smoke detectors means that the fire brigade is alerted faster and the generally significant material damage can be contained earlier.

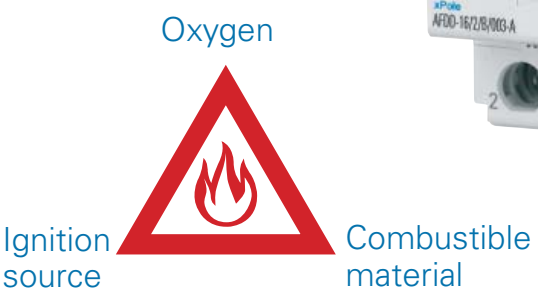
Despite these successes in relation to the deaths, the number of fires and casualties, and the total damage, are generally increasing.

Increased risk of fire

People
Difficult conditions of evacuation due to:
- Mobility of people
- Number of people
- Special locations

Items
- Combustible materials
  - Storage
  - Processing
- Combustible construction materials
- Assets and goods of significant value





Hidden fire hazards ...

Cause of fire: electric current

How can the risk of electrically ignited fires be reduced?

To answer this question, it helps to look at the statistics: The majority of avoidable fires are electrically ignited. At this point, a number of technical measures using automatic disconnection are in force, which have proved their effectiveness:

Cause of fire: current too high

- A circuit breaker (MCB) recognises faults whereby a critical threshold value for current is exceeded. Consequently it can prevent the thermical destruction of parts of the installation caused by, for example, short circuits or overcurrent.

Cause of fire: residual current

- A Residual Current Device (RCD) recognises residual current, i.e. any current that does not flow back to the supply, but rather flows another way. They are essential if protection against electric shock makes disconnecting the circuit necessary and are considered an incomplete solution for protection against electrically ignited fires. Even relatively small residual currents that are, for instance, caused by people making contact with an electrical circuit, can trigger ventricular fibrillation or cause fires respectively.

Cause of fire: arc fault

- Arc Fault Detection Device (AFDD) in accordance with IEC 62606 now fills the major gap in the protection against thermal effects and is able to recognise currents created by an arc fault and disconnect them. These currents are somewhat smaller or the same size as the nominal current, but have a decisive characteristic that separates them from conventional fault currents and short circuits. High frequencies which are superimposed on the normal nominal current can be recognised using a digital detection device. Therefore, arc faults from serial or parallel faults that are normally indistinguishable from the current but cause fires easily, can be detected and disconnected.

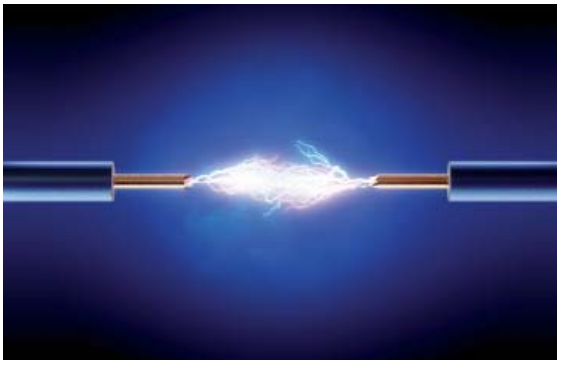
New: Arc Fault Detection Device

Technical innovation is the solution

Arc faults are a frequent fault and a central cause of fire. Unable to be recognised by analogue technology, there is now an innovative device able to detect arc faults. These arcs are often a source of ignition and can be prevented.
It is clear that widespread use of Arc Fault Detection Devices is the right tool to significantly reduce the risk of fire. However, not only can this simple-to-apply measure minimise fire damage, but in many cases it can also reduce the ignition of fires altogether.



Lightnings can cause severe damage.



Even small arc faults, micro-lightnings, can ultimately lead to large fires and devastating damage.

Serial arc faults

Protection against micro-lightnings

Severe weather with lightning and rolling thunder makes people uneasy for a good reason – it is dangerous. If these electrical charges come into contact with combustible materials, they can cause fires and severe damage.

The most important safety rule when storms occur is as follows: Seek protection!

However, it is not just the large lightnings that cause considerable damage. Even small lightnings, so-called arc faults, which occur hidden within installations, house enormous damage potential.

WHERE
Such micro-lightnings can occur in any cables or wires, in fixed installations and in cables of directly connected devices or devices connected via sockets.

WHEN
They occur when there are faults or damage to the wires, caused by external influences or ageing. However, a loose terminal connection or carelessness can also be the cause. Such faults and damages can occur suddenly or over a longer period of time lasting months or years, creating an undetected fire hazard.

WHY
What type of damage can lead to such micro-lightnings, and what are the most frequent causes of arc faults?

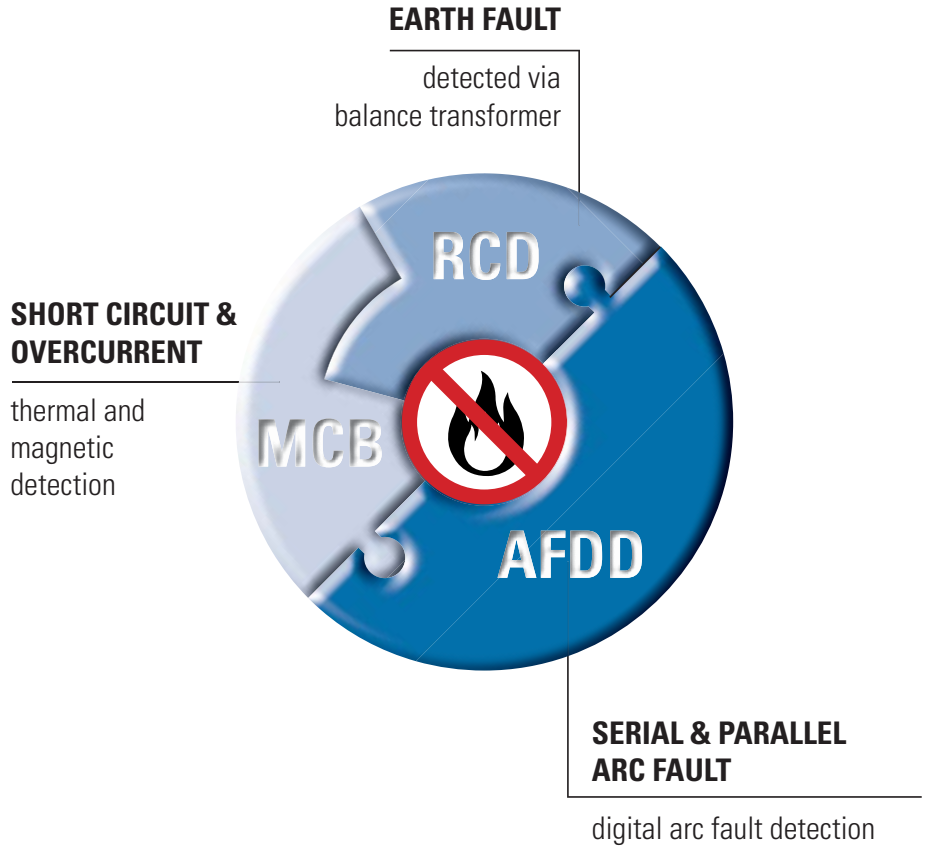
- Crushed wires
- Damage to wire insulations caused by nails, screws etc.
- Ageing of installation
- Broken cables or interruptions in a wire
- UV rays and rodent bites
- Loose contacts and connections
- Bent plugs and wires

Comprehensive protection to lower fire hazards

Complete protection

Now, there is finally a protective device that can recognise these micro-lightnings by "listening in" to the wire. Unlike short circuits and earth faults, under arc fault conditions the fault current equals the normal operating current, which makes this detection not as easy, and requires something special in the way of technical finesse.

Of course, arc fault detection alone cannot protect against all hazards such as short circuits, overcurrent and earth faults. Therefore, it is wise to combine arc detection with circuit breakers and residual current devices in order to fully minimise the risk of electrically caused fires.



IEC 60364-4-42:2010+Am.1:2014

Changes in the installation standard

What changes are there in IEC 60364-4-42 and since when has this change existed?

In comparison with the edition from 2010, in Amendment 1 of 60364-4-42 significant changes were made in November 2014. These are, amongst others:

a) inclusion of additional requirements for automatic disconnection in cases of dangerous arcs with arc fault detection devices (AFDDs);

b) inclusion of an informative Appendix A for arc fault detection devices (AFDDs).

These changes have been effective since 13th November 2014.

What are the new requirements?

Arc Fault Detection Devices (AFDDs) in accordance with IEC 62606 are now recommended in final circuits such as:

• In premises with sleeping accommodations:	e.g. hotels and hostels, daycare centres for children, nurseries, facilities that care for the elderly and sick, schools, residential buildings and apartments
• In locations with risks of fire due to the nature of processed or stored materials:	e.g. barns, wood-working shops, stores of combustible materials, paper and textile processing factories, agricultural premises
• In locations with combustible materials:	e.g. wooden buildings, buildings where the majority of the constructional material is combustible
• In fire propagating structures:	e.g. high-rise buildings, forced ventilation systems
• In locations with endangering of irreplaceable goods:	e.g. museums, national monuments, public premises and important infrastructure such as airports and train stations

Why has there been a change, and why are these requirements being set?

Until now, there was a gap in the protection concept – the detection and effective disconnection of serial arc faults in installations was not possible. The danger that is substantiated by the fire damage and fire victim statistics can now be combatted – as there is now a new solution that fills these gaps.

Was the change to the standard unexpected?

The approach to apply and recommend AFDDs with respect to IEC 60364-4-42 was not unexpected. Up to that time, no protective device being able to detect and effectively disconnect serial arc faults was identified in IEC 60364, i.e. no device having the capability to significantly lower the risk of electrically ignited fire hazards was mentioned. Although the AFDD product standard was publication of in 2013 and first products were available since 2012, the 2014 released IEC 60364 series is the first standard for low voltage electric installation which actively recommends the AFDD.

From what date on does the new IEC 60364-4-42 standard has to be applied?

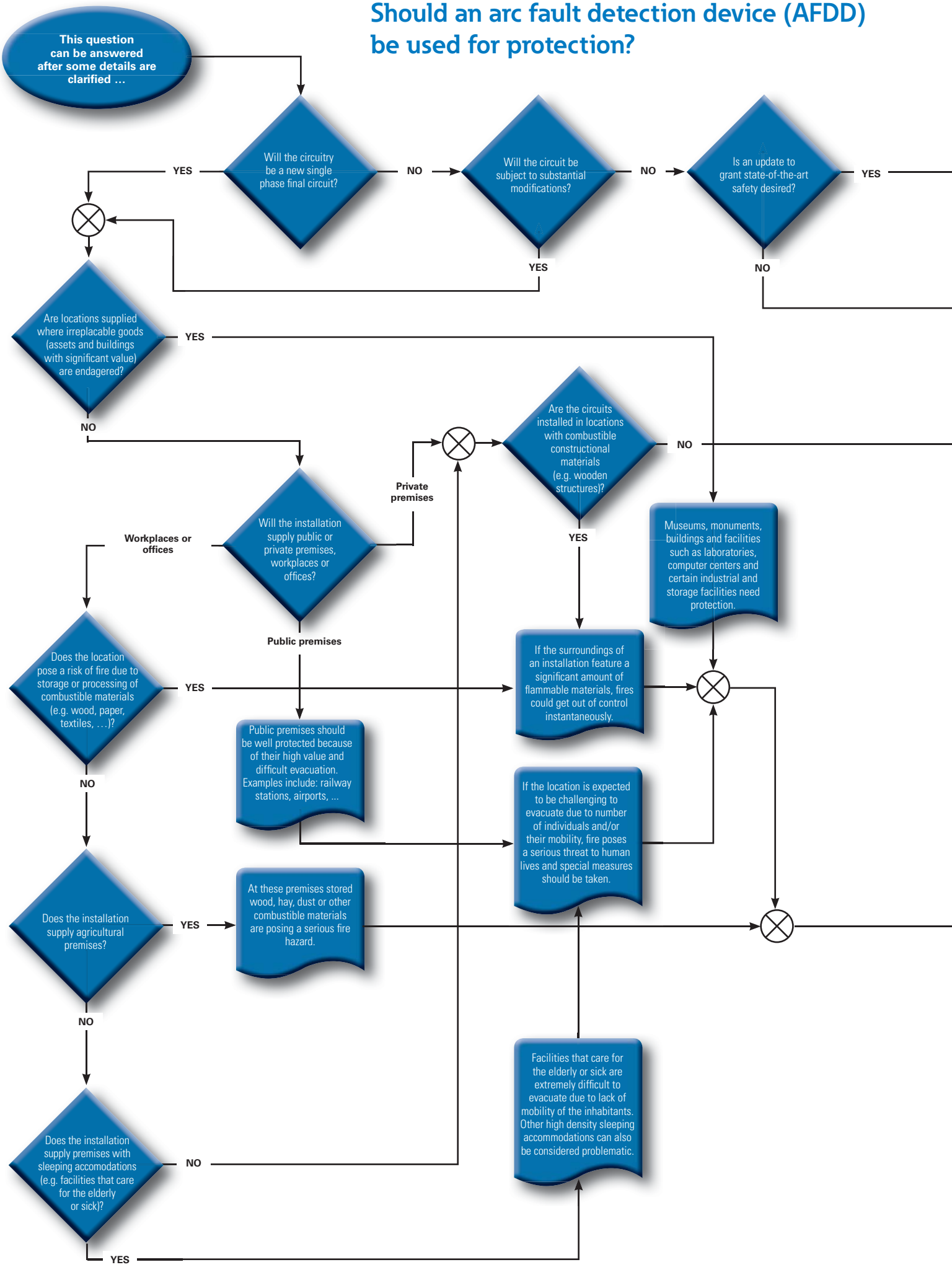
IEC 60364-4-42:2014 represents a state-of-the-art technique for the protection against thermal hazards, and, if the application is not violating national law, the standard can be applied worldwide. Furthermore, installers normally follow their national standards based on IEC 60364 or HD 60364 to ensure conformity to legal requirements and low voltage regulations. If national standards do not yet refer to the application of AFDDs in low voltage electric installations, IEC 60364-4-42 represents a suitable framework to increase the safety level for protection against thermal hazards.

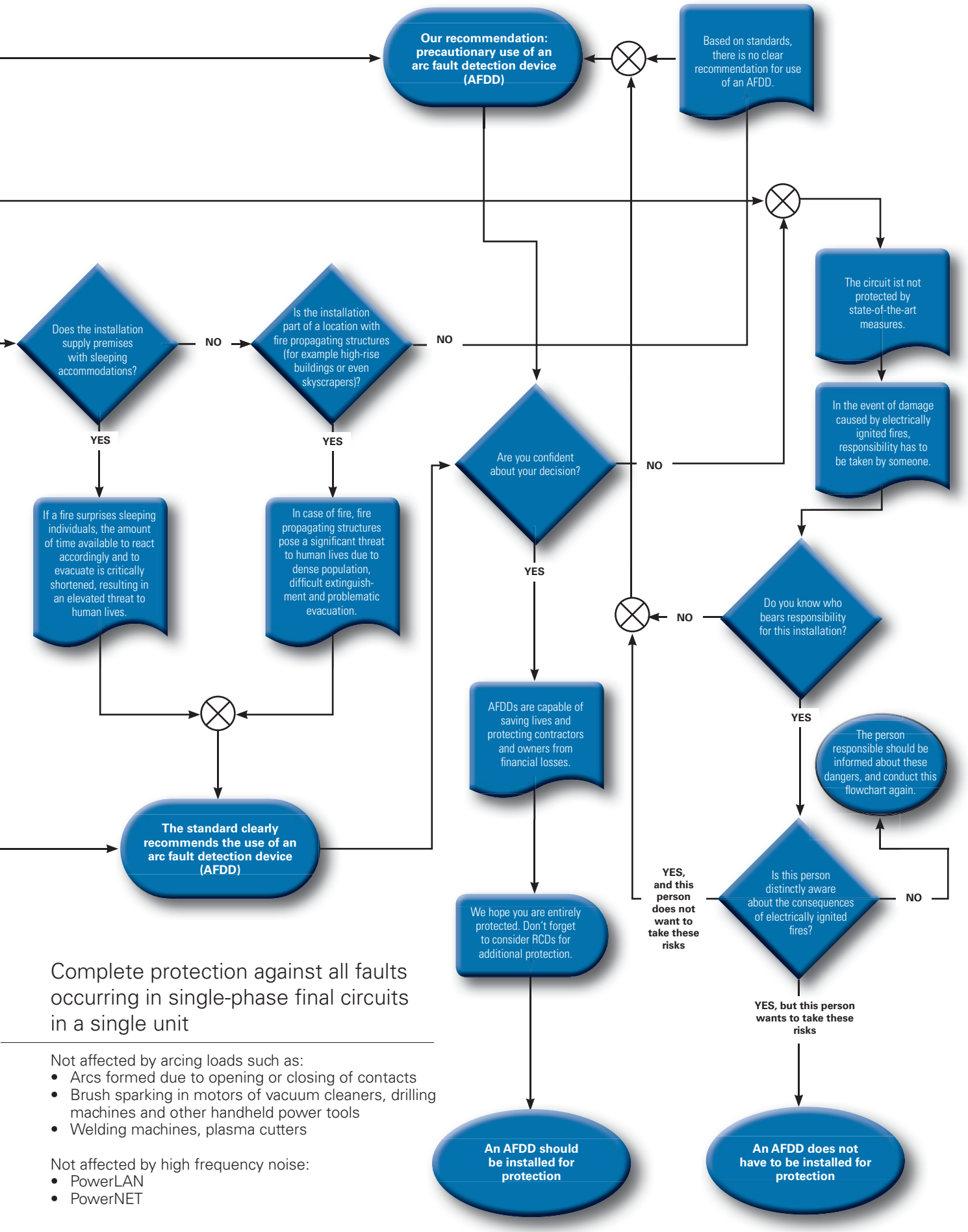
Is there a transition period?

Its recommendations and technical advices shall be applied immediately if state-of-the-art protection is desired or required.

Possible uncertainties for planners and constructors of electrical systems can be avoided if new standards are applied from the date of publishing.

Should an arc fault detection device (AFDD) be used for protection?





Complete protection against all faults occurring in single-phase final circuits in a single unit

Not affected by arcing loads such as:

- Arcs formed due to opening or closing of contacts
- Brush sparking in motors of vacuum cleaners, drilling machines and other handheld power tools
- Welding machines, plasma cutters

Not affected by high frequency noise:

- PowerLAN
- PowerNET

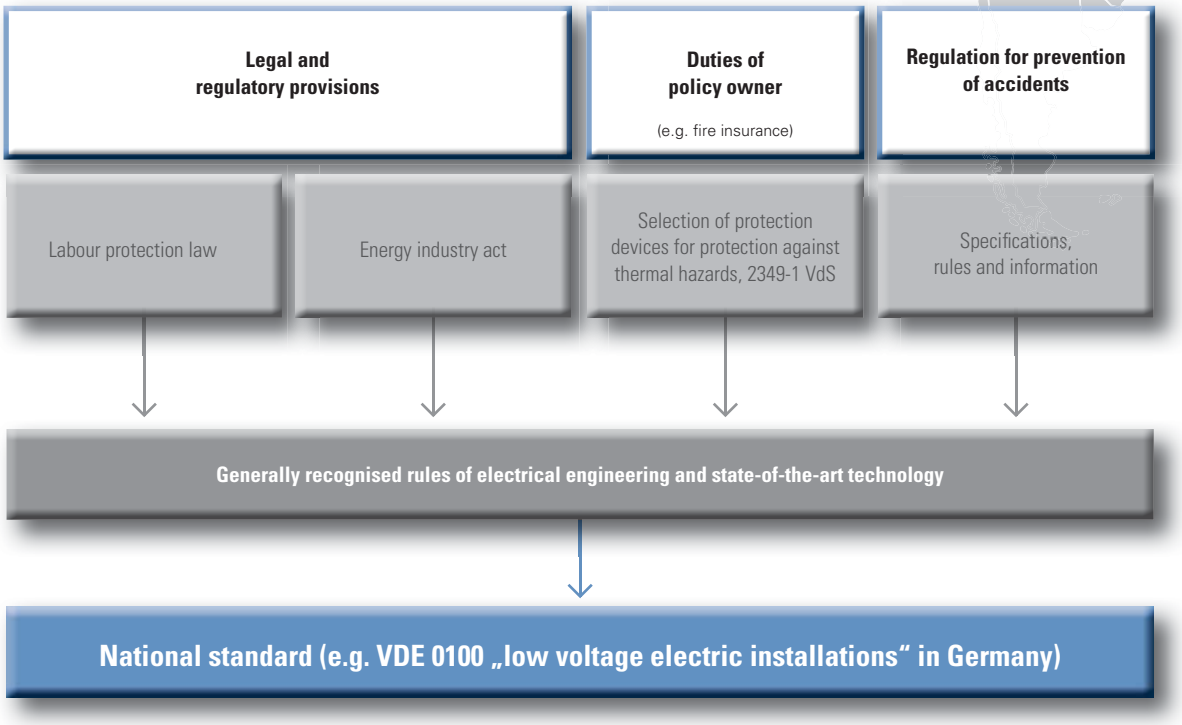


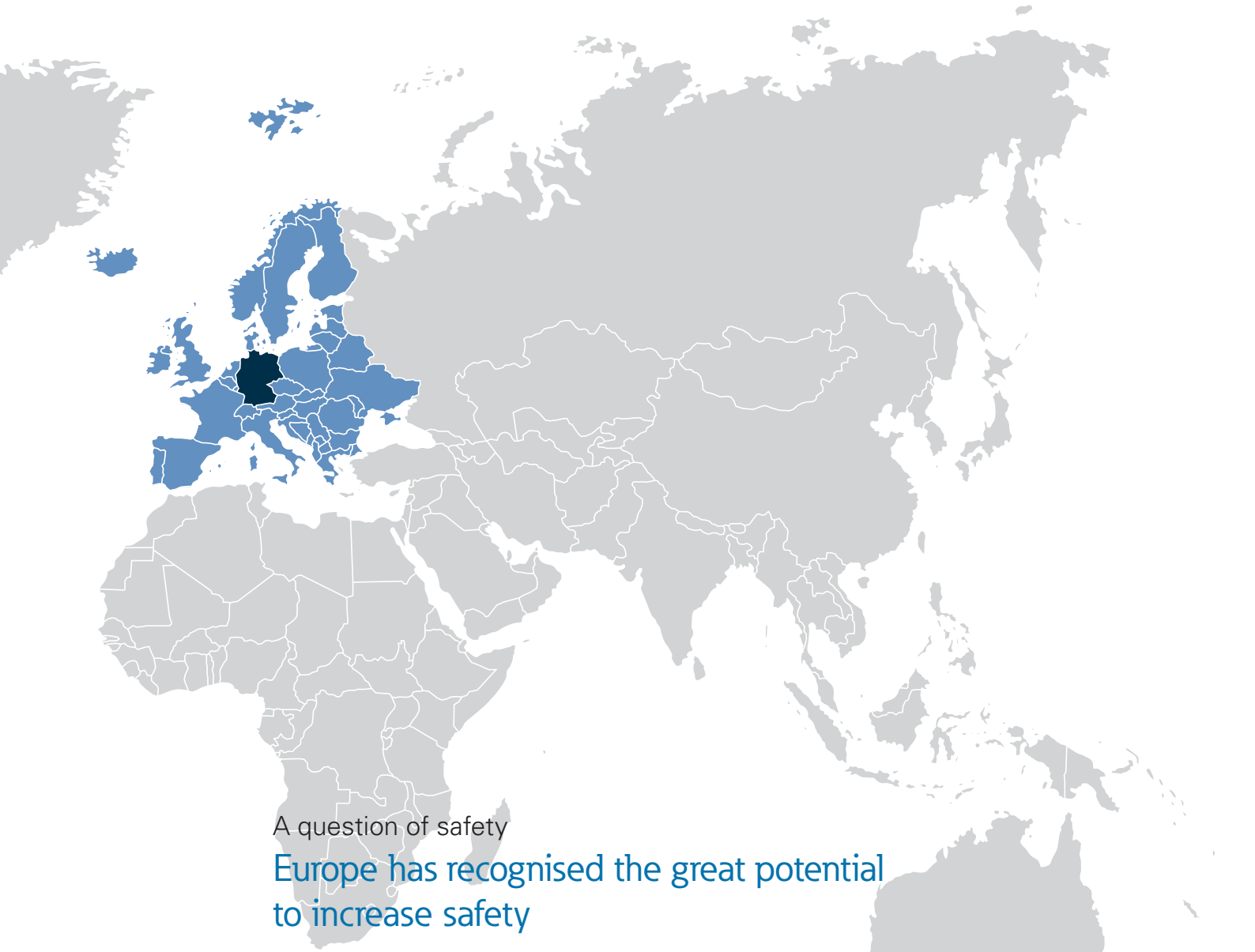
Exemplary provisions in Germany

Legal framework and obligations

The German standards series VDE 0100 "Low voltage electric installation" is a distinguished example of how different provisions and obligations build a framework which is based on, and refer to, state-of-the-art technology, such as AFDDs. For low voltage electric installations, the German electrician can assume legal compliance and conformity to regulations for all different aspects of electric installations when following the VDE 0100 series.

By following the recommended or mandatory installation of AFDDs as required by VDE 0100-420 "Protection against thermal effects", the legal and regulatory provisions, duties of policy owners of fire insurances and regulations for the prevention of accidents are satisfied.





A question of safety

Europe has recognised the great potential to increase safety

European countries typically follow the HD 60364-4-42 harmonisation document and implement this standard in their national regulation and standardisation framework.

Many countries such as the Netherlands, the Czech Republic, Spain, Denmark, Latvia, Slovakia, Romania, Hungary and Switzerland have already implemented this novel protection against thermal hazards, while the implementation in Finland, Sweden, Iceland and Italy is currently ongoing.

Germany took fire safety to the next level. Within the new release of the VDE 0100-420:2016-02, the AFDD was declared mandatory for several types of premises.

National standard committees have been permitted by CENELEC and IEC to introduce the mandatory requirement for the use of the arc fault detection device (AFDD) in low voltage electric installations, while cascading down the IEC standard series IEC 60364 to regional standards and national guidelines and regulation.

global	regional	national
IEC 60364-4-42	HD 60364-4-42	VDE 0100-420

IEC 60364-4-42

Frequently asked questions about the application of the standard

What is the scope of the standard?? Where does it apply??

The rules within the IEC 60364 series are intended to provide for the safety of persons, livestock and property against dangers, and for the proper functioning of those installations built in respect to the standard.
IEC 60364-1 applies to the design, erection and verification of electrical installations such as those of:

- Residential premises;
- Commercial premises;
- Public premises;
- Industrial premises;
- Agricultural and horticultural premises;
- Prefabricated buildings;
- Caravans, caravan sites and similar sites;
- Construction sites, exhibitions, fairs and other installations for temporary purposes;
- Marinas;
- External lighting and similar installations;
- Medical locations;
- Mobile or transportable units;
- Photovoltaic systems;
- Low-voltage generating sets.

What comes under the term "public premises"?

Public premises, with respect to the recommended protection via AFDDs, are defined in the standard regarding the presence of irreplaceable goods or goods of a high value, as well as central infrastructure (transshipment points of goods). This includes, amongst others, train stations, airports, monuments, museums etc. Data and laboratory samples could also be of a high value and protection against arc faults should therefore be considered accordingly.

Do I have to retrofit my installation?

Retrofitting is only legally required if the system is being technically changed, i.e. in the case of a significant change to the system and equally to parts of existing systems that are influenced by an extension or modification.
However, retrofitting should be considered in all cases if there is a chance of damage and an effective protection is technically feasible.

Does an AFDD have to be installed in general in IT systems?

The installation standard does not distinguish between TN, TT and IT networks in this case regarding the risk of fire. Even in IT networks, serial arc faults can occur.

Does an AFDD also have to be used within supply-critical infrastructures, such as IT systems in hospitals?

- Medical locations are classified in group 1 locations and group 2 locations, regarding IEC 60364-7-710:2002. Critical group 2 locations such as intensive care units, operating theatres and recovery rooms require the mandatory installation of medical IT systems for life support systems and surgical equipment. **Where medical IT systems are present in group 2 locations, the installation of AFDDs is not allowed. In these environments other safety measures are applied.**

  Following part -710 (for medical premises) clause 710.413.1.3 for TN systems and 710.423.1.3 for TT systems, the application of AFDDs can be recommended under the following conditions:

- In final circuits of medical locations of group 1, AFDDs are recommended without restriction in TN and TT networks.
- In final circuits of medical locations of group 2, AFDDs are recommended for TN- and TT- networks for final circuits for non-critical electrical equipment (non life support) and circuits for large equipment with a rated power greater than 5 kVA.

Despite this information, I am not sure whether my system comes into question for mandatory installation. What can I do now?

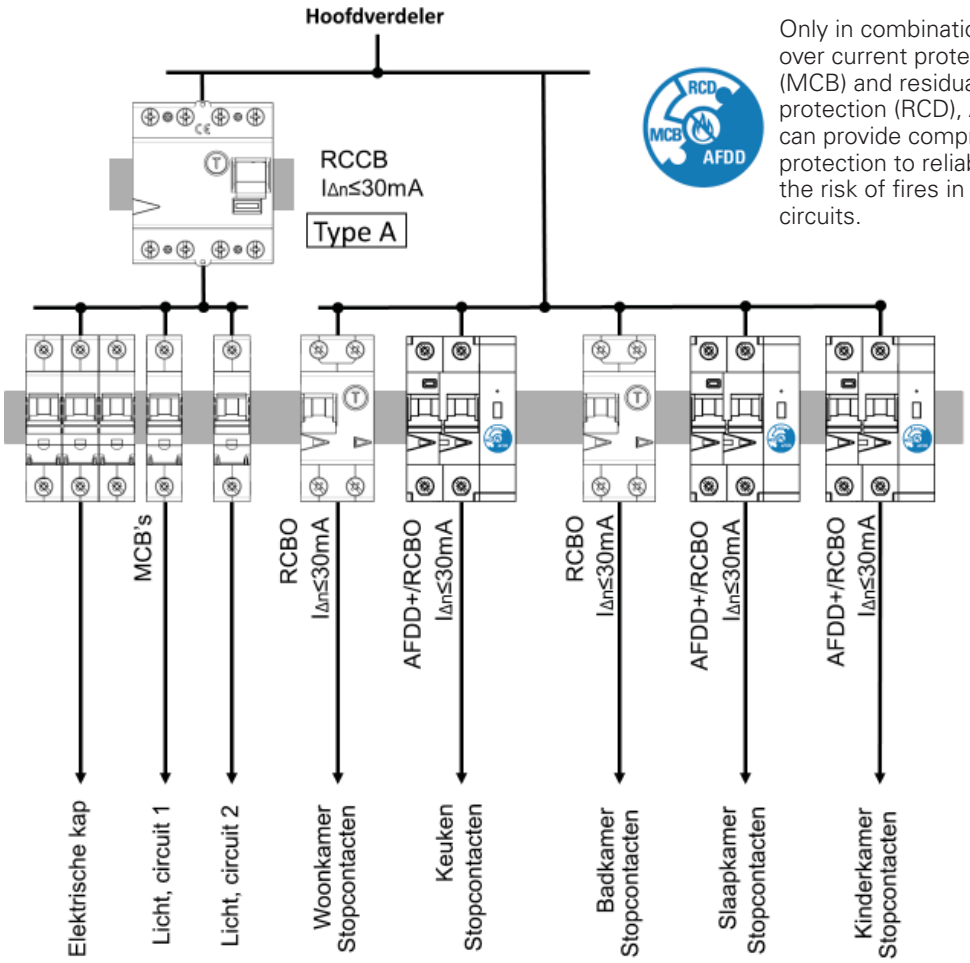
Generally, whether a system must definitively be characterised as requiring protection in accordance with IEC 60364-4-42, must be established by the operator with regard to construction law, further statutory and official provisions and accident prevention provisions. In cases of doubt, corresponding advice must be sought.

I am not the owner, but I rent an electric facility. Am I responsible in the case of damage?

No, the owner is responsible to the network operator for the proper assembly, modification and maintenance of the electrical system after the building's main fuse. If the owner is completely or partially renting the system to a third party or otherwise allowing them to use it, the owner shall still be responsible. In order to increase the safety of rented systems for the users, however, it could be helpful to provide the landlord (owner) with information about the availability of new protection.

Prevention: lowering the risk of electrically ignited fires

Example: apartment (TN system)



Only in combination with over current protection (MCB) and residual current protection (RCD), AFDDs can provide comprehensive protection to reliably lower the risk of fires in final circuits.



Questions about installation

Do AFDDs only have to be used in final circuits?

AFDDs are recommended to protect against the effects of arc faults in final circuits only. If used, AFDDs shall be placed at the origin of the circuit to be protected.

Is there a limitation to amperage?

The IEC 60364 series does not limit the application of AFDDs to amperage in final circuits. AFDDs can be applied to protect final circuits at least up to 40 A.

What about protecting three-phase final circuits?

IEC 60364 does not distinguish between single- and three-phase final circuits.
The AFDD product standard IEC 62606 covers single-phase devices, three-phase devices are under consideration.
As the majority of installations are provided with single-phase final circuits, it is clear that today's focus is on single-phase final circuits and their protection.

Why is it not wise to combine AFDDs with circuit breakers only?

The combination of AFDDs with circuit breakers only is protecting against short circuits and arc faults which can be an ignition source for fires. But these are not the only electrical hazards, and not the only available protection devices.
A higher level of protection can be achieved, which also provides protection against electric shock in final circuits. This can be obtained if the AFDD is combined with short circuit and residual current protection equally.
This combination offers the most reliable and most comprehensive protection in final circuits. Combining the AFDD and an RCBO is today's convenient way to offer complete protection and lower the risk of electrically ignited fires.

Questions about retrofitting

I already have an electrical installation, but I would still like to protect my home. Can I retrofit an AFDD?

No problem; an AFDD can be built into an installation at any time. Usually, there are additional slots available for an extension. During a retrofit of a home installation with an AFDD, it is worth considering introducing a combination device with a residual current and circuit breaker function.

Is it really necessary to install an AFDD?

With older electrical installations, an arc fault detection device was not yet available. These systems have no way of detecting active arc faults. Therefore, electrically caused fires used to occur, injuring and killing many people and causing countless millions, even billions of euros worth of damage to building structures, machines, installations and goods. Often, retrofitting or installation is not legally mandatory, but it is possible, and it is the only way of protecting homes, belongings and goods actively. The decision of whether or not to install this protective device if there is no legal requirement to do so lies with people themselves.

Questions about added value and cost factor

What added value does an AFDD create?

The additional safety against electrically caused fires provides extensive protection for electrical systems and their supplied premises. This simple measure can actively prevent damage to human beings and goods.

What additional costs must be planned for projects?

As additional costs do not affect every circuit, but only by the installation in selected final circuits, the added value gained is clearly higher than the additional costs incurred.

Arc faults or arc flashes

What is the difference between an arc flash and an arc fault?

In practice, the term „arc flash“ classically refers to an arc that occurs in high-powered systems, in areas with a low or even high voltage. The causes are mostly parallel residual currents between multiple phases, phase-neutral conductors or phase-to-earth. However, arc flashes can also occur as breaking sparks on railways, for example.

The term arc flash comes about due to the high current (25-150 kA or higher), it leads to an explosive increase in pressure and temperature. So-called arc flash detection devices (e.g. ARCON®) are protection devices that create a desired mechanical short circuit within a few milliseconds in order to dissipate the energy from the arc flash as quickly as possible via an induced voltage drop. This short circuit is physically close to the main switch and exists until the disconnection of the main switch, typically for a few hundred milliseconds.

Arc faults are understood to describe arcing currents within the nominal or operating current of a system (mostly less than 125 A). These appear mostly in low-voltage installations and can remain undetected for a long time. They can occur, for instance, due to broken, crushed or damaged cables and wires, as well as loose contact points and isolation faults. Arc faults typically occur as serial arcs along a wire or termination clamp. Under certain circumstances, they also occur as parallel arcs between phase and neutral conductors. Arc faults can only be effectively detected and disconnected by AFDDs. Even arc faults of a few amperes can ignite materials surrounding the location of the fault.

Questions about the initial testing of the installation

As an installation specialist, how can I ensure the effectiveness of the protective measures, test the AFDD and document the testing?

Residual current devices have a test button with which the function can be tested regularly and as required. This test function can also be used with the EATON AFDD+ at will.

Arc Fault Detection Device AFDD+

sg06416



Beschreibung

- Brandschutzschalter nach IEC/EN-62606
- Erkennt und löscht Fehlerlichtbögen in Endstromkreisen
- Fertig kombiniert mit Fehlerstrom- und Leitungsschutzschalter
- 2-pole: Beide Schaltstrecken abgesichert
- Variabler Einbau N links oder rechts
- Bemessungsströme 10 bis 40 A
- Kontaktstellungsanzeige rot – grün
- Ausgelöstanzeige: MCB, RCCB oder AFDD
- LED Anzeige für Fehlerlichtbögen
- Permanente Selbstüberwachung
- Überspannungs- und Übertemperaturüberwachung
- Fehlerspeicher für letzten Auslösegrund
- Klemmhilfe - Hintersteckschutz
- Tristabiler Rastschieber - ermöglicht Ausbau aus einem bestehenden Verschienungsverband
- Umfangreiches Zubehörprogramm nachträglich anbaubar
- 10 und 30 mA Bemessungsfehlerströmen
- Auslösecharakteristiken B, C
- Bemessungsschaltvermögen bis 10 kA

sg06416



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
10 kA, 2-pole, kurzzeit verzögert, pulsstromsensitiv, Typ A			
Characteristic B			
10/0,01	AFDD-10/2/B/001-Li/A	187166	1/40
13/0,01	AFDD-13/2/B/001-Li/A	187178	1/40
16/0,01	AFDD-16/2/B/001-Li/A	187202	1/40
10/0,03	AFDD-10/2/B/003-Li/A	187169	1/40
13/0,03	AFDD-13/2/B/003-Li/A	187181	1/40
16/0,03	AFDD-16/2/B/003-Li/A	187205	1/40
20/0,03	AFDD-20/2/B/003-Li/A	187220	1/40
25/0,03	AFDD-25/2/B/003-Li/A	187226	1/40
Characteristic C			
10/0,01	AFDD-10/2/C/001-Li/A	187172	1/40
13/0,01	AFDD-13/2/C/001-Li/A	187184	1/40
16/0,01	AFDD-16/2/C/001-Li/A	187208	1/40
10/0,03	AFDD-10/2/C/003-Li/A	187175	1/40
13/0,03	AFDD-13/2/C/003-Li/A	187187	1/40
16/0,03	AFDD-16/2/C/003-Li/A	187211	1/40
20/0,03	AFDD-20/2/C/003-Li/A	187223	1/40
25/0,03	AFDD-25/2/C/003-Li/A	187229	1/40

sg06416



6 kA, 2-pole, kurzzeit verzögert, pulsstromsensitiv, Typ A			
Characteristic B			
32/0,03	AFDD-32/2/B/003-Li/A	187232	1/40
40/0,03	AFDD-40/2/B/003-Li/A	187238	1/40
Characteristic C			
32/0,03	AFDD-32/2/C/003-Li/A	187235	1/40
40/0,03	AFDD-40/2/C/003-Li/A	187241	1/40

sg06416



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
Type A, 10 kA, 2-pole, short-time delayed, sensitive to residual pulsating DC, type A			
Characteristic B			
0/0,01	AFDD-10/2/B/001-A	187165	1/40
13/0,01	AFDD-13/2/B/001-A	187177	1/40
16/0,01	AFDD-16/2/B/001-A	187201	1/40
10/0,03	AFDD-10/2/B/003-A	187168	1/40
13/0,03	AFDD-13/2/B/003-A	187180	1/40
16/0,03	AFDD-16/2/B/003-A	187204	1/40
20/0,03	AFDD-20/2/B/003-A	187219	1/40
25/0,03	AFDD-25/2/B/003-A	187225	1/40
Characteristic C			
10/0,01	AFDD-10/2/C/001-A	187171	1/40
13/0,01	AFDD-13/2/C/001-A	187183	1/40
16/0,01	AFDD-16/2/C/001-A	187207	1/40
10/0,03	AFDD-10/2/C/003-A	187174	1/40
13/0,03	AFDD-13/2/C/003-A	187186	1/40
16/0,03	AFDD-16/2/C/003-A	187210	1/40
20/0,03	AFDD-20/2/C/003-A	187222	1/40
25/0,03	AFDD-25/2/C/003-A	187228	1/40

sg06416



Type A, 6 kA, 2-pole, short-time delayed, sensitive to residual pulsating DC, type A			
Characteristic B			
32/0,03	AFDD-32/2/B/003-A	187231	1/40
40/0,03	AFDD-40/2/B/003-A	187237	1/40
Characteristic C			
32/0,03	AFDD-32/2/C/003-A	187234	1/40
40/0,03	AFDD-40/2/C/003-A	187240	1/40

sg06416



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
Type AC, 10 kA, 2-pole, non-delayed, alternating-current-sensitive, type AC			
Characteristic B			
10/0,01	AFDD-10/2/B/001	187164	1/40
13/0,01	AFDD-13/2/B/001	187176	1/40
16/0,01	AFDD-16/2/B/001	187200	1/40
10/0,03	AFDD-10/2/B/003	187167	1/40
13/0,03	AFDD-13/2/B/003	187179	1/40
16/0,03	AFDD-16/2/B/003	187203	1/40
20/0,03	AFDD-20/2/B/003	187218	1/40
25/0,03	AFDD-25/2/B/003	187224	1/40
Characteristic C			
10/0,01	AFDD-10/2/C/001	187170	1/40
13/0,01	AFDD-13/2/C/001	187182	1/40
16/0,01	AFDD-16/2/C/001	187206	1/40
10/0,03	AFDD-10/2/C/003	187173	1/40
13/0,03	AFDD-13/2/C/003	187185	1/40
16/0,03	AFDD-16/2/C/003	187209	1/40
20/0,03	AFDD-20/2/C/003	187221	1/40
25/0,03	AFDD-25/2/C/003	187227	1/40

sg06416



Type AC, 6 kA, 2-pole, non-delayed, alternating-current-sensitive, type AC			
Characteristic B			
32/0,03	AFDD-32/2/B/003	187230	1/40
40/0,03	AFDD-40/2/B/003	187236	1/40
Characteristic C			
32/0,03	AFDD-32/2/C/003	187233	1/40
40/0,03	AFDD-40/2/C/003	187239	1/40

Specifications | Arc Fault Detection Device AFDD+, 2-pole

Description

- Electric fire protective device acc. to IEC/EN-62606
- Line-voltage-independent RCBO (combined switch) acc. to IEC/EN 61009
- 2-pole: Both clearances between open contacts are protected
- Variable installation of N either left or right
- Tripped indication: CB, RCD or AFDD
- LED indication for arc faults
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Free terminal space despite installed busbar
- Guide for secure terminal connection
- Switching toggle (MCB component) in colour designating the rated current
- Contact position indicator red - green
- Comprehensive range of accessories can be mounted subsequently
- The test key “T” must be pressed every 6 month. The system operator must be informed of this obligation and his responsibility in a way that can be proven (self-adhesive RCD-label enclosed). The test intervall of 6 month is valid for residential and similar applications. Under all other conditions (e.g. damply or dusty environments), it’s recommended to test in shorter intervalls (e.g. monthly).
- Pressing the test key “T” serves the only purpose of function testing the residual current device (RCD). This test does not make earthing resistance measurement (R_E), or proper checking of the earth conductor condition redundant, which must be performed separately.
- The line length (one-way) from the AFDD+ to the socket outlet should not exceed 70 m. This guarantees that arc faults can be detected reliably.
- **Type -A**: Protects against special forms of residual pulsating DC which have have not been smoothed
- **Type -Li/A**: As Type –A, but in addition it is short-time delayed. Highly reliable against unwanted tripping.

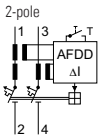
Accessories:

Auxiliary switch for subsequent installation	ZP-IHK	286052
Auxiliary switch	ZP-NHK	248437
	ZP-WHK	286053
Shunt trip release	ZP-ASA/..	248438 248439
Busbars:	EVG-2PHAS/4AFDD, ZV-SS; ZV-L1/N; ZV-L2/L3; ZV-ADP; ZV-AEK	

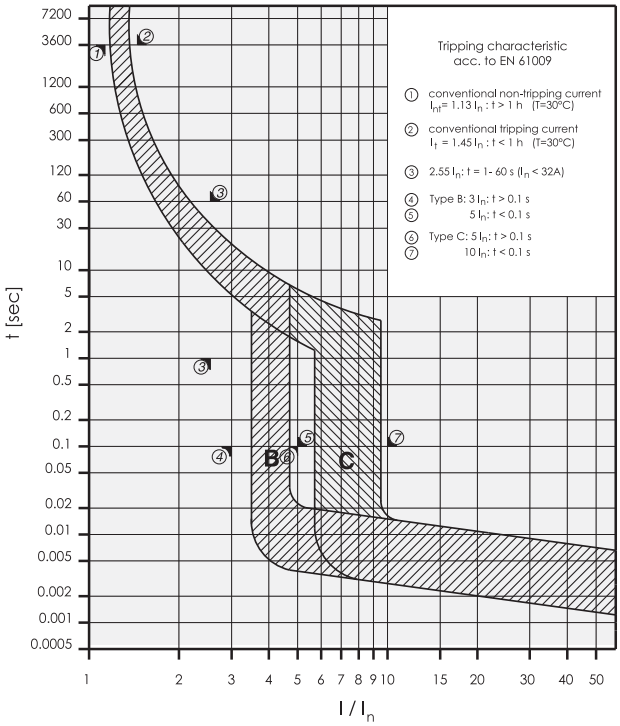
Error memory:

The AFDD+ saves the last reason for tripping at an arc fault. By turning off the device, press and hold the test key “T” and simultaneously turn on the last error can be queried again.

Connection diagram



Tripping Characteristic AFDD+, Characteristics B and C



Technical Data

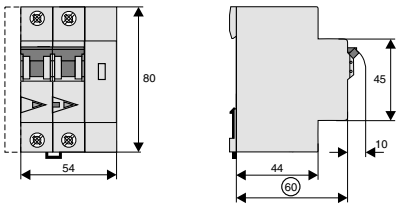
Electrical		
Design according to		IEC/EN 62606, IEC/EN 61009
Current test marks as printed onto the device		
Line voltage-independent tripping		instantaneous 250A (8/20 µs) surge current proof
Rated voltage	U_n	240 V AC; 50 Hz
Operational voltage range		170-264 V
Self-consumption		< 0.8 W
Rated tripping current	$I_{\Delta n}$	10, 30 mA
Rated non-tripping current	$I_{\Delta no}$	0.5 $I_{\Delta n}$
Sensitivity		AC and pulsating DC
Selectivity class		3
Rated breaking capacity		
AFDD 10-25A		10 kA
AFDD 32-40A		6 kA
Rated current		10 - 40 A
Rated insulation voltage	U_i	440 V
Rated impulse withstand voltage	U_{imp}	4 kV (1.2/50 µs)
Rated fault breaking capacity	$I_{\Delta m}$	3kA (EN 61009)
		10A-16A: 3kA (IEC 61009)
		20-40A: 500A (IEC 61009)
Rated impulse withstand voltage	I_{imp}	4 kV (1.2/50µs)

Arc fault tripping times after load current (acc. to IEC/EN62606):

Load current (A)	Tripping time (s)
2,5	<1
5	<0,5
10	<0,25
16	<0,15
32	<0,12
40	<0,12

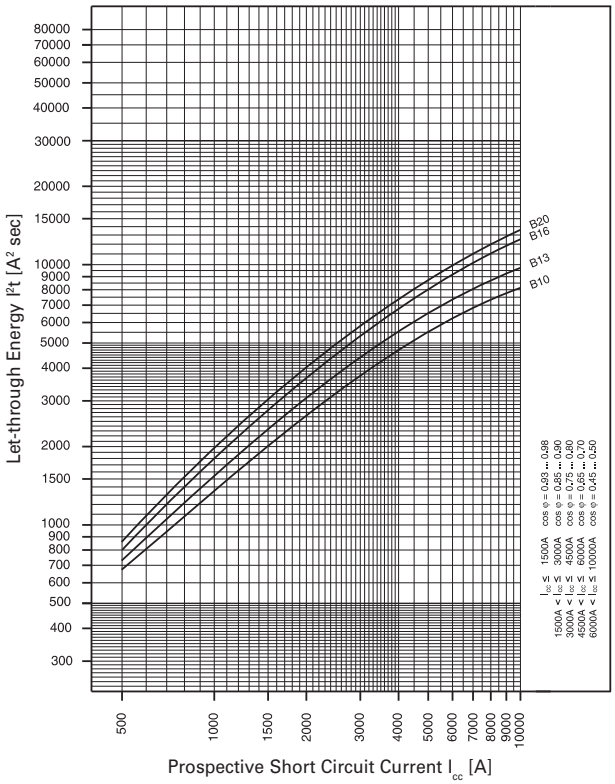
Characteristic	B, C
Maximum back-up fuse (short circuit)	100 A gL (>10 kA)
Endurance	
electrical components	≥ 4.000 Stellungswechsel
mechanical components	≥ 20.000 Stellungswechsel
Mechanical	
Frame size	45 mm
Device height	80 mm
Device height	54 mm (3TE)
Mounting	3-position DIN rail clip, permits removal from existing busbar system
Upper and lower terminals	open mouthed/lift terminals
Terminal protection	fi nger and hand touch safe, DGUV VS3, EN 50274
Terminal capacity	1 - 25 mm²
Busbar thickness	0.8 - 2 mm
Tripping temperature	-25°C to +40°C
Storage- and transport temperature	-35°C to +60°C
Resistance to climatic conditions	according to IEC/EN 61009

Dimensions (mm)

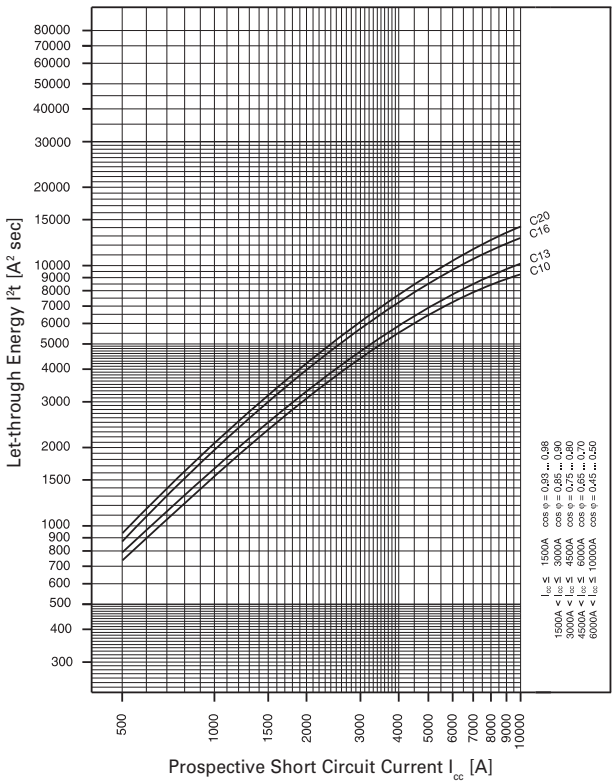


Let-through Energy AFDD+

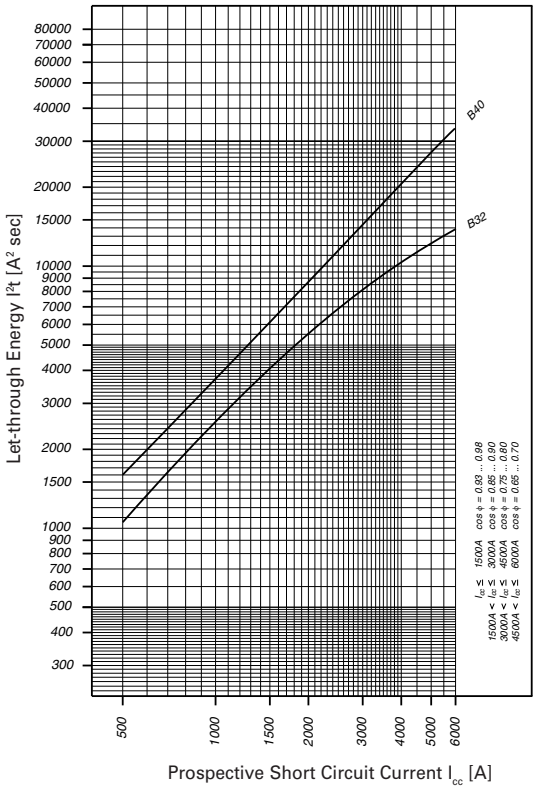
Let-through Energy AFDD+, Characteristic B, 2-pole, 10-20 A



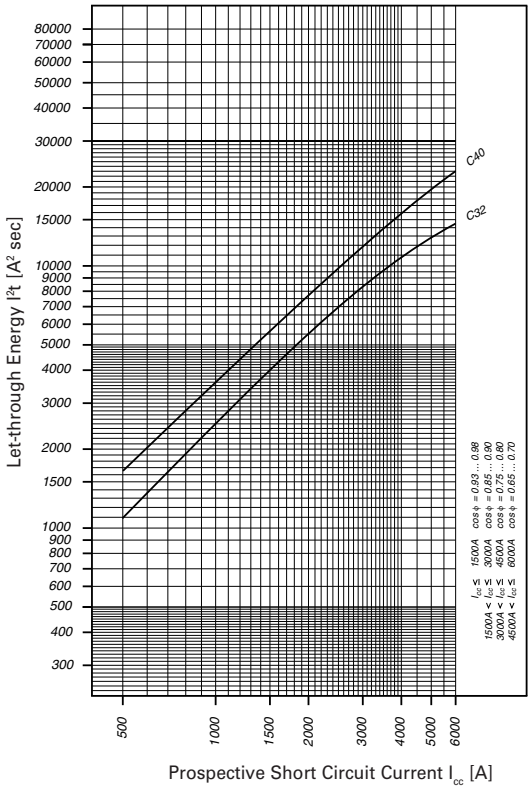
Let-through Energy AFDD+, Characteristic C, 2-pole, 10-20 A



Let-through Energy AFDD+, Characteristic B, 2-pole, 32-40 A



Let-through Energy AFDD+, Characteristic C, 2-pole, 32-40 A



Short Circuit Selectivity AFDD+ 10-20A towards Neozed[1] / Diazed[2] / NH00[3]

Short circuit currents in kA, Rated currents of fuses in A

Short Circuit Selectivity **AFDD+** towards fuse link **Neozed** [1]

AFDD+	Neozed [1]									
	16	**20**	**25**	**32**	**35**	**40**	**50**	**63**	**80**	**100**
B10	<0,5	0,5	0,9	2	2,3	3,7	8	10	10	10
B13	<0,5	0,5	0,8	1,7	1,9	3	6	10	10	10
B16		0,5	0,7	1,5	1,7	2,4	4,4	6,8	10	10
B20			0,7	1,4	1,5	2,2	3,9	6	9,2	10
C10	<0,5	0,5	0,8	1,7	1,9	3	6,1	10	10	10
C13	<0,5	0,5	0,7	1,6	1,8	2,8	5,5	9,5	10	10
C16		<0,5	0,7	1,3	1,5	2,2	4	6,2	10	10
C20			0,6	1,3	1,4	2,1	3,7	5,6	8,5	10

Short Circuit Selectivity **AFDD+** towards fuse link **Diazed** [2]

AFDD+	Diazed [2]								
	16	**20**	**25**	**32**	**35**	**50**	**63**	**80**	**100**
B10	<0,5	0,5	0,9	1,8	2,9	5,6	10	10	10
B13	<0,5	0,5	0,8	1,5	2,4	4,5	10	10	10
B16		0,5	0,8	1,3	2	3,4	8	10	10
B20			0,7	1,3	1,9	3,1	7,1	10	10
C10	<0,5	0,5	0,8	1,5	2,4	4,4	10	10	10
C13	<0,5	0,5	0,8	1,4	2,3	4,2	10	10	10
C16		<0,5	0,7	1,2	1,9	3,2	7,6	10	10
C20			0,7	1,2	1,8	2,9	6,5	9,7	10

Short Circuit Selectivity **AFDD+** towards fuse link **NH00** [3]

AFDD+	NH00 [3]											
	16	**20**	**25**	**32**	**35**	**40**	**50**	**63**	**80**	**100**	**125**	**160**
B10	<0,5	<0,5	0,8	1,5	2,3	3,2	5,7	9,1	10	10	10	10
B13	<0,5	<0,5	0,8	1,3	1,9	2,7	4,4	6,5	10	10	10	10
B16		<0,5	0,7	1,1	1,6	2,2	3,4	4,8	8	10	10	10
B20			0,6	1	1,4	2	3,1	4,3	7	10	10	10
C10	<0,5	<0,5	0,7	1,3	1,9	2,7	4,5	6,9	10	10	10	10
C13	<0,5	<0,5	0,7	1,2	1,8	2,5	4,1	6,1	10	10	10	10
C16		<0,5	0,6	1	1,5	2	3,1	4,4	7,5	10	10	10
C20			0,6	0,9	1,4	1,9	2,9	4,1	6,5	10	10	10

no selectivity

[1] SIEMENS Type 5SE2; Size: D01, D02, D03; Operating class gG; Rated voltage: AC 400 V/DC 250 V

[2] SIEMENS Type 5SB2, 5SB4, 5SC2; Size: DII, DIII, DIV; Operating class gG; Rated voltage: AC 500 V/DC 500 V

[3] SIEMENS Type 3NA3 8, 3NA6 8, 3NA7 8; Size: 000, 00; Operating class gG; Rated voltage: AC 500 V/DC 250 V

Short Circuit Selectivity AFDD+ 25-40A towards Neozed[1] / Diazed[2] / NH00[3]

Short circuit currents in kA, Rated currents of fuses in A

Short Circuit Selectivity **AFDD+** towards fuse link **Neozed** [1]

AFDD+	Neozed [1]									
	16	**20**	**25**	**32**	**35**	**40**	**50**	**63**	**80**	**100**
B25				1,2	1,3	1,8	3,1	4,7	6	6
B32					1,2	1,7	2,7	3,8	5,5	6
B40						1,3	1,7	2,2	2,7	4,2
C25				1,1	1,3	1,8	2,8	3,9	5,6	6
C32					1,2	1,7	2,6	3,6	5,1	6
C40						1,3	1,9	3,3	3,2	5,8

Short Circuit Selectivity **AFDD+** towards fuse link **Diazed** [1]

AFDD+	Diazed [2]								
	16	**20**	**25**	**32**	**35**	**50**	**63**	**80**	**100**
B25				1,1	1,5	2,4	5,5	6	6
B32					1,4	2,1	4,3	6	6
B40						1,4	2,4	2,9	5,1
C25				1,1	1,5	2,3	4,4	6	6
C32					1,4	2,2	4,1	5,6	6
C40						1,6	2,8	3,6	6

Short Circuit Selectivity **AFDD+** towards fuse link **NH00** [3]

AFDD+	NH00 [3]											
	16	**20**	**25**	**32**	**35**	**40**	**50**	**63**	**80**	**100**	**125**	**160**
B25				0,9	1,2	1,6	2,4	3,4	5,5	6	6	6
B32					1,1	1,4	2,1	2,9	4,3	6	6	6
B40							1,4	1,9	2,8	4,1	6	6
C25				0,9	1,2	1,6	2,3	3	4,6	6	6	6
C32					1,1	1,5	2,1	2,8	4,3	6	6	6
C40							1,5	2,1	3,1	5,4	6	6

no selectivity

[1] SIEMENS Type 5SE2; Size: D01, D02, D03; Operating class gG; Rated voltage: AC 400 V/DC 250 V

[2] SIEMENS Type 5SB2, 5SB4, 5SC2; Size: DII, DIII, DIV; Operating class gG; Rated voltage: AC 500 V/DC 500 V

[3] SIEMENS Type 3NA3 8, 3NA6 8, 3NA7 8; Size: 000, 00; Operating class gG; Rated voltage: AC 500 V/DC 250 V

Busbar Systems

AFDD Busbar EVG-2PHAS/4AFDD

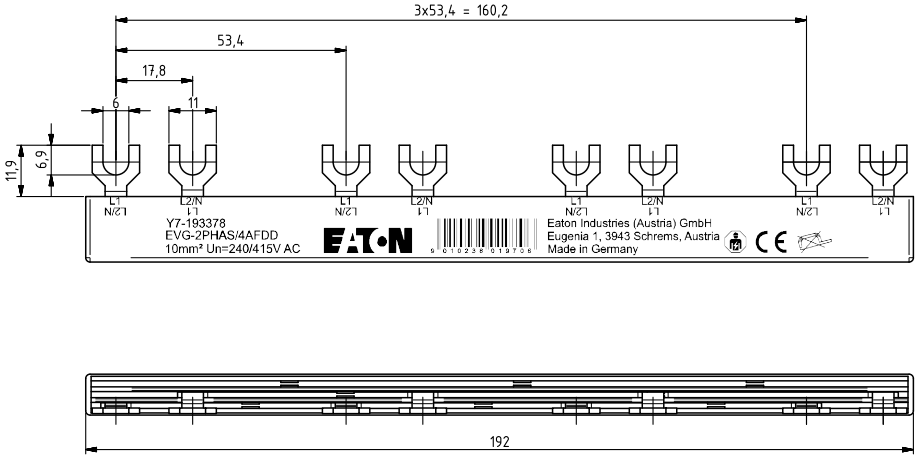
	Phases	Cu-factor	Type Designation	Article No.	Units per package
	**10 mm²**				
	2-phase	0.114	EVG-2PHAS/4AFDD	193378	10

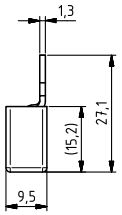
Technical Data

Products are EU comform and correspond to the RoHS of the EU

		EVG-2PHAS/4AFDD
General		
Busbar		Copper
Surface busbar		plain
Insulation		PC/ABS
Surface insulation		grey
Standards		EN 60947-1:2007 / IEC 60947-1:2007
Heat defl ection temperature		90 °C – UL94 V0
Glow Wire Flammability Index		960 °C / 1 mm
Insulation coordination		Overvoltage category III / Pollution degree 2
Electrical		
Max. operating voltage		690 V AC/DC
Protection class		IP20
Rated impulse withstand voltage	U_{imp}	≥4.5 kV
Max. operating voltage		
1-, 3-phase		690 V IEC
		480Y/277V & 240 V AC
Load Capacity at 35°C ambient temperature depending of feeding point		
Max. busbar current feeding at beginning / ending	I_s/Phase	50 A
Busbar cross section		10 mm²
Connection cross section		10 mm²

Dimensions (mm)





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Publication No. BR003010EN
Printed in Austria
February 2017
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Powering Business Worldwide

Air circuit breakers with Power Xpert Releases PXR...

The new series IZMX16 / IZMX40



... are ready to interact with operators via USB port.

Powering Business Worldwide

Performance list.

Circuit breakers IZMX offer a wite range of technical performance, accessories and settings to optimize the breaker for the individual application.

Breaker specifications

IEC/EN 60947		**IZMX16**			**IZMX40**		
Rated Current (I_n)		630 A, 800 A, 1000 A, 1250 A, 1600 A			800 A, 1000 A, 1250 A, 1600 A, 2000 A, 2500 A, 3200 A, 4000 A		
Type of circuit breaker		B	N	H	B	N	H
Rated impulse withstand voltage (U_{imp}, VAC)		12000	12000	12000	12000	12000	12000
Rated insulation voltage (U_i, VAC)		1000	1000	1000	1000	1000	1000
Rated operational voltage (U_e, VAC)		690	690	690	690	690	690
Ultimate breaking capacity (I_{cu}, kA)	240V 50/60Hz	42	85	85	66	85	105
	440V 50/60Hz	42	50	66	66	85	105
	690V 50/60Hz	42	42	42	66	75	75
Rated service breaking capacity (I_{cs}, kA)	240V 50/60Hz	42	50	66	66	85	105
	440V 50/60Hz	42	50	50	66	85	105
	690V 50/60Hz	42	42	42	66	75	75
Rated short-time withstand current (I_{cw}, kA)	1s/3s	42/-	42/-	42/-	66/50	85/66	85/66
Rated short-circuit making capacity (I_{cm}, kA)	440V 50/60Hz	88	105	145	145	187	231
	690V 50/60Hz	88	88	88	145	166	166
Lifespan		**630A-1600A**			**800A-1600A**	**2000A**	**2500A-4000A**
	Mechanical, w/o maintenance	10000			10000	10000	10000
	Mechanical, w maintenance	20000			20000	20000	20000
	Electrical, 440V, w/o maintenance	10000			10000	8000	6000
Dimensions (H × W × D, mm)	Fixed 3P	338×210×184			398×376×298		
	Fixed 4P	338×279×184			398×492×298		
	Withdrawable 3P	360×254×289			456×426×393		
	Withdrawable 4P	360×324×289			456×541×393		
Weight (kg)	Fixed 3P/4P	15/20			45/56		
	Withdrawable 3P/4P	39/47			98/121		

Trip unit specifications

	PXRV (Current) IZMX16/40...V...	**PXRP** (Power) IZMX16/40...P...
Protection functions	LI, LSI, (G)	LI, LSI, (G)
Overload protection (L)		
Overload trip (I_r), × I_n	0.4 ... 1.0	0.4 ... 1.0
Long delay time t_r (6 × I_r)	0.5 ... 24 s	0.5 ... 24 s
Short-time delayed short-circuit protection (S)		
Short delayed pickup (I_{sd}), × I_r	1.5 ... 10	1.5 ... 10
Short delay time, flat characteristic curve (t_{sd})	0.0 ... 0.5 s	0.0 ... 0.5 s
Short delay time at 8 × I_r, I^2t curve (t_{sd})	0.1 ... 0.5 s	0.1 ... 0.5 s
Non-delayed short-circuit protection (I)		
Non-delayed pickup (I_i), × I_n	OFF, 2 ... 15	OFF, 2 ... 15
Optional ground fault protection (G)		
Ground/Earth fault alarm (A), × I_n	0.2 ... 1.0	0.2 ... 1.0
Ground/Earth pickup (I_g), × I_n	OFF, 0.2 ... 1.0	OFF, 0.2 ... 1.0
Short delay time, flat characteristic curve (t_g)	0.1 ... 0.5 s	0.1 ... 0.5 s
Short delay time at 0.625 x I_n, I^2t curve (t_g)	0.1 ... 0.5 s	0.1 ... 0.5 s
Standard functions	Current measurement, status/Overload LED, caue of trip LEDs, over-temperature trip, thermal memory, zone selectivity ZSI, closing releases MCR, LCD display	
		as PXRV and additionally: voltage/power/energy measurement, waveform capture, communication (Modbus), trip log
Optional functions	Communication, Arcflash Reduction Maintenance System™ ARMS	Additional communication module, Arcflash Reduction Maintenance System™ ARMS

Eaton air circuit breakers - for cost-effective, optimized solutions.



The **IZMX16** is the smallest air circuit-breaker in his class worldwide:
With a volume of only 24 dm^3 and a front surface of only 0.092 m^2 it is just slightly bigger than the size of a DIN A4 sheet of paper! And all this without any loss in terms of performance.

Because of its compact size it allows the user to create innovative concepts, like to install **two circuit** breakers side by side in withdrawable design, **in a 600 mm wide section**. This fact provides for a more cost-effective setup of the section and, in addition, it helps to save operating space. And where remote switching is required, this volume can even accommodate a motor for pre-tightening the stored-energy spring mechanism and some magnetic coils for the on/off command.

More performance in less space is simply impossible.





The **IZMX40** is a circuit breaker for up to 4000 A in a volume of a 3200 A circuit breaker, without the need to install any additional "busbar extensions" in the connection area.

Tests to integrate it into Eaton switchgear systems, such as Modan, xEnergy, PowerXpert, Capitol 20 and Capitol 40 confirm its outstanding technical performance and optimal compatibility thanks to the flexible connection system.

The modular structure, integrated detail solutions as well as a complete range of accessories and additional functions make it easy to adapt the circuit breaker to any of the required applications. Optionally it can be adapted right at the factory – without any extra cost or additional installation work at the circuit breaker.

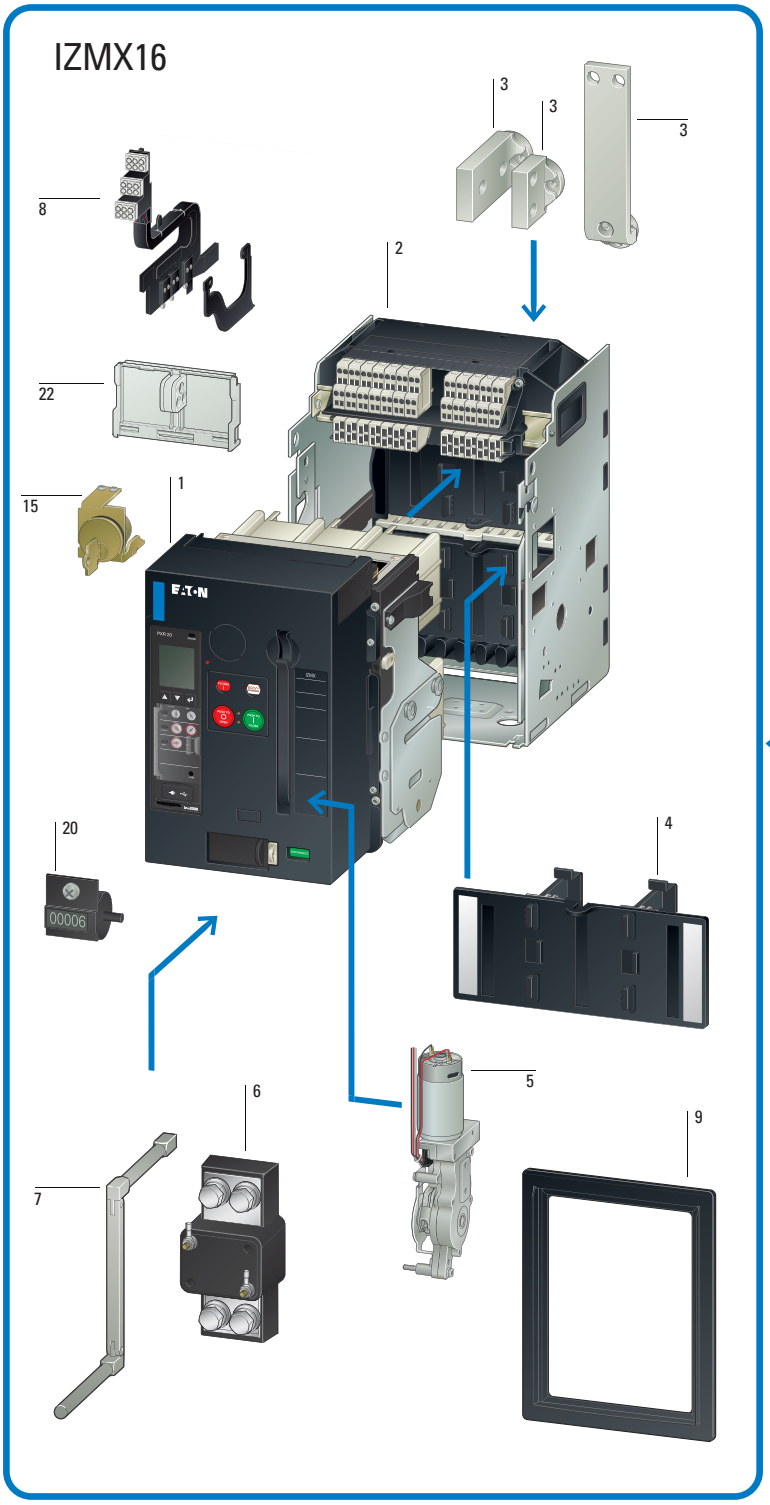


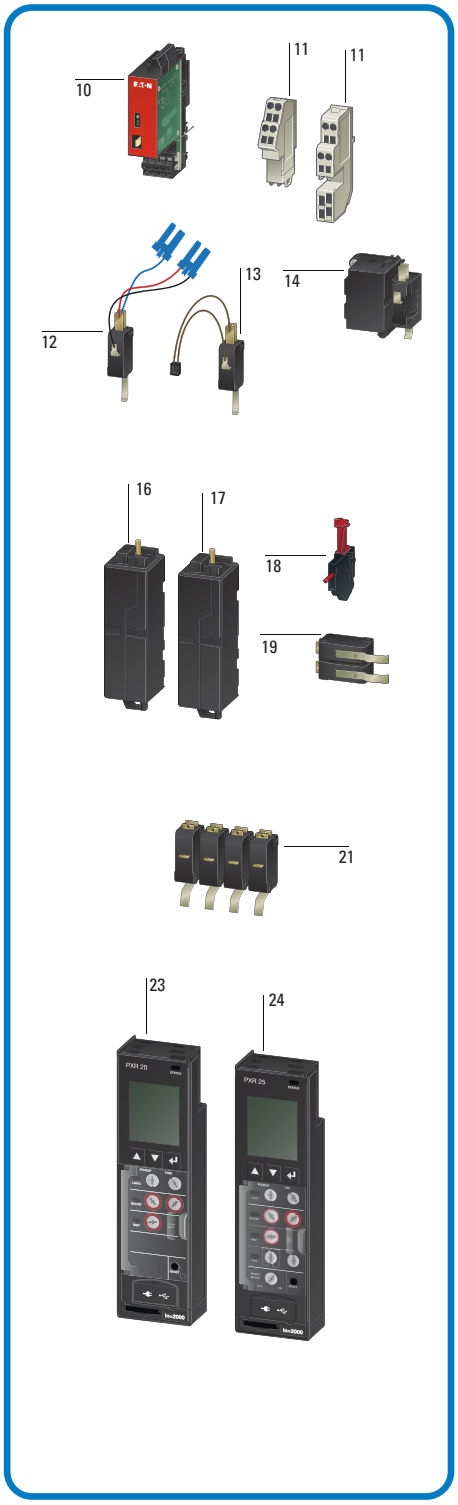
Horizontal Terminal



Vertical Terminal

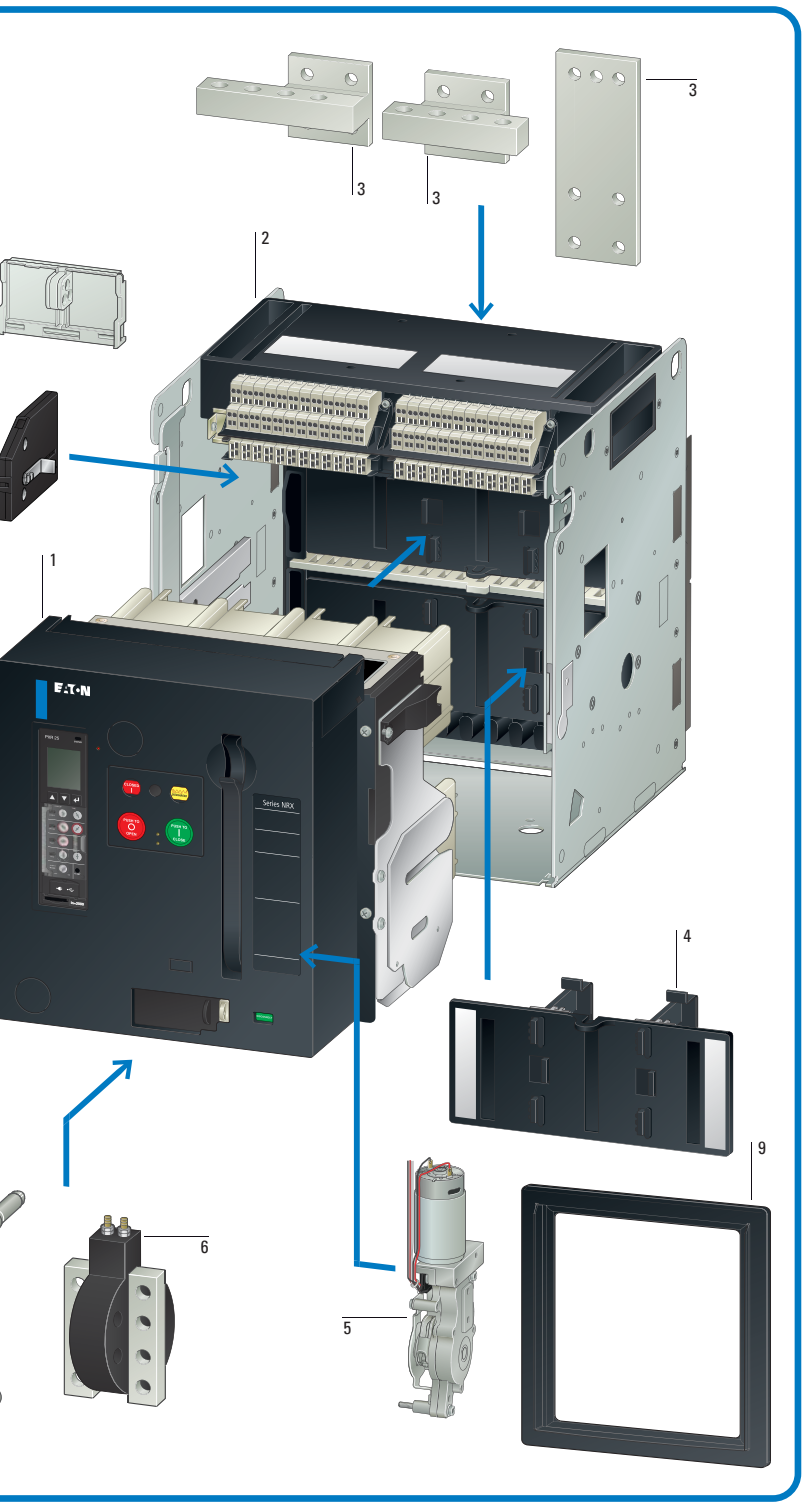
IZMX System Overview.







IZMX16, INX16, IZMX40, INX40



1 **IZMX Circuit-breaker**
IZMX16: 630 - 1600 A
IZMX40: 800 - 4000 A

2 **Cassette for withdrawable units**
Shutters 3- and 4-pole
With and without control circuit terminals

3 **Main terminal kits**
Universal terminals, 3- and 4-pole
horizontal/vertical/front

4 **Shutter**
Shutter for 3- and 4-pole

5 **Motor operator**
Automatic charging of the spring force storage for remote or local operations

6 **Current sensor for neutral conductor**
Current sensor for sensing the neutral-conductor-current.

7 **Levering tool**
Convenient collapsible lev-in tool for lev-in and out operation of the Breaker in and out of the Cassette. The lev-in tool is stored inside the breaker.

8 **Position cell switches**
Cell switch signals the position of the breaker inside of the cassette. Connect, Test and Disconnect Position.

9 **Door escutcheon**
Closes the gap between Breaker and Switchgear-door. IP31.
An IP55 protective cover is available as well

10 **Communication modules**
Profibus DP, Modbus, Ethernet and Modbus onboard

11 **Control circuit terminal units**
Either 2 or 12 units

12 **Latch check switch**
For external application usage.

13 **Latch check switch**
For use with closing release.

14 **Closing releases**
Closes the breaker by an electrical signal.

15 **Key locking**
Locking of the breaker by a keylock.

16 **Shunt releases**
Opens the breaker by an electrical signal.

17 **Undervoltage releases**
Opens the breaker by a voltage-drop in the control-circuit.

18 **Red-pop trip indicator**
Red-pop trip indicator signals a trip by the trip unit.

19 **Trip indicator switches**
Overcurrent trip switch (OTS) signals a trip by the trip unit for remove signalisation.

20 **Switching operations counters**
Counts the number of operations.

21 **Auxiliary contacts**
Signalling switch ON-OFF

22 **Locking facilities**
Plastic or metal

23 **Trip unit - V**
PXR20 LI, LSI, (G)
+ options

24 **Trip unit - P**
PXR25 LI, LSI, (G)
Modbus onboard + options

The next generation trip unit platform: Power Xpert Release (PXR)

The higher resolution dot matrix display has been enhanced to be always active, constantly displaying the status of zone selectivity (ZSI), battery condition and rated current In. All data can be transferred via Modbus, Profibus or Ethernet communication function and for security, a password can be added to avoid unauthorised changes. In addition, a QR code has been added for easier identification and to access additional information.

Power Xpert Release (PXR) with multiple new features



- Modbus on board for PXR25 (optional for PXR20)
- Large LCD combined with cursor operation for more function and information
- Battery status, ZSI und In visible anytime
- ZSI – the better selective protection is always on board
- Password protection
- Rating plug programmable
- LSI protection can be changed to LI (without time selectivity T_{sd} = 0) or LS (without Instantaneous I_i = 0 ≙100% selective)
- 3 free alarm contacts available
- USB port for testing and additional function setup via PC and software PXPM

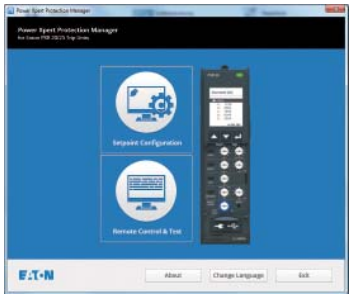


- QR code for easier identification and further information



- Improved Diagnostics with breaker health (graph), events and run time

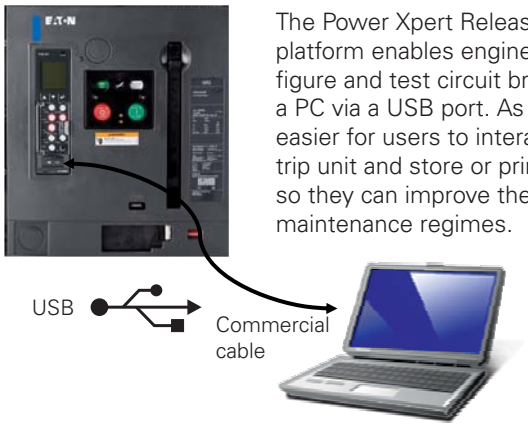
„Free download" Software Power Xpert Protection Manager (PXPM) for interaction with PXR



- Dis-/enable functions
- Reading/Changing settings (not basic protection settings)
- Waveform capture
- Multiple test procedures with final test protocol print including date/time stamp
- Print settings and curves

Using the software is easy and self explaining. The cursor above a select able function opens a window with its explanation. Depending on the selection next logical selection opens.

Testers no longer require specialized test tools thanks to the much better software solution in combination with the integrated secondary injection test hardware. An this free of charge.



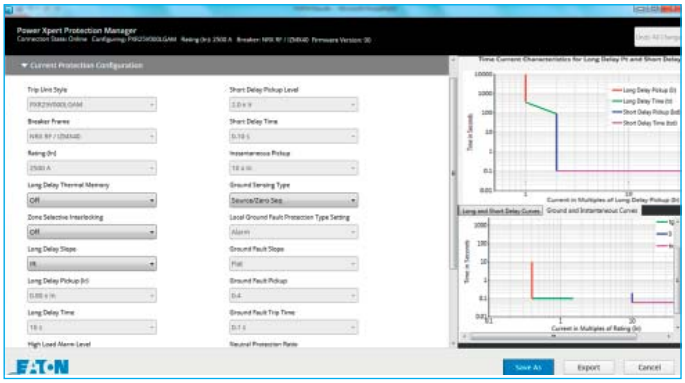
The Power Xpert Release trip unit platform enables engineers to configure and test circuit breakers from a PC via a USB port. As a result, it is easier for users to interact with the trip unit and store or print test data so they can improve their control and maintenance regimes.

Load your settings and record them.

If any values are changed a "final setting adjustments" screen shows the original and revised settings, highlighting any that were modified. The sheet can be saved or printed.

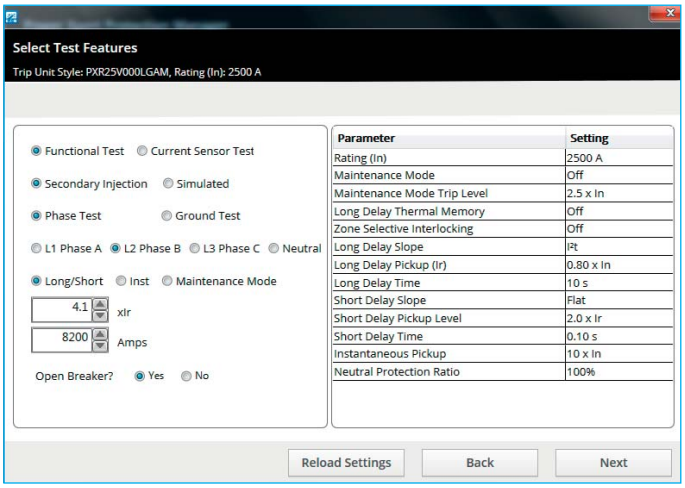


High current circuit breakers, for example those used in high power distribution systems in industry, are configured and periodically tested by end users to ensure they continue to work reliably in case of over-currents, and therefore prevent expensive downtime. This new unit allows technicians to simulate or inject overloads, short circuits, ground faults , do internal current transformer test including its wiring, test with or without tripping and much more using the Software Power Xpert Protection Manager (PXPM).



Dis-/Enable or change settings, enlarge tripping curves and print curves for documentation.

Utilizing the easy-to-use dashboard, Control Mode can be selected allowing diagnostic and meter data to be reset. In Test Mode individual phases can be tested against values entered as current value or as a multiplier of individual settings.

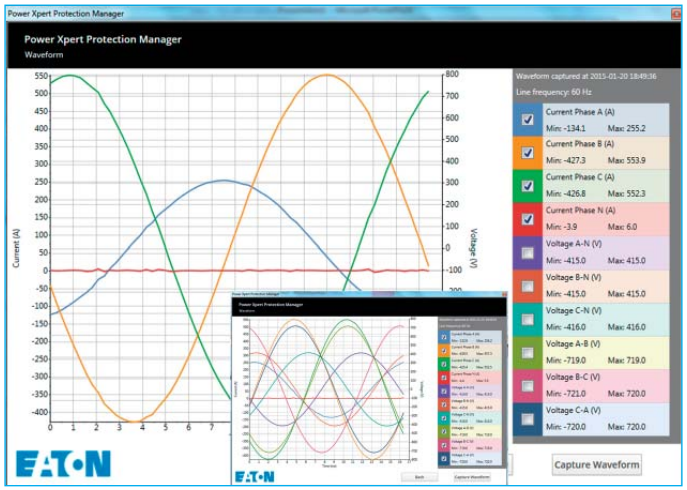


Select the function you want to test and choose the test current as value or multiplier of setting.

The unit has been developed in response to user demand for an easy-to-use system. Previously test data had to be written down, but with the upgraded software a three page professional test report with date/time stamp, customized information, individual settings/ tripping curves and secondary injection test result, can be generated and stored electronically in a pdf format. This enables technicians to significantly reduce the time it takes for testing, makes it much easier for them to carry out their maintenance, and receive a test report for documentation.

Prior to printing the test report, the customer name, location, environment and equipment condition can be entered.

Report professional all your test results within one document after installation in your system or report your yearly inspection that might be requested in your company.



Get additional information by capturing the waveform and select which curves shall be visible or be printed.

New features include the ability to capture current and optional voltage waveforms along with minimum and maximum values for the phase and neutral conductors. In addition, the waveform can give an indication of the overall quality caused by harmonics, and metering accuracy is now one per cent “of reading”.

Safety - individual solutions combined with IZMX.

Adding individual solutions to IZMX circuit breakers provides both more protection for systems and more safety for personnel in case there is a failure. And it also reduces the risk of unintended interruptions of operation.

These solutions include:
- ARMS™
- ARCON®
- Zone selectivity
- Remote switching
- Testing and documenting with PXPM



ARMS™
(Arcflash Reduction Maintanance System)

Eaton's patented Arcflash Reduction Maintenance System AMRS technology provides maintenance staff improved safety of downstream maintenance locations using a simple and reliable method to reduce fault clearing times and energy in an arc flash event (radiation, sound, pressure, temperature).

Arcflash Reduction Maintenance System uses a separate analog trip circuit providing faster signal processing and interruption times than the standard (digital) "instantaneous" protection.

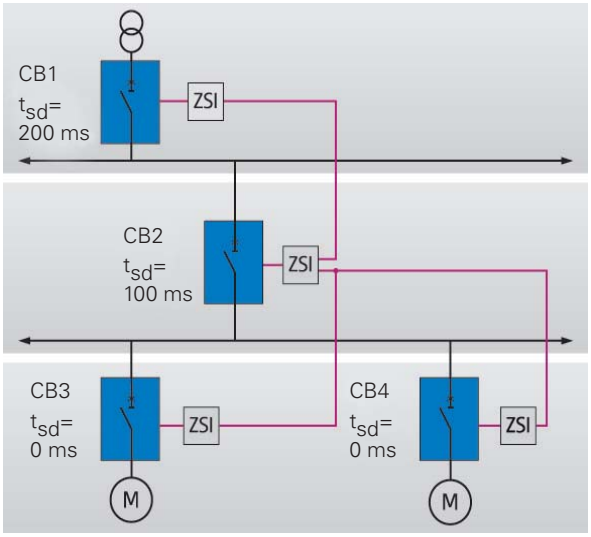
The Arcflash Reduction Maintenance System function is activated either directly on the circuit breaker through a local switch or remotely through communications or a contact input.

Arcflash Reduction Maintenance System is optional on both PXR20 and PXR25 trip units.



ARCON®

IZMX breakers, combined with ARCON®, help users to avoid damage and to protect people against arc faults as they can effectively be brought under control within 2 ms.
They also protect against arc flashes that – due to their impedance - would not even cause a protective device to react.



Zone selectivity ZSI

Now always on board an can be enabled.

Circuit breakers are directly connected to a signal line, without any additional modules. So, in case of short circuits, they ensure that only the circuit breaker immediately upstream the point of failure will break a short-circuit without delay.

The advantage of the zone selectivity feature – compared to ordinary time selectivity - is the significantly reduced delay time until tripping.

This reduces the thermal and dynamical load that protect the system in addition. In cases of a signal wire damage the back-up time selectivity ensures the selectivity of the system.

For additional safety of maintenance staff we recommend a combination with ARMS® to reduce the released amount of energy even further.



Remote switching

Remote switching requires two magnetic coils (shunt trip and closing release).
These coils will activate the mechanism of the ON and OFF buttons. After two switching actions have been carried out, a stored-energy spring mechanism needs to be retightened manually. With an additional motor drive, the retightening action can be automated.

Safety: If the second switching action was an ON action, a third action for switch-off or tripping through the energy of the spring will be ensured.

Safety: OFF commands will always be given priority. A permanent command for the operating-current trip enables the user to lock the circuit breaker in the OFF position.

Thanks to the powerful stored-energy spring, the circuit breaker will carry out the switch command sent to the magnetic coil in less than 35 ms. So the IZMX series circuit breakers are suitable for synchronisation tasks.



Breaker rear side (Drawout breaker)

Easy inspection and maintenance

Inspection and maintenance can be conveniently performed on the draw-out breaker as the primary finger clusters (blue) and levering mechanism are part of the breaker instead of the cassette.

Eaton also offers many field installable accessories and parts, extending the life of the breaker.

Increased operating safety and flexibility based on communication.



Thanks to its ability to communicate, the IZMX circuit breaker series taps new opportunities for power distribution.
It provides all the information that is relevant for operation and forwards it.

This way the transparency of the system can be increased and response times to statuses such as overcurrent, phase imbalance and overvoltage can be reduced. By quickly intervening in a process, system standstills can be prevented or preventive maintenance actions can be planned.

Consequently, the availability of the system can be increased as well.

With the respective communication module – PCAM, MCAM or ECAM (Profibus-DP / Modbus / Ethernet Communications Adapter Module) – every circuit breaker of the IZMX series is equipped for modern communication and is fit for the future. The databus not only allows to transmit information, but also to receive commands/settings.

Onboard Modbus communication is standard on the PXR25 (P type) trip unit and optional on the PXR20 (V type) trip unit upon order. Additional PCAM, MCAM or ECAM module can be installed externally for PXR25 to expand the communication capability.

Convenience for planning, selection and documentation

Eaton xEnergy Configurator for Circuit Breakers

The intuition-based software tool makes it easy to select and configure circuit breakers and load disconnectors with their respective accessories from a database of several thousand articles.

It does not require any special knowledge of the system. With just a few clicks you can select any switchgear configuration and transfer it to the parts or ordering list. All combination possibilities are saved in the software logic, which ensures correct ordering. In a logical step-by-step order, the software will guide you through the switchgear offer and the suitable accessories. The selection process starts with choosing the appropriate standard, i.e. IEC or UL/CSA, the rated operating voltage and the rated frequency.

In the following steps you will need to:

- Determine the number of poles
- Choose a circuit breaker or load disconnector
- Choose the protection task (e.g. motor protection, cable/line protection)
- Decide on either fixed or withdrawable design

Download from: www.eaton.eu/configurator



CurveSelect

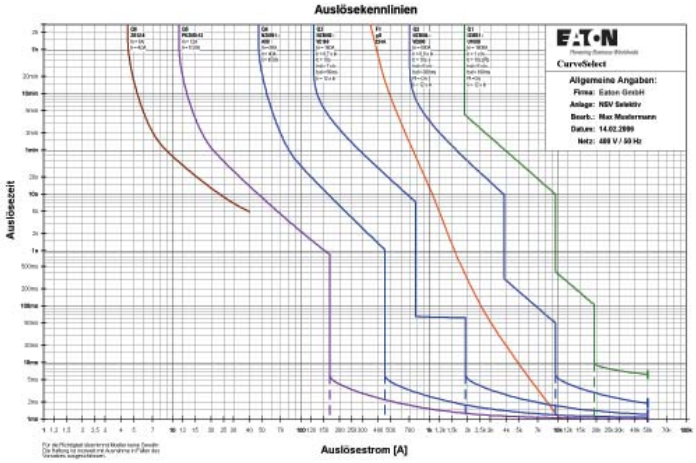
CurveSelect allows the user to simultaneously display setup-specific tripping curves of several protective devices – both in terms of time and electric current values.

This tool makes it easy for the user to analyze the interaction of NZM and IZM circuit breakers, PKZ motor-protectors, motor-protective relays, MCBs and h.b.c. fuses.

Freely defined curves (FreeStyleCurves = FSC) enable the user to directly compare the

- selected motor protector and motor starter characteristics,
- incoming supply switches and up-stream medium-voltage protection
- intended expansions and existing protective equipment

Download from: www.eaton.eu/curve



BreakerVisu

BreakerVisu allows the user to monitor several ACBs and MCCBs and helps him to quickly detect and clearly visualize the status of circuit breakers, such as currents, switching statuses or load warnings, and to dynamically visualize them on an http page.

In addition, all events will automatically be recorded in a log file.

This information is necessary to correctly evaluate warnings and malfunctions and to take the appropriate steps.
Keeping a log file will also enable you to carry out an additional error analysis.
BreakerVisu is composed of ready-made hard and software components. So no special software needs to be installed on the PC. All you need is an Internet browser and Microsoft Excel!

Download from: www.eaton.eu/breakervisu



Eaton is a power management company with 2015 sales of $20.9 billion. Eaton provides energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably.

Eaton has approximately 97,000 employees and sells products to customers in more than 175 countries.

For more information, visit **www.eaton.eu.**

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To contact an Eaton salesperson or local distributor/agent, please visit **www.eaton.eu/electrical/customersupport**

Powering Business Worldwide

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Austria

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Printed in Austria (11/16)
Publication number BR01305001Z-EN

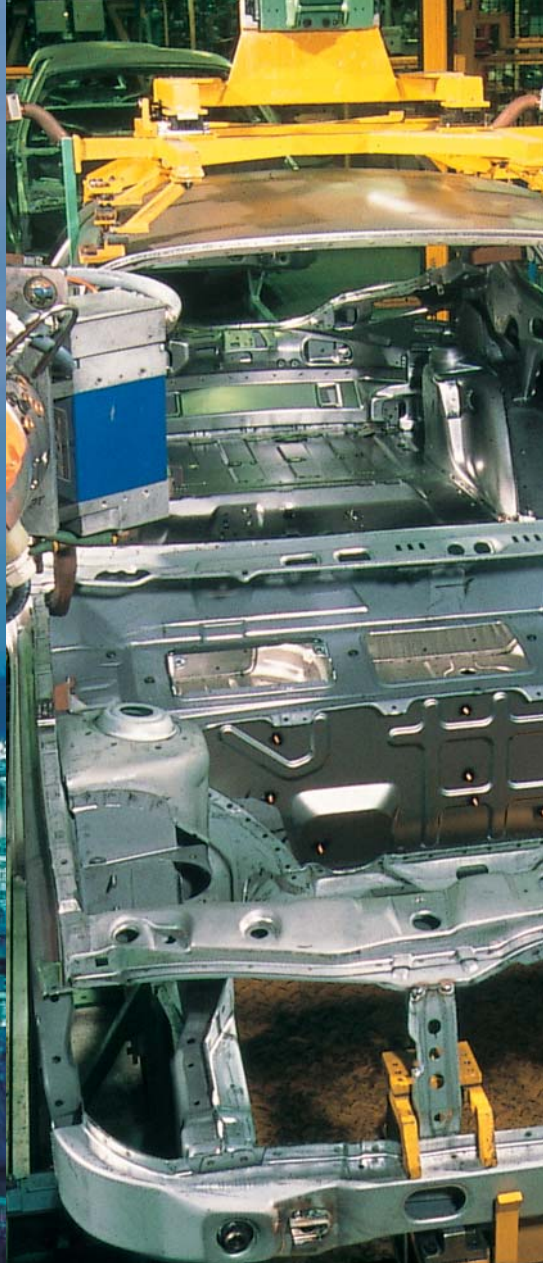
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ARCON® –
The Lightning Fast Airbag for Your Switchboard.



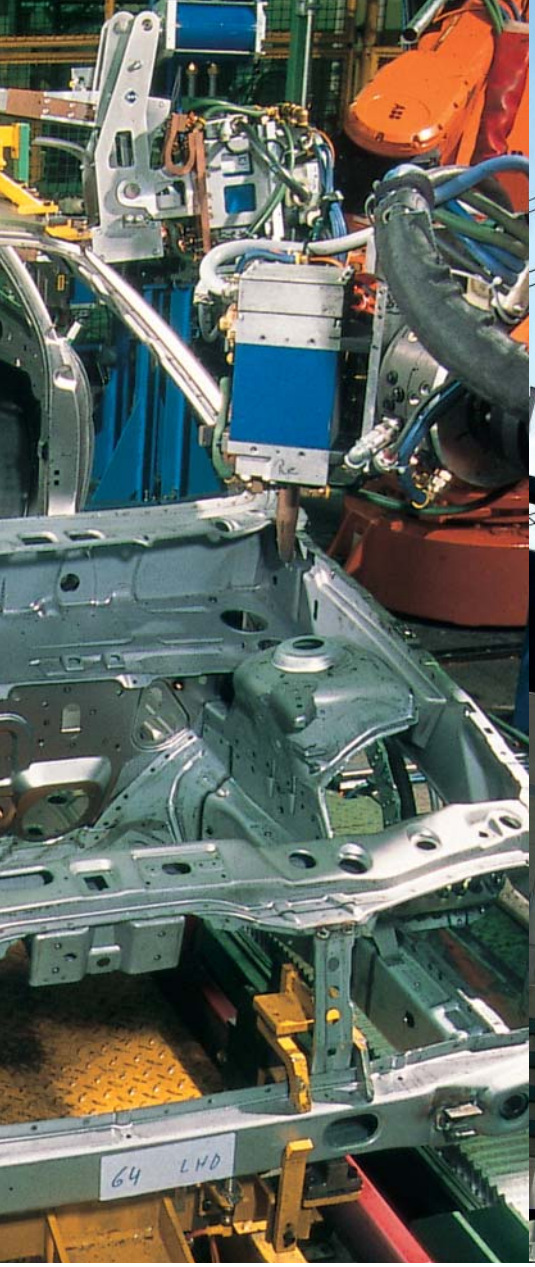
Powering Business Worldwide





The continuous supply of electrical energy is an inherent requirement of today's society. The power outages in North America and Europe have shown how dependent we are on this. Everything came to a standstill.

Arc faults represent some of the risks to a reliable supply of electrical energy. Even today, they still occur in electrical power distribution systems, despite all the precautionary measures that are given due consideration and implemented in advance. They are caused by human error when work is carried out on the switchboard, as well as by contamination or condensation, overvoltages or similar occurrences. This type of event occurs more often than you would expect, and any damage caused has serious consequences.







Herbert Schmolke, VdS Loss Prevention, Cologne

The arc fault protection system offered by Eaton is based on the principle of "prevention instead of limitation". Due to the proven effectiveness of ARCON, the GDV Gesamtverband der Deutschen Versicherungswirtschaft (German Insurance Association) and the VdS Schadenverhütung (VdS Loss Prevention), in their guidelines for fire insurances – known as VdS 2344:2012-07 "Procedures for testing, approving and certifying products and systems for fire prevention and safety technology" - have defined an effectively functioning arc fault protection system as one in which "no destructive energy can occur in the event of an arc." Eaton's arc fault protection system passed all the relevant tests with flying colours. The certificate was extended in 2014.


Zertifikat Certificate

Anerkennung
von Bauteilen und Systemen
Approval
of Components and Systems

VdS

Eaton Industries GmbH
Hein-Moeller-Straße 7 - 11
53115 Bonn

G 604001
4
18.06.2014
17.06.2018

Störlichtbogenschutzsystem/ Arc Fault Protection System
ARCON

in Niederspannungsschaltanlagen der Elektrischen Energieverteilung (TSK/ PTSK)

VdS 2344:2012-07
Prüfvereinbarung EFL-P-04-001 (12.04.2004)

Köln, den 18.06.2014

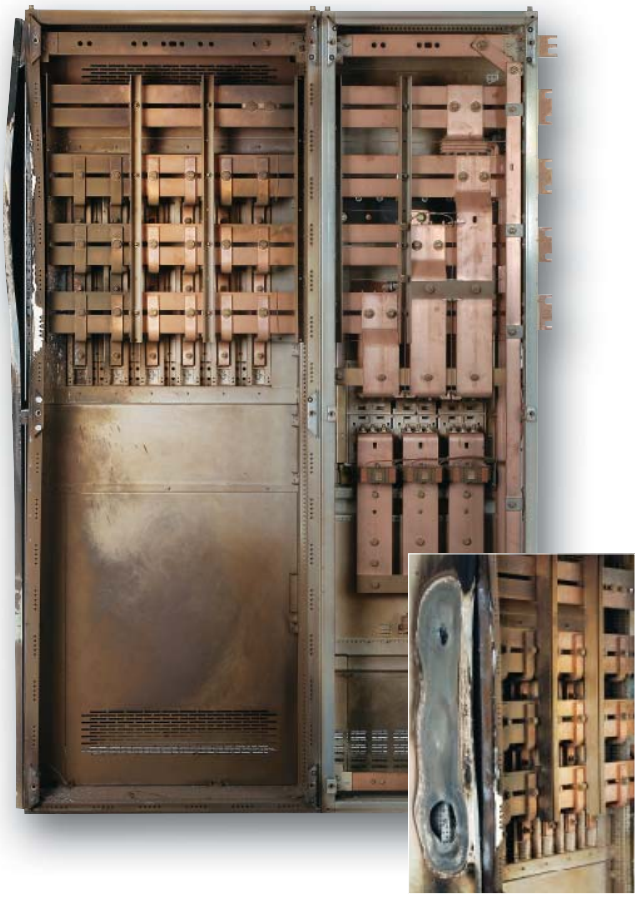
DAkkS

Reinermann

i.V. Grundmann

Preventing Damage, Ensuring Service Continuity.





- Arc fault was initiated by means of a glow wire according to IEC/TR 61641.
- Arcon quenched after 2 ms.
- Only combustion traces.
- Immediate restoration of service.

The effects of an arc fault are very similar to those of an explosion. This ranges from the risk of death and injury to persons, extensive damage to switchboard systems, to several weeks of downtime or even the exchange of the damaged switchboard system. In the worst case, the production downtime can even lead to bankruptcy as customers have found other suppliers during this period.

In today's competitive environment availability is a very important factor for which suitable protective measures must be implemented. The main applications to date for ARCON® have been IT centres, tunnel supply systems and power supply systems for continuous manufacturing processes in the chemical industry.



Sources of danger



Failure to observe the five safety rules

When a shielded control current cable was being drawn in, the shield that was earthed at one end touched the live main busbar and initiated an arc fault that caused considerable damage to the system.

Contamination and condensation

In an animal feed plant, an arc fault occurred in a switchboard that had been in operation for several years. The cause was considerable contamination and condensation that reduced the insulation gap.

Installation remains in the insulation gaps

A test run of the standby generators caused the switchboard to vibrate. A previously unnoticed wire was found on the trunking to the circuit-breaker. This fell between the phases on account of the vibration and initiated an arc fault.

Working under live conditions

As part of the extensive commissioning work required, an electrical fitter removed the fuse cartridges on a section of switch-fuse strips in order to connect the outgoing cables better. He forgot to cover the live dropper bar and touched it with a cable to be connected. This contact initiated an arc fault which fortunately could be disconnected by the installed ARCON system. It was thus possible to prevent injury to persons and damage to the installation.

Personnel protection

Errors when working on live switchboard installations can be fatal. All reputable manufacturers of low-voltage switchgear assemblies now offer an arc-fault proof design of their switchboard. However, the testing of personnel protection design is carried out with the switchboard closed and not in field conditions. The statistics of the employers' liability insurance association for the precision engineering and electrical industry in Germany shows that 2 out of every 3 accidents occur on the switchboard when opened. This must be taken into account and dealt with using technical solutions that ensure effective protection, even when the switchboard is open. For this reason, Eaton carried out fundamental research in collaboration with the Technical University of Ilmenau and came to the conclusion that "genuine personnel protection" could only be achieved with exceptionally fast protection systems. With arc fault quenching times of only 2 ms ARCON therefore offers an unprecedented level of personnel protection.



System protection

Low-voltage switchboard systems are put out of operation for several weeks due to the effects of an arc fault. If a redundant power supply is not available, this also results in unwanted production downtimes. Only an effective system protection can provide a solution here, so that the effects of the arc fault can be minimised and an immediate restoration of service is possible. Using ARCON restricts the effects of the arc fault to its footpoints. After the cause of the fault has been rectified and the quenching device has been exchanged, the system can be made ready for operation in the shortest possible time in order to ensure the required availability.



Chemical industry

Continuous manufacturing processes require the provision of an uninterruptible power supply. Whether this is in the refinery, in granulate production or other manufacturing processes that chose MCC technology years beforehand in order to optimise the electrical power supply. What is better than preventing the risk of damage from arc faults directly?



IT centres

Whether this be for payroll accounting, cash debits at the cash dispenser or other services in this sector. The supply of electric power must be ensured in all circumstances – even in the event of an arc fault.



Glass and aluminium works

If the power supply failure is longer than 30 minutes the liquid raw material in production solidifies and the entire production facility is only worth its scrap value. For this reason, the supply of electric power must be given special protection. All risks need to be identified and suitable countermeasures taken, naturally also with regard to arc fault protection.



Tunnel power supply

Without a functioning power supply tunnels have to be shut down. Like the rock fall at the St. Gotthard Tunnel demonstrated, the blockage of important transfer route with today's level of traffic can lead to general traffic chaos.

Nuclear power stations

Faults occur in nuclear power stations from time to time. Since the Chernobyl disaster public sensitivity to this has been particularly heightened. The operators are required to deal with operational safety with the highest priority, particularly in the context of the planned lifetime extension. A suitable arc fault protection system is therefore indispensable.



Shipping applications

A considerable proportion of containers on container ships are refrigerated. The power supply required for this must be available during the entire passage without any interruption. Modern cruiser liners also place high demands on a continuous power supply. The electrical energy requirement is equivalent to that of a small town.



Wind turbines

Arc faults can also occur in wind turbines. In this case the entire hub can be destroyed by fire. This type of system then normally has to be replaced completely. The cost of the damage can be in millions. An effective arc fault protection system is a solution.



Hospitals

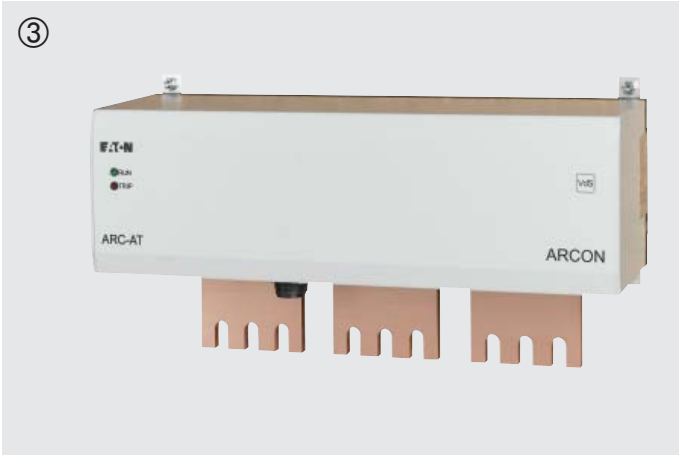
The power supply of a hospital must be ensured in all circumstances. If only the redundant section of the installation is in operation due to a malfunction, maximum safety must be ensured even in emergency operation. One only has to think of the running of operating theatres and intensive care units to understand why.



Controlling Arc Faults Safely.

① 

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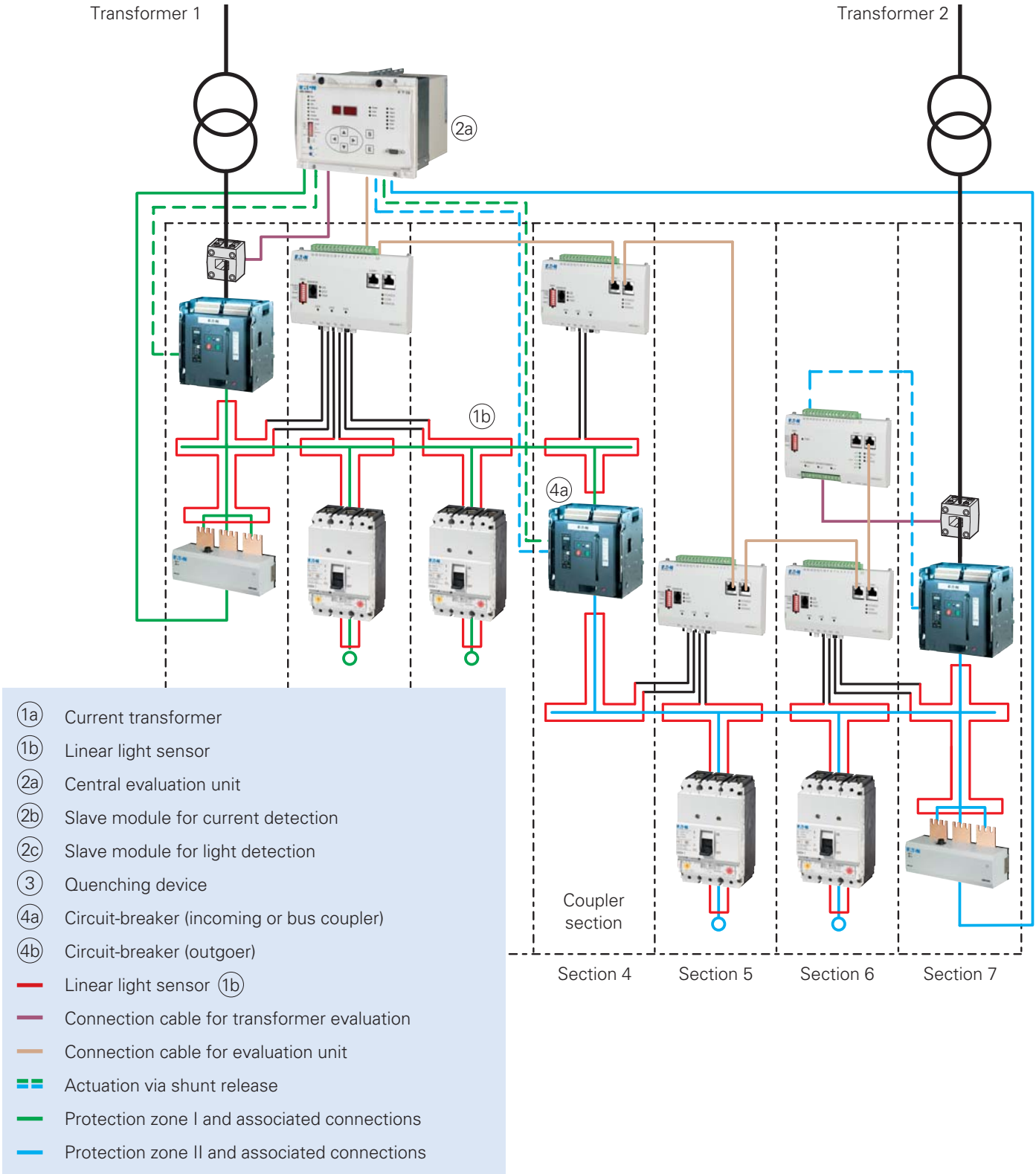
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1. Detection
The arc fault is reliably detected by means of two separate detection variables. The arc fault produces an overcurrent which is detected by means of measuring transducers. The second detection variable is the extremely intense light emitted from an arc fault. This light is detected with fibre optic sensors. Some of this intense light emission enters the core of the fibre optic cable radially. This signal can then be evaluated at the end of the fibre optic cable. Any incorrect releases due to flashes or welding arcs are prevented by evaluating both signals together.

2. Evaluation
The analog sensor signals are converted to digital signals in so-called slave modules and then passed on to the central evaluation unit. For this a special bus was created which has the principal task of transferring any triggering information at ultra-high speed. The slave modules are also fed with power via this line. The slave modules are assigned addresses so that they can be assigned to different busbar sections, the so-called protection zones. A central unit is able to monitor two busbar sections independently of each other.

3. Quenching
The quenching device ensures extremely fast quenching times. A three-phase short-circuit is produced in less than 1 ms in order to remove energy from the arc fault. A pyrotechnically initiated actuator, as used in airbag systems, fires a copper bolt that penetrates an insulation plate to establish electrical contact.

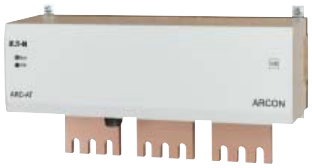
4. Disconnection
The incoming circuit-breaker has the task of disconnecting the affected busbar section from the mains supply. This is initiated by the short-circuit release. Each incoming circuit-breaker on this busbar section is sent an additional disconnection command to the shunt release as a backup measure. Busbar sections that are not affected remain operational.

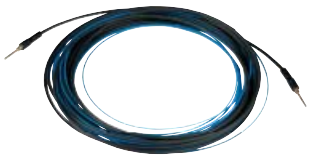


This block diagram shows an overview of a typical application. The installation consists of two busbar sections that each have an incoming supply and can be interconnected via the bus coupler. An ARC-EM/2.0 central unit is required for monitoring the system. An ARC-AT quenching device is required for each busbar section. Each panel is provided with an ARC-SL linear light sensor, apart from the coupler section which requires two light sensors. Three light sensors belonging to the same busbar section can each be connected to an ARC-EL3/2.0 slave module.

Whilst the overcurrent monitoring in incoming section 1 is connected directly to the central unit, an ARC-EC1/2.0 slave module is required for the second incoming section which acts on the shunt release of the second incoming circuit-breaker. Only the busbar section affected by the arc fault is disconnected. This is implemented using the natural selectivity of the circuit-breakers and the activation of the associated shunt release. The unaffected switchboard section remains operational.

Range Overview

Product	Description	Type	Ordner No.
Central unit 	– Display of system status via display and LEDs – There are 2 different tripping criteria that can be selected: light detection only --> activation of the trip relays (without quenching device) light and current detection --> activation of the quenching device + trip relays – Separate monitoring of two busbar sections – Separate actuation of two quenching devices Reaction time ~ 1 ms – Per busbar section, two potential-free normally-open contacts (Trip Relays) for shunt release actuation – One potential-free normally-open contact as a group signal in the event of an arc fault – One potential-free normally-open and normally-closed contact each for fault indication – Continuous self monitoring of the system – Connection of three current transformers for overcurrent measurement (L1/L2/L3) – Up to 16 slave modules can be connected (Depending on the length of the lines, slave modules need a separate voltage supply)	**ARC-EM/2.0**	172749
Slave for taking the linear light sensors 	– Can take up to 3 linear light sensors – Connection of mobile light sensor possible – Display of activated or faulty sensors – Assignment to busbar sections by addressing – 1 configurable, potential-free normally-open contact for activating the operating-current trip	**ARC-EL3/2.0**	172751
Slave for taking the point light sensors 	– Can take up to 10 point light sensors – Connection of mobile light sensor possible – Display of activated or faulty sensors – Assignment to busbar sections by addressing – 1 configurable, potential-free normally-open contact for activating the operating-current trip when using ARC-EP10/2.0 – 3 configurable, potential-free normally-open contacts for activating the operating-current trip when using ARC-EP10-2/2.0	**ARC-EP10/2.0** **ARC-EP10-2/2.0**	172752 172753
Slave for overcurrent detection 	– Connection of three current converters for measuring any over-current (L1/L2/L3) – Display of over-current at the corresponding current-converter contact – 1 configurable, potential-free normally-open contact for activating the operating-current trip	**ARC-EC1/2.0**	172750
Quenching device 	– Causes a three-phase short circuit in less than 1 ms – Current-carrying capacity (tested): 65 kA / 500 ms @ 725 V 100 kA / 150 ms @ 725 V 150 kA / 200 ms @ 440 V – Fast exchange possible thanks to open copper connections – LEDs for operation and triggering - Easy handling during assembly thanks to key-holes in the fastening brackets	**ARC-AT-T** **ARC-AT-B**	283712 283713

Product	Description	Type	Ordner No.
Linear light sensor			
	– Outstanding tripping response – Very high tripping accuracy – Continuous self monitoring via monitor signal – Transparent protective hose of the active light sensor – Total length / active sensor length		
	10 m / 5 m	**ARC-SL10**	283702
	11 m / 6 m	**ARC-SL11**	283703
	12 m / 7 m	**ARC-SL12**	283704
	13 m / 8 m	**ARC-SL13**	283705
	15 m / 10 m	**ARC-SL15**	283706
	17 m / 12 m	**ARC-SL17**	283707
	20 m / 15 m	**ARC-SL20**	283708
	25 m / 20 m	**ARC-SL25**	283709
	– Blue protective hose for increased filter effect and reduced sensitivity to interfering light – Temperature stability up to a max. of 125°C (active sensor range) – Total length / active sensor length		
	10 m / 5 m	**ARC-SL10/BL**	179679
	11 m / 6 m	**ARC-SL11/BL**	179680
	12 m / 7 m	**ARC-SL12/BL**	179681
	13 m / 8 m	**ARC-SL13/BL**	179682
	15 m / 10 m	**ARC-SL15/BL**	179683
	17 m / 12 m	**ARC-SL17/BL**	179684
	20 m / 15 m	**ARC-SL20/BL**	179685
	25 m / 20 m	**ARC-SL25/BL**	179686
Point light sensor			
	– For use in an arc fault detection system (Pay attention to protection against unintended tripping!) – Localisation of fault – Simple installation – Continuous self monitoring – Total length		
	6 m	**ARC-SP**	283710
	20 m	**ARC-SP20**	172756
Mobile light sensor			
	– Light sensor for temporary use – Improvement of personnel protection when working under live conditions – Added to the system without reconfiguration necessary – Can be connected to all optical detection units	**ARC-SM**	283711
Accessories			
	– Communication lines for master-to-slave and slave-to-slave connection		
	0,5 m	**ARC-CC00**	286390
	1 m	**ARC-CC01**	286391
	2 m	**ARC-CC02**	286392
	3 m	**ARC-CC03**	170488
	5 m	**ARC-CC05**	286393
	7 m	**ARC-CC07**	170489
	10 m	**ARC-CC10**	286394
	15 m	**ARC-CC15**	286395
	20 m	**ARC-CC20**	286396
	– Communication lines for master-to-quenching device connection		
	5 m	**ARC-CCAT05**	100038
	10 m	**ARC-CCAT10**	100039
	15 m	**ARC-CCAT15**	100040
	20 m	**ARC-CCAT20**	100041

Eaton is a power management company with 2014 sales of $22.6 billion. Eaton provides energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. Eaton has approximately 102,000 employees and sells products to customers in more than 175 countries.

For more information, visit **www.eaton.com.**

Article number 285246
4015082852467



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Subject to technical modifications. No responsibility is taken for misprints or errata.
Printed in Austria (07/15)
Publication number W4600-7560GB

Grafics: SRA
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www.eaton.eu



Digital Switchgear
Communication at Eye Level



The new xEffect Digital Series

EATON

Powering Business Worldwide



Yesterday, the future was yet to come. Today, it's already here.

The future has already begun.

For us, innovation is tradition: in 1957 Eaton's Moeller segment developed the first fault current protection switch, and with this, a new era of electrical safety engineering began. And now, Eaton is still ahead of its time: the new digital switchgear range in the Eaton xEffect series communicates potential problems in advance and sets new standards in precision, security and convenient service.

Maximal safety with optimal ease

Modern Residual Current Circuit Breakers (RCCB) protect people and technical equipment conveniently and reliably against faulty currents. The digital RCCB from the xEffect series do more than just switch off. They monitor electrical installations and give advance warning of critical current flows. So plant / factory shutdowns – and the resulting costs – can be avoided.

Precise Release – Highest Reliability

Short-time fault currents or other briefly occurring malfunctions do not cause the digital protection switch to shut down, thanks to the short time delay and optimized tripping threshold. So the electrical installation is optimally protected against power failures.

Easy and adaptable installation for fast modernization

The big Eaton Plus: It is very easy to upgrade a switchboard! Simply replace the RCCB – and you have all advantages of digitalization.

EATON

Powering Business Worldwide



Digital protection switches – the new era has begun.

More security through proactive communication!

The new xEffect models exceed the IEC/EN-61008 standard: their trigger reaction is much more precise than that of conventional switches to the 100% fault current threshold. With a fault current, the information is reported to the security center of the industrial plant, and troubleshooting would begin before there would be a shutdown or plant failure. So the cause of the fault current can be determined precisely and the system service can be easily planned ahead. Therefore, system availability is increased and service is improved because of the convenience of the remote control.

Numerous advantages at a glance

- The difference between harmless and critical fault currents is detected
- Precise switching and reduction of nuisance tripping
- Continuous monitoring of plant/factory status – prompt warning of a change in status quo
- Convenient troubleshooting by precise location of the malfunction
- As easy to install as a conventional RCCB
- Longer intervals between servicing
- Ideal for system monitoring thanks to preventive information
- Warning of tripping at leakage current
- Clear status display of the fault current problem with tri-colored LEDs
- Real contact position indicator
- Indicator for fault current tripping
- Comprehensive range of accessories available
- Can be integrated in several bus systems



Yesterday, the future was yet to come. Today, it's already here.

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Maximal safety with optimal ease

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Precise Release – Highest Reliability

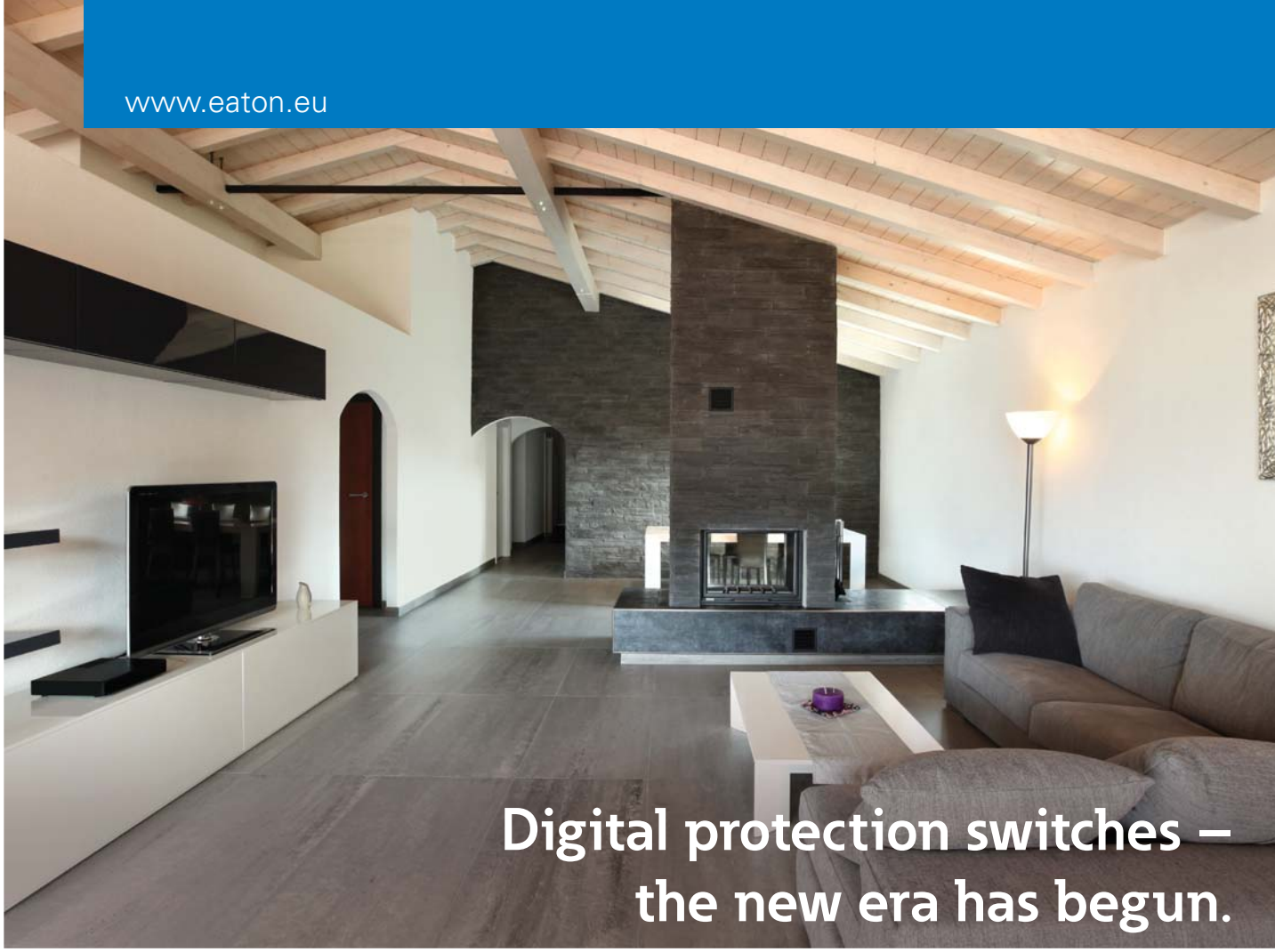
Thunderstorms or other briefly occurring malfunctions do not cause the digital protection switch to shut down, thanks to the short time delay and optimized tripping threshold. So the electrical installation is optimally protected against power failures.

Easy and adaptable installation for fast modernization

The big Eaton Plus: It is very easy to upgrade a switchboard! Simply replace the RCCB – and you have all advantages of digitalization.

EATON

Powering Business Worldwide



Digital protection switches – the new era has begun.

Better safety in your home thanks to proactive communication!

The new xEffect series digitalizes the residual current protection of every house and makes the entire building considerably safer than with the use of conventional protection switches. The installation of digital switchgears by Eaton has additional advantages, especially with bus system installations. In the case of fault currents, the information goes to the central office of the building and troubleshooting can begin before there is a shutdown or failure of the system. So the cause of the fault current can be investigated precisely and the system can be serviced effortlessly. Through the connection to a GSM module, status reports can also be sent to mobile terminals. This means that system availability can be increased and service enhanced through the convenience of remote maintenance.

Numerous advantages at a glance

- Simple upgrade of the switchgear cabinet in a few simple steps
- The difference between harmless and critical fault currents is detected
- Precise switching and reduction of nuisance tripping
- Continuous monitoring of plant/factory status – prompt warning of a change in status quo
- Convenient troubleshooting by precise location of the malfunction
- As easy to install as a conventional RCCB
- Warning of tripping at leakage current
- Clear status display of the fault current problem with tri-colored LEDs
- Indicator for fault current tripping
- No monthly test necessary
- Comprehensive range of accessories available
- Can be integrated with the xComfort wireless system and other bus systems

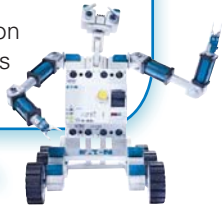
Highly qualified controllers offer their services

PROMOTION

Allow us to introduce ourselves: **FRCdM** and **FRBdM** would like to work in your switchbox. We're two highly qualified control robots from the famous EATON talent factory – the first of the new digital generation.



It's not only that I work completely reliably as a Residual Current Operated Circuit Breaker with integrated Overcurrent Protection (RCBO), but I also display the cause and extent of the flowing fault current. This enables fast actions quickly take measures to maintain system availability.



And since I'm the RCCB a fault current protection switch, I don´t wait until the tripping threshold is reached; I continuously check the present status and register any possible failures, sending this information by remote warning immediately to the central control system. This increases system safety, application availability and minimizes maintenance costs.

Hire us – and finally experience communication at eye level!

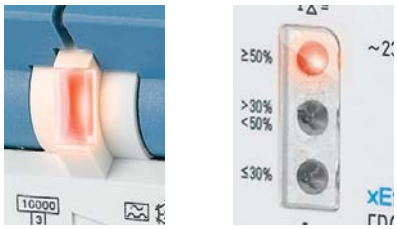
The LEDs set off an alarm when fault currents or a shut down are coming. This makes the troubleshooting faster and much easier. The service mode of the fault current protection switch quickly indicates the extent of the flowing fault current in milliamp increments. By pushing the service button, the blinking LED identifies the area where the fault current is located in.

- Mains voltage-independent residual current protection and additional protection with other digital functions
- Auto-reclosure is possible



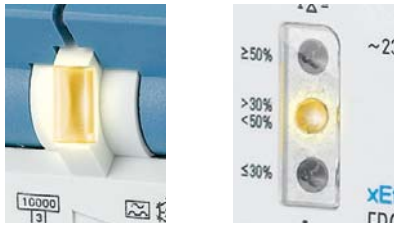
Red

When the red LED lights up, the leakage current is already higher than 50 percent of the nominal fault current. Therefore the system is in a critical status – the digital RCCB only trips when the fault current continues to increase.



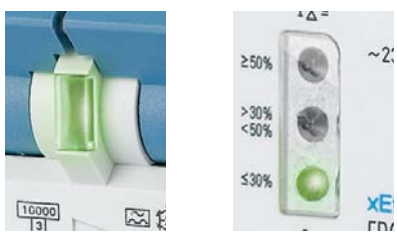
Yellow

The yellow LED shows a residual current in the ambit of 30 to 50 percent of the nominal fault current. Before the system is shut down, professional countermeasures can be taken.



Green

If the current flow in the system to ground is in the ambit from 0 to 30 percent of the nominal fault current, the green LED indicates the proper status.



FRBdM and FRCdM offer several other advantages



The LED allows for a fault current display directly on site. In the service mode, malfunction causes can be determined quickly and without complication.



The digital display facilitates real-time diagnostics directly at the switch.
By means of the LEDs, the system status can be seen at anytime, and with one glance.

Digital Combi-switch FRBdM:

With help of the service mode, the exact extent of the leakage current can be identified. This is a big advantage for industrial plants and any locations where the maximum security of supply must be ensured in time before the shut down of the plant.

All models have at least a short time delay to prevent from nuisance tripping due to transient disruptions (lightning, engine start).

Digital RCCB type A

Protection in case of specific, non-smooth types of DC fault currents.

Digital RCCB type B

In addition to fault currents in the AC and pulse current range, type B also detects DC fault currents, which can occur in frequency inverter controls, photovoltaic systems as well as through the electronic use in households, and increases safety considerably.

Digital RCCB type B+

Complies with the standard VDE 0664-400 (formerly VVDEV 0664-110) for elevated fire protection as required by the Association of German Insurance Companies.

Digital RCCB type Bfq

Adjusted frequency range (insensitive to higher frequencies) prevents nuisance tripping errors in industrial plants with powerful frequency inverter controllers.

Eaton is dedicated to ensuring that reliable, efficient and safe power is available when it's needed most. With unparalleled knowledge of electrical power management across industries, experts at Eaton deliver customized, integrated solutions to solve our customers' most critical challenges.

Our focus is on delivering the right solution for the application. But, decision makers demand more than just innovative products. They turn to Eaton for an unwavering commitment to personal support that makes customer success a top priority.

For more information, visit **www.eaton.eu/electrical**



To contact an Eaton salesperson or local distributor/agent, please visit **www.eaton.eu/electrical/customersupport**

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Printed in Austria (11/12)
Publication number

Grafics: SRA
DigiPics, Lithos:
Print:

Powering Business Worldwide

Eaton – convincing in terms of safety, performance and operational availability.

IEC/EN 61439



Shift to Future –

xEnergy switchboard systems for panel builders.

Powering Business Worldwide

A partner for whatever the circumstances may be.

Technology leader Eaton consolidates its importance in the field of panel building: thanks to design-verified switchgear assemblies that are able to "grow" and keep up with increasing future requirements.

Eaton Corporation, headquartered in Cleveland, Ohio (USA), pursues a diversified business strategy and is considered to be the unrivalled technology leader in many business fields. Its Electrical Sector alone is the worldwide leader for products and services related to power distribution, safe power supply and industrial automation. Proven brands such as Cutler-Hammer®, F&G®, Moeller®, Powerware®, Holec®, MEM®, Santak® and MGE Office Protection Systems™ enable Eaton to provide customer-oriented PowerChain Management® solutions for power systems in computer centers, hospitals, industrial plants, hotels, stores, food industry and sewage treatment plants.

A successful full-line provider
Eaton is active on a global scale as a specialist for switchboard systems. A significant share of its success is based on the explicit principle of being a full-line provider. No matter what the area of application may be, you will get everything from power distribution boards and busbars to individual components from a single source. And Eaton, being the technology leader, always aims at offering today what's going to be standard tomorrow.
That's what currently happens with the new IEC/EN 61439 standard, just to mention one example.











Eaton – 5 areas of success

- as a worldwide leading provider of products and services in the fields of electrical control-gear, power distribution, uninterrupted power supply (UPS) and industrial automation
- as a worldwide market leader in terms of design, manufacture and sale of entire series of drive systems and components for medium and heavy-duty commercial vehicles
- as a worldwide leading supplier for civil air transport and military aviation as well as for the aerospace industry, with a comprehensive technology portfolio including hydraulic systems, fuel supply systems, motion-control and engine systems
- as an important supplier of critical components allowing to reduce emissions and fuel consumption and to improve the stability and performance of cars, light trucks and commercial vehicles
- as a worldwide leading manufacturer of reliable, highly efficient hydraulic systems and components for mobile and industrial applications for many different business sectors from mining to the entertainment business



xEnergy: Controls systematically. Saves in three ways. Thinks ahead.

With Eaton, you have a business partner who supports your expertise in every respect. With Eaton xEnergy, you have a switchboard system that provides you with a wide variety of options for reliable power distribution and individual solutions to meet your customers' needs.

The xEnergy system range thinks ahead. This means it is designed to meet constantly increasing requirements. Geared towards a maximum of efficiency in implementing your individual projects, Eaton xEnergy provides optimum conditions for building-infrastructure up to 5000 A.

Every single function module in this switchgear assembly is perfectly prepared and systematically planned – from the switchgear and fitting system technology to enclosures and software tools.

Systematic switching = Shaping the future

You too should opt for this technically sophisticated and cost-effective unit of switchgear and protective devices, fitting systems and switchboard systems. It helps you to optimally switch and control power, in other words to dominate it. The system is module-based and offers smart combination options.

And there is a wide range of benefits for you. They do not only include the optimal added value in your own panel building business and the certainty that – with Eaton – you will always be building state-of-the-art and safety-tested panels. They will also help you to save time, money and space.

Safe yesterday. Standard today.
Pioneer in protective technologies of tomorrow.

Eaton's early-warning systems: More safety for your switchboard.

Machines and systems simply have to work. No matter whether it is in industrial or functional buildings – unscheduled standstills are always costly and annoying. The best thing to avoid undesirable down-times is to take appropriate precautions.

For reliable operation

Trust in proven technologies! A design-verified switchgear assembly ensures safe power distribution and a smooth workflow.

For the protection of people and systems

Wherever power is involved, safety is paramount. Eaton has always been a pioneer in the protection of people and systems. Apart from our proven protective switchgear, there are additional innovations to still increase the high level of safety for staff while operating a system. Be it in the power supply for tunnels, paper mills or data centers – uninterrupted power supply through ARCON® is key for the protection of people and machinery.

This is because an arc-fault will be extinguished by Eaton's arc-fault protection system before it can deploy its destructive impact on the power supply system.
Eaton provides additional safety through internal compartment separation up to Form 4 and passive arc-fault protection.
The result:
Systems that ensure a maximum of operational availability and security and a minimum of down-times.

Power management for the future

Power is precious. It should be used in a resource-efficient and careful way. The new metering and communication modules are a valuable contribution to a responsible way of using energy resources.

Proven components in this field:

- **xEnergy removable and xEnergy withdrawable technology**
- **IZM Open-type circuit breakers**
- **NZM Compact circuit breakers**
- **ARCON® arc-fault protection system**


EATON



Shopping centers

Be it for healthcare or data centers, for industrial or sewage treatment plants: Panel builders put their trust in Eaton.

More than any other provider of switchboard systems, this expert in safe power distribution knows all about the importance of operational availability and the consequences of standstills.

With xEnergy, Eaton offers a design-verified switchboard system for ultimate protection of people and systems and a maximum of trouble-free operation. Available in five basic versions, this system made of solid sheet steel will "grow" in line with the respective requirements and can be expanded and combined at the users' discretion.
In other words: xEnergy is the ideal product for any requirement.

Service done within seconds
Be it in hospitals or industrial plants, data or shopping centers or in sewage treatment plants: Unscheduled down-times can turn out costly. All the more it is important to Eaton to adapt the user-friendliness of the system to the respective requirements. With an XF system using fixed built-in components, it can still take hours to fix a problem that caused a standstill, so the fields of their application need to be carefully selected depending on how long standstills may last. Yet, while a replacement in an XR system based on plug-in modules takes no more than a few minutes, it can be even be done within a few seconds in a high-end XW system.
It is thanks to fully withdrawable units (drawers) and the possibility of replacing them under live-line working conditions that standstills are once and for all a thing of the past, so the professional skills required can be reduced to a minimum.


Functional and residential buildings


Hospitals


Water treatment plants


Hotels

Benefits

- **A design-verified, modular and therefore flexible system**
- **Verified/safe assemblies of switchgear and enclosures**
- **Combination with a large number of components**
- **A solution for all kinds of application (from power distribution to motor control centers)**
- **Time-saving**
- **Optimal safety**
- **Delivery as flat-pack or as a pre-assembled switchboard cabinet**
- **Software tools and training for easy planning and implementation**
- **Long service life, even under harsh operating conditions**

5 variants, with maXimum benefits.



XP Power Sections

- Incoming supplies, outgoers and couplings with circuit breakers
- Internal separation up to form 4
- Cable connection from the top or bottom
- Incoming supply system for drill-free cable connection



XF Fixed

- Power outgoers with circuit breakers and fuse switch disconnectors up to 630 A
- Internal separation up to form 4
- Individual outgoers, such as controlgear, motor starters, small power outgoers etc.



XR Removable

- Power outgoers with circuit breakers and strip type switch-disconnector-fuse, up to 630 A
- Empty modules for individual applications
- Plug-in modules and strip type switch-disconnector-fuse can be replaced under live-line working conditions
- Internal separation up to form 4
- Easy maintenance and reduced down times



XG General

- Power factor corrections
- Fitting systems for sub-distribution with devices for modular installation
- Control technology with SASY 60i and xStart
- Individual fixed units on a mounting plate



XW Withdrawable

- Power outgoers with circuit breakers up to 630 A
- Outgoers for motor starters up to 250 KW
- Empty drawers for individual applications
- Easy and uniform handling for all drawer sizes
- Drawers can be replaced under live-line working conditions
- Internal separation up to form 4
- Unambiguous position indicator for operating, test or de-energized status
- Easy maintenance without the need of using any special tools for replacement jobs
- Minimum down times



Convincing both inside and out.

xVTL power distribution and controlgear enclosures accommodate switchgear up to 2500 A. Their housing made of sheet steel protects both against damaging influences and electric shocks caused by touching live parts.



xVTL low-voltage main distribution board

- Incoming supplies, outgoers and couplings with circuit breakers
- Outgoers with SL fuse switch disconnectors up to 630 A
- Incoming supply system for drill-free cable connection
- Internal separation up to form 2
- Cable connection from the top or bottom



xVtl sub-distribution board

- Installation systems Profi+ and EP
- Fitting modules for NZM, NH- fuse load disconnector switches and strips, for screw fuse bases, devices for modular installation and individual devices



xVtl control distribution board

- Control technology with Sasy 60i and xStart
- Individual, fixed installation units on a mounting plate
- Ventilation and air-conditioning
- Automation technology



IZM

The variable circuit breaker up to 6300 A

Its module width will increase depending on the rated current, while height and depth of the switchgear will remain the same. Increased operational availability thanks to its robustness and the ability to communicate, cost-optimized planning thanks to modular design, suitable for worldwide use, with xEnergy and xVTL.



NZM

The compact circuit breaker up to 1600 A

Available in four breaking capacity levels, compact and space-saving, suitable as a main circuit breaker for machinery controlgear, incoming supply switches in installation distribution boards or outgoing switches in power distribution boards, for xEnergy and xVTL, for worldwide use.



A smart system to distribute, switch power, and to protect at the same time.



Power Xpert® FMX

Medium-voltage power distribution based on SF_6-free vacuum technology

An innovative and compact switchboard system with fixed circuit breakers for applications up to 24 kV, suitable for use in distribution networks of power providers as well as for industrial and public utility companies.
FMX sets new standards in terms of convenient connecting, compactness, operational safety and user-friendliness.



Xiria Ringkabelstation

Medium-voltage power distribution based on SF_6-free vacuum technology

For a high level of operational safety in applications up to 24 kV. The hermetically closed housing with primary system components and mechanisms keeps Xiria maintenance-free.
It is available in two basic panel versions (for ring cable connections as well as for the protection of network transformers and related cable connections) for unrestricted use in fully automated networks.



Power Xpert® XP

Busbar systems in copper and aluminum

Busbar systems in copper and aluminum
The sandwich-type design of XP makes it suitable for a wide variety of applications from 500 to 6300 A. It manages any challenge an electrical installation may face, ensures a significantly reduced power loss compared to using cables, saves energy and reduces emissions.



CS

Wall-mounted enclosure made of solid sheet steel

It is used where effective protection against direct contact with live parts is required, available in 45 enclosure sizes.



CI

Modular insulating-material enclosure

For harshest environmental conditions, as individual enclosures, wall-mounted or floor-standing distribution boards, design-verified function units for all standard applications.



xBoard

Distribution and enclosure systems

A tested system, suitable for power distribution up to 1250 A in industrial as well as in functional or residential buildings.



SASY 60i

Modular busbar system

For effective power distribution in the switchboard cabinet. In combination with the latest motor protectors and circuit breakers, it forms a consistent solution for switching, controlling and distributing power. UL-certified.



PIFT

Plug In Fuse Terminal

Revolutionizes the fuse-related technology in distribution board building. With its wide range of different types, its modular setup and its uncomplicated options for expansion and conversion, it offers the required flexibility. It is convincing thanks to the extremely high level of short-circuit strength of up to 120 kA with AC500V, optional fuse monitoring and an integrated switch-on lock.



PKZ

Motor and system protective circuit breaker

A synonym for quality and innovation, with an exchangeable tripping block, if required.



PKE

Motor-protective circuit breaker

Easy to equip with auxiliary switches, "tripped" indicators and other components for a minimum of planning efforts.



DIL

Contactors

Designed for individual solutions classified according to customer segments.



IEC/EN 61439

Eaton implements the new series of standards for low-voltage switchgear assemblies as early as NOW – and makes it significantly easier for panel builders to do their job.

To ensure the safety of low-voltage switchgear assemblies, many and the most varied characteristics of the individual components need to be harmonized and defined in a generally applicable standard.
So far the IEC/EN60439 series of standards covered this requirement. As of 2014, it will be replaced by a new standard. But Eaton builds its switchgear in line with the new standard as of now.

Innovations at a glance
The new standard makes a difference between the manufacturers – as usually practiced – between the original manufacturers on the one hand and the panel builders on the other hand. These two parties involved in building a switchboard system have to separately provide evidence of conformity to show that the part each one is responsible for meets the requirements of the standard.

This actually means that the panel builder now has to pay a lot more attention to providing the evidence of conformity for his part of the technical execution.

- The distinction between "type-tested assembly TTA" and "partially type-tested assembly PTTA" no longer exists in the new standard.

- Evidence of conformity with the standard is provided through design verifications, they include tests, calculations and the verification of whether the design rules have been respected – i.e. that from now on the systems will be design-verified. Panel builders who already build TTAs now do not have to expect many changes.

- The panel builder can-depending on the type of system – choose between three different ways of providing evidence of conformity:
  Verification by testing,
  Verification by design rules or
  Verification by calculation.
  All of them are equally valid, as defined by the standard.

- The term "TTA Switchgear assembly and controlgear assembly according to IEC/EN 60439-1" will be replaced by:
  "Power switchgear and controlgear assembly according to IEC/EN 61439-2, design verification by testing".

- If the panel builder carries out changes in the original system of a switchgear and controlgear assembly that are not covered in the design verification, these changes must be specified in a separate design-verification document.

- The new standard also includes requirements of the standard for empty enclosures, such as resistance to corrosion, resistance to heat of enclosure parts made of insulating material and protection against mechanical impacts.

xEnergy, in conformity with the standard
As an original manufacturer, we will continue to provide evidence of conformity for the system in the future as well. In order to make it easier for the panel builder to provide evidence of conformity for his part of the responsibility, a large number of applications have been split up into standardized modules and the design verification by testing has been carried out for them to provide the evidence of conformity. These modules, assembled in accordance with the corresponding instructions, will enable you to carry out your projects in a cost-effective way and in compliance with the requirements of the standard.

Service / Software / Support

Eaton actively supports the "Services in Automation" initiative of ZVEI (Association of the German electrical and electronics industry). For the services we offer, this means: The services are tailored to the customer's needs, they are easy to identify, they guarantee that the competences required for the services offered are available and that the results and performance data are defined together with the customer.

Service





Design-verified quality

Eaton is DIN ISO 9001 certified. The quality of Eaton products is reliable. For switchboard systems, Eaton trusts in a modular design principle consisting of accurately fitting function modules, design-verified in accordance with the IEC/EN 61439 standard. The system modules can be arranged to comply with specific national requirements such as DIN VDE, CEI, NF or UNE.

So Eaton offers all relevant protective switchgear assemblies in the respective degree of protection up to 5000 A. In addition, design verification of the entire unit of switchgear, fitting system technology and cabinet in accordance with IEC/EN 61439 provides for a high level of safety.

This modular system allows for easy expansion to meet increasing future requirements.

Delivery according to customer's needs

Eaton offers the entire product range in flat-packed versions, functionally packed as assembly groups, or as cabinets pre-assembled to customer specifications. Short delivery times make it easy to react to enquiries or modifications requested by the customer.

- Easy configuration and ordering thanks to tools that support the setup of parts lists
- Fast delivery ex warehouse thanks to lean logistic processes
- Easy handling of individual parts thanks to convenient packaging units
- Safe and time-saving assembly based on Eaton assembly instructions

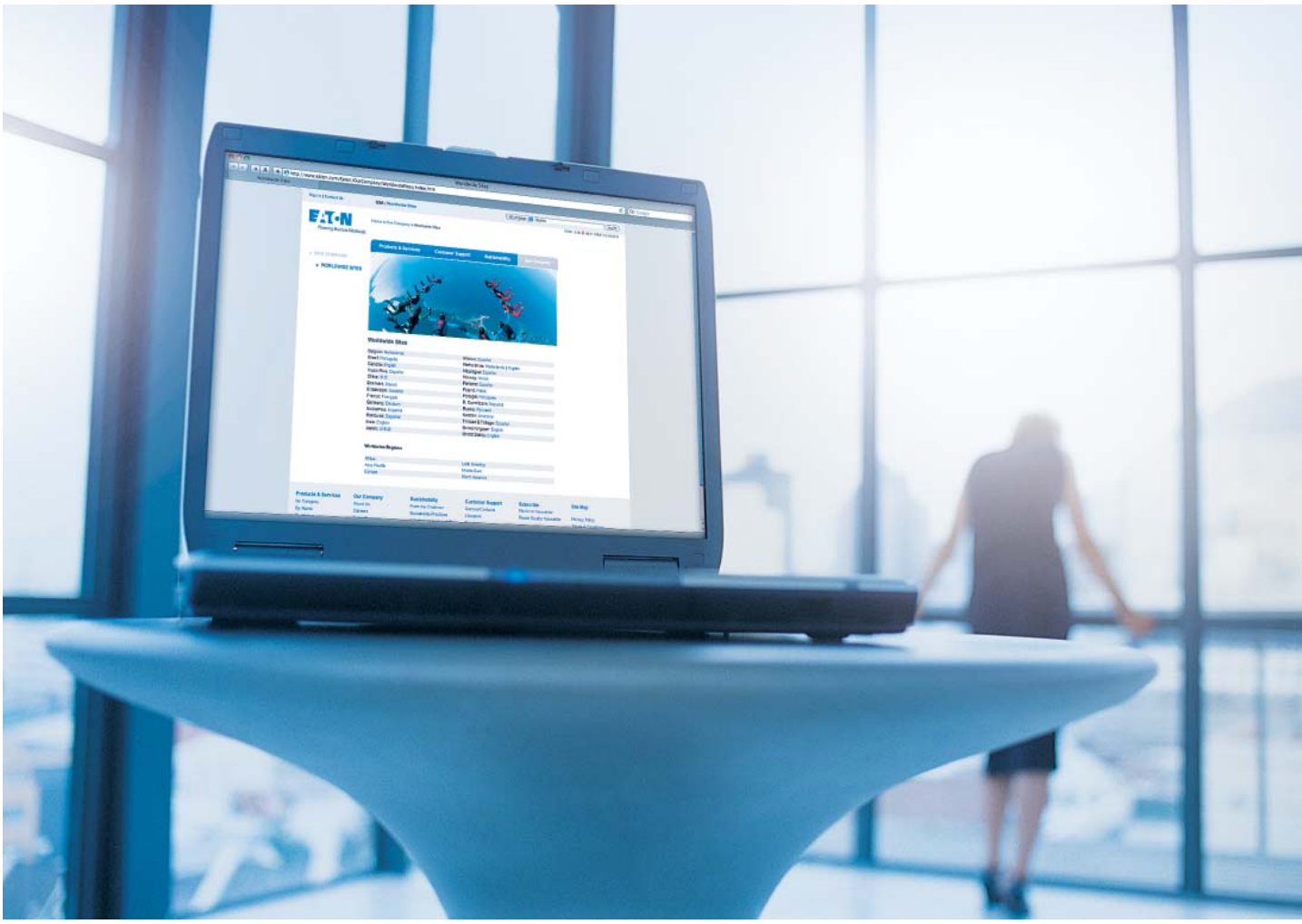
The system offer is optimized for the incorporation of internationally available Eaton switchgear and protective devices and it is completed by configuration and planning tools.
The right tool for every project stage and safe power distribution!

Technical support



Eaton's technical support is both competent and reliable. New customers are offered optional training on how to build a design-verified switchgear assembly.

The advantage of realizing the first switchgear assembly directly with the panel builder is an opportunity to communicate the optimal workflow.



Software

Eaton provides you with the appropriate tools. Software tools for planning, documentation and calculation not only support planning engineers, but also panel builders or installers. Eaton's toolbox is perfectly designed for network and system planning right through to ordering. Using Eaton's tools including the system-specific data ensures a safer, faster and more efficient way of processing orders.

CurveSelect

The program for characteristic curves of protective devices is available free of charge and allows the user to display setup-specific tripping curves of several protective devices simultaneously – both in terms of time and electric current values.
The tool makes it easy for the user to analyze the interaction of NZM and IZM circuit breakers, PKZ motor-protective circuit breakers, ZB overload relays and circuit breakers as well as h.b.c. fuses.

Freely defined curves (FreeStyleCurves = FSC) enable the user to directly compare the

- selected motor protector and motor starter characteristics,
- incoming supply switches and up-stream medium-voltage protection
- intended expansions and existing protective equipment.

CurveSelect supports you in planning and documenting your system.

xSpider

A graphic-oriented draft system for dimensioning low-voltage networks equipped with Eaton protective switchgear.
xSpider is available for free download.
The software includes a database with all protective switchgear (MCBs, MCCBs, ACBs, fuses, motor starters).
MatSelect is a database for the management of product and material data in both user-defined and standardized classification systems.

Configurator for xEnergy

For a quick and easy configuration of the xEnergy switchgear assembly you want. Sets up an offer in no time and generates the parts list at the push of a button.



Eaton Partner program

The key to your success with xEnergy switchboard systems is the Eaton Partner program. Joining the program is well worth it: Not only will you receive a wealth of insider information, you will also be the first to get informed about facts and innovations regarding xEnergy.

A few seconds after you register under www.xenergy-partner.de you will become an xEnergy Partner Net will welcome you personally and all the benefits of the Eaton Partner program will instantly be available to you.

For more information visit us at www.xenergy-partner.com



xEnergy
Licensed Partner

Benefits

- Listing as a Licensed Partner on the Eaton website
- Access to BAs, AWAs (building and assembly instructions), Configurator, certificates and technical data sheets
- Continuously up-dated product information
- Software downloads
- Installation instructions
- Information material for your customers, such as catalogues and flyers
- Certificates of conformity and guidelines regarding IEC standards



XW – The new solution for xEnergy.

Benefits for the panel builder:

- Switchgear assemblies with design verification according to IEC/EN 61439
- Tested and safe assembly of switchgear and enclosures
- A cost-effective and flexible solution for all applications
- Delivery as flat-pack or pre-assembled
- Software tools and training for easy planning and execution
- Plain modular system
- Optimum safety
- Professional support

www.eaton.com

Eaton is a diversified and globally active technology leader and service company in the business fields of Electrical, Fluid Power, Truck und Automotive.

Eaton's Electrical Sector is a global leader in distributing, controlling and switching power, and a global supplier of products and services for uninterrupted power supply and industrial automation.

Eaton's Electrical Sector includes brands such as Cutler-Hammer®, MGE Office Protection Systems™, Powerware®, Holec®, MEM®, Santak and Moeller.

Published by: Eaton GmbH
Scheydgasse 42
1215 Vienna

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Subject to technical modifications. No responsibility is taken for misprints or errata.
BR01416001Z-EN
Printed in Austria (04/11)
Graphic design: THEREDBOX www.theredbox.at
Print: Rabl, Schrems
Article No. 155490

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For more information, please contact your Eaton consultant.

www.eaton.com

EATON
Powering Business Worldwide

Efficient solutions for your energy management

Series NZM / Series IZMX



Capture Energy by Circuit Breaker Communication

Module. Visualization. Communication interfaces.

EATON
Powering Business Worldwide



Your partner for energy efficiency

As a specialist for energy management, Eaton is one of the worldwide leading technology providers in the field of electrical systems for a safe and efficient power supply, distribution and control. This makes Eaton a reliable partner when it comes to the introduction of energy management systems in businesses.

The Eaton Electrical Engineering business division is worldwide leading as regards products and engineering services for energy distribution, safe and uninterrupted power supply, machine and building automation, system and motor protection, lighting, safety and cable management, as well as components for harsh ambient conditions and areas at risk of explosion. With its global solutions, Eaton is in an excellent position to provide answers to today's most important energy management challenges.

As a diversified business in the field of energy management, Eaton provides its customers with energy-efficient solutions with which they can manage electrical, hydraulic, and mechanical energy more effectively

More energy efficiency through ISO 50001
The EN ISO 50001 standard was defined on a international level for the internal implementation of an energy management system. The major goals of the standard are to sustainably reduce energy costs, energy consumption and CO2 emissions through the implementation of organisational and technical measures.



Not only for corporations acting on a global scale but also for small and medium-sized companies optimal energy management will provide improved cost transparency for sustainable cost cutting by reducing operating costs and avoiding peak loads. By scaling its products, Eaton offers a favourably priced option for efficient energy management even to small enterprises. The pay-off period for investment costs involved can be reduced to a minimum thanks to duty drawbacks regulated by law in most European countries.

Measurement and analysis is the basis

The prerequisite for the introduction of an energy management system according to ISO 50001 is the measurement of all energy data in a company, the determination of the major energy consumers as well as the analysis of energy expenses.

Based on this, specific measures for more energy efficiency can be derived as a consequence.
With a wide range of innovative products, Eaton provides the basis for the monitoring, measurement, and analysis of your energy data.

Eaton circuit breakers

Series NZM



Eaton's range of circuit breakers combines maximum safety with maximum benefit for our customers. Therefore the NZM product series – although the frame size of the breakers has been reduced to a minimum – offers breaking capacities up to 150 kA in a fraction of a sinus wave. Special focus has also been placed on easy operation and a uniform way of handling for all of the different sizes, from setting the values to mounting the breakers.

Whether used as a remote-controlled main switch, equipped with a mechanical lock (interlock) or an emergency stop, a rotary switch activated at the side or rear, or a local door lock - the range of accessories for the NZM series offers a proven solution for practically any kind of application.

With the traditionally high-quality and comprehensive range of accessories and up to 20,000 switching cycles tested on a permanent basis, the NZM circuit breaker series offers maximum reliability and flexibility for on-site installation. Whether UL or IEC certified, the dimensions of the NZM series circuit breakers are always the same. So there is no need to make any market-specific modifications before their installation.

Compact circuit breakers and switch disconnectors:

- Compact, efficient design
- Four frame sizes up to 1600 A
- Breaking capacity levels up to 150 kA
- Comprehensive and standardized accessories for every application

IZMX circuit breakers



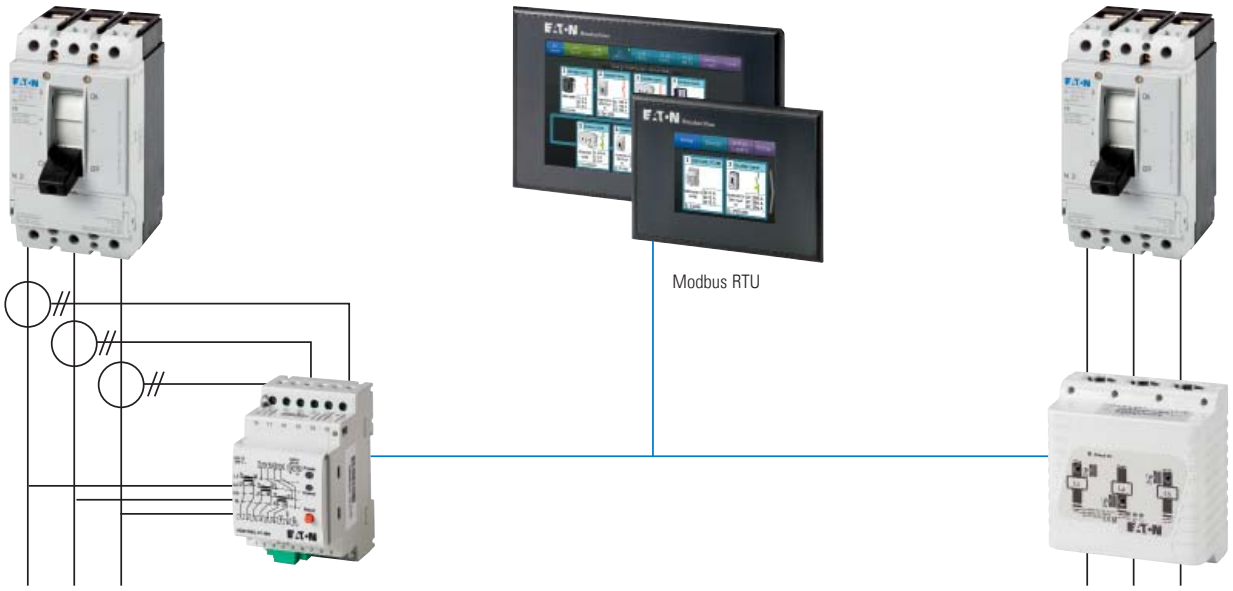
Small, flexible and efficient. The new IZMX circuit breakers provide a maximum of capacity in a minimum of space. Thanks to the innovative design, Eaton is able to offer optimal utilization of space in all switchgear systems, e.g. in xEnergy and MODAN.

The IZMX16 series is the smallest air circuit breaker (ACB) worldwide. With a volume of only 24 dm3 and a front surface of only 0.092 m2, it is only slightly larger than a DIN-A4 sheet of paper! Two IZMX16 circuit breakers fit into a 600 mm wide section and provide a maximum of capacity in a minimum of space. The modern IZMX40 in its reduced size scores high in Eaton switchgear systems, especially with significantly better de-rating values than other models in its class.
Our high-capacity circuit breakers cover a rated current range from 630 to 4000 A at a breaking capacity ranging from 42 to 105 kA.

Air circuit breakers and switch disconnectors from 630 to 4000 A:

- IZMX16 for applications in the range from 630 to 1600 A
- IZMX40 for applications in the range from 800 to 4000 A
- Electronic tripping unit with integrated measuring-function

Switching, measuring and data collecting with the NZM and NZM-XMC series



NZM-XMC-TC module for connecting external current and voltage transformers

+ Ideal retrofit solution
+ Suitable for integrating new or existing transformers
+ DIN rail mounting
+ RTU Modbus
+ Plug&Play in combination with BreakerVisu

BreakerVisu - – Visualisation and logging system

+ Cost-efficient complete device
+ Collection of operating data
+ ISO 50001 Reporting-capable
+ Automatic identification of participants
+ Gateway functionality
+ Integration of third-party devices possible

NZM-XMC measuring and communication modules

+ Compact system
+ Easy to mount
+ Measurement of all values in both directions (Feed and feed-back)
+ RTU Modbus
+ Plug&Play in combination with BreakerVisu

Flexible measurement points
Measuring electrical parameters is the basis for a modern style of energy management. We have developed the NZM-XMC product series in order to provide maximum flexibility in terms of measurement methodology - to make sure measurements can be carried out where they matter most. A main focus has also been placed on flexibility of integration into existing structures. The measurement and communication modules of the NZM-XMC series, in particular the new NZM-XMC-TC-MB measuring transformer - designed for the use of external existing current transformers - are superbly suited for retrofitting in existing machines and systems.

Data collection with the NZM-XMC (-TC) -MB series

- Voltage
- Current
- Active power/-energy
- Reactive power/-energy
- Power factor
- Inductive reactive power
- Capacitive reactive power
- Harmonic distortion (THD)
- Frequency
- All measurements in both directions (NZM-XMC module only)

Features:

- Integrated current and voltage measurement
- Centralisation of system-related information
- Log file on operating data, energy and incidents
- Password protection for important settings
- Integrated incidents and diagnosis function

Benefits:

- Plug&Play for energy data collection using BreakerVisu and the NZM-XMC series
- Enables automated ISO 50001 reporting
- Enables peak load management
- Front-end data memory in Excel format (.csv) for mains-independent operation
- Integration into any automated environment
- Currently best price/performance ratio on the market

Energy management using BreakerVisu
With BreakerVisu, Eaton offers a cost-effective solution for modern energy distribution. Via a Multi-Breaker display, the system shows all operating data of your low-voltage switching system centrally and in a clearly structured way. Centralisation on a 7 " HMI touch screen improves the availability of important operating data. At the same time you can achieve cost savings compared to a conventional switching system with separate display units for each individual breaker. BreakerVisu is a pre-programmed solution, which means that no additional programming effort is required.



Eaton energy management

Measurement



Retrofit

- **Solution for central connection Transducer module NZM-XMC-TC-MB**



New systems

- **Solution for data collection of the NZM circuit breakers using NZM-XSWD-704 communication modules**



- **Individual solutions NZM-XMC measuring and communication modules**



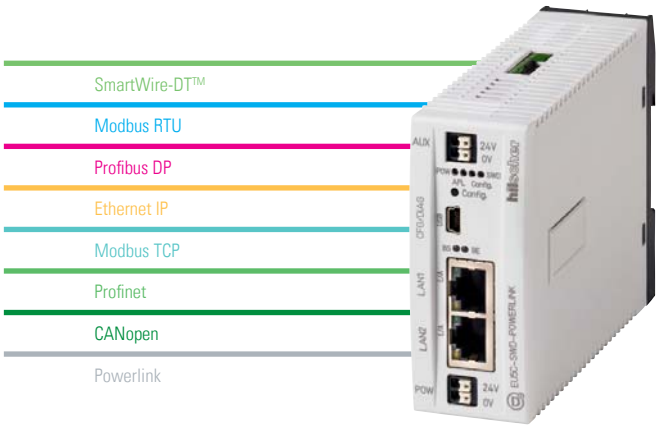
- **Solutions for IZMX air circuit breakers with communication modules IZMX-PCAM, IZMX-MCAM and IZMX-ECAM**

Central data recording



BreakerVisu

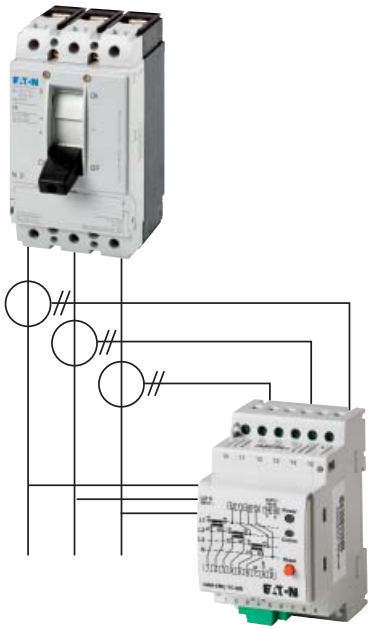
Visualization and logging system



Communication interfaces

BreakerVisu / SWD Gateways / xCAM modules

Eaton energy management: Measurement
Retrofit solution for central connection



NZM-XMC-TC-MB transducer module

Upgrading of existing systems
We are facing the challenge of updating existing switchboards and/machines for an energy management according to ISO 50001. Eaton has developed a simple solution to this problem: the NZM-XMC-TC-MB transducer module. This makes it possible for Eaton to realize a retrofit solution including a connection to the BreakerVisu central visualization and logging system using the classical cabling system.

It is also possible to connect the module to various control systems without further ado.

If current transformers and voltage tap-off are already available in the existing system, e.g. in connection with a local multimeter that does not offer any advantages in terms of modern energy management, the new XMC-TC module can be easily and quickly installed using the available current transformers and cabling system.



Features of XMC-TC:

- Use of current transformers and voltage probe
- Adjustable transformer ratio (X / 5A)
- Modbus RTU interface
- Compatible data with XMC modules
- Energy pulse output S0
- Alarm outputs

Benefits of XMC-TC:

- Measuring technology for the entire power range up to 6300A in one device
- Existing current transformers and cabling can be used – saves time and costs
- Small size on DIN rail
- Full integration in BreakerVisu possible

Type Designation	Article No.
NZM-XMC-TC-MB	169832

Eaton energy management:

Collecting energy data with Eaton – according to ISO EN 50001

Monitoring our energy consumption in order to reduce costs and to save the environment by using the resources available in a responsible way is now generally accepted knowledge in our society. Eaton introduces energy management according to ISO EN 50001 at all Eaton sites in Germany. One of the elements in this overall concept is the collection of data on energy consumption through measuring points at energy-intensive consumers. The combination of measuring module and BreakerVisu provides an optimal solution for both small and large companies who wish to benefit from the advantages of an energy management system. Project planning is easy and flexible, the installation is easy to do thanks to the plug-and play functionality, and its way of functioning is focused on the customer's benefit. In addition to the hardware, Eaton also offers free software for parameterization of the communication devices and a program for automatic analysis based on the reporting function – at the push of a button. The objective is to provide our customers with specific solutions to meet their individual requirements.

For more information please visit www.eaton.eu/breakervisu



Features NZM-XMC-TC-MB + BreakerVisu:

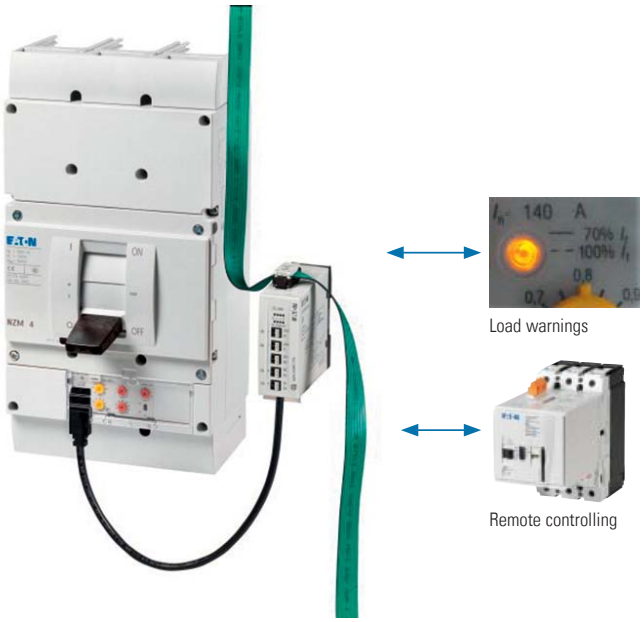
- Provides operating data such as voltage, currents, kWh etc. for BreakerVisu
- Automatic logging function
- Connection to SCADA possible
- Remote access via web browser or CoDeSys Remote Client via Ethernet TCP/IP
- Additional integration of external devices possible
- 3.5" BreakerVisu (8 users)
- 7" BreakerVisu (32 Modbus users)

Benefits NZM-XMC-TC-MB + BreakerVisu:

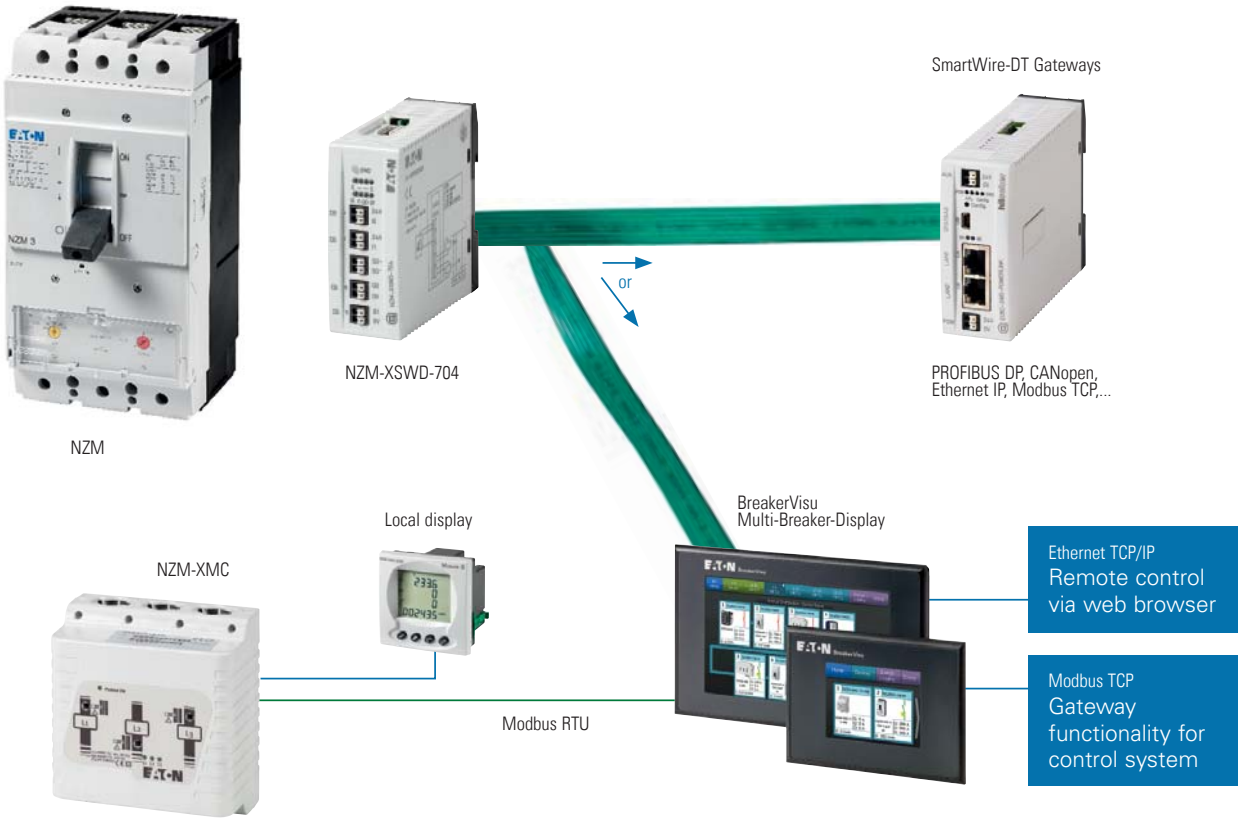
- Enables a retrofit solution for small and large systems and machines
- In connection with BreakerVisu, the expense for installation, parameter settings, and integration is considerably reduced
- Best price-performance ratio for energy management according to ISO EN 50001
- Easy to handle thanks to free software programs (Eaton Modbus Configurator, ISO 50001 Reporting Tool etc.)

Eaton energy management: Measurement
New systems - A smart concept

NZM with the NZM-XSWD-704 communication module



Preventive safety features
In order to avoid costly production stops - in addition to the reliable short-circuit and overload protection of the NZM circuit breakers – BreakerVisu includes valuable real-time diagnosis information on the connected devices. This comprises standard warning messages. Early identification of a potential switch-off risk enables the operator of a machine or system to start preventive action before a switch-off can occur. However, should an emergency switch-off happen all the same, the breaking currents will be measured (up to 150 kA) to allow an analysis of these data. Via the NZM-XSWD-704 Gateway they can then be sent to BreakerVisu where the data will be saved locally and transmitted to the automation environment. Additional safety is provided through saving the data locally, so they can be recovered from the built-in SD card in case of a network failure.





Powerful communication with SmartWire-DT™
Thanks to the XSWD-704 NZM module the SmartWire-DT™ communication system can directly communicate with compact circuit breakers. Plain command devices of only 1 data bit can be operated just as well as complex circuit breakers of 32 data bytes. Important information, such as phase currents or diagnosis data, load warnings or diagnosis messages of the circuit breaker are made available via the SmartWire-DT™. All NZM 2/3/4 breakers with an electronic tripping unit can directly be connected to the SmartWire-DT™ via the NZM module. Currents up to 1600 A in energy distribution can therefore be accessed by SmartWire-DT™.

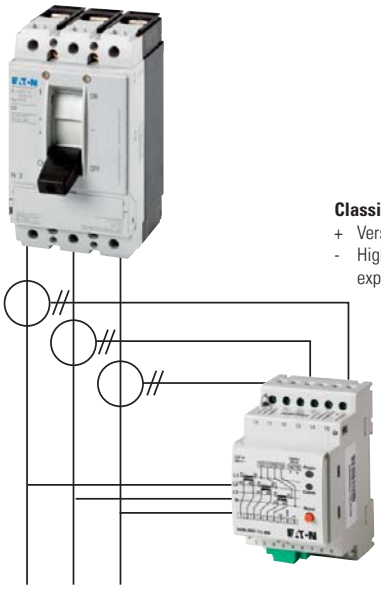
NZM communication
Identifying and eliminating errors before they can occur, that's the objective of any preventive warning. Via SmartWire-DT™ the NZM will report increased current values in 3 different alarm levels (70%, 100% and 120%). The electronic tripping system also provides detailed information on the cause of tripping, parameterisation and phase status. Activating a remote drive for the circuit breaker also happens via SmartWire-DT™, so there is no need for any further wiring here either.

SmartWire-DT speaks many different languages
If you wish to use the information collected for you by the 704 module for other field bus systems or communication platforms, you will be optimally supported by Eaton. With the Gateways included in the Smart-Wire-DT product portfolio you can choose from among five different Gateways:
- PROFIBUS DP
- CAN
- Modbus TCP
- Ethernet IP
- PROFINET

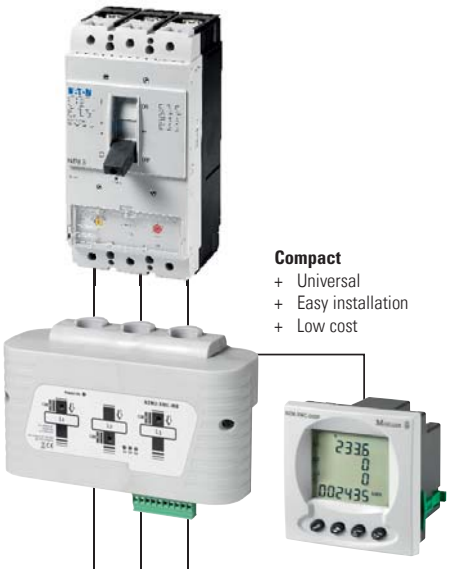
At a glance:
- Status (open/closed)
- Currents
- Type of switchgear
- Parameter settings
- Tripping caused by
- Remote controlling

Type Designation	Article No.
NZM-XSWD-704	135530

Eaton energy management: Measurement
New systems - Individual solutions



Classic
+ Versatile
- High cabling effort and expense



Compact
+ Universal
+ Easy installation
+ Low cost

NZM-XMC measuring and communication modules

The new and compact solution for recording energy-related data
The new range of XMC measuring and communication modules offers a very interesting solution: transformers, voltage tap-off, measuring electronics, fieldbus interface and display interface – everything in a single enclosure. This is how you can avoid the usually considerably higher amount of mounting and cabling. And all relevant measuring data required for calculating energy consumption can be made available:

- Phase and N conductor currents
- RMS voltages
- Active, reactive and apparent power
- Active, reactive and apparent energy
- Power factor cosφ
- Frequency

This provides the transparency you need for optimizing energy consumption and cost cutting.

XMXMC as a source of data for different recipients
Apart from local display for on-site staff, all relevant data are also made available for the control level via Modbus RTU. The control level is interested in the real values of currents, voltages and capacities which are both displayed and saved individually on that level. This is also where you can set the course for optimizing your energy consumption.
XMC is a vital element in modern energy distribution. It is easy to integrate mechanically and it is able to transmit the measured values both on site and via a fieldbus. It is a major contribution to issues such as energy recording, control of switchgear, load shedding and diagnostics.



Modbus RTU







NZM-XMC in a smaller frame size

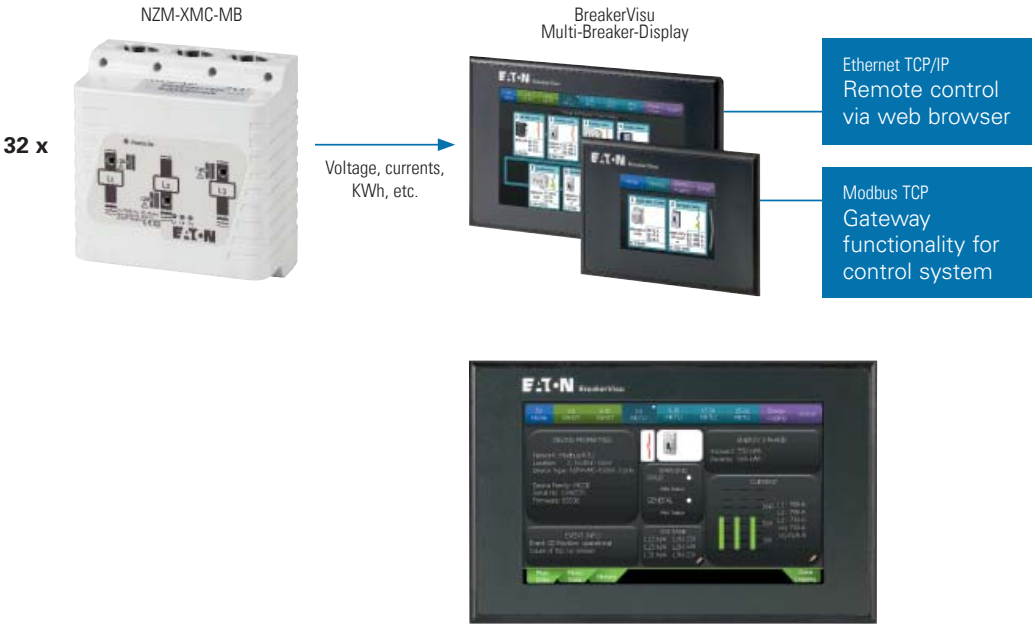
With the XMC up to 250A, Eaton offers a compact frame size for currents up to 250A. It is especially designed to go with the NZM frame size 2. The clearance for inserting wires or busbars is designed to suit the NZM2. This is why bending of wires/busbars is no longer necessary, a fact that will help you to cut costs and to reduce assembly time.

NZM-XMC-KIT for 630A application

The NZM-XMC-KIT enables the combination with an NZM circuit breaker for 630A current rating. The KIT includes the XMC module, specially preassembled conductors as well as covering cap, terminal block and assembly material. Depending on the application, the circuit breaker can be ordered separately to fulfil various protective functions. This complete solution constitutes a comfortable order option while also making sure that the right components are available.

At a glance:

- Compact frame size saves space in the switchgear cabinet while reducing assembly costs
- S0 pulse output and Modbus RTU versions
- Connection to super-ordinated systems and BreakerVisu possible
- Small 250A module suitable for NZM2
- KIT version for 630A application



NZM-XMC and BreakerVisu

With the NZM-XMC measuring and communication modules, local displays can be replaced by a connection to the BreakerVisu visualization and logging system supplied by Eaton.

No special programming is necessary because BreakerVisu automatically detects the connected devices and clearly and centrally displays the provided measuring data.

Up to 32 XMC modules can be integrated into a larger machine or energy distribution system.

Features:

- Provides operating data, like voltage, currents, kWh etc. for BreakerVisu
- Automatic logging function
- Connection to superordinated systems possible
- Remote access via web browser or CoDeSys Remote Client via Ethernet TCP/IP
- Additional integration of external devices possible
- 3.5" BreakerVisu also possible (8 users)
- 7" BreakerVisu (32 Modbus users)
- Compact design and easy installation

Benefits:

- Ideal for the preparation of an energy management system according to ISO 50001
- Compact frame size saves space in the switchgear cabinet
- Easy cabling reduces assembly costs
- BreakerVisu centralizes the measuring data and simplifies access
- Automatic logging functions enable evaluation for users
- Efficient cost-benefit ratio for several measuring points in external solutions

Type Designation	Article No.	
Measuring and communication modules with Modbus RTU		
NZM2-XMC-MB-250	156641	3-pole, up to 250A, small frame size
NZM3-XMC-MB	129962	3-pole, up to 500A
NZM2-4-XMC-MB-250	156642	-pole, up to 250A, small frame size
NZM3-4-XMC-MB	129966	4-pole, up to 500A
Measuring and communication module as construction kit with conductor and terminal for 630A		
NZM3-XMC-KIT-630	153141	
Accessories		
NZM-XMC-DISP	129967	Local display
NZM-XMC-USB485	158562	USB to RS485 converter for parameterization
easy200-POW	229424	230V AC / 24V DC Power supply unit max. 0.35 A output

Eaton energy management: Measurement
Solutions for air circuit breakers



Fieldbus interfaces - communicative and informative

Thanks to its communication skills, the IZMX circuit breaker series offers new opportunities in energy distribution. It supplies and forwards all the information that is important for operation. Consequently, the transparency of the system will increase while the response time to statuses such as excess current, phase imbalance and overvoltage will decrease. By quickly intervening in a process, it is p ossible to avoid system failures or to plan preventive maintenance action, for example. This will increase the availability of the system. Interface modules for Profibus, Modbus and Ethernet can now easily be plugged onto the circuit breaker, between the control line connections.

Communication modules:

IZMX-PCAM:
Profibus DP logging

IZMX-MCAM:
Modbus-RTU logging

IZMX-ECAM:
Ethernet logging

With the respective communication module – PCAM, MCAM or ECAM – every circuit breaker of the NRX series is equipped for the needs of modern and future-proof communication.

Via databus it will not only be possible to transmit information, but also to receive commands/ settings.

At a glance:

MCAM
- Status (open/closed)
- Current ratings
- Voltages
- Capacity
- Energy
- Reason for tripping
- Remote switching
- ARMS On/Off

PCAM
- Status (open/closed)
- Current ratings
- Voltages
- Capacity
- Reason for tripping
- Remote switching

ECAM
- Status (open/closed)
- Current ratings
- Voltages
- Capacity
- Energy
- Type of circuit breaker
- Parameter settings
- Remote parameterization
- Reason for tripping
- Remote switching
- ARMS On/Off



Type Designation	Article No.
IZMX-MCAM	122892
IZMX-PCAM	122913
IZMX-ECAM	124164

Eaton energy management: Central data recording with BreakerVisu

Visualization and logging system

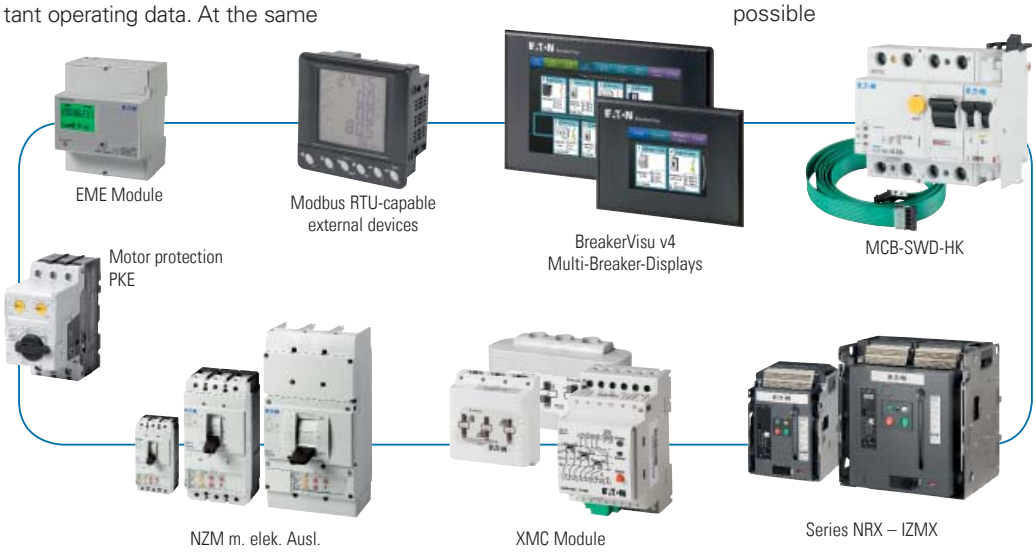
With BreakerVisu, Eaton offers a cost-effective solution for modern energy management. On a Multi-Breaker display, the system displays all operating data of the connected circuit breakers in a centralized and easy-to-read way.

Centralizing them on a 3.5" or 7"HMI touch screen will increase the availability of important operating data. At the same time, you will achieve cost-savings as compared to a conventional switchgear system using individual display units for each individual circuit breaker.

You will receive BreakerVisu as a fully programmed solution, instantly ready to operate without any further requirements.

Overview of functions:

- Data collection from several devices (up to 32 via Modbus RTU + 16 via SmartWire-DT™)
- Data visualization either locally or per remote access
- Data logging (data, energy, event logging)
- Connection to control system via Modbus TCP and/or a CoDe-Sys OPC server possible
- Integration of external devices possible
- New version as ready-to-use unit (hardware and software)
- Plug & Work principle



The following devices will be supported:

- Compact circuit breakers of the NZM and NZM-MC series
- Air circuit breakers IZMX16 / IZMX40 of the NRX series
- Air circuit breakers of the IZM26 series
- NZM-XMC measuring and communication modules
- NZM-XMC-TC-MB transducer module for retrofit solution
- Motor protection devices PKE
- SmartWire-DT Auxilary switch
- EME electronic energy metering modules up to 125A
- Modbus RTU-compatible external devices per import function



Selectable display

BreakerVisu is available as a complete solution with Ethernet connection (RJ45) in two display sizes.

An SD card is included in the scope of delivery for saving the logging data.

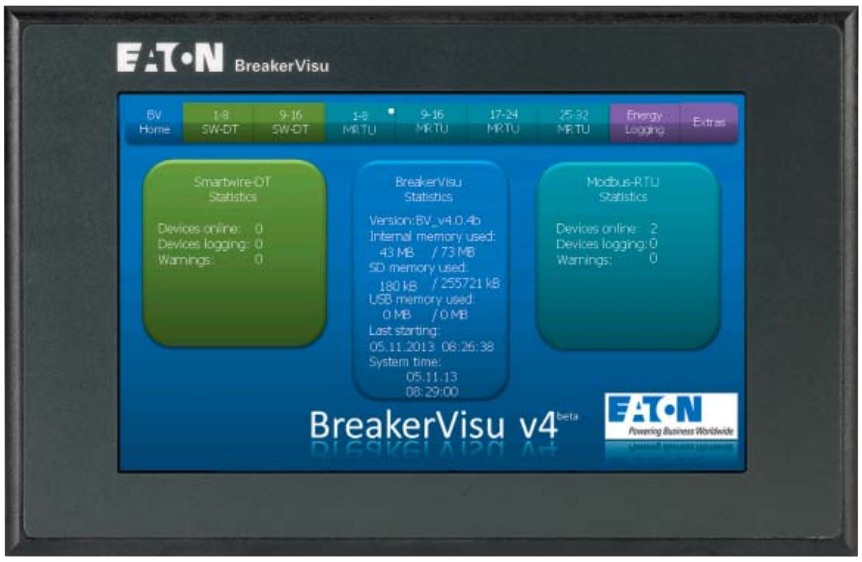
3,5" display

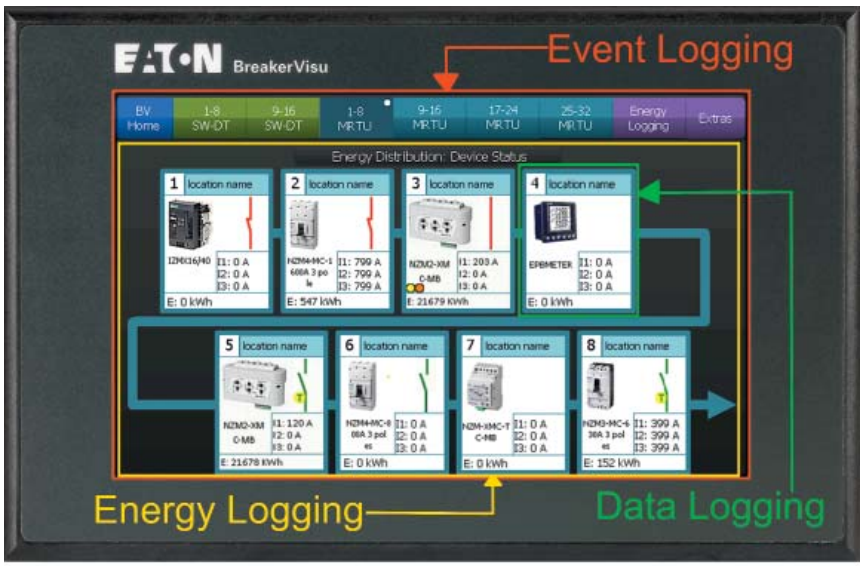
- As Modbus or Smart-Wire-DT™ version
- Up to 8 connected devices

7" display

- Modbus & SmartWire-DT™ simultaneously
- SWD up to 16 connected devices
- Modbus up to 32 connected devices
- Galvanic separation (RS485)

Type Designation	Article No.
NZM-XMC-MDISP35-MOD	172764
NZM-XMC-MDISP35-SWD	172765
NZM-XMC-MDISP70	172766







Visualization - easy to read and clearly structured

Menu guidance is easy and clearly structured. At the top you will find the menu bar which allows you to get to the individual menu items. "Touching" one of the fieldbus networks, e.g. Modbus, will take you to an overview page.

Network overview
There you will find a list of all devices that are connected. A short overview will provide information on the type of circuit breaker, on the status, as well as on the prevailing currents and energy meters. Moreover, alarm signals and a user-defined name are displayed. With this view, the user gets a fast, compact overview of the switchgear system and/or machine and their measuring points. If you select a circuit breaker, more in-depth operating data will be displayed. The logging function can be activated and diagnostic data can be displayed and exported.

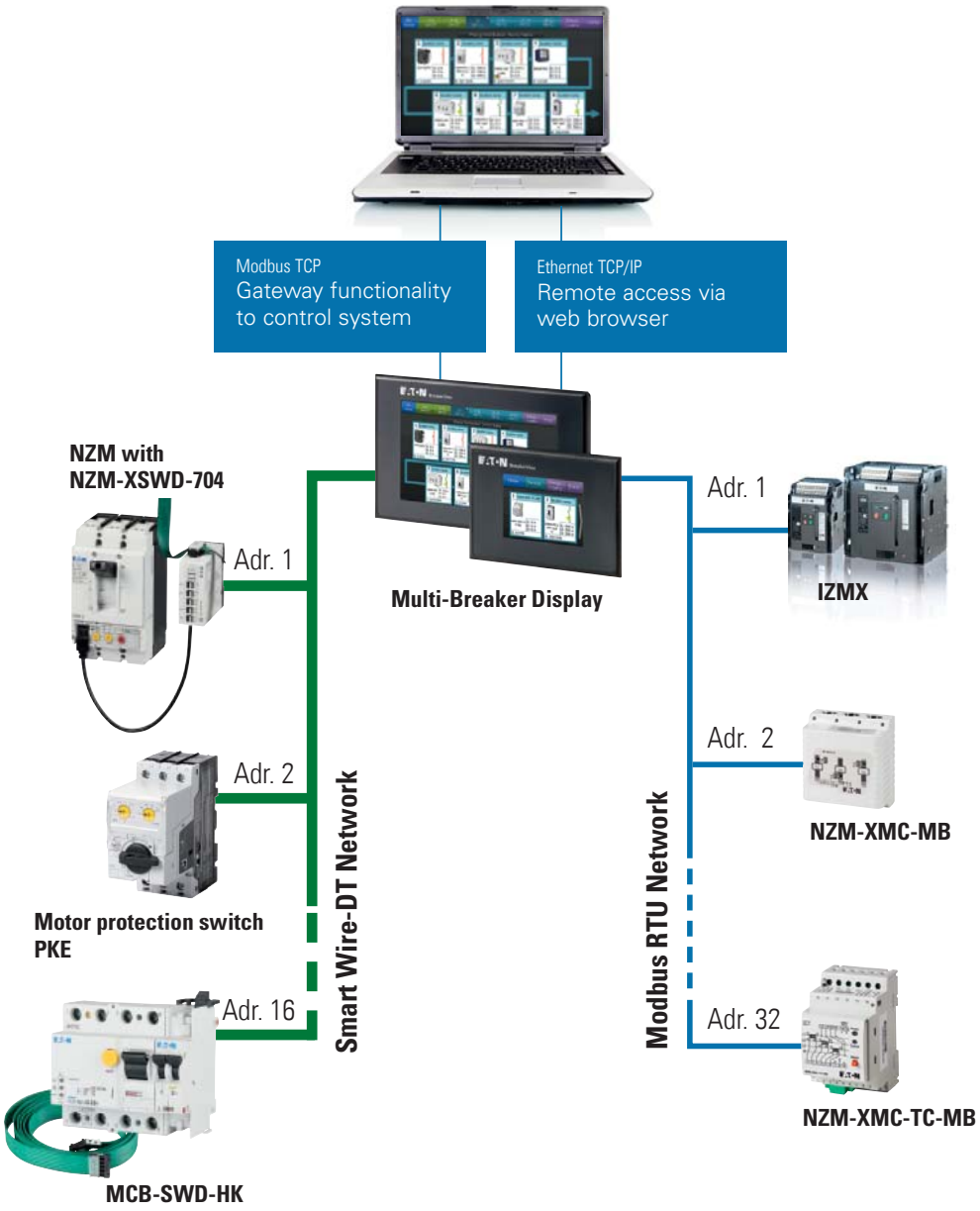
Logging function
Logging of operating data could not be easier. You can individually select which of the data you wish to log. Three settings prepared for this purpose will help you to make your choice:

1. Event logging:
   Automatically collects status and error reports from the entire system
2. Energy logging:
   Records the energy consumption data of all connected devices with only one click
3. Data logging:
   Captures all measuring data of a connected device and can be activated on an individual basis

The visualization of the 3.5" version of BreakerVisu provides a more compact and reduced representation of the data. With a maximum of eight connectable devices, the 3.5" version is particularly interesting in terms of price for smaller applications.

Logging - individually adjustable
All operating data will be logged and prepared for your MS Office system in a well-structured way in the CSV file format. The particularly user-friendly menu guidance and the touch screen will make it easy for you to handle the system. The analysis of the data you save depends on your individual needs and decisions.

Eaton energy management: Central data recording with BreakerVisu



Topology

Variable and multifunctional structure
The variable structure of the BreakerVisu topology enables you to individually adjust the system to your system structure. It supports the Modbus RTU and SmartWire-DT™ fieldbus systems.

BreakerVisu allows you to connect a max. of 48 circuit breakers and/or measuring devices.

Via SmartWire-DT™ you can address NZM circuit breakers of frame size 2,3 and 4. In a Modbus network, BreakerVisu supports NZM, IZMX, and IZM26 circuit breakers. Via Modbus you can also link up the NZM-XMC measuring and communication module for NZM2 and NZM3 circuit breakers and the new NZM-XMC-TC-MB module.

BreakerVisu speaks many languages

The standard language of BreakerVisu is English. German and French are also included in the scope of delivery. The language setting occurs when starting BreakerVisu for the first time or can be subsequently accessed via the start page. In addition to the first three languages, further language packs, such as English - Russian - Polish, can be downloaded and installed. English is included in all language packs as a basic language.

Thus, BreakerVisu is currently available in a total of 18 different languages.

Further language packs can be created if need be.

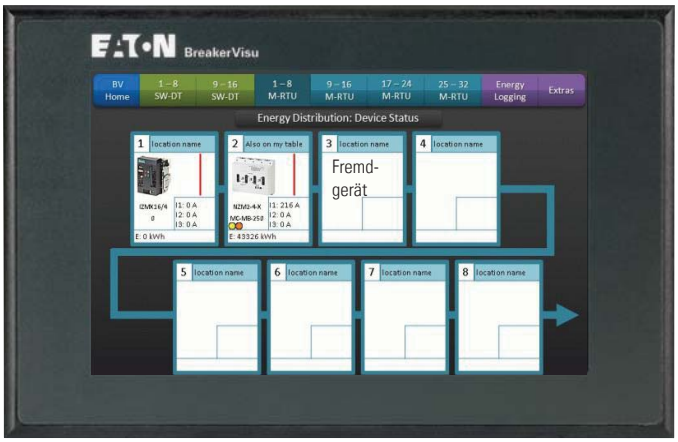


Remote access

Remote access of all functions
The local display on the MultiBreaker display is supplemented by remote access via Ethernet TCP/IP. Access via web browser provides the full range of functions like on the touch screen. In addition to this, BreakerVisu can be integrated into a superordinated system, whereby BreakerVisu provides all data of all connected devices as Modbus TCP client. These data can then be centrally retrieved by the Modbus TCP master.

Remove access via Ethernet TCP-IP:
- Connection to corporate Intranet
- Access to visualization via web browser or CoDeSyS Remote Server
- FTP server for the download of logging data
- Password-protected access
- Full access to all functions

Gateway functionality to control system via TCP:
- Central provision of all data of all connected devices with BreakerVisu
- Integration into a customer-specific control system
  - Connection via Modbus TCP
  - Optionally to CodeSys OPC server
- Data in control system: Evaluation and realisation of energy management functions, such as load shedding, etc.



Implementierung von Fremdgeräten:

- XML-Dateiimport mit Syntaxüberprüfung
- Import von bis zu 4 verschiedenen Modbus-RTU-fähigen Fremdgeräten in die BreakerVisu
- Volle Integration und Funktionalität der BreakerVisu
- Jeder Typ kann zusätzliche Parameter mit benutzerdefinierten Namen anzeigen
  - 3,5"-Version: bis zu 4 Parameter
  - 7"-Version: bis zu 12 Parameter

Integration of 3rd party devices

100% integration into BreakerVisu

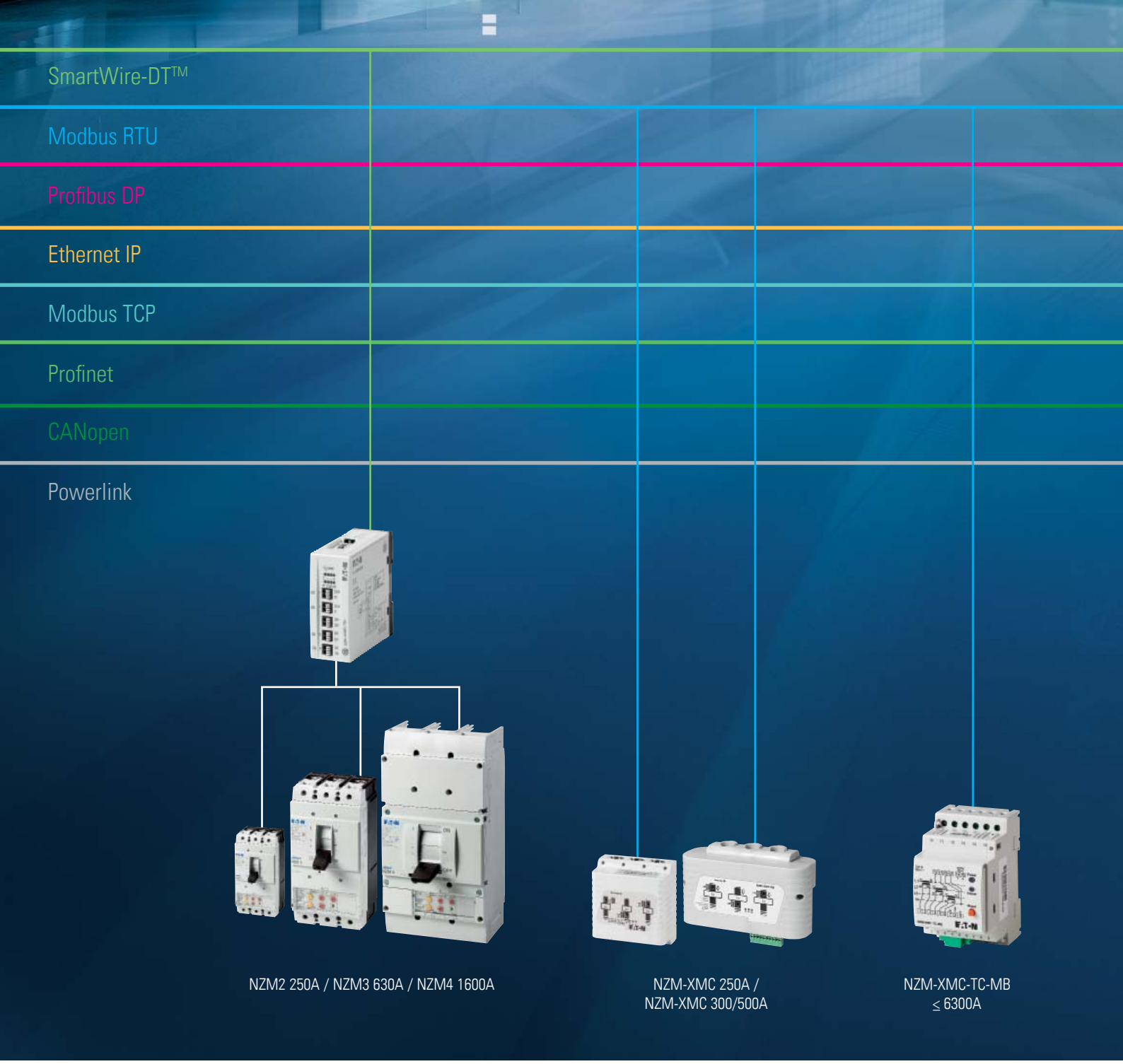
A new feature of BreakerVisu is the implementation of 3rd party devices. For this, a 3rd party device does not necessarily have to be from another manufacturer; rather, it can also be a device that BreakerVisu does not know (yet). The only requirement is that it must be a Modbus-RTU-compatible device.

With the help of a structured XML file provided by Eaton, the data map of the 3rd party device is adjusted to that of BreakerVisu. This file is then imported into BreakerVisu. That way, BreakerVisu can "familiarize itself" with up to four different new devices.

With these two new functions, the integration of external devices and the gateway functionality, BreakerVisu is now also a competent solution for special customer use cases.

These two functions can be activated with the help of license points. License points can be purchased with license product vouchers from the Eaton XV Micro Panel System.

	Article No.
LIC-OPT-1ST-LEVEL (40 points)	140391
LIC-OPT-2ND-LEVEL (80 points)	140392
Every function requires 40 license points.	



Eaton energy management: Central data recording
Communication interfaces

Eaton circuit breakers and measuring and communication modules record measurements reliably and efficiently. Providing those measurements to the user in the required form as well as in the required data format is a challenge whose origin lies in the diverse communication structure used in the industry. Eaton gladly takes on this challenge by providing a solution with a variable topology of measuring points that is designed to meet the requirements of users. Eaton builds its communication structure on the innovative communication system SmartWire-DT ™ used in parallel with Modbus RTU. On this basis, data are transmitted to other communication platforms via interfaces and gateways when required.



NZM-XMC-KIT
630A

IZMX16 1600A / IZMX40 4000A

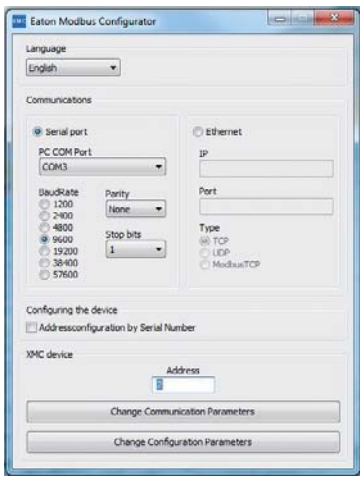
BreakerVisu 7“ / 3,5“

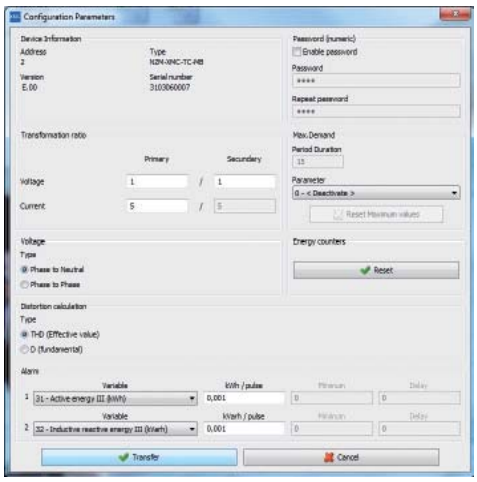
Free software support

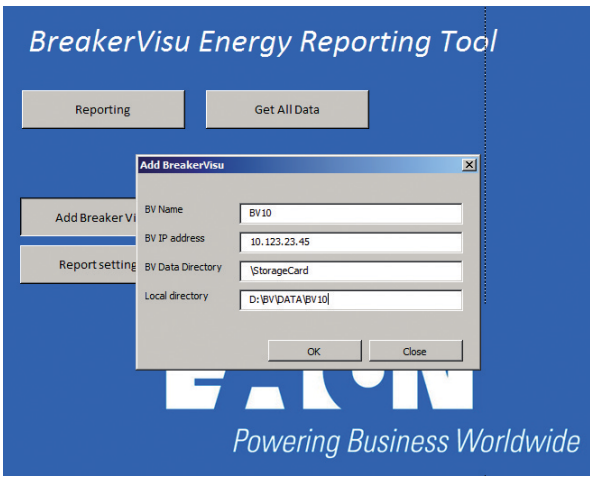
Eaton Modbus Configurator is a free software for parameterization of the NZM-XMC family devices. The RS485 to USB converter makes it very easy to adjust communication parameters, alarms and other settings.

The software is included in the scope of delivery or can be downloaded from the internet www.eaton.eu/breakervisu

The ISO 50001 Reporting Tool enables you to automatically import the collected data from BreakerVisu and to generate a report with just a few "clicks". Provided BreakerVisu is connected with Ethernet, log files can automatically be loaded and analysed. There are several different types of analysis to choose from.







Motor protection switch PKE

The BreakerVisu system is now also compatible with the devices of the PKE series. It will therefore be possible to also collect operating data in lower current ranges up to 63A. The particularly easy handling based on SWD enables the user to connect up to 16 participants to BreakerVisu. This allows the collection of valuable status, warning and current-related data for further processing.

Benefits PKE + BreakerVisu:

- Collection of operating data for early identification of load conditions
- Very little project planning effort required thanks to a plain system architecture
- In combination with BreakerVisu the efforts for installation, parameterization and integration can be significantly reduced

Features PKE + BreakerVisu:

- Provides operating data such as status, setting values, tripping reason and currents for BreakerVisu
- Automatic logging function
- Connection to a higher-level system is possible
- Remote access via Webbrowser, or CoDeSys Remote Client via Ethernet TCP/IP
- 3.5" BreakerVisu (8 users)
- 7" BreakerVisu (16 SWD participants)

MCB Auxiliary switch for SWD

Auxiliary switches for MCB, RCBO, RCCB protective devices of the xEffect series can be fixed at the side and will collect the data on the switching status of the connected devices. This is how you can collect these data via SWD and intervene in a targeted way in case of a tripping event. MCB auxiliary switches can by default be identified from BreakerVisu. So there is no configuration necessary.

Benefits MCB MCB Auxiliary switch + BreakerVisu:

- Status collection for remote identification of tripping events
- Very little project planning effort required thanks to a plain system architecture
- In combination with BreakerVisu the efforts for installation, parameterization and integration can be significantly reduced

Features MCB MCB Auxiliary switch + BreakerVisu:

- Provides operating data – such as the status – for BreakerVisu
- Automatic logging function
- Connection to a higher-level system is possible
- Remote access via Webbrowser, or CoDeSys Remote Client via Ethernet TCP/IP
- 3.5" BreakerVisu (8 users)
- 7" BreakerVisu (16 SWD participants)

Ordering data

Description		Type Article No.	Notes
Multibreakerdisplays - BreakerVisu			
	Visualizing and logging of circuit breaker data. Connection of NZM via NZM-XMOD-707 or NZM-XSWD-707 and of IZMX16/40 via IZMX-MCAM as well as all measuring modules NZM...-XMC-MB and IZM26 via IZM-MMINT. Depending on the display, several circuit breakers can be connected at the same time. • Reading of diagnostic memory • Preparation of energy logs RS 485 master interface and SWD interface. Ethernet connection for display on the web browser and FTP connection for data exchange. Gateway function for the transmission of data and integration of external devices possible.		
	Connection of max. 8 circuit breakers via SmartWire-DT 3.5" color display	**NZM-XMC-MDISP35-SWD** 172765	
	Connection of max. 8 circuit breakers via Modbus RTU 3.5" color display	**NZM-XMC-MDISP35-MOD** 172764	
	Connection of max. 32 circuit breakers via Modbus RTU and max. 16 circuit breakers via SmartWire-DT 7" color display	**NZM-XMC-MDISP70** 172766	
	License points 1st Level (40 points)	**LIC-OPT-1ST-Level** 140391	
	License points 2nd Level (80 points)	**LIC-OPT-2ND-Level** 140392	
NZM interface to SmartWire-DT and to the display			
	NZM Communication modules	**NZM-XSWD-704** 135530	
Energy meter for external current transformers and voltage taps			
	Transducer module for ext. CTs, Modbus	**NZM-XMC-TC-MB** 169832	
Energy meter for integrated current transformers and voltage taps			
	NZM-XMC, 3-pole, up to 250A, Modbus, small frame size	**NZM2-XMC-MB-250** 156641	
	NZM-XMC, 3-pole, up to 500A, Modbus	**NZM3-XMC-MB** 129962	
	NZM-XMC, 4-pole, up to 250A, Modbus, small frame size	**NZM2-4-XMC-MB-250** 156642	
	NZM-XMC, 4-pole, up to 500A, Modbus	**NZM3-4-XMC-MB** 129966	
	NZM-XMC-Kit for measurements up to 630A, Modbus	**NZM3-XMC-KIT-630** 153141	
Accessories			
	Local Display	**NZM-XMC-DISP** 129967	
	USB zu RS485 Konverter zur Parametrierung	**NZM-XMC-USB485** 158562	
	230V AC/24 V DC Power supply unit max. 0.35 A output	**easy200-POW** 229424	
Communication modules for the IZM air circuit breaker			
	Modbus Communication modules	**IZMX-MCAM** 122892	
	Profibus Communication modules	**IZMX-PCAM** 122913	
	Ethernet Communication modules	**IZMX-ECAM** 124164	

Eaton is a power management company with 2013 sales of $22.0 billion. Eaton provides energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. Eaton has approximately 101,000 employees and sells products to customers in more than 175 countries.

For more information, visit **www.eaton.com.**

Article number 168546
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Printed in Austria (10/14)
Publication number BR01305002Z-EN
Grafics: SRA
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Powering Business Worldwide

Eaton – convincing in terms of safety, performance and operational availability.

MCC



Innovations for the Motor Control Center MCC

Powering Business Worldwide

Safe. Smart. Soft.

Eaton upgrades its proven Motor Control Center MCC with a number of technical innovations. For panel builders, this means reliable switchgear systems with the highest personnel and plant protection - while integrating the latest communication technology.

Openable front



With a metal thickness of 2mm at both the front plate and the support plate, the steel front plate provides maximum stability. Both parts are available with a RAL7035 coated structure (on request also in a special colour) with an IP31 and IP55 degree of protection, and are provided with right-hand hinges.

In addition, the bolting of the support front plates to the body results in an extremely solid and robust structure. Perfect water protection is guaranteed by a 2-component foam sealant (2-component polyurethane).

The doors are equipped with heavy duty hinges and handles as well as a double-bit lock (3 mm) as closure system. The body of the individual modules, all the electrical components and the mechanical lock can be used with both versions of the fronts (steel or plastic).

Advantages

- **Front plates and doors can be opened at any time, even under normal operation conditions (with additional tools)**
- **Electrical components are accessible at all times and adjustable during ongoing operation**
- **Sturdy hinges at the fronts**
- **Stable structure with front plates and doors**
- **If necessary, additional sections can be added**

Coding system

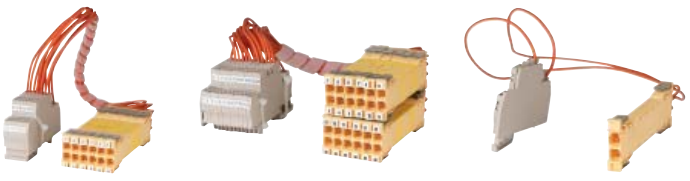




The new coding system prevents accidental interchanging of drawout units by assigning each drawout unit to a particular shelf. Coding is performed using 5 fixable metal rollers which are tightly screwed on the shelf and on the underside of the body in the appropriate positions or combinations.

After applying the coding system it is thus impossible to position equal-height drawout units incorrectly.

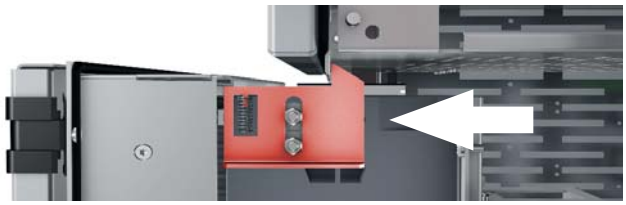
Control terminals with connection lines



As of now, 3 new assembly installation kits with 2-, 12- and 24-pole auxiliary current contacts are available. Included in the set is the appropriate wiring (orange colour, 0.75 mm 2) and 2-pole, double-level terminal blocks. Furthermore, a terminal side wall is included in the delivery of the 12- and 24-pole sets.

The side wall of the assembly installation kit is provided with four-square punchings through which the complete terminals package can be carried without prior disassembly. The matching recess is subsequently closed with AP45 (blank cover).

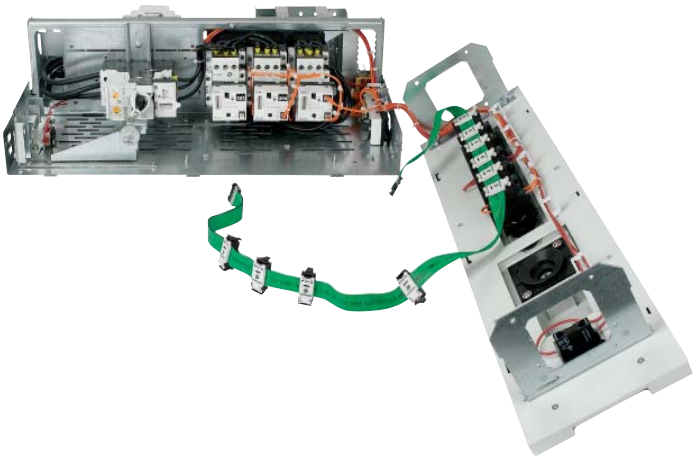
Catch hook



To prevent drawout units from being pulled completely out of the cabinet with a jolt, the newly developed catch hook can be used.

Thus, the drawout unit can be placed in the "Disconnect" position. To further pull out the drawout unit, it is sufficient to release the detent.

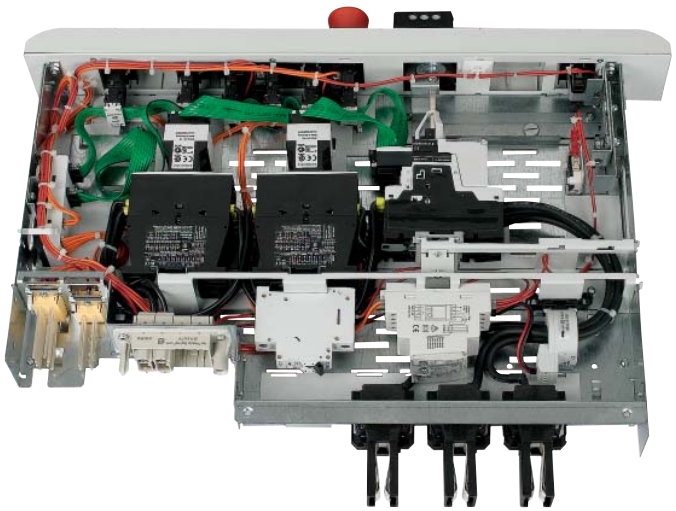
SmartWire-DT™



For communication within the control cabinet, Eaton's communication and connection system Smart Wire-DT™ is used.
It replaces the existing control wiring in the MCC drawout units and cabling for control and status information of the drawout units in the cabinet. Standard field bus systems such as Profibus-DP, CANopen, Modbus-TCP or Ethernet/IP allow data to be transferred from the control cabinet to the higher-level PLC.

Advantages

- **No downtime through early detection of errors**
- **Time and cost savings in control wiring**
- **Higher availability**
- **All parameters can be continuously recorded**
- **Complete tests of individual drawout units can be carried out with the SWD-Assist planning and startup software - without PLC**
- **Easy assembly and disassembly**
- **The connection of the power line wiring from the drawout unit to the cable terminal compartment is identical for all drawout unit versions (SWDT or conventionally wired ones)**



Continuously communicating – without conventional control wiring

- Smart Wire-DT™ replaces the conventional control wiring to operating elements, switchgear, circuit breakers, other inputs and outputs (such as auxiliary switches) as well as from drawout units to the PLC
- Data of all drawout units is transferred to the Fieldbus Interface via Smart Wire-DT™

Available drawout units

- Direct starters (0.06 – 160kW)
- Reversing starters (0.06 – 110kW)
- Star Delta starters (5,5 – 75kW)
- Power outgoer 3/4 p (16/20 - 400A)
- Soft starters up to 32A

Available drawout units with SWD

- Basic: Use of a conventional circuit breaker with thermo-magnetic release
  - Only status recorded
  - CB type: PKZ, NZM1-3
- Complete: Use of a circuit breaker with electronic release
  - Status, power, overload, settings are recorded
  - CB type: PKE12/32/65, NZM2-3 (ME/AE/VE) (with electronic release unit)

DS7 Soft Starter



AC motors are used as the ideal drive in various industrial and commercial machines. In many cases, however, direct starting or star-delta starting is not always the best choice. At least then it is time for soft starters to be used. With soft starters you do not have high starting currents or an abrupt insertion of full torque, but you can properly ramp up time, inrush current and torque.

The two-phase controlled DS7 soft starter is available in 2 sizes for applications in the power spectrum of 3 - 32A (1.1 and 15kW at 400V).

Typical application examples
- Centrifugal pumps
- Luggage conveyor belts
- Mixers

All components from one source

- **Circuit breakers: PKZM0, PKE12/32, NZM1-2**
- **Protection: DILM7/9/12 /17/25/32 (230V/AC, 24V/DC), DILA (24V/DC)**
- **Soft starter: DS7 size 1 (4A/7A/9A/12A), DS7 size 2 (16A/24A/32A)**

Versions
- Standard drawout unit
  - Circuit breakers with thermomagnetic release unit
  - Reversing contactor circuit with 230V/AC coil
  - Standard control wiring
- Basic version (A) with SmartWire-DT™ (SW-DT)
  - Circuit breakers with thermomagnetic release unit
  - Reversing contactor circuit with 24V/DC coil up to DILM32, 230V/AC coil up to DILM50, DILA (24V/DC)
  - Connection of the contactor circuit and components control wiring by means of SW-DT data cable (without circuit breaker)
- Complete version (B) with SmartWire-DT™ (SW-DT)
  - Access to all parameters
  - Circuit breaker with electronic release unit
  - Contactor circuit with 230V/AC coil up to DILM50, DILA (24V/DC)
  - Connection of the contactor circuit and components control wiring by means of SW-DT data cable

Technical data
Standard, basic version SW-DT-A, complete version SW-DT-B
- Direct-on-line (DOL) and Forward Reverse (FR)
- Power range of 1.5 – 15kW
- Assignment type 2
- Low cycle fatigue assessment 50kA and 80kA
- IP31 and IP55 degree of protection
- Ambient temperature 35°C
- Module height 75mm, 150mm, 225mm (drawout compartment)

Order data – MCC individual parts

Order no. per P.U. (P.U. = 1 set)

Metal fronts to be opened for drawout unit, PKZ design

Consisting of: front plate incl. locks, hinges, screw material and handles
A factory-applied foam gasket is used for sealing in IP55. Precuts for a total of 7 x RMQ-Titan command and signalling devices available up to a 22.5 diameter. Opening for the mechanical lock push-button available. In addition, holes/indentations for the door coupling rotary handle have been already set. If not all precuts are used, they must be sealed with blanking caps.
Please see MCC accessories.

	Height 75mm	Height 150mm	Height 225mm
Design IP31 ventilated	**XMW0306CDV** 172190 / 172334*	**XMW0606CDV** 172191 / 172335*	**XMW0906CDV** 172193 / 172319*
Design IP55 closed	**XMW0606CDC** 172182 / 172326*	**XMW0606CDC** 172183 / 172327*	**XMW0906CDC** 172185 / 172329*

Metal fronts to be opened for drawout unit, NZM design

BConsisting of: front plate incl. locks, hinges, screw material and handles
A factory-applied foam gasket is used for sealing in IP55. Precuts for a total of 7 x RMQ-Titan command and signalling devices available up to a 22.5 diameter. Opening for the mechanical lock push-button available. In addition, holes/indentations for the door coupling rotary handle have been already set. If not all precuts are used, they must be sealed with blanking caps.
Please see MCC accessories.

	Height 150mm	Height 225mm	Height 300mm	Height 450mm Ausnehmung für Hauptschalter-drehgriff im unteren Drittel	Height 450mm Ausnehmung für Hauptschalter-drehgriff ist mittig
Design IP31 ventilated	**XMW0606CDV-NZM** 172192 / 172318*	**XMW0906CDV-NZM** 172194 / 172320*	**XMW1206CDV-NZM** 172195 / 172321*	**XMW1806CDV-NZM-0** 172196 / 172322*	**XMW0606CDV-NZM-190** 172197 / 172323*
Design IP55 closed	**XMW0606CDC-NZM** 172184 / 172328*	**XMW0906CDC-NZM** 172186 / 172330*	**XMW1206CDC-NZM** 172187 / 172331*	**XMW1806CDC-NZM-0** 172188 / 172332*	**XMW0606CDC-NZM-190** 172189 / 172333*

Coding system

XMW-CP
172198

Control terminals with connection lines

2-pole terminal incl. connection cable (orange, 0.75 mm²) and 2-pole auxiliary current contacts	6 x 2-pole terminal incl. connection cable (orange, 0.75 mm²), end plate, 6 x 2-pole auxiliary current contacts and numbering	12 x 2-pole terminal incl. connection cable (orange, 0.75 mm²), end plate, 12 x 2-pole auxiliary current contacts and numbering
XMW-AC-1-2 171641	**XMW-AC-1-12** 171642	**XMW-AC-1-24** 171643

Catch hook

Consisting of: metal hooks, springs, screws

XMW-L
172177

Upgrade kits for SWD

Consisting of: various DIN rails and mounting brackets, adapted to the drawout unit height, including total screw material

Upgrade kit H = 75mm	Upgrade kit H = 150mm	Upgrade kit H = 225mm	Upgrade kit H = 300mm	Upgrade kit H = 450mm
XMW0306SWD 169875	**XMW0606SWD** 169876	**XMW0906SWD** 169877	**XMW1206SWD** 169878	**XMW1806SWD** 169879

Upgrade kit for Soft Starter

Consisting of: var. DIN rails incl. screw material

Upgrade kit H = 75mm	Upgrade kit H = 150mm	Upgrade kit H = 225mm
XMW0306SS 172204	**XMW0606SS** 172205	**XMW0906SS** 172206

Note

Article number xxxxxx

Eaton is dedicated to ensuring that reliable, efficient and safe power is available when it's needed most. With unparalleled knowledge of electrical power management across industries, experts at Eaton deliver customized, integrated solutions to solve our customers' most critical challenges.

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Printed in Austria (01/14)
Publication number

Grafics: SRA
DigiPics, Lithos:
Print:

Powering Business Worldwide

Bussmann series 500 Volts gG/gL NH Fuse links



Product description

Eaton's Bussmann series 500 Volts NH square bodied industrial fuse links are suitable for a wide variety of applications.

Standard features

- Reliable dual indicator system
- Low temperature rise
- Globally compliant
- Compatible with Bussmann series PV NH base range (see data sheet 10163)

Powering Business Worldwide

Catalogue symbol:

- (amp)NHG(size)B

Fuse size:

- 000 to 4

Technical data:

- Volts: 500 V a.c.
- Amps: 2 to 1250 A
- Breaking capacity: 120 kA AC
- Operating frequency: 45-62 Hz
- Class of operation: gG/gL

Standards/Approvals:

- IEC 60269
- VDE 0636
- DIN 43620
- CE

Microswitches:

- 170H0236
- BVL50

Packaging:

- Sizes 000 to 3: 3 per carton
- Size 4: 1 per carton

Fuse holders (ordered separately)

- Fuse bases:
  - DIN-Rail mounting and screw mounting: 1-pole SD(size)-D, 3-pole TD(size)-D
  - Screw mounting only: SD(size)-S
- Fuse rails - vertical: BFR Series
- Fuse switch disconnectors vertical: BFD Series
- Fuse switch disconnectors horizontal: BFH Series

Size - mm

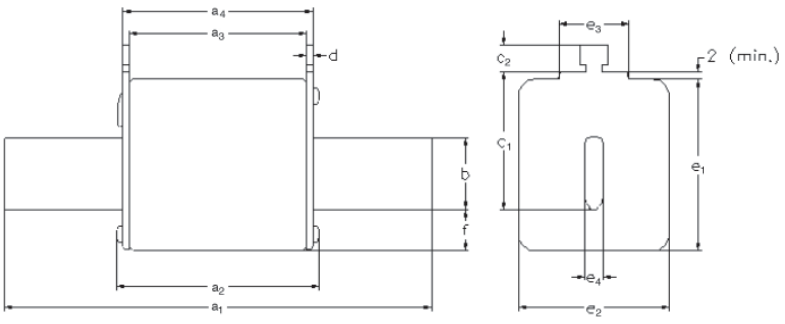


Table 1. NH Sizes

Size	a1	a2 (max)	a3	a4	b	c1	c2	d	e1 (max)	e2 (max)	e3 (max)	e4	f (max)
000	78.5 ± 1.5	54	45±1.5	49±1.5	15	35	10	2±0.5	41	21	16	6	8
00	78.5 ± 1.5	54	45±1.5	49±1.5	15	35	11	2±0.5	48	30	25	6	15
0	125±2.5	$68^{+3}_{-1.5}$	$62^{+3}_{-1.5}$	68	15	35	11	2.5±0.5	48	30	25	6	15
01	135±2.5	75	62±2.5	68±2.5	15	40	11	2.5±0.5	48	30	25	6	15
1	135±2.5	75	62±2.5	68±2.5	20	40	11	2.5±0.5	53	40	25	6	15
02	150±2.5	75	62±2.5	68±2.5	20	48	11	2.5±0.5	53	40	25	6	15
2	150±2.5	75	62±2.5	68±2.5	25	48	11	2.5±0.5	61	53	25	6	15
03	150±2.5	75	62±2.5	68±2.5	25	60	11	2.5±0.5	61	53	25	6	15
3	150±2.5	75	62±2.5	68±2.5	32	60	11	3±0.5	75	70	25	6	18
4	200±3	84	62±2.5	90±3	50	85	10	3±0.5	102	87	25	8	30

Table 2. Part numbers sizes 000 to 01

Size	Rated current (Amps)	Rated voltage (V a.c.)	gG/gL dual indicator		Pack quantity
			Voltage conducting metal gripping lugs	Insulated metal gripping lugs	
000	2	500	2NHG000B	2NHG000BI	3
000	4		4NHG000B	4NHG000BI	
000	6		6NHG000B	6NHG000BI	
000	10		10NHG000B	10NHG000BI	
000	16		16NHG000B	16NHG000BI	
000	20		20NHG000B	20NHG000BI	
000	25		25NHG000B	25NHG000BI	
000	32		32NHG000B	32NHG000BI	
000	35		35NHG000B	35NHG000BI	
000	40		40NHG000B	40NHG000BI	
000	50		50NHG000B	50NHG000BI	
000	63		63NHG000B	63NHG000BI	
000	80		80NHG000B	80NHG000BI	
000	100		100NHG000B	100NHG000BI	
00	50		50NHG00B	50NHG00BI*	
00	63		63NHG00B	63NHG00BI*	
00	80		80NHG00B	80NHG00BI*	
00	100		100NHG00B	100NHG00BI*	
00	125		125NHG00B	125NHG00BI	
00	160		160NHG00B	160NHG00BI	
0	6		6NHG0B	-	
0	10		10NHG0B	-	
0	16		16NHG0B	-	
0	20		20NHG0B	-	
0	25		25NHG0B	-	
0	32		32NHG0B	-	
0	35		35NHG0B	-	
0	40		40NHG0B	-	
0	50		50NHG0B	-	
0	63		63NHG0B	-	
0	80		80NHG0B	-	
0	100		100NHG0B	-	
0	125		125NHG0B	-	
0	160		160NHG0B	-	
01	6		6NHG01B	6NHG01BI	
01	10		10NHG01B	10NHG01BI	
01	16		16NHG01B	16NHG01BI	
01	20		20NHG01B	20NHG01BI	
01	25		25NHG01B	25NHG01BI	
01	32		32NHG01B	32NHG01BI	
01	35		35NHG01B	35NHG01BI	
01	40		40NHG01B	40NHG01BI	
01	50		50NHG01B	50NHG01BI	
01	63		63NHG01B	63NHG01BI	
01	80		80NHG01B	80NHG01BI	
01	100		100NHG01B	100NHG01BI	
01	125		125NHG01B	125NHG01BI	
01	160		160NHG01B	160NHG01BI	

* Available upon request

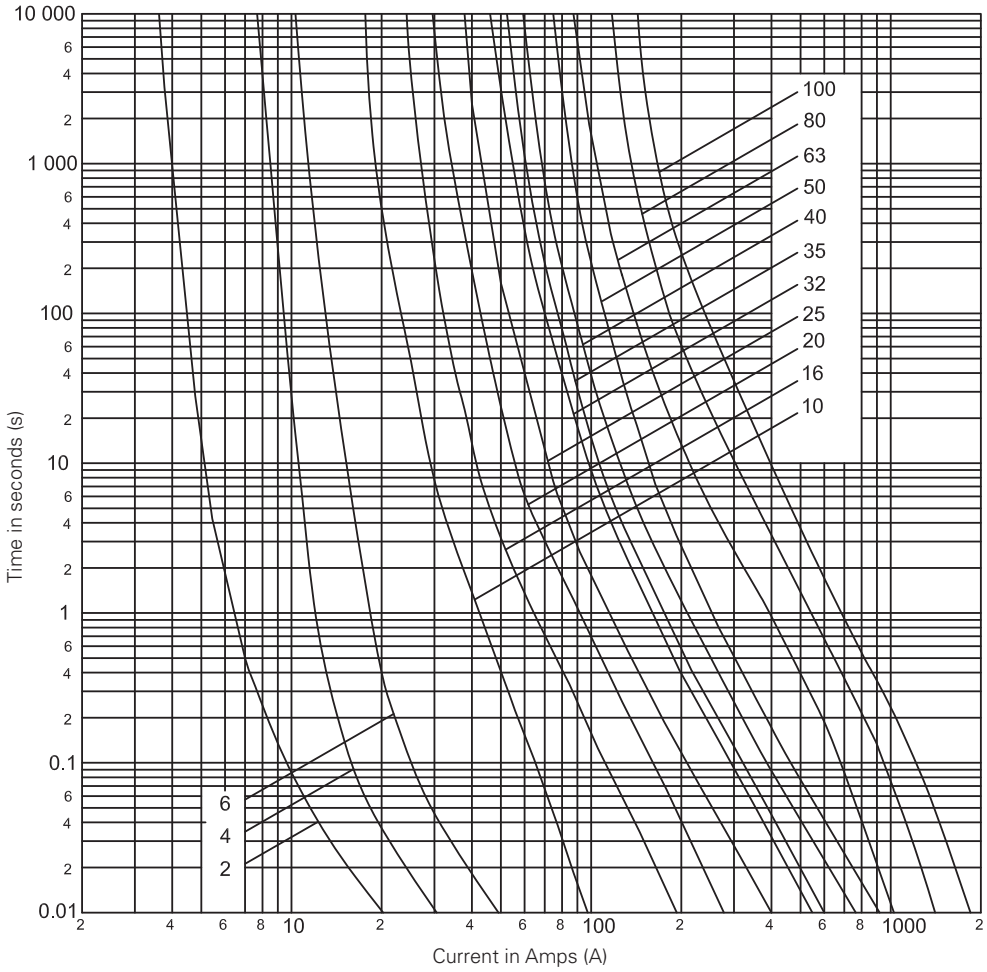
Table 3. Part numbers sizes 1 to 4

Size	Rated current (Amps)	Rated voltage (V a.c.)	gG/gL dual indicator		Pack quantity
			Voltage conducting metal gripping lugs	Insulated metal gripping lugs	
1	50	500	50NHG1B	50NHG1BI*	3
1	63	500	63NHG1B	63NHG1BI*	3
1	80	500	80NHG1B	80NHG1BI*	3
1	100	500	100NHG1B	100NHG1BI*	3
1	125	500	125NHG1B	125NHG1BI*	3
1	160	500	160NHG1B	160NHG1BI*	3
1	200	500	200NHG1B	200NHG1BI	3
1	224	500	224NHG1B	224NHG1BI	3
1	250	500	250NHG1B	250NHG1BI	3
1	315	440	315NHG1B	315NHG1BI*	3
1	355	440	355NHG1B	355NHG1BI*	3
02	35	500	35NHG02B	35NHG02BI	3
02	40	500	40NHG02B	40NHG02BI	3
02	50	500	50NHG02B	50NHG02BI	3
02	63	500	63NHG02B	63NHG02BI	3
02	80	500	80NHG02B	80NHG02BI	3
02	100	500	100NHG02B	100NHG02BI	3
02	125	500	125NHG02B	125NHG02BI	3
02	160	500	160NHG02B	160NHG02BI	3
02	200	500	200NHG02B	200NHG02BI	3
02	224	500	224NHG02B	224NHG02BI	3
02	250	500	250NHG02B	250NHG02BI	3
2	250	500	250NHG2B	250NHG2BI*	3
2	300	500	300NHG2B	300NHG2BI*	3
2	315	500	315NHG2B	315NHG2BI	3
2	355	500	355NHG2B	355NHG2BI	3
2	400	500	400NHG2B	400NHG2BI	3
2	425	500	425NHG2B	425NHG2BI*	3
2	450	500	450NHG2B	450NHG2BI*	3
2	500	440	500NHG2B	500NHG2BI*	3
03	250	500	250NHG03B	250NHG03BI	3
03	315	500	315NHG03B	315NHG03BI	3
03	355	500	355NHG03B	355NHG03BI	3
03	400	500	400NHG03B	400NHG03BI	3
3	315	500	315NHG3B	-	3
3	355	500	355NHG3B	-	3
3	400	500	400NHG3B	-	3
3	425	500	425NHG3B	-	3
3	500	500	500NHG3B	-	3
3	630	500	630NHG3B	-	3
3	800	440	800NHG3B	-	3
4**	500	500	500NHG4G	-	1
4**	630	500	630NHG4G	-	1
4**	800	500	800NHG4G	-	1
4**	1000	500	1000NHG4G	-	1
4**	1250	500	1250NHG4G	-	1

* Available upon request

** Single indicator and slotted end tags

Time-current curves - NH Size 000

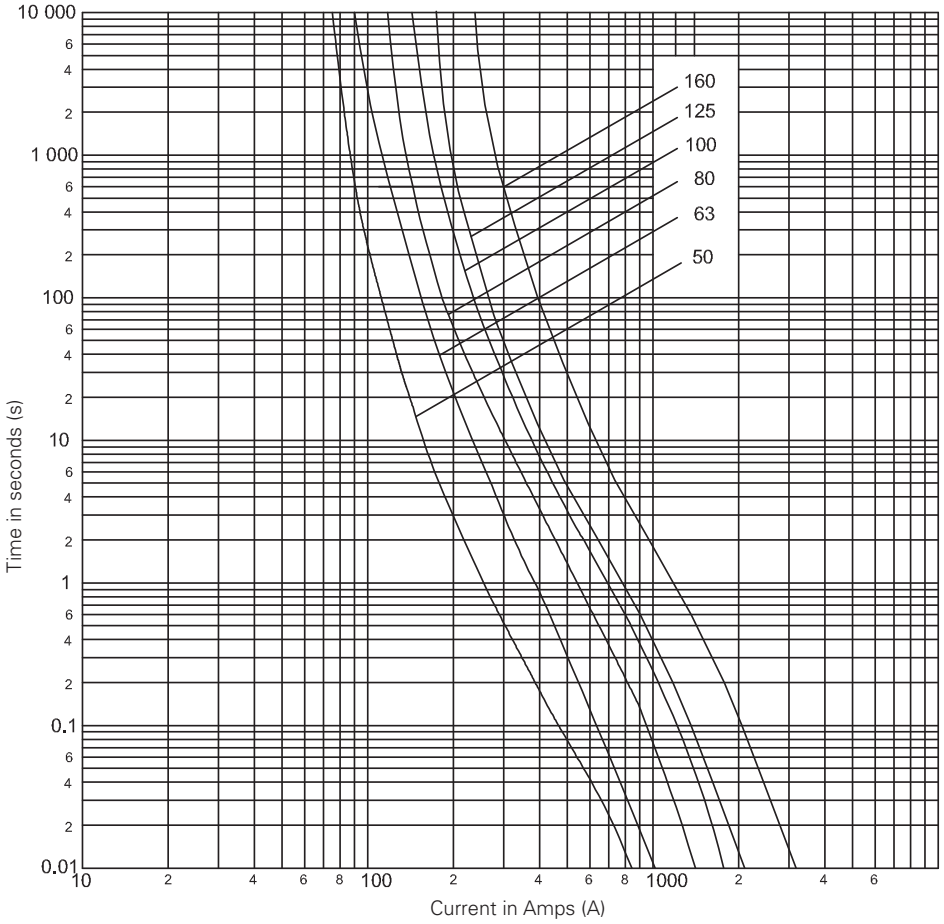


Technical data - NH size 000

Part numbers with metal gripping lugs	Part numbers with insulated metal gripping lugs	Fuse link size	Rated current (Amps)	Rated voltage (V a.c.)	I^2t (Amps^2 Seconds) Minimum pre-arcing	I^2t (Amps^2 Seconds) *I_1 120kA at 500 V a.c.	Watts loss	Net weight per fuse (kg)
2NHG000B	2NHG000BI	000	2	500	3.5	6	3.9	0.13
4NHG000B	4NHG000BI		4		6	12	1.8	
6NHG000B	6NHG000BI		6		14	21	2	
10NHG000B	10NHG000BI		10		58	290	1.5	
16NHG000B	16NHG000BI		16		234	1200	2.3	
20NHG000B	20NHG000BI		20		490	2500	2.2	
25NHG000B	25NHG000BI		25		920	4600	3.1	
32NHG000B	32NHG000BI		32		1800	9000	3.4	
35NHG000B	35NHG000BI		35		2400	11,800	3.7	
40NHG000B	40NHG000BI		40		3300	16,500	4	
50NHG000B	50NHG000BI		50		5900	29,500	4.9	
63NHG000B	63NHG000BI		63		6300	24,900	4.6	
80NHG000B	80NHG000BI		80		9800	38,900	6.3	
100NHG000B	100NHG000BI		100		18,100	72,300	7.4	

*I_1 is the maximum breaking capacity test at rated voltage according to IEC 60269 requirements

Time-current curves - NH Size 00



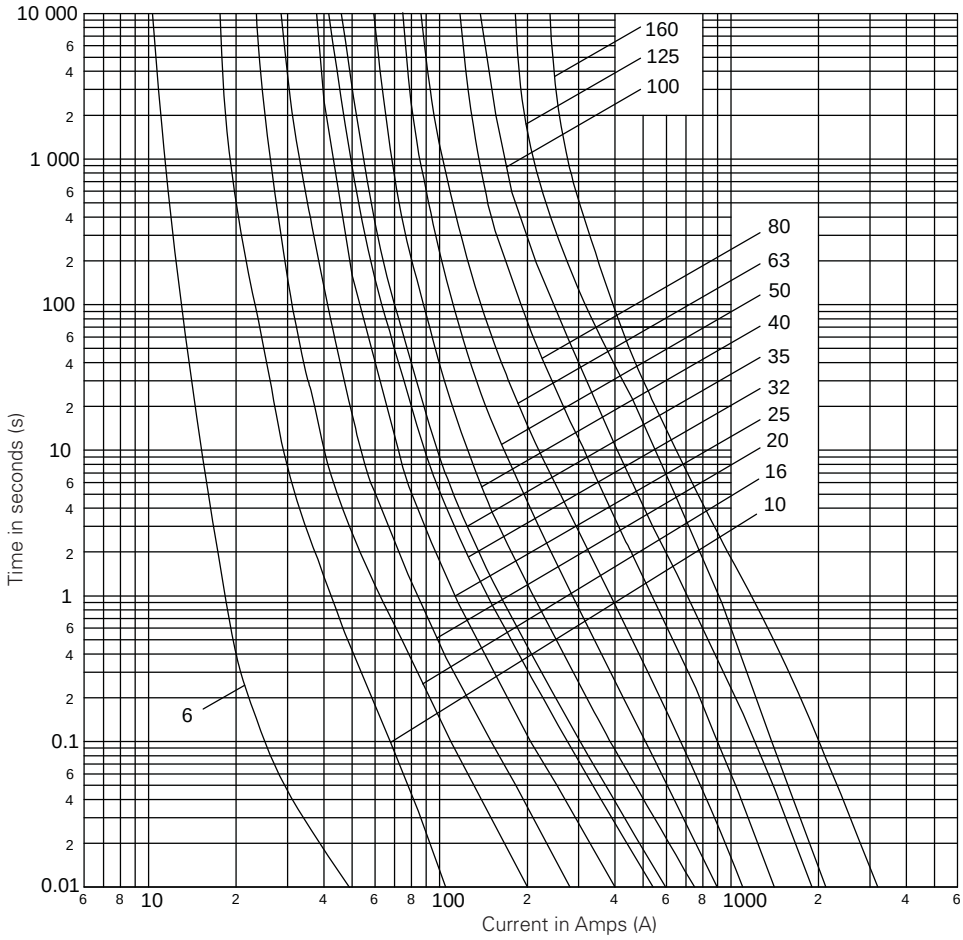
Technical data - NH size 00

Part numbers with metal gripping lugs	Part numbers with insulated metal gripping lugs	Fuse link size	Rated current (Amps)	Rated voltage (V a.c.)	I²t (Amps² Seconds) Minimum pre-arcing	I²t (Amps² Seconds) *I_1 120kA at 500 V a.c.	Watts loss	Net weight per fuse (kg)
50NHG00B	50NHG00BI**	00	50	500	5800	21,500	5	0.19
63NHG00B	63NHG00BI**		63		5800	25,000	5	
80NHG00B	80NHG00BI**		80		11,000	35,000	7	
100NHG00B	100NHG00BI**		100		19,000	60,000	7.5	
125NHG00B	125NHG00BI		125		25,000	125,000	10	
160NHG00B	160NHG00BI		160		64,000	310,000	10	

*I_1 is the maximum breaking capacity test at rated voltage according to IEC 60269 requirements

** Available upon request

Time-current curves - NH Size 0

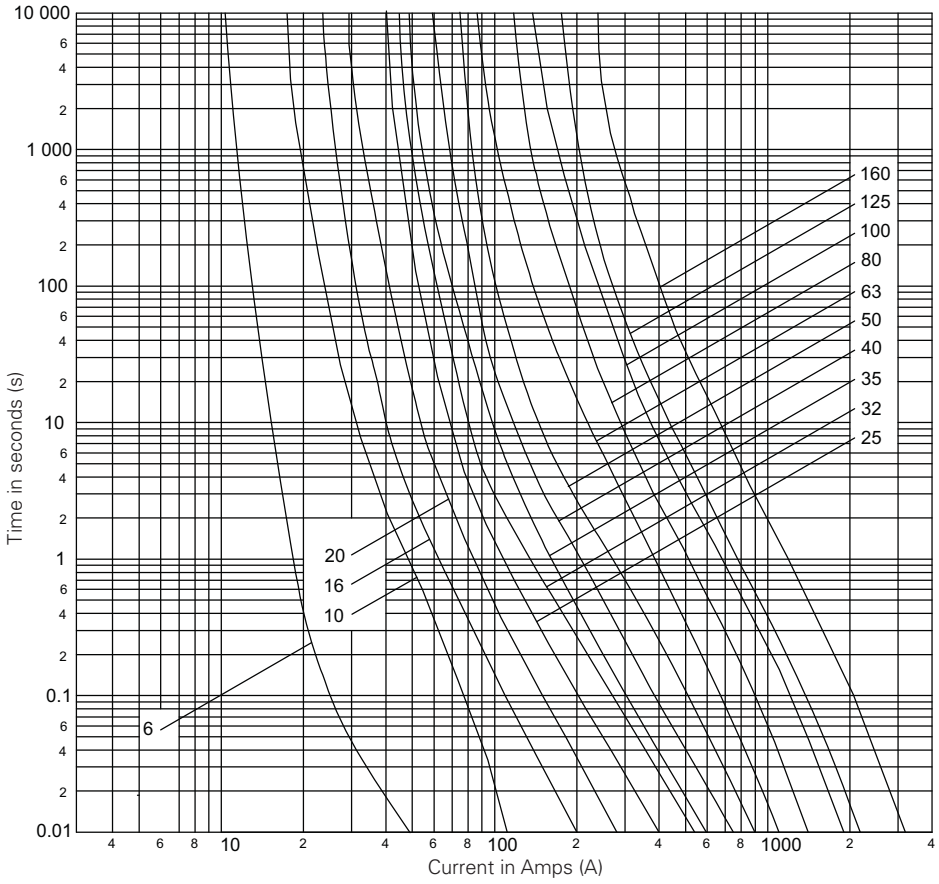


Technical data - NH size 0

Part numbers with metal gripping lugs	Fuse link size	Rated current (Amps)	Rated voltage (V a.c.)	I²t (Amps² Seconds) Minimum pre-arcing	I²t (Amps² Seconds) *I_1 120kA at 500 V a.c.	Watts loss	Net weight per fuse (kg)
6NHG0B	0	6	500	14	21	2	0.26
10NHG0B		10		58	290	2	
16NHG0B		16		240	1200	3	
20NHG0B		20		490	2500	3.5	
25NHG0B		25		1200	5600	3.2	
32NHG0B		32		1800	9000	4.8	
35NHG0B		35		2400	11,800	4.7	
40NHG0B		40		3300	16,500	5	
50NHG0B		50		5600	27,800	6.3	
63NHG0B		63		6600	26,100	5.6	
80NHG0B		80		9800	38,900	7.1	
100NHG0B		100		20,600	82,300	7.5	
125NHG0B		125		25,000	125,000	11.8	
160NHG0B		160		62,000	310,000	12.3	

*I_1 is the maximum breaking capacity test at rated voltage according to IEC 60269 requirements

Time-current curves - NH Size 01

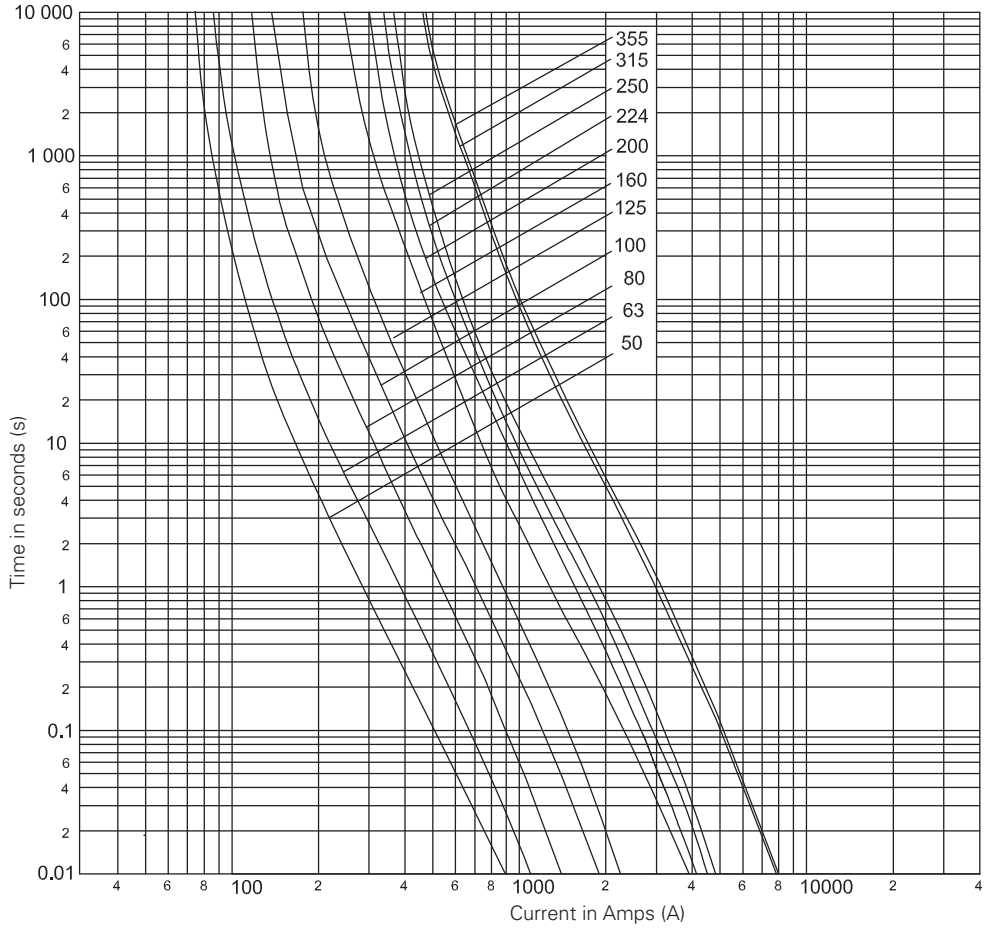


Technical data - NH size 01

Part numbers with metal gripping lugs	Part numbers with insulated metal gripping lugs	Fuse link size	Rated current (Amps)	Rated voltage (V a.c.)	I^2t (Amps² Seconds)		Watts loss	Net weight per fuse (kg)
					Minimum pre-arcing	*I_1 120kA at 500 V a.c.		
6NHG01B	6NHG01BI	01	6	500	14	21	2	0.27
10NHG01B	10NHG01BI		10		58	290	2	
16NHG01B	16NHG01BI		16		240	1200	3	
20NHG01B	20NHG01BI		20		490	2500	3.4	
25NHG01B	25NHG01BI		25		1200	5600	5	
32NHG01B	32NHG01BI		32		1800	9000	4.8	
35NHG01B	35NHG01BI		35		2400	11,800	4.6	
40NHG01B	40NHG01BI		40		3300	16,500	5	
50NHG01B	50NHG01BI		50		5600	27,800	6.3	
63NHG01B	63NHG01BI		63		6600	26,100	5.6	
80NHG01B	80NHG01BI		80		9800	38,900	7.1	
100NHG01B	100NHG01BI		100		20,600	82,300	7.7	
125NHG01B	125NHG01BI		125		25,000	125,000	11.8	
160NHG01B	160NHG01BI		160		62,000	310,000	12.3	

*I_1 is the maximum breaking capacity test at rated voltage according to IEC 60269 requirements

Time-current curves - NH Size 1



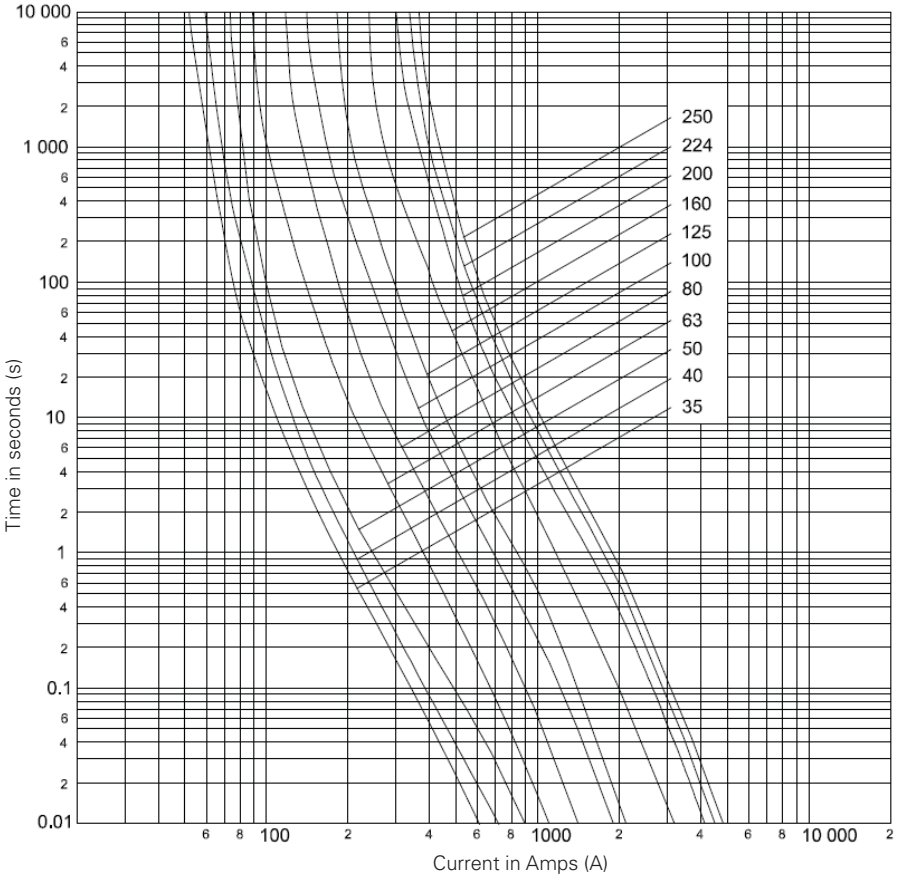
Technical data - NH size 1

Part numbers with metal gripping lugs	Part numbers with insulated metal gripping lugs	Fuse link size	Rated current (Amps)	Rated voltage (V a.c.)	I^2t (Amps² Seconds) Minimum pre-arcing	I^2t (Amps² Seconds) *I_1 120kA at 500 V a.c.	Watts loss	Net weight per fuse (kg)
50NHG1B	50NHG1BI**	1	50	500	6350	18,000	6.4	0.39
63NHG1B	63NHG1BI**		63	500	6800	23,000	5.6	
80NHG1B	80NHG1BI**		80	500	10,500	31,200	7.7	
100NHG1B	100NHG1BI**		100	500	22,000	68,200	8.2	
125NHG1B	125NHG1BI**		125	500	29,000	82,000	13	
160NHG1B	160NHG1BI**		160	500	62,000	310,000	12.3	
200NHG1B	200NHG1BI		200	500	97,000	368,600	15	
224NHG1B	224NHG1BI		224	500	124,000	471,200	18	
250NHG1B	250NHG1BI		250	500	151,300	574,900	19	
315NHG1B	315NHG1BI**		315	440	320,000	750,000	22	
355NHG1B	355NHG1BI**		355	440	320,000	750,000	32	

*I_1 is the maximum breaking capacity test at rated voltage according to IEC 60269 requirements

** Available upon request

Time-current curves - NH Size 02

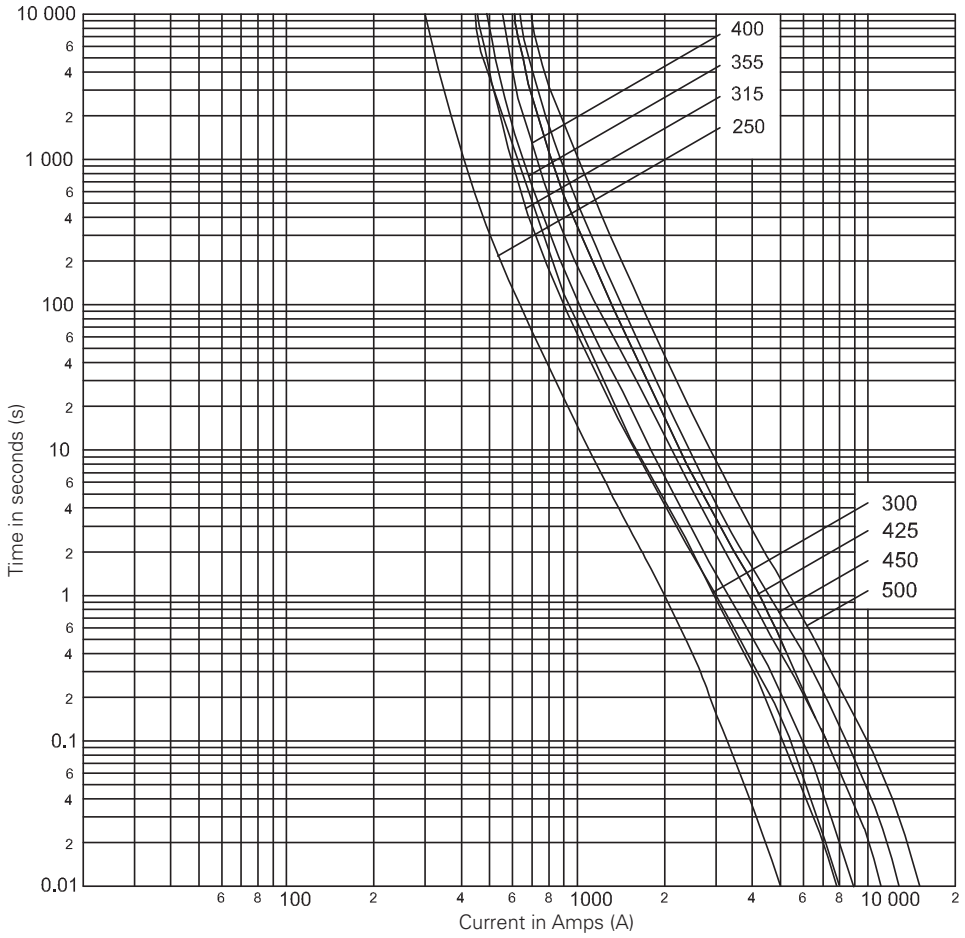


Technical data - NH size 02

Part numbers with metal gripping lugs	Part numbers with insulated metal gripping lugs	Fuse link size	Rated current (Amps)	Rated voltage (V a.c.)	I^2t (Amps^2 Seconds) Minimum pre-arcing	I^2t (Amps^2 Seconds) *I_1 120kA at 500 V a.c.	Watts loss	Net weight per fuse (kg)
35NHG02B	35NHG02BI	02	35	500	2400	11,800	4.7	0.40
40NHG02B	40NHG02BI		40		3300	16,500	5	
50NHG02B	50NHG02BI		50		5600	27,800	6.4	
63NHG02B	63NHG02BI		63		6600	26,100	5.5	
80NHG02B	80NHG02BI		80		9800	38,900	7.3	
100NHG02B	100NHG02BI		100		20,600	82,300	7.5	
125NHG02B	125NHG02BI		125		25,000	100,000	12	
160NHG02B	160NHG02BI		160		62,000	248,000	12	
200NHG02B	200NHG02BI		200		96,900	367,900	15	
224NHG02B	224NHG02BI		224		124,000	471,200	18	
250NHG02B	250NHG02BI		250		151,300	574,900	19	

*I_1 is the maximum breaking capacity test at rated voltage according to IEC 60269 requirements

Time-current curves - NH Size 2



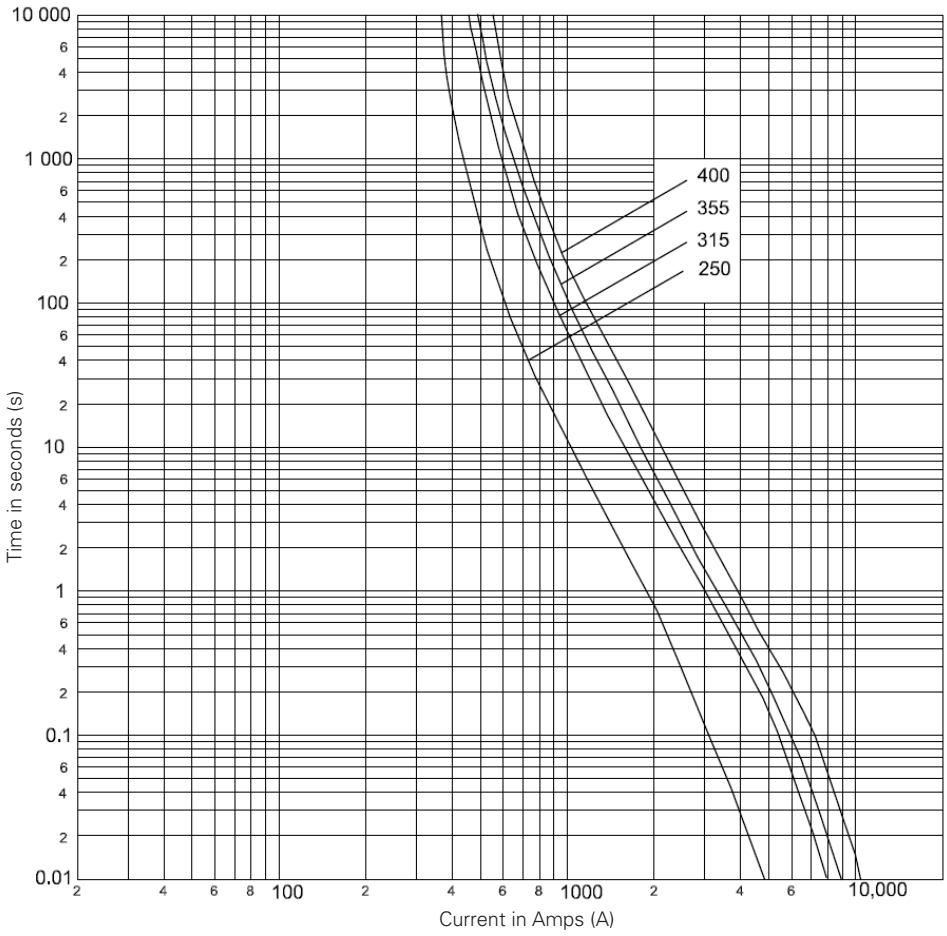
Technical data - NH size 2

Part numbers with metal gripping lugs	Part numbers with insulated metal gripping lugs	Fuse link size	Rated current (Amps)	Rated voltage (V a.c.)	I^2t (Amps² Seconds) Minimum pre-arcing	I^2t (Amps² Seconds) *I_1 120kA at 500 V a.c.	Watts loss	Net weight per fuse (kg)
250NHG2B	250NHG2BI**	2	250	500	170,000	437,000	23	0.63
300NHG2B	300NHG1BI**		300	500	320,000	840,000	20	
315NHG2B	315NHG2BI		315	500	361,700	1,446,500	21	
355NHG2B	355NHG2BI		355	500	446,500	1,785,800	27	
400NHG2B	400NHG2BI		400	500	642,900	2,571,500	30	
425NHG2B	425NHG2BI**		425	500	720,000	1,862,000	31	
450NHG2B	450NHG2BI**		450	500	870,000	2,275,000	31	
500NHG2B	500NHG2BI**		500	440	1,200,000	2,720,000	37	

*I_1 is the maximum breaking capacity test at rated voltage according to IEC 60269 requirements

** Available upon request

Time-current curves - NH Size 03

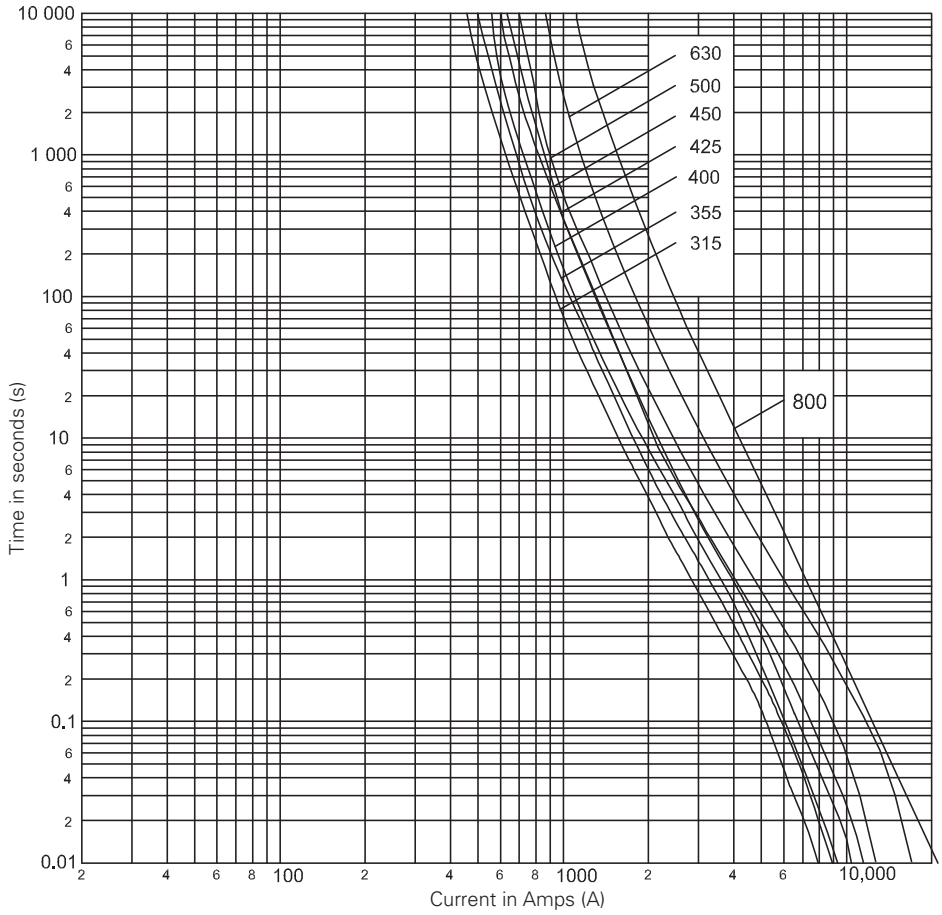


Technical data - NH size 03

Part numbers with metal gripping lugs	Part numbers with insulated metal gripping lugs	Fuse link size	Rated current (Amp)	Rated voltage (V a.c.)	I²t (Amps² Seconds)		Watts loss	Net weight per fuse (kg)
					Minimum pre-arcing	*I_1 120kA at 500 V a.c.		
250NHG03B	250NHG03BI	03	250	500	160,800	642,900	20	0.64
315NHG03B	315NHG03BI		315		361,700	1,446,500	21	
355NHG03B	355NHG03BI		355		446,500	1,785,800	27	
400NHG03B	400NHG03BI		400		642,900	2,571,500	30	

*I_1 is the maximum breaking capacity test at rated voltage according to IEC 60269 requirements

Time-current curves - NH Size 3

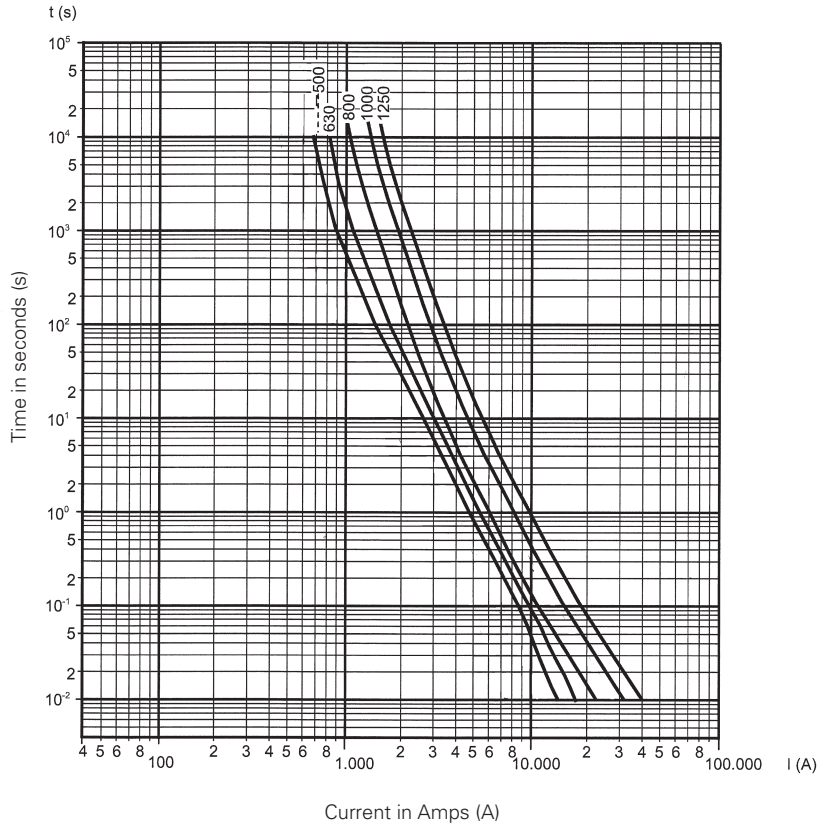


Technical data - NH size 3

Part numbers with metal gripping lugs	Fuse link size	Rated current (Amp)	Rated voltage (V a.c.)	I²t (Amps² Seconds) Minimum pre-arcing	I²t (Amps² Seconds) *I_1 120kA at 500 V a.c.	Watts loss	Net weight per fuse (kg)
315NHG3B	3	315	500	375,000	970,000	22	1.05
355NHG3B		355	500	400,000	1,110,000	25	
400NHG3B		400	500	642,900	2,571,500	30	
425NHG3B		425	500	570,000	1,934,000	30	
450NHG3B		450	500	670,000	2,260,000	33	
500NHG3B		500	500	886,000	3,898,400	37	
630NHG3B		630	500	1,590,000	6,996,000	47	
800NHG3B		800	440	2,420,000	5,420,000	59	

*I_1 is the maximum breaking capacity test at rated voltage according to IEC 60269 requirements

Time-current curves - NH Size 4



Current in Amps (A)

Technical data - NH size 4

Part numbers with metal gripping lugs	Fuse link size	Rated current (Amps)	Rated voltage (V a.c.)	I^2t (Amps² Seconds) Minimum pre-arcing	I^2t (Amps² Seconds) *I_1 120kA at 500 V a.c.	Watts loss	Net weight per fuse (kg)
500NHG4G	4	500	500	800,000	3,850,000	37	2.2
630NHG4G		630		880,000	4,100,000	47	
800NHG4G		800		1,500,000	6,480,000	68	
1000NHG4G		1000		4,800,000	13,000,000	80	
1250NHG4G		1250		7,000,000	18,000,000	108	

*I_1 is the maximum breaking capacity test at rated voltage according to IEC 60269 requirements

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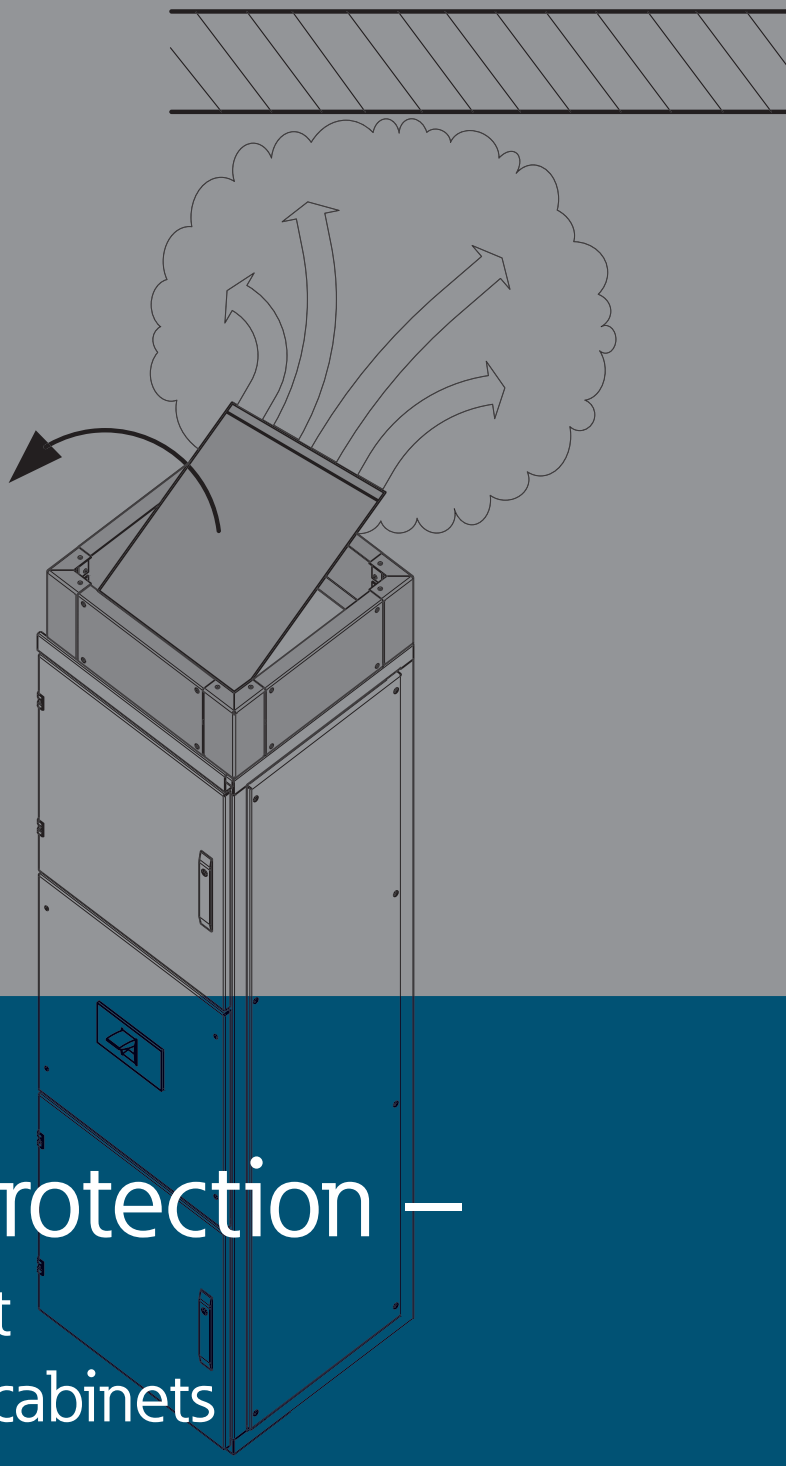
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Publication No. 10164
September 2015

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Eaton – convincing in terms of safety, performance and operational availability.



Passive arc protection –

Safety Management for xEnergy control cabinets

Powering Business Worldwide

Switching to safety.

Short circuits in electrical systems can develop a huge destructive impact and endanger human life. This applies in particular to short circuits which cause an arc.

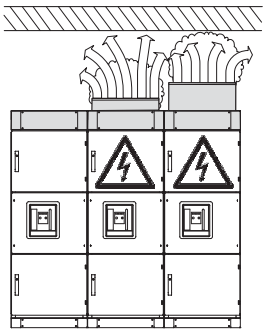
Electric fault arcs produce a faulty connection between system parts with different potentials. In doing so, enormous amounts of energy are released into the environment, primarily as heat and radiation energy of very high intensity. To effectively prevent personal and material damage in the event of a short circuit, Eaton has developed a comprehensive package for passive arc protection in xEnergy control cabinets.

Technical data xEnergy control cabinets
Tested according to IEC/TR 61641

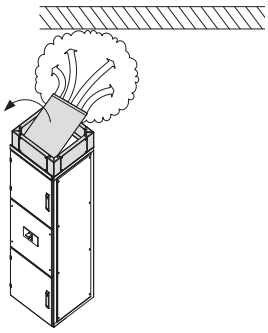
Rated frequency		50/60Hz
Permitted unaffected current under arc conditions	I_{parc}	65kA
Permitted arc burning time	t_{arc}	300ms
Nominal voltage	U_e	415V
Rated insulation voltage	U_i	1000V
Contamination level		3
Protection type		IP40
Internal separation		Form 4

Building construction requirements
The concept of personal protection in control cabinets is based on the fact that the pressure generated by hot gases, which are formed during an arc in the control cabinet, can escape upwards from the enclosure. Therefore, it is imperative to pay attention that sufficient ceiling height and/or other building-related superstructures are available above the control cabinet to ensure a complete opening of the pressure relief valves.

The minimum distance from the upper edge of the cabinet to the ceiling (deepest building element) must be free to at least the same extent as the cabinet depth.



Special attention must be paid so as to ensure that sufficient distance between the control cabinet and the ceiling, or possible beams and other installations, is available so that relief valves can be opened completely (at least cabinet depth).



Released hot gases need to escape barrier-free

Personal protection

To ensure personal protection, criteria 1-5 must be fulfilled.

Criterion 1:

a) Ventilation systems:
No ventilation systems in doors, back walls or front, floor and roof plates – so hot gases can be directed specifically to the roof sheet.

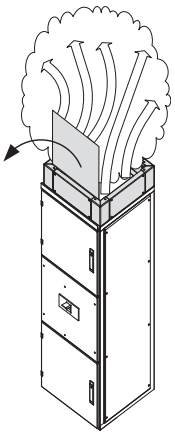


No ventilation possible



All planking must be without ventilation systems

b) Arc relief valve:
A special roof plate with relief valve through which hot gases can escape (the roof plate is mounted on the front side with hinges and at the rear with plastic screws which tear off in case of high pressure).



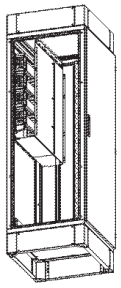
c) Properly secured doors – catch hooks:
Version-1 locking hooks must be replaced with reinforced version-3 ones (enclosed as accessories to the arc relief valve). Version-2 locking hooks may be used.


Version 1


Version 2

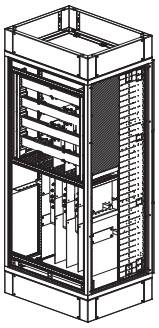

Version 3

d) Internal penetration seals:
Main busbar penetration seals over the entire field width (XPFCB...) must be replaced with arc-suitable penetration seals (XPFCBA...).


XPFCBA

Criterion 2: No unfolding or flying away parts

Base stand:
The 200mm base stand mounted on the roof of the cabinet ensures that the arc relief valve is not opened more than 90°.

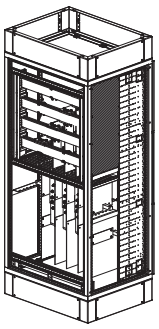


Criterion 4: No ignition of the vertically mounted indicators.

Criteria 1a (no ventilation systems), 1c (reinforced catch hooks in doors) and 2 (stand base) guarantee that vertically mounted indicators are not ignited by escaping gases during the test.

Criterion 3: No holes in the wrapping by arcing (burn out)

An insulating arc barrier between the main busbar and the side wall prevents a flashover of the arc on the side wall.


XBI-P

Criterion 5:

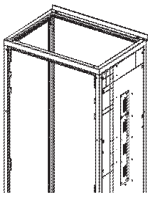
The protection circuit for the wrapping accessible parts is still in working order.

System protection

To ensure system protection, criteria 1-5, and additionally criterion 6, must be fulfilled.

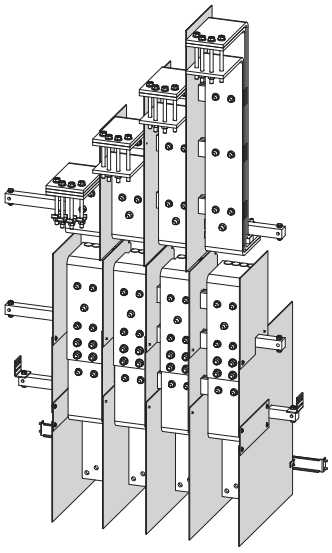
Criterion 6:

An additional penetration seal (XPBSS-5) in combination with the field-to-field penetration seal (XPSS2006 or 2008) ensures that the arc is limited to a defined area of the switchgear assembly.


XPSS2006 or 2008
XPBSS-5

Arc-free zone:
This is the part of an electrical circuit within the switchgear assembly in which it is not possible to apply an ignition wire without damaging the insulating materials of the conductors. Arc-free zones are limited to XP fields in our system. In order to design these fields as arc-free, insulating plates (XPIX16CC06, XPIX40CC06, XPIX40CC08, XPI63CC10) are installed between the single CU conductors.

The insulation plates are built in a modular design and can be installed later (after copper-plating incl. stabilisers). These additional partition walls are to be applied in the switches as follows:
IZMX16 at a 600mm field depth, IZMX40 at 600mm and 800mm field depths, IZM63 at a 1000mm field depth.


Partition walls in a modular design

Order data

Order no. per P.U. (P.U. = 1 set)

Roof sheet with arc protection

400mm depth	600mm depth	800mm depth
XSPTA0404: 107256 / 122515*	**XSPTA0406:** 107257 / 122516*	**XSPTA0408:** 107258 / 122517*
XSPTA0604: 107259 / 122518*	**XSPTA0606:** 107280 / 122519*	**XSPTA0608:** 107281 / 122520*
XSPTA0804: 107282/ 122521*	**XSPTA0806:** 107283 / 122522*	**XSPTA0808:** 107284 / 122523*
XSPTA08504: 143378 / 143514*	**XSPTA08506:** 143380 / 143516*	**XSPTA08508:** 143381 / 143517*
XSPTA1004: 107285 / 122524*	**XSPTA1006:** 107286 / 122525*	**XSPTA1008:** 107287 / 122526*
XSPTA1104: 143383 / 143519*	**XSPTA1106:** 143385 / 143521*	**XSPTA1108:** 133016 / 133064*
XSPTA1204: 107288 / 122527*	**XSPTA1206:** 107289 / 122528*	**XSPTA1208:** 107290 / 122529*
XSPTA13504: 143387 / 143523*	**XSPTA13506:** 143389 / 143525*	**XSPTA13508:** 133017 / 133065*

Arc partition for XP fields

Suitable for 3- and 4-pole XP fields
For supply and leakage of the circuit breaker
Consisting of: partition walls, angle brackets, braces and screw material

Field depth	Switch type		
	IZMX16	IZMX40	IZM63
600mm	**XPIX16CC06:** 171734	**XPIX40CC06:** 171735	
800mm	**XPIX16CC06:** 171734	**XPIX40CC06:** 171736	**XPI63CC10:** 171737

Arc barrier – Main busbar

It is mounted at the end of the main busbar (between the side wall and the main busbar) so that a flashover of the arc on the side wall can be excluded.
Consisting of: partition wall and screw material

XBI-P: 171738

CU busbar implementation

As a function partition seal, from field to field, suitable for all current strengths/rail sizes (through precuts for breaking out) in 3- and 4-pole design
Consisting of: 4-pole dividing plate, dividing plate for PEN, angle profile and screw material

XPBSS-5: 151683

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Eaton – convincing in terms of safety, performance and operational availability.



xEnergy Bus Bar Top –
The switchgear for the future.

Powering Business Worldwide

A partner for all cases.

Technology leader Eaton consolidates its importance in panel building: through type-tested switchgear systems that grow with your needs.

Eaton Corporation, headquartered in Cleveland, Ohio (USA), is pursuing a diversified business strategy and is the undisputed technology leader in multiple categories. Its Electrical Sector alone is a global leader in products and services for power distribution, safe power supply and industrial automation.

With proven brands such as Cutler-Hammer®, F&G®, Moeller®, Powerware®, Holec®, MEM®, Santak® and MGE Office Protection Systems™, Eaton provides customer-oriented PowerChain Management® solutions for energy systems in data centres, hospitals, industrial sectors, hotel industry, retail, food industry, and water treatment plants.

Successful full-service provider
Eaton is already operating as a worldwide specialist for switchgear systems. The declared intent of being a full-service provider is a decisive factor for its success. No matter for which application, at Eaton you will get everything from a single source, from power distributors, to busbars up to single components. Eaton is focused on complying with the current standards and being a pioneer in safety. As is currently the case of the new IEC/EN 61439 standard.











Eaton - 5 times successful

- as the world leading provider of products and services in the areas of electrical control, power distribution, uninterruptible power supply, and industrial automation
- as a global market leader in the design, manufacture and marketing of complete series of drive systems and components for medium and heavy duty vehicles during operation
- as the world leading supplier of the commercial and military aviation as well as aerospace industries with an extensive technology portfolio of hydraulic, fuel supply, motion control and propulsion systems
- as a major supplier of critical components reducing emissions and fuel consumption and improving the stability and performance of cars, light trucks and utility vehicles
- as the world leading manufacturer of reliable, highly efficient hydraulic systems and components for mobile and industrial applications in many sales areas, from mining to the entertainment industry



xEnergy: Distributes energy systematically. Saves efficiently. Thinks ahead.

In Eaton you will find a business partner who supports your expertise in all respects. xEnergy is a switchgear system with multiple options for reliable power distribution and individual possibilities to adjust to your customers' needs.

The xEnergy system offer thinks ahead. That is, it is designed to meet growing requirements. Aimed at maximum efficiency in the implementation of your individual projects, Eaton xEnergy Busbar Top creates the ideal prerequisites for building infrastructures up to 4000A.

Each functional module of our switchgear systems is perfectly prepared and consistently thought out - from the device itself, the mounting system, the housing, right up to the software tools.

Systematically switching = Customising the future
You too can decide in favour of this technically sophisticated and economical unit consisting of switching and protection devices, embedded systems and switchgears. It helps to optimally switch and control power - in short, to master it.

The system is designed as a construction kit and allows for intelligent combinations.

The advantage for you is multifaceted. Not only can you generate optimum added value in your own switchgear building and trust that with Eaton you will build safety-tested switchgears, but you can also be confident that you will always be on the cutting edge. In addition, you also save time, money and space.

xEnergy Bus Bar Top

Eaton is tailored to your requirements as a panel builder: That is why the xEnergy system offer was extended with additional solutions that facilitate your work. The main focus is a new user-oriented switch-gear: xEnergy Bus Bar Top.

In the development of xEnergy Bus Bar Top, utmost attention has been paid to to the compatibility of new components with the proven xEnergy system (main busbar Bus Bar Back). Thanks to its modular concept, the system grows with the specific customer requirements.

Free choice - free access

An essential feature of the **new system is the new patented Open Frame structure** with a freely selectable rail position. Using the newly developed modular busbar carrier, currents up to 4000A are possible (copper mounting of at least 1 x 30/10 = 800A, up to a maximum of 12 x 30/10 = 4000A).

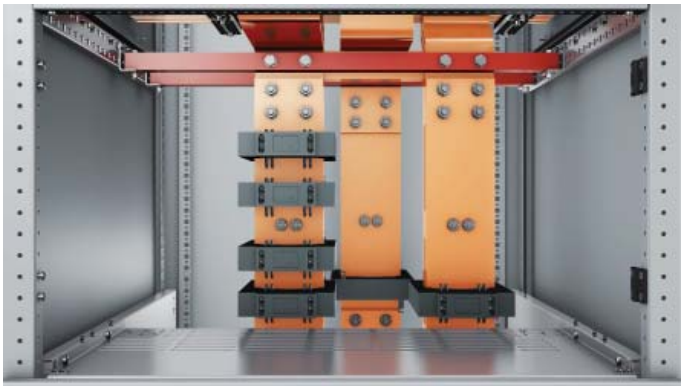
A further valuable feature: Permanent availability of electrical equipment and installations is an increasingly important issue, and production downtime needs to be avoided when and wherever possible. This is why greater emphasis than ever is now placed on thermographic inspections on live electrical connections of CU bars instead of performing mechanical tests on such connections. If predictive/preventive maintenance is done on a regular basis, any potential hotspots can be identified at a very early stage, so - thanks to the Open Frame structure – maintenance personnel can act immediately to fix the problem before a component fails. Removing all top covers provides access to all important CU screw-type connections and consequently allows doing the thermographic test on the installation under **full load**.

The unit is equipped with fully featured connections at the back. This makes maintenance and expansion easier.

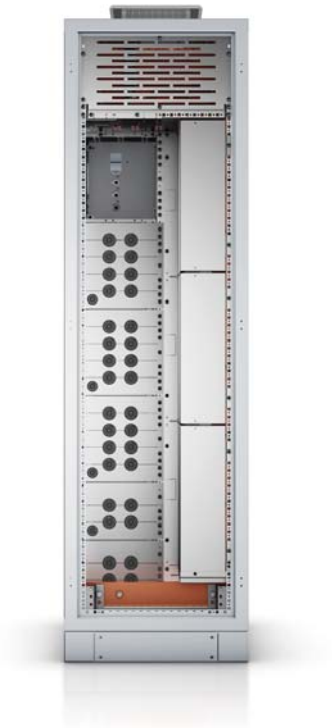


Modular, multi-talented

Open circuit breakers and compact circuit breakers can be installed above or next to each other in the xEnergy power field, for use as inputs, outputs or couplings. Our incoming cubicles can be fitted with measurement modules. They also have space for special versions with up to 4 current transformers per phase (as usual in the Middle East). The current transformers are installed on copper terminals, connected to the phase conductors. In order to provide the best layout for current transformers installation, the phase conductors are routed into the enclosures at different depths.



The incoming cubicles provide space for special versions with up to 4 current transformers per phase.



Outgoing feeder panels are just as easy and flexible to configure. A large number of switching combinations is possible, such as an NZM3 with remote operator and/or plug-in socket and rotary handle. The internal separation can be configured for 4b form up to type 7. The cable connection compartments are modular in construction. This has the advantage that no panels or covers obstruct access to the interior of the compartment during installation and hookup.

In brief: xEnergy Bus Bar Top provides an easy to install, technically fully-featured and cost-effective power distribution system which saves you time and effort during installation and maintenance.

System description	
Tested for compliance with:	IEC/EN 61439
Copper:	per EN13601-CU-ETP-R250-SH
Ambient temperature:	50 °C
Relative humidity:	50 % at 40 °C
Protection:	Protection class 1, earth terminal
Protection rating:	IP31, IP42, IP55
Impact resistance:	IK10
Rated insulation voltage:	1000V
Rated operating voltage:	690V
Insulation coordinates:	III/3
Insulation voltage:	8kV
Over-voltage category:	IV
Contamination class:	3
Rated frequency:	40 – 60 Hz
Bus bar rated current:	4000A
Bus bar rated transient current ICW:	up to 105kA (1 s); 65kA (3 s)
Bus bar rated peak current IPK:	up to 220kA
Cabinet height:	2000 mm
Depth:	800 mm (additional cable panels available from 400 mm to 800 mm)
Cabinet widths:	425, 600, 800, 850, 1000, 1100, 1200, 1350 mm
Standard colour:	7035 structure

Advantages

- **Simple connection to the main busbar**
- **The bars are available at all times**
- **The busbar connections can be inspected thermographically and mechanically at any time**
- **Significantly reduced installation time**



Shopping centers

Whether the application is a health or computer centre, industrial or a sewage plant: panel builders trust Eaton.

The experts in safe power distribution understand the importance of availability and the costs of outages better than any other supplier.

Eaton's xEnergy solution is a type-approved switching solution which offers unbeatable personal and system safety, while reducing outages to a minimum. Available in a variety of basic configurations, the system is built in robust steel panelling to suit the client's current requirements, with room for any expansions and combinations down the line. In brief: xEnergy has the right solution for every need.

Service in seconds
Whether it's a hospital or factory, a server farm, shopping centre or sewage plant: unscheduled outages cost money. That's why Eaton takes special care that the user friendliness of its systems is adapted to the requirements of each individual client. XF's with fixed components can result in even longer outages, and the field of application must be chosen in relation to calculated downtimes.

On the other hand, XR's using quick mounting modules require only a few minutes for swapping components out, and with the high end XW version, this is reduced to just a few seconds.

With its plug&play technology and the option for live swapping of components, downtimes is finally a thing of the past and the requirement for skilled staff is also reduced to a minimum.


Functional and residential buildings


Hospitals


Water treatment plants


Hotels

Advantages

- **Type-approved, modular and flexible**
- **Tested/safe combination of switchgear and housings**
- **Compatible with a vast number of components**
- **The solution for any field of application (from power distribution to motor control centres)**
- **Time saving**
- **Outstanding safety**
- **Supplied as flatpack or fully assembled control cabinet**
- **Software tools and training for easy planning and implementation**
- **Long service life even in the most demanding conditions**



X Benefits of xEnergy Bus Bar Top

Open circuit breaker series IZMX16/40

This xEnergy panel allows the circuit breakers to be installed individually, next to and above each other.

- Widths 425/600/800 mm
- Fixed or removable
- 3- or 4-pole
- Feasible as a Single, Stacked or Side-by-Side solution
- Can be used as a coupling panel (compatible with mechanical interlock)
- 630 - 4000A
- 4b form up to type 7
- IP31, IP42, IP55
- Simple, cost-effective cable connection system
- Can be operated externally
- Switchgear compatible with components (e.g. mutual locking)



XF outgoing sections for fixed outgoers up to 630A in Form 2b

- Outputs with circuit breakers PKZ, NZM, FAZ
- For main busbars running at the top under the lid
- Panel height 2000 mm, depth 800 mm + additional rear cable connection space of 400 mm to 800 mm available as required
- Back plane connection
- 3- or 4-pole and 3P+N
- IP31, IP42, IP55
- Circuit breaker compatible with all acces sories. e.g. rotary drives
- Transparent doors (glass) available
- Distribution bars up to 2000A



XF outgoing feeder panels for fixed outputs up to 630A in Form 4b

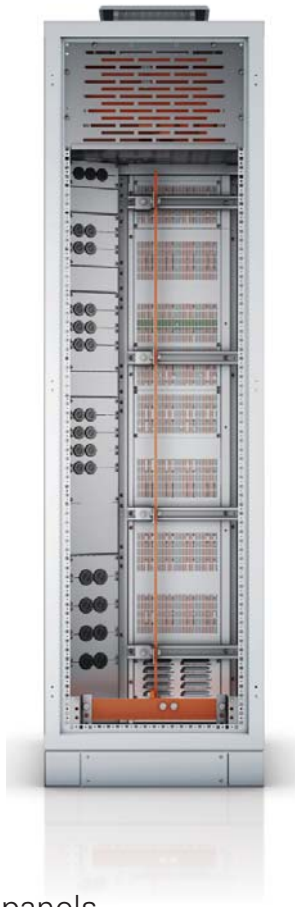
- Panel widths 600 mm (800/1000 mm with additional side cable connection space as supplementary functional space)
- Module width 600 mm
- Each module has its own front panel
- 3- or 4-pole and 3P+N
- 4b form up to type 7
- IP31, IP42, IP55
- Circuit breaker compatible with all accessories. e.g. rotary drives
- Transparent doors (glass) available
- Distribution bars up to 2000A
- Clear division of functional spaces



Box Solution

- Panel widths 600 mm (800/1000 mm with additional side cable connection space as supplementary functional space)
- Module width 600 mm
- Each module has its own door
- 3- or 4-pole and 3P+N
- 4b form up to type 7
- IP31, IP42, IP55
- Circuit breaker compatible with all accessories. e.g. rotary drives
- Distribution bars up to 2000A
- Clear division of functional spaces
- Can be operated from behind the door or with door coupling handle







XW plug&play outgoing feeder panels

- Panel widths 600 mm (800/1000 mm with additional side cable connection space)
- 3- or 4-pole
- Distribution bar rated current In = 1000-1600A
- IP31, IP42, IP55
- Shelves individually height adjustable to fit the module
- Maximum installation height = 1600 mm
- Rear cable connection space completely insulated from equipment space, main busbar space and distribution busbar space
- Busbars completely insulated from the front with self-closing cover flap
- Available inserts:
  - o Power outputs up to 400A
  - o Direct starter 0.06 – 132kW
  - o Reversing starter 0.06 – 132kW
  - o Star-delta starter 5.5 – 110kW
- Outputs from 132 to 250kW as well as power outputs up to 630A are available as fixed solutions
- Integrated SmartWire DT solutions
- Integrated soft starter solutions

XG general purpose blank panels

- General purpose blank panels
- Rail mounting systems
- Individual fixed systems on installation panels
- Control technology – field-high or divided installation panels
- Panel height 2000 mm
- Panel depth 800 mm
- Panel width 425/600/800/850/1000/1100/1200/1350 mm
- IP31, IP42, IP55



Eaton xEnergy Bus Bar Top Support

Configurator included at no additional charge
In order to make planning and configuring xEnergy as easy as possible, we offer our tried and tested xEnergy Configurator software at no additional charge.

- User friendly xEnergy selection options
- Windows based wizards
- Functional, self-explanatory construction
- Short training period with Look and Feel
- Versatile applications
- Project management and system structure
- The system generates the correct distributor in relation to the guided system choice
- Parts lists for devices, inserts and distributors
- Generation of front views for offers, drag and drop customisation

Further information
- Detailed catalogue with ordering and technical sections
- Information includes instruction leaflets, construction guides and technical manuals

All data freely available from
www.xEnergy-partner.com
For any further information, please write to
SupportDistributionBoardAustria@eaton.com

Now also available in IP42
(tested at 50° Celsius ambient temperature)



XP Power panels/ feeds/outputs/ couplings

- Feeds, outputs and couplings up to 4000A
- Cable connections routed from below; additional cable panels can be installed below and above
- Feasible as a Single, Stacked or Side-by-Side solution
- The busbars can run at the top under the lid, through the middle or below, and as a busbar connection in a vertical execution
- Panel height 2000 mm, depth 800 mm + additional cable space of 400 to 800 mm depth
- Internal separation 4b form up to type 7
- Back plane connection



Compact circuit breaker NZM3/4 in form 4b

xEnergy panels allow the circuit breakers to be installed individually or in pairs, next to and above each other.

- Widths 425/600/800 mm
- Fixed or removable
- 3- or 4-pole
- Can be used as a coupling panel
- 250 - 630A (NZM3)
- 630 - 1600A (NZM4)
- Form 4b
- IP31, IP42, IP55
- Simple, cost-effective cable connection system
- Can be operated externally or with door coupling handle
- Switchgear is compatible with components (e.g. motor lift, socket, etc.)



Distribute, switch, protect - systematically.



IZM

Variable circuit breakers up to 4000A

Height, width and depth of the switch are always the same, increased operational safety with robust construction and communications, cost-optimised design thanks to modular construction, suited to installation worldwide, for xEnergy and xVTL.



NZM

Compact circuit breakers up to 1600A

Available in four switching capacities, compact and space-saving, ideal as master switches for machine controllers, feed switches in installation distributors or output switches in power distri-



Power Xpert® FMX

Medium voltage current distribution with SF_6 free vacuum technology

An innovative and compact switchgear system with fixed circuit breakers for applications up to 24kV, ideal for use in power provider distribution networks and industrial and public utility applications. FMX sets new standards in ease of connection, compactness, operational safety and user friendliness.



Xiria Ring Cable Station

Medium voltage current distribution with SF_6-free vacuum technology

For outstanding operational safety in applications up to 24kV, hermetically sealed housings constructed with top quality components and mechanisms make Xiria a service-free solution. Available in two basic configurations (for ring cable connections and for protecting power transformers and their associated cable connections) for unrestricted use in fully automated grids.



Power Xpert® XP

Current busbar systems in copper and aluminium

Its sandwich-type design makes XP ideal for a vast range of applications from 500 to 6300A, able to handle any of the challenges faced by electrical systems, with much lower power dispersion than cable-based solutions - which means energy saving and reduced emissions.



CS

Wall housings in solid steel panelling

Ideal for applications requiring effective protection against direct contact with live components, available in 45 housing sizes.



CI

Modular insulated material housing

Designed for the most challenging conditions, as an individual housing, wall-mounted or free-standing distributor, type-approved for all current applications.



SASY 60i

Modular busbar system

For effective power distribution in the control cabinet, in combination with the latest cutouts and circuit breakers, a complete solution for switching, control and distribution, with UL certification.



PKZ

Motor and system cutout

The essence of quality and innovation, available with swap-out trip block on demand.



PKE

Motor cutout

Easy to equip with manual switches, trip indication and other components, for a complete, easy-to-design solution



DIL

Circuit breaker

Designed for individual solutions, depending on the client's industry.

Service / Software / Support

Eaton actively supports the ZVEI Service Initiative „Services in Automation“. For our service offering, this means: tailor-made service, easy identification of available services, guaranteed competency for the services offered, and determination of the desired results and performance data in consultation with the client.

Service





Type-approved quality

Eaton is DIN ISO 9001 certified. You can rely on Eaton product quality. Eaton switching solutions use building blocks constructed from precisely-specified IEC/EN 61439 type-approved functional modules. The building block system is designed for local (DIN VDE, CEI, NF, UNE) installation requirements.

Eaton also offers all relevant circuit breaker combinations for the desired protection type up to 4000 A. The type-approval of the entire product, consisting of switchgear, installation equipment and control cabinet per IEC/EN 61439 guarantees a high level of safety. And its modularity means that the system is easy to expand as your needs grow.

Custom deliveries

Eaton supplies its entire product range as a flatpack, functionally packed in component families, or as a fully assembled cabinet if so desired. Short delivery times make it easy to respond promptly to our customers' requests for information and changes.

- Easy configuration and ordering, with software tools for generating parts lists
- Fast deliveries from stock thanks to our streamlined logistics
- Easy part handling with practical packing units
- Safe and time-saving assembly, using Eaton assembly instructions

The system offering is optimised for installation of Eaton's internationally available switching and circuit breaker equipment, and is supplemented by configuration and planning tools.
We have the right tool for every phase of your power distribution project!

Technical support



Eaton offers expert, reliable technical support. For new clients, we offer training in the construction of a type-approved switchgear system solution.

This has the benefit that the client works directly with the panel builder to build his first switchgear system, which means that he learns how best to proceed.



Software

Eaton offers you the tools you require. Our planning, documentation and calculation software tools support planners as well as control cabinet builders and installers. The Eaton Toolbox is perfectly designed for the job: from grid planning to system planning and tenders, up to the order itself. Eaton Tools, with its system specific data, ensures a simpler, faster and more efficient solution for real life applications.

CurveSelect

Eaton's characteristic curve program for protection equipment is available free of charge and enables you to represent the application-specific characteristic curves of multiple safety circuits in the same time and current scales. This considerably simplifies the assessment of the interaction of NZM and IZM circuit breakers, PKZ motor cutouts, ZB motor relays and circuit breakers as well as NH fuses.

Freely definable curves (FreeStyleCurves = FSC) enable direct comparison of:

- the selected motor cutout and motor starter characteristics,
- feed switches and the upline medium voltage protection,
- planned expansions and available protection equipment.

CurveSelect supports you in designing and documenting your plant.

xSpider

A graphic design system for rating low voltage grids equipped with Eaton protection equipment. xSpider is available for download free of charge.
The software includes a database of Eaton protection equipment (MCBs, MCCBs, ACBs, Sicherungen, Motorstarter). MatSelect database for managing product and material data in in-house and standardised classification systems.

Configurator for xEnergy

Quickly and easily configures an xEnergy switchgear combination. Draw up tenders in real time and generate the exact parts list at the click of a button.



Eaton partner programme

The key to your success with xEnergy switchgear system solutions is the Eaton partner programme. Membership has many benefits: Not only do you get your information from the horse's mouth. You are also the first to be notified about interesting facts and new developments in the xEnergy system.

As soon as you register with www.xenergy-partner.de you are welcomed into xEnergy Partner Net, and all the advantages of the Eaton partner programme are instantly available to you.

For further information:
www.xenergy-partner.de



xEnergy
Licensed Partner

Advantages

- Designation as a certified partner on the Eaton website
- Access to BA's, AWA's, configurator, certificates and technical data sheets
- Up-to-date product information
- Software downloads
- installation instructions
- Information material for your clients, e.g. catalogues, flyers
- Declarations of Conformity and Guidelines per IEC Standards

Note

Note

Article number xxxxxx

Eaton is dedicated to ensuring that reliable, efficient and safe power is available when it's needed most. With unparalleled knowledge of electrical power management across industries, experts at Eaton deliver customized, integrated solutions to solve our customers' most critical challenges.

Our focus is on delivering the right solution for the application. But, decision makers demand more than just innovative products. They turn to Eaton for an unwavering commitment to personal support that makes customer success a top priority.

For more information, visit **www.eaton.eu/electrical**



To contact an Eaton salesperson or local distributor/agent, please visit **www.eaton.eu/electrical/customersupport**

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Switzerland

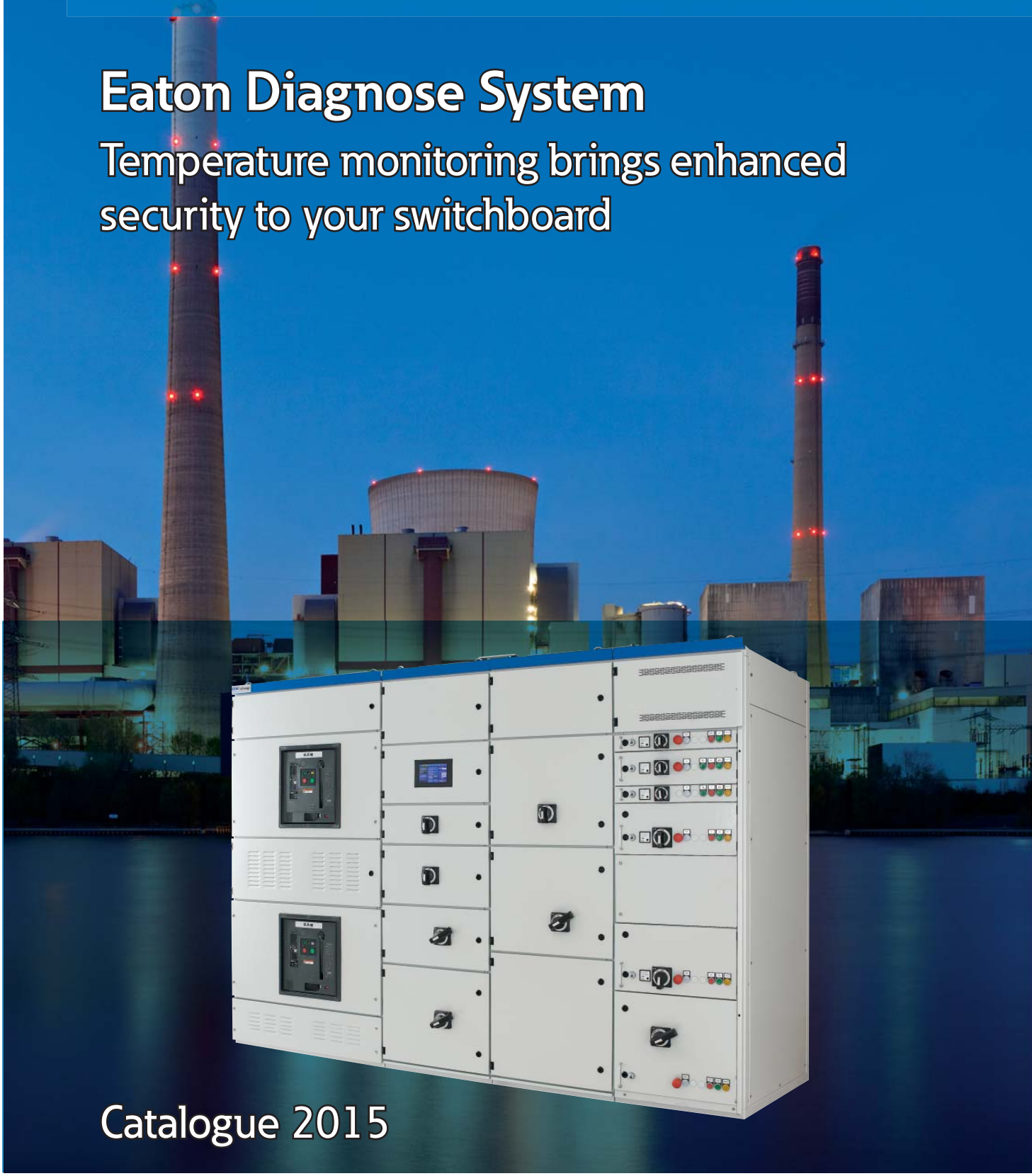
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Printed in Austria (02/14)
Publication number

Grafics: SRA
DigiPics, Lithos:
Print:

Powering Business Worldwide

Eaton Diagnose System

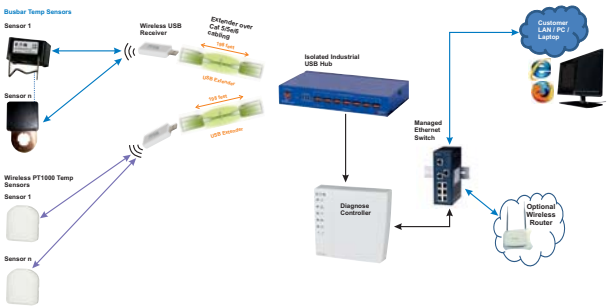
Temperature monitoring brings enhanced security to your switchboard



Catalogue 2015

Powering Business Worldwide

EATON Diagnose System



- Permanent monitoring
- Detection at an early stage
- Warnings
- Diagnostics
- Documentation
- Availability of the system
- Wireless – no wiring of the sensors
- Quick and easy installation
- No batteries in the sensors
- Permanent status transmission
- Log-file recording
- Integration into existing SCADA systems

EATON Diagnose System

Temperature Sensor

• Incl. holding brackets for 10mm flat copper

vt35115



Type designation	Article No.	Pack (pcs.)
XNT-DIAG1	178303	1
XNT-DIAG3	178304	3
XNT-DIAG12	178305	12

Adapter Plate

• Incl. screws and Allen key

vt34715



Type designation	Article No.	Pack (pcs.)
XNT-DIAG-A-3	178306	6
XNT-DIAG-A-4	178659	8

Holding Brackets

• For 15mm Cu material thickness

vt34915



Type designation	Article No.	Pack (pcs.)
XNT-CLAP15	180071	100

Holding Brackets

• For 20mm Cu material thickness

vt34815



Type designation	Article No.	Pack (pcs.)
XNT-CLAP20	180072	100

Diagnostics Controller

vt34215



Type designation	Article No.	Pack (pcs.)
CHCA-00/03	178650	1

EATON Diagnose System

Diagnostics Temperature Input

- RF module for capturing the ambient temperature
- Incl. fixing bracket
- For 2 sensors maximal

	Type designation	Article No.	Pack (pcs.)
vt34415 	CTEU-02/02	179344	1

Temperature Sensor for Ambient Temperature

- PT1000, attachment hole 4mm, cable length = 1m

	Type designation	Article No.	Pack (pcs.)
vt40315 	XNT-PT1000-4MM	179392	1

Receiver

	Type designation	Article No.	Pack (pcs.)
vt34515 	XNT-REC	178660	1

USB Extender

- Incl. fixing bracket

	Type designation	Article No.	Pack (pcs.)
vt34315 	XNT-USB-EXTENDER	178661	1

USB HUB

- 7 Port USB hub

	Type designation	Article No.	Pack (pcs.)
vt34015 	XNT-USB-HUB-7PORT	178662	1

Sensor Tester

		Type designation	Article No.	Pack (pcs.)
vt34115 		XNT-SENSOR-TEST	181584	1

Power supply for HUB

- Rated voltage Input: 100-240V AC, 50/60Hz
- Rated voltage Output: 24V DC, (±3%)
- Rated current: 1.25A

	Designation	Type designation	Article No.	Pack (pcs.)
	Power supply	EASY400-POW	212319	1

Technical Data

Introduction

Eaton DIAGNOSE was developed to provide permanent monitoring of our low-voltage main distribution boards. This results in a wide variety of advantages such as early detection, warning messages, diagnostics, documentation, increased system availability, optimized service intervals, reduction of infra-red scans, reduction of mechanical strain, ...

Thanks to permanent monitoring of the distributions boards any potential errors can be detected at a very early stage and be prevented (early detection). Such errors can by identified by a rise in temperature over a longer period of time, which usually would not be detected during a thermo-scan because there is no reference value available for a longer period of time. Another advantage is that sensors can be placed in areas of the system that are difficult or impossible to access for thermo-scans. As it is no longer necessary to remove covers or planks for thermo-scans, it also results in increased safety for people and increased system availability, because enabling is only necessary when DIAGNOSE reports a pre-vailing abnormity. Thanks to wireless signal transmission between sensors and analysis unit there is no need for any additional cables in the main and distribution busbar areas. And the time usually required for service jobs will be significantly shorter. You can immediately start with the usual revision jobs as thermo-scans and disassembly jobs are no longer necessary.

Warning messages:

If DIAGNOSE detects any abnormity, it will be visually displayed in the software. So there are different colours for messages to indicate the degree of dysfunction.
Green = everything is okay
Yellow = no signal from the sensor, or the battery of the ambient temperature sensor is low
Orange = rail temperatures are getting close to critical values
Red = critical temperature values have been reached or exceeded

DIAGNOSE can be used as a stand-alone solution or it can be interlinked through the Internet, but it can also be incorporated into existing Scada systems in order to be able to react as efficiently and as automatically as possible to any potential errors.

Diagnostics:

Thanks to permanent monitoring of the system and thanks to documentation of the data it is possible to optimize trends and poorly aligned production processes. For example, if there are repeated and extreme load peaks which would normally not be noticed, this may be due to the fact that the entire system is exposed to high strain levels.

Such load peaks can easily be detected and prevented thanks to DIAGNOSE. In most cases all you need to do is optimize timebased processes in the production routine to get this type of problems under control.

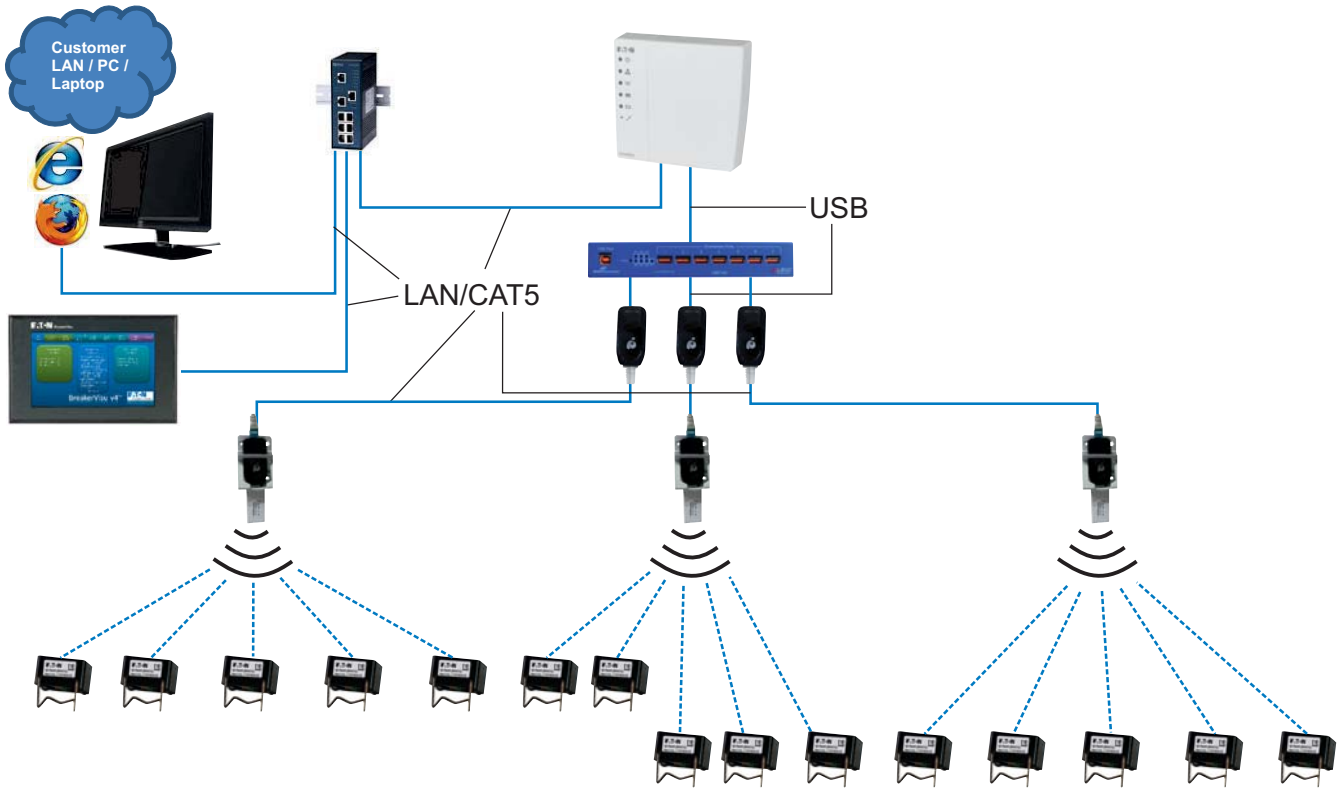
Documentation:

Every 10 minutes the sensors will be checked, their status will be recorded and their data will be saved. The log-file will be saved for one month. After one month, older data will be time-compressed. To prevent any overwriting of data, the DIAGNOSE Controller can be equipped with an additional memory card. Depending on the capacity of the memory card, you can save log-files over very long periods of time. The log-file will be displayed both as a graph and in an Excel table. These data are the basis for displaying the analysis data in a chart.

EATON Diagnose System

Technical Data

Functional overview



systemuebersicht1

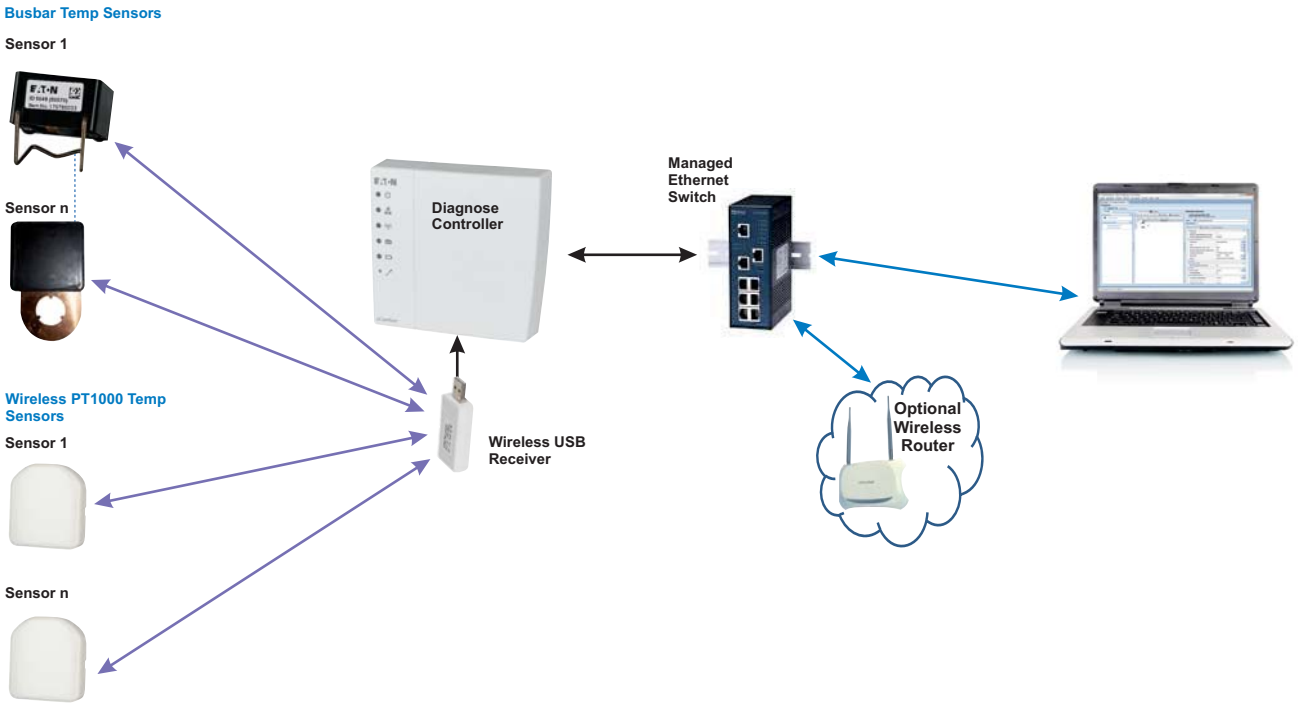
Technical Data

System overview

Version 1:
No network connection, max. number of sections to be monitored = 5

As there is only 1 receiver installed in this configuration, the maximum size of the system is limited to 5 secions (regarding the transmission power it is a max. of 2 sections to the left and 2 sections to the right).

The data received and saved can be loaded from the Eaton Diagnostics Controller to a PC at any time and then be analyzed.

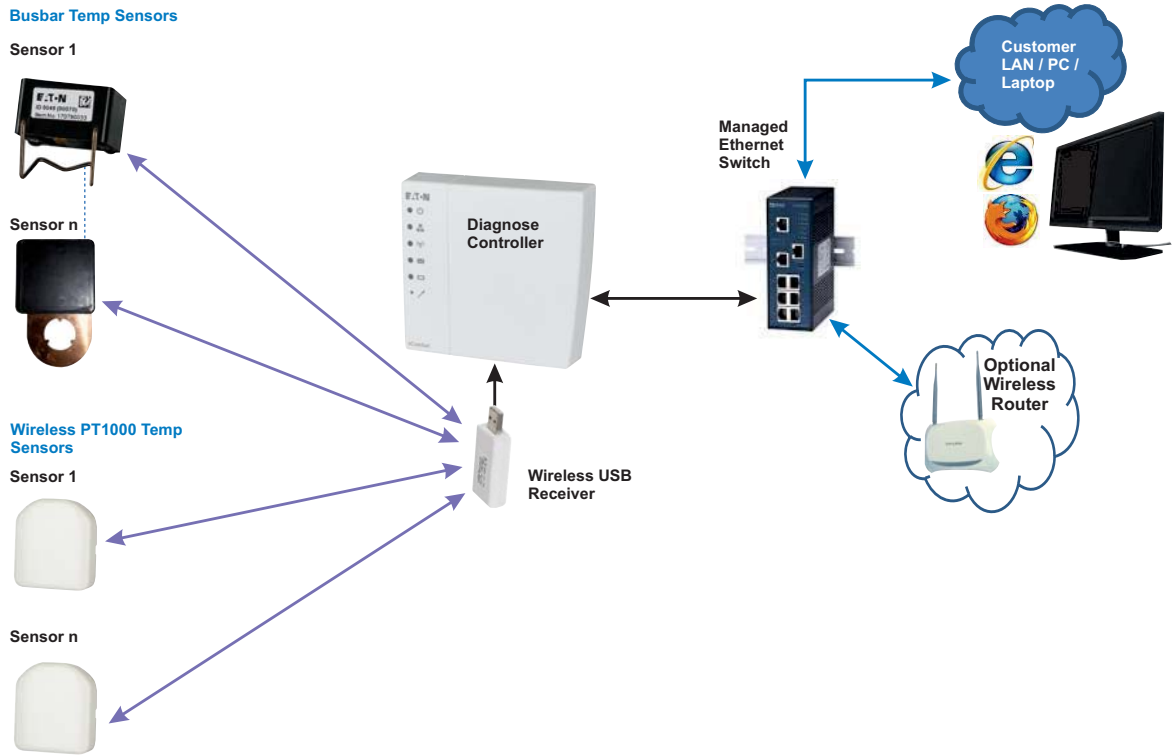


diagnose2

Version 2:
With network connection, max. number of sections to be monitored = 5

As there is only 1 receiver installed in this configuration, the maximum size of the system is limited to 5 secions (regarding the transmission power it is a max. of 2 sections to the left and 2 sections to the right).

The data received will be saved directly at the Diagnostics Controller and at the same time all data will also be transmitted to the connected network.



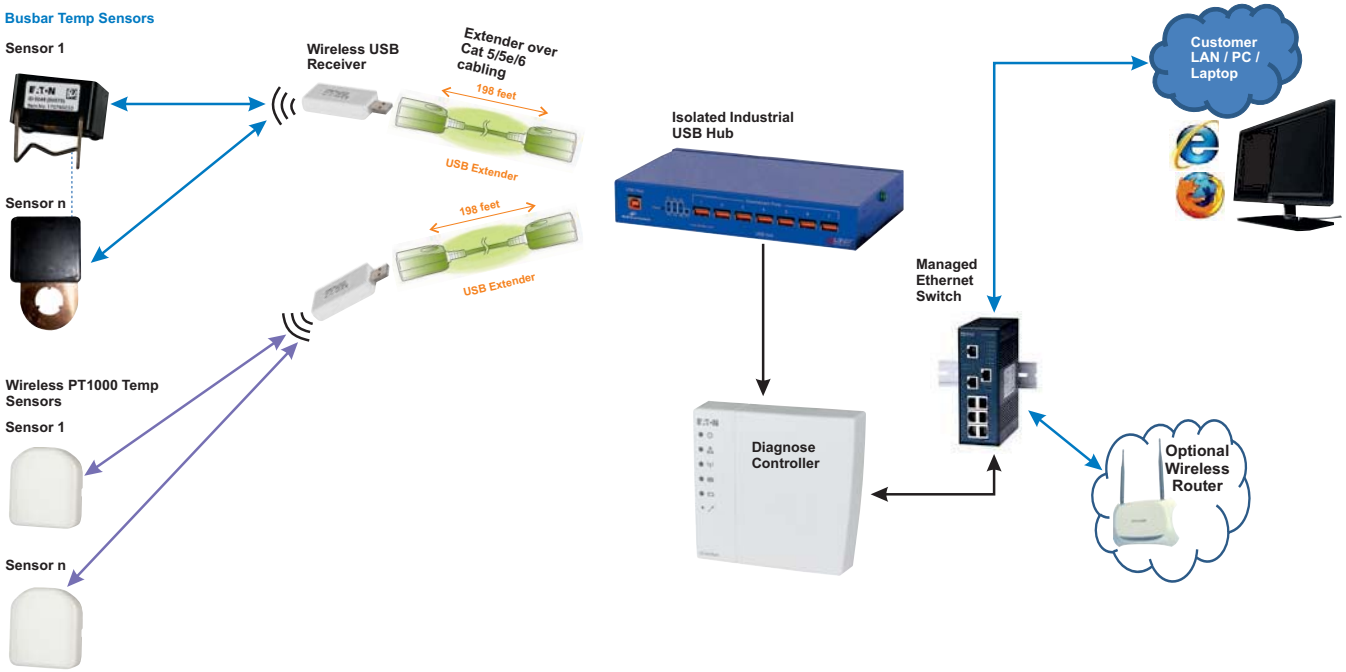
diagnose3

Technical Data

System overview

Version 3:
With network connection, max. number of sections to be monitored = 35

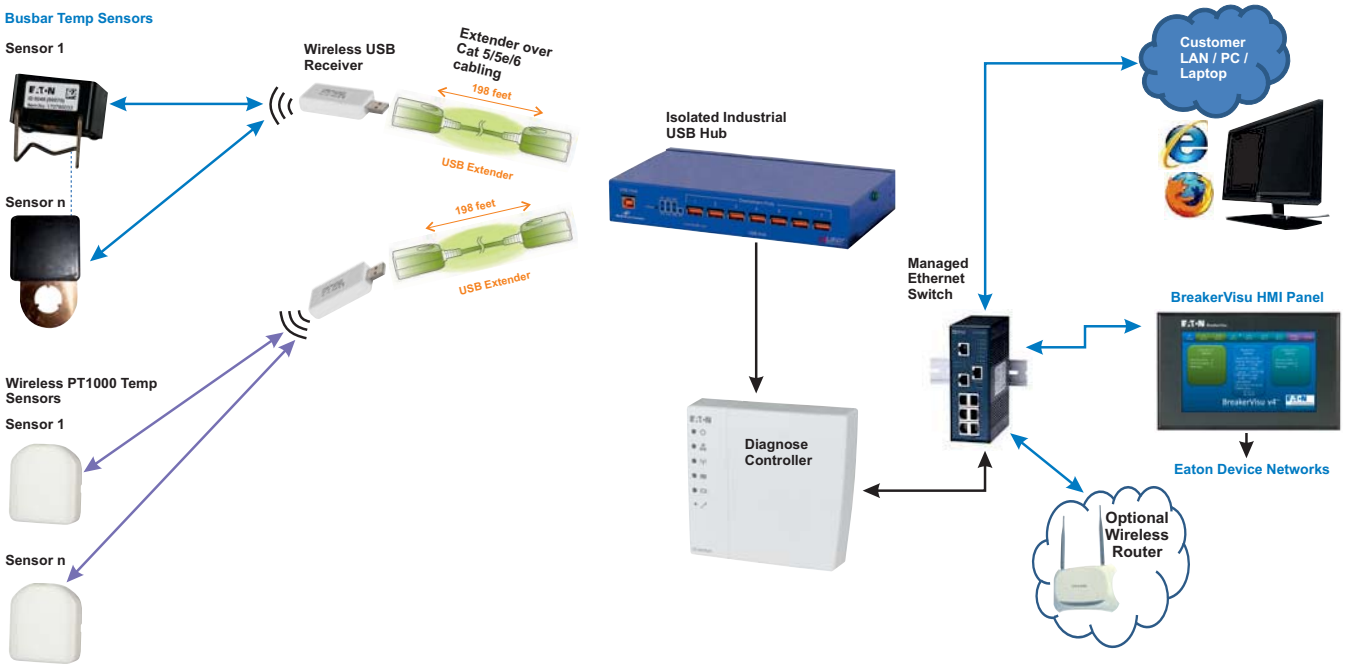
In this configuration the Diagnostics Controller is connected to the USB hub. The hub has 7 outputs and can therefore connect up to 7 receivers. Each receiver can monitor up to 5 sections. All of the data received by the receivers installed are transmitted to the Diagnostics Controller and saved. At the same time all the data are also transmitted via the connected network.



diagnose4

Version 4:
With network connection and Breaker Visu Integration, max. number of sections to be monitored = 35

Same configuration as in version 3.
In addition, there is a connection to the Breaker Visu Touch Panel which makes it possible to immediately read the current values measured and the status requests. Via the Multi-Breaker-Display, the system displays all operating data of your low-voltage switchgear system in a centralized an clearly structured way.



diagnose5

Technical Data

System description

DIAGNOSE is a wireless and maintenance-free temperature monitoring system for busbar systems and ambient temperatures. It can be adapted to any system size and can be expanded to meet any requirements. The sensors can directly be fixed at the critical points in a system. These points are precisely defined in the installation instructions of each system; they are arranged according to field (section) types. Every 10 minutes every sensor transmits its current status, receivers will receive the status and forward it to the DIAGNOSE Controller through a cable-based connection. In addition, the ambient temperature of the individual fields (sections) can be measured and captured. For this purpose, we provide PT1000 sensors with a cable length of one meter. This type of sensor can be connected to a temperature input. Every temperature input can be connected to 2 sensors. Via RF the data will be transmitted from the temperature input to the receiver.

One receiver covers an RF range of a maximum of 5 fields (sections). If the system configuration includes more than 5 fields (sections), a second receiver needs to be installed. In large system configurations one receiver is installed for 5 fields (sections) to ensure a safe reception of the data from the sensors. Therefore it is necessary to install a hub (distributor). Our hubs are equipped with 7 ports. So a maximum system size of 35 fields (sections) can be realized with one DIAGNOSE Controller. If the system size is bigger than that, a second DIAGNOSE Controller needs to be installed. It will again be connected to a hub (up to 35 additional fields/sections).

The receiver sends the data it receives from the sensor to the Controller where they are processed/compared. The Diagnostics Controller processes the data it receives, compares them with the threshold limit values saved in the system and then shows the respective status. In the DIAGNOSE Controller all data will be collected and compared with the respective threshold limit values. If a temperature gets close to a maximum permitted threshold limit, a pre-warning level will be triggered. This will be displayed in orange in the Diagnostics software. In the overview, the respective sensor will change its colour. If a temperature value exceeds the respective threshold limit, the sensor will turn red. If a sensor does not send any information (no current on the busbar), it will be indicated in yellow.

All the data collected will be displayed graphically and can be exported as an Excel table. Further processing of the data, e.g. in charts, can be done at any time. This ensures continuous long-time transparency which can make an analysis so much easier. A slight increase in temperature of individual connection points for example can be detected at a very early stage. This is usually a sign of contact loss which can usually be fixed with just a few touches (by tightening the screws for example).

Internet or SCADA connection:

The Internet or SCADA connection can be realized through a network connection. Depending on the respective situation you can use a UMTS compatible router, a standard network router or a fibre-optic converter system. The system as such is based on an HTML interface which can be opened any time through a standard Internet browser and can therefore be integrated into any network. If the Controller is connected with the Internet, it also offers the opportunity to automatically install any updates available from a server.

Technical Data

Schematic overview of the arrangement of components in the distribution board system

A) Diagnose Controler

B) HUB

C) USB-Adapter

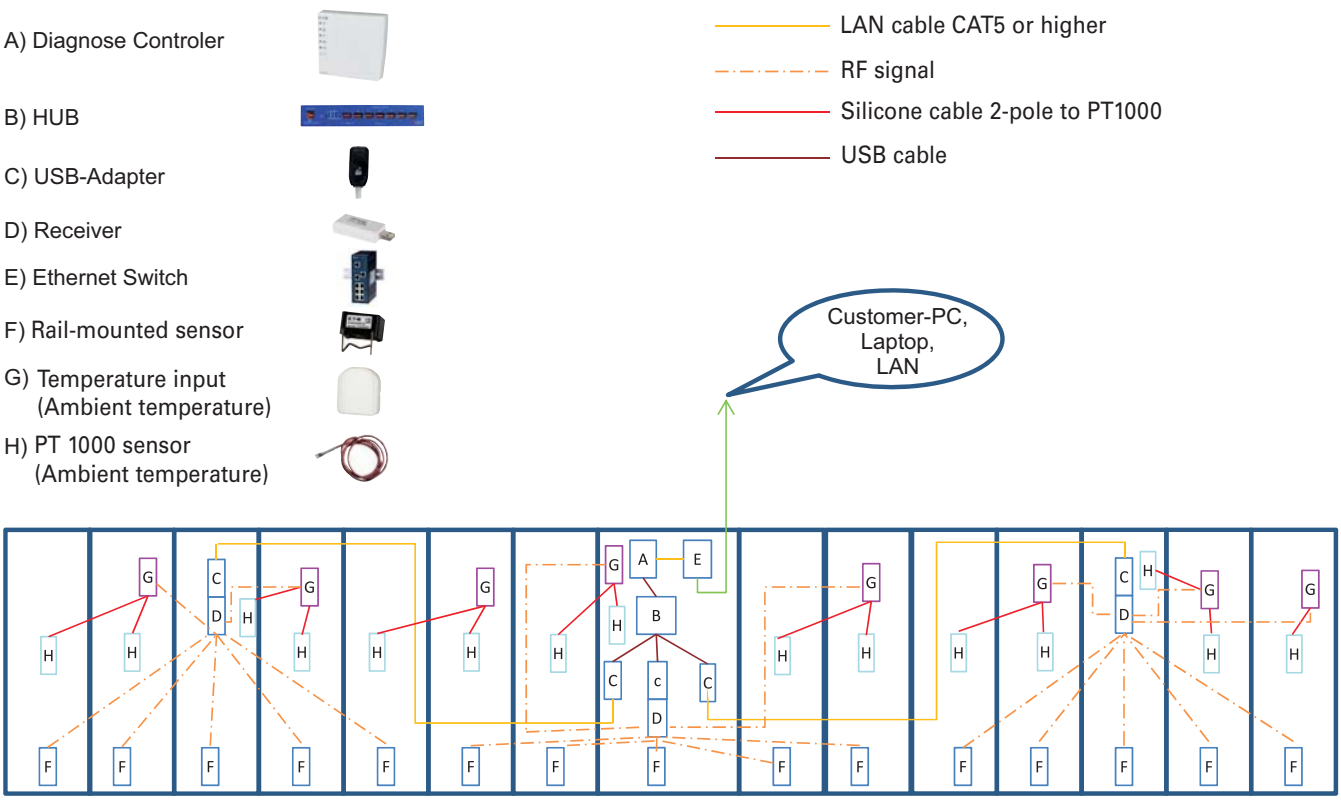
D) Receiver

E) Ethernet Switch

F) Rail-mounted sensor

G) Temperature input (Ambient temperature)

H) PT 1000 sensor (Ambient temperature)



systemuebersicht2

Detailed explanation of the individual components

DIAGNOSE Controller:

The heart of Eaton DIAGNOSE is the DIAGNOSE Controller. This is where the system configuration is uploaded to and saved. The threshold limit values for the different field/section configurations are already pre-configured at the factory before delivery. After DIAGNOSE has been started up, all the data/temperatures collected will be saved for one month. Following that period, the first data saved will be gathered at a time. The DIAGNOSE Controller is equipped with a slot for a card that can be used as a memory extension. This allows saving data over a longer period of time. If sufficient memory capacity is added, the maximum period for saving log-files is 5 years. For first installation and configuration, please refer to the installation instructions.

Sensors (rail-mounted) - fastening technology:

Our sensors are designed for universal application. This means that one and the same sensor can be used for any configuration. However, there are differences in the fastening technology. In most cases the sensor can be mounted using the fixing bracket integrated on the device. This bracket is designed for a material (copper) thickness of 10 mm. In order to cover all the other cases of application there are brackets available for 15 and 20 mm thickness, too. These brackets need to be ordered separately and have to be changed on the sensor using an Allen key included in the delivery. In addition, there is an adapter plate available which makes it possible to screw-fasten the sensor at Cu connections. The holes in the adapter are placed in a way that an M10 screw can be used on one side or an M12 screw on the opposite side.

Maintenance of rail-mounted sensors:

The sensors are equipped with a modern Energy-Harvesting-System, they don't need batteries and are therefore maintenance-free. Three minutes after a minimum current of 100A is available, the sensors start transmitting. After the sensors have been fully charged, they will transmit their status every 10 minutes.

Sensors (ambient temperature):

To be able to measure the ambient temperature in a targeted way in the individual fields/sections, we provide a universal sensor that can be placed anywhere and is equipped with a cable connection. The cable needs to be connected to a temperature input which forwards the collected data. The cable length of 1 m allows both a placement directly at critical points in the cabinets and a freely selected placement of the temperature input that is easy to access at any time. In addition, it is possible to place ambient temperature sensors in modules or in drawers. This is how we provide an uninterrupted monitoring chain.

Technical Data

Detailed explanation of the individual components

Maintenance of ambient temperature sensors:

The sensor as such is maintenance-free. Only the temperature input is equipped with a coin cell which needs to be replaced every 5 years approximately.

Receiver:

The receiver serves a receiver of data from the sensors and temperature inputs of ambient temperature sensors. The maximum number of sensors each receiver can receive data from is limited to 200. The receiver can directly be plugged into the USB port at the DIAGNOSE receiver. However, if you need several receivers for a system, you need to use a USB hub in between. Usually you will need to install one receiver for four fields/sections. If a system includes more than 4 fields/sections, you will need to install several receivers.

Receiver holder:

To install the receiver in a safe and stable way in the cabinet, Eaton provides a mounting device which can easily be fixed at any point easy to access in the system. All you need to fix that holder is 2 screws.

USB extenders:

They are necessary to establish a connection between the USB hub and the receiver (1 extender for each receiver). For the connecting lines you can use standard LAN cables CAT5 or higher. The length of the LAN cables can vary depending on the distance between the receiver and the hub.

USB hub:

To monitor large systems in a safe and reliable way you will need to install several receivers. You will need one receiver for 5 fields/sections. But because each Eaton DIAGNOSE comes with one USB port only, you will need to install an additional distributor (USB hub). We provide a 7-port USB hub equipped with rotary fixing brackets on the side. Therefore it is possible to fix it in different positions.

Gateway/Switch:

A gateway or switch establish a connection to LAN/WLAN networks.

Breaker Visu:

A Breaker Visu touch panel makes it possible to immediately read the current measurement values/status queries directly and on the spot. Each sensor can be scanned section by section. Alarm messages will be visually shown at the display. Via a Multi Breaker Display the system will show all operating data of your low-voltage switchgear system in a centralized and clearly structured way.

- Log-files including operating data, energy and incidents
- Service-life indicator for NZM circuit breakers
- Password protection for important settings
- User-defined labelling of switches

Wireless router:

The wireless router cannot be specified by Eaton because it can be designed differently according to each network. Please consult your local IT specialist to get the support you need (Security Policy).

Eaton is a power management company with 2014 sales of $22.6 billion. Eaton provides energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. Eaton has approximately 102,000 employees and sells products to customers in more than 175 countries.

For more information, visit **www.eaton.com.**



To contact an Eaton salesperson
or local distributor/agent, please visit
www.eaton.eu/electrical/customersupport

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Printed in Austria (06/15)
Publication number

Grafics: SRA
DigiPics, Lithos:
Print:

Powering Business Worldwide

Eaton – convincing in terms of safety, performance and operational availability.



Safety Management –
earthquake protection with xEnergy

The earthquake protection subject is a top priority at Eaton. xEnergy switchgear systems have therefore been designed in such a way that they are optimally equipped for being used in hazardous areas.

Eaton products have been successfully tested in accordance with the following international standards:

- IEC 60068-3-3: level AG2 and AG5
- UBC Code: zone 4
- IEEE Std. 344: class 1E (OBE @ AG2 and SSE @ AG5)
- IEEE Std. 693: moderate level (0.25g) and high level (0.5g)





Powering Business Worldwide

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www.eaton.eu

Earthquake-resistant switchgears – with Eaton Universal bracket kit:

Due to the swaying movements occurring during earthquakes, corner joints are the most sensitive-to-danger zones in the control cabinet. Eaton has developed a specially designed stiffening bracket kit to counteract the failure of bracket profiles during earthquake oscillations. Depending on the type of control cabinet, different brackets are specifically attached to cabinet weak points. Cabinet strength and stiffness are thus increased significantly.

Order data

Universal bracket kit

Field-type independent

XASMS: 171739



Excellent safety

Although electrical accidents are rare, their consequences are incalculable. Eaton has therefore set itself the goal of making no compromises on power system safety and personal protection.

Its clear focus: bridging existing safety gaps and providing panel builders with all necessary diagnostic information.
To devote even more attention to the issue of safety, since 2011 Eaton confers the Yellow Eaton Safety Standard (YESS) Award on companies that place the highest value on safety.

Powering Business Worldwide

Eaton UL Standartlı
Otomatik Transfer Şalterleri



EATON
Powering Business Worldwide

Tecrübeye dayalı **Güvenilir** çözüm...

Kritik güç uygulamalarında hataya yer yoktur. 100 yılı aşkın deneyimi ile Eaton, uygulamanızın özel ihtiyaçlarını karşılayacak güvenilir çözümler tasarlayabilmektedir. Eaton ATS'leri tamamen ihtiyaçlarınıza göre tasarlanmış ve özelleştirilmiştir.





Günün her anında güvenilir güç

Eaton, uygulamalardaki ihtiyaçlarınızı karşılamaya yönelik bir çok özellik ve fayda içeren UL® 1008 standardında otomatik transfer şalterleri ile ilgili olarak piyasadaki en geniş ürün yelpazesini sunmaktadır.

- Kontaktörlü ve şalterli yapıda
- Gecikmeli-açık, eş zamanlı-açık ve kapalı geçişli anahtarlama
- Bypass izolasyonlu geçiş opsiyonu
- Üç tip otomatik transfer şalter kontrolörü
- Entegre servis girişi seçeneği
- Sahaya uyarlanabilir tasarım
- UL 1008 standardına göre pazar lideri kapama dayanım değerleri
- Dağıtım panolarına ve motor kontrol merkezlerine kolay entegrasyon
- Üç kaynaklı anahtarlama çözümleri

Güvenilir elektrik ihtiyacınızı karşılamak üzere özel olarak tasarlandı

KONTAKTÖR



Kontaktörlü ATS

- Kompakt tasarım ve kullanıcı dostu önden erişim imkanı ile rutin çalışmayı, testleri, bakımı ve programlamayı kolaylaştırır.
- İki, üç ve dört kutuplu konfigürasyonlarda 480V'a kadar 40 – 1600 A ve 600V'a kadar 40 – 1200A anma değerleri sunulmaktadır.
- Gecikmeli-açık, eş zamanlı-açık ve kapalı geçiş olarak mevcuttur.
- Otomatik ve otomatik olmayan modelleri mevcuttur.
- Bypass izolasyon seçeneği, hem ATS hem de Bypass modlarında otomatik işletme imkanı tanıyan endüstri lideri Dual ATS teknolojisini sağlar .
- Alan seçicili kademeli trafo paneli, geniş bir yelpazedeki sistem gerilimlerinde işletime izin verir.

ŞALTER



Şalterli ATS

- Düşük amperajlı transfer şalterlerinde aynı kasa boyutunda yüksek kapama dayanım değerleri sunar.
- İki, üç ve dört kutuplu konfigürasyonlarda 600V'a kadar 30 – 1000A anma değerleri sunulmaktadır.
- Gecikmeli-açık geçiş mevcuttur.
- Otomatik,otomatik olmayan ve manuel modelleri vardır.
- Dahili servis girişi sınıfı seçeneği mevcuttur.
- Kurma kolu ile tam yük altında emniyetli manuel işletim imkanı sağlanır.
- Alan seçicili kademeli trafo paneli, geniş bir yelpazedeki sistem gerilimlerinde işletime izin verir.
- Kendinden korumalı anahtarlama kontakları mevcuttur.

MAGNUM



Magnum® ATS

- 30 çevrim kısa süreli dayanım değeri ile UL 1008 standardına uygundur. Opsiyonel elektronik trip ünitelerinin kullanımı, uygun sistem koordinasyonu ve uygulamayı kolaylaştıracak şekilde performans eğrisinin biçimlendirilmesine imkan tanır.
- İki, üç ve dört kutuplu konfigürasyonlarda 600V'a kadar 200 – 5000A anma değerleri sunulmaktadır ve gecikmeli-açık, eş zamanlı-açık ve kapalı geçiş olarak mevcuttur.
- Otomatik ve otomatik olmayan modelleri vardır.
- Yük kesintisiz olarak beslenirken, bakım, tespit ve testlerin yapılması gereken kritik yaşam destek sistemleri gibi uygulamalar için çekmeceli tasarım mevcuttur.
- Bakım esnasında, çıkış yönündeki ekipmanlarda oluşabilecek ark hata seviyesini düşürmek için Eaton'un Arcflash Bakım Azaltma Sistemi™ ile birlikte sunulabilir.
- Opsiyonel busbar giriş bağlantıları mevcuttur.
- Yeni veya mevcut dağıtım pano düzenine engtegrasyon için açık kasalı tasarım sunulur.
- Dahili servis girişi seçeneği mevcuttur.
- Bypass izolasyonlu geçiş seçeneği mevcuttur.

Bypass izolasyonlu otomatik transfer şalterleri

Bypass izolasyonlu otomatik transfer şalterleri, yük kesintisiz olarak beslenirken, bakım, tespit ve testlerin gerçekleştirilmesi gereken uygulamalar için tasarlanmıştır. Bu, tipik olarak kritik yaşam destek sistemlerinde ve güçte bozulma olmadan güvenli sistem bakımı gerektiren yedek güç durumlarında gereklidir. Eaton hem Kontaktörlü hem de Magnum ATS'lerde bypass seçenekleri sunmaktadır.

KONTAKTÖR



Bypass izolasyonlu, Kontaktörlü ATS

- 480V'a kadar 100 – 1600 A ve 600V'da 1200A'e kadar anma değerleri sunulmaktadır.
- Gecikmeli-açık, eş zamanlı-açık ve kapalı geçiş olarak mevcuttur.
- Üst ve/veya alttan giriş ile önden erişilebilir.
- Dual ATS teknolojisi, hem ATS hem de Bypass şalterlerinin otomatik transfer şalteri olarak çalışmasını sağlar
- Hem ATS hem de bypass bölmelerindeki çekip çıkarılabilme kabiliyeti, yük kesintisiz olarak beslenirken önleyici bakım, tespit ve testlerin gerçekleştirilmesini sağlar.
- Emniyet kilitleme sistemi mevcuttur.
- Alan seçicili kademeli trafo paneli geniş bir yelpazedeki sistem gerilimlerinde işletime izin verir.

MAGNUM



Bypass izolasyonlu, Magnum ATS

- Gecikmeli-açık, eş zamanlı-açık ve kapalı geçiş konfigürasyonlarında 200–5000 A anma değerleri sunulmaktadır.
- 30 çevrim kısa süreli dayanım değeri ile UL 1008 standardına uygundur. Opsiyonel elektronik trip ünitelerinin kullanımı, uygun sistem koordinasyonu ve uygulamayı kolaylaştıracak şekilde performans eğrisinin biçimlendirilmesine imkan tanır.
- Arka/yan/üst veya alttan kablo girişi ve opsiyonel ön erişim bölmesi mevcuttur.
- Güvenilir mikroişlemciye sahiptir.
- Bypass'a geçiş sırasında servis kesintisi olmaz.
- Hem ATS hem de bypass bölmelerindeki çekip çıkarılabilme kabiliyeti, yük kesintisiz olarak beslenirken önleyici bakım, tespit ve testlerin gerçekleştirilmesini sağlar.

ATS dayanım ve kapama değerleri

UL 1008 standardında dayanım ve kapama değeri (kA), 480 V

		Kısa devre (3 çevrim)				Spesifik üst seviye kesici ile kısa devre			
Akım değeri	**Kutup Sayısı**	**Kontaktör**	**MCCB**	**Kontaktör bypass**	**Magnum**	**Kontaktör**	**MCCB**	**Kontaktör bypass**	**Magnum**
30	2, 3, 4	-	65	-	-	-	65	-	-
40	2, 3, 4	10	-	-	-	22	-	-	-
70	2, 3, 4	10	65	-	-	22	65	-	-
100	2, 3, 4	10	65	30	-	22	65	30	-
200	2, 3, 4	10	65	30	100	22	65	30	100
225	2, 3, 4	30	65	30	100	50	65	30	-
260	2, 3, 4	30	-	30	100	50	-	30	-
300	2, 3, 4	-	65	30	100	-	65	30	100
400	2, 3, 4	30	65	30	100	50	65	30	100
600	2, 3	50	65	50	100	65	65	50	100
600	4	50	35	50	100	65	35	50	100
800–1200 ❶	2, 3	50	50	50	100	65	50	50	100
800–1200 ❶	4	50	35	50	100	65	35	50	100
1600	2, 3, 4	50	-	50	100	65	-	65	100
2000	2, 3, 4	-	-	-	100	-	-	-	100
2600	2, 3, 4	-	-	-	100	-	-	-	100
3000	2, 3, 4	-	-	-	100	-	-	-	100
3200	2, 3, 4	-	-	-	100	-	-	-	100
4000	2, 3, 4	-	-	-	100	-	-	-	-

❶ Sadece 800–1000 A MCCB

UL 1008 standardında dayanım ve kapama değeri (kA), 600 V

		Spesifik üst seviye sigorta				Kısa süre (30 çevrim)
Akım değeri	**Kutup Sayısı**	**Kontaktör**	**MCCB**	**Kontaktör bypass**	**Magnum**	**Magnum**
30	2, 3, 4	100	200	-	-	-
40	2, 3, 4	100	200	-	-	-
70	2, 3, 4	100	200	200	-	-
100	2, 3, 4	100	200	200	-	85
200	2, 3, 4	100	200	200	-	85
225	2, 3, 4	200	200	200	-	-
260	2, 3, 4	200	200	200	-	-
300	2, 3, 4	200	200	200	-	85
400	2, 3, 4	200	200	200	-	85
600	2, 3	200	200	200	-	85
600	4	200	200	200	-	85
800–1200	2, 3	200	200	200	-	85
800–1200	4	200	200	200	-	85
1600	2, 3, 4	200	-	200	-	85
2000	2, 3, 4	-	-	-	-	85
2600	2, 3, 4	-	-	-	-	85
3000	2, 3, 4	-	-	-	-	85
3200	2, 3, 4	-	-	-	-	85
4000	2, 3, 4	-	-	-	-	85 ❶
5000	2, 3, 4	-	-	-	-	85 ❶

❶ UL 1066 kısa süre dayanım değeri

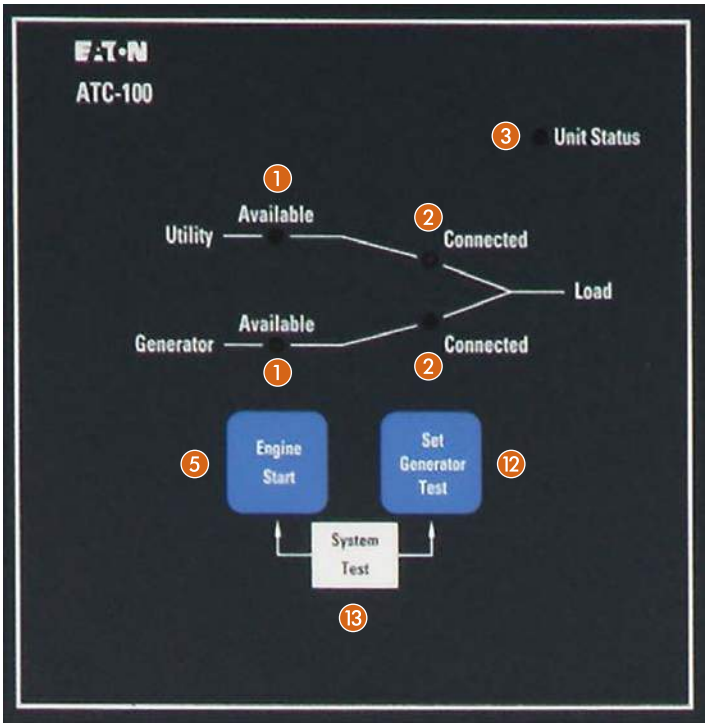
Otomatik transfer şalter kontrolörleri

Otomatik transfer şalter kontrolörü, şalterin transferi ve yeniden eski pozisyonuna transferi için uygun koşulları algılayacak olan otomasyonu sağlayan kilit üründür. Eaton'un transfer şalterleri, uygulanmaya yönelik tasarım esnekliği sunan farklı tipte kontrolörler ile gelmektedir.

ATS KONTROLÖR ÖZELLİKLERİ

1. Kaynak kullanılabilirlik göstergesi
2. Kaynak pozisyonu göstergesi
3. Teşhis durum göstergesi
4. LCD ekran
5. Motor çalıştırma butonu
6. Yardım/lamba testi butonu
7. Adım/enter butonu
8. Gezinme butonları
9. Bypass zamanlayıcı butonları
10. Artırma/azaltma butonları
11. Alarm reset butonları
12. 12Jeneratör testi set butonu
13. Sistem testi butonu







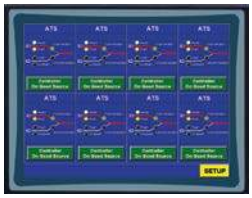
ATS kontrolörleri

Standart ve opsiyonel kontrolör özellikleri

	Otomatik kontrolör		
Açıklama	**ATC-100**	**ATC-300+**	**ATC-900**
Temel transfer kontrol tesis yürütücüsü zaman gecikmeleri kendinden teşhis ve sistem ayarları	Standart	Standart	Standart
LED göstergeli kaynak mimik şeması	Standart	Standart	Standart
Motor testi ve çalıştırma kontağı	Standart	Standart	Standart
Çift kaynak kumanda güç girişi	Standart	Standart	Standart
LCD ekran		Standart	Standart
Programlanabilir ayar noktaları ve tesis yürütücüsü		Standart	Standart
Parola koruması		Standart	Standart
Zaman mühürlü tarihçe ve olay kaydı		Standart	Standart
Zaman gecikmeli bypass		Standart	Standart
Kaynak 2'ye git kumanda girişi		Standart	Standart
Ön-transfer ve genel alarm kumanda çıkışları		Standart	Standart
Kilitleme ve izleme modları		Standart	Standart
Kaynak durumu çıkış röle kontakları		Standart	Standart
Modbus® RTU haberleşme		Standart	Standart
Manuel yeniden transfer kumanda girişi		Opsiyonel	Standart
Kaynak 2 engelleme / yük atma girişi		Opsiyonel	Standart
USB portu – profil ve veri yönetimi			Standart
Tercih edilen kaynak seçimi			Standart
Çift jeneratör imkanı			Standart
Kullanıcı tarafından yapılandırılabilir giriş/çıkışlar			Standart
Olay öncesi ve sonrası veri saklama ile gelişmiş teşhis ve sorun giderme			Standart
Entegre yük ölçümü			Opsiyonel
Seçimli yük atma ile yük yönetimi			Opsiyonel
DC gerilim kumanda güç girişi			Opsiyonel
Üç kaynak ATS—master/slave kumandası			Opsiyonel
Modbus TCP/IP haberleşme ❶		Opsiyonel	Opsiyonel

❶ Modbus TCP/IP opsiyonu Modbus RTU portunun kullanılmasını gerektirir.

ATS bağlanabilirliği



HMi Uzaktan İhbar kontrolörü

Eaton'un HMi Uzaktan İhbar Kontrolörü serisi kullanıcılara tek bir sezgisel, dokunmatik ekranlı kullanıcı ara yüzü aracılığı ile bir çok transfer şalterini izleme ve kontrol etme kabiliyeti sunmaktadır.

- Dokunmatik grafik ara yüze sahip yedi inç boyutunda renkli ekran
- Ayar noktası programlama ve verileri ölçümlemek için uzaktan izleme ve kontrol
- Bütün kontrol ve kurulum fonksiyonları için parola koruması
- Kaynak elverişliliğini, pozisyon göstergesini ve seçilen kaynağı içeren mimik veri yolu
- Tarih ve saat mühürlü alarm tarihçesi
- Sıvaaltı tasarım
- Eaton'un ATC-300+, ATC- 600, ATC- 800 ve ATC-900 otomatik mikroişlemci kontrolörleri ile uyumluluk
- Modbus RTU ve Ethernet haberleşmesi
- Sessizlik özelliği de olan sesli alarm



Power Xpert® Gateway

Power Xpert Gateway Eaton otomatik transfer şalterinizi direk olarak Ethernet altyapınıza entegre etmenize imkan tanımaktadır.

- Otomatik transfer şalterinizi, güvenli bir ağ tarayıcısı arayüzü aracılığı ile herhangi bir bilgisayardan izleyin ve yönetin
- ATC-300+ ve ATC-900 otomatik transfer şalter kontrolörlerinden ve diğer Eaton haberleşme cihazlarından gerçek zamanlı bilgiye erişim sağlar
- Otomatik transfer şalterinizi protokol tercümesi dahil olarak halihazırda mevcut olan bina yönetimi veya ağ yönetimi sistemleri ne entegre etmenize imkan tanır
- Kullanıcı tanımlı olaylarda opsiyonel e-posta bildirimi sağlar
- Seri ağ bağlantılı
- Ethernet ağ bağlantılı

Sayaçlara genel bakış

Eaton' un gelişmiş sayaçları gerçek zamanlı sistem değerlerini verir, dalga formlarını ve sistem olaylarını yakalar ve verileri ağ sunucuları veya yazılım bazlı bir izleme çözümü aracılığı ile direkt olarak cihaz üzerinde görüntüler.

Eaton' un otomatik transfer şalterlerine entegre edilebilecek özelliklere sahiptir. Detaylı bilgi için **Eaton.com/meters**.



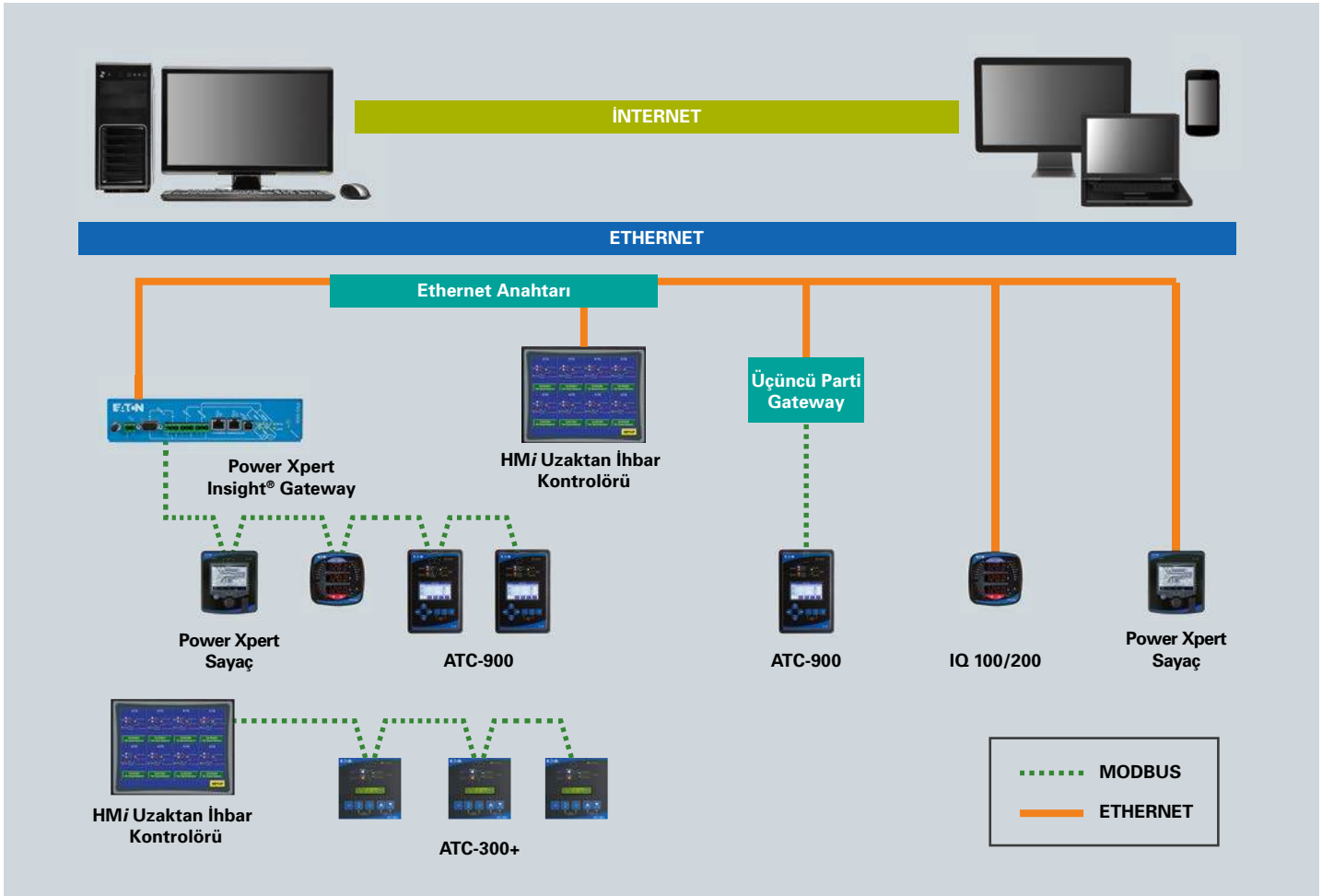
Eaton transfer şalterleri ile kullanılabilen sayaç opsiyonları

Özellik	ATC-900 DCT	IQ 100 Serisi	IQ 200 Serisi	Power Xpert 2000 Serisi	Power Xpert 4000/6000/8000 Serisi
Enstrümantasyon					
Akım, faz başına	■	■	■	■	■
Akım, talep	—	■	■	■	■
Hesaplanan nötr akım	—	■	■	■	■
Gerilim, faz başına (L–L, L–N)	yalnızca L–L	■	■	■	■
Min./maks. okuma I, V	—	■	■	■	■
Min./maks. okuma PF, F, W, VAR,VA	—	Ops	■	■	■
Frekans	■	Ops	■	■	■
Güç					
Aktif, reaktif ve görünen güç (W, VAR, VA)	■	Ops	■	■	■
Güç faktörü, toplam	■	Ops	■	■	■
Aktif, reaktif ve görünen güç talebi	—	Ops	■	■	■
Talep yöntemleri					
Blok aralık (kayan, sabit)	—	Ops	■	■	■
Enerji					
Aktif, reaktif ve görünen enerji, toplam (Wh, VAR, VAh)	—	Ops	■	■	■
Veri kaydı					
Depolama	—	—	Ops 128 KB	256 MB	Std 2 GB Ops 4 veya 8 GB
THD					
% THD amper ve volt	—	—	40ıncı	40ıncı	127nci
Araharmonikler	—	—	—	—	Ops
Dalga formu					
Dalga formu kaydetme, örnek/çevrim	—	—	—	Ops 64 veya 512	4,096
Gös. çubuk harmonik görünümü	—	—	—	Ops 40ıncı	85inci
Tek çevrim dalga formu görünümü	—	—	—	Ops	X
I/O					
Dijital giriş	—	—	Ops 2 veya 3	Ops 2 veya 4	8
Dijital çıkış	—	—	Ops 2 Form-C	Ops 2 Form-C	3
Analog çıkış	—	—	Ops 3	Ops 4	—
Haberleşme					
RS-485, Modbus RTU	■	Ops	■	■	■
RS-485, Modbus RTU/ASCII, KYZ çıkış	—	Ops	■	■	■
Modbus TCP/IP (RJ-45)	—	Ops	■	■	■
HTTP (web sayfaları), SMTP (e-posta), NTP (süre senk.), SNMP	—	—	■	■	■
BACnet/IP	—	—	■	■	■
Hasılat doğruluğu					
ANSI C12.20 (0.5 veya 0.2%)	—	0.50%	0.20%	0.20%	0.20%

■ = Standart özellik.



Power Xpert Mimarisi



Pik gerilim koruma cihazları

Eaton, maliyetli işletme durma sürelerini azaltmak ve hassas elektronik ekipmanları yıldırım, ana şebeke anahtarlaması, yük anahtarlaması ve daha fazlasının neden olduğu gerilim piklerinin zararlı etkilerine karşı korumaya yardımcı olabilmek için her çeşit yenilikçi, güvenilir aşırı gerilim koruma çözümleri sunmaktadır.

Daha fazla bilgi için **Eaton.com/SPD**'yi ziyaret ediniz.









SPV Serisi

Eaton SPV Serisi, ticari ve hafif endüstriyel uygulamalardaki hassas elektronik parçaların korunmasını, aşırı gerilim koruyucu cihazlarını ve EMI/RFI filtrelemesini tek bir kompakt cihazda bir araya getirerek basitleştirmek üzere tasarlanmıştır.

CVX Serisi

Eaton CVX Serisi, hafif endüstriyel, ticari ve OEM uygulamalar için idealdir ve gerilimdeki piklerine karşı yüksek kaliteli koruma sağlamaktadır. Servis girişinde, bağlı panellerde veya bağımsız ekipman kopukluklarında kurulum için tasarlanmış olan CVX Serisi, kritik öneme sahip uygulamalar için gelişmiş aşırı gerilim koruması sunmaktadır. Üniteler bütün gerilim konfigürasyonları için ve 50 ve 100kA'lık pik akım kapasitesi değerleri ile sunulmaktadır.

SPD Serisi

Eaton SPD Serisi ticari ve endüstriyel uygulamalar için en yeni ve en gelişmiş aşırı gerilim koruması ürün ailesidir. Üniteler bütün yaygın gerilimler ve konfigürasyonlar için 50 ile 400kA arasında değişen çeşitli pik akım kapasitesi değerleri ile sunulmaktadır.

Pik gerilim koruma ürün serilerinin karşılaştırması

Ürün serisi	L–N koruma modu	L–G & L–N Koruma modu	Her 0 kA aralığı	EMI/RFI filtreleme azaltma	Nominal deşarj akımı (In)	Kısa devre değeri (SCCR)	Alarm kontakları	Pik sayıcı (opsiyonel	Garanti (yıl)
SPD	Evet	Evet	50–400	50 dB	20 kA	200 kA	Evet	Evet	15
SPV	Evet	Evet	50–200	40 dB	20 kA ❷	42 kA ❹	Evet	Hayır	10
CVX	Evet	Evet ❶	50–100	Hayır	20 kA ❸	100 kA	Hayır	Hayır	5

❶ Yalnızca 100 kA üniteler.

❷ 208Y, 240S, 240D, 400Y ve 480YL üniteler 10 kA değerlidir.

❸ 480L, 600D ve 600Y üniteler 10 kA değerlidir.

❹ 400D ve 480D için 5 kA SCCR.

Servis ve Destek

Eaton' un, bütün Eaton güç dağıtımı, yazılım ve bağlantı ürünleri için sunduğu kapsamlı ve dünya standartlarında servis çözümleri, maliyetleri, çalışma süresini, güvenilirliği, güç kalitesini ve güvenliği iyileştirmek üzere tasarlanmıştır. Güçlü ve uzun ömürlü müşteri ilişkilerine olan bağlılığımızı, teknik uzmanlığımız ve kapsamlı destek ağımız ile gösteriyoruz. Kuzey Amerika'da 240 saha teknisyeni, 1.200 uluslararası yetkili servis sağlayıcısı ve kendini işine adamış 100'ün üzerinde müşteri destek ekibi üyemiz ile en zorlu güç yönetimi problemlerinizi çözmek için tamamen hazırız.



Teknik Destek Hizmetleri

Güçlü teknik ürün uzmanlığını derin endüstri uygulamaları tecrübesi ile bir araya getiren transfer şalteri teknik destek organizasyonu, sorularınızı yanıtlamak ve sorunlarınızı uzaktan gidermek konusunda doğal bir yeterliliğe sahiptir. Kendini adamış olan bu endüstri profesyonelleri ekibi, bir müşteriyi sistem kurulumu konusunda yönlendirmekten kritik alarmları çözüme kavuşturmaya kadar her konuda yardımcı olmak için hazırdır.

Başlıca hizmetler

- Kurulum, ayarlar, kullanım ve sorun giderme
- Karmaşık kurulumlar için dahili saha mühendisi desteği
- Gelişmiş uygulama teşhis destek hizmetleri

Güvenilir yedek **güce** yönelik kritik **ihtiyaç**

Eaton günümüzün kritik güç piyasasında mevcut olan en geniş yelpazedeki otomatik transfer şalter serisini sunmaktadır ve elektrik sistemleri konusunda uzman seviyesinde bilgiye sahip dünya standartlarında servis ekibinin desteğine sahiptir. Uzmanlığımız müşterilerimize, hangi uygulama, bütçe ve özelleştirme gereksinimi için olursa olsun, güvenilir elektrik ihtiyaçlarını karşılamak üzere özel olarak tasarlanmış bir otomatik transfer şalteri çözümünü uygulamaya koyması için yardımcı olur.



Eaton' un otomatik transfer şalterleri

Daha fazla bilgi için **Eaton.com/ATS**

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United States
Eaton.com

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Printed in USA
Publication No. BR140001EN / Z16016
January 2015

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Powering Business Worldwide

www.eaton.eu

Circuit Breakers BZM



Product Information

Circuit Breaker BZM1(16 to 125 A)

Circuit Breaker BZM2 (125 to 250A)

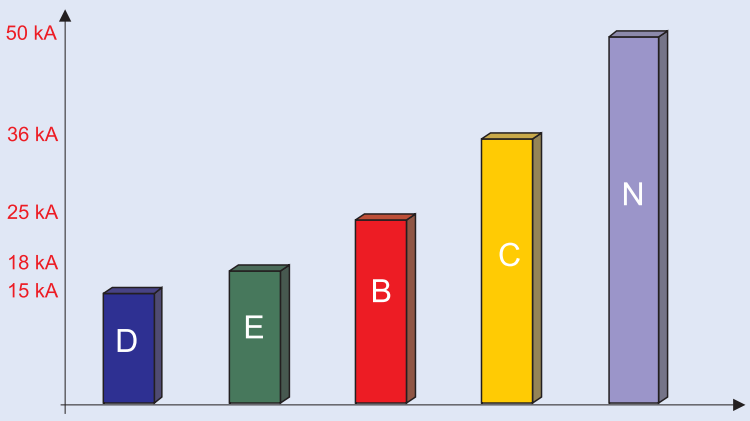
Circuit Breaker BZM3 (250 to 400A)

BZM1 & BZM2 & BZM3 Accessories

Powering Business Worldwide

Optimum and Efficient Protection for Every Application





Compact

Simple

Safe

The new BZM

Eaton is a synonym for innovation, product quality, reliability and decades of experience in the electrical engineering industry. Our products comply with the latest national and international standards and regulations.

Our Circuit Breaker Division takes pride in expanding the range of circuit breakers by adding the new BZM series designed for the lower LV segment and featuring factory-set thermal and magnetic tripping values. With our new BZM series we offer compact circuit breakers and a wide range of accessories for your business applications in all kinds of trade and industry. Easy handling, enhanced capacities and proven quality in the attractive Eaton design are additional features of this product.

With the BZM1 for up to 125 A, the BZM2 for up to 250 A and the BZM3 for up to 400 A. Eaton now also completes its range of products in the segment of circuit breakers, allowing us to cover all kinds of applications and requirements.

Protect your electrical system and cables with our new BZM!

Three Advantages for Your Benefit

- **Compact**
  Unbeatable when it comes to saving space:
  In the range of circuit breakers, the BZM1, BZM2 and BZM3 are among the slimmest in their class and can therefore use the valuable distribution space most efficiently, regardless of whether they are used for energy sub-distribution or as a protection for incoming power in residential or functional buildings.

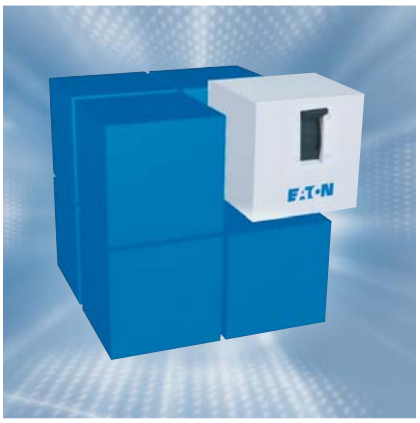
- **Simple**
  Easy to handle:
  For a fast starting are thermal and magnetic tripping values already fixed.
  The BZM series is absolutely easy to handle and allows for quick installation when executing your jobs.

- **Safe**
  Eaton's switchgears have a worldwide reputation for being the benchmark in low-voltage power distribution. Eaton's quality protects people and assets against short-circuits and overload, with the BZM series being designed for the 16 to 400 A range in sub-distribution.

Standards
In complying with the IEC/EN 60947-2 standards and pollution degree III (IEC/EN 60947) we not only ensure the material but also the immaterial values of the BZM circuit breaker series. And with our BZM series, we also show consideration for the environment as these circuit breakers conform to the RoHS directives and can be recycled to a large extent. And last but not least - the stylish outfit of the BZM series in the distinctive Eaton design makes these products attractive not only from a technical but also from an aesthetic point of view.

For more information please turn to page 21.
(technical data page).

Compact



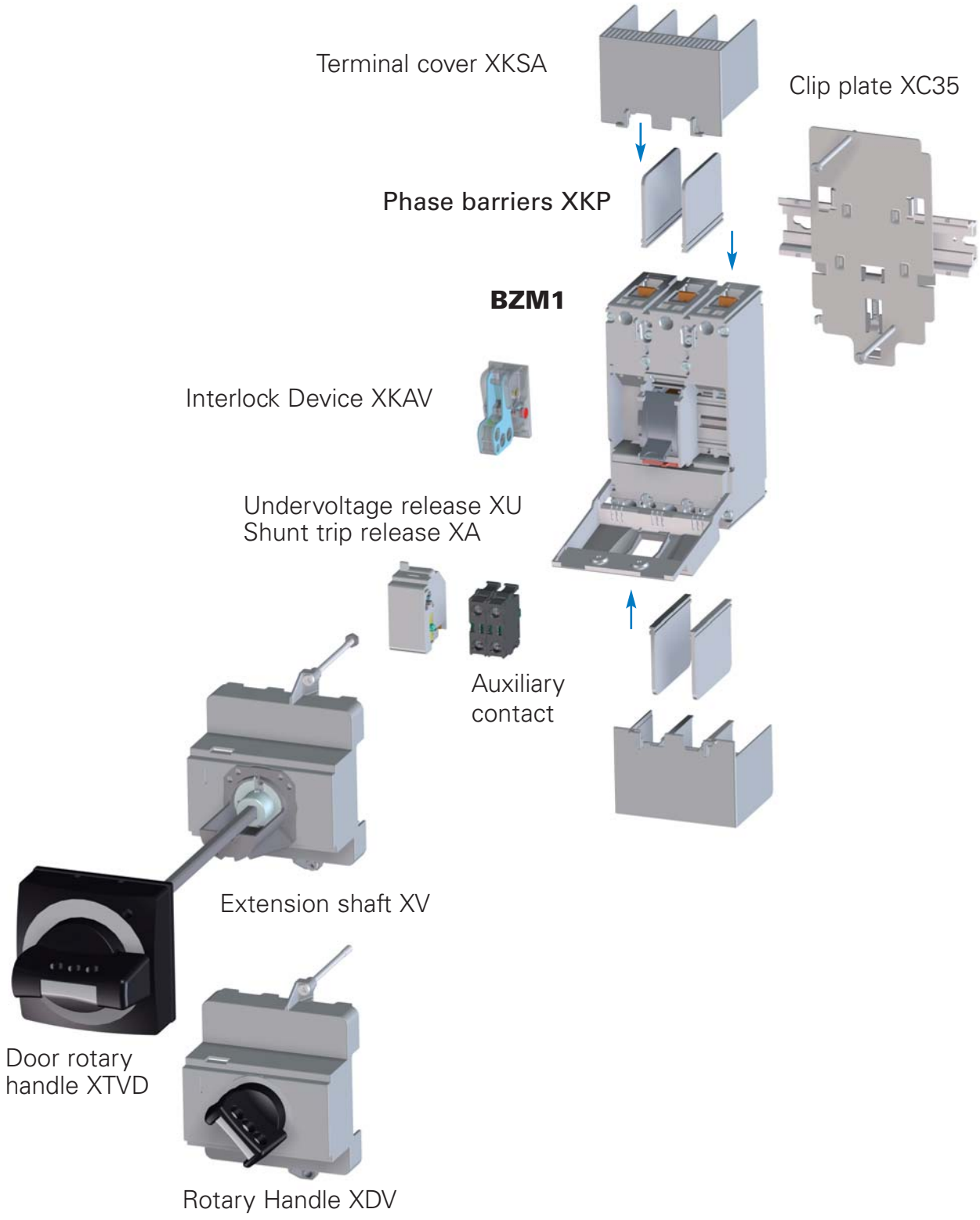
Simple



Safe



Range Overview BZM1



BZM1 - Small is Powerful

- **Concentrated technology with a long lifespan**
  The BZM1 provides protection with rated currents **up to 125 A** and **36 kA** breaking capacity, despite its light weight and slim width of only 25 mm per pole. The star within the circuit breaker family, is available as a **1, 2, 3 or 4-pole** device. For a fast starting are thermal and magnetic tripping values already fixed by Eaton. And it has an extremely long lifespan of up to 10,000 mechanical operating cycles. In addition, thanks to its terminal cover, the BZM1 features an IP 10 degree of protection.

- **Multiple mounting options**
  Upside-down or horizontal? It is up to you how you wish to mount the BZM1. But regardless of the mounting position and the side you choose for the supply of power, it will always provide the full protective function.

- **Cable Fixing: Cable lug and box terminal**
  The proven **cable lug** with M6 screws **and the box terminal technology** for quick and easy mounting (BZM1…-BT): both are included in the **standard range** of products.

- **Solutions made to measure**
  Remote tripping, signalling the switching status or undervoltage releasing in case of security relevent applications - all of this is easy to manage for the BZM1. Thanks to the comprehensive range of accessories, the BZM1 will not only be the perfect match for standard applications, but also the ideal solution for individual handling requirements.

  Upon request the BZM1 is also available with a rotary handle (for direct mounting or door coupling).

- **Characteristics / Features**

Rated current:	16 A up to 125 A
Breaking Capacity:	15, 18, 25, 36 kA
Cable fixing:	Cable lug M6 or Box Terminal (BZM1…-BT)
Available poles:	1pole, 2pole, 3pole, 4pole
Rated Voltage:	up to 400/415V, 50/60Hz
3-Position lever:	Off - Trip - ON
Electrical Supply:	Line or Load-Side

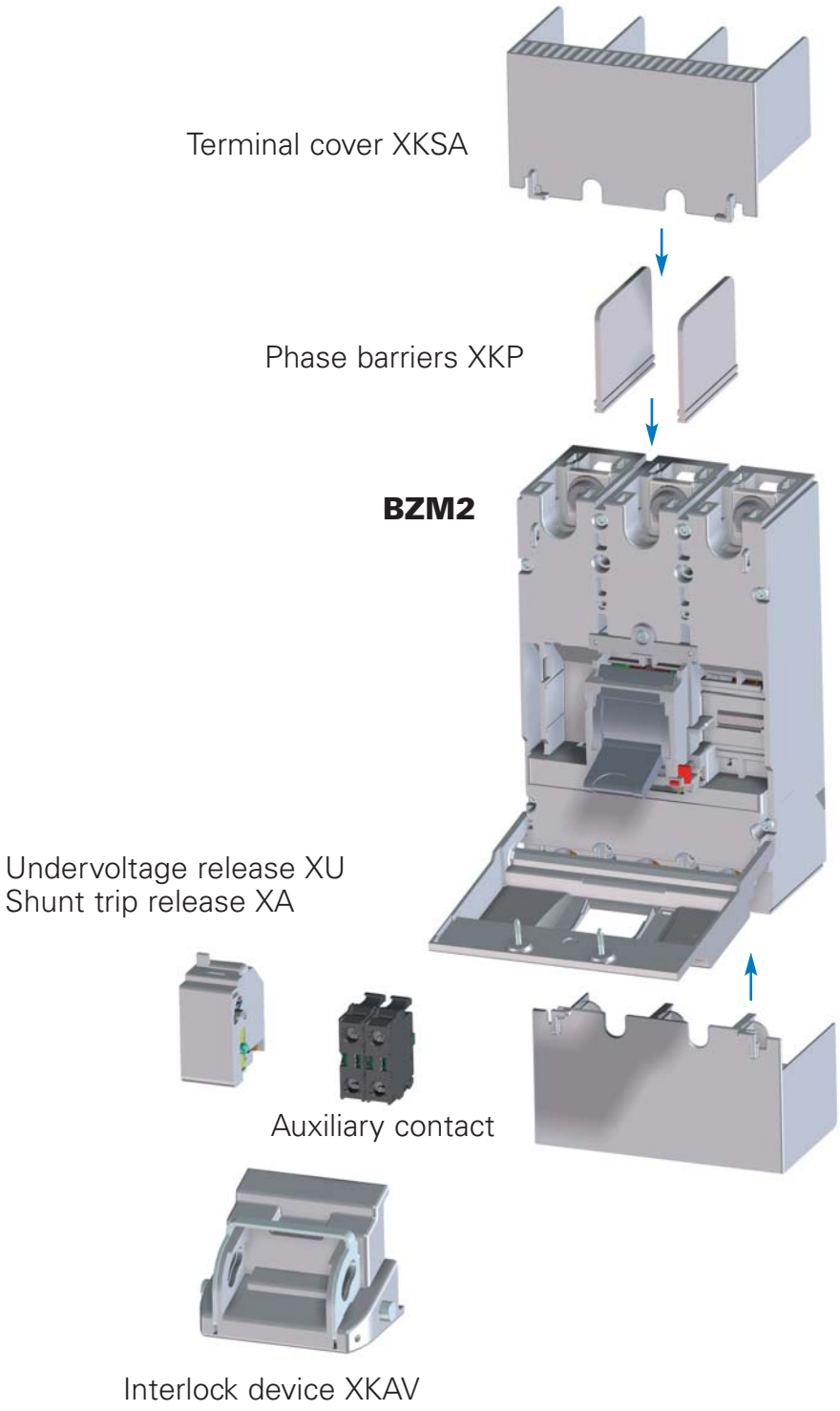
BZM1



BZM1... -BT



Range Overview BZM2



BZM2 - Excellent Protection for High-Rated Current Requirements

BZM2



- **Technology brought to the point**
  Eaton's new BZM2 keeps a watchful eye on **rated currents** ranging **from 125 to 250 A** and a breaking capacity up to **36 kA**: it impresses especially with its functionality and robust design.
  The **3-pole** version **(size W x D x H: 105 x 91.5 x 165 mm)** with a lifespan of 8,000 mechanical operating cycles makes it a powerful protective device in a compact format.

- **Perfect adjustment to any environment**
  Standard position, horizontal or upside-down: you can select the mounting position just as freely as the side for the incoming power supply.

- **Conventional connection via cable lug**
  In line with the common practice for this type of rated current, the connection is established through a **cable lug** and M8 screws.

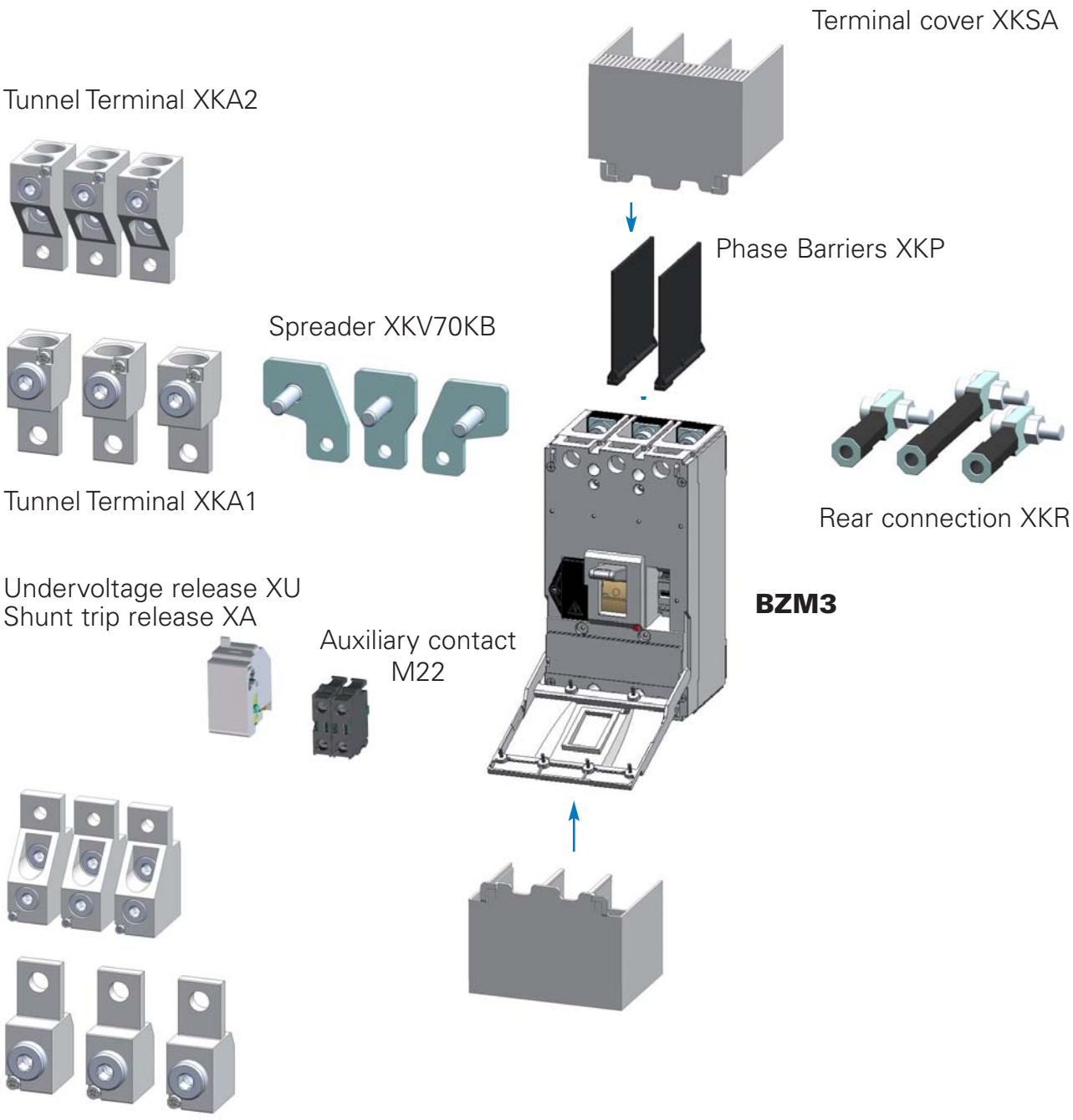
- **Accessories in Eaton style**
  Upon request and in our usual manner, we provide clever accessories such as auxiliary contacts, shunt trip releases, undervoltage releases; interlock device or terminal covers.

  The BZM2 is a specialist in the higher range of rated current and offers everything you could want in terms of reliability, easy handling and compact design!

- **Characteristics / Features**

Rated current:	125 A up to 250 A
Breaking Capacity:	25, 36 kA
Cable fixing:	Cable lug M8
Available poles:	3pole
Rated Voltage:	400/415V, 50/60Hz
3-Position lever:	Off - Trip - ON
Electrical Supply:	Line or Load-Side

Range Overview BZM3



BZM3 - the perfect high current solution

BZM3



- **Strong ratings combined with compact dimensions**
  The new BZM3 products are the most powerful Circuit Breaker within Eaton's BZM product range. The **rated current** is ranging from **250 up to 400 A** and a maximum breaking capacity **of 50kA / 415VAC** and **36kA /440VAC**. Eaton's BZM3 products - the prefect solution for your high amp applications with a compact size (size W x D x H: 140 x 149 x 255 mm)

- **Simple to use**
  As commonly known from the BZM1 and BZM2 product range, freely place the product - Standard position, horizontal or upside-down. Also the feeding direction can be chosen as required.

- **Cable fixing: it`s simple!**
  Wether you choose the **standard cable lug** version with M10 screw or the **Tunnel Terminal option** as accessory - the connection of your cable or busbar is quick and simple!

- **The BZM3 - not just Breaker!**
  Accessories are very important for the different applications. Therefore also the BZM3 has the perfect accessories range available for you! Not only shunt trip releases, undervoltage releases and auxiliary contacts are part of the accessories range. Also terminal covers, spreaders, tunnel terminals and phase barriers and a rear connection kit is available for this new product range

- **Characteristics / Features**
  Rated current: 250 up to 400A
  Breaking capacity 25, 36 or 50kA / 415VAC
  Cable fixing: Cable lug M10 or Tunnel terminal (accessory)
  Rated voltage: 440V, 50/60Hz
  3-Position lever: Off - Trip - On
  Electrical Supply: Line or Load-Side

Content

BZM1 _____ Page 12-15

BZM2 _____ Page 16

BZM3 _____ Page 17

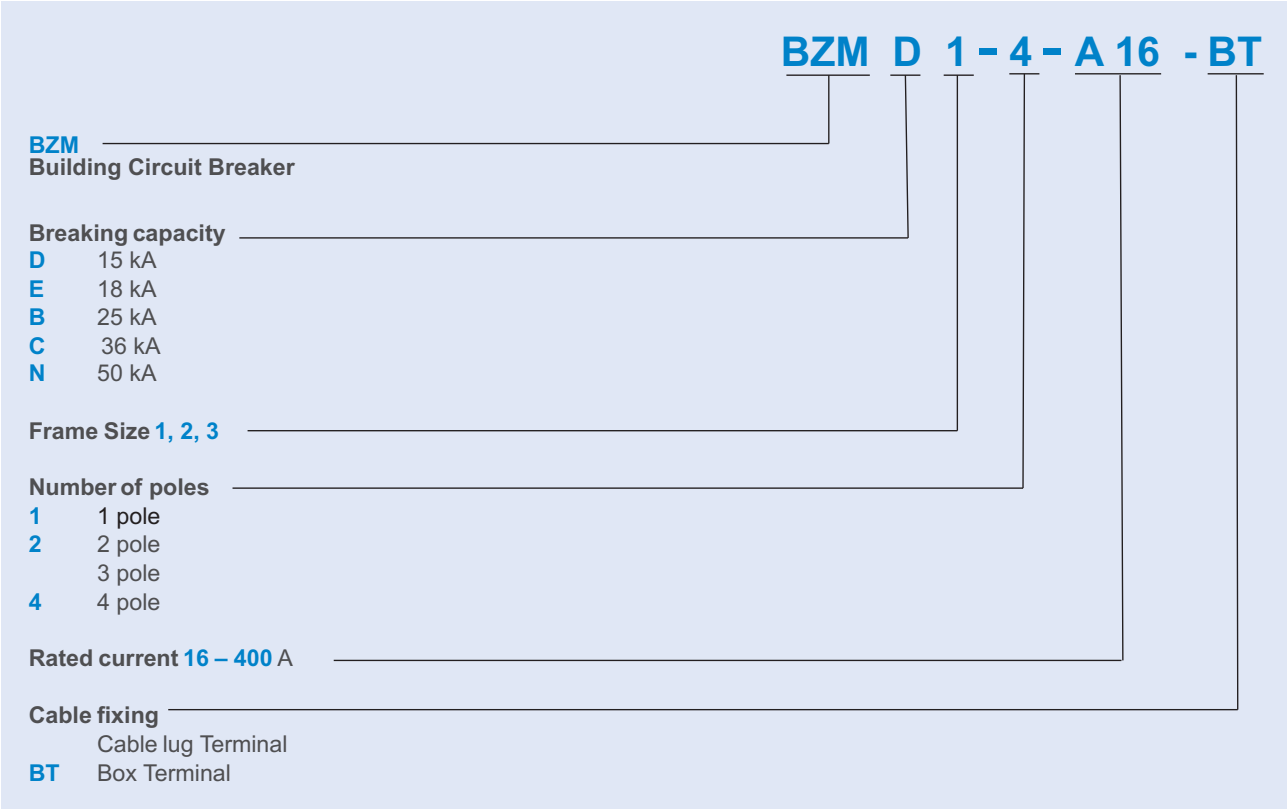
Accessories BZM1 _____ Page 18
- Auxiliary contacts
- Phase barrier
- Undervoltage release
- Shunt trip release
- Terminal cover
- Rotary handle
- Door rotary handle
- Extension shaft
- Din-rail-adapter
- Cable Lug
- BZM1 Locking Device

Accessories BZM2 _____ Page 19
- Auxiliary contacts
- Phase barrier
- Undervoltage release
- Shunt trip release
- Terminal cover
- Interlock Device

Accessories BZM3 _____ Page 20
- Auxiliary contacts
- Phase barrier
- Undervoltage release
- Shunt trip release
- Terminal cover
- Rear connection
- Spreaders
- Tunnel Terminal
- Cable Lug

Technical Data _____ Page 21-36

BZM Types Key



Circuit breakers BZM1
1-pole

	Rated current = rated uninterrupted current $I_n = I_u$ A	Short circuit releases I A	Economy switching capacity 18kA at 240 V 50/60 Hz **Part no.** Article no. 1 of each		
Protection of systems and cables					
1-pole					
Cable lug terminal					
	16	256 - 384	**BZME1-1-A16** 166250		
	20	256 - 384	**BZME1-1-A20** 166251		
	25	320 - 480	**BZME1-1-A25** 166252		
	32	320 - 480	**BZME1-1-A32** 166253		
	40	320 - 480	**BZME1-1-A40** 166254		
	50	480 - 720	**BZME1-1-A50** 166255		
	63	480 - 720	**BBZME1-1-A63** 166256		
	80	800 - 1200	**BZME1-1-A80** 166257		
	100	800 - 1200	**BBZME1-1-A100** 166258		
Box terminal					
	16	256 - 384	**BZME1-1-A16-BT** 166259		
	20	256 - 384	**BZME1-1-A20-BT** 166260		
	25	320 - 480	**BZME1-1-A25-BT** 166261		
	32	320 - 480	**BZME1-1-A32-BT** 166262		
	40	320 - 480	**BZME1-1-A40-BT** 166263		
	50	480 - 720	**BZME1-1-A50-BT** 166264		
	63	480 - 720	**BZME1-1-A63-BT** 166265		
	80	800 - 1200	**BZME1-1-A80-BT** 166266		
	100	800 - 1200	**BZME1-1-A100-BT** 166267		

Note: 1 piece phase barrier BZM1-XKP included in delivery

Circuit breakers BZM1
2-pole

	Rated current = rated uninterrupted current $I_n = I_u$ A	Short circuit releases I A	Domestic switching capacity 15kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each	Economy switching capacity 18kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each	Basic switching capacity 25kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each
Protection of systems and cables					
2-pole					
Cable lug terminal					
	16	256 - 384	**BZMD1-2-A16** 129805	**BZME1-2-A16** 129911	**BZMB1-2-A16** 112582
	20	256 - 384	**BZMD1-2-A20** 129807	**BZME1-2-A20** 129913	**BZMB1-2-A20** 112584
	25	320 - 480	**BZMD1-2-A25** 129809	**BZME1-2-A25** 129915	**BZMB1-2-A25** 112586
	32	320 - 480	**BZMD1-2-A32** 129881	**BZME1-2-A32** 129917	**BZMB1-2-A32** 112588
	40	320 - 480	**BZMD1-2-A40** 129883	**BZME1-2-A40** 129919	**BZMB1-2-A40** 112590
	50	480 - 720	**BZMD1-2-A50** 129885	**BZME1-2-A50** 129921	**BZMB1-2-A50** 112592
	63	480 - 720	**BZMD1-2-A63** 129887	**BZME1-2-A63** 129923	**BZMB1-2-A63** 112594
	80	800 - 1200	**BZMD1-2-A80** 129889	**BZME1-2-A80** 129925	**BZMB1-2-A80** 112596
	100	800 - 1200	**BZMD1-2-A100** 129891	**BZME1-2-A100** 129927	**BZMB1-2-A100** 112598
Box terminal					
	16	256 - 384	**BZMD1-2-A16-BT** 129893	**BZME1-2-A16-BT** 129929	**BZMB1-2-A16-BT** 112602
	20	256 - 384	**BZMD1-2-A20-BT** 129895	**BZME1-2-A20-BT** 129931	**BZMB1-2-A20-BT** 112604
	25	320 - 480	**BZMD1-2-A25-BT** 129897	**BZME1-2-A25-BT** 129933	**BZMB1-2-A25-BT** 112606
	32	320 - 480	**BZMD1-2-A32-BT** 129899	**BZME1-2-A32-BT** 129935	**BZMB1-2-A32-BT** 112608
	40	320 - 480	**BZMD1-2-A40-BT** 129901	**BZMB1-2-A40-BT** 129937	**BZMB1-2-A40-BT** 112610
	50	480 - 720	**BZMD1-2-A50-BT** 129903	**BZME1-2-A50-BT** 129939	**BZMB1-2-A50-BT** 112612
	63	480 - 720	**BZMD1-2-A63-BT** 129905	**BZME1-2-A63-BT** 129941	**BZMB1-2-A63-BT** 112614
	80	800 - 1200	**BZMD1-2-A80-BT** 129907	**BZME1-2-A80-BT** 129943	**BZMB1-2-A80-BT** 112616
	100	800 - 1200	**BZMD1-2-A100-BT** 129909	**BZME1-2-A100-BT** 129945	**BZMB1-2-A100-BT** 112618

Note: 1 piece phase barrier BZM1-XKP included in delivery

Circuit breakers BZM1
3-pole

	Rated current = rated uninterrupted current $I_n = I_u$ A	Short circuit releases I A	Domestic switching capacity 15kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each	Economy switching capacity 18kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each	Basic switching capacity 25kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each	Comfort switching capacity 36kA at 400 V 50/60 Hz **Part no.** Article no. 1 of each
Protection of systems and cables						
3-pole						
Cable lug terminal						
	16	256 - 384	**BZMD1-A16** 109706	**BZME1-A16** 109707	**BZMB1-A16** 109708	
	20	256 - 384	**BZMD1-A20** 109709	**BZME1-A20** 109710	**BZMB1-A20** 109711	
	25	320 - 480	**BZMD1-A25** 109712	**BZME1-A25** 109713	**BZMB1-A25** 109714	
	32	320 - 480	**BZMD1-A32** 109715	**BZME1-A32** 109716	**BZMB1-A32** 109717	**BZMC1-A32** 131251
	40	320 - 480	**BZMD1-A40** 109718	**BZME1-A40** 109719	**BZMB1-A40** 109720	**BZMC1-A40** 131252
	50	480 - 720	**BZMD1-A50** 109721	**BZME1-A50** 109722	**BZMB1-A50** 109723	**BZMC1-A50** 131253
	63	480 - 720	**BZMD1-A63** 109724	**BZME1-A63** 109725	**BZMB1-A63** 109726	**BZMC1-A63** 131254
	80	800 - 1200	**BZMD1-A80** 109727	**BZME1-A80** 109728	**BZMB1-A80** 109729	**BZMC1-A80** 131255
	100	800 - 1200	**BZMD1-A100** 109730	**BZME1-A100** 109731	**BZMB1-A100** 109732	**BZMC1-A100** 131256
	125	800 - 1200	**BZMD1-A125** 112490	**BZME1-A125** 112492		
Box terminal						
	16	256 - 384	**BZMD1-A16-BT** 109733	**BZME1-A16-BT** 109734	**BZMB1-A16-BT** 109735	
	20	256 - 384	**BZMD1-A20-BT** 109736	**BZME1-A20-BT** 109737	**BZMB1-A20-BT** 109738	
	25	320 - 480	**BZMD1-A25-BT** 109739	**BZME1-A25-BT** 109740	**BZMB1-A25-BT** 109741	
	32	320 - 480	**BZMD1-A32-BT** 109742	**BZME1-A32-BT** 109743	**BZMB1-A32-BT** 109744	**BZMC1-A32-BT** 131259
	40	320 - 480	**BZMD1-A40-BT** 109745	**BZME1-A40-BT** 109746	**BZMB1-A40-BT** 109747	**BZMC1-A40-BT** 131260
	50	480 - 720	**BZMD1-A50-BT** 109748	**BZME1-A50-BT** 109749	**BZMB1-A50-BT** 109750	**BZMC1-A50-BT** 131261
	63	480 - 720	**BZMD1-A63-BT** 109751	**BZME1-A63-BT** 109752	**BZMB1-A63-BT** 109753	**BZMC1-A63-BT** 131262
	80	800 - 1200	**BZMD1-A80-BT** 109754	**BZME1-A80-BT** 109755	**BZMB1-A80-BT** 109756	**BZMC1-A80-BT** 131263
	100	800 - 1200	**BZMD1-A100-BT** 109757	**BZME1-A100-BT** 109758	**BZMB1-A100-BT** 109759	**BZMC1-A100-BT** 131264
	125	800 - 1200	**BZMD1-A125-BT** 112496	**BZME1-A125-BT** 112498		

Note: 2 pieces phase barriers BZM1-XKP included in delivery

Circuit breakers BZM1
4-pole

	Rated current = rated uninterrupted current $I_n = I_u$ A	Short circuit releases I A	Domestic switching capacity 15kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each	Economy switching capacity 18kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each	Basic switching capacity 25kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each
Protection of systems and cables					
4-pole					
Cable lug terminal					
	16	256 - 384	**BZMD1-4-A16** 121775	**BZME1-4-A16** 112502	**BZMB1-4-A16** 112504
	20	256 - 384	**BZMD1-4-A20** 121777	**BZME1-4-A20** 112506	**BZMB1-4-A20** 112508
	25	320 - 480	**BZMD1-4-A25** 121779	**BZME1-4-A25** 112510	**BZMB1-4-A25** 112512
	32	320 - 480	**BZMD1-4-A32** 121941	**BZME1-4-A32** 112514	**BZMB1-4-A32** 112516
	40	320 - 480	**BZMD1-4-A40** 121943	**BZME1-4-A40** 112518	**BZMB1-4-A40** 112520
	50	480 - 720	**BZMD1-4-A50** 121945	**BZME1-4-A50** 112522	**BZMB1-4-A50** 112524
	63	480 - 720	**BZMD1-4-A63** 121947	**BZME1-4-A63** 112526	**BZMB1-4-A63** 112528
	80	800 - 1200	**BZMD1-4-A80** 121949	**BZME1-4-A80** 112530	**BZMB1-4-A80** 112532
	100	800 - 1200	**BZMD1-4-A100** 121951	**BZME1-4-A100** 112534	**BZMB1-4-A100** 112536
Box terminal					
	16	256 - 384	**BZMD1-4-A16-BT** 121955	**BZME1-4-A16-BT** 112542	**BZMB1-4-A16-BT** 112544
	20	256 - 384	**BZMD1-4-A20-BT** 121957	**BZME1-4-A20-BT** 112546	**BZMB1-4-A20-BT** 112548
	25	320 - 480	**BZMD1-4-A25-BT** 121959	**BZME1-4-A25-BT** 112550	**BZMB1-4-A25-BT** 112552
	32	320 - 480	**BZMD1-4-A32-BT** 121961	**BZME1-4-A32-BT** 112554	**BZMB1-4-A32-BT** 112556
	40	320 - 480	**BZMD1-4-A40-BT** 121963	**BZME1-4-A40-BT** 112558	**BZMB1-4-A40-BT** 112560
	50	480 - 720	**BZMD1-4-A50-BT** 121965	**BZME1-4-A50-BT** 112562	**BZMB1-4-A50-BT** 112564
	63	480 - 720	**BZMD1-4-A63-BT** 121967	**BZME1-4-A63-BT** 112566	**BZMB1-4-A63-BT** 112568
	80	800 - 1200	**BZMD1-4-A80-BT** 121969	**BZME1-4-A80-BT** 112570	**BZMB1-4-A80-BT** 112572
	100	800 - 1200	**BZMD1-4-A100-BT** 121971	**BZME1-4-A100-BT** 112574	**BZMB1-4-A100-BT** 112576

Note: 3 pieces phase barriers BZM1-XKP included in delivery

Circuit breakers BZM2
3-pole

	Rated current = rated uninterrupted current $I_n = I_u$ A	Short circuit releases / A $I>$	Basic switching capacity 25kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each	Comfort switching capacity 36kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each		
Protection of systems and cables						
3-pole						
Cable lug terminal						
	125	1400 - 2100	**BZMB2-A125** 119732	**BZMC2-A125** 121800		
	160	1400 - 2100	**BZMB2-A160** 116970	**BZMC2-A160** 121801		
	200	1400 - 2100	**BZMB2-A200** 116971	**BZMC2-A200** 121802		
	250	1400 - 2100	**BZMB2-A250** 116972	**BZMC2-A250** 121803		
Cable lug terminal (without overload release)						
	250	1400 - 2100	**BZMB2-S250** 131668			

Note: 2 pieces phase barriers BZM2-XKP included in delivery

Circuit breakers BZM3
3-pole

	Rated current = rated uninterrupted current $I_n = I_u$ A	Short circuit releases I A $I>$	Basic switching capacity 25kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each	Comfort switching capacity 36kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each	Normal switching capacity 50kA at 415 V 50/60 Hz **Part no.** Article no. 1 of each
Protection of systems and cables					
3-pole					
Cable lug terminal					
	250	2600-3800	**BZMB3-A250** 158104	**BZMC3-A250** 158108	**BZMN3-A250** 158272
	320	2600-3800	**BZMB3-A320** 158105	**BZMC3-A320** 158109	**BZMN3-A320** 158273
	350	2600-3800	**BZMB3-A350** 158106	**BZMC3-A350** 158270	**BZMN3-A350** 158274
	400	2600-3800	**BZMB3-A400** 158107	**BZMC3-A400** 158271	**BZMN3-A400** 158275

Note: 2 pieces phase barriers BZM3-XKP included in delivery

Accessories BZM1

	Description	Part no. Article no.	Std. pack
Auxiliary contacts (only for 2, 3 and 4pole)			
	1 NO	M22-K10 216376	20
	1 NC	M22-K01 216378	20
Phase barrier			
		BZM1-XKP 109760	1
Undervoltage release (only for 3 and 4pole)			
	230-240VAC	BZM1-3-XU230-240VAC 158053	1
	400-440VAC	BZM1-3-XU400-440VAC 158054	1
	24VDC	BZM1-3-XU24VDC 158055	1
Shunt trip release (only for 3 and 4pole)			
	230-240VAC	BZM1-3-XA230-240VAC 158056	1
	400-440VAC	BZM1-3-XA400-440VAC 158057	1
	24VDC	BZM1-3-XA24VDC 158058	1
Terminal cover (only for 1pole BZM)			
	for 1pole BZM	BZM1-1-XKSA 166268	1
	for 2pole BZM	BZM1-2-XKSA 112484	1
	for 3pole BZM	BZM1-XKSA 112482	1
	for 4pole BZM	BZM1-4-XKSA 112483	1

	Description	Part no. Article no.	Std. pack
Rotary handle (only for 2, 3 and 4pole)			
		BZM1-XDV 113168	1
Door rotary handle (only for 2, 3 and 4pole)			
 		BZM1-XTVD 112485	1
Note: XV4 or XV6 not included			
Extension axle (only for XTVD)			
	Length 400 mm	BZM1-XV4 112486	1
	Length 600 mm	BZM1-XV6 112487	1
DIN-rail-adapter			
	For 2-pole BZM	BZM1-2-XC35 112489	1
	For 3- a. 4-pole BZM	BZM1-XC35 112488	1
Cable Lug			
	35 mm^2 / M6	BZM1-XKS35 113609	10
	50 mm^2 / M6	BZM1-XKS50 113750	10
BZM1 Locking Device			
		BZM1-XKAV 152899	1

Accessories BZM2

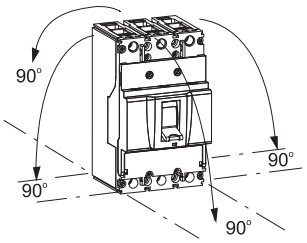
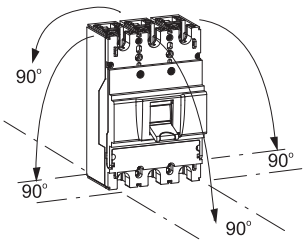
	Description	Part no. Article no.	Std. pack
Auxiliary contacts			
	1 NO	M22-K10 216376	20
	1 NC	M22-K01 216378	20
Phase barrier			
		BZM2-XKP 118720	1
Undervoltage release			
	230-240VAC	BZM1-3-XU230-240VAC 158053	1
	400-440VAC	BZM1-3-XU400-440VAC 158054	1
	24VDC	BZM1-3-XU24VDC 158055	1
Shunt trip release			
	230-240VAC	BZM1-3-XA230-240VAC 158056	1
	400-440VAC	BZM1-3-XA400-440VAC 158057	1
	24VDC	BZM1-3-XA24VDC 158058	1
Terminal cover			
		BZM2-XKSA 118727	1
Interlock Device			
		BZM2-XKAV 131669	1

Accessories BZM3

	Description	Part no. Article no.	Std. pack
Auxiliary contacts			
	1 NO	M22-K10 216376	20
	1 NC	M22-K01 216378	20
Phase barrier			
		BZM3-XKP 158300	1
Undervoltage release			
	230-240VAC	BZM1-3-XU230-240VAC 158053	1
	400-440VAC	BZM1-3-XU400-440VAC 158054	1
	24VDC	BZM1-3-XU24VDC 158055	1
Shunt trip release			
	230-240VAC	BZM1-3-XA230-240VAC 158056	1
	400-440VAC	BZM1-3-XA400-440VAC 158057	1
	24VDC	BZM1-3-XA24VDC 158058	1
Terminal cover			
		BZM3-XKSA 158305	1
Rear Connection			
		BZM3-XKR 185301	1
Spreaders (for one side of the breaker)			
		BZM3-XKV70KB 158302	1 set

	Description	Part no.	Std. pack Article no.	
Tunnel Terminal (for one side of the breaker)				
	185mm²	BZM3-XKA1 158303	1 set	
	240mm²	BZM3-XKA2 158304	1 set	
Cable Lug				
	185mm²	NZM3-XKS185 260040	3	
	240mm²	NZM3-XKS240 260041	3	

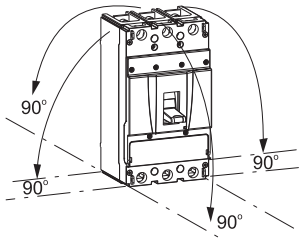
Technical Data BZM1, BZM2

			Rated current max. 125 A BZM1		Rated current max. 250 A BZM2
Mechanical specifications					
Standards			IEC/EN 60947-2		IEC/EN 60947-2
Number of poles			1, 2, 3, 4		3
Device width		mm	1pole:25, 2pole: 50, 3pole: 75, 4pole: 100		3pole: 105
Frame size		mm	45		45
Socket size		mm	130		165
Device depth		mm	84.7		91,5
Terminals			Lift terminal, ring tongue connector		ring tongue connector
Terminal capacity lift terminal		mm^2	rigid (solid/stranded) and flexible wire (2.5 - 50)		–
Terminal capacity ring tongue		mm	Diameter: max. 15		Diameter: max. 24
Busbar thickness		mm			max. 8
Terminal screw			M6 (Pozidriv PZ2)		M8
Terminal torque		Nm	4		14
Degree of Protection (DIN VDE 0470)			Built-in behind panel IP40		Built-in behind panel IP40
Climatic conditions			acc. to IEC 68-2 (25..55°C / 90..95% RH)		acc. to IEC 68-2 (25..55°C / 90..95% RH)
Ambient temperature					
Storage		°C	-35 ... +85		-35 ... +85
Operation		°C	-25 ... +70		-25 ... +70
Mounting positions			Vertical and 90° in all directions		Vertical and 90° in all directions
					
Protection System					
Enclosures			With insulating surround: IP40		With insulating surround: IP40
Number of mechanical operating cycles			> 10.000		> 8.000
Pollution degree			3		3
Electrical specifications					
			1pole	**2,3 and 4pole**	
Maximum LV h.b.c. fuse		A gG/gL	200	200	315
Rated operational voltage	U_e	V AC	230/240, 50/60 Hz	400/415, 50/60 Hz	400/415, 50/60 Hz
Rated current	I_n	A	16 up to 100	16 up to 125	125, 160, 200, 250
Rated impulse withstand voltage	U_{imp}	V	4.000 (1.2/50 µsec)	6.000 (1.2/50 µsec)	6.000 (1.2/50 µsec)
Overvoltage category			III	III	III
Rated insulation voltage	U_i	V	690	690	690
For use in IT electrical power networks		V	230/240	400/415	400/415
Direction of incoming supply			As required	As required	As required
Number of electrical operating cycles			> 1.500	> 1.500	1.000
Tripping characteristic					
Conventional non-tripping current			$I_{nt} = 1.05\ I_n$	$I_{nt} = 1.05\ I_n$	$I_{nt} = 1.05\ I_n$ [1)]
Conventional tripping current			$I_t = 1.30\ I_n$	$I_t = 1.30\ I_n$	$I_t = 1.30\ I_n$
Reference temperature		°C	40	30	30

Notes: [1)] not valid for BZMB2-S250

Technical Data BZM3

			Rated current max. 400 A BZM3
Mechanical specifications			
Standards			IEC/EN 60947-2
Number of poles			3
Device width		mm	3pole: 140
Frame size		mm	95
Socket size		mm	255
Device depth		mm	110
Terminals			
Terminal capacity ring tongue		mm	32
Terminal capacity Tunnel Terminal XKA1		mm^2	max. 350A
Copper Cabel/Aluminium cable:			1 x 16 - 185
Terminal capacity Tunnel Terminal XKA2		mm^2	max. 400A
Copper Cable/Aluminium cable:			1 x 50 - 240 or 2 x 50 - 240
Busbar thickness		mm	as required
Terminal screw			M10
Terminal torque		Nm	30
Degree of Protection (DIN VDE 0470)			Built-in behind panel IP40
Climatic conditions			acc. to IEC 68-2 (25..55°C / 90..95% RH)
Ambient temperature			
Storage		°C	-35 ... +85
Operation		°C	-25 ... +70
Mounting positions			Vertical and 90° in all directions



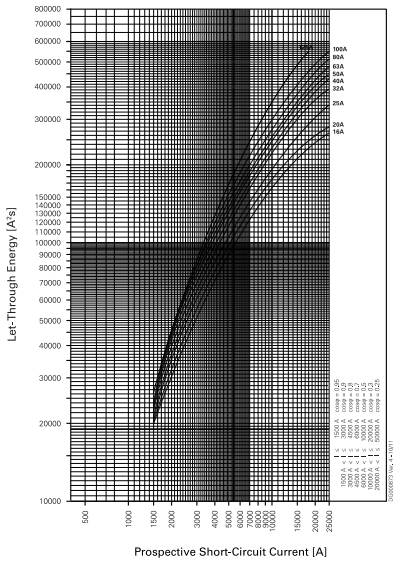
Protection System			
Enclosures			With insulating around: IP40
Number of mechanical operating cycles			> 5.000
Pollution degree			3
Electrical specifications			
Rated operational voltage	U_e	V AC	440, 50/60 Hz
Rated current	I_n	A	250, 320, 350, 400
Rated impulse withstand voltage	U_{imp}	V	8.000 (1.2/50 µsec)
Overvoltage category			III
Rated insulation voltage	U_i	V	690
For use in IT electrical power networks		V	440
Direction of incoming supply			As required
Number of electrical operating cycles			> 1.000
Tripping characteristic			
Conventional non-tripping current			$I_{nt} = 1.05\ I_n$
Conventional tripping current			$I_t = 1.30\ I_n$
Reference temperature		°C	40

Technical Data BZM1, BZM2

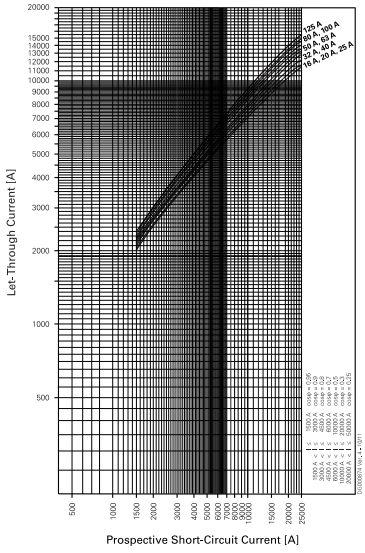
			BZMD1	BZME1	BZMB1	BZMC1	BZMB2	BZMC2
Switching capacity								
Rated short-circuit breaking capacity								
I_{CU} to IEC/EN 60947 operating sequence								
0-t-CO, 130 V 50/60 Hz	I_{CU}	kA	30	36	50		-	-
0-t-CO, 240 V 50/60 Hz	I_{CU}	kA	30	36	50		-	-
0-t-CO, 400/415 V 50/60 Hz[1)]	**I_{CU}**	**kA**	**15**	**18**	**25**	**36/400VAC**	**25**	**36**
I_{CS} to IEC/EN 60947 operating sequence								
0-t-CO-t-CO, 130 V 50/60 Hz	I_{CS}	kA	18	15	25		-	-
0-t-CO-t-CO, 240 V 50/60 Hz	I_{CS}	kA	18	15	25		-	-
0-t-CO-t-CO, 400/415 V 50/60 Hz[1)]	**I_{CS}**	**kA**	**7.5**	**9**	**12.5**	**18/9*/400VAC**	**12.5**	**9**
Utilization category to IEC/EN 60947-2								
*9kA/400VAC at IN=80, 100A			A	A	A	A	A	A

Notes: [1)] for BZM1 1pole 230/400 V, 50/60Hz

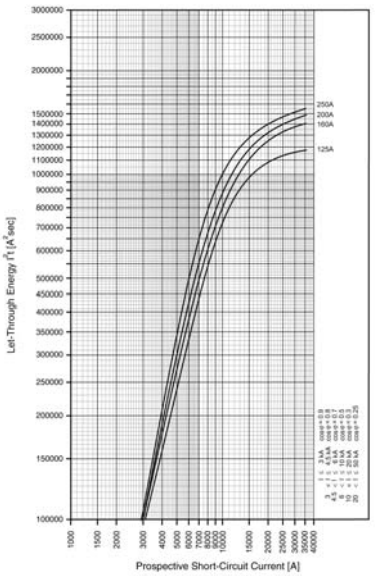
Let-through energy BZM1



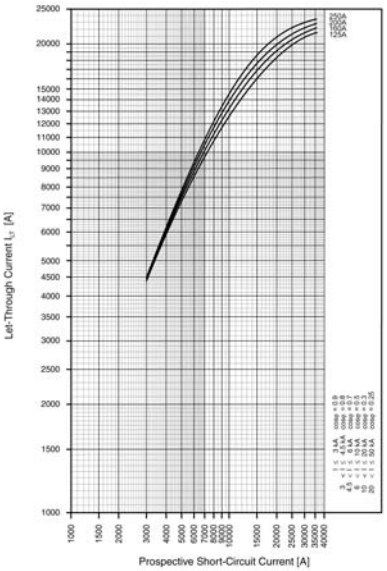
Let-through current BZM1



Let-through energy BZM2



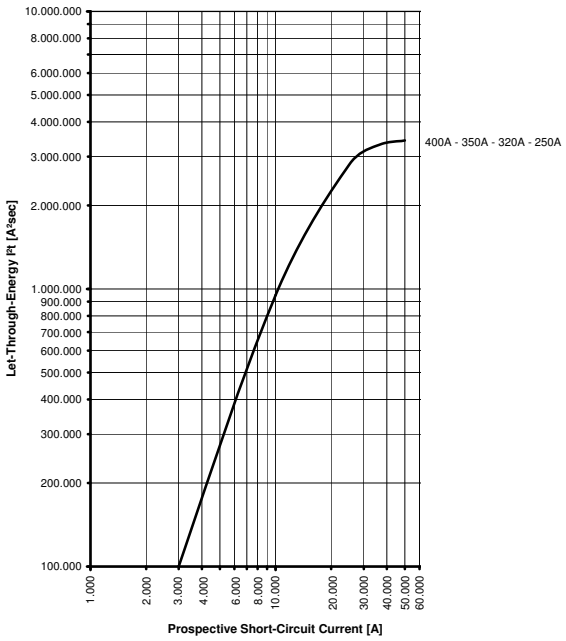
Let-through current BZM2



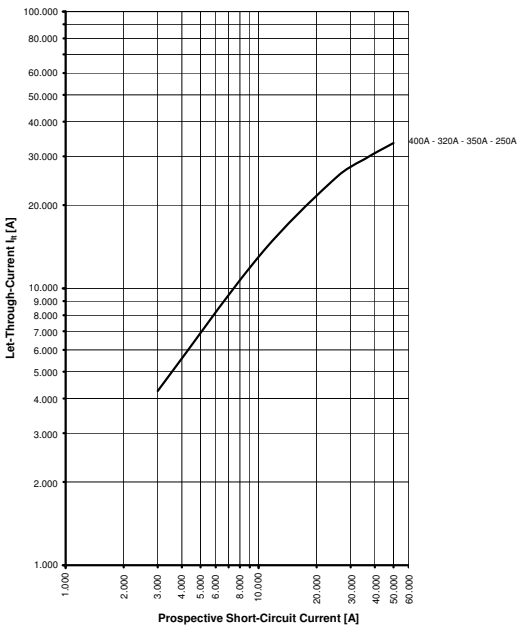
Technical Data BZM3

			BZMB3	BZMC3	BZMN3
Switching capacity					
Rated short-circuit breaking capacity					
Icu to IEC/EN 60947 operating sequence					
O-t-CO, 240 V 50/60 Hz	Icu	kA	50	85	100
O-t-CO, 400/415 V 50/60 Hz	**Icu**	**kA**	**25**	**36**	**50**
O-t-CO, 440 V 50/60 Hz	Icu	kA	20	25	36
Ics to IEC/EN 60947 operating sequence					
O-t-CO, 240 V 50/60 Hz	Ics	kA	25	42,5	50
O-t-CO-t-CO, 400/415 V 50/60 Hz	**Ics**	**kA**	**12.5**	**18**	**25**
O-t-CO, 440 V 50/60 Hz	Ics	kA	10	12,5	18
Utilization category to IEC/EN 60947-2			A	A	A

Let-through energy BZM3



Let-through current BZM3



Backup protection

between incoming circuit-breaker NZM (B)(C)(N)(H) and outgoing circuit-breaker BZM (D)(E)(B)(C)

			Incoming circuit-breaker							
			NZM1				**NZM2**			
		I_n	up to 160 A				up to 250 A			
		I_{cu} (415 V)	25kA	36kA	50kA	100kA	25kA	36kA	50kA	150kA
Outgoing Circuit Breaker										
	I_{cu} (415 V)									
BZMD1	15 kA	up to 125 A	18	25	36	40	18	25	36	50
BZME1	18 kA	up to 125 A	20	30	40	50	20	30	40	70
BZMB1	25 kA	up to 125 A	25	36	50	70	25	36	50	100
BZMC1*	36 kA*	up to 100 A*	25*	36*	50*	70*	25*	36*	50*	100*
BZMB2	25 kA	up to 250 A	-	-	-	-	-	36	50	100
BZMC2	36 kA	up to 250 A	-	-	-	-	-	-	50	100

* I_{cu} (400 V)

Back-up Protection PLHT / BZM(B)(C)(D)(E)1

	PLHT-I_n/ 1(2,3,4)/ B(C) + BZMB1
I_n [A]	U_e = 230/400 V, U_e = 240/415 V
20	18 kA (BZMB1-A125) 25 kA (BZMB1-A16...-A100)
25	
32	
40	
50	
63	
80	
100	
125	

	PLHT-I_n/ 1(2,3,4)/ B(C) + BZMC1
I_n [A]	U_e = 230/400 V
20	25 kA
25	
32	
40	
50	
63	
80	
100	

	PLHT-I_n/ 1(2,3,4)/ B(C) + BZMD1
I_n [A]	U_e = 230/400 V, U_e = 240/415 V
20	15 kA
25	
32	
40	
50	
63	
80	
100	
125	

	PLHT-I_n/ 1(2,3,4)/ B(C) + BZME1
I_n [A]	U_e = 230/400 V, U_e = 240/415 V
20	18 kA
25	
32	
40	
50	
63	
80	
100	
125	

DG001283 Vers. 2 - 10/11

U_e = 400/415V: I_{CU} (BZMD1) = 15 kA (acc. to IEC/EN 60947-2)
U_e = 400/415V: I_{CU} (BZME1) = 18 kA (acc. to IEC/EN 60947-2)
U_e = 400/415V: I_{CU} (BZMB1) = 25 kA (acc. to IEC/EN 60947-2)
U_e = 400V: I_{CU} (BZMC1) = 36 kA (acc. to IEC/EN 60947-2)

U_e = 240/415V: I_{CU} (PLHT-20..63/1..4/B,C,D) = 25 kA (acc. to IEC/EN 60947-2)
U_e = 240/415V: I_{CU} (PLHT-80/1..4/B,C,D, PLHT-100/1..4/B,C) = 20 kA (acc. to IEC/EN 60947-2)
U_e = 240/415V: I_{CU} (PLHT-100/1..4/D, PLHT-125/1..4/B,C) = 15 kA (acc. to IEC/EN 60947-2)

Back-up tests acc. to IEC/EN 60947-2, App. A.6: U = 1.05*U_e (O - t - CO)

Back-up Protection PLHT / BZM(B)(C)2

	PLHT-I_n/ 1(2,3,4)/ B(C) + BZMB2
I_n [A]	U_e = 230/400 V, U_e = 240/415 V
20	25 kA
25	
32	
40	
50	
63	
80	
100	
125	

	PLHT-I_n/ 1(2,3,4)/ B(C) + BZMC2
I_n [A]	U_e = 230/400 V, U_e = 240/415 V
20	25 kA
25	
32	
40	
50	
63	
80	
100	
125	

DG001284 Vers. 2 - 10/11

U_e = 400/415V: I_{CU} (BZMB2) = 25 kA (acc. to IEC/EN 60947-2)
U_e = 400/415V: I_{CU} (BZMC2) = 36 kA (acc. to IEC/EN 60947-2)

U_e = 240/415V: I_{CU} (PLHT-20..63/1..4/B,C,D) = 25 kA (acc. to IEC/EN 60947-2)
U_e = 240/415V: I_{CU} (PLHT-80/1..4/B,C,D, PLHT-100/1..4/B,C) = 20 kA (acc. to IEC/EN 60947-2)
U_e = 240/415V: I_{CU} (PLHT-100/1..4/D, PLHT-125/1..4/B,C) = 15 kA (acc. to IEC/EN 60947-2)

Back-up tests acc. to IEC/EN 60947-2, App. A.6: U = 1.05*U_e (O - t - CO)

Back-up Protection FAZ/PLSM / BZM(B)(C)(D)(E)1

FAZ/PLSM-I_n/1(1N,2,3,3N,4)/B(C)(D) + BZMB1			
	U_e = 230/400 V, U_e = 240/415 V		
I_n [A]	Type B	Type C	Type D
0.16	x		x
0.25			
0.5			
0.75			x
1	25 kA (up to -A100) 18 kA (Type -A125)		
1.5			
1.6			
2			
2.5			
3			
3.5			
4			
5			
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12			
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15			
16			
20			
25			
32			
40			
50			
63			

FAZ/PLSM-I_n/1(1N,2,3,3N,4)/B(C)(D) + BZMC1			
	U_e = 230/400 V		
I_n [A]	Type B	Type C	Type D
0.16	x		x
0.25			
0.5			
0.75			x
1	20 kA		
1.5			
1.6			
2			
2.5			
3			
3.5			
4			
5			
6			
8			
10			
12			
13			
15			
16			
20			
25			
32			
40			
50			
63			

FAZ/PLSM-I_n/1(1N,2,3,3N,4)/B(C)(D) + BZMD1			
	U_e = 230/400 V, U_e = 240/415 V		
I_n [A]	Type B	Type C	Type D
0.16	x		x
0.25			
0.5			
0.75			x
1	15 kA		
1.5			
1.6			
2			
2.5			
3			
3.5			
4			
5			
6			
8			
10			
12			
13			
15			
16			
20			
25			
32			
40			
50			
63			

FAZ/PLSM-I_n/1(1N,2,3,3N,4)/B(C)(D) + BZME1			
	U_e = 230/400 V, U_e = 240/415 V		
I_n [A]	Type B	Type C	Type D
0.16	x		x
0.25			
0.5			
0.75			x
1	18 kA		
1.5			
1.6			
2			
2.5			
3			
3.5			
4			
5			
6			
8			
10			
12			
13			
15			
16			
20			
25			
32			
40			
50			
63			

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U_e = 400/415V: I_{CU} (BZMD1) = 15 kA (acc. to IEC/EN 60947-2)
U_e = 400/415V: I_{CU} (BZME1) = 18 kA (acc. to IEC/EN 60947-2)
U_e = 400/415V: I_{CU} (BZMB1 up to -A100) = 25 kA (acc. to IEC/EN 60947-2)
U_e = 400/415V: I_{CU} (BZMB1-A125) = 18 kA (acc. to IEC/EN 60947-2)
U_e = 400: I_{CU} (BZMC1) = 36 kA (acc. to IEC/EN 60947-2)

U_e = 240/415V: I_{CU} (PLSM all types except D50, D63) = 15 kA (acc. to IEC/EN 60947-2)
U_e = 240/415V: I_{CU} (PLSM type D50, D63) = 10 kA (acc. to IEC/EN 60947-2)
Back-up tests acc. to IEC/EN 60947-2, App. A.6: U = 1.05*U_e (O - t - CO)

Back-up Protection FAZ/PLSM / BZM(B)(C)2

FAZ/PLSM-I_n/1(1N,2,3,3N,4)/B(C)(D) + BZMB2			
	U_e = 230/400 V, U_e = 240/415 V		
I_n [A]	Type B	Type C	Type D
0.16	x		x
0.25			
0.5			
0.75			x
1			
1.5			
1.6			
2			
2.5			
3			
3.5			
4			
5			
6		20 kA	
8			
10			
12			
13			
15			
16			
20			
25			
32			
40			
50			18 kA
63			

U_e = 400/415V: I_{CU} (BZMB2) = 25 kA (acc. to IEC/EN 60947-2)
U_e = 400/415V: I_{CU} (BZMC2) = 36 kA (acc. to IEC/EN 60947-2)

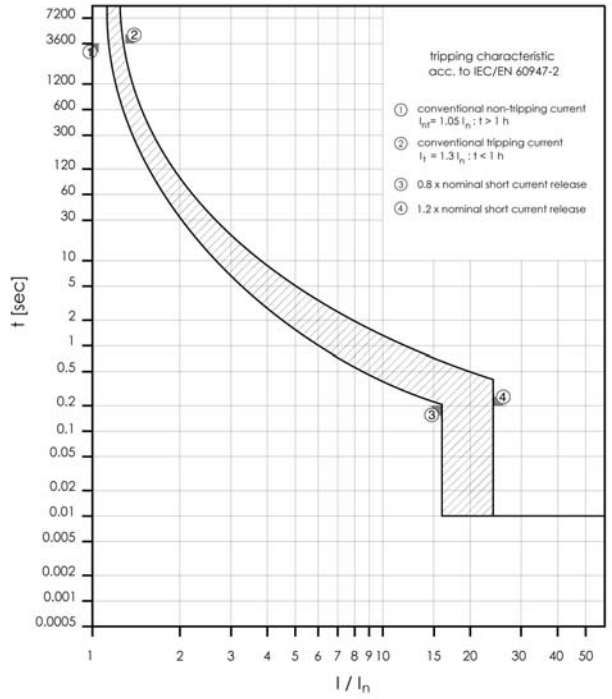
FAZ/PLSM-I_n/1(1N,2,3,3N,4)/B(C)(D) + BZMC2			
	U_e = 230/400 V, U_e = 240/415 V		
I_n [A]	Type B	Type C	Type D
0.16	x		x
0.25			
0.5			
0.75			x
1			
1.5			
1.6			
2			
2.5			
3			
3.5			
4			
5			
6		20 kA	
8			
10			
12			
13			
15			
16			
20			
25			
32			
40			
50			18 kA
63			

U_e = 240/415V: I_{CU} (PLSM all types except D50, D63) = 15 kA (acc. to IEC/EN 60947-2)
U_e = 240/415V: I_{CU} (PLSM type D50, D63) = 10 kA (acc. to IEC/EN 60947-2)
Back-up tests acc. to IEC/EN 60947-2, App. A.6: U = 1.05*U_e (O - t - CO)

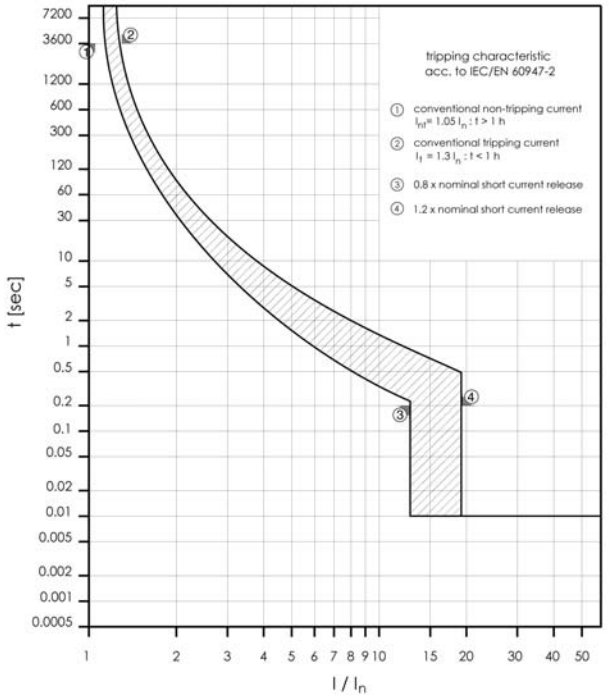
DG001286 Vers. 1 - 05/11

Tripping Current Curves BZM1

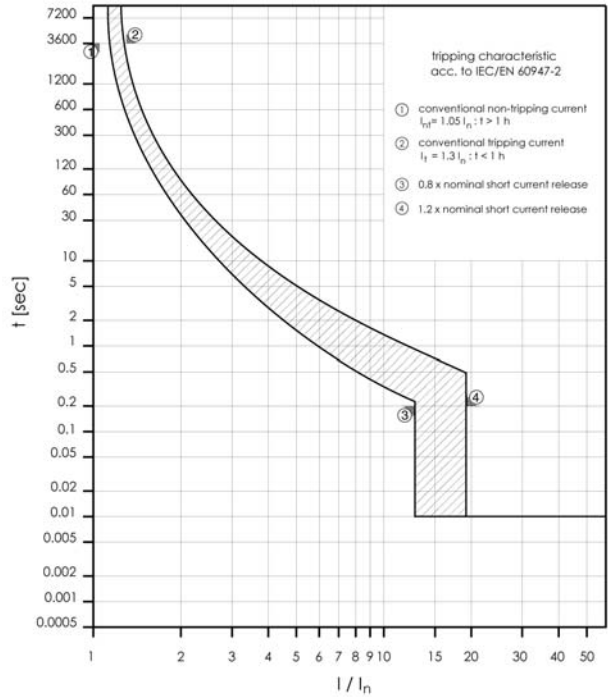
Tripping Curve BZM1 16A, 3-pole



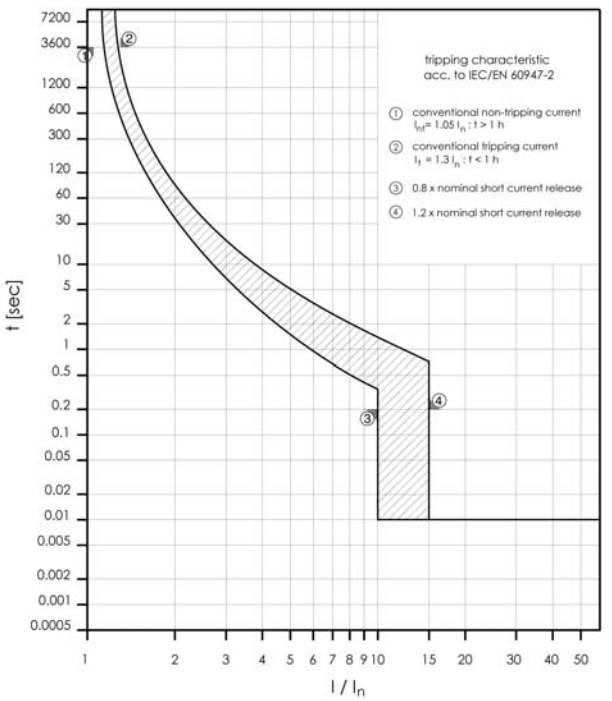
Tripping Curve BZM1 20A, 3-pole



Tripping Curve BZM1 25A, 3-pole

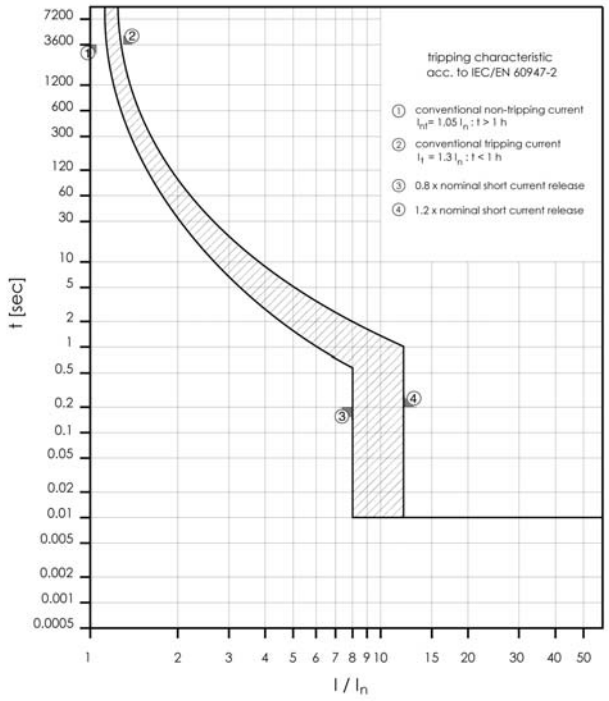


Tripping Curve BZM1 32A, 3-pole

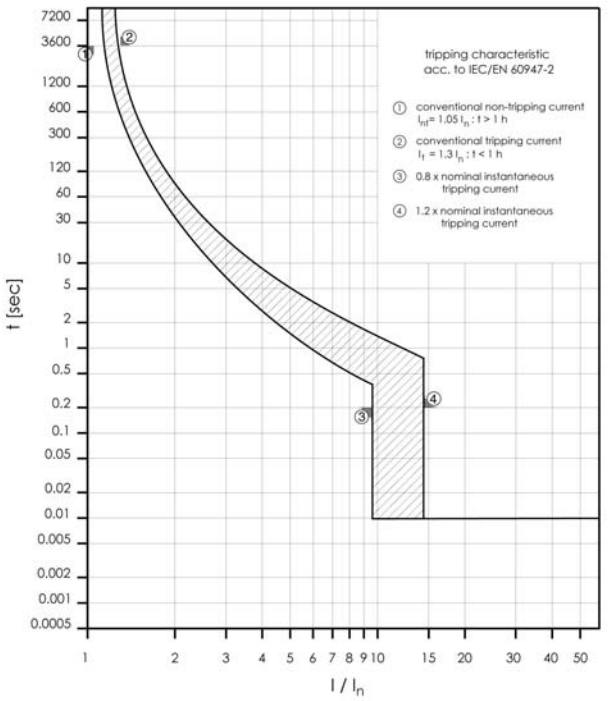


Tripping Current Curves BZM1

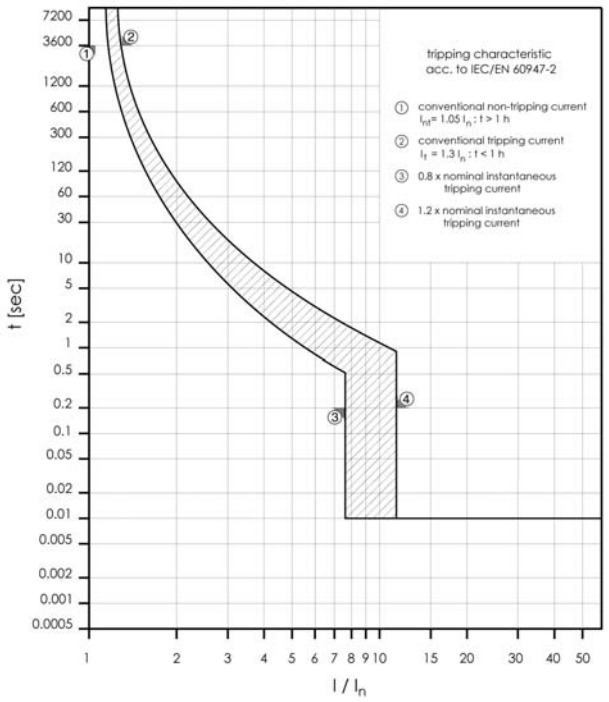
Tripping Curve BZM1 40A, 3-pole



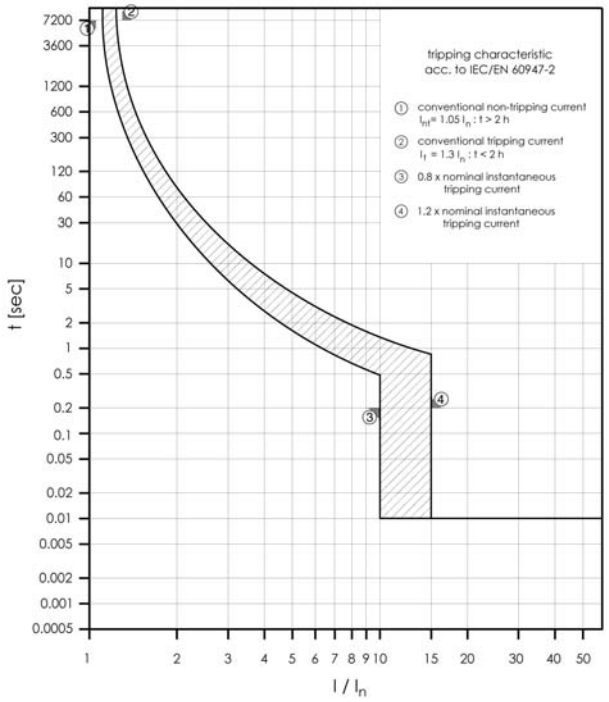
Tripping Curve BZM1 50A, 3-pole



Tripping Curve BZM 63A, 3-pole

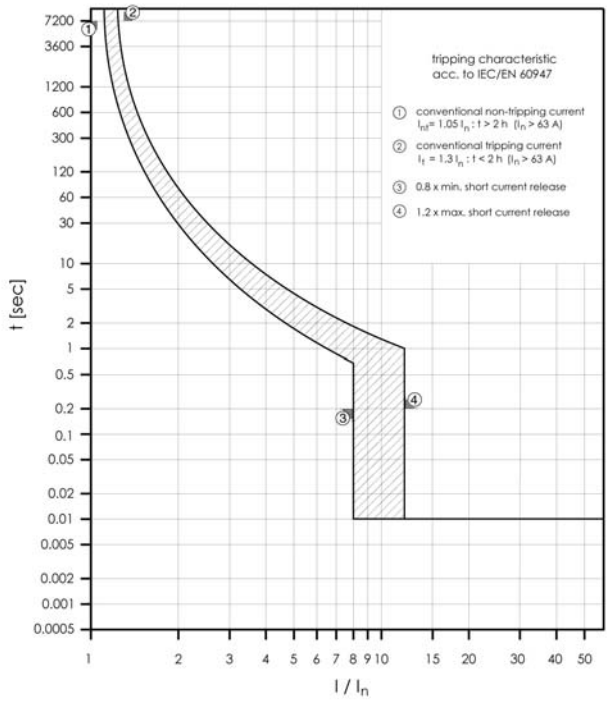


Tripping Curve BZM1 80A, 3-pole

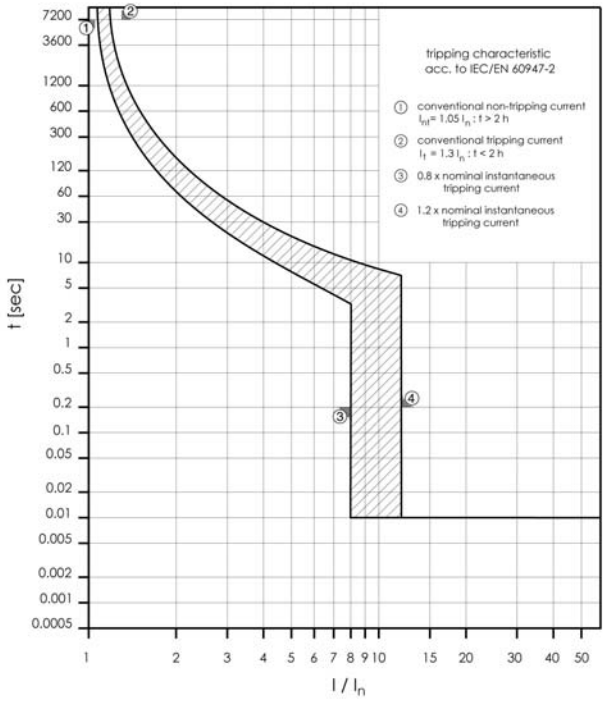


Tripping Current Curves BZM1, BZM2

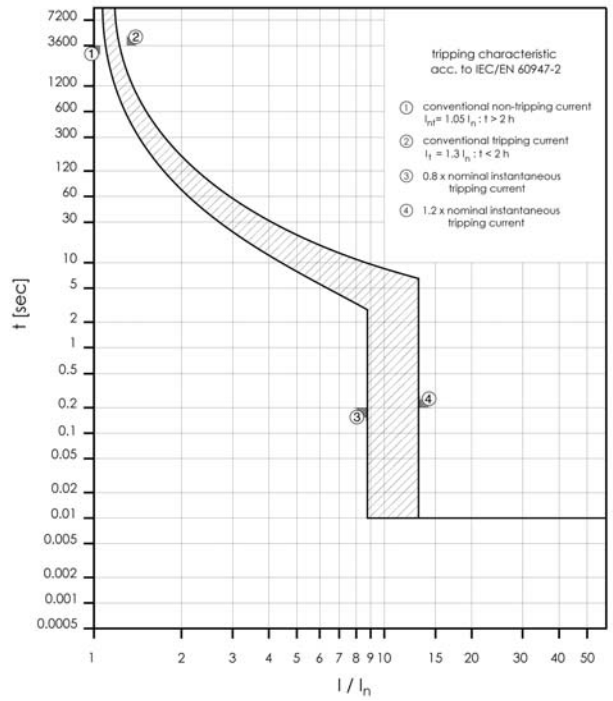
Tripping Curve BZM1 100A, 3-pole



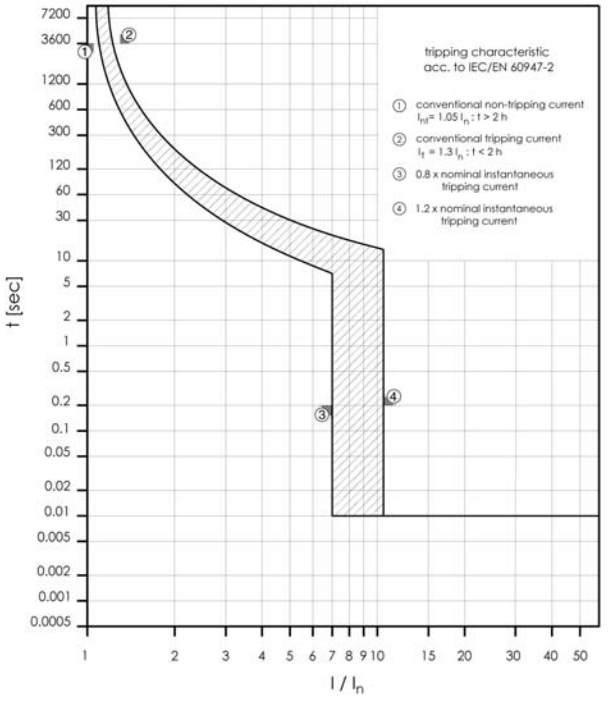
Tripping Curve BZM2 125A



Tripping Curve BZM2 160A

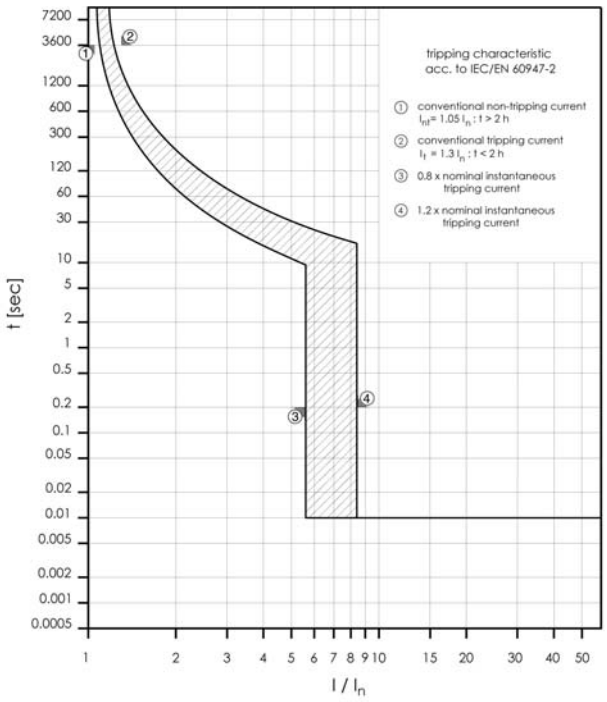


Tripping Curve BZM2 200A

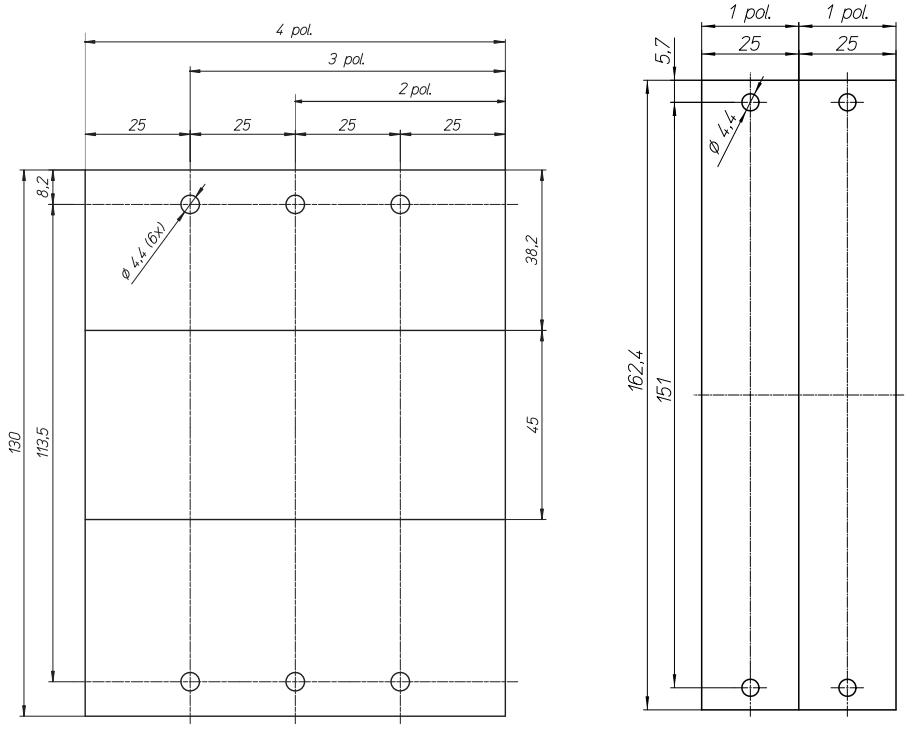


Tripping Current Curves BZM2
Mounting Holes BZM1

Tripping Curve BZM2 250A



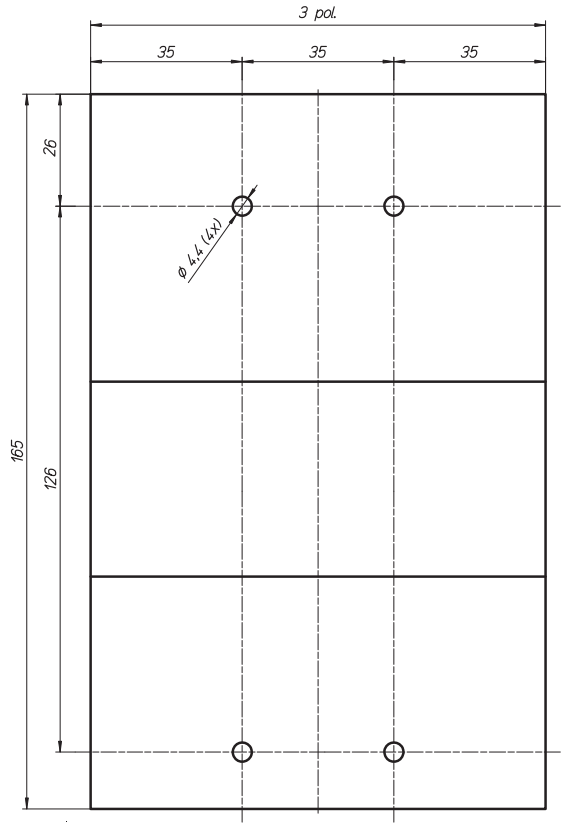
Mounting holes BZM1



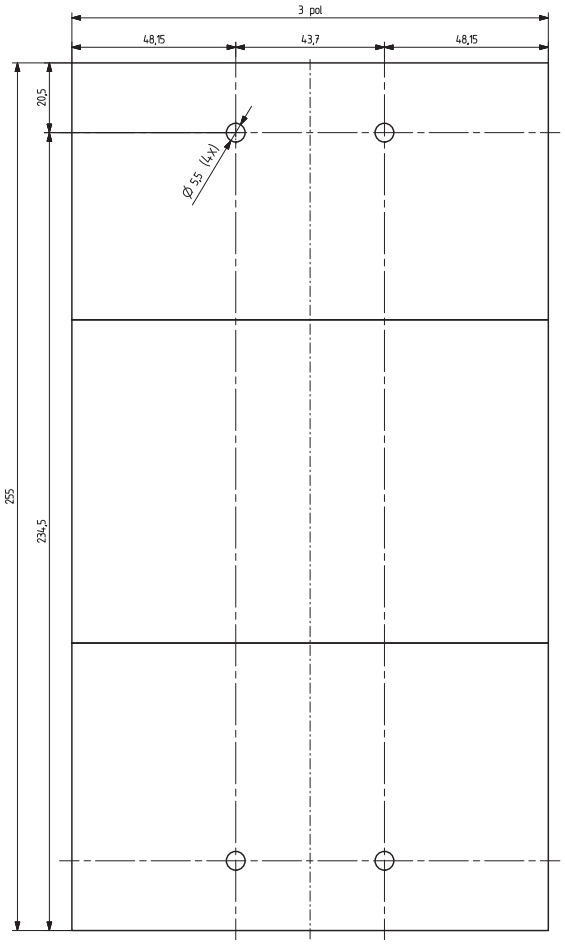
All dimensions in mm

Mounting Holes BZM2 and BZM3

Mounting holes BZM2



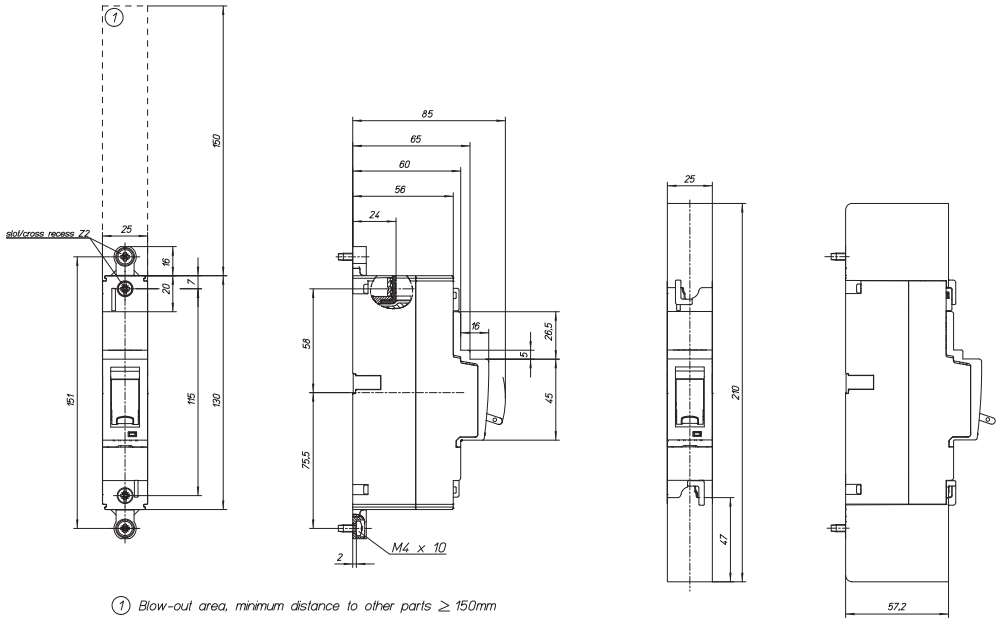
Mounting holes BZM3



All dimensions in mm

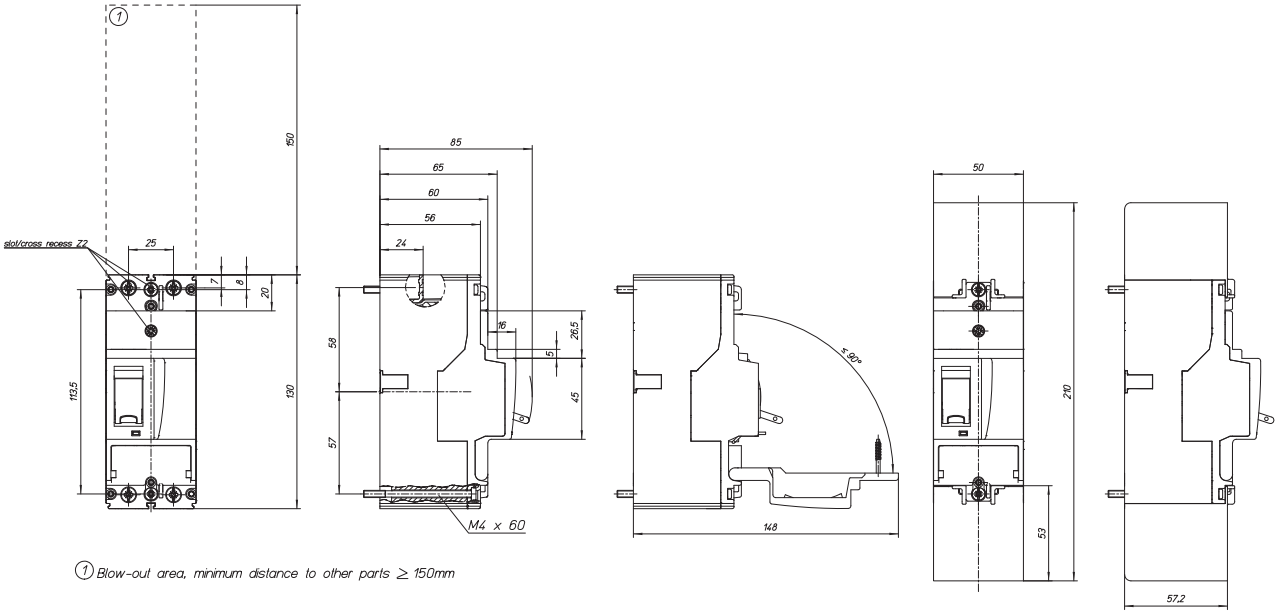
Dimensions BZM1

Circuit breaker BZM1 1-pole



1 Blow-out area, minimum distance to other parts ≥ 150mm

Circuit breaker BZM1 2-pole

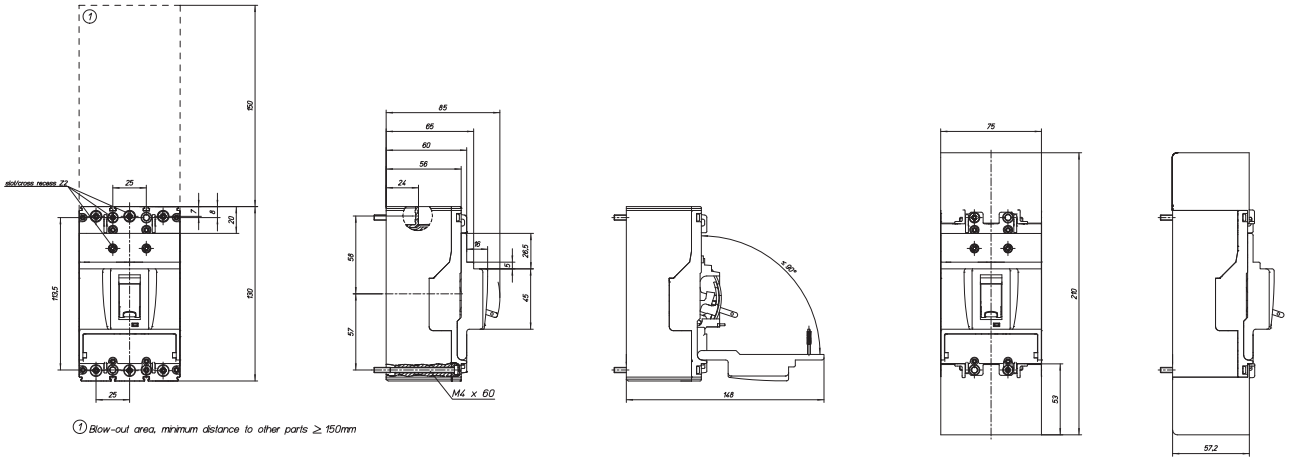


1 Blow-out area, minimum distance to other parts ≥ 150mm

All dimensions in mm

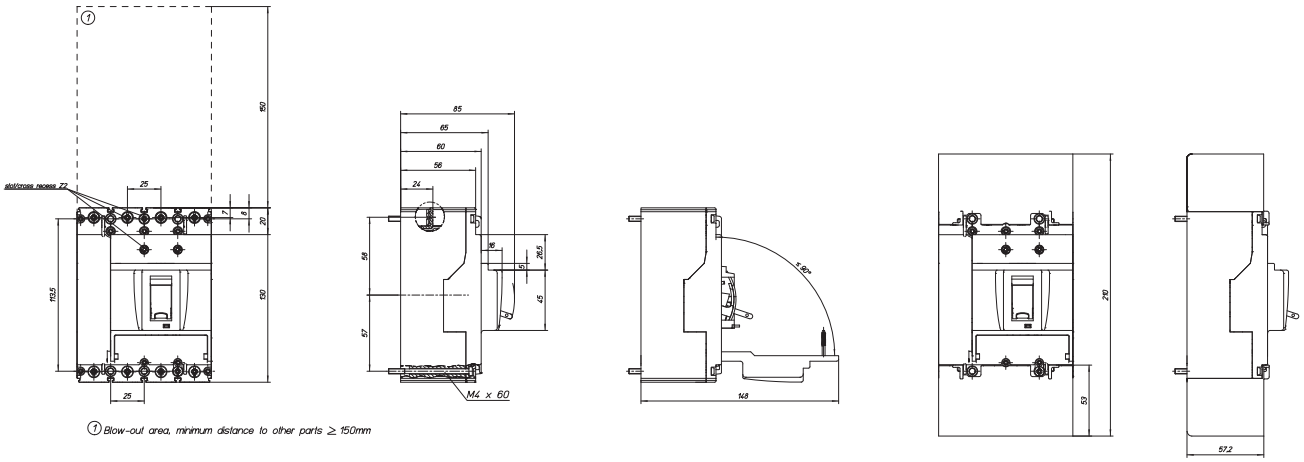
Dimensions BZM1

Circuit breaker BZM1 3-pole



① Blow-out area, minimum distance to other parts ≥ 150mm

Circuit breaker BZM1 4-pole

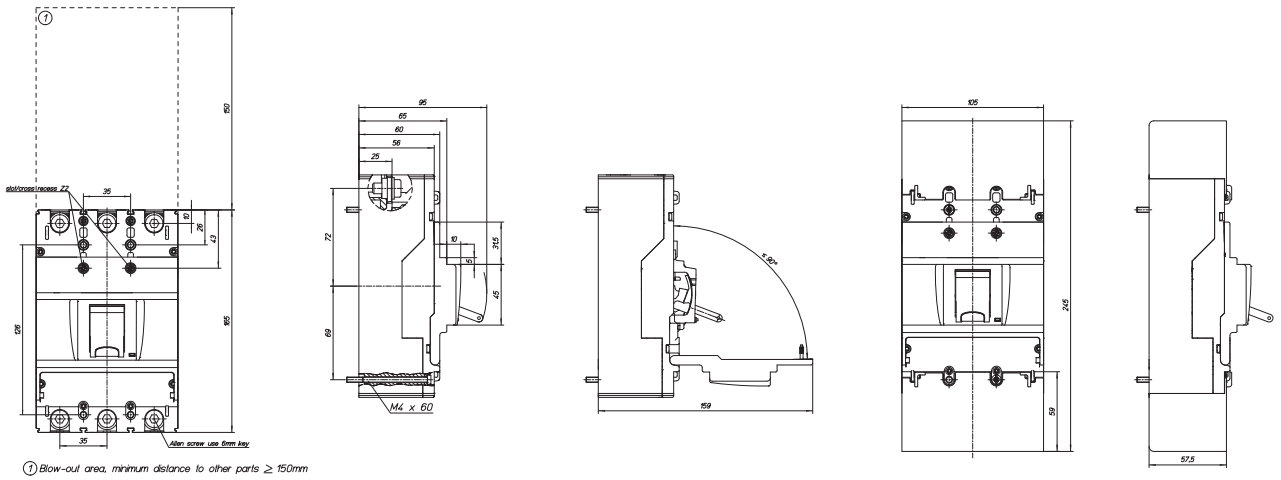


① Blow-out area, minimum distance to other parts ≥ 150mm

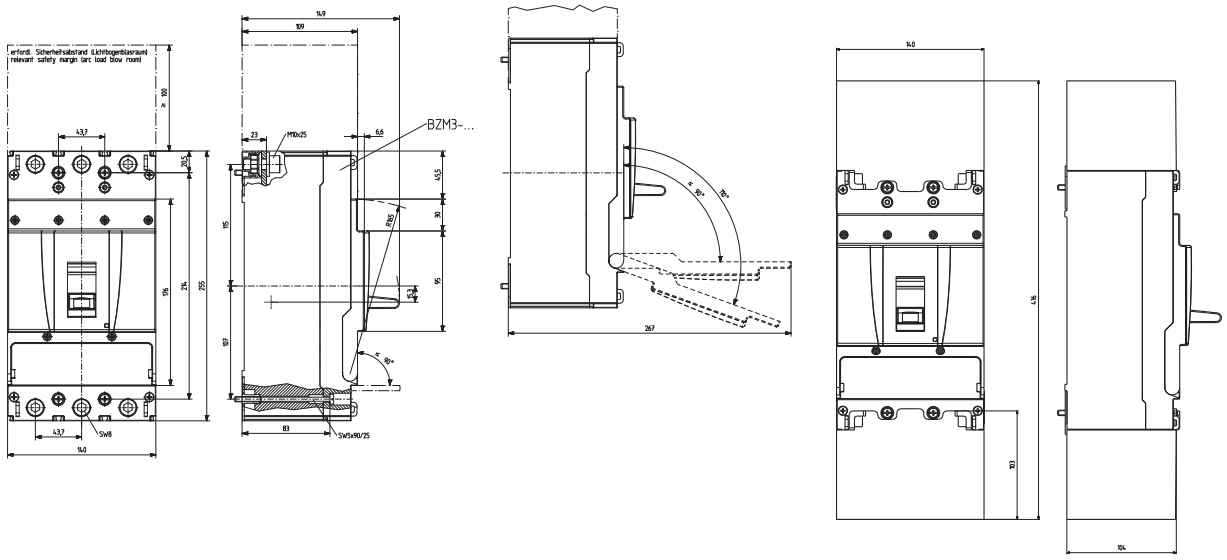
All dimensions in mm

Dimensions BZM2 and BZM3

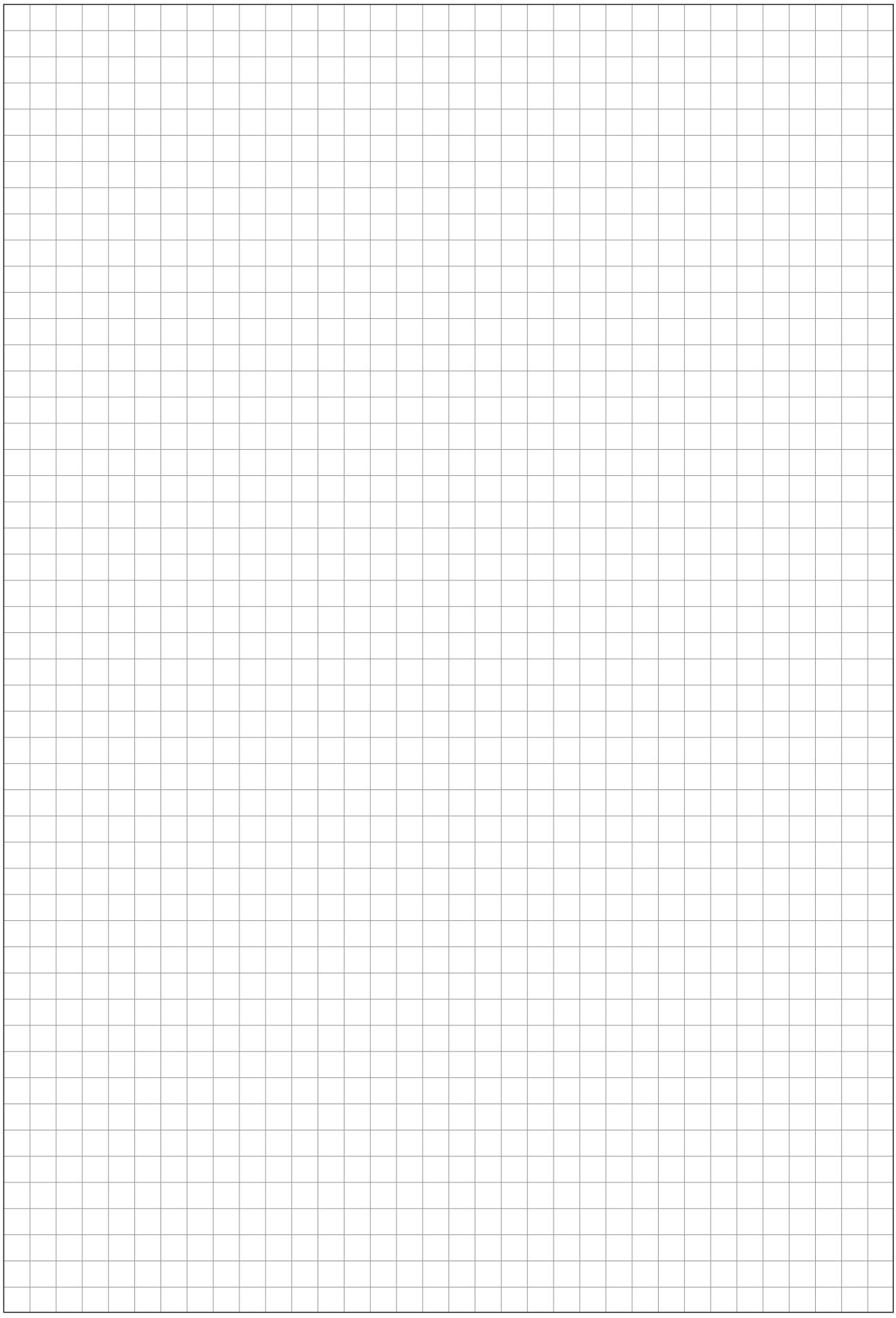
Circuit breaker BZM2 3-pole



Circuit breaker BZM3 3-pole



All dimensions in mm



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Subject to technical modifications. No responsibility is taken for misprints or errata.
Printed in Austria (01/13)
Publication number W1230-7594GB-INT
BZM Eaton Leaflet Europe
Grafics: SRA
DigiPics, Lithos:
Print:

Powering Business Worldwide

Article number 113797

LZM

xEnergy



Product catalogue LZM-I

Circuit breaker
Switch disconnector
Switching and protection up to 1000A

Powering Business Worldwide

Circuit breaker LZM series up to 1000A

Reliable, safe and simple products for energy distribution systems in high density residential, commercial and industrial buildings.
Enabled by innovative protection concepts.



Standard/trip-indicating auxiliary contact from the Titan range

- reduced number of variants and stockholding requirement
- simple front installation at the same position
- simple clip-on feature saves mounting costs
- attractively priced identical parts from the control circuit device range

Page 26



Circuit-breaker series LZM1 to LZM4

- just 4 compact frame sizes
- available as 3 and 4-pole device up to 1000A
- equal dimension as NZM range
- flexible mounting using modular function groups
- suitable for 50°C according derating table
- switch suitable for world-wide use

Page 4



Remote operators

- common functional concept of all variants
- low closing delays 60 ms to 100 ms
- locking and sealing features provide security

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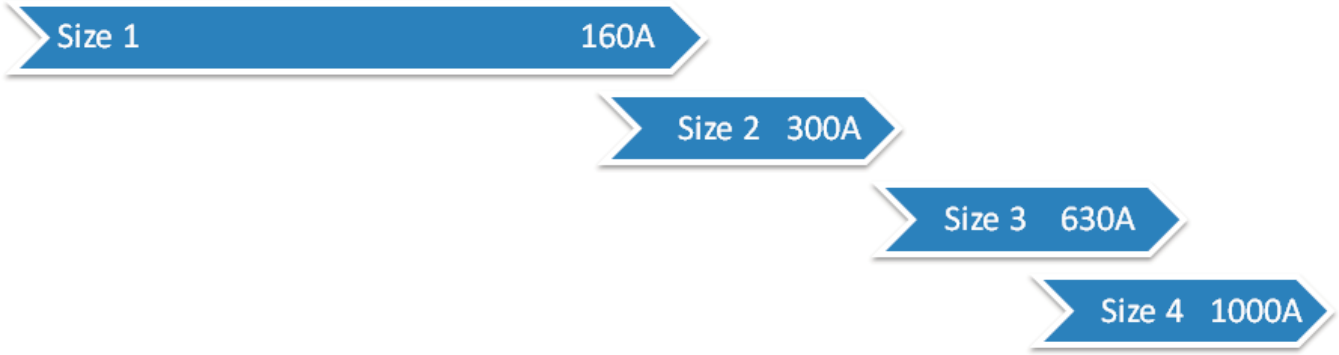


Door coupling rotary handles

- identical drilling template for all variants
- innovative automatic centring
- axis support for long-term reliable operation

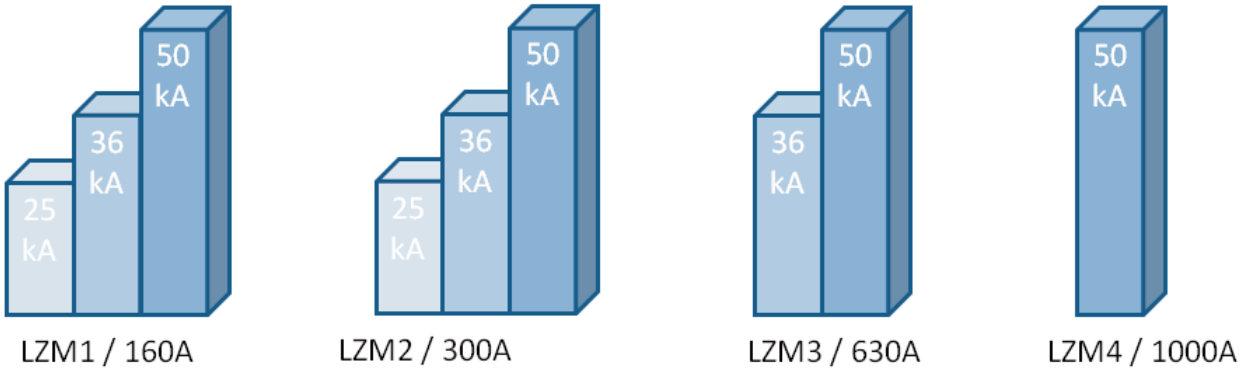
Page 30

Rated Current (A)



Only 4 frame sizes with nominal current up to 1000 A reduce time and effort to design and build up energy distribution boards.

Rated ultimate short-circuit breaking capacity (kA at 400/415V)



Continuous short-circuit breaking capacity from frame 1 up to frame 4 to ensure easy project planning for application oriented projects.

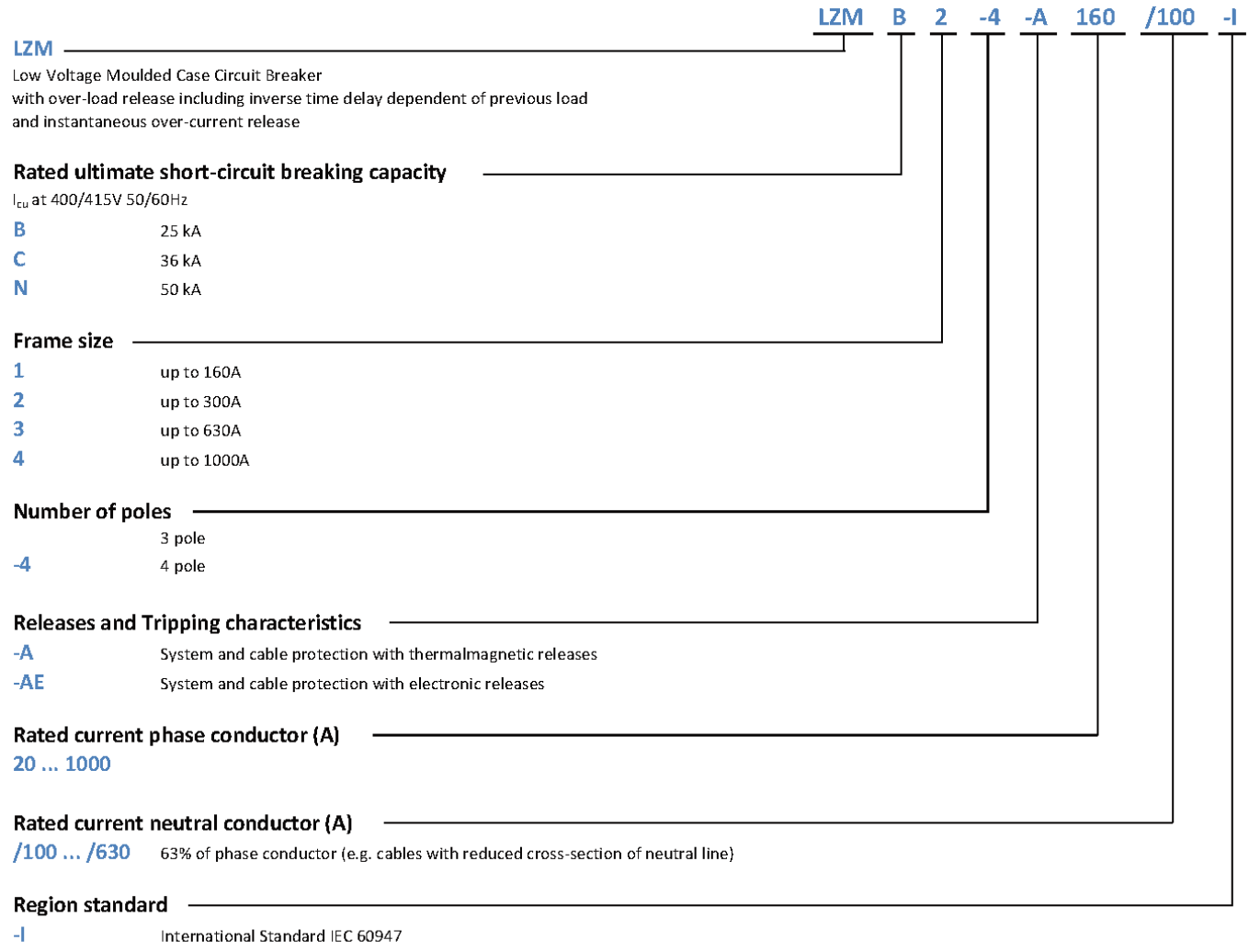
Complete offer to cover basic requirements and standard applications up to complex high end energy distribution boards.

Thermomagnetic and electronic trip unit

	Type code	Overload release	Short circuit release	
Thermo-magnetic	A	0.8 ... 1 x I_n	6 ... 10 x I_n	Standard application cable and system protection
Electronic	AE	0.5 ... 1 x I_n	2 ... 12 x I_n	Standard application cable and system protection

With each release type the LZM range provides adjustability for every nominal current to protect your application accordingly.

Type code for LZM-I MCCBs

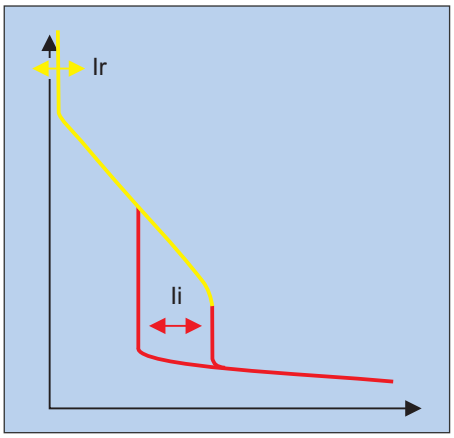


The description of the type code is a logic sequence of short circuit level, frame size, number of poles, trip unit and nominal current.

Over-current releases

Thermomagnetic release A





1 **Overload protection**

Ir = 0,8 - 1 x In

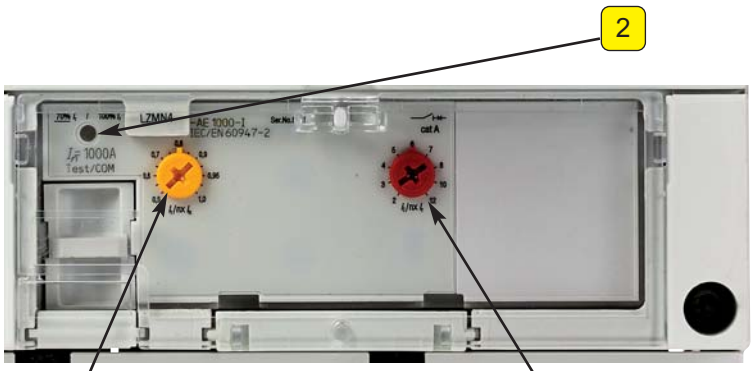
Neutral protection
The neutral pole is protected by the thermal device featuring an Irn tripping threshold of 100% or 60% of the Ir threshold adjusted with respect to the phases.

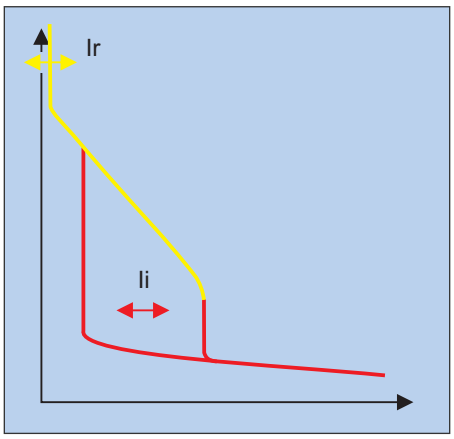
In this way, conductors, which may have a smaller section on the less charged neutral pole as in the phases, may be dimensioned effectively.

2 **Short-circuit protection**
Device with instantaneous tripping and adjustable Ii threshold

Ii = 6 - 10 x In

Electronic release without delay AE





1 **Overload protection**
Device featuring microprocessor with inverse time tripping and adjustable threshold
Ir = 0,5 - 1 x In

Neutral protection
The neutral pole is protected by the thermal device featuring an Irn tripping threshold of 100% or 60% of the Ir threshold adjusted with respect to the phases.

The protection featuring advance threshold is intended for high In rated currents (≥160A): in these cases, the statutory provision allows the use of cables with a smaller section than in the phases.

2 **Led for indication of overload**
The LED starts to light when the charge value approaches the In value or exceeds it:

Charge	<70% Ir	≥ 70%Ir	≥ 100% Ir
LED	off	steady	on intermittent

3 **Short-circuit protection**
Device featuring instantaneous tripping and adjustable Ii threshold
Ii = 2 - 8/12 x In

xEnergy

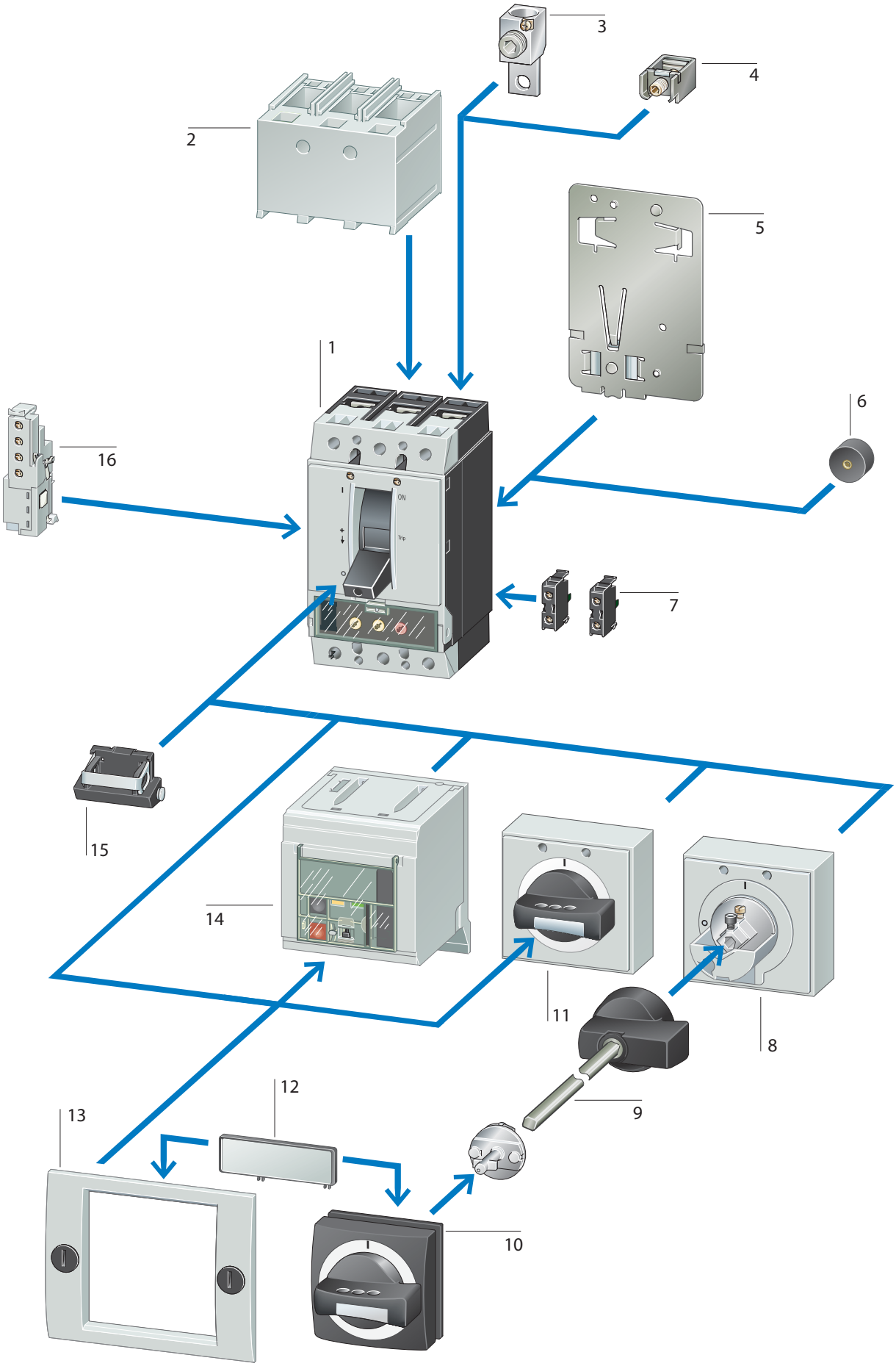
Circuit-breakers, switch-disconnectors from 15 to 1000 A



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Basic units

Circuit-breaker 1
Rated uninterrupted current up to 1000 A
Switching capacity 25, 36, 50kA at 415V
Adjustable releases for overload and short-circuit
Protection of systems, cables, motors, generators
3 and 4 pole versions,IEC/EN60947
→ page 6

Switch-disconnector 1
Rated uninterrupted current up to 1000 A
Remotely tripped switch-disconnector with undervoltage or shunt release
3 and 4 pole versions,IEC/EN60947
→ page 12

Add-on functions

Standard auxiliary contact (HIN) 7
Switching with the main contacts. Used for indication and interlock functions.
→ page 26

Trip-indicating auxiliary contact (HIA) 7
General trip indication '+', when tripped by voltage release, overload release or short-circuit release
→ page 26

Voltage release 16
Undervoltage release
Shunt release
→ page 28

Door coupling rotary handle 8+10
Lockable
With door interlock
→ page 30

Extension shaft 9
Can be cut to required length.
→ page 30

Rotary handle 11
Lockable
→ page 31

Remote operator 14
For remote switching of circuit-breakers and switch-disconnectors
→ page 35

Toggle lever interlock device 15
→ page 33

Mounting accessories

Tunnel terminals for Al and Cu cable 3
Standard with control circuit terminal
LZM1 → page 14
LZM2 → page 16
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Box terminals 4
Standard version of frame size 1 assembled within the circuit-breaker enclosure
LZM1 → page 14
LZM2 → page 16
LZM3 → page 18

Terminal cover 2
Protection against direct contact where cable lugs, busbars or tunnel terminals are used
LZM1 → page 14
LZM2 → page 16
LZM3 → page 20
LZM4 → page 24

Clip plate 5
NZM1-XC35 for 35 mm top-hat rail
NZM2-XC75 for 75 mm top-hat rail
→ page 33

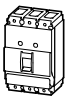
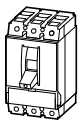
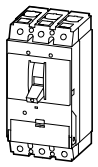
Insulating surround 13
For use with toggle lever, rotary drive and remote operator protruding from the enclosure
→ page 33

External warning plate/designation label 12
→ page 32

Spacer 6
→ page 33

Circuit-breaker

With main switch characteristics to IEC/EN 60204
and isolating characteristics to IEC/EN60947

Rated uninterrupted current I_u = Rated current I_n
Adjustable overload release I_r
Adjustable short-circuit release I_i

Thermomagnetic releases
System and cable protection

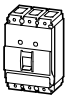
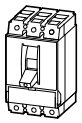
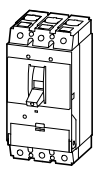
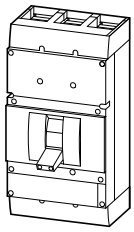
	I_u A	I_u A		I_r A	I_i A
Ambient temperature at 100% I_u	20			0.8 - 1 x I_n	350
min./max. -25/+50°C	25				
	32				
	40				8 - 10 x I_n
	50				6 - 10 x I_n
	63				
	80				
	100				
	125				
	160	160			LZM1: 8 x I_n
		200			6 - 10 x I_n
		250			
		300	320		
			400		
			500		

Basic switching capacity			**LZMB1-A...**	**LZMB2-A...**			
	400/415 V	kA	25	25			
	440V	kA	12.5	12.5			
Comfort switching capacity			**LZMC1-A...**	**LZMC2-A...**	**LZMC3-A...**		
	400/415 V	kA	36	36	36		
	440 V	kA	18	18	18		
Normal switching capacity			**LZMN1-A...**	**LZMN2-A...**	**LZMN3-A...**		
	400/415 V	kA/cos φ	50	50	50		
	440 V	kA	25	25	25		

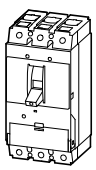
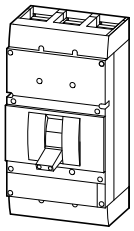
Notes The stated switching capacity values are rated ultimate short-circuit breaking capacities (I_{cu})

Switch-disconnector

With main switch characteristics to IEC/EN 60204
and VDE 0113 isolating characteristics to IEC/EN 60947,
VDE 0660 without overload and short-circuit release

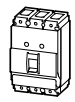
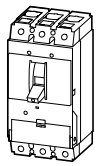
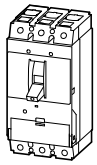
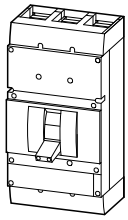
Rated uninterrupted current I_u = rated current I_n		63 – 160	160 – 250	400 – 630	630 – 1600
Can be triggered with U/A voltage release		**LN1-...**	**LN2-...**	**LN3-...**	**LN4-...**
Rated short-circuit making capacity I_{cm}	kA	2.8	5.5	25	53
Rated short-time withstand current I_{cw}(1s)	kA	2	3.5	12	25

Electronic releases
Systems, cable, selectivity and generator protection

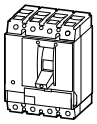
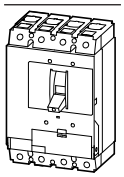
I_u A	I_u A	I_r A	I_i A
		0.5 - 1 x I_n	
630			2 - 8 x I_n
	800		2 - 12 x I_n
	1000		

LZMC3-...E...	
36	
18	
LZMN3-...E...	**LZMN4-...E...**
50	50
25	25

	Rated current = rated uninterrupted current	Setting range		Basic switching capacity **25 kA** at 415 V 50/60 Hz		Comfort switching capacity **36 kA** at 415 V 50/60 Hz	
				Part no. Article no.	**Price** see price list	**Part no.** Article no.	**Price** see price list
	$I_n = I_u$	Overload releases	Short-circuit releases				
	A	I_r	I_i				
		A	A				
Protection of systems and cables							
3 pole with thermo-magnetic release							
Terminals standard, terminal screws as accessories							
	20	15…20	350	**LZMB1-A20-I** 111848		**LZMC1-A20-I** 111888	
	25	20 ...25	350	**LZMB1-A25-I** 111849		**LZMC1-A25-I** 111889	
	32	25…32	350	**LZMB1-A32-I** 111850		**LZMC1-A32-I** 111890	
	40	32…40	320…400	**LZMB1-A40-I** 111851		**LZMC1-A40-I** 111891	
	50	40…50	300…500	**LZMB1-A50-I** 111852		**LZMC1-A50-I** 111892	
	63	50…63	380…630	**LZMB1-A63-I** 111853		**LZMC1-A63-I** 111893	
	80	63…80	480…800	**LZMB1-A80-I** 111854		**LZMC1-A80-I** 111894	
	100	80…100	600…1000	**LZMB1-A100-I** 111855		**LZMC1-A100-I** 111895	
	125	100…125	750…1250	**LZMB1-A125-I** 111856		**LZMC1-A125-I** 111896	
	160	125…160	1280	**LZMB1-A160-I** 111857		**LZMC1-A160-I** 111897	
Terminal screws standard, terminals as accessories							
	160	125…160	960...1600	**LZMB2-A160-I** 111922		**LZMC2-A160-I** 111938	
	200	160...200	1200...2000	**LZMB2-A200-I** 111923		**LZMC2-A200-I** 111939	
	250	200...250	1500...2500	**LZMB2-A250-I** 111924		**LZMC2-A250-I** 111940	
	300	240...300	1500...2500	**LZMB2-A300-I** 111925		**LZMC2-A300-I** 111941	
	320	250...320	1920...3200			**LZMC3-A320-I** 111954	
	400	320...400	2400...4000			**LZMC3-A400-I** 111955	
	500	400...500	3000...5000			**LZMC3-A500-I** 111956	
Notes	Notes for terminals → 15						
3 pole with electronic release							
Terminals screws standard, terminals as accessories							
	630	315...630	1260...5040			**LZMC3-AE630-I** 111957	
	800	400...800	1600...9600				
	1000	500...1000	2000...12000				
Notes	Notes for terminals → 19						

Normal switching capacity
50 kA at 415 V 50/60 Hz

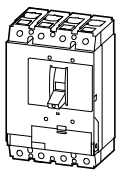
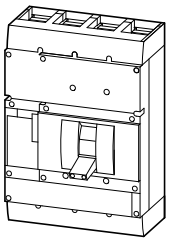
Part no. Article no.	**Price** see price list	Std. pack	**Notes**
LZMN1-A20-I 174414		1 off	IEC/EN 60947-2 Adjustable overload releases I_r • 0.8 – 1 x I_n (ex-works 0.8 x I_n) Adjustable short-circuit releases I_i • 6 – 10 x I_n (ex-works 6 x I_n) – LZM...-A40: 8 – 10 x In (ex-works 8 x I_n) Fixed short-circuit release I_i • 350 A at I_n = 20 – 32 A • 1280 A at I_n = 160 A (LZM1)
LZMN1-A25-I 174415			
LZMN1-A32-I 174416			
LZMN1-A40-I 174417			
LZMN1-A50-I 174418			
LZMN1-A63-I 174419			
LZMN1-A80-I 174420			
LZMN1-A100-I 174421			
LZMN1-A125-I 174422			
LZMN1-A160-I 174423			
LZMN2-A160-I 174442		1 off	
LZMN2-A200-I 174443			
LZMN2-A250-I 174444			
LZMN2-A300-I 174445			
LZMN3-A320-I 111966			
LZMN3-A400-I 111967			
LZMN3-A500-I 111968			
LZMN3-AE630-I 111969		1 off	IEC/EN 60947-2 Adjustable overload releases I_r • 0.5 – 1 x I_n (ex-works 0.8 x I_n) R.m.s. value measurement and "thermal memory" Adjustable short-circuit releases I_i • LZM...3-AE630-I: 2 – 8 x I_n (ex-works 6 x I_n) • LZM...4-AE...-I: 2 – 12 x I_n (ex-works 6 x I_n)
LZMN4-AE800-I 111978			
LZMN4-AE1000-I 111979			

	Rated current = rated uninterrupted current	**Setting range** Overload releases	Neutral conductor	Short-circuit releases	Basic switching capacity **25 kA** at 415 V 50/60 Hz **Part no.** Article no.	**Price** see price list	Comfort switching capacity **36 kA** at 415 V 50/60 Hz **Part no.** Article no.	**Price** see price list
	$I_n=I_u$	I_r	I_r	I_i				
	A	A	A	A				
Protection of systems and cables								
4 pole								
Terminals standard, terminal screws as accessories								
	20	15...20	15...20	350	**LZMB1-4-A20-I** 111868		**LZMC1-4-A20-I** 111908	
	25	20...25	20...25	350	**LZMB1-4-A25-I** 111869		**LZMC1-4-A25-I** 111909	
	32	25...32	25...32	350	**LZMB1-4-A32-I** 111870		**LZMC1-4-A32-I** 111910	
	40	32...40	32...40	320...400	**LZMB1-4-A40-I** 111871		**LZMC1-4-A40-I** 111911	
	50	40...50	40...50	300...500	**LZMB1-4-A50-I** 111872		**LZMC1-4-A50-I** 111912	
	63	50...63	50...63	380...630	**LZMB1-4-A63-I** 111873		**LZMC1-4-A63-I** 111913	
	80	63...80	63...80	480...800	**LZMB1-4-A80-I** 111874		**LZMC1-4-A80-I** 111914	
	100	80...100	80...100	600...1000	**LZMB1-4-A100-I** 111875		**LZMC1-4-A100-I** 111915	
	125	100...125	100...125	750...1250	**LZMB1-4-A125-I** 111876		**LZMC1-4-A125-I** 111916	
	160	125...160	125...160	1280	**LZMB1-4-A160-I** 111877		**LZMC1-4-A160-I** 111917	
Terminals standard, terminal screws as accessories								
	160	125...160	125...160	960...1600	**LZMB2-4-A160-I** 116431		**LZMC2-4-A160-I** 116435	
		125...160	80...100	960...1600	**LZMB2-4-A160/100-I** 111930		**LZMC2-4-A160/100-I** 111948	
	200	160...200	160...200	1200...2000	**LZMB2-4-A200-I** 116432		**LZMC2-4-A200-I** 116436	
		160...200	100...125	1200...2000	**LZMB2-4-A200/125-I** 111931		**LZMC2-4-A200/125-I** 111949	
	250	200...250	200...250	1500...2500	**LZMB2-4-A250-I** 116433		**LZMC2-4-A250-I** 116437	
		200...250	125...160	1500...2500	**LZMB2-4-A250/160-I** 111932		**LZMC2-4-A250/160-I** 111950	
	300	240...300	250...320	1500...2500	**LZMB2-4-A300-I** 116434		**LZMC2-4-A300-I** 116438	
		240...300	160...200	1500...2500	**LZMB2-4-A300/200-I** 111933		**LZMC2-4-A300/200-I** 111951	
	320	250...320	320...400	1920...3200			**LZMC3-4-A320-I** 116439	
		250...320	200...250	1920...3200			**LZMC3-4-A320/200-I** 111960	
	400	320...400	320...400	2400...4000			**LZMC3-4-A400-I** 116470	
		320...400	250...250	2400...4000			**LZMC3-4-A400/250-I** 111961	
	500	400...500	400...500	3000...5000			**LZMC3-4-A500-I** 116471	
		400...500	250...320	3000...5000			**LZMC3-4-A500/320-I** 111962	

Notes Notes for terminals → 15+19

Normal switching capacity
50 kA at 415 V 50/60 Hz

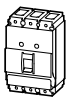
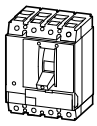
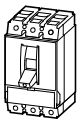
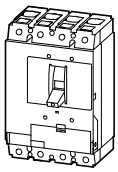
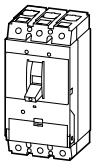
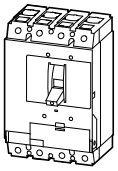
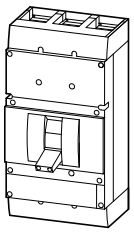
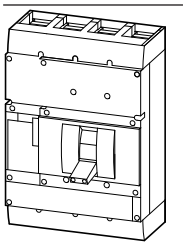
Part no.	Price Article no. list	Std. pack see price	Notes
LZMN1-4-A20-I 174424		1 off	IEC/EN 60947-2 Adjustable overload releases I_r • 0.8 – 1 x I_n (ex-works 0.8 x I_n) Setting on neutral pole implemented via the main pole setting I_r of the main pole. Adjustable short-circuit releases I_i • 6 – 10 x I_r (ex-works 6 x I_n) – LZM…A40-I: 8 – 10 x I_n (ex-works 8 x I_n) Fixed short-circuit release I_i • 350 A at I_n = 20 – 32 A • 1280 A at I_n = 160 A (8 x I_n) LZM..1-4-A… • With 100 % overload and short-circuit protection in 4th pole LZM..2-4-A… • With 100 % or 60 % overload and short-circuit protection in 4th pole
LZMN1-4-A25-I 174425			
LZMN1-4-A32-I 174426			
LZMN1-4-A40-I 174427			
LZMN1-4-A50-I 174428			
LZMN1-4-A63-I 174429			
LZMN1-4-A80-I 174430			
LZMN1-4-A100-I 174431			
LZMN1-4-A125-I 174432			
LZMN1-4-A160-I 174433			
LZMN2-4-A160-I 174435		1 off	
LZMN2-4-A160/100-I 174434			
LZMN2-4-A200-I 174437			
LZMN2-4-A200/125-I 174436			
LZMN2-4-A250-I 174439			
LZMN2-4-A250/160-I 174438			
LZMN2-4-A300-I 174441			
LZMN2-4-A300/200-I 174440			
LZMN3-4-A320-I 116473		1 off	
LZMN3-4-A320/200-I 111974			
LZMN3-4-A400-I 116474			
LZMN3-4-A400/250-I 111975			
LZMN3-4-A500-I 116475			
LZMN3-4-A500/320-I 111976			

	Rated current = rated uninterrupted current	**Setting range** Overload releases	Neutral conductor	Short-circuit releases Non-delayed	Comfort switching capacity **36 kA** at 415 V 50/60 Hz **Part no.** Article no.	**Price** see price list
	$I_n=I_u$	I_r	I_r	I_r		
	A	A	A	A		
Protection of systems and cables						
4 pole						
Terminals screws standard, terminals as accessories						
	630	315...630	315...630	1260...5040	**LZMC3-4-AE630-I** 116472	
		315...630	200...400	1260...5040	**LZMC3-4-AE630/400-I** 111963	
	800	400...800	400...800	1600...9600		
		400...800	250...500	1600...9600		
	1000	500...1000	500...1000	2000...12000		
		500...1000	315...630	2000...12000		

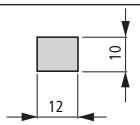
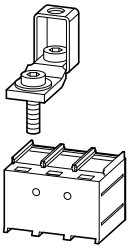
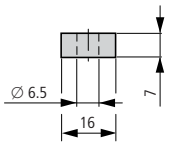
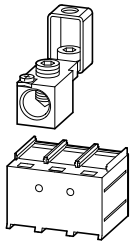
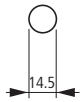
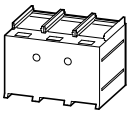
Notes Notes for terminals → 19+22

Normal switching capacity
50 kA at 415 V 50/60 Hz

Part no. Article no.	**Price** see price list	Std. pack	**Notes**
LZMN3-4-AE630-I 116476 **LZMN3-4-AE630/400-I** 111977 **LZMN4-4-AE800-I** 116477 **LZMN4-4-AE800/500-I** 111986 **LZMN4-4-AE1000-I** 116478 **LZMN4-4-AE1000/630-I** 111987		1 off	IEC/EN 60947-2 Adjustable overload releases I_r • 0.5 – 1 x I_n (ex-works 0.8 x I_n) Setting on neutral pole implemented via the main pole setting I_r of the main pole. R.m.s. value measurement and "thermal memory" Adjustable short-circuit releases I_i • LZM...3-4-AE630-I: 2 – 8 x I_n (ex-works 6 x I_n) • LZM...4-4-AE...-I: 2 – 12 x I_n (ex-works 6 x I_n) i^2t constant function (ex-works OFF) •LZM3, LZM4 switched (ex-works OFF) LZM...3-AE630/400, LZM...-4-AE.../...-I • With 60 % or 100 % overload and short-circuit protection in 4th pole

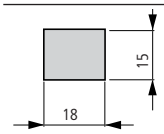
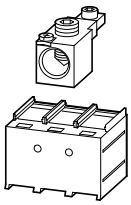
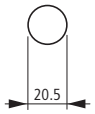
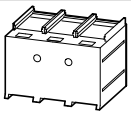
	Rated current = rated uninterrupted current $I_n = I_u$ A	Short-circuit protection max. fuse gL-characteristic A	**3pole Part no.** Article no.	**Price** see price list	**4pole Part no.** Article no.	**Price** see price list	Std. pack
Switch-disconnectors							
Can be tripped remotely with shunt- or undervoltage release							
Terminals standard, terminal screws as accessories							
 	63	125	**LN1-63-I** 111994		**LN1-4-63-I** 111998		1 off
	100	125	**LN1-100-I** 111995		**LN1-4-100-I** 111999		
	125	125	**LN1-125-I** 111996		**LN1-4-125-I** 112000		
	160	160	**LN1-160-I** 111997		**LN1-4-160-I** 112001		
Terminals screws standard, terminals as accessories							
 	160	250	**LN2-160-I** 112002		**LN2-4-160-I** 112005		1 off
	200	250	**LN2-200-I** 112003		**LN2-4-200-I** 112006		
	250	250	**LN2-250-I** 112004		**LN2-4-250-I** 112007		
 	400	630	**LN3-400-I** 112008		**LN3-4-400-I** 112010		
	630	630	**LN3-630-I** 112009		**LN3-4-630-I** 112011		
 	800	1600	**LN4-800-I** 112012		**LN4-4-800-I** 112016		
	1000	1600	**LN4-1000-I** 112013		**LN4-4-1000-I** 112017		

Notes
Main switch characteristics including positive drive to IEC/EN 60204 and VDE 0113
Isolating characteristics to IEC/EN 60947-3 and VDE 0660
Protection against accidental contact according to IEC 100
Notes for terminals → 16

	Max. cable connection area	For use with		Terminal capacities Type of conductor		
					mm²	AWG/kcmil
Box terminal						
Standard equipment						
		LZM1(-4) LN1(-4)	Three- and four-pole	Cu cable	1 x 10 – 70[1)] 2 x 6 – 25	1 x 8 – 2/0 2 x 9 – 4
Screw connection						
		LZM1(-4) LN1(-4)	Three- and four-pole	Copper cable lugs Aluminium cable lug	1 x 10 – 70 2 x 6 – 25 1 x 10 – 35 2 x 10 – 35	1 x 8 – 2/0 2 x 9 – 4 1 x 8 – 2 2 x 8 – 2
Tunnel terminal						
		LZM1(-4) LN1(-4)	Three- and four-pole	Copper cable Al cable	1 x 16 – 95 2 x 6 – 25	1 x 6 – 3/0 –
Cover						
	–	LZM1(-4) LN1(-4)	3 pole			
	–		4 pole			

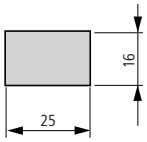
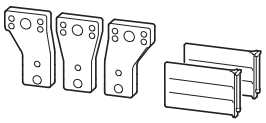
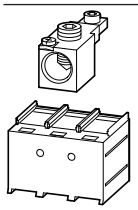
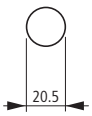
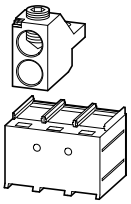
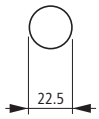
Notes [1)] Up to 95 mm² can be connected depending on the cable manufacturer.

Terminal capacities Cu strip (number of segments x width x segment thickness) mm	Copper busbar width x thickness mm	Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes
2 x 9 x 0.8 9 x 9 x 0.8		**NZM1-XKC** 260015		1 off	Standard connection with all switches LZM1 and LN1. Conversion kit for circuit-breaker with screw connection. Type contains parts for a 3 or 4-pole switch side. Fitted within the switch housing
		NZM1-4-XKC 267075		1 off	
	min. 12 x 5 max. 16 x 5	**NZM1-XKS** 260019		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. Fitted outside the switch housing. Mounting of the cover NZM1(-4)-XKSA obligatory (supplied).
	min. 12 x 5 max. 16 x 5	**NZM1-4-XKS** 266725		1 off	
		NZM1-XKA 266730		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. A standard with control circuit terminal for 1 x 0.75 – 2.5 mm² (18 – 14 AWG) or 2 x 0.75 – 1.5 mm² (18 – 14 AWG) copper conductors. Fitted outside the switch housing. Use with flexible and highly flexible conductors ferrules. Maximum specified cross-section can only be connected when stranded and without ferrules. Mounting of the cover NZM1(-4)-XKSA obligatory (supplied).
		NZM1-4-XKA 266731		1 off	
		NZM1-XKSA 260021		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. Protection against direct contact where cable lugs, busbars or tunnel terminals are used. Contained in kit with tunnel terminals or screw connection terminals. Degree of protection IP1X on the connection side when using insulated conductor material.
		NZM1-4-XKSA 266741		1 off	

	Max. cable connection area	For use with		Terminal capacities Type of conductor	Terminal capacities[1]		Terminal capacities Cu strip (number of segments x width x segment thickness)
					mm²	AWG/kcmil	mm
Box terminal							
		LZM2(-4) LN2(-4)	3pole	Copper conductors Cu cable	1 x 4 – 185 2 x 4 – 70	1 x 11 – 350 2 x 12 – 2/0	≧ 2 x 9 x 0.8
			4pole				
Tunnel terminal							
		LZM2(-4) LN2(-4)	3pole	Copper cable all cable	1 x 16 ... 185[1] 1 x 16 ... 185[1]	1 x 6 – 350 –	
			4pole				
Cover							
	–	LZM2	3 pole				
	–	LZM2(-4) LN2-4	4 pole				
Copper cable lug When using cable lugs without NZM3(-4)-XKSA cover, they must be insulated.							
	95 mm²	LZM2(-4) LN2(-4)	3 and 4 pole				
	120 mm²						
	150 mm²						
	185 mm²						

Notes [1] Up to 240 mm² can be connected depending on the cable manufacturer.

Copper busbar width x thickness mm	**Part no.** Article no. when ordered separately	**Price** see price list	Std. pack	**Notes**
	NZM2-160-XKC 262240		1 off	Type suffix and type contain parts for a circuit-breaker side at top or bottom for 3 or 4 pole circuit-breakers. Conversion kit for circuit-breaker with screw connection. Fitted within the switch housing. O = for fitting at the top U = for fitting at the bottom $U_e \geqq$ 525 V AC: • Use cover NZM2(4)-XKSA. Use ferrules with flexible and highly flexible conductors. Max. cross section shown can only be connected when flexible and without ferrules.
	NZM2-250-XKC 262244			
	NZM2-4-160-XKC 266755			
	NZM2-4-250-XKC 266756			
	NZM2-XKA 271457		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. A standard with control circuit terminal for 1 x 0.75 – 2.5 mm² (18 – 14 AWG) or 2 x 0.75 – 1.5 mm² (18 – 16 AWG) copper conductors. Fitted outside the switch housing. Use with flexible and highly flexible conductors ferrules. Maximum specified cross-section can only be connected when stranded and without ferrules. Mounting of the cover NZM2(-4)-XKSA obligatory (supplied).
	NZM2-4-XKA 271458		1 off	
	NZM2-XKSA 260038		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. Protection against direct contact where cable lugs, busbars or tunnel terminals are used. Degree of protection IP1X on the connection side when using insulated conductor material.
	NZM2-4-XKSA 266770		1 off	
	KS95-NZM7 059775		3 off	Type contains a cable lug for 3-pole or 4-pole switches. Special cable lug, narrow style.
	KS120-NZM7 059776			
	KS150-NZM7 059777			
	NZM2-XKS185 260032			

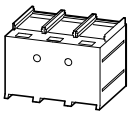
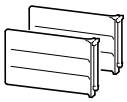
	Max. cable connection area	Rated current[1] I_n A	For use with		Terminal capacities: Type of conductor	Terminal capacities mm²	Terminal capacities AWG/kcmil
Box terminal							
		max. 500	LZM3(-4) LN3(-4)	3pole	Copper conductors Cu cable	1 x 35 – 240 2 x 16 – 120	1 x 2 – 350
		630		4pole			
Connection width extension							
		630	LZM3(-4) LN3(-4)	3pole	Copper cable lugs	2 x 300	2 x 500 1 x 600
				4pole			
Tunnel terminal							
		max. 350	LZM3(-4) LN3(-4)	3pole	Copper conductors Cu cable conductors Al cable	1 x 16 – 185[2]	1 x 6 – 350
				4pole			
		max. 630		3pole		1 x 50 – 240 2 x 50 – 240	1 x 0 – 500 2 x 0 – 500
				4pole			

Notes

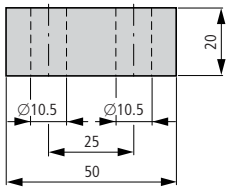
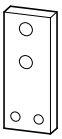
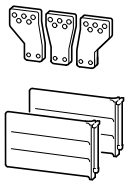
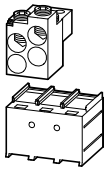
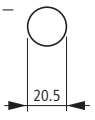
[1] The following applies for the rated current: The values have been determined conform to IEC/EN 60947 (switchgear standard) and generally relate to the max. defined cross-sections and are intended for the purpose of orientation.
The engineering standards which apply in each case must be observed.

[2] Up to 240mm² can be connected depending on the cable manufacturer.

Terminal capacities Cu strip (number of segments x width x segment thickness) mm	Copper busbar width x thickness mm	**Part no.** Article no. when ordered separately	**Price** see price list	Std. pack	**Notes**
min. 6 x 16 x 0.8 max. 20 x 24 x 0.5 or max. 11 x 21 x 1		**NZM3-XKC** 260042		1 off	Type suffix and type contain parts for a circuit-breaker side at top or bottom for 3 or 4-pole circuit-breakers. Conversion kit for circuit-breaker with screw connection. Fitted within the switch housing O = for fitting at the top U = for fitting at the bottom $U_e \geqq 525$ V AC: • Use NZM3(-4)-XKSA cover. Use with flexible and highly flexible conductors ferrules, note the max. terminal capacity when using ferrules.
		NZM3-4-XKC 266783			
(2 x) 10 x 50 x 1.0	(2 x) 10 x 50	**NZM3-XKV70** 100514		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4 pole circuit-breakers. Central drill holes, e.g. for up to 2 cable lugs per phase. Can be fitted to circuit-breaker with screw termination. Phase isolator supplied. Distance between pole centres with NZM3(-4)-XKV70: 70 mm. Drill hole available for control cable.
		NZM3-4-XKV70 100515		1 off	
		NZM3-XKA1 271459		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. A standard with control circuit terminal for 1 x 0.75 – 2.5 mm² (18 – 14 AWG) or 2 x 0.75 – 1.5 mm² (18 – 16 AWG) copper conductors.Fitted outside the switch housing. Use with flexible and highly flexible conductors ferrules. Maximum specified cross-section can only be connected when stranded and without ferrules. Mounting of the cover NZM3(-4)-XKSA obligatory (supplied). Please note a maximum diameter of 20.5 mm resp. 22.5 mm.
		NZM3-4-XKA1 271460		1 off	
		NZM3-XKA2 271461		1 off	
		NZM3-4-XKA2 271462		1 off	

	Max. cable connection area	For use with		Part no. Article no. when ordered separately	Price see price list
Cover					
	–	LZM3(-4) LN3(-4)	3 pole	**NZM3-XKSA** 260045	
	–		4 pole	**NZM3-4-XKSA** 266801	
Phase isolator					
	–	LZM3(-4) LN3(-4)	3 pole	**NZM3-XKP** 100512	
	–		4 pole	**NZM3-4-XKP** 100513	
Copper cable lug When using cable lugs without NZM3(-4)-XKSA cover, they must be insulated.					
	185 mm²	LZM3(-4), LN3(-4) LZM4(-4), LN4(-4)	3 and 4 pole	**NZM3-XKS185** 260040	
	240 mm²			**NZM3-XKS240** 260041	
	300 mm²			**NZM3-XKS300** 153186	

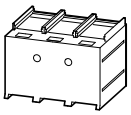
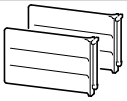
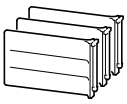
Std. pack	Notes
1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. Insulation/protection against direct contact where cable lugs, busbars or tunnel terminals are used.
1 off	Included in set with tunnel terminals. Degree of protection IP1X on the connection side when using insulated conductor material.
1 off	Type contains parts for a terminal located at top or bottom for 3 or 4 pole circuit-breakers. Included with the connection width extension.
1 off	Cannot be combined with the NZM3(-4)-XKA tunnel terminal, NZM3(-4)-XKR connection on rear. Insulation protection with connection of cable lugs, busbars or braid.
1 off	Type contains a cable lug for 3-pole or 4-pole switches. Special cable lug, narrow style

	Max. cable connection area	Rated current[1]	For use with		Terminal capacities		
					Type of conductor	Terminal capacities	AWG/kcmil
		I_n					
		A				mm²	
Screw connection							
Standard equipment							
2-hole with stud bolts and nuts.		max. 1600	LZM4(-4) LN4(-4)	Three- and four-pole	Cu cable lugs	1 x 120 – 185 4 x 50 – 185	1 x 250 – 350 4 x 0 – 350
Module plate							
 Single hole		max. 1250	LZM4 LN4	3 pole	Copper cable lugs	1 x 120 – 300 2 x 95 – 300	1 x 250 – 600 2 x 000 – 600
			LZM4-4 LN4-4	4 pole			
 Double hole		max. 1400	LZM4 LN4	3 pole	Copper cable lugs	2 x 95 – 185 4 x 35 – 185 4 x 50	2 x 000 – 350 4 x 2 – 350
			LZM4-4 LN4-4	4 pole			
 Double hole		max. 1250	LZM4 LN4	3 pole	Copper cable lugs	2 x 95 – 300	2 x 000 – 600
			LZM4-4 LN4-4	4 pole			
		max. 1600	LZM4 LN4	3 pole	Copper cable lugs	2 x 95 – 300	2 x 000 – 500
			LZM4-4 LN4-4	4 pole		2 x 95 – 300	2 x 000 – 500
Connection width extension							
		max. 1600	LZM4 LN4	3 pole	Cu cable lugs	4 x 300 6 x 95 – 240	4 x 600 6 x 000 ... 500
			LZM4-4 LN4-4	4 pole			
Tunnel terminal							
	–	max. 1400	LZM4 LN4	3 pole	Copper conductors	1 x 50 – 240 4 x 50 – 240	1 x 0 – 500 4 x 0 – 500
	– – 		LZM4-4 LN4-4	4 pole	Cu cable Al conductors Al cable	1 x 50 – 240 4 x 50 – 240	1 x 0 – 500 4 x 0 – 500

Notes

[1] The following applies for the rated current: The values have been determined conform to IEC/EN 60947 (switchgear standard) and generally relate to the max. defined cross-sections and are intended for the purpose of orientation.

Terminal capacities Cu strip (number of segments x width x segment thickness) mm	Copper busbar width x thickness mm	**Part no.** Article no. when ordered separately	**Price** see price list	Std. pack	**Notes**
(2 x) 10 x 50 x 1.0	(2 x) 50 x 10			off	Double hole fitting for M10 stud bolts with 25 mm clearance. Use special cable lug narrow version.
(2 x) 10 x 40 x 1.0 (2 x) 10 x 50 x 1.0	(2 x) 40 x 10 (2 x) 50 x 10	**NZM4-XKM1** 266814		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. For M10 screws. Can be enlarged for M12 screws. Use special cable lug narrow version. Can be fitted to circuit-breaker with screw termination. Insulation through NZM4(-4)-XKSA cover necessary.
		NZM4-4-XKM1 266815		1 off	
		NZM4-XKM2 266820		1 off	
		NZM4-4-XKM2 266821		1 off	
		NZM4-XKM2S-1250 284471		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. Insulation through cover NZM4(-4)-XKSA necessary.
		NZM4-4-XKM2S-1250 284472		1 off	
		NZM4-XKM2S-1600 284473		1 off	
		NZM4-4-XKM2S-1600 284474		1 off	
min. 10 x 50 x 1.0	max. (2 x) 80 x 10	**NZM4-XKV95** 281591		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers.F ive way holes, e.g. for up to 9 cable lugs per phase. Can be fitted to circuit-breaker with screw termination. Phase isolator supplied.Distance between pole centres with NZM4(-4)-XKV95: 95 mm. Installation conditions for current transformer up to 130 mm width with 80 mm busbar width. Distance between pole centres with NZM4-XKV110: 107.5 mm. Installation conditions for current transformer up to 135 mm width with 80 mm busbar width. Distance between pole centres with NZM4-4-XKV120: 122 mm. Installation conditions for current transformer up to 164 mm width with 80 mm busbar width. 4 mm drilled holes for control circuit terminal available.
		NZM4-XKV110 281593		1 off	
		NZM4-4-XKV95 281592		1 off	
		NZM4-4-XKV120 281594		1 off	
		NZM4-XKA 266836		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4 pole circuit-breakers. A standard with control circuit terminal for 1 x 0.75 … 2.5 mm² (18 … 14 AWG) or 2 x 0.75 … 1.5 mm² (18 … 16 AWG) copper conductors. Can be fitted to circuit-breaker with screw termination. Use ferrules with flexible and highly flexible conductors. Max. cross section shown can only be connected when flexible and without ferrules. Use of the NZM4(-4)-XKSA cover obligatory(supplied).
		NZM4-4-XKA 266837		1 off	

		Max. cable connection area	For use with		Terminal capacities		
					Type of conductor	Terminal capacities	AWG/kcmil
			I_n			mm²	
Cover							
	–		LZM4 LN4	3 pole			
	–		LZM4-4 LN4-4)	4 pole			
Phase isolators							
	–		LZM4 LN4	3 pole			
	–		LZM4-4 LN4-4)	4 pole			
Cable lug							
	185 mm²		LZM3(-4) LZM4(-4)	3 and 4 pole			
	240 mm²		LN3(-4) LN4(-4)				
	300 mm²						

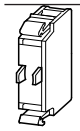
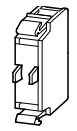
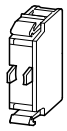
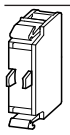
Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes
NZM4-XKSA 266846 **NZM4-4-XKSA** 266847		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4 pole circuit-breakers. Protection against direct contact where cable lugs, busbars, flat cable terminals or tunnel terminals are used. With module plates, flat braid terminals and tunnel terminals included in the kit. When using insulated conductor material to degree of protection: IP1X.
NZM4-XKP 281595 **NZM4-4-XKP** 281596		1 off	Type contains parts for a terminal located at top or bottom for 3 or 4-pole circuit-breakers. Included with the connection width extension. Cannot be combined with the tunnel terminal NZM4(-4)-XKA, connection NZM4-XKR on rear. Insulation protection where cable lugs, busbars, module plates or flat cable terminals are used.
NZM3-XKS185 260040 **NZM3-XKS240** 260041 **NZM3-XKS300** 153186		3 off	Type contains a cable lug for 3-pole or 4-pole switches. Special cable lug, narrow style.

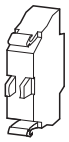
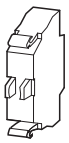
Auxiliary contact

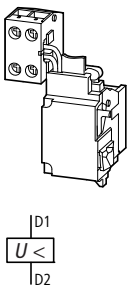
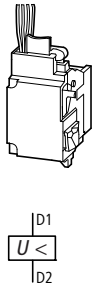
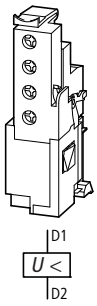
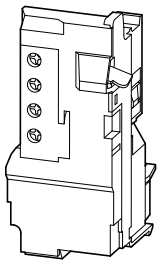
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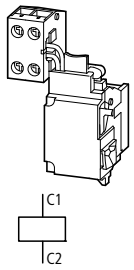
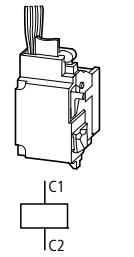
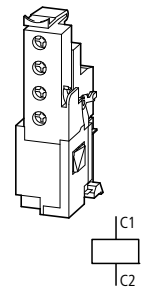
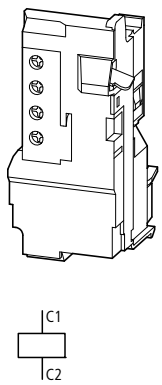
LZM, M22-…

xEnergy

		For use with	Auxiliary contacts: ⊖ = safety function, by positive opening to IEC/EN 60947-5-1 N/O = Normally open	N/C = Normally closed	Contact sequence	**Part no.** Article no. when ordered separately	**Price** see price
Auxiliary contacts							
Standard auxiliary contact (HIN) Switching with the main contacts Used for indicating and interlocking tasks							
		LZM1(-4), 2(-4), 3(-4), 4(-4) LN1(-4), 2(-4), 3(-4), 4(-4)	1 N/O			**M22-K10** 216376	
				1 N/C ⊖		**M22-K01** 216378	
	With 3 m connection cable instead of screw termination.	LZM1(-4), 2(-4), 3(-4), 4(-4) LN1(-4), 2(-4), 3(-4), 4(-4)	1 N/O	1 N/C ⊖			
			2 N/O				
				2 N/C ⊖			
Trip indicating auxiliary contact (HIA) General trip indication '+', when tripped by voltage release, overload release or short-circuit release							
		LZM1(-4), 2(-4), 3(-4), 4(-4) LN1(-4), 2(-4), 3(-4), 4(-4)	1 N/O			**M22-K10** 216376	
				1 N/C		**M22-K01** 216378	
	With 3 m connection cable instead of screw termination.	LZM1(-4), 2(-4), 3(-4), 4(-4) LN1(-4), 2(-4), 3(-4), 4(-4)	1 N/O	1 N/C			
			2 N/O				
				2 N/C			

	Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes	Notes
	**M22-CK10** 216384		20 off	For Std. pack: M22-(C)K... : Std. pack = 20 off	The following can be clipped into the switches: •LZM1- one standard auxiliary contact •LZM2 - up to 2 standard auxiliary contacts M22-(C)K… •LZM3 and LZM4 - up to 3 standard auxiliary contacts M22-(C)K… Any combinations of the auxiliary contact types ispossible. Marking on switch: HIN
	M22-CK01 216385		20 off		
	M22-CK11 107940		20 off		
	M22-CK20 107898				
	M22-CK02 107899				
	**M22-CK10** 216384		20 off	For Std. pack: M22-(C)K... : Std. pack = 20 off	The following can be clipped into the switches: •LZM1 - one trip-indicating auxiliary switch •LZM2 - one M22-(C)K… trip-indicating auxiliary switch •LZM3 - one M22-(C)K… trip-indicating auxiliary switch •LZM4 - up to two M22-(C)K… trip-indicating auxiliary switches Any combinations of the auxiliary contact types is possible. Marking on switch: HIA If the trip-indicating auxiliary contact in the fault-current block is used, the N/C contacts operates as a N/O contact and the N/C contact operates as an N/O contact (circuit symbol).
	M22-CK01 216385				
	M22-CK11 107940				
	M22-CK20 107898				
	M22-CK02 107899				

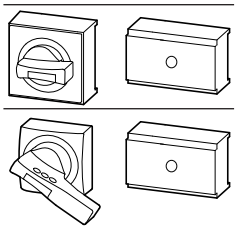
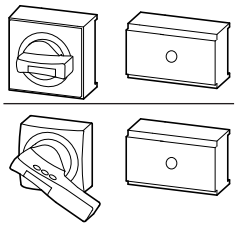
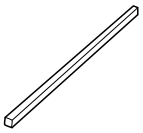
		For use with	Rated control voltage U_S V	Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes
Undervoltage releases							
Without auxiliary contact Non-delayed disconnection of LZM circuit-breakers or LN switch-disconnectors when the control voltage sinks below 35 – 70% U_S. For use with Emergency-Stop devices in conjunction with Emergency-Stop button.							
	With clamp terminal on the left-hand switch side.	LZM1(-4) LN1(-4)	24 V 50/60 Hz	**NZM1-XU24AC** 259434		1 off	When the undervoltage release is de-energized, accidental contact with the main contacts of the switch during attempts to switch on, is safely prevented. Undervoltage release cannot be installed simultaneously with NZM...-XHIV... early-make auxiliary contact or NZM...-XA... shunt release.
			208 V 240 V 50/60 Hz	**NZM1-XU208-240AC** 259442			
			380 V – 440 V 50/60 Hz	**NZM1-XU380-440AC** 259444			
			24 V DC	**NZM1-XU24DC** 259452			
	With 3 m connection cable instead of screw termination.	LZM1(-4) LN1(-4)	24 V 50/60 Hz	**NZM1-XUL24AC** 259462		1 off	
			208 V 240 V 50/60 Hz	**NZM1-XUL208-240AC** 259471			
			380 V – 440 V 50/60 Hz	**NZM1-XUL380-440AC** 259473			
			24 V DC	**NZM1-XUL24DC** 259481			
		LZM2(-4) LN2(-4) LZM3(-4) LN3(-4)	24 V 50/60 Hz	**NZM2/3-XU24AC** 259491		1 off	
			208 V 240 V 50/60 Hz	**NZM2/3-XU208-240AC** 259499			
			380 V – 440 V 50/60 Hz	**NZM2/3-XU380-440AC** 259501			
			24 V DC	**NZM2/3-XU24DC** 259509			
		LZM4(-4) LN4(-4)	24 V 50/60 Hz	**NZM4-XU24AC** 266189		1 off	
			208 V 240 V 50/60 Hz	**NZM4-XU208-240AC** 266193			
			380 V – 440 V 50/60 Hz	**NZM4-XU380-440AC** 266194			
			24 V DC	**NZM4-XU24DC** 266204			

		For use with	Rated control voltage U_S V	Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes
Shunt releases							
Without auxiliary contact Switches are tripped by a voltage pulse or by the application of uninterrupted voltage.							
	With clamp terminal on the left-hand switch	LZM1(-4) LN1(-4)	24 V AC/DC	**NZM1-XA24AC/DC** 259708			When the undervoltage release is de-energized, accidental contact with the main contacts of the switch during attempts to switch on, is safely prevented. Shunt release cannot be installed simultaneously with NZM...-XHIV... early-make auxiliary contact or NZM...-XU... undervoltage release.
			208 V – 250 V AC/DC	**NZM1-XA208-250AC/DC** 259726			
			380 V – 440 V AC/DC	**NZM1-XA380-440AC/DC** 259728			
	With 3 m connection cable instead of screw termination.	LZM1(-4) LN1(-4)	24 V AC/DC	**NZM1-XAL24AC/DC** 259736		1 off	
			208 V – 250 V AC/DC	**NZM1-XAL208-250AC/DC** 259744			
			380 V – 440 V AC/DC	**NZM1-XAL380-440AC/D** 259746			
		LZM2(-4) LZM3(-4) LN2(-4) LN3(-4)	24 V AC/DC	**NZM2/3-XA24AC/DC** 259754		1 off	
			208 V – 250 V AC/DC	**NZM2/3-XA208-250AC/DC** 259763			
			380 V – 440 V AC/DC	**NZM2/3-XA380-440AC/DC** 259766			
		LZM4(-4) LN4(-4)	24 V AC/DC	**NZM4-XA24AC/DC** 266447		1 off	
			208 V – 250 V AC/DC	**NZM4-XA208-250AC/DC** 266451			
			380 V – 440 V AC/DC	**NZM4-XA380-440AC/DC** 266452			

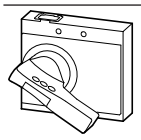
Door coupling rotary handles

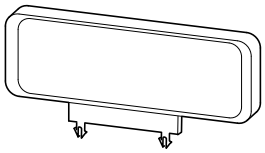
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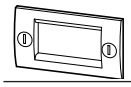
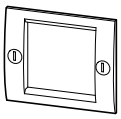
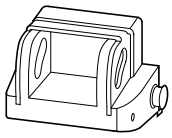
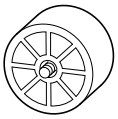
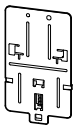
LZM1, LZM2, LZM3, LZM4

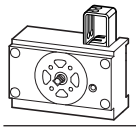
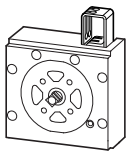
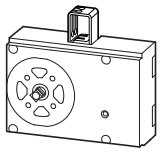
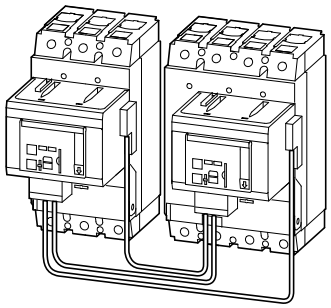
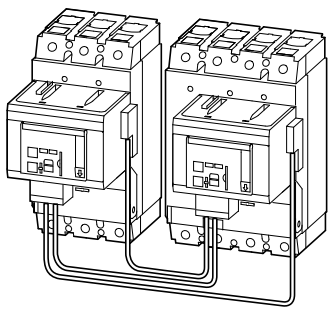
		For use with	Part no. Article no.	Price see price list	Std. pack	Notes
Door coupling rotary handle						
Complete including rotary drive and coupling parts An additional extension shaft is necessary with the NZM...-XT(V)D(V)(R)(-60) types. Degree of protection IP66						
Standard, black/grey						
	Lockable on the 0 position on the handle using up to 3 padlocks. With door interlock	LZM1(-4), LN1(-4)	**NZM1-XTVD** 260166		1 off	Door interlock • Not defeated in the locked OFF and ON positions • Can be modified such that it can be defeated from the outside using a screw-driver, when it is in the unlocked ON position. • Door can be opened in OFF NZM...-XTVD(V) • External warning plate/ designation label can be clipped on
		LZM2(-4), LN2(-4)	**NZM2-XTVD** 260168			
		LZM3(-4), LN3(-4)	**NZM3-XTVD** 260170			
		LZM4(-4), LN4(-4)	**NZM4-XTVD** 266614			
Red-yellow for Emergency-Stop						
	Lockable on the handle on the switch using up to 3 padlocks. Lockable in 0 position on the handle. With door interlock. Lockable in the 0 position	LZM1(-4), LN1(-4)	**NZM1-XTVDVR** 260178		1 off	Door interlock • Not defeated in the locked OFF position. • Can be modified such that it can be defeated from the outside using a screw-driver, when it is in the unlocked ON position. • Door can be opened in OFF NZM...-XTVDVR • External warning plate/ designation label can be clipped on
		LZM2(-4), LN2(-4)	**NZM2-XTVDVR** 260180			
		LZM3(-4), LN3(-4)	**NZM3-XTVDVR** 260182			
		LZM4(-4), LN4(-4)	**NZM4-XTVDVR** 266618			
Extension shaft						
	Max. mounting depth: 400 mm	LZM1(-4), LN1(-4) LZM2(-4), LN2(-4)	**NZM1/2-XV4** 261232		1 off	Length 290 mm
		LZM3(-4), LN3(-4) LZM4(-4), LN4(-4)	**NZM3/4-XV4** 261234			Length 225 mm
	Max. mounting depth: 600 mm	LZM1(-4), LN1(-4) LZM2(-4), LN2(-4)	**NZM1/2-XV6** 260191			Length 490 mm
		LZM3(-4), LN3(-4) LZM4(-4), LN4(-4)	**NZM3/4-XV6** 260193			Length 425 mm Can be cut to required length

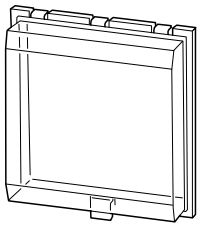
Notes Circuit-breaker can also be installed in a lying position 90 ° left/right, with the handle still in the same position.

		For use with	Part no. Article no.	Price see price list	Std. pack	Notes
Rotary handle on circuit-breaker Complete with rotary drive						
Standard, black/grey						
	Lockable on the 0 position on the handle using up to 3 padlocks	LZM1(-4), LN1(-4)	**NZM1-XDV** 260125		1 off	NZM1(2)(3)-X…: Can also be combined with insulating surround.MODAN handle position detection by wire release can be retrofitted.
		LZM2(-4), LN2(-4)	**NZM2-XDV** 260127			
		LZM3(-4), LN3(-4)	**NZM3-XDV** 260129			
		LZM4(-4), LN4(-4)	**NZM4-XDV** 266608			
	Lockable on the on position on the handle using up to 3 padlocks.	LZM1(-4), LN1(-4)	**NZM1-XDVG** 285247			Can also be combined with insulating surround.
		LZM2(-4), LN2(-4)	**NZM2-XDVG** 285248			
Rotary handle on circuit breaker with door interlock Complete with rotary drive and insulating surround						
Standard, black/grey						
	Lockable on the 0 position on the handle using up to 3 padlocks, can also be modified fo the I position. Also available with door interlock e.g. for MCC service distribution.	LZM1(-4), LN1(-4)	**NZM1-XDTV** 260131		1 off	Door interlock • In the ON position, can be defeated from the outside using a 1 mm pin • Not defeated in the locked OFF and ON positions • Door can be opened in OFF • Can only be switched ON when the door is closed
		LZM2(-4), LN2(-4)	**NZM2-XDTV** 260133			
Red-yellow for Emergency-Stop						
	Lockable on the 0 position on the handle using up to 3 padlocks. Also available with door interlock e.g. for MCC service distribution	LZM1(-4), LN1(-4)	**NZM1-XDTVR** 260142		1 off	
		LZM2(-4), LN2(-4)	**NZM2-XDTVR** 260144			

		For use with	**Part no.** Article no. when ordered separately	**Price** see price list	Std. pack	**Notes**
External warning plate/designtion label						
						
German/English		LZM1(-4), LN1(-4) LZM2(-4), LN2(-4) LZM3(-4), LN3(-4) LZM4(-4), LN4(-4)	**ZFS61/62-NZM7** 272525		1 off	A bilingual external warning plate/ designation label in German/English is already included in the main switch assembly kit.
German			**ZFS61-NZM7** 051089			
English			**ZFS62-NZM7** 065957			
French			**ZFS63-NZM7** 065958			
Blank (for engraving or printing)			**ZFS60-NZM7** 065896			
Further languages			**ZFS*-NZM7** 999978			External warning plates are available in the following languages: 64 Bulgarian, 65 Danish, 66 Finnish, 67 Dutch, 68 Italian, 69 Greek, 70 Norwegian, 71 Polish, 72 Portuguese, 73 Romanian, 74 Russian, 75 Swedish, 76 Serbo-Croatian, 77 Spanish, 78 Czech, 79 Turkish, 80 Hungarian, 81 Afrikaans To obtain the order number, insert the language code number into the type reference required. Ordering example External warning plate in Finnish: ZFS66-NZM7
Lightning symbol Including terminal marking for main switch						
Small		LZM1(-4), LN1(-4) LZM2(-4), LN2(-4)	**BPF-NZM7** 217294		10 off	Included as standard in main switch assembly kit
Large		LZM3(-4), LN3(-4) LZM4(-4), LN4(-4)	**BPF-NZM10** 231363		10 off	

	For use with	Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes
Insulating surrounds For toggle lever, rotary handle with rotary drive and remote operator. Degree of protection IP40					
	LZM1(-4), LN1(-4)	**NZM1-XBR** 260195		1 off	For oblong cut-out on doors and enclosures with material thicknesses of 1.5 – 5 mm. External warning plate/designation label can be clipped on NZM4-XBR cannot be combined with rotary handle with rotary drive.
	LZM2(-4), LN2(-4)	**NZM2-XBR** 260197			
	LZM3(-4), LN3(-4)	**NZM3-XBR** 284645			
	LZM4(-4), LN4(-4)	**NZM4-XBR** 284646			
Toggle lever locking device Off position lockable using up to 3 padlocks (hasp thickness 4 – 8 mm)					
	LZM1(-4), LN1(-4)	**NZM1-XKAV** 260199		1 off	Cannot be combined with insulating surround.
	LZM2(-4), LN2(-4) LZM3(-4), LN3(-4)	**NZM2/3-XKAV** 260201		1 off	
Spacers Enables fast and low-priced adjustment of differing frame sizes with/ without rotary handle to the same front depth					
	LZM1(-4), LN1(-4) LZM2(-4), LN2(-4)	**NZM1/2-XAB** 260203		1 set	Grid depth 17.5 mm, M4 thread Type contains 4 off spacer Maximum component capacity: LZM1: 4 units per fixing screw, LZM2: 2 units per fixing screw 2 (LZM1) or 4 (LZM2) fixing screws contained per circuit-breaker
	LZM3(-4), LN3(-4) LZM4(-4), LN3(-4)	**NZM3-XAB** 260211		1 set	Grid depth 17.5 mm, M5 thread One set contains 4 spacers LZM3, LZM4: 1 off per fixing screw 4 fixing screws per switch included
Clip plate Enables snap-fit of the circuit-breaker to a DIN rail					
	LZM1(-4), LN1(-4)	**NZM1-XC35** 260213		1 off	For top-hat rail 35 mm
	LZM2, LN2	**NZM2-XC75** 260215		1 off	For top-hat rail 75 mm Not suitable for circuit-breakers with remote operator.

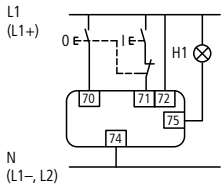
	For use with	Part no. Article no. when ordered separately	Price see price list	Std. pack	Notes
Mechanical interlocking of (door coupling) rotary handles					
	LZM1(-4), LN1(-4)	**NZM1-XMV** 281581		1 off	Rotary handles on switches or door coupling rotary handles are additionally required. Cannot be combined with paralleling mechanisms, side wall operators and remote operator as well as NZM4-XBR insulating surrounds. In order to establish a mechanical interlock at least 2 interlock modules are required. Possible combinations and interlock variants → engineering. Order Bowden cable separately.
	LZM2(-4), LN2(-4)	**NZM2-XMV** 281582			
	LZM3(-4), LN3(-4)	**NZM3-XMV** 281583			
	LZM4(-4), LN4(-4)	**NZM4-XMV** 281584			
Bowden cables					
	LZM1(-4), LN1(-4) LZM2(-4), LN2(-4) LZM3(-4), LN3(-4) LZM4(-4), LN4(-4)	**NZM-XBZ225** 281585		1 off	
		NZM-XBZ600 281586			
		NZM-XBZ1000 281587			
Mechanical interlock for remote operator					
For 2 switches of the same or next frame size with each other. Mounting beside one another.					
	LZM2(-4), LN2(-4) +LZM2(-4), LN2(-4)	**NZM2-XMVR** 104543		1 off	Type contains parts for both switches. Remote operator also required. Maximum switching distance → engineering. Cannot be combined with rotary handles, door coupling rotary handles and early-make auxiliary contacts.
	LZM2(-4), LN2(-4) +LZM3(-4), LN3(-4)	**NZM2/3-XMVR** 104544			
	LZM3(-4), LN3(-4) +LZM3(-4), LN3(-4)	**NZM3-XMVR** 104545			
	LZM3(-4), LN3(-4) +LZM4(-4), LN4(-4)	**NZM3/4-XMVR** 104546			
	LZM4(-4), LN4(-4) +LZM4(-4), LN4(-4)	**NZM4-XMVR** 104547			
For 2 switches of the same or different type with opposed operation. Extra long Bowden cable for mounting one above the other or in adjacent enclosures.					
	LZM2(-4), LN2(-4) +LZM2(-4), LN2(-4)	**NZM2-XMVRL** 104548		1 off	Type contains parts for both switches. Remote operator also required. Maximum switching distance → engineering. Cannot be combined with rotary handles, door coupling rotary handles and early-make auxiliary contacts.
	LZM2(-4), LN2(-4) +LZM3(-4), LN3(-4)	**NZM2/3-XMVRL** 104549			
	LZM3(-4), LN3(-4) +LZM3(-4), LN3(-4)	**NZM3-XMVRL** 104550			
	LZM3(-4), LN3(-4) +LZM4(-4), LN4(-4)	**NZM3/4-XMVRL** 104551			
	LZM4(-4), LN4(-4) +LZM4(-4), LN4(-4)	**NZM4-XMVRL** 104552			

	For use with	Rated cpntrol voltage U_S V	Part no. Article no. when ordered separately	Price see price list	Std. pack	
Remote operator						
For remote switching of circuit-breakers and switch-disconnectors. ON and OFF switching and resetting by means of two-wire or three-wire control Local switching by hand possible. Lockable in the 0 position of the remote operator with up to 3 padlocks (hasp thickness: 4 – 8 mm)						
Closing delay 110 - 170 ms, opening delay 110 - 170 ms						
	LZM2(-4) LN2(-4)	208 – 240 V 50/60 Hz	**NZM2-XRD208-240AC** 115391		1 off	Sliding switch for „Auto" or „Manual Max. number auxiliary contacts: - Standard auxiliary contacts: 2 - Trip-indicating auxiliary contact: 1 Cannot be combined with switch-disconnector LN... Cannot be combined with mechanical interlock
		380 – 440 V 50/60 Hz	**NZM2-XRD380-440AC** 115392			
		24 – 30 V DC	**NZM2-XRD24-30DC** 115393			
Closing delay 60 - 100 ms, opening delay 300 - 3000 ms						
Can be synchronized						
	LZM2(-4) LN2(-4)	208 – 240 V 50/60 Hz	**NZM2-XR1208-240AC** 259832		1 off	Cannot be combined with switch-disconnector LN... Dual auxiliary switch M22-CK11 (20/02) can not be combined with remote operator NZM3-XR..
		380 – 440 V 50/60 Hz	**NZM2-XR380-440AC** 259834			
		24 – 30 V DC	**NZM2-XR24-30DC** 259836			
	LZM3(-4) LN(-4)	208 – 240 V 50/60 Hz	**NZM3-XR208-240AC** 259850			
		380 – 440 V 50/60 Hz	**NZM3-XR380-440AC** 259852			
		24 – 30 V DC	**NZM3-XR24-30DC** 259854			
	LZM4(-4) LN4(-4)	208 – 240 V 50/60 Hz	**NZM4-XR208-240AC** 266685			
		380 – 440 V 50/60 Hz	**NZM4-XR380-440AC** 266686			
		24 – 30 V DC	**NZM4-XR24-30DC** 266691			
Shroud for 4th pole						
Additional shroud for mounting the NZM2-XR... and NZM3-XR... on a 4-pole switch.						
	LZM2(-4), LN2-4		**NZM2-XAVPR** 266677		1 off	
	LZM3-4, LN3-4		**NZM3-XAVPR** 266678		1 off	
Protective cover for door cutout						
Transparent protective shroud to increase the degree of protection to IP54						
			**RTR-NZM10** 034825		1 off	

Notes Two- and three-wire control, circuit diagram Engineering, Page 36

2/3- wire control remote operator

Three-wire control



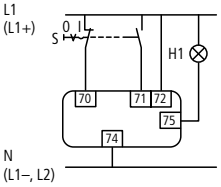
Terminal 70/71:

NZM-XR: Contact loading according to technical data

NZM2-XRD: Full current flows though the contact during make and break!

RMQ series contact elements can be used for the remote operators NZM2(3,4)-XR…

Two-wire control



Terminal 75:

NZM-XR: Operational readiness signal when the cover is closed, and not locked.

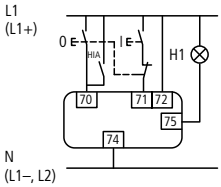
NZM2-XRD: Operational readiness signal when sliding switch set to Auto.

Sliding switch with three positions: Manual/Auto/Locked for reliable differentiation of operating positions.

AC-15: 400 V; 2 A

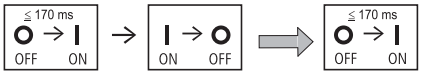
DC-13: 220 V; 0.2 A

Three-wire control with automatic reset to the 0 position after the switch has tripped

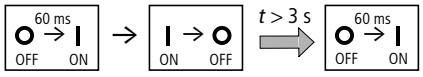


Switching cycle:

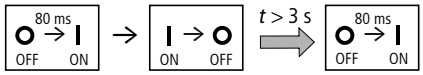
NZM2-XRD



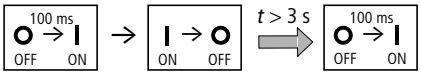
NZM2-XR



NZM3-XR



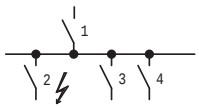
NZM4-XR



The time interval between OFF and ON is 3 seconds.

On commands received during the time interval are ignored within the first 3 seconds after switch off.

Notes Electrical remote switching and manual tripping (push to trip) are still possible.



Incoming circuit-breaker

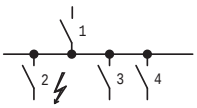
Selectivity 415 V AC
between circuit-breakers enables separate shut-down of faulty system sections.

Selectivity (discrimination) exists between incoming breaker 1 and outgoing breaker 2 if, only outgoing breaker 2 trips at position 2 during a short-circuit.
System sections 3 and 4 continue to operate.

			Incoming circuit-breaker (S1)							**Incoming circuit-breaker (S1)**			
			LZM...1-A...							**LZM...2-A...**			
	I_{cu} [kA]		25(36)							25(36)(50)			
	I_n [A]		20...40	50	63	80	100	125	160	160	200	250	300
Outgoing circuit-breaker (S2)	I_n [A]	I_{cu}(415V) [kA]	Selectivity threshold Is [kA] for selectivity between S2 and S1, overload and short-circuit release set to max. value										
FAZ–B(C)	0.5	15	T	T	T	T	T	T	T	T	T	T	T
	1	15	T	T	T	T	T	T	T	T	T	T	T
	2	15	2	T	T	T	T	T	T	T	T	T	T
	3	15	1.2	2	3	3	10	T	T	T	T	T	T
	4	15	1.2	2	3	3	8	T	T	T	T	T	T
	6	15	1.2	2	2.5	3	5	10	10	T	T	T	T
	10	15	1.2	1.5	2	2	4	10	10	10	10	10	10
	13	15	1	1.5	2	2	4	10	10	10	10	10	10
	16	15	1	1.2	1.5	2	3	8	8	10	10	10	10
	20	15	0.8	1.2	1.5	1.5	3	8	8	10	10	10	10
	25	15	0.7	1.2	1.5	1.5	3	7	7	10	10	10	10
	32	15	–	1.2	1	1.5	2	6	6	8	8	10	10
	40	15	–	–	1	1.5	2	5	5	7	7	10	10
	50	15	–	–	–	1.2	1.5	4	4	6	6	10	10
	63	15	–	–	–	–	1.5	3	3	6	6	10	10
PKZM0-...	0.16	100	T	T	T	T	T	T	T	T	T	T	T
	0.25	100	T	T	T	T	T	T	T	T	T	T	T
	0.4	100	T	T	T	T	T	T	T	T	T	T	T
	0.63	100	T	T	T	T	T	T	T	T	T	T	T
	1	100	T	T	T	T	T	T	T	T	T	T	T
	1.6	100	T	T	T	T	T	T	T	T	T	T	T
	2.5	100	T	T	T	T	T	T	T	T	T	T	T
	4	100	T	T	T	T	T	T	T	T	T	T	T
	6.3	100	4	5	5	T	T	T	T	T	T	T	T
	10	100	3	4	5	6	25	T	T	T	T	T	T
	12	50	3	4	5	6	25	T	T	T	T	T	T
	16	50	1.5	1.5	2	3	5	7	T	T	T	T	T
	20	50	0.8	1.5	1.5	2	3	5	T	T	T	T	T
	25	50	–	1	1.5	1.5	2.5	4	T	T	T	T	T
	32	50	–	–	1	1	2	3.5	T	T	T	T	T
PKE12/XTU(A)-...	1.2		0.4	0.5	0.6	0.8	1	1.2	T	T	T	T	T
	4.0		0.4	0.5	0.6	0.8	1	1.2	1.5	1.8	5	6	15
	12.0		0.4	0.5	0.6	0.8	1	1.2	1.3	1.6	3,5	4	9
PKE32/XTU(A)-...	4.0		–	0.5	0.6	0.8	1	1.2	1.3	1.8	5	6	15
	12		–	0.5	0.6	0.8	1	1.2	1.3	1.6	3,5	4	9
	32		–	0.5	0.6	0.8	1	1.2	1.3	1.6	2	2.5	3
PKE65/XTU(W)(A)-...	32		–	–	–	–	1	1.2	1.3	1.6	2	2.5	3
	65		–	–	–	–	1	1.2	1.3	1.6	2	2.5	3
PKE32/XTUCP(A)-...	36		–	0.5	0.6	0.8	1	1.2	1.3	1.6	2	2.5	3
PKE65/XTUCP(A)-...	65		–	–	–	–	1	1.2	1.3	1.6	2	2.5	3
PKZM4	16	100	0.5	0.8	0.8	0.8	2	5	5	5	5	5	5
	25	100	–	0.7	0.8	0.8	1.5	5	5	5	5	5	5
	32	50	–	–	0.8	0.8	1.5	4	4	4	4	4	4
	40	50	–	–	–	0.8	1.5	3	3	3	3	3	3
	50	50	–	–	–	–	1	2.5	2.5	2.5	2.5	2.5	2.5
	58	50	–	–	–	–	–	2.5	2.5	2.5	2.5	2.5	2.5
	63	50	–	–	–	–	–	2	2	2	2	2	2

Notes T: full selectivity

Incoming circuit-breaker (S1)																		
LZM...3-A...				LZM...3-AE...		LZM...4-AE...												
36(50)				36(50)		50												
320	400	500		630		800	1000											
Selectivity threshold Is [kA] for selectivity between S2 and S1, overload and short-circuit release set to max. value																		
T	T	T		T		T	T											
T	T	T		T		T	T											
T	T	T		T		T	T



Incoming circuit-breaker

Outgoing circuit-breaker

Selectivity 415 V AC

between circuit-breakers enables separate shut-down of faulty system sections.
Selectivity (discrimination) exists between incoming breaker 1 and outgoing breaker 2 if, only outgoing breaker 2 trips at position 2 during a short-circuit.
System sections 3 and 4 continue to be operational.

			Incoming circuit-breaker (S1)							**Incoming circuit-breaker (S1)**				
			LZM...1-A...							**LZM...2-A...**				
	I_{cu} [kA]		18(25)(36)							25(36)				
	I_n [A]		20...40	50	63	80	100	125	160	160	200	250	300	
Outgoing circuit-breaker (S2)	I_n [A]	I_{cu}(415V) [kA]	Prospective short-circuit current (kA). Set the overload and short-circuit release of the incoming circuit-breaker to the max. value.											
LZM...1-A...	20...40	25...100	–	–	0.5	0.7	0.8	1.5	1.5	1.5	2	3	3	
	50	25...100	–	–	–	0.6	0.8	1.5	1.5	1.5	2	3	3	
	63	25...100	–	–	–	–	0.8	1.5	1.5	1.5	2	3	3	
	80	25...100	–	–	–	–	–	1.5	1.5	1.5	2	3	3	
	100	25...100	–	–	–	–	–	–	1.5	1.5	2	3	3	
	125	25...100	–	–	–	–	–	–	–	–	2	3	3	
	160	25...100	–	–	–	–	–	–	–	–	–2	3	3	
LZM...2-A...	160	25...150	–	–	–	–	–	–	–	–	–	2	2	
	200	25...150	–	–	–	–	–	–	–	–	–	–	–	
	250	25...150	–	–	–	–	–	–	–	–	–	–	–	
LZM...3-AE...	630	50...150	–	–	–	–	–	–	–	–	–	–	–	
LZM...4-AE...	800	50...100	–	–	–	–	–	–	–	–	–	–	–	
	1000	50...100	–	–	–	–	–	–	–	–	–	–	–	

Notes T: full selectivity

LZM...3-A...			LZM...3-AE...		LZM...4-AE...													
36(50)			36(50)		50													
320	400	500	630		800	1000												
Prospective short-circuit current (kA). Set the overload and short-circuit release of the incoming circuit-breaker to the max. value.																		
4	6	7	20		T	T												
4	6	7	20		T	T												
4	6	7	15		T	T												
4	6	7	15		T	T												
4	6	7	15		T	T												
4	6	7	15		T	T												
4	6	7	15		T	T												
4	5	6	10		T	T												
–	5	6	10		T	T												
–	5	6	10		T	T												
–	–	–	–		T	T												
–	–	–	–		–	–												
–	–	–	–		–	–												

Notes T: full selectivity

Protection of PVC insulated cables against thermal overload with short-circuits

According to VDE 0100 part 430 cables and conductors must be protected against short-circuit and overload. The overload protection is obtained by using LZM circuit-breakers with settable, current-dependent, delayed overload release.

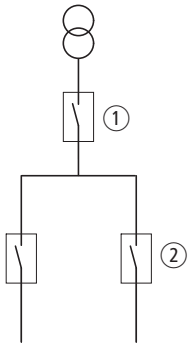
Short-circuit protection is provided by adjustable instantaneous releases, which open the main contacts in less than 25ms. The short-circuit total opening time restricts the temperature rise of the cable to a minimum.

The tables indicate the minimum conductor cross-section reliably protected by circuit-breakers during a short-circuit. (Operating voltage U_N =415V)

	Min. protected cross-section mm² copper
LZM...1(-4)-...20	6
LZM...1(-4)-...25 … 160	10
LZM...2(-4)-...20 … 300	10
LZM...3(-4)-...250 … 630	16
LZM...4(-4)-...630 … 1000	95

Back-up protection

between LZM(N)(S) incoming circuit-breaker and LZM(B)(C)(N) outgoing circuit-breaker



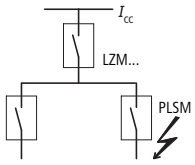
			Incoming circuit-breaker ①				
			LZM1		LZM2		LZM3
		I_n	up to 160 A		up to 300 A		up to 630 A
		$I_{cu(415V)}$	25 kA	36 kA	25 kA	36 kA	50 kA
Outgoing circuit-breaker ②	$I_{cu(415V)}$	I_n					
LZMB1	36 kA	up to 160 A	25	36	25	36	50
LZMC1	50 kA	up to 160 A	–	36	–	36	50
LZMB2	25 kA	up to 300 A	25	36	25	36	50
LZMC2	36 kA	up to 300 A	–	36	–	36	50
LZMC3	36 kA	up to 630 A	–	–	–	–	50
LZMN3	50 kA	up to 630 A	–	–	–	–	50

Where the prospective fault current at the point of installation of circuit-breakers is very high, it is conventional to use LZMN current-limiting circuit-breakers. An attractively priced alternative is to fit a LZMN current-limiting circuit-breaker upstream of LZMB(C) standard circuit-breakers, if the fault level is too high for LZMB(C) switches.

The table shows which current-limiting circuit-breaker LZMN in combination with LZMB(C) are to be used to provide protection at the network locations with high short-circuit capacities.

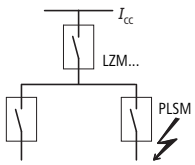
The selectivity limit is determined by the response current of the non-delayed short-circuit release in the upstream incoming circuit-breaker. In many applications this is sufficient.

between LZM...1-A... incoming circuit-breaker and FAZ-B(C)/PLSM-B(C)... outgoing circuit-breaker



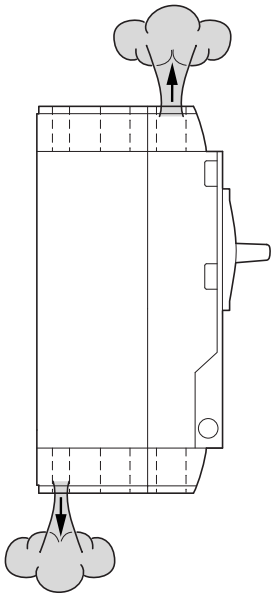
Outgoing circuit-breaker	Outgoing circuit-breaker LZM(B)(C)2-A...	LZMC(N)1-A...
FAZ-B(C)...		
0,5–16	25kA	30kA
20–40	20kA	20kA
50, 63	15kA	15kA
PLSM-B(C)...(/...)		
0,5–16	25kA	30kA
20–40	20kA	20kA
50, 63	15kA	15kA

between LZM...2-A... incoming circuit-breaker and FAZ-B(C)/PLSM-B(C)... outgoing circuit-breaker



Outgoing circuit-breaker	Incoming circuit-breaker LZMB(C)2-A...	LZMN2-A...
FAZ-B(C)...		
0,5–10	25 kA	50 kA
13–32	25 kA	30 kA
40–63	20 kA	20 kA
PLSM-B(C)...(/...)		
0,5–10	25 kA	50 kA
13–32	25 kA	30 kA
40–63	20 kA	20 kA

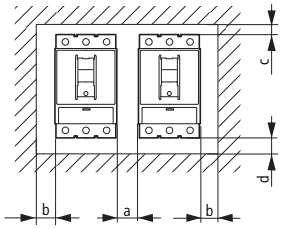
Direction of blow-out



	Top, front	Bottom, rear
LZM1	X	–
LZM2[1)]	X	X
LZM3	X	X
LZM4	X	–

[1)] LZM2B(C) – A … as LZM1

Minimum clearances



between two adjacently mounted switches
Minimum clearance a in mm

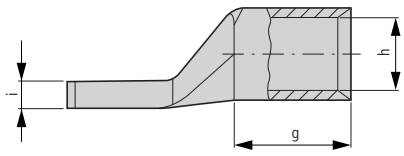
	LZM1	LZM2	LZM3	LZM4
LZM1	0	5	5	15
LZM2	5	5	5	15
LZM3	5	5	5	15
LZM4	15	15	15	15

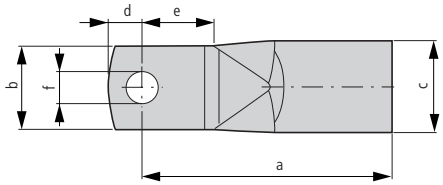
between switch and other parts
Minimum clearances in mm

	b ≦ 440 V	c ≦ 440 V	d ≦ 440 V
LZM1	0	30	0
LZM2[1)]	5	20	35
LZM3	5	30	60
LZM4	15	50	0

[1)] LZM2B(C) – A … c = 20 mm, d = 0 mm

Dimensions





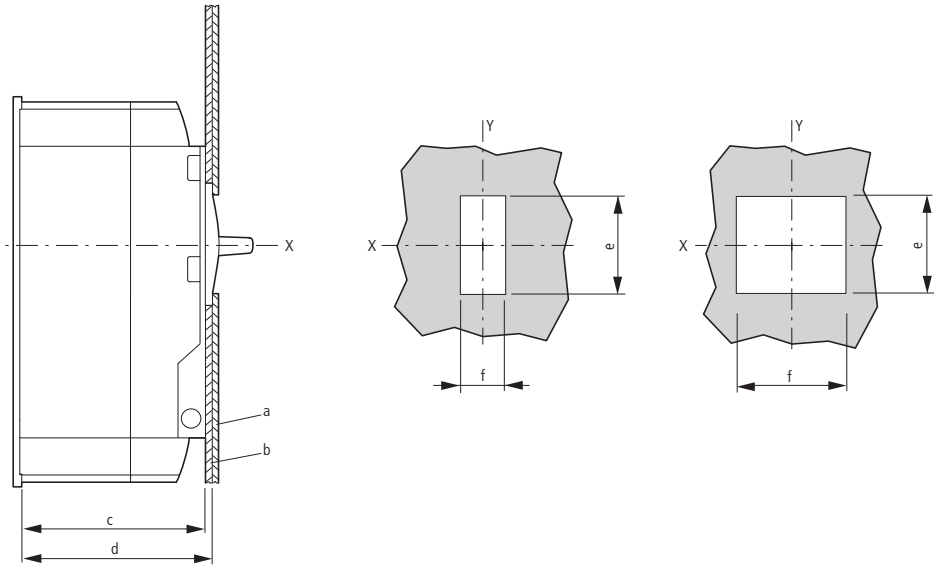
For pressing the cable lugs a press tool K22, HK60/22 or EK22
from the company Klauke is necessary with the following press inserts:
R22/95 for 95 mm²
R22/120 for 120 mm²
R22/150 for 150 mm²
R22/185 for 185 mm²
R22/240 for 240 mm²

Cable lug	For use with	Rated cross section	Terminal bolt	Dimensions in mm								
		mm²	ø	a	b	c	d	e	f	g	h	i
KS95-NZM7	LZM2	95	M8	53^{+2}	$23_{\pm 0.5}$	$18_{\pm 0.2}$	$10_{\pm 1}$	19	8,5	25	13,5	4,4
KS120-NZM7	LZM2	120	M8	56^{+2}	$23_{\pm 0.5}$	$19.5_{\pm 0.2}$	$10_{\pm 1}$	19	8,5	26	15	4,4
KS150-NZM7	LZM2	150	M8	61^{+2}	$23_{\pm 0.5}$	$21_{\pm 0.2}$	$10_{\pm 1}$	19	8,5	30	16,5	4,4
NZM2-XKS185	LZM2	185	M8	$65_{\pm 1.5}$	$22_{\pm 1}$	$24_{\pm 0.3}$	$9^{+1}_{-0.5}$	$19^{+2.5}_{-0.5}$	$8.5^{+0.05}_{-0.1}$	$30_{\pm 2}$	$19_{\pm 0.4}$	7
NZM3-XKS185	LZM3, LZM4	185	M10	65	24,5	24	11,5	18	10,5	30	19	$7.0_{\pm 0.8}$
NZM3-XKS240	LZM3, LZM4	240	M10	72	31	26	11,5	19	10,5	35	21	$5.0_{\pm 0.8}$

Front cut-out

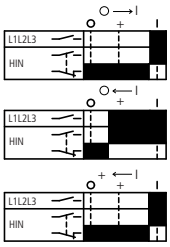
Cut-out a
toggle lever

Cut-out b
rotary handle,
remote operator



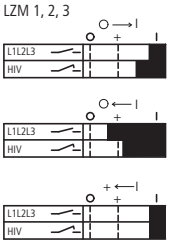
	Distance from mounting plate and door cutout		Cut-out a		Cut-out b	
	c	d	e	f	e	f
	mm	mm	mm	mm	mm	mm
LZM1	68	73	40	23	46	91
LZM2	103	108	79	36	96	101
LZM3	120.5	125.5	79	36	96	136
LZM4	138	146	101	105	118	204

Standard auxiliary contact (HIN)

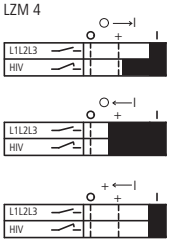


Early-make auxiliary contact (HIV)

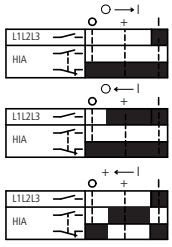
LZM 1, 2, 3



LZM 4



Trip-indicating auxiliary contact (HIA)



0 → I Switching on

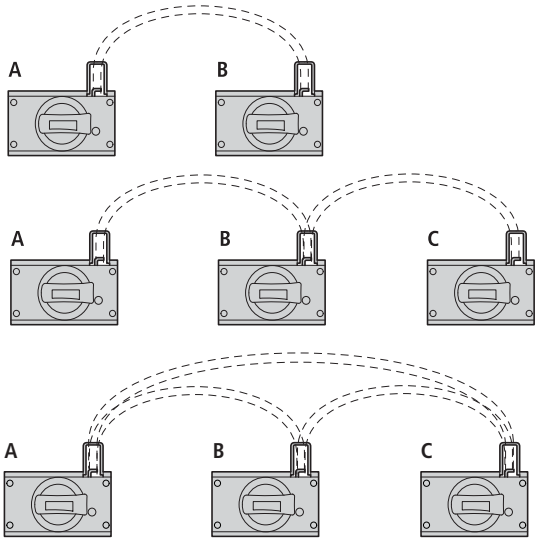
0 ← I Switching off

+ ← I Trip

■ Contact closed
□ Contact open

Notes If early-make contacts are required in combination with shunt or undervoltage releases, please select the combination type in the “Release” section.

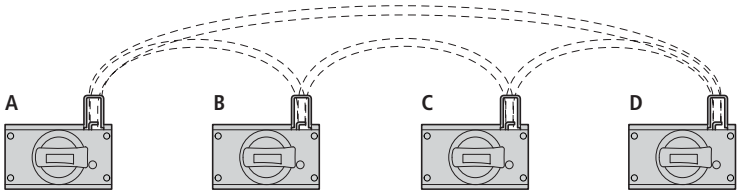
Interlocking variants and combination options



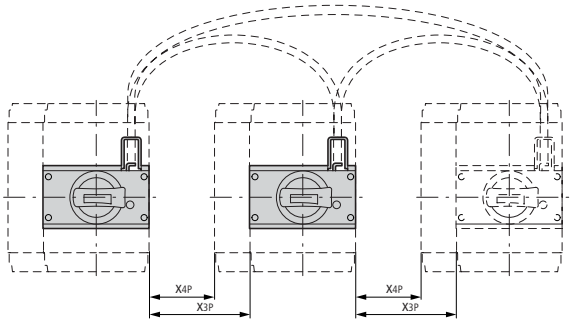
A	B
OFF	OFF
ON/TRIP	~~ON~~
~~ON~~	ON/TRIP

A	B	C
OFF	OFF	OFF
~~ON~~	ON/TRIP	~~ON~~
ON/TRIP	~~ON~~	ON/TRIP

A	B	C
OFF	OFF	OFF
ON/TRIP	~~ON~~	~~ON~~
~~ON~~	ON/TRIP	~~ON~~
~~ON~~	~~ON~~	ON/TRIP

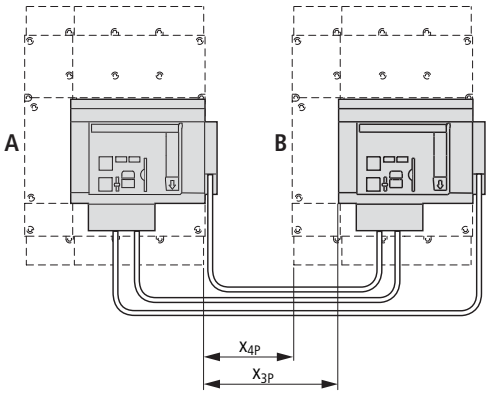


A	B	C	D
OFF	OFF	OFF	OFF
ON/TRIP	~~ON~~	ON/TRIP	~~ON~~
~~ON~~	ON/TRIP	~~ON~~	ON/TRIP



= Switch clearance 3 pole
= Switch clearance 4 pole

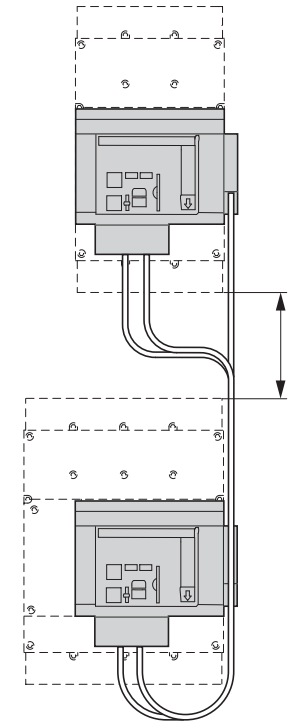
NZM-XBZ225						right switch			
max. switch clearance		LZM1		LZM2		LZM3		LZM4	
		X_{3P}	X_{4P}	X_{3P}	X_{4P}	X_{3P}	X_{4P}	X_{3P}	X_{4P}
left switch		mm	mm	mm	mm	mm	mm	mm	mm
LZM1	3/4 pole	135	105	120	85	135	90	125	80
LZM2	3/4 pole	135	105	120	85	135	90	125	80
LZM3	3/4 pole	90	75	75	35	85	40	80	45
LZM4	3/4 pole	50	35	40	15	25	–	15	–
NZM-XBZ600		right switch							
max. switch clearance		LZM1		LZM2		LZM3		LZM4	
		X_{3P}	X_{4P}	X_{3P}	X_{4P}	X_{3P}	X_{4P}	X_{3P}	X_{4P}
left switch		mm	mm	mm	mm	mm	mm	mm	mm
LZM1	3/4 pole	510	480	495	460	510	465	475	405
LZM2	3/4 pole	510	480	495	460	510	465	475	405
LZM3	3/4 pole	460	430	450	410	460	415	460	390
LZM4	3/4 pole	400	370	380	340	400	375	390	320
NZM-XBZ1000		right switch							
max. switch clearance		LZM1		LZM2		LZM3		LZM4	
		X_{3P}	X_{4P}	X_{3P}	X_{4P}	X_{3P}	X_{4P}	X_{3P}	X_{4P}
left switch		mm	mm	mm	mm	mm	mm	mm	mm
LZM1	3/4 pole	910	880	895	860	910	865	865	795
LZM2	3/4 pole	910	880	895	860	910	865	865	795
LZM3	3/4 pole	820	790	850	810	860	815	860	790
LZM4	3/4 pole	750	720	730	700	800	775	790	720



X_{3P} = max. switch clearance 3 pole
X_{4P} = max. switch clearance 4 pole

XMVR mechanical interlock
(Mounting adjacent)

NZM...-XMVR				right switch			
max. switch clearance		LZM2		LZM3		LZM4	
		X_{3p}	X_{4p}	X_{3p}	X_{4p}	X_{3p}	X_{4p}
left switch		mm	mm	mm	mm	mm	mm
LZM2	3/4 pole	130	95	95	50	–	–
LZM3	3/4 pole	–	–	135	90	155	85
LZM4	3/4 pole	–	–	–	–	120	50



XMVRL mechanical interlock
Mounting in adjacent enclosures

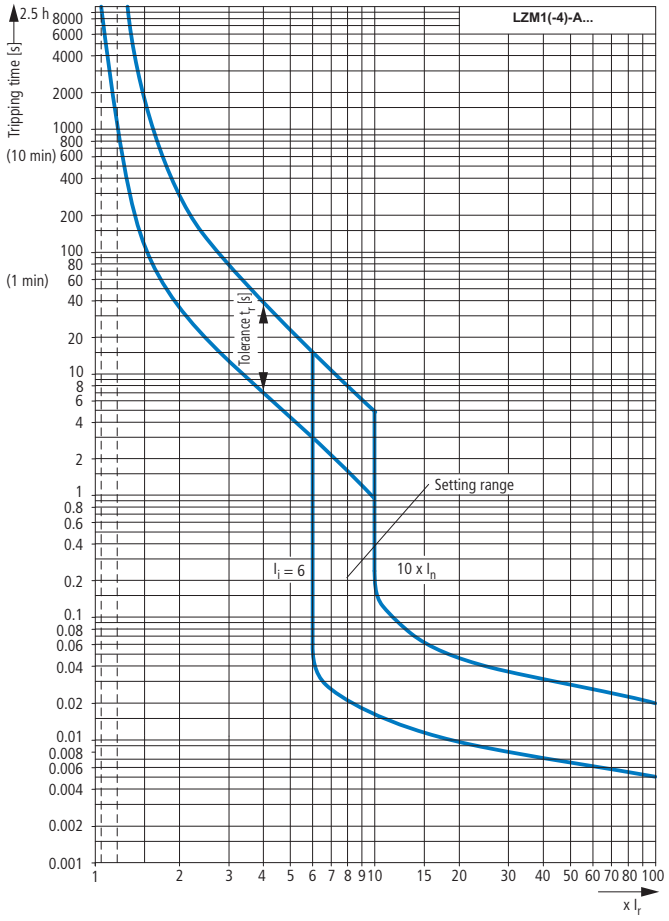
NZM...-XMVRL				right switch			
max. switch clearance		LZM2		LZM3		LZM4	
		X_{3p}	X_{4p}	X_{3p}	X_{4p}	X_{3p}	X_{4p}
left switch		mm	mm	mm	mm	mm	mm
LZM2	3/4 pole	350	315	420	385	–	–
LZM3	3/4 pole	–	–	400	365	460	390
LZM4	3/4 pole	–	–	–	–	420	350

XMVRL mechanical interlock
(Mounting one above the other)

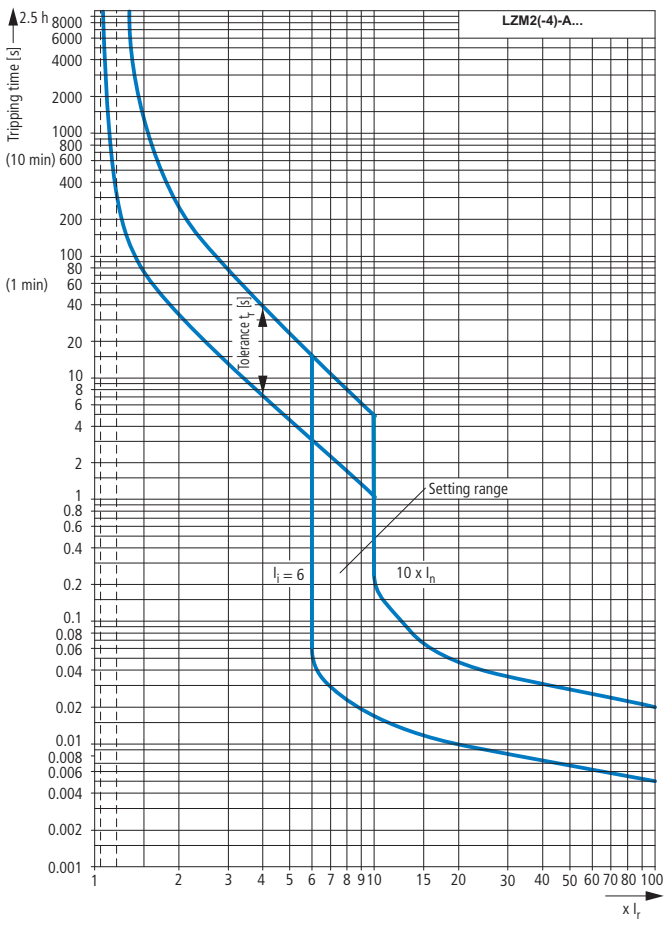
NZM...-XMVRL		Switch top		
max. switch clearance		LZM2	LZM3	LZM4
		3/4 pole	3/4 pole	3/4 pole
Switch bottom		mm	mm	mm
LZM2	3/4 pole	220	225	–
LZM3	3/4 pole	–	220	230
LZM4	3/4 pole	–	–	230

Y = max. switch clearance

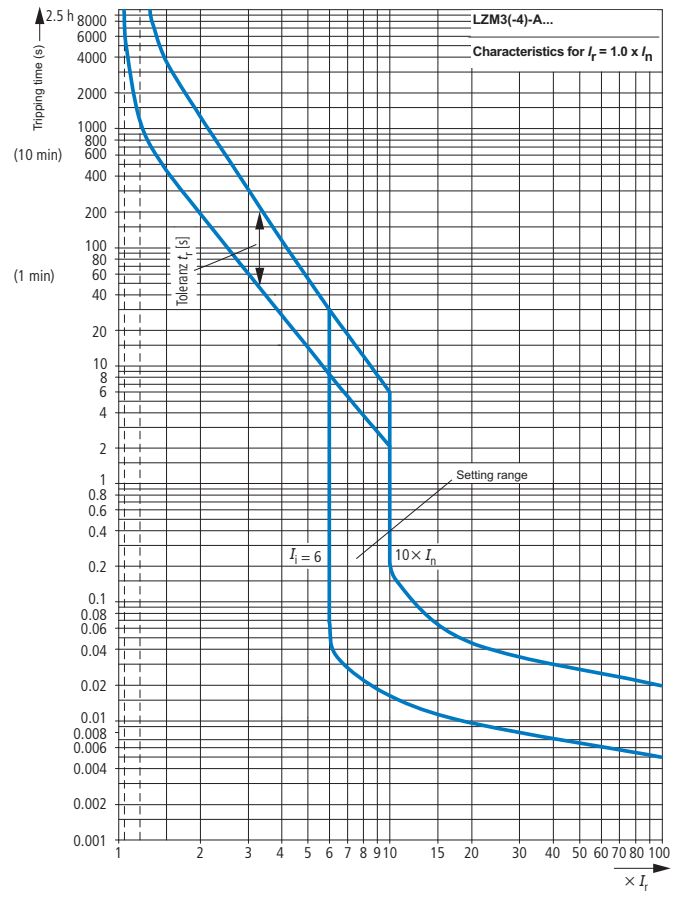
System and line protection with LZM1



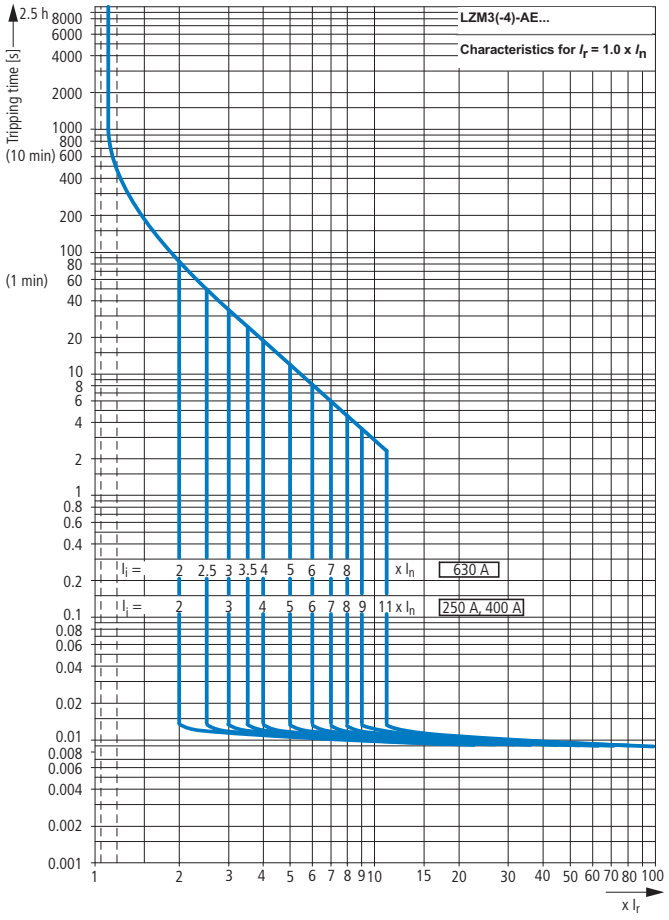
System and line protection with LZM2

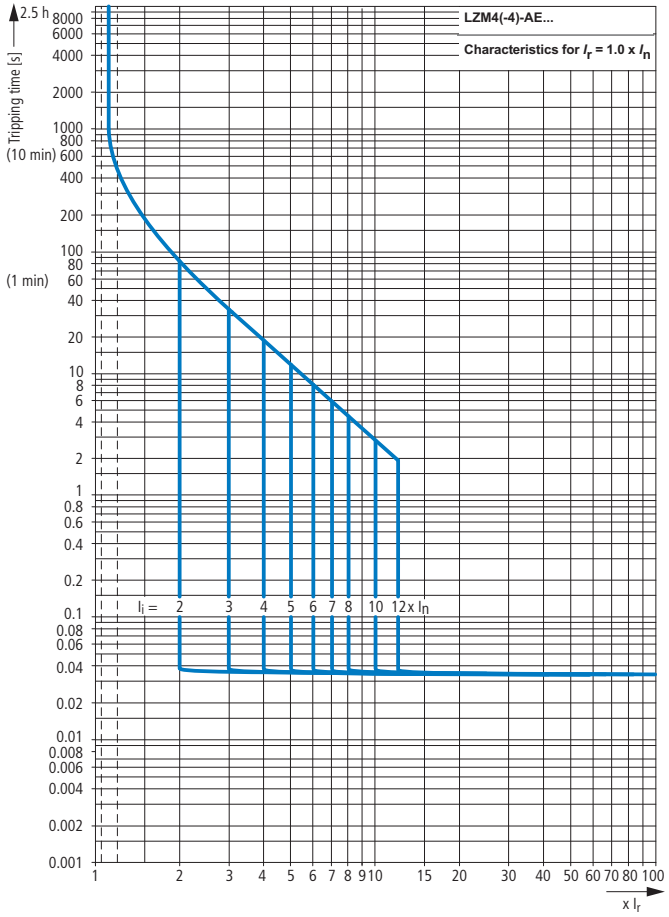


System and line protection with LZM3...-A...

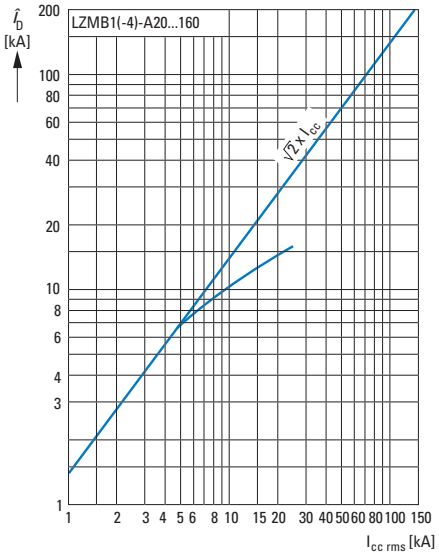


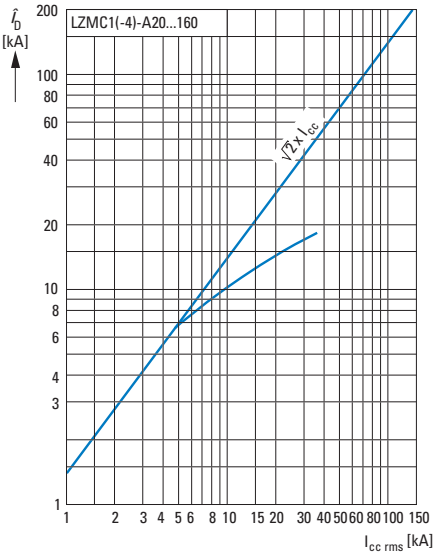
System and line protection with LZM3...-AE...

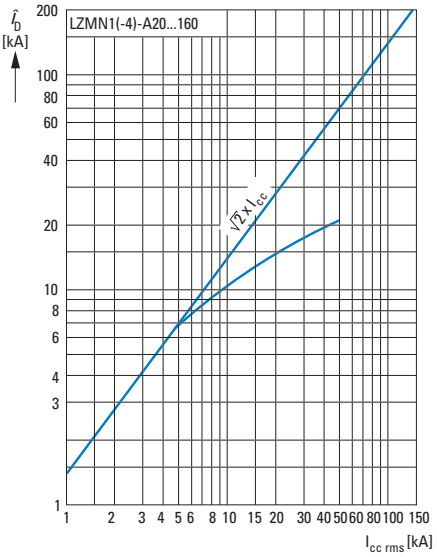


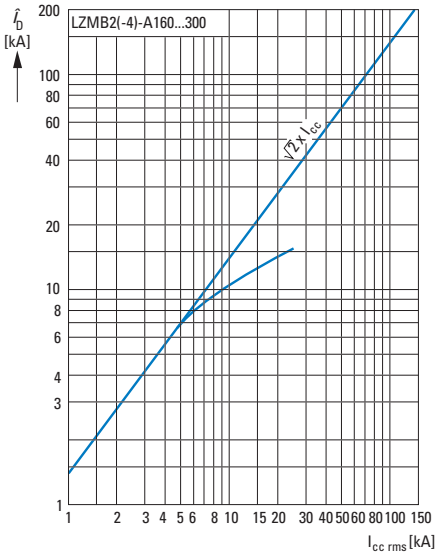

LZM4(-4)-AE...
Characteristics for I_r = 1.0 x I_n
Tripping time [s]
2.5 h
(10 min)
(1 min)
8000
6000
4000
2000
1000
800
600
400
200
100
80
60
40
20
10
8
6
4
2
1
0.8
0.6
0.4
0.2
0.1
0.08
0.06
0.04
0.02
0.01
0.008
0.006
0.004
0.002
0.001
I_i = 2 3 4 5 6 7 8 10 12x I_n
1 2 3 4 5 6 7 8 9 10 15 20 30 40 50 60 70 80 100
x I_r

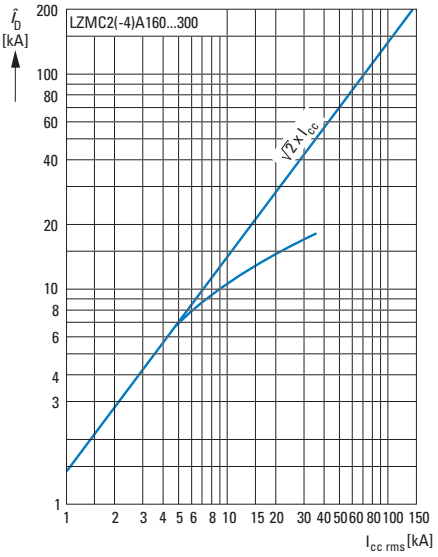
Let-through current $\hat{i}_D$

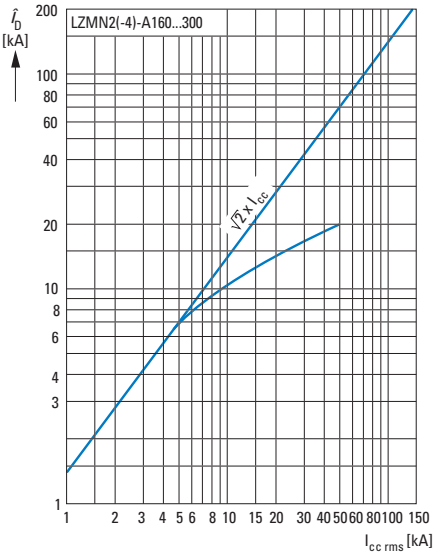


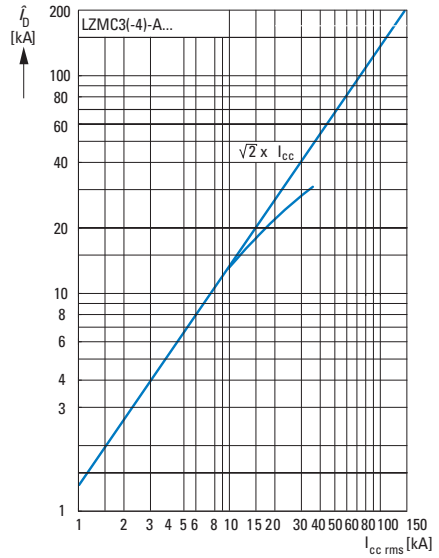


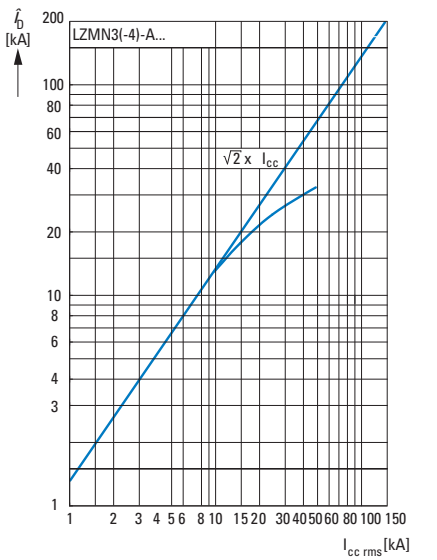


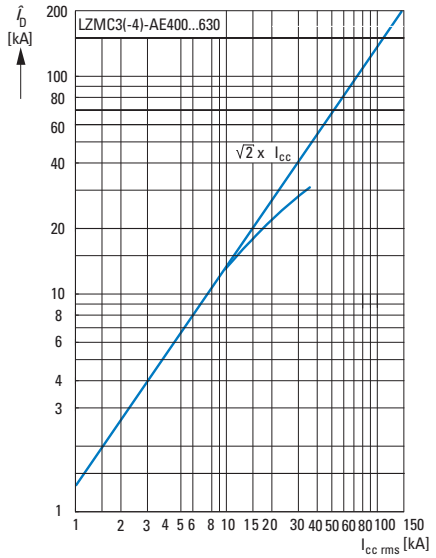




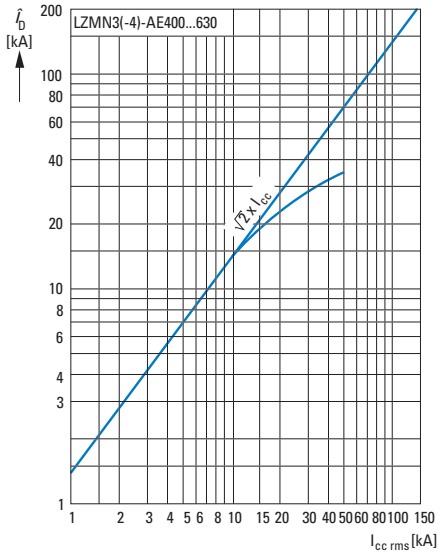


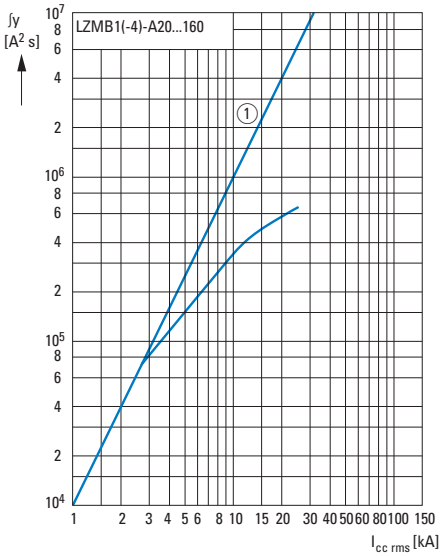


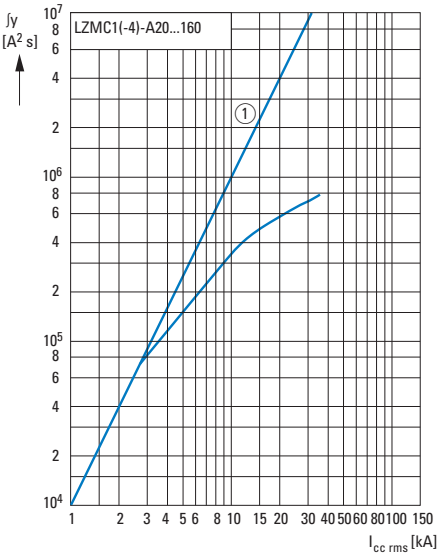


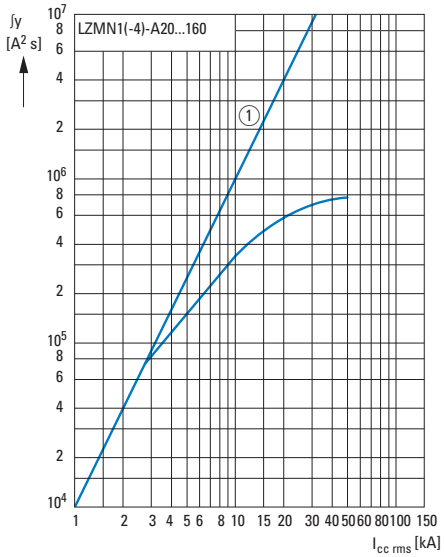


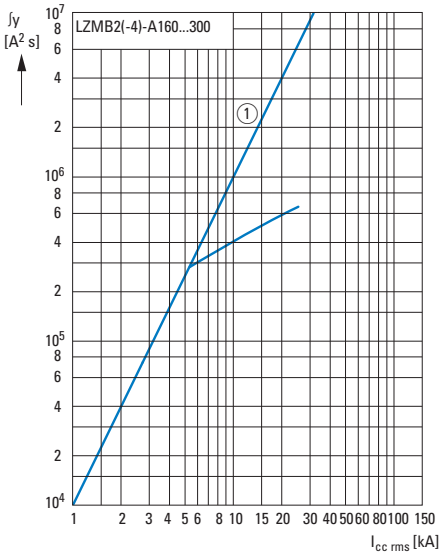
Let-through energy I^2t

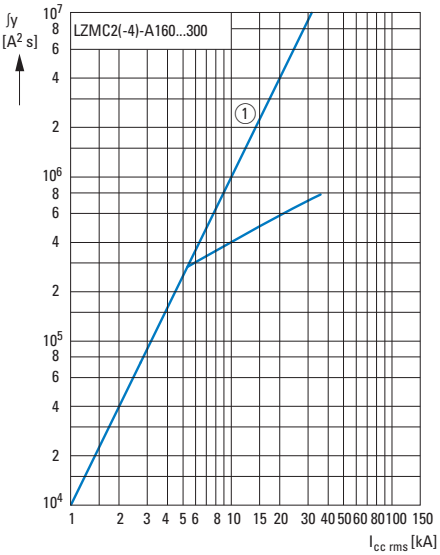


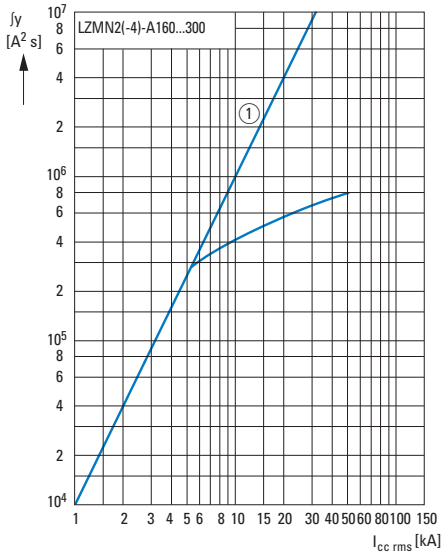


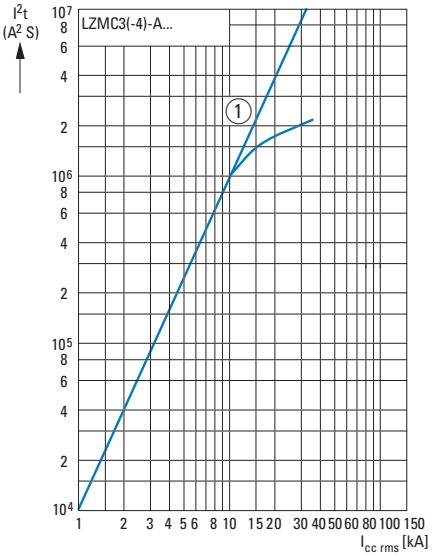


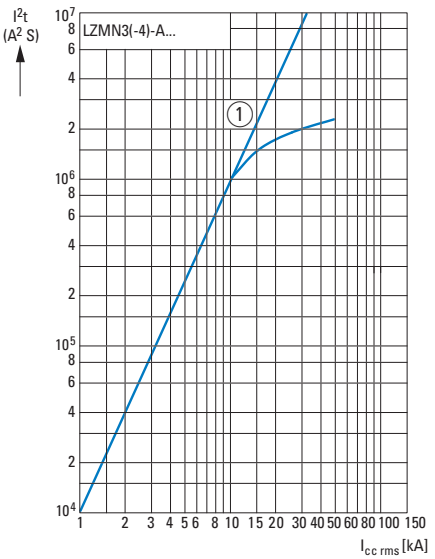












				Rated uninterrupted current max. 160 A		
				LZMB1	**LZMC1**	**LZMN1**
General						
Standards				IEC/EN 60947		
Protection against direct contact				Finger and back of hand proof to VDE 0106 Part 100		
Climatic proofing				Damp heat, constant, according to IEC 60068-2-78 Damp heat, cyclical to IEC 60068-2-30		
Ambient temperature						
Storage			°C	–25…+70		
Operation			°C	–25…+70		
Mechanical shock resistance (IEC/EN 60068-2-27)				20 (half-sinusoidal shock 20 ms)		
Safe isolation to VDE 0106 Part 101 and Part 101/A1						
Between auxiliary contacts and main contacts			V AC	500		
between the auxiliary contacts			V AC	300		
Mounting position				Vertical and 90° in all directions		
Direction of incoming supply				As required		
Degree of protection						
Device				In the operating controls area: IP20 (basic degree of protection)		
Enclosures				With insulating surround: IP40, with door coupling rotary handle: IP66		
Terminals				Tunnel terminal: IP10 Phase isolator and strip terminal: IP00		
Circuit-breakers						
Rated impulse withstand voltage U_{imp}						
Main contacts			V	6000	6000	6000
Auxiliary contacts			V	6000	6000	6000
Rated operational voltage		U_e	V AC	440	440	440
Overvoltage category/pollution degree				III/3	III/3	III/3
Rated insulation voltage		U_i	V	690	690	690
Switching capacity						
Rated short-circuit making capacity						
240 V		I_{cm}	kA	63	121	187
400/415 V		I_{cm}	kA	53	76	105
440 V		I_{cm}	kA	53	63	74
Rated short-circuit breaking capacity I_{cn}						
I_{cu} to IEC/EN 60947 operating sequence O-t-CO	240 V 50/60 Hz	I_{cu}	kA	30	55	85
	400/415 V 50/60 Hz	I_{cu}	kA	25	36	50
	440 V 50/60Hz	I_{cu}	kA	12,5	18	25
I_{cs} to IEC/EN 60947 operating sequence O-t-CO-t-CO	240 V 50/60 Hz	I_{cs}	kA	30	55	85
	400/415 V 50/60 Hz	I_{cs}	kA	25	36	50
	440 V 50/60Hz	I_{cs}	kA	9	13	18
Maximum low-voltage h.b.c. fuse[1]			A gG/gL	LZM.1-…20…100: 200 LZM.1-…125, 160: 315		
Utilization category to IEC/EN 60947-2				A	A	A
Rated short-time withstand current						
t = 0.3 s		I_{cw}	kA	–	–	–
t = 1 s		I_{cw}	kA	–	–	–
Rated making and breaking capacity						
Rated operational current	AC-1 400/415 V 50/60 Hz	I_e	A	160	160	160
Lifespan, mechanical		Operations		10000	10000	10000
Maximum operating frequency			Ops/h	120	120	120
Lifespan, electrical						
	AC-1 400/415 V 50/60 Hz	Operations		5000	5000	7500
Current heat loss at I_u[2]			W	36.1	36.1	36.1
Total opening delay at short-circuit			ms	< 10	< 10	< 10

Notes
[1] Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker
[2] For current heat loss the specification refers to the maximum nominal current of the frame size

Rated uninterrupted current max. 300 A			Rated uninterrupted current max. 630 A		Rated uninterrupted current max. 1000 A
LZMB2	LZMC2	LZMN2	LZMC3	LZMN3	LZMN4
IEC/EN 60947,					
Finger and back of hand proof to VDE 0106 Part 100					
Damp heat, constant, according to IEC 60068-2-78 Damp heat, cyclical to IEC 60068-2-30					
–25…+70					
–25…+70					
20 (half-sinusoidal shock 20 ms)					
500					
300					
Vertical and 90° in all directions					
As required					
In the operating controls area: IP20 (basic degree of protection)					
With insulating surround: IP40, with door coupling rotary handle: IP66					
Tunnel terminal: IP10 Phase isolator and strip terminal: IP00					
8000	8000	8000	8000	8000	8000
6000	6000	6000	6000	6000	6000
440	440	440	440	440	440
III/3	III/3	III/3	III/3	III/3	III/3
690	690	690	690	1000	1000
63	121	187	121	187	105
53	76	105	76	105	105
53	63	74	63	74	74
30	55	85	55	85	50
25	36	50	36	50	50
12.5	18	25	18	25	25
30	55	85	55	85	37
25	36	50	36	50	37
9	13	18	13	18	18
355	355	355	LZMN3-…250, 400: 400 LZMN3-….500, 630: 630		
A	A	A	A	A	B
–	–	1.9	3.3	3.3	19.2
–	–	1.9	3.3	3.3	19.2
300	300	300	630	630	1000
10000	10000	10000	7500	7500	5000
120	120	120	60	60	60
5000	5000	7500	2500	2500	1500
58.3	58.3	58.3	119	119	111
< 10	< 10	< 10	< 10	< 10	< 25

			LN1(-4) max. 160 A	LN2(-4) max. 250 A	LN3(-4) max. 630 A	LN4(-4) max. 1000 A
Switch-disconnectors						
Rated impulse withstand voltage						
Main contacts	U_{imp}	V	6000	8000	8000	8000
Auxiliary contacts	U_{imp}	V	6000	6000	6000	6000
Rated operational voltage	U_e	V AC	690	690	690	690
Rated uninterrupted current max.						
IEC/EN 60947-2 annex L	I_u	A	160	250	630	1000
Overvoltage category/pollution degree			III/3	III/3	III/3	III/3
Rated Insulation voltage	U_i	V AC	690	690	1000	1000
For use in IT electrical power networks		V	690	690	690	525
Switching capacity						
Rated short-circuit making capacity	I_{cm}	kA	2.8	5.5	25	53
Rated short-time withstand current						
t = 0.3 s	I_{cw}	kA	2	3.5	12	25
t = 1 s	I_{cw}	kA	2	3.5	12	25
Rated conditional short-circuit current						
With back-up fuse		A gG/gL	PN1(N1)63…125: 125 PN1(N1)-160: 160	PN2(N2)-160…250: 250	PN3(N3)-400…630: 630	N4-630…1000: 2 x 500
400 … 415 V		kA	100	100	100	100
With downstream fuse		A gG/gL	LN1-63…125: 125 LN1-160: 160	LN2-160…250: 250	LN3-400…630: 630	LN4-630…1000: 2 x 500
400 … 415 V		kA	100	100	100	100
Rated making and breaking capacity						
Rated operational current, AC-23B						
415 V	I_e	A	160	250	630	1000
Lifespan, mechanical	Operations		10000	10000	7500	5000
Maximum operating frequency		Ops./h	120	120	60	60
Lifespan, electrical to IEC/EN 60947-4-1 section B						
AC-1						
400/415 V	Operations		5000	5000	2500	1500
AC-23B						
400/415 V	Operations		200	200	200	100
Current heat loss at Iu[1)]		W	29.2	48	107	111

Notes [1)] The current heat loss ratings refer to the maximum current rating of the frame size.

xEnergy

Device Type	Release Type	Response values of the overload release at temperatures deviating from the reference temperatures Temperature compensation coefficient 20 °C	30 °C	40 °C	50 °C	60 °C	65 °C	70 °C
Thermomagnetic release (TM)								
System protection		Protection of systems (reference temperature 40 °C)						
LZM...1(-4)-A15…80	TM	1.14	1.07	1	0.93	0.86	0.83	0.79
LZM...1(-4)-A90…125	TM	1.14	1.07	1	0.93	0.86	0.83	0.79
LZM...1(-4)-A160	TM	1.08	1.04	1	0.96	0.92	0.90	0.88
LZM...2(-4)-A15…200	TM	1.04	1.02	1	0.98	0.96	0.95	0.94
LZM...2(-4)-A250	TM	1.04	1.02	1	0.98	0.96	0.95	0.94
LZM...3(-4)-A250…500	TM	11.12	1.06	1	0.94	0.88	0.85	0.82

Notes With temperatures which deviate from the reference temperature, a slight change of the overload protection properties occurs. In order to determine the release time using the tripping characteristics the temperature compensation coefficient in accordance with the table must be considered.
Example: An LZM1-A100 is calibrated for a reference temperature of 40 °C.
What happens when it is operated at an ambient temperature of 60 °C ?
At 60 °C, the temperature compensation coefficient of 0.86 results in a reduced operating current of Ir = 100 A x 0.86 = 86 A.
In other words at an ambient temperature of 60 °C the LZM1-A100 trips as if it were set to 86 A.

Device Type	Release Type	Reduction of the rated operational current (derating) under particular ambient conditions (according to IEC 947) Derating coefficient 20 °C	30 °C	40 °C	50 °C	60 °C	65 °C	70 °C
Thermomagnetic release (TM)								
System protection		Protection of systems (reference temperature 40 °C)						
LZM...1(-4)-A15…80	TM	1	1	1	1	1	1	1
LZM...1(-4)-A90…125	TM	1	1	1	1	0.86	0.83	0.80
LZM...1(-4)-A160	TM	1	1	1	0.95	0.90	0.85	0.80
LZM...2(-4)-A15…200	TM	1	1	1	1	1	1	1
LZM...2(-4)-A250	TM	1	1	1	1	0.90	0.85	0.80
LZM...3(-4)-A250…500	TM	1	1	1	0.94	0.88	0.85	0.82
Electronic release (E)								
System protection								
LZM...3(-4)-AE630	E	1	1	1	1	0.90	0.85	0.80
LZM...4(-4)-AE800...1000	E	1	1	1	1	1	1	1

Notes The derating coefficient must be considered in accordance with the following table in order to determine the maximum permissible current loading at different ambient temperatures.
Example: An LZM2-A250 should be operated at an ambient temperature of 65 °C.
How high is the permissible rated operational current I_e?
At 65 °C the derating coefficient is 0.85, this means Ie = 250 A x 0.85 = 212.5 A.
The LZM2-A250 may be operated at an ambient temperature of 65 °C with a maximum I_e = 212.5 A.

Weight	kg
Circuit-breaker	
LZM...1-...	1.046
LZM...1-4-...	1.325
LZM...2-...	2.345
LZM...2-4-...	3.5
LZM...3-...	6.34
LZM...3-4-...	8.4
LZM...4-...	21
LZM...4-4-...	27

LZM up to 500 A with thermomagnetic release (3- and 4-pole)

I_n [A]	LZM1-A... P [W]	LZM1-A... R [µOhm]	LZM2-A... R [W]	LZM2-A... P [µOhm]	LZM3-A R [W]	LZM3-A P [µOhm]
20	9.8	8180	5.1	4250	–	–
25	8.8	4680	8	4250	–	–
26	–	–	–	–	–	–
30	–	–	–	–	–	–
32	9.3	3030	9.6	3140	–	–
33	–	–	–	–	–	–
35	–	–	–	–	–	–
40	10.7	2220	14	2800	–	–
45	–	–	–	–	–	–
50	13.2	1760	17	2270	–	–
60	–	–	–	–	–	–
63	14.2	1190	20.2	1700	–	–
70	–	–	–	–	–	–
80	16.3	850	20.5	1070	–	–
90	–	–	–	–	–	–
100	21.9	730	25.7	855	–	–
110	–	–	–	–	–	–
125	26.7	570	27.8	589	–	–
150	–	–	–	–	–	–
160	36.1	460	38.4	427	–	–
175	–	–	–	–	–	–
200	–	–	48	332	–	–
225	–	–	–	–	–	–
250	–	–	58.1	310	68	384
300	–	–	83.7	310	79	256
400	–	–	–	–	72	151
500	–	–	–	–	93	124

Notes
The values stated in the table apply for 3- and 4-pole fixed mounted devices with an equal load distribution.
On 4-pole devices the current in the N-conductor is equal to zero.
The total resistive load is the measured value for a 3-pole or a 4-pole switch.
The total heat dissipation is the value measured at I_n, 50/60Hz for a 3-pole or 4-pole switch.
The heat dissipation can be calculated with the formula: $P = 3 \times R \times I^2$

LZM up to 1000 A with electronic release (3- and 4-pole)

LZM3 R [µ Ohm]	LZM4 R [µ Ohm]				
100	37				

Notes
The values stated in the table apply for 3- and 4-pole devices with an equal load distribution.
On 4-pole devices the current in the N-conductor is equal to zero.
The total resistive load is the measured value for a 3-pole or a 4-pole switch (independent of In and the type of release).
The heat dissipation can be calculated with the formula: $P = 3 \times R \times I^2$

					LZM1 160 A	I_n[1] A	LZM2 300 A	I_n[1]
Terminal capacities								
Standard equipment					Box terminal		Screw terminal	
Accessories					Screw connection Tunnel terminal Connection on rear		Box terminal Tunnel terminal Connection on rear	
Rated power of coil								
Box terminal	Solid			mm²	1 x (10 – 16) 2 x (6 – 16)	160	1 x (4 – 16) 2 x (4 – 16)	300
	Stranded			mm²	1 x (25 – 70) 2 x 25	160	1 x (25 – 185) 2 x (25 – 70)	300
Tunnel terminal	Solid			mm²	1 x 16	160	1 x 16	300
	Stranded	Single hole		mm²	1 x (25 – 95)	160	1 x (25 – 185)	300
		Double hole fitting		mm²	–	–	–	–
		4-hole		mm²	–	–	–	–
Bolt terminal and rear-side connection								
Direct on the switch	Solid			mm²	1 x (10 – 16) 2 x (6 – 16)	160	1 x (4 – 16) 2 x (4 – 16)	300
	Stranded			mm²	1 x (25 – 70)[3] 2 x 25	160	1 x (25 – 185) 2 x (25 – 70)	300
Module plate	Single hole	min.		mm²	–	–	–	–
		max.		mm²	–	–	–	–
Module plate	Double hole	min.		mm²	–	–	–	–
		max.		mm²	–	–	–	–
Connection width extension				mm²				
Al conductors, Al cable								
Tunnel terminal	Solid			mm²	1 x 16	160	1 x 16	250
	Stranded	Single hole		mm²	1 x (25 – 95)	160	1 x (25 – 185)2)	250
		Double hole fitting		mm²	–	–	–	–
		4-hole		mm²	–	–	–	–
Bolt terminal and rear-side connection								
Direct on the switch	Solid			mm²	1 x (10 – 16) 2 x (10 – 16)	160	1 x (10 – 16) 2 x (10 – 16)	250
	Stranded			mm²	1 x (25 – 35) 2 x (25 – 35)	160	1 x (25 – 50) 2 x (25 – 50)	250
Module plate	Single hole	min.		mm²	–	–	–	–
	Single hole	max.		mm²	–	–	–	–
Module plate	Double hole			mm²	–	–	–	–
Connection width extension								
Cu strip (number of segments x width x segment thickness)								
Box terminal		min.		mm	2 x 9 x 0.8	160	2 x 9 x 0.8	300
		max.		mm	9 x 9 x 0.8	160	10 x 16 x 0.8	300
Flat conductor terminal		min.		mm	–	–	–	–
		max.		mm	–	–	–	–
Module plate	Single hole			mm	–	–	–	–
Bolt terminal and rear-side connection								
Flat copper strip, with holes		min.		mm	–	–	2 x 16 x 0.8	300
Flat copper strip, with holes		max.		mm	–	–	10 x 16 x 0.8	300
Connection width extension				mm²	–	–	–	–
Copper busbar (width x thickness)								
Bolt terminal and rear-side connection								
Screw connection					M6		M8	
Direct on the switch		min.		mm	12 x 5	160	16 x 5	300
		max.		mm	16 x 5	160	20 x 5	300
Module plate	Single hole	min.		mm	–	–	–	–
		max.		mm	–	–	–	–
Module plate	Double hole			mm	–	–	–	–
Connection width extension		min.		mm	–	–	–	–
		max.		mm	–	–	–	–

Notes

[1] The rated currents In have been determined conform to IEC/EN 60947 (switchgear standard) and generally relate to the max. defined cross-sections and are intended for the purpose of orientation. The engineering standards which apply in each case must be observed.
[2] depending on the cable manufacturer up to 240 mm² can be connected.
[3] depending on the cable manufacturer up to 95 mm2 can be connected.

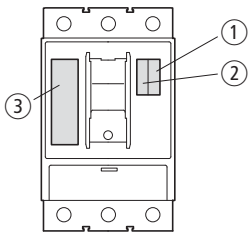
					LZM3 630 A	I_n[1] **A**	**LZM4 1000 A**	I_n[1]
Terminal capacities								
Standard equipment					Screw terminal		Screw terminal	
Accessories					Box terminal Tunnel terminal Connection on rear		Tunnel terminal Connection on rear Strip terminal	
Rated power of coil								
Box terminal	Solid			mm²	2 x 16	500	–	–
	Stranded			mm²	1 x (1 x (35 – 240) 2 x (25 – 120)	500	–	–
Tunnel terminal	Solid			mm²				
	Stranded	Single hole		mm²	1 x (25 – 185)	350	–	–
		Double hole fitting		mm²	1 x (50 – 240) 2 x (50 – 240)	630 2 x 185	–	–
		4-hole		mm²	–	–	4 x (50 – 240)	1000
Bolt terminal and rear-side connection								
Direct on the switch	Solid			mm²	1 x 16 2 x 16	630 2 x 185		
	Stranded			mm²	1 x (25 – 240) 2 x (25 – 240)	630 2 x 185	1 x (120 … 185) 4 x (50 … 185)	1000
Module plate	Single hole		min.	mm²	–	–	1 x (120 – 300)	1000
			max.	mm²	–	–	2 x (95 – 300)	1000
Module plate	Double hole		min.	mm²	–	–	2 x (95 – 185)	1000
			max.	mm²	–	–	4 x (35 – 185)	1000
Connection width extension				mm²	2 x 300	630 2 x 185	4 x 300 6 x (95 – 240)	1000 4 x 240
Al conductors, Al cable								
Tunnel terminal	Solid			mm²	1 x 16	350	–	–
	Stranded	Single hole		mm²	1 x (25 – 185)[2]	350	–	–
		Double hole fitting		mm²	1 x (50 – 240) 2 x (50 – 240)	630	–	–
		4-hole		mm²	–	–	4 x (50 – 240)	1000
Bolt terminal and rear-side connection								
Direct on the switch	Solid			mm²	1 x 16 2 x (10 – 16)	400	–	–
	Stranded			mm²	1 x (25 – 120) 2 x (25 – 120)	400	–	–
Module plate	Single hole		min.	mm²	–	–	1 x (185 – 240)	pleaes inquire
	Single hole		max.	mm²	–	–	2 x (70 – 185)	pleaes inquire
Module plate	Double hole			mm²	–	–	4 x 50	–
Connection width extension						2 x 240 6 x (70 – 240)		pleaes inquire
Cu strip (number of segments x width x segment thickness)								
Box terminal			min.	mm	6 x 16 x 0.8	630	–	–
			max.	mm	10 x 24 x 1.0 + 5 x 24 x 1.0 (2 x) 8 x 24 x 1.0	630	–	–
Flat conductor terminal			min.	mm	–	–	6 x 16 x 0.8	1000
			max.	mm	–	–	(2 x) 10 x 32 x 1.0	1000
Module plate	Single hole			mm	–	–	(2 x) 10 x 50 x 1.0	1000 (2 x) 10 x 40 x 1.0
Bolt terminal and rear-side connection								
Flat copper strip, with holes			min.	mm	6 x 16 x 0.8	630	(2 x) 10 x 50 x 1.0	1000
Flat copper strip, with holes			max.	mm	10 x 32 x 1.0 + 5 x 32 x 1.0	630	(2 x) 10 x 50 x 1.0	1000
Connection width extension				mm²	(2 x) 10 x 50 x 1.0	630	(2 x) 10 x 80 x 1.0	1000 2 x (10 x 50 x 1.0)
Copper busbar (width x thickness)								
Bolt terminal and rear-side connection								
Screw connection					M10		M10	
Direct on the switch			min.	mm	20 x 5	630	25 x 5	1000
			max.	mm	30 x 10 +30 x 5	630	2 x (50 x 10) 2 x (80x 10)	1000
Module plate	Single hole		min.	mm	–	–	25 x 5	1000
			max.	mm	–	–	2 x (50 x 10	2 x (40 x 10)
Module plate	Double hole			mm	–	–	2 x (50 x 10)	1000
Connection width extension			min.	mm	–	630	60 x 10	1000
			max.	mm	2 x (10 x 50)	10 x 40	2 x (80 x 10)	2 x (50 x 10)

Notes

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[2] depending on the cable manufacturer up to 240 mm² can be connected.
[3] depending on the cable manufacturer up to 95 mm2 can be connected.

			at AC = 50/60 Hz	M22-K…	NZM-CK…	
Auxiliary contacts						
Rated operational voltage						
AC		Ue	V AC	500	230	
DC		Ue	V DC	220	220	
Conventional thermal current		Ith = Ie	A	4	4	
Rated operational current						
AC–15	115 V	Ie	A	4	4	
	230 V	Ie	A	4	4	
	400 V	Ie	A	2	–	
	500 V	Ie	A	1	–	
DC-13	24 V	Ie	A	3	3	
	42 V	Ie	A	1.7	1	
	60 V	Ie	A	1.2	0.8	
	110 V	Ie	A	0.8	0.5	
	220 V	Ie	A	0.3	0.2	
Short-circuit protection						
max. fuse			A gG/gL	10	10	
Max. miniature circuit-breaker			A	PKZM0-10/FAZ-B6	FAZ-B6/B1	
Terminal capacities						
Solid or flexible conductor with ferrule			mm^2	1 x (0.75 – 2.5) 2 x (0.75 – 2.5)	1 x (0.5 – 1.5) 2 x (0.5 – 0.75)	
			AWG	1 x (18 – 14) 2 x (18 – 14)	1 x (18 – 14) 2 x (18 – 14)	

Maximum equipment and position of the internal accessories

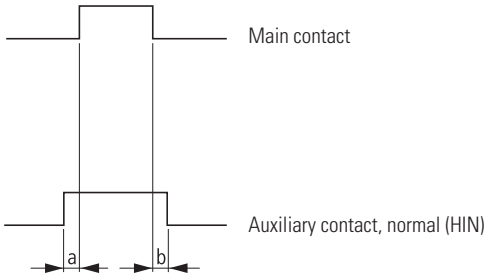


	③ -XHIV(2S) or -XA or -XU	② HIA	① HIN[1]	Contacts per slot with HIA and HIN
LZM1, LN1	1	1	1	1 N/O
LZM2, LN2	1	1	2	1 N/C
LZM3, LN3	1	1	3	2 N/O
LZM4, LN4	1	2	3	2 N/C

N/O = normally open contact
N/C = normally closed contact

[1] On combination with remote operator NZM-XR..., the right slot for standard auxiliary contacts HIN can be equipped only with single contacts.

Time differences ON-OFF



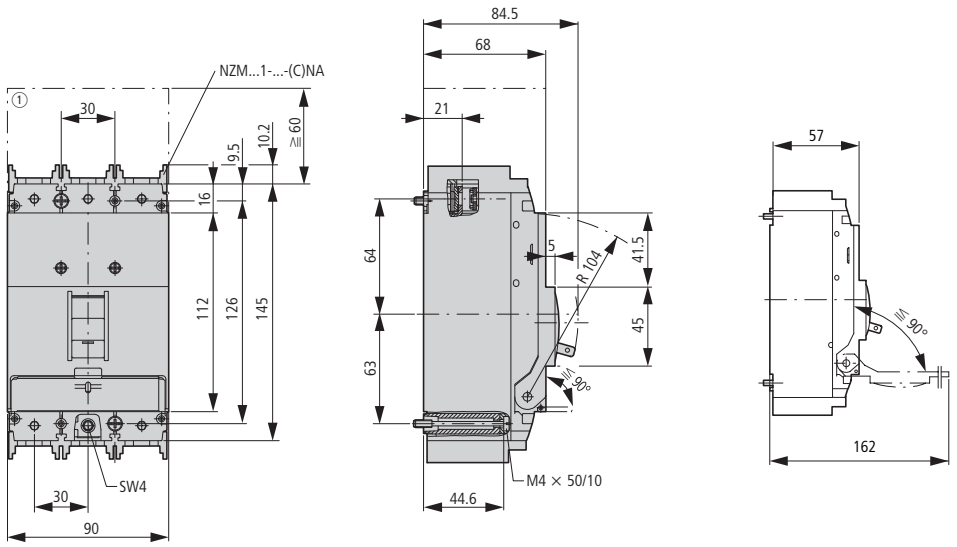
	Time difference a (ms) Manual operation HIN			Motor operators HIN			Time difference b (ms) Manual operation HIN			Motor operators HIN		
	K10	K01		K10	K01		K10	K01		K10	K01	
LZM1	0	2.5		–	–		0	2.5		–	–	
LZM2	3.5	6.5		2.5	4.5		3	4.5		3	4	
LZM3	4	8		2	4		3.5	8		3	6.5	
LZM4	7	11		on request	on request		12	15		on request	on request	

			NZM1(2/3)-XU…	NZM4-XU…		
Undervoltage release						
Rated control voltage						
Alternating voltage at 50/60 Hz	U_S	V AC	24…440	24…440		
DC	U_S	V DC	24	24		
Operating range						
Drop-out voltage		x U_S	0.35 – 0.7	0.35 – 0.7		
Pick-up voltage		x U_S	0.85 – 1.1	0.85 – 1.1		
Power consumption						
AC						
Pick-up AC		VA	1.5	3.6		
Sealing AC		VA	1.5	3.6		
DC						
Pick-up DC		W	0.8	2.5		
Sealing DC		W	0.8	2.5		
Max. opening delay (response time until the main circuits open)		ms	19	23		
Minimum command time		ms	10 – 15	10 … 15		
Terminal capacities						
Solid or flexible conductor with ferrule		mm²	1 x (0.75 … 2.5) 2 x (0.75 … 2.5)	2 x (0.75 … 2.5) 2 x (0.75 … 2.5)		
		AWG	1 x (18 … 14) 2 x (18 … 14)	1 x (18 … 14) 2 x (18 … 14)		

			NZM1(2/3)-XA…	NZM4-XA…		
Shunt release						
Rated control voltage						
AC	U_S	V AC	24…440	24…440		
DC	U_S	V DC	24	24		
Frequency range		Hz	0 – 400	0 – 400		
Operating range						
AC		x U_S	0.7…1.1	0.7…1.1		
DC		x U_S	0.7…1.1	0.7…1.1		
Power consumption						
Pick-up AC/DC		VA/W	2.5	2.5		
Sealing AC/DC		VA/W	2.5	2.5		
Max. opening delay (response time until the mein circuits open)		ms	20	22		
Duty factor		ms	∝	∝		
Minimum command time		ms	10 … 15	10 … 15		
Terminal capacities						
Solid or flexible conductor with ferrule		mm²	21 x (0.75 … 2.5) 2 x (0.75 … 2.5)	1 x (0.75 … 2.5) 2 x (0.75 … 2.5)		
		AWG	1 x (18 … 14) 2 x (18 … 14)	1 x (18 … 14) 2 x (18 … 14)		

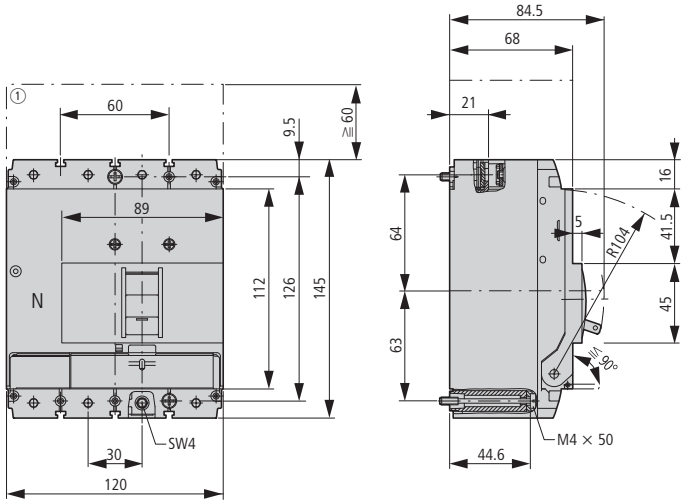
				NZM2-XR...	NZM3-XR...	NZM4-XR...	
Remote operator							
Rated control voltage							
AC		U_S	V AC	208…440	208…440	208…440	
DC		U_S	V DC	24	24	24	
Operating range							
AC		U_S		0.85…1.1	0.85…1.1	0.85…1.1	
DC		U_S		0.85…1.1	0.85…1.1	0.85…1.1	
Motor rating							
AC	208 … 240 V AC		VA	350	350	350	
	380 … 440 V AC		VA	350	350	350	
DC	24 … 30 V DC		W	250	250	250	
Rated power of coil							
AC	208 … 240 V AC		VA	270	270	270	
	380 … 440 V AC		VA	270	270	270	
DC	24 … 30 V DC		W	210	210	210	
Total make time			ms	60	80	100	
Total opening delay			ms	300	1000	3000	
Minimum signal duration							
with switch on			ms	30	30	30	
with switch off			ms	150	250	500	
Lifespan, mechanical			Opera-tions	20000	15000	10000	
Maximum operating frequency			Ops./h	120	60	20	
Terminal capacities							
Solid or flexible conductor with ferrule			mm²	0.75 … 2.5	0.75 … 2.5	0.75 … 2.5	
			AWG	18 … 14	18 … 14	18 … 14	

Circuit-breaker
3 pole
LZMB1
LZMC1
LZMN1
LN1



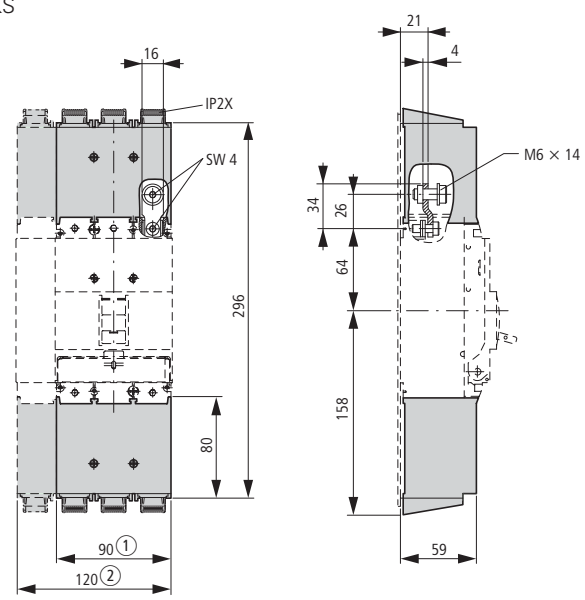
① Blow out area, minimum clearance to other parts > 60 mm

Circuit-breaker
4 pole
LZMB1-4
LZMC1-4
LZMN1-4
LN1-4



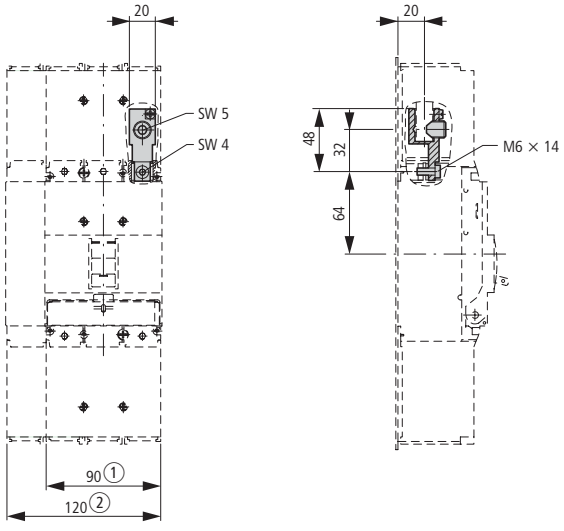
① Blow out area, minimum clearance to other parts > 60 mm

Covers
NZM1(-4)-XKSA
Screws connection
NZM1(-4)-XKS



① 3 pole
② 4 pole

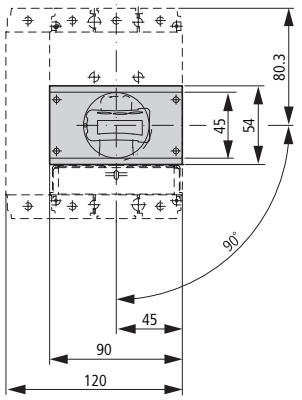
Tunnel terminal
NZM1(-4)-XKA

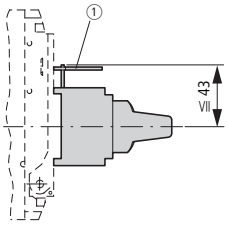


① 3 pole
② 4 pole

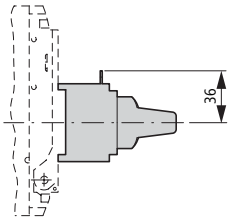
Rotary drive
Rotary handle on circuit-breaker

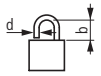
NZM1-XDV
NZM1-XDVR





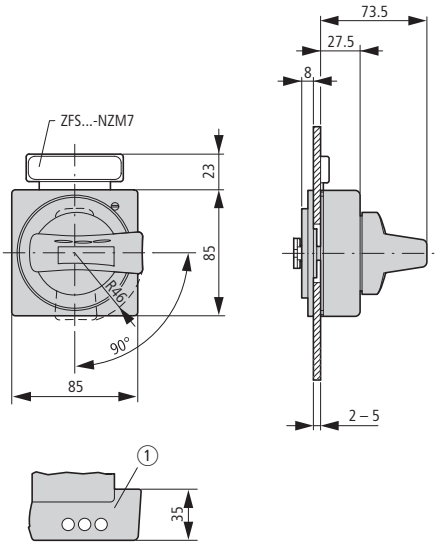
NZM1-XDTV

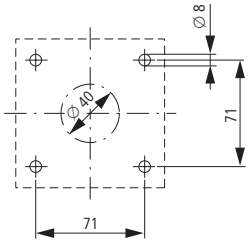


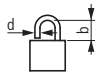


① Up to 3 padlocks

Door coupling rotary handle
NZM1-XTVD(R)

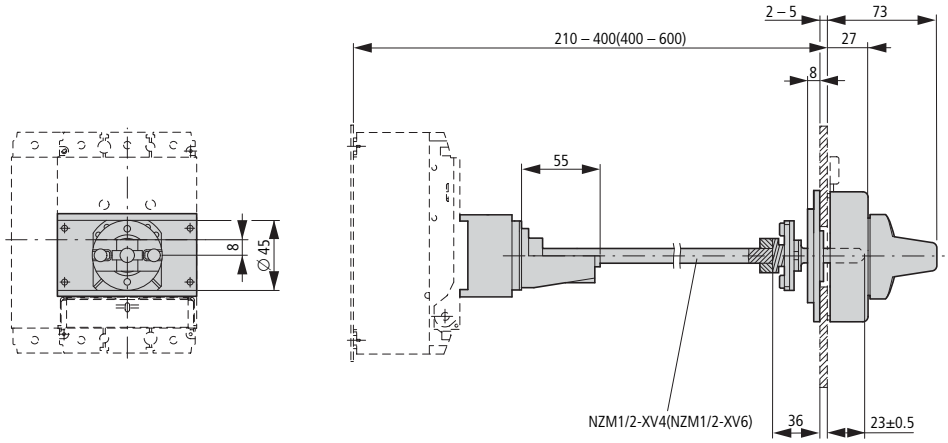




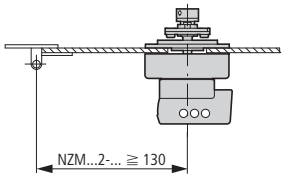


① Up to 3 padlocks

Door coupling rotary handle with extension shaft
NZM1-XTVD(V)(R)
NZM1/2-XV4(6)

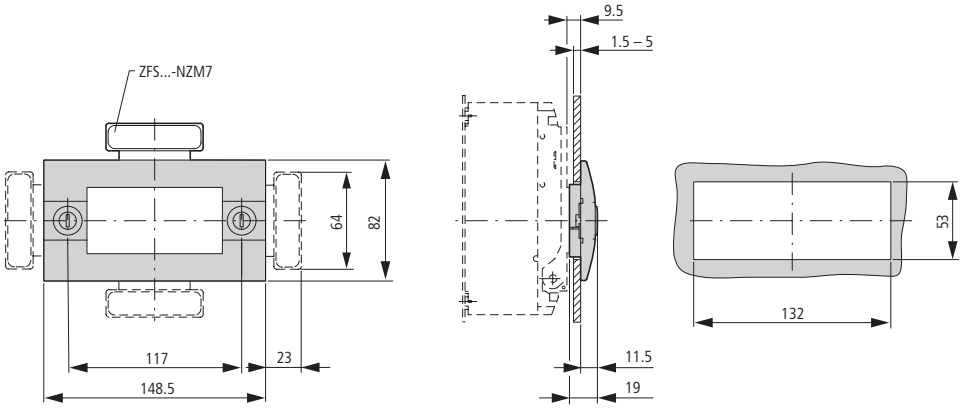


Minimum door coupling rotary handle clearance from door pivot point



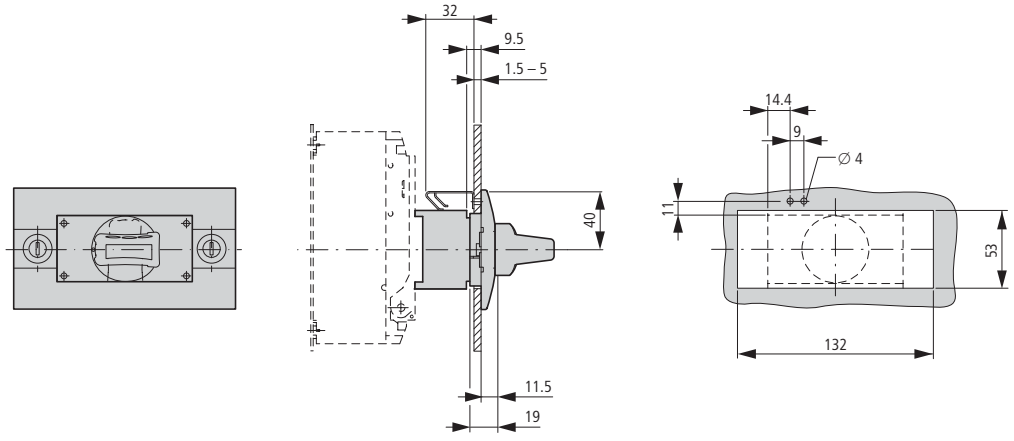
Insulating surrounds
NZM1-XBR

① Mounting aperture

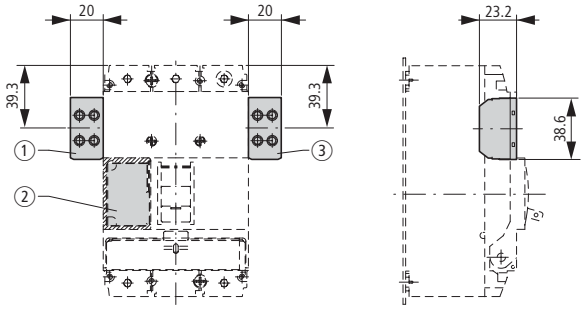


Rotary handle on switch with door interlock
NZM1-XDTV(R)

① Mounting aperture

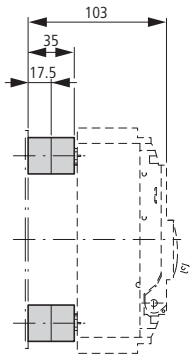


Undervoltage release
Shunt release
Early-make auxiliary contacts

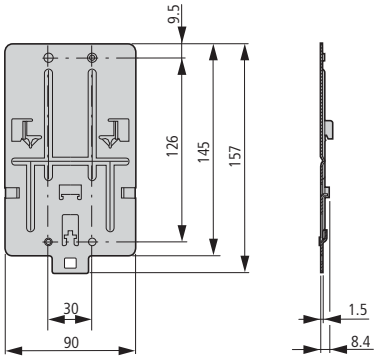


①
NZM1-XA(HIV)
NZM1-XU(HIV)(20)
NZM1-XHIV
②
NZM1-XA(HIV)(L)
NZM1-XU(V)(HIV)(L)(20)
NZM1-XHIV(L)
③
NZM1-XHIVR

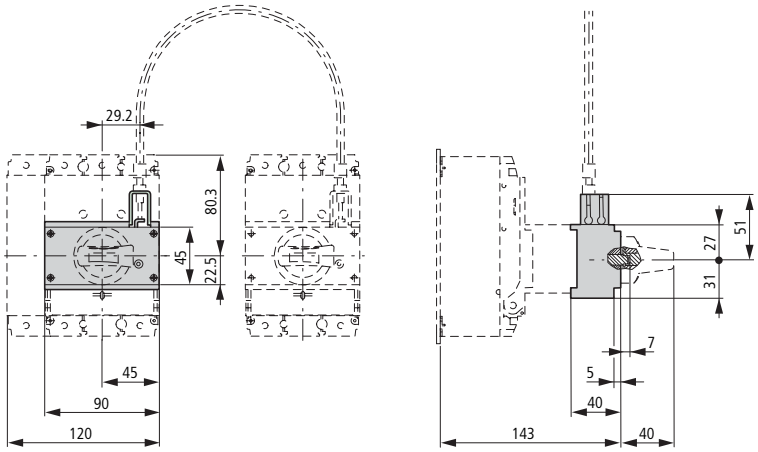
Spacers
NZM1/2-XAB



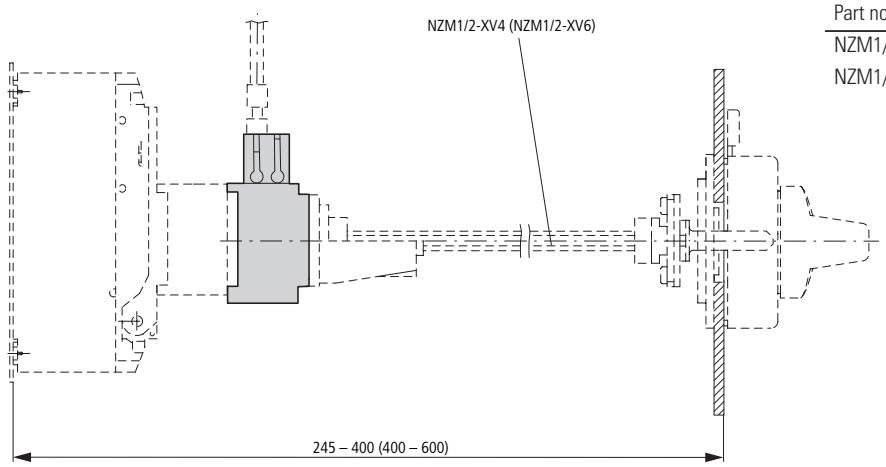
Clip plate
NZM1-XC35



Mechanical interlock
NZM1-XMV + NZM1-XDV(R)

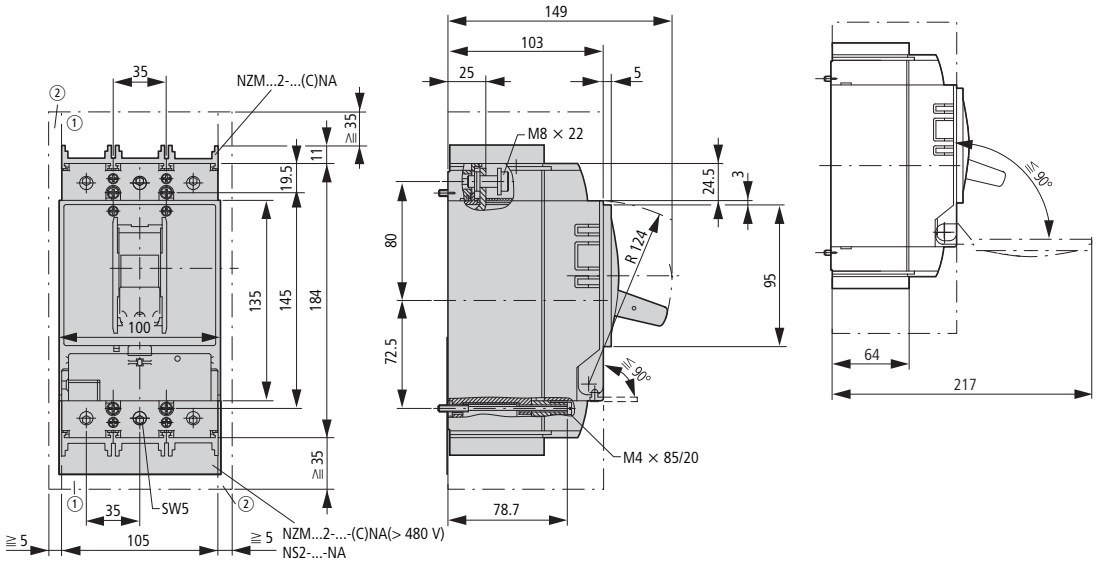


NZM1-XMV + NZM1-XTVD(V)(R)



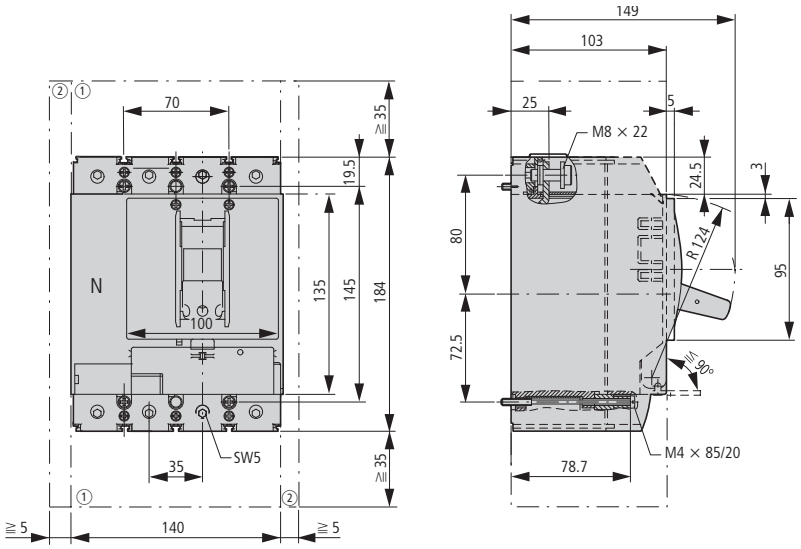
Part no.	x
NZM1/2-XV4	245 – 400
NZM1/2-XV6	400 – 600

Circuit-breaker
3 pole
LZMB2
LZMC2
LZMN2
LN2



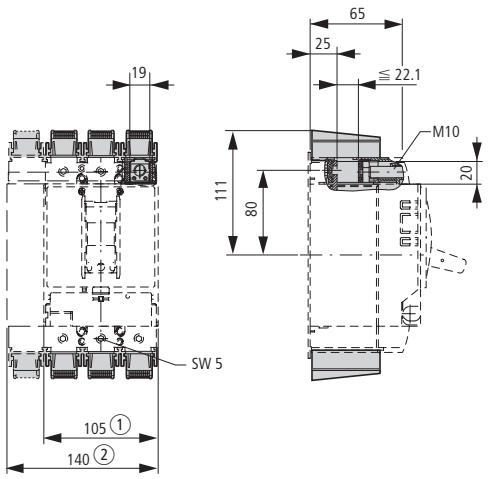
① Blow out area, minimum distance to other parts ≧ 35 mm
② Minimum distance to adjacent parts ≧ 5 mm

Circuit-breaker
4 pole
LZMB2-4
LZMC2-4
LZMN2-4
LN2-4

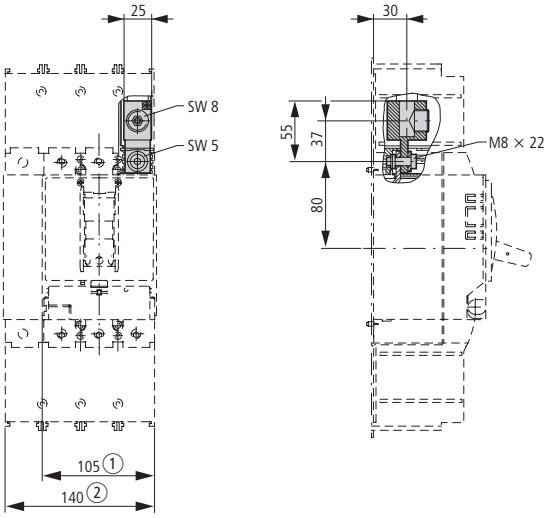


① Blow out area, minimum distance to other parts ≧ 35 mm
② Minimum distance to adjacent parts ≧ 5 mm

Box terminal
(+)NZM2(-4)-...-XKC(O)(U)

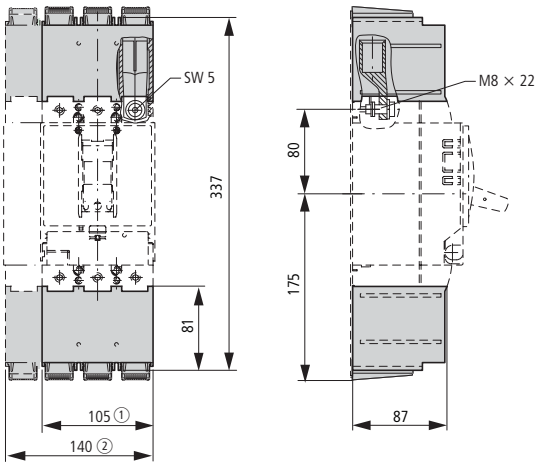


Tunnel terminal
NZM2(-4)-XKA



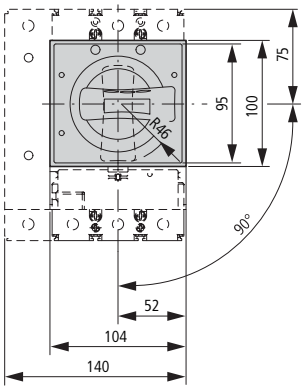
① 3 pole
② 4 pole

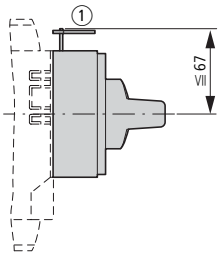
Covers
NZM2(-4)-XKSA
Cable lug
NZM2-XKS185
IP2X protection against contact with a finger for shroud
NZM2(-4)-XIPA



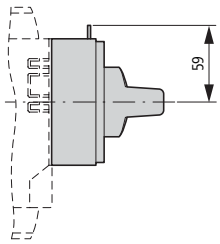
Rotary drive
Rotary handle on circuit-breaker

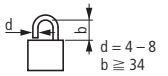
NZM2-XDV





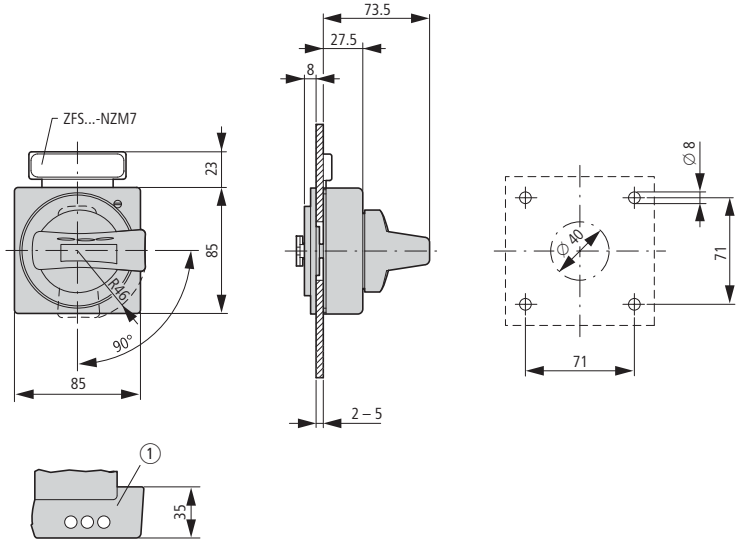
NZM2-XDTV

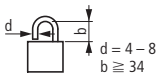




① Up to 3 padlocks

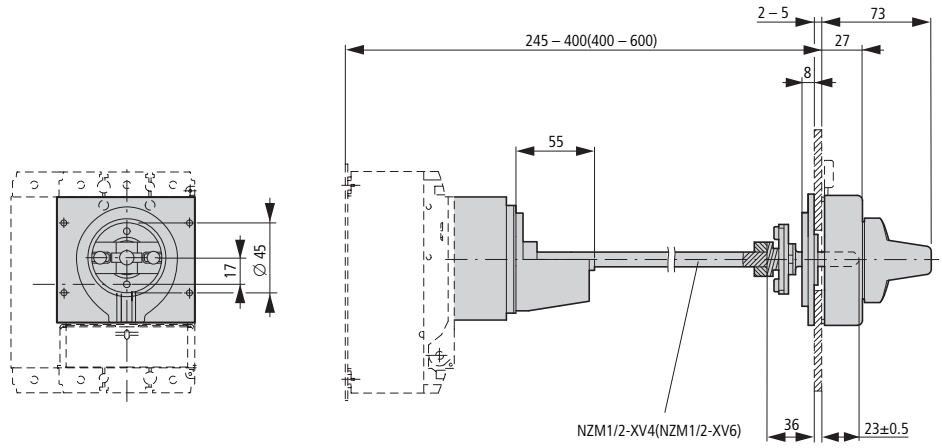
Door coupling rotary handle
NZM2-XTVD(V)(R)...



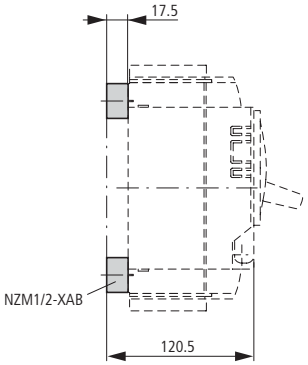


① Up to 3 padlocks

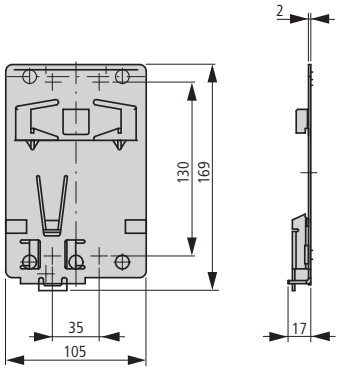
Door coupling rotary handle with extension shaft
NZM2-XTVD(V)(R)
NZM1/2-XV4(6)



Spacers
NZM1/2-XAB

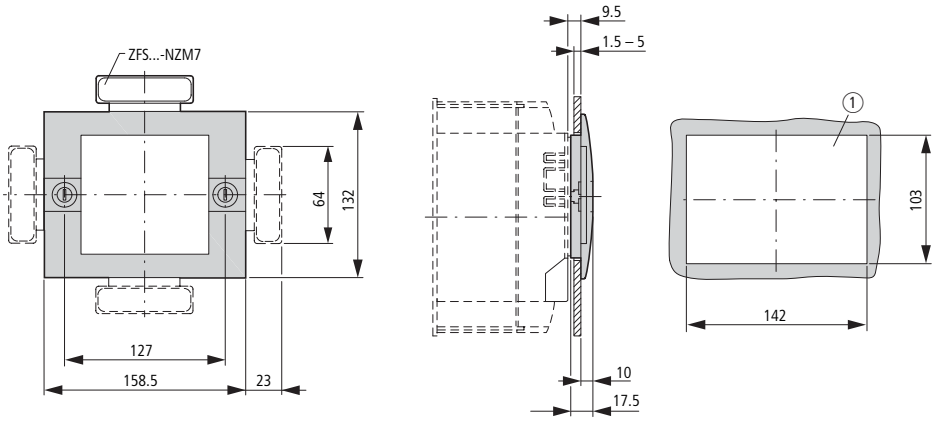


Clip plate
NZM2-XC75



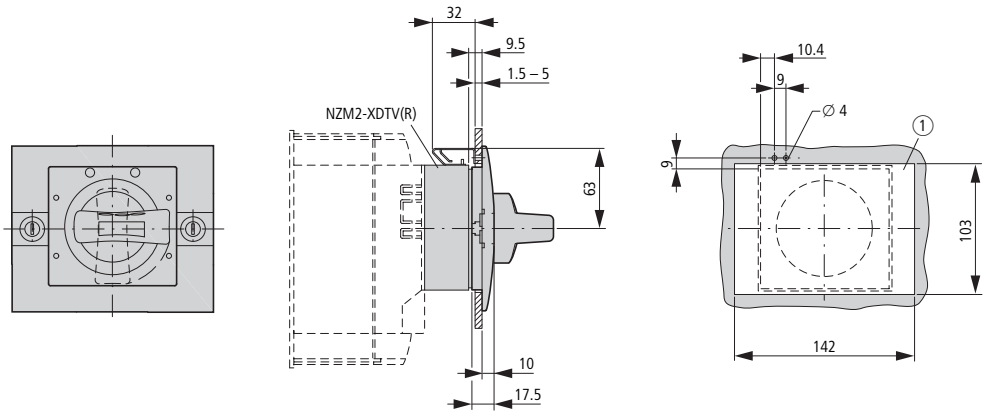
Insulating surrounds
NZM2-XBR

① Mounting aperture

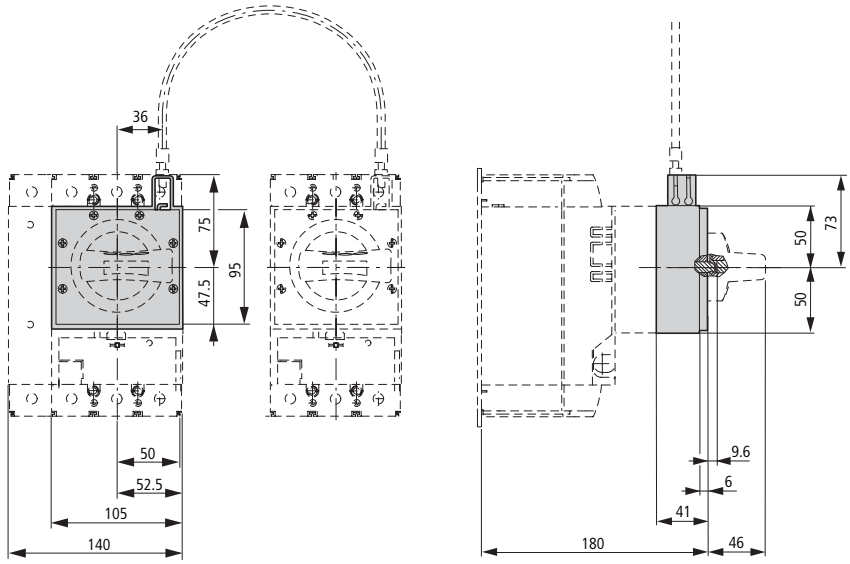


Rotary handle on switch with door interlock
NZM2-XDTV(R)

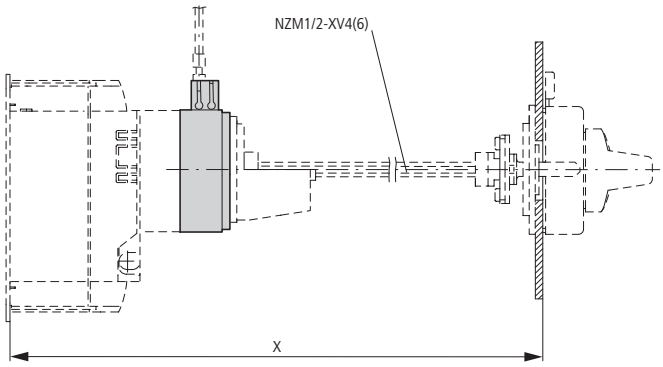
① Mounting aperture



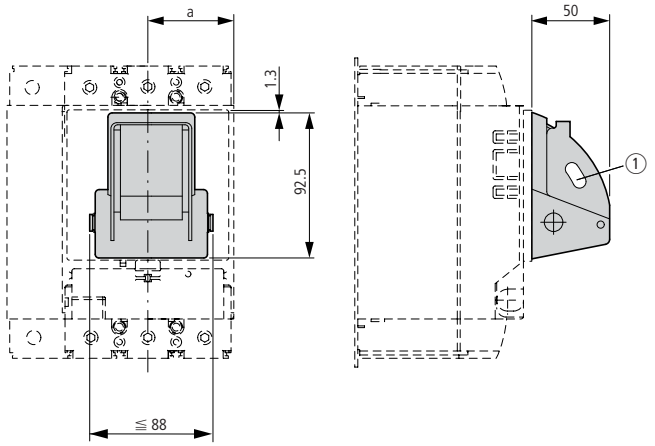
Mechanical interlock
NZM2-XMV + NZM2-XD

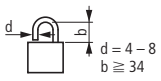


NZM2-XMV + NZM2-XTVD(V)(R)



Toggle lever locking device
NZM2/3-XKAV

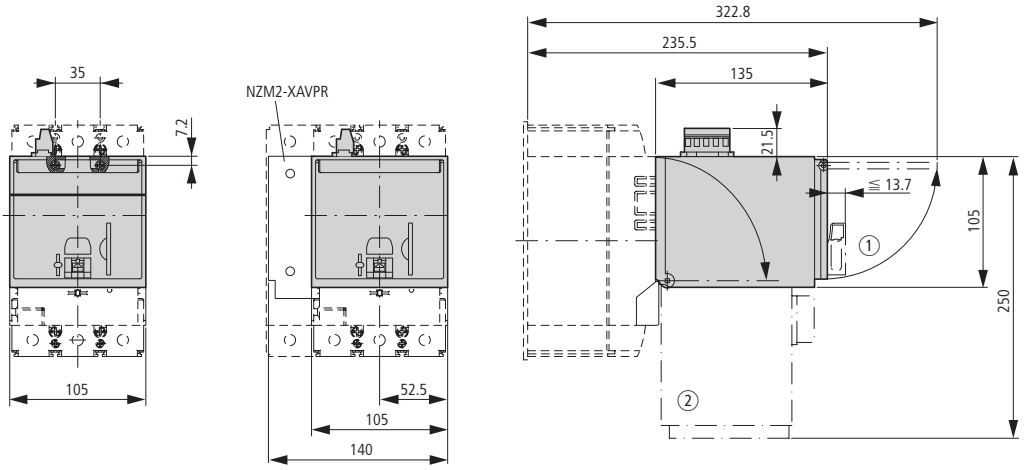




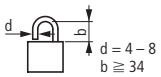
① Up to 3 padlocks

Part no.	a
LZM2	52.5
LZM3	70

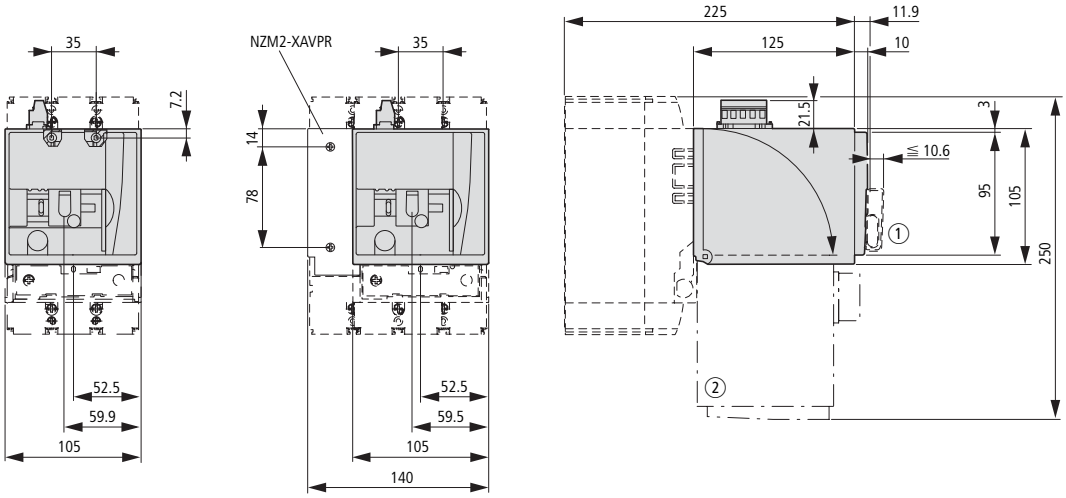
Remote operator
NZM2-XR...



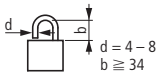
① Up to 3 padlocks
② Remote operator hinged



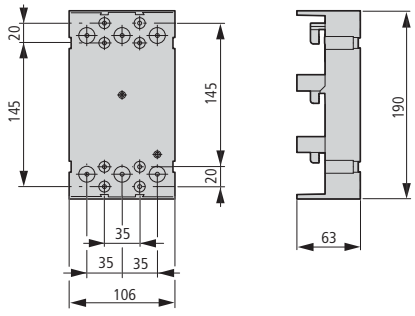
NZM2-XRD...



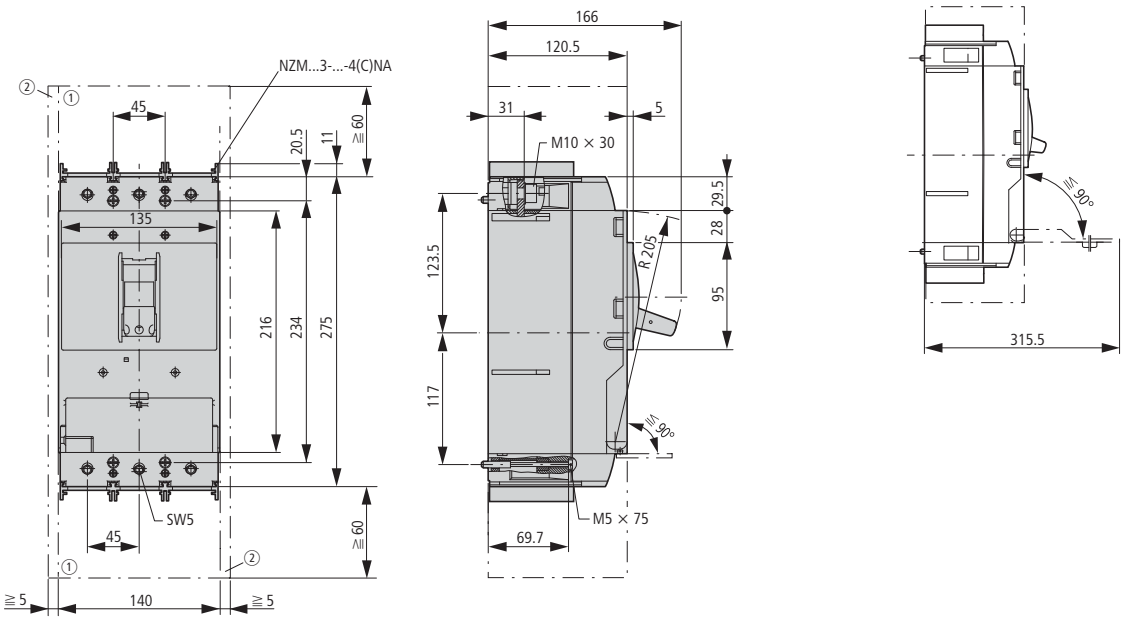
① Up to 3 padlocks
② Remote operator hinged



Component adapter
NZM2-XAD250

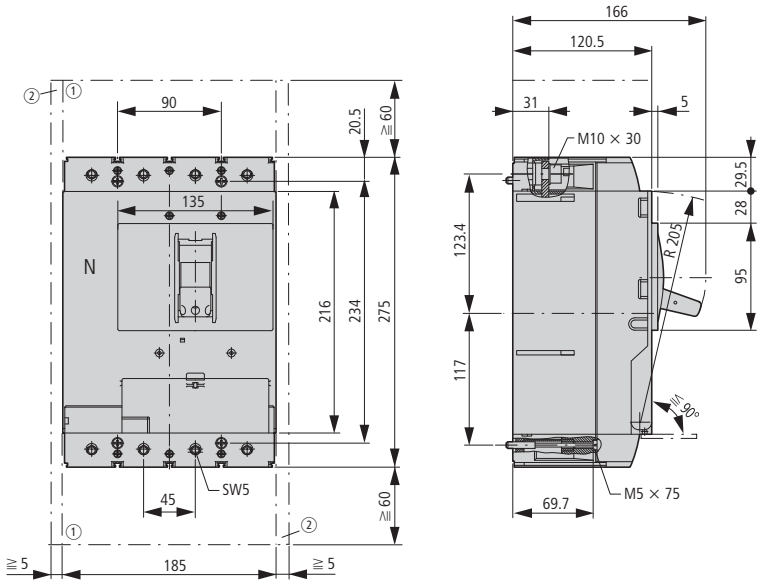


Circuit-breaker
3 pole
LZMC3
LZMN3
LN3



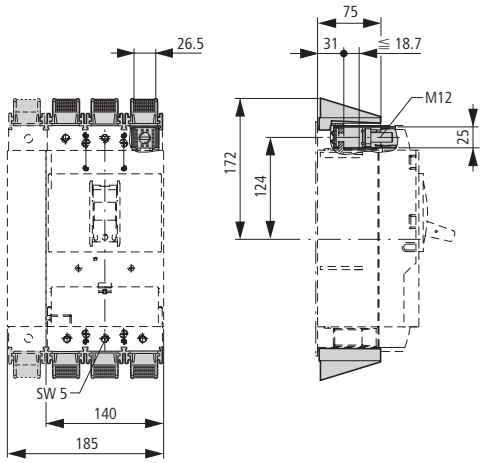
① Blow-out space, minimum distance to other parts ≧ 60 mm
② Minimum distance to adjacent parts ≧ 5 mm

Circuit-breaker
4 pole
LZMC3-4
LZMN3-4
LN3-4

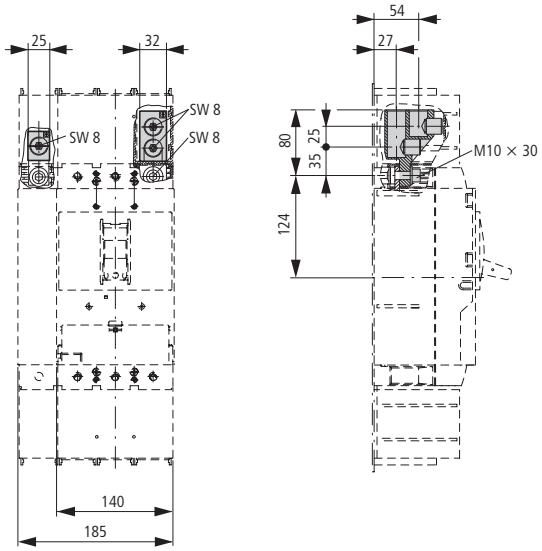


① Blow out area, minimum distance to other parts ≧ 35 mm
② Minimum distance to adjacent parts ≧ 5 mm

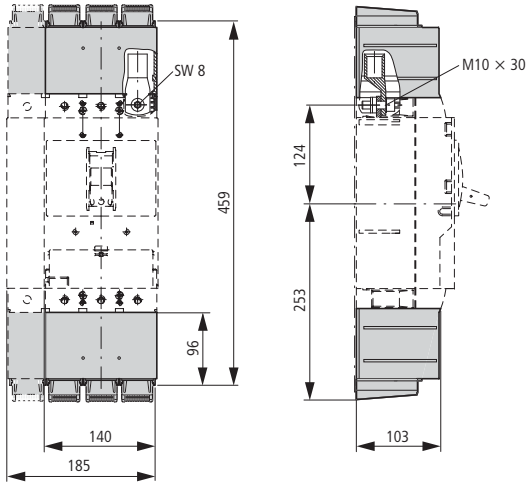
Box terminal
(+)NZM3(-4)-XKC(O)(U)



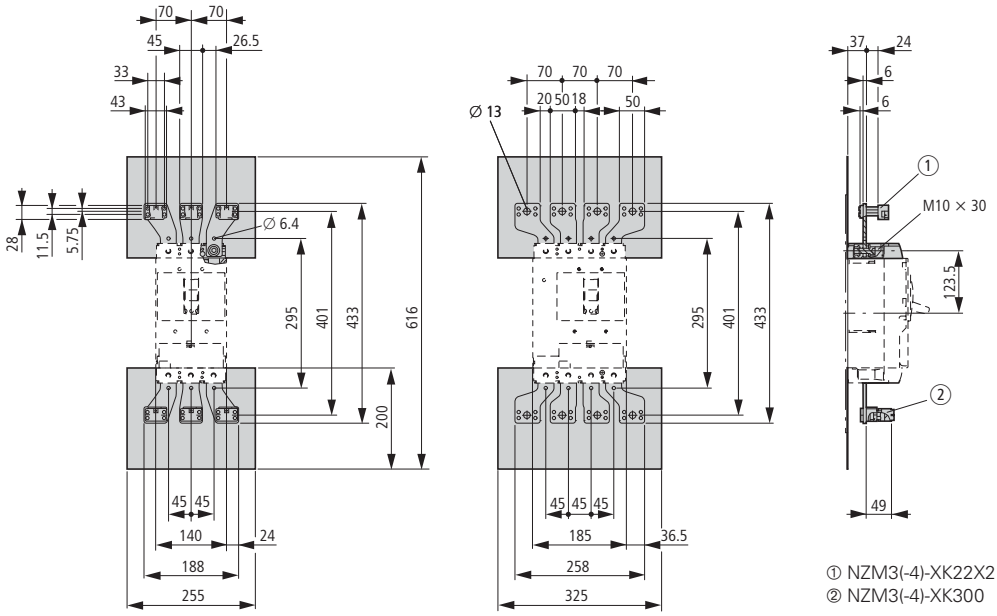
Tunnel terminal
NZM3(-4)-XKA1(2)



Covers
NZM3(-4)-XKSA
Cable lug
NZM3-XKS185

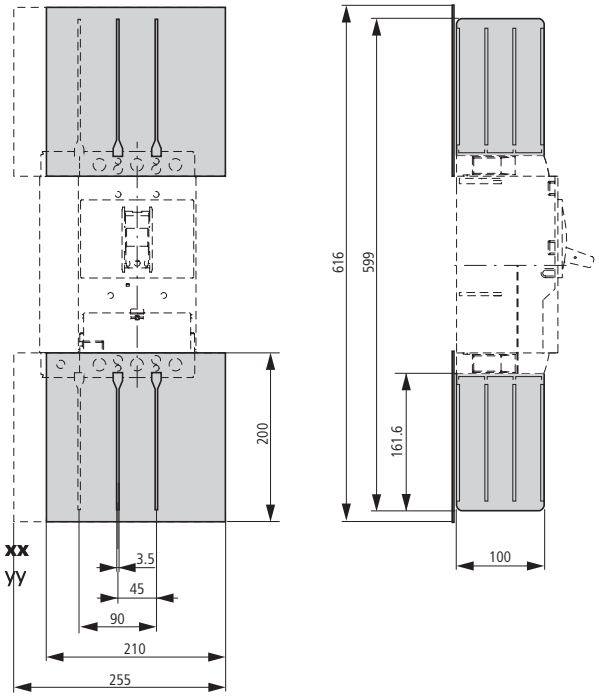


Connection width extension
NZM3(-4)-XKV70

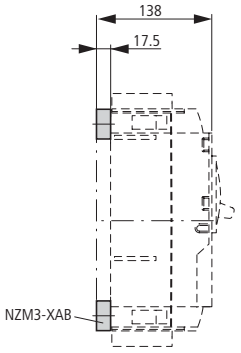


① NZM3(-4)-XK22X21
② NZM3(-4)-XK300

Phase isolators
NZM3-4-XKP

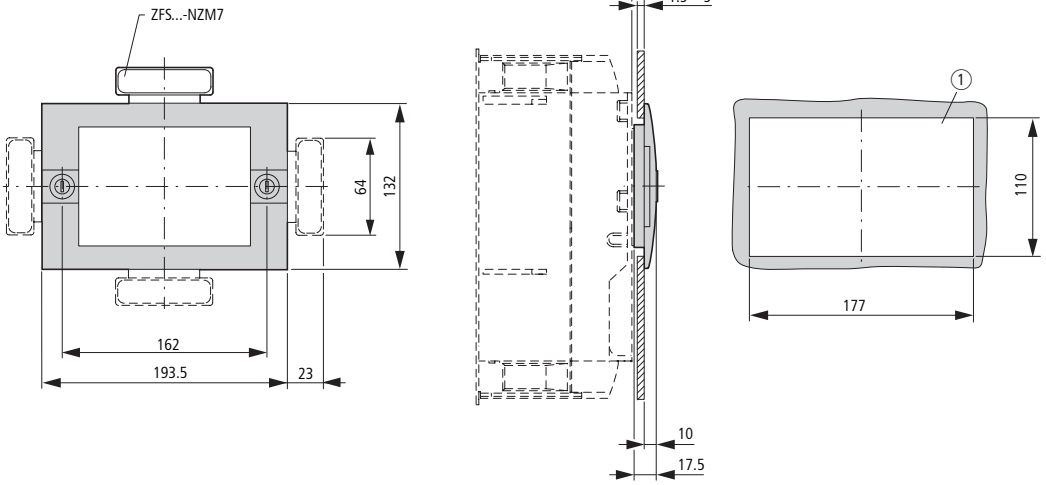


Spacers
NZM3-XAB



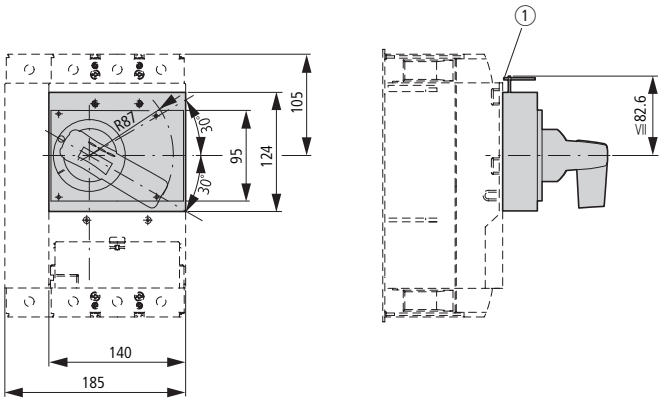
Insulating surrounds
NZM3-XBR

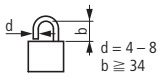
① Mounting aperture



Rotary drive
Rotary handle on circuit-breaker

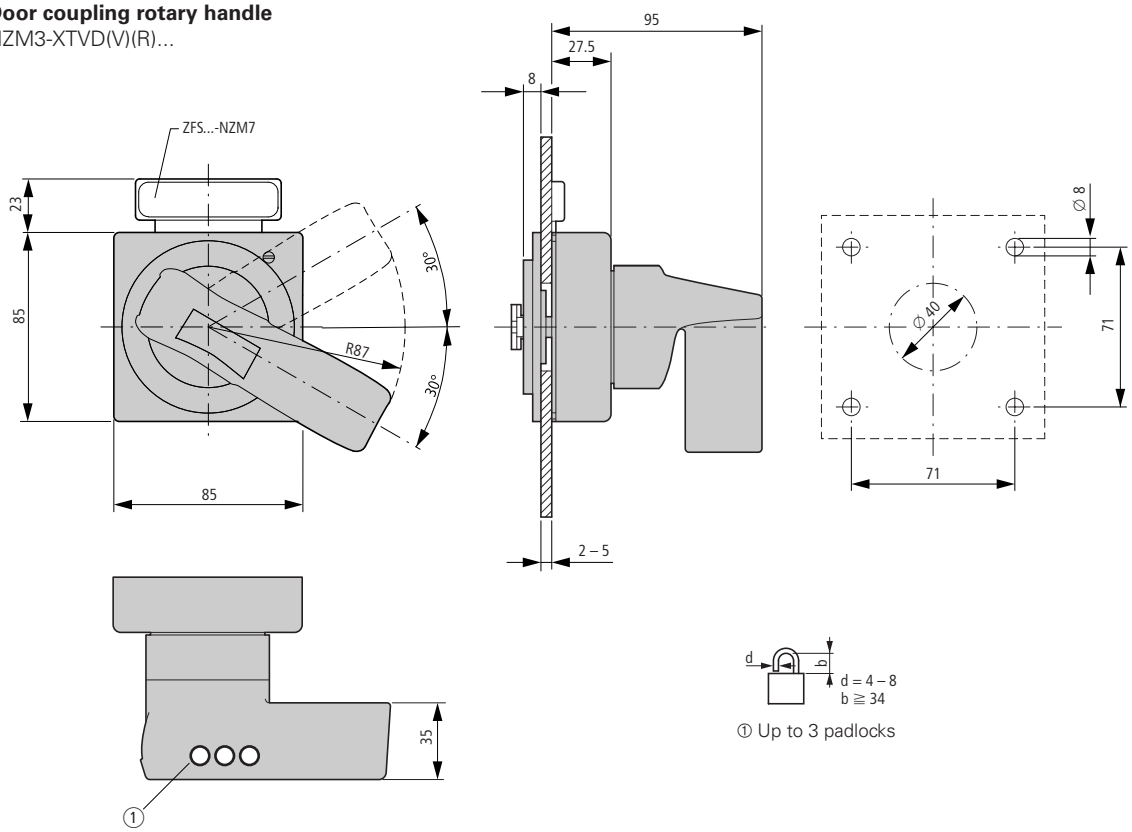
NZM3-XDV





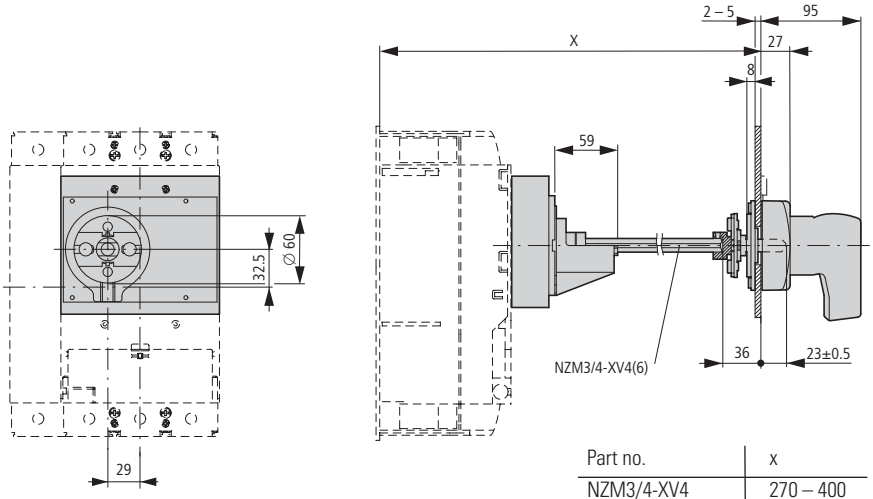
① Up to 3 padlocks

Door coupling rotary handle
NZM3-XTVD(V)(R)...



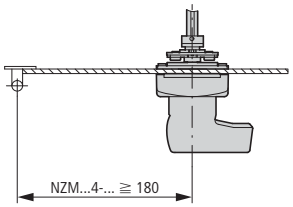
① Up to 3 padlocks

Door coupling rotary handle with extension shaft
NZM3-XTVD(V)(R)
NZM3/4-XV4(6)

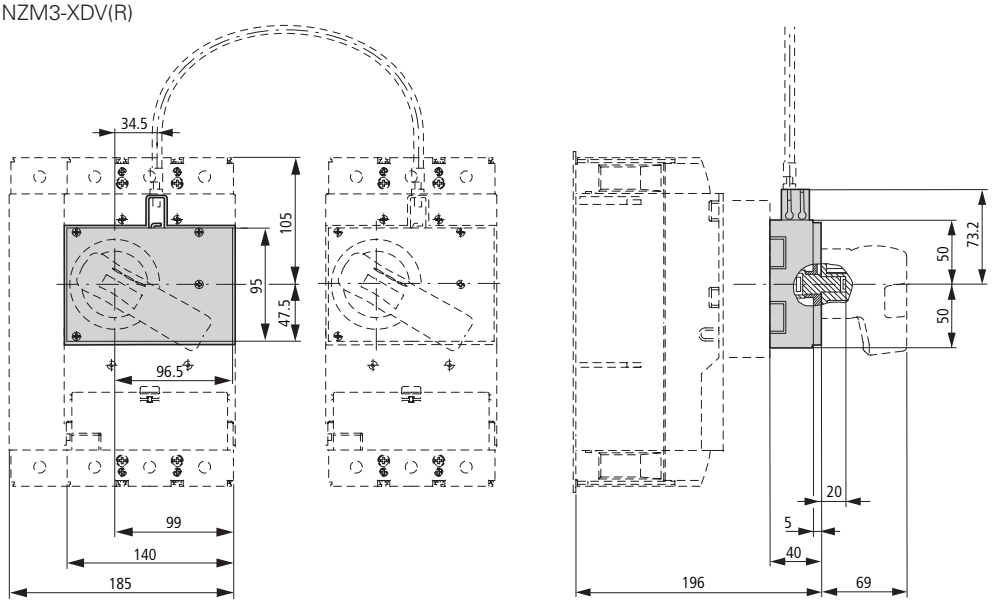


Part no.	x
NZM3/4-XV4	270 – 400
NZM3/4-XV6	400 – 600

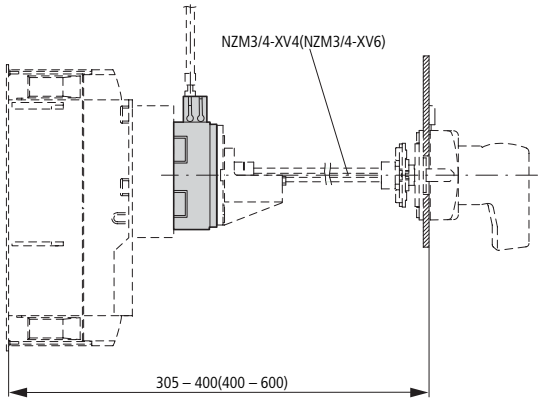
Minimum door coupling rotary handle clearance from door pivot point



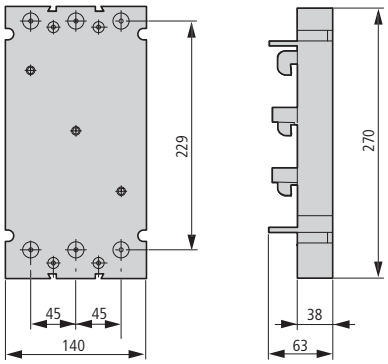
Mechanical interlock
NZM3-XMV + NZM3-XDV(R)



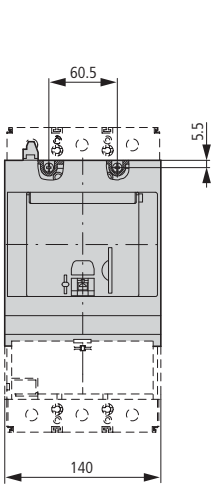
NZM3-XMV + NZM3-XTVD(V)(R)

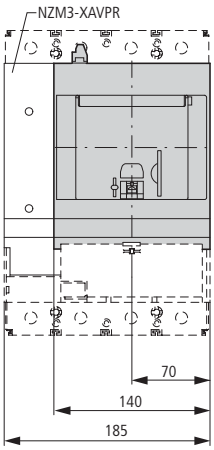


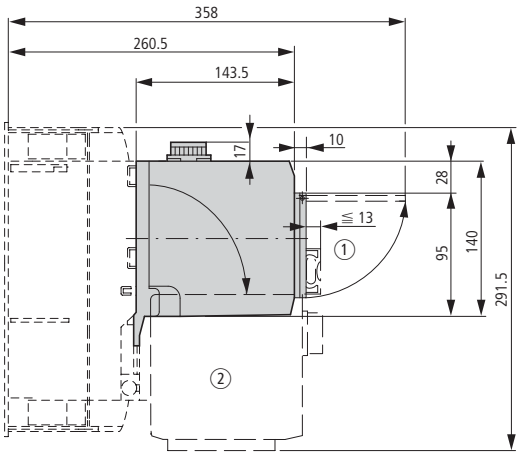
Component adapter
NZM3-XAD550

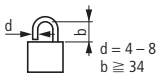


Remote operator
NZM3-XR...



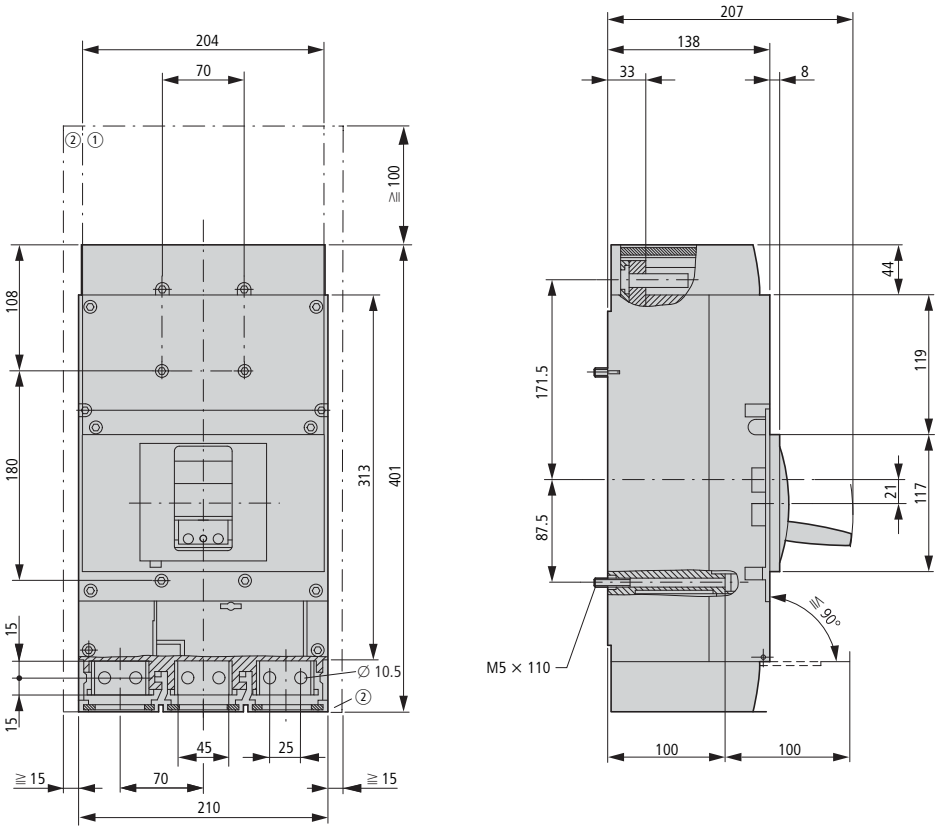






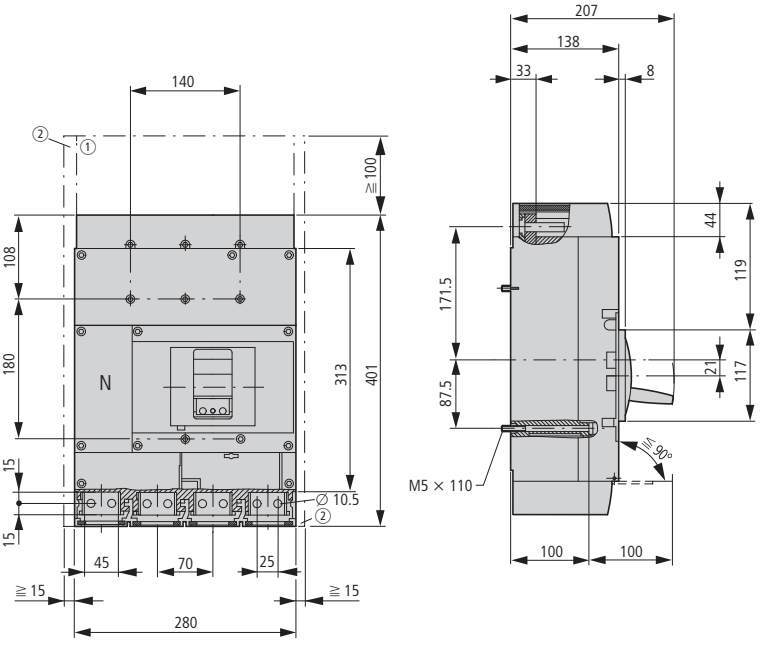
① Up to 3 padlocks

Circuit-breaker
3 pole
LZMN4
LN4



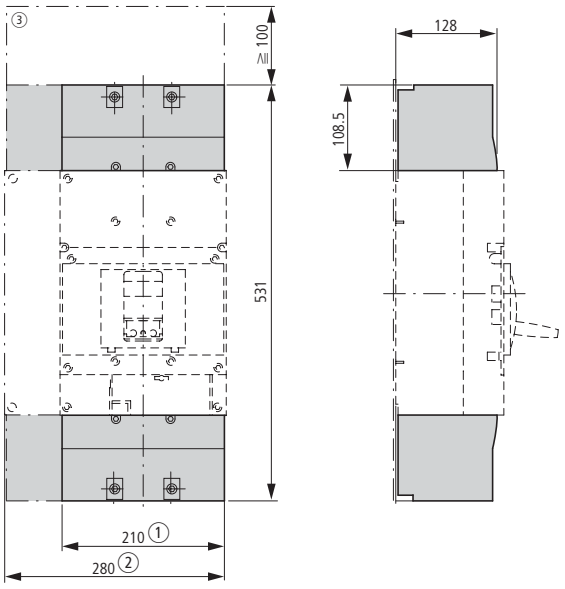
① Blow out area, minimum distance to other parts ≧ 100 mm up to 690 V
② Minimum distance to adjacent parts ≧ 5 mm

Circuit-breaker
4 pole
LZMN4-4
LN4-4

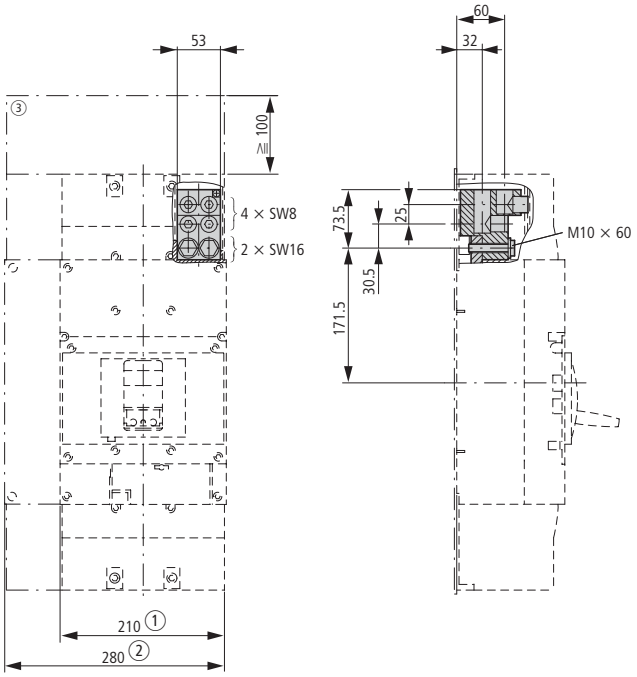


① Blow out area, minimum distance to other parts ≧ 100 mm up to 690 V
② Minimum distance to adjacent parts ≧ 5 mm

Covers
NZM4(-4)-XKSA



Tunnel terminal
NZM4-4-XKA



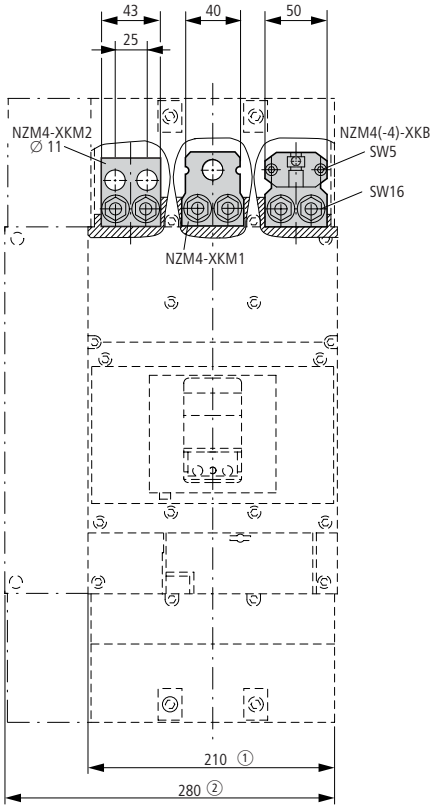
① 3 pole
② 4 pole
③ Clearance from conductive parts ≧ 100 mm up to 690 V

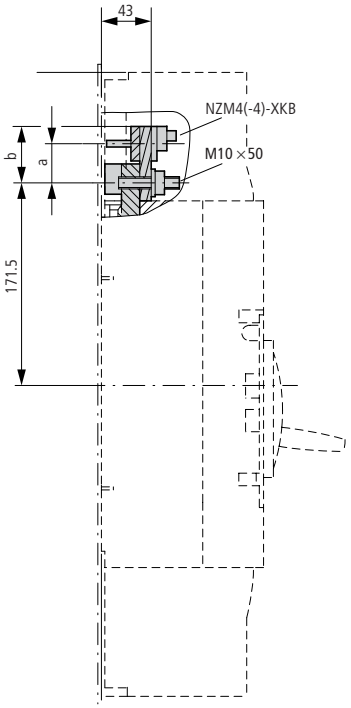
Screw connection

Module plate
Single hole
NZM4(-4)-XKM1
2-hole
NZM4(-4)-XKM2

Flat cable terminal
NZM4(-4)-XKB

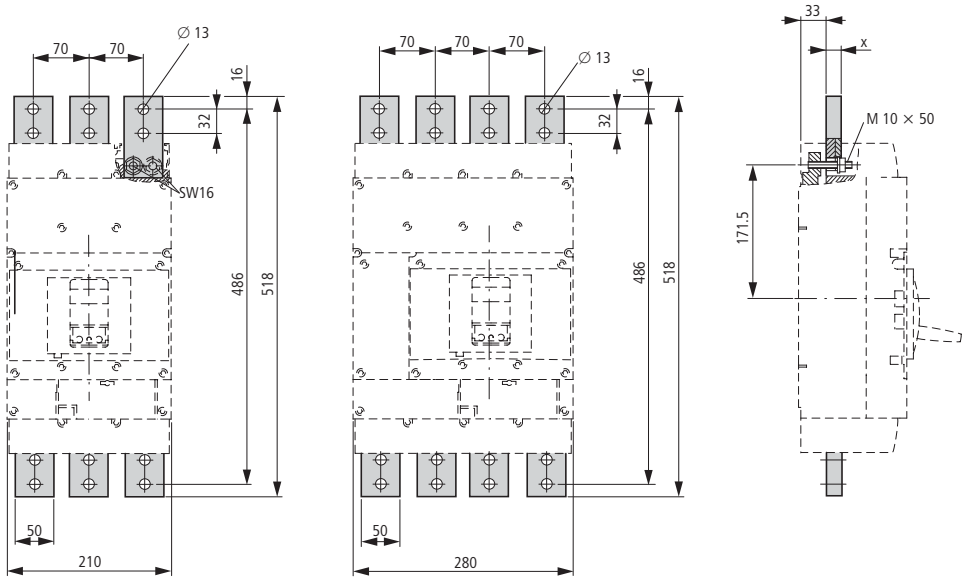
Part no.	a	b
NZM4(-4)-XKM	136	47
NZM4(-4)-XKM	232	40
NZM4(-4)-XKB	–	47





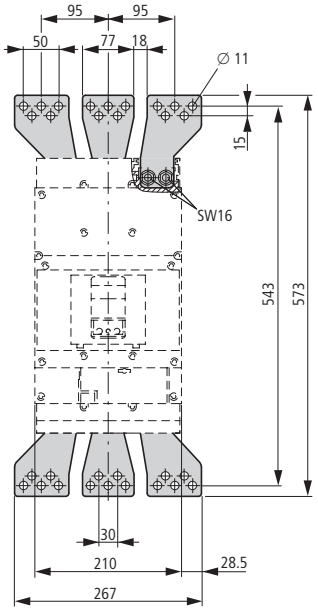
① 3 pole
② 4 pole
③ Clearance from conductive parts ≧ 100 mm up to 690 V

Module plate
2 holes, vertical
NZM4(-4)-XKM2S...

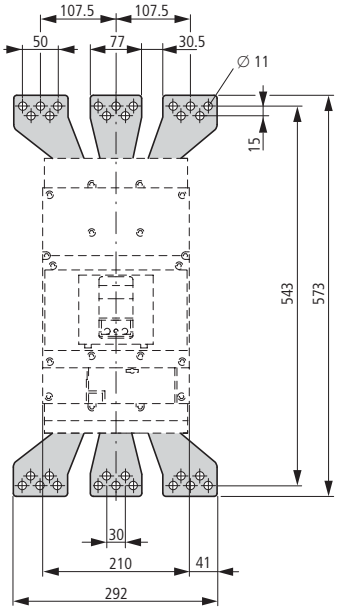


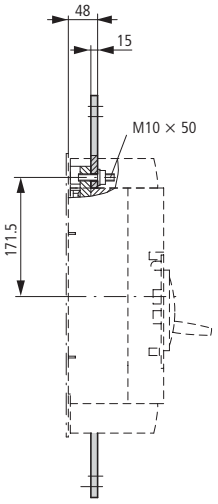
Part no.	x
NZM4(-4)-XKM2S-1250	12
NZM4(-4)-XKM2S-1600	20

Connection width extension
NZM4-XKV95

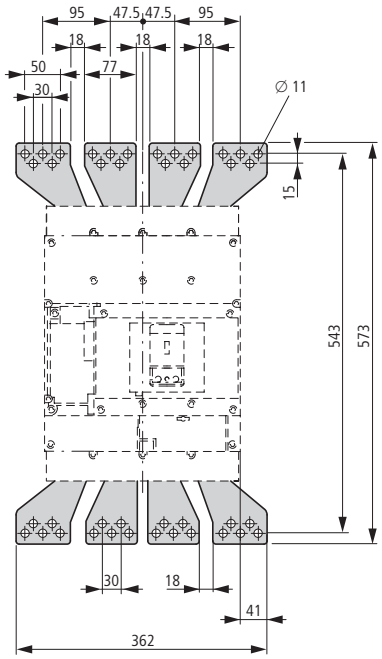


NZM4-XKV110

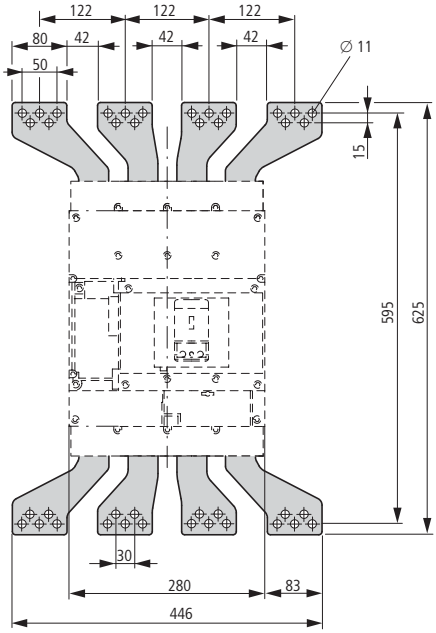


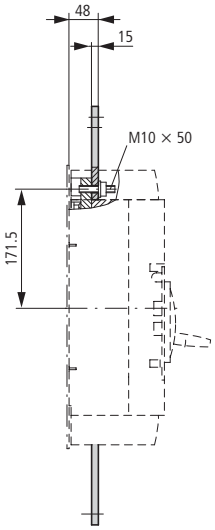


NZM4-4-XKV95



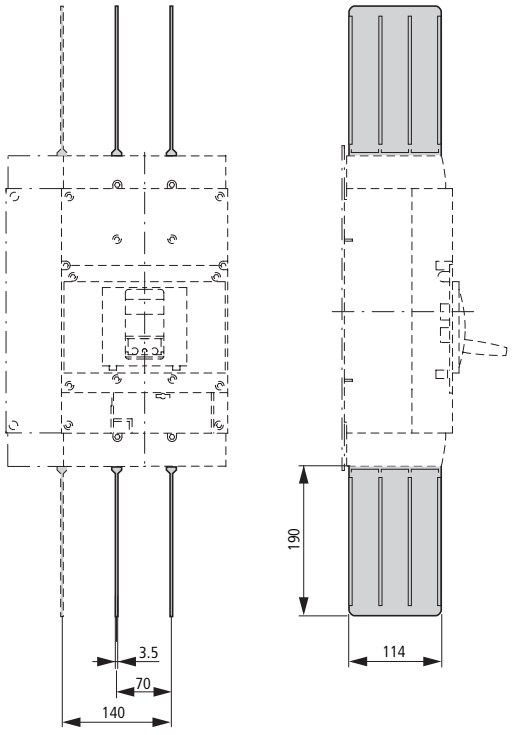
NZM4-4-XKV120



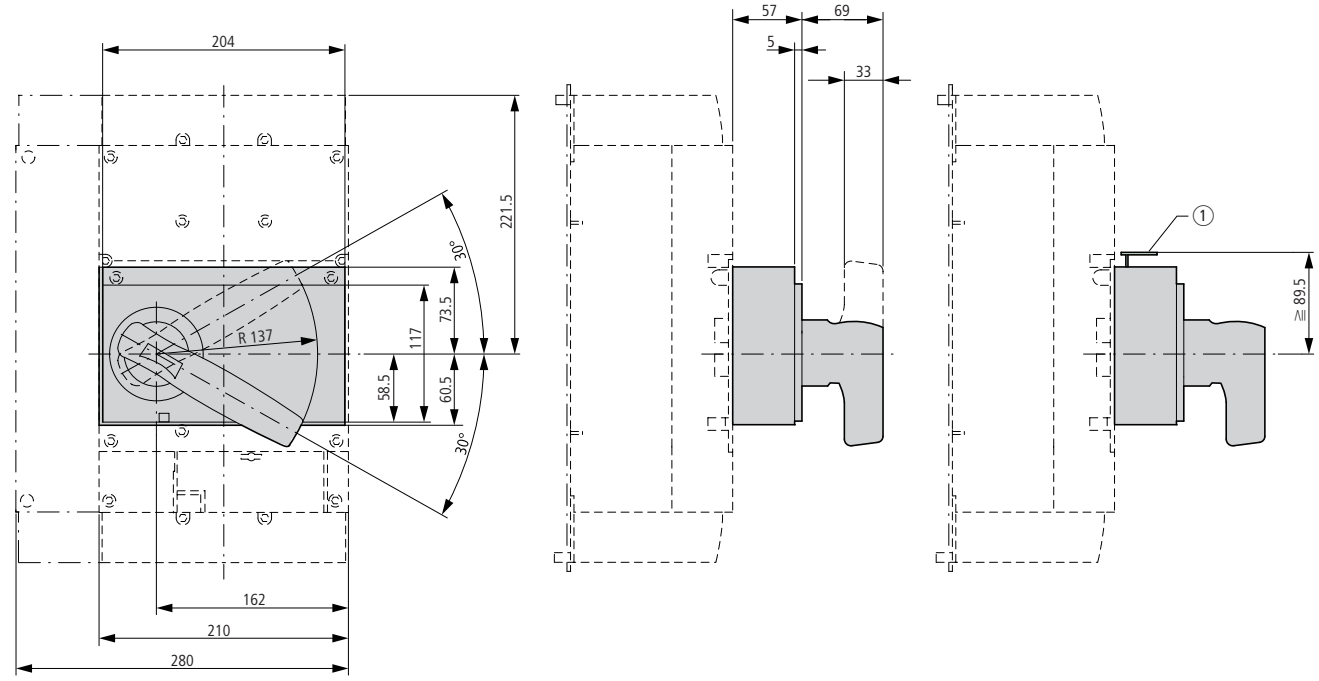


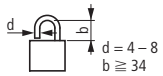
Phase isolators

NZM4–4-XKP



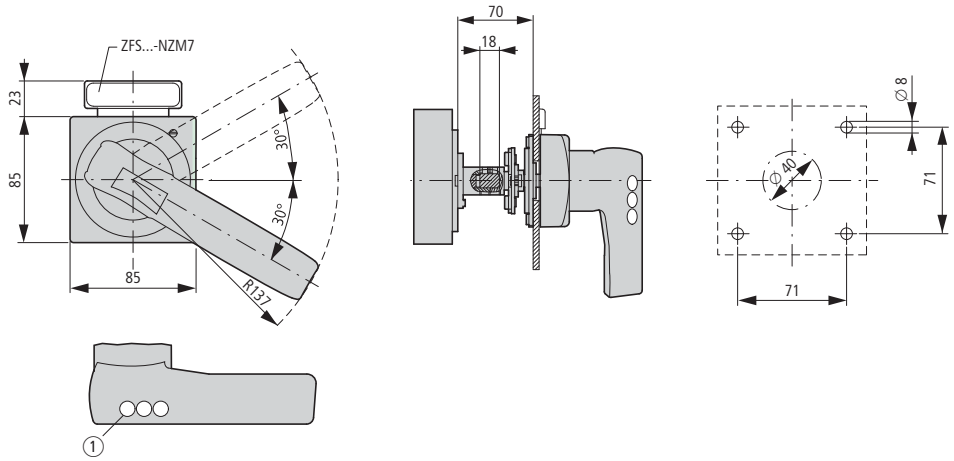
Rotary handle on circuit-breaker
NZM4-XDV(R)

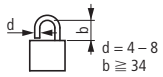




① Up to 3 padlocks

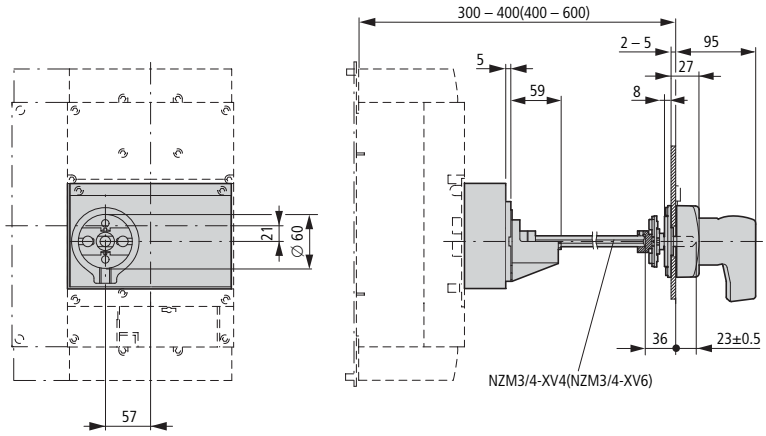
Door coupling rotary handle
NZM4-XTVD(V)(R)...



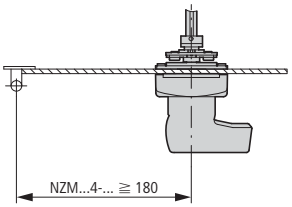


① Up to 3 padlocks

Door coupling rotary handle with extension shaft
NZM4-XTVD(V)(R)
NZM3/4-XV4(6)

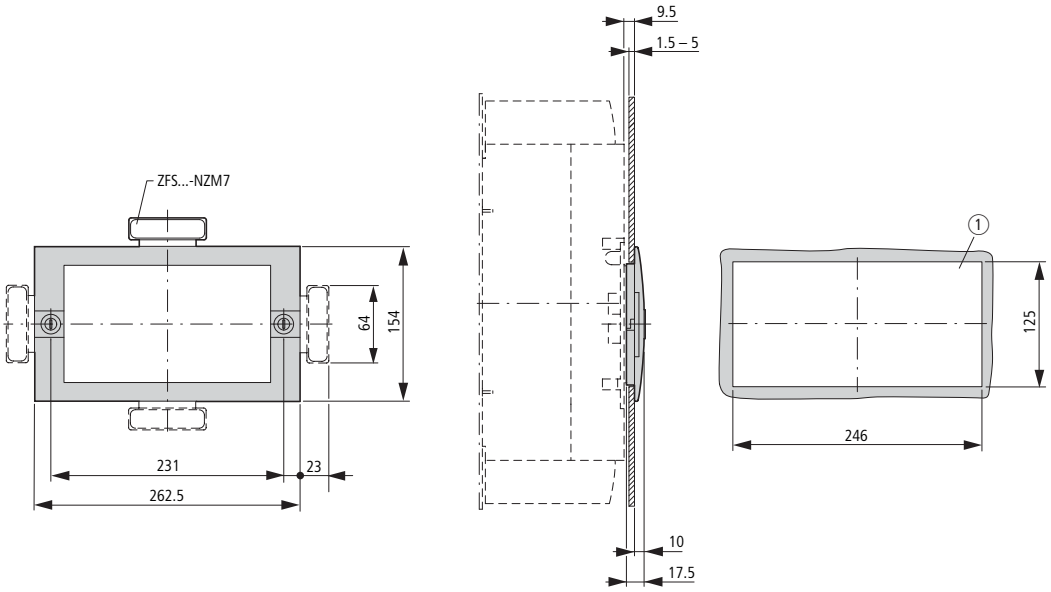


Minimum door coupling rotary handle clearance from door pivot point

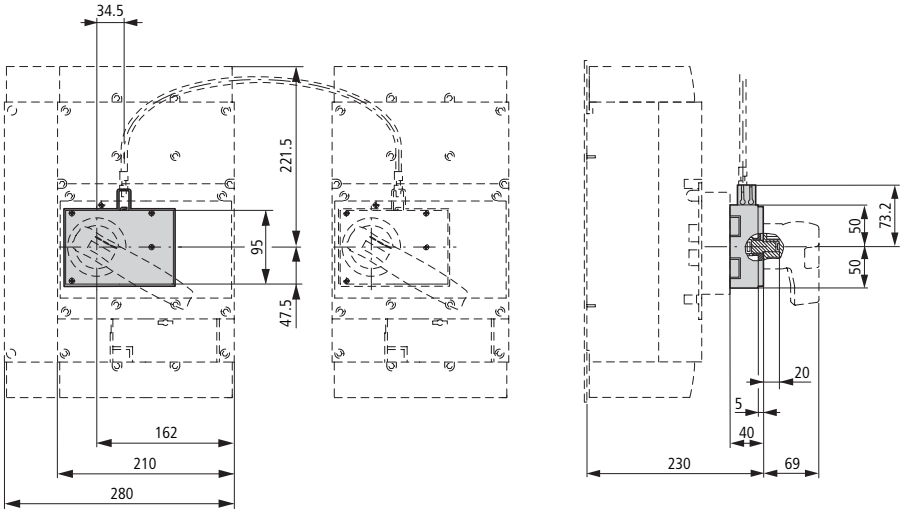


Insulating surrounds
NZM4-XBR

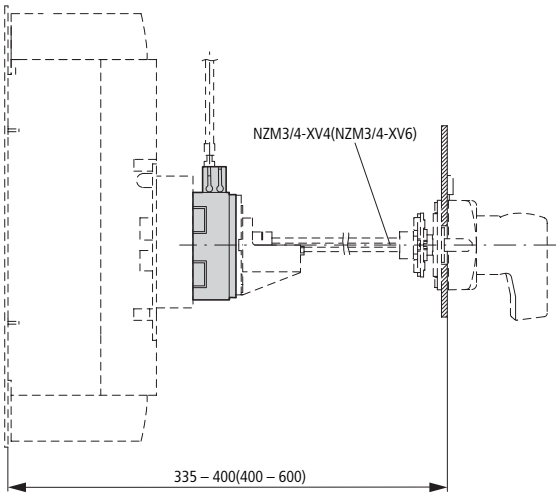
① Mounting aperture



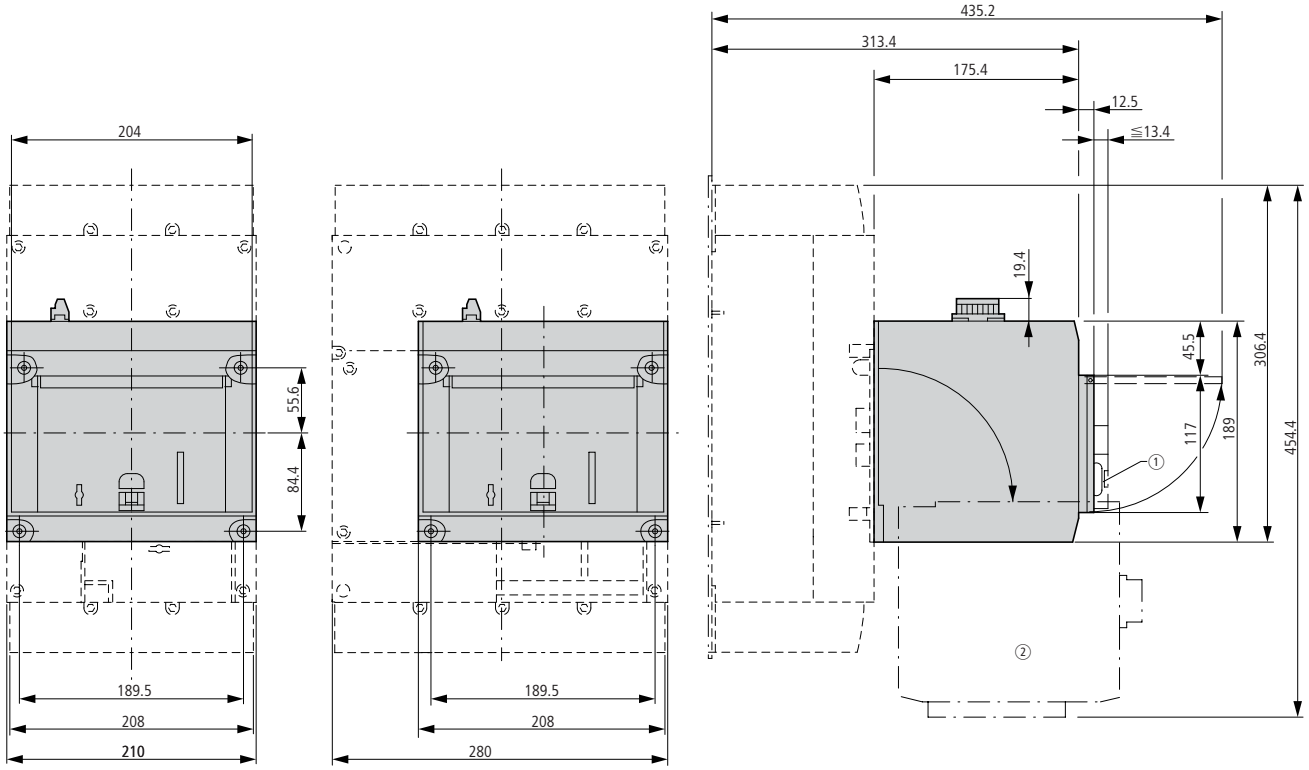
Mechanical interlock
NZM4-XMV + NZM4-XDV(R)

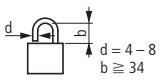


Mechanical interlock
NZM4-XMV + NZM4-XTVD(V)(R)



Remote operator
NZM4-XR...





① Up to 3 padlocks
Remote operator folded

Eaton is a power management company with 2013 sales of $22.0 billion. Eaton provides energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. Eaton has approximately 101,000 employees and sells products to customers in more than 175 countries.

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or local distributor/agent, please visit
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Printed in Austria (06/14)
Publication number CA012002EN

Grafics: SRA
Print:

Powering Business Worldwide

Reliable Protection for systems, generators and motors up to 1600 A



Product Information

Circuit-Breakers NZM, Switch-Disconnectors PN/N

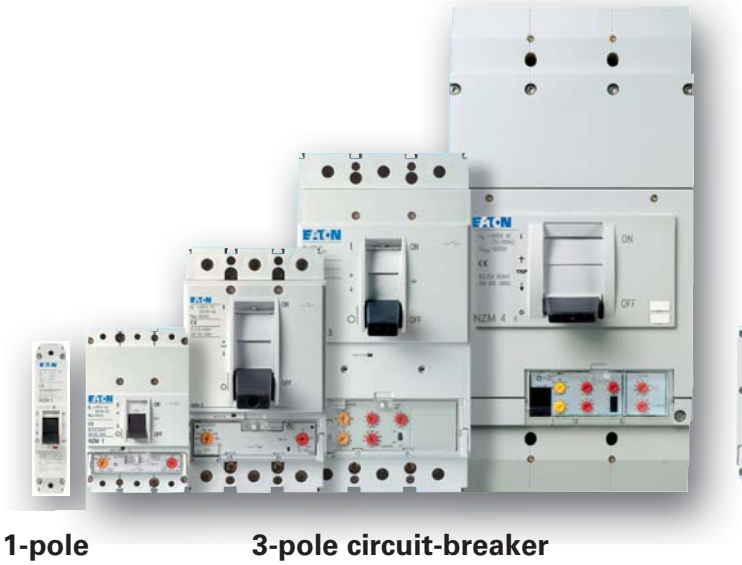






EATON

Powering Business Worldwide



1-pole 3-pole circuit-breaker



4-pole circuit-breaker

The new range up to 1600 A – New ideas for better circuit-breakers

The new Eaton circuit-breakers cover a range from 15 to 1600 A with just four frame sizes. And they are optimally matched to one another. The wide application spectrum covers every requirement as Eaton has closely examined what every customer needs and implemented the appropriate solutions. Outstanding, for example, is the continuous switching power range – which extends from the smallest to the largest circuit-breaker or the modular system which can be matched without difficulty to suit the specific application. Thus, the circuit-breakers can be used universally – from the smallest of service distribution boards, to machine controls or motor starter combinations, up to large energy distribution systems with a short-circuit breaking capacity of up to 150 kA.

Circuit-breakers for use all over the world

All circuit-breakers fulfil the demands for world-wide use. This applies for the United States, Canada and the Chinese markets with the certification to UL, CSA and CCC (China Compulsory Certification).

In conjunction with the shipping classification authorities, Eaton also conducts testing in order to obtain the following certification: Lloyds Register of Shipping, Bureau Veritas, Det Norske Veritas, Polski Rejestr Statkow.

Full performance up to 50 °C

All circuit-breakers and switch-disconnector's are designed to facilitate operation up to an ambient temperature of 50 °C under full load conditions without need to reduce the rated current (derate). This is a comfortable prerequisite for simple and practice relevant engineering with important safety components.

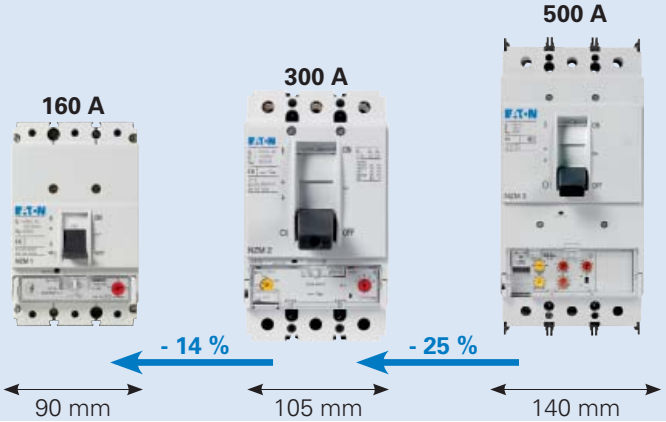


Circuit-breaker		NZM1		NZM2	NZM3	NZM4
Short-circuit breaking capacity	18 kA					
I_{cu} to IEC/EN 60947	25 kA					
at 415 V 3/4-pole	36 kA					
230V 1-pol	50 kA					
	100 kA					
	150 kA					
Application range in A		16-125	15 – 160	15 – 300	125 – 630	315 – 1600
Nuber of poles		1	3/4	3/4	3/4	3/4
Rated voltage in V		230	690	690	690	690
Circuit-breakers for North America			**NZM1-NA**	**NZM2-NA**	**NZM3-NA**	**NZM4-NA**
Short-circuit breaking capacity	25 kA					
I_{cu} to UL489	35/42 kA					
at 480 V	85/100 kA					
Short-circuit breaking capacity	18 kA					
I_{cu} to CSA 22.2 No 5.1	25/35 kA					
at 600 V	50 kA					
Application range in A			1.2 – 125	1.6 – 250	125 – 600	400 – 1200
Nuber of poles			3	3	3	3
Rated voltage in V			480	600	600	600
Dimensions in mm	Width 3/4-polig		90/120	105/140	140/185	210/280
	Height		145	184	275	401
	Depth		68	103	120.5	138

More power on the smallest space: NZM1 up to 160 A, NZM2 up to 300 A

Space in the control panel – and accordingly the costs – can be easily saved with the circuit-breakers NZM1 and NZM2. Instead of using the next larger size, now simply use the more compact further development from the NZM system series.

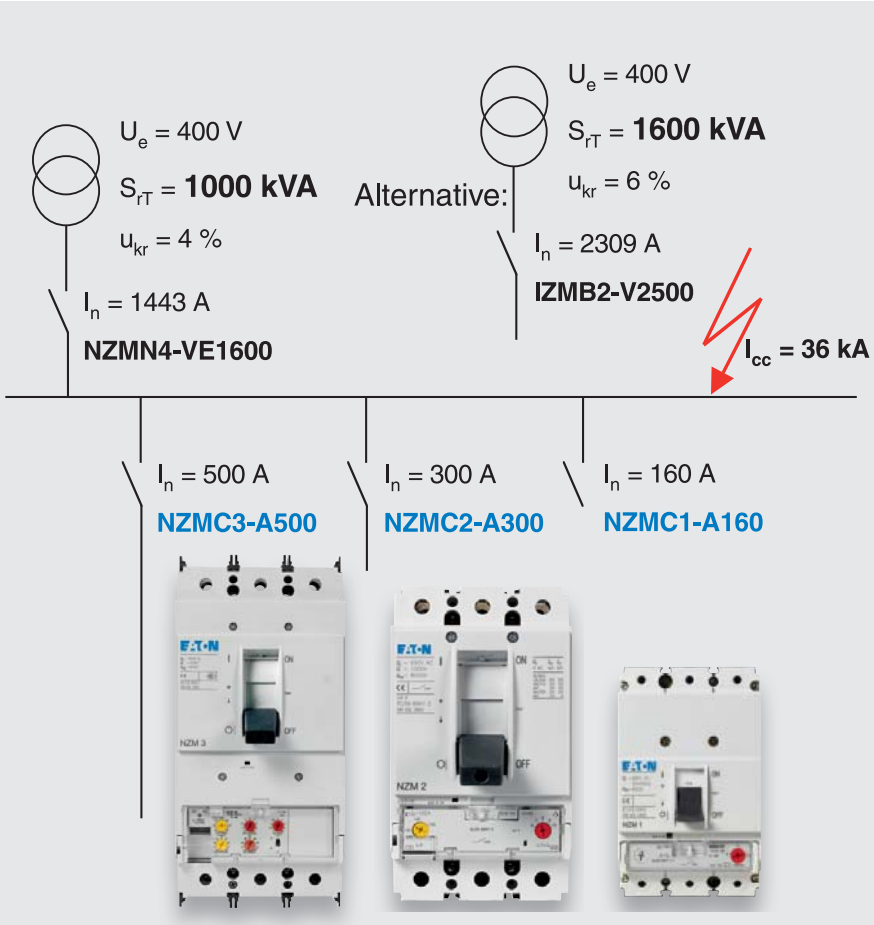
Two advantages at once:
same performance with up to 25% reduced space requirement and up to 20% cost savings.



Economically dimensioned. Circuit-breakers with 36 kA

NZM02EN

Online catalogue Quicklink to
www.eaton.com/moellerproducts



Circuit-breakers from the new C series with 36 kA short-circuit breaking capacity and nominal current from 20 - 500 A are the correct choice for the most frequently used standard applications. The decisive factor for the level of the short-circuit current in the most widely used low-voltage radial networks is the capacity of the low-voltage transformer.

With 36 kA breaking capacity, the highest short-circuit currents of the conventional 630 kVA transformer class – even with a double parallel connection – are mastered. Even for power networks with transformers up to 1600 kVA, the attractively-priced switches of the new C switch series are the first choice.

They are derived from the high-performance type of the modern Eaton NZM series and also feature their good system features and simple handling characteristics. The thermomagnetic releases can be adapted over a wide setting range to the permissible loading currents of the equipment to be protected. They can be equipped with accessories suited for every application in power distribution networks or for the equipment on electrical machines.

Low-voltage power transformers

Rated Voltage U_n	**400/230 V**		
Short-circuit voltage U_K		**4 %**	**6 %**
Rated power **S** **kVA**	**Rated current** I_n **A**	**Short-circuit current** I_K'' **A**	**A**
50	72	1 805	–
100	144	3 610	2 406
160	230	5 776	3 805
200	288	7 220	4 812
250	360	9 025	6 015
315	455	11 375	7 583
400	578	14 450	9 630
500	722	18 050	12 030
630	909	22 750	15 166
800	1 158	–	19 260
1 000	1 444	–	24 060
1 250	1 805	–	30 080
1 600	2 312	–	38 530

≤ 36 kA



"In practice the short-circuit current is attenuated by about 10 % due to the cable connection between the transformer and main power distribution. Thus, the Comfort class is the perfect solution for transformers up to 1600 kVA."

Switch-disconnectors and circuit-breakers for DC current applications

NZM03EN

Online catalogue Quicklink to
www.eaton.com/moellerproducts





Switch-disconnectors up to 1600 A

Eaton is offering DC switch-disconnectors specially designed for large photovoltaic plants such as energy parks. These are available in three sizes 200 A / 500 A / 1600 A with a differentiated rated current and a maximum rated voltage of 1500 V. All switches can be used at ambient temperatures up to 65 °C without limitation or derating. If users also require overload and short-circuit protection in addition to the basic isolating function, circuit-breakers are available in three sizes with a rated current of up to 500 A and a maximum rated voltage of 750 V.

All switch-disconnectors switch the plus and minus pole together. Jumper kits that provide easy-to-install current connection across all four contacts are available up to an ambient temperature of 70 °C. A protective cover offers allround touch protection and fingerproof protection to IP2X. The switches comply with the isolation properties even for earthed IT networks.

Circuit-breakers up to 500A

The circuit-breakers can either switch on three poles, only plus or minus, or alternatively one and two poles of either plus or minus cables. The short-circuit switching capacity is between 15 kA to 70 kA depending on the device type selected. The switches can be used universally because of the high DC-3 utilization category: ranging from photovoltaic to emergency-generating unit batteries to sophisticated switching and protection of DC shunt-wound motors in reverse and jog mode.

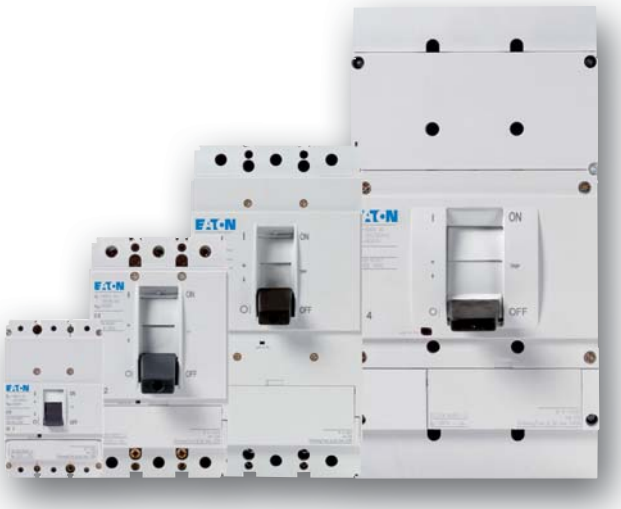
For these DC applications, the users can use the circuit-breakers with a thermo-magnetic release system from the standard Eaton range. Accessories, such as connection terminals and door coupling rotary handles enable individual installation in the most varied of distribution systems. Auxiliary switches, voltage releases and remote operators facilitate signalling and automation.



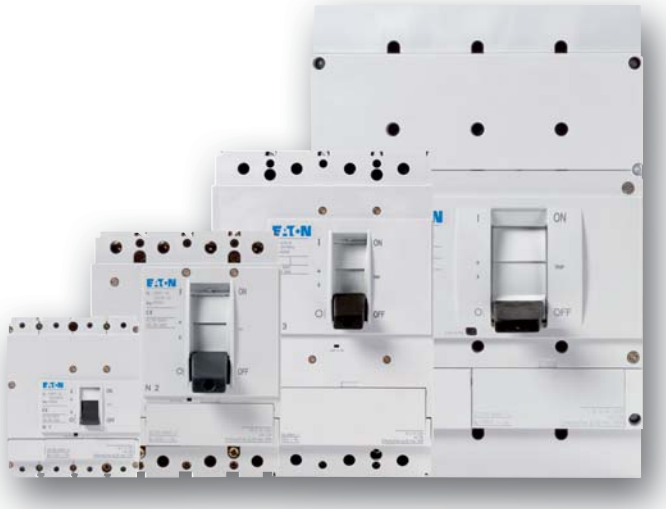




DC switch disconnectors										
Construction design	open									
I_e at DC22A (A)	160	200	320	400	500	800	1000	1250	1400	1600
U_e (VDC)	1000/1500									
Number of poles	2									
Part no. 1000 V	**N2-4-160-S1-DC**	**N2-4-200-S1-DC**	**N3-4-320-S1-DC**	**N3-4-400-S1-DC**	**N3-4-500-S1-DC**	**N4-4-800-S1-DC**	**N4-4-1000-S1-DC**	**N4-4-1250-S1-DC**	**N4-4-1400-S1_DC**	**N4-4-1600-S1-DC**
Part no. 1500 V			**N3-4-320-S15-DC**	**N3-4-400-S15-DC**	**N3-4-500-S15-DC**	**N4-4-800-S15-DC**	**N4-4-1000-S15-DC**	**N4-4-1250-S15-DC**	**N4-4-1400-S15_DC**	**N4-4-1600-S15-DC**
Dimensions										
Width (mm)	140		185			280				
Height (mm)	184		275			401 (613 incl. connection kit 1400A 65°C)				
Depth (mm)	149		166			207				



Switch-disconnector 3-pole

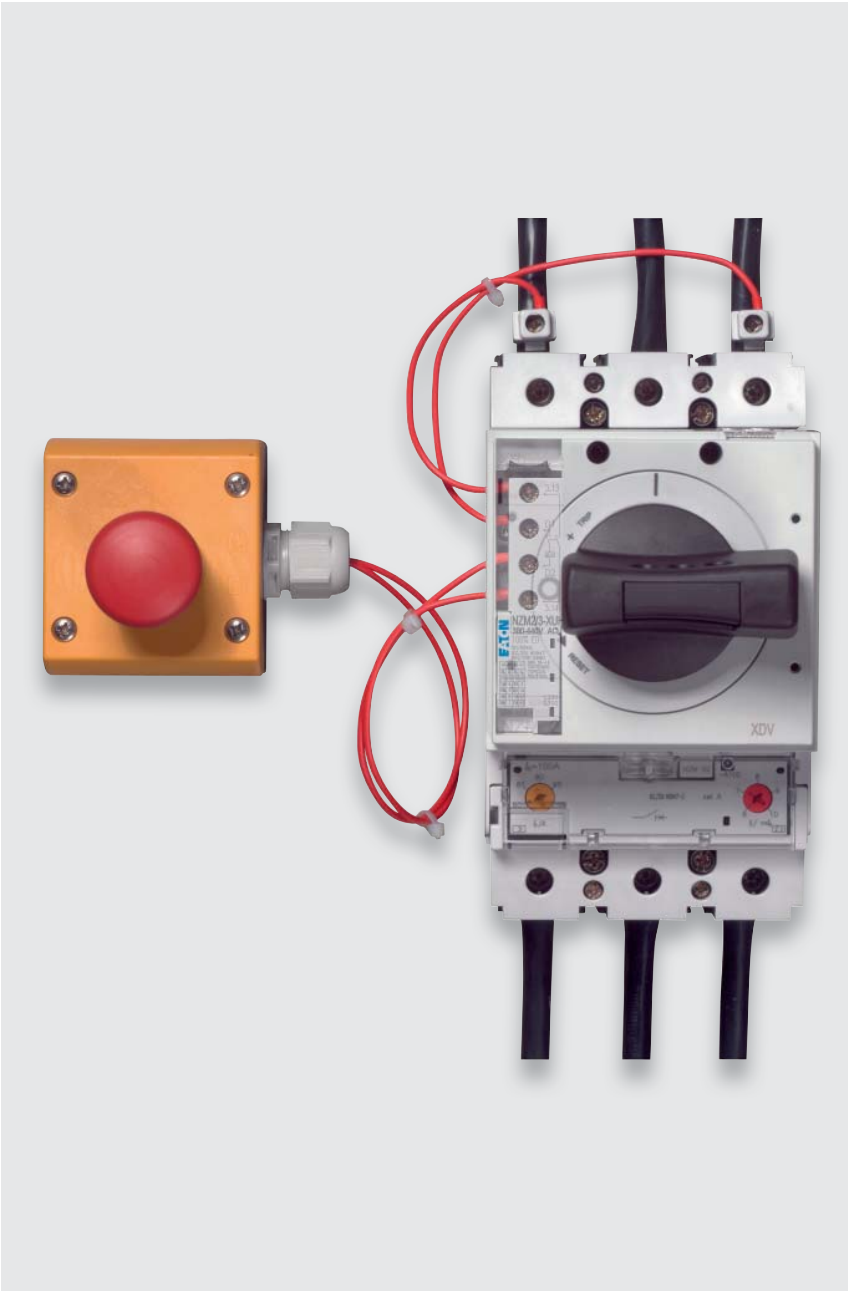


Switch-disconnector 4-pole

Excellent under load – Switch-disconnector's for safe switching under load

Even under load conditions the Eaton switch-disconnector operates safely. The reason: the 3- or 4-pole snap-action closing mechanism which is also applied with circuit-breakers.

That's why the rated short time withstand current is so high and can handle currents up to 150 000 A. The long lifetime with up to 7 500 switching operations in AC3 mode enables usage as a motor switch, in order to switch large motors during operation. Application as a main switch with an emergency-stop function via a remote pushbutton is easily implemented in conjunction with the double early-make auxiliary contacts and undervoltage release. This in conjunction with the UL/CSA approvals is a prerequisite for use in process and processing machines which are destined for export.

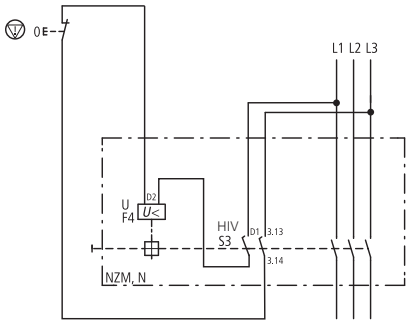


Main switch application

The main switch application with an emergency-stop function up to 1600 A conform to IEC/EN 60204-1, VDE 0113 Part 1 can be easily and cost-effectively implemented with the new Eaton products.

The voltage is switched off on all current conducting circuits are when the switch is switched off using the undervoltage release with two integrated early-make auxiliary contacts. Safety is guaranteed at all times in this manner when the switch is in the Off position.

The early-make auxiliary contacts can always be installed – even if the circuit-breaker is equipped with a toggle-lever or rotary drive.



Switch-disconnector	PN1/N1	PN2/N2	PN3/N3	N4
Application ran ge in A	63 – 160	160 – 250	400 – 630	800 – 1600
Number of poles	3/4	3/4	3/4	3/4
Rated voltage in V	690	690	690	690
Switch-disconnectors for North America	**NS1-NA**	**NS2-NA**	**NS3-NA**	**NS4-NA**
Application range in A	63 – 125	160 – 250	400 – 600	800 – 1200
Number of poles	3	3	3	3
Rated voltage in V	480	600	600	600
Dimensions in mm Width 3/4-polig	90/120	105/140	140/185	210/280
Height	145	184	275	401
Depth	68	103	120.5	138

New in the range:
Specially for the North American market: Molded Case switches featuring a short-circuit release for self-protection.
Thus, the use of a back-up fuse is no longer required in many applications, e.g. as a main switch.

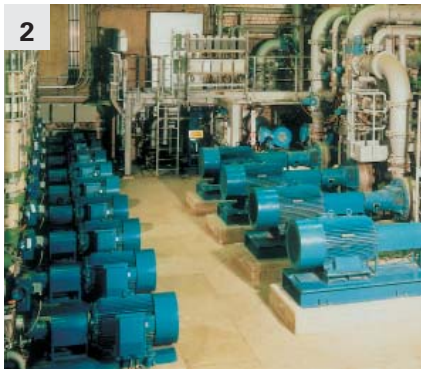
Protection flexibility: Systems, generators, motors





1 NZM protects systems

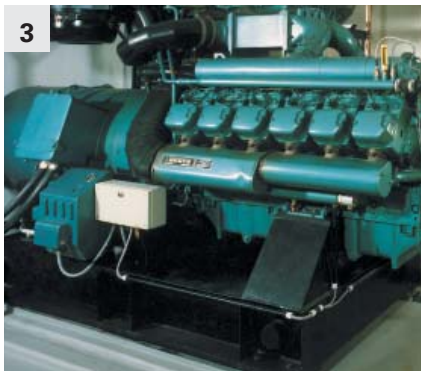
Circuit-breakers NZM protect entire systems as well as cables and wiring on all levels, from the main distribution board right up to the loads. As the incoming circuit-breaker, the NZM will of course also provide secondary side overload protection for the transformer. A variant with modified short-circuit releases also enables a power network with time selectivity.





2 NZM protects motors

Circuit-breakers NZM protect motors and cables against overloads and short-circuits. The short-circuit release of the NZM can be set to 12 to 14 times the rated motor current to ensure that starting current peaks are not shut down by the protective device. Circuit-breakers NZM provide reliable and phase failure sensitive protection for motors from 15 A to 1400 A.





3 NZM protects generators

Even when the generators have difficulty generating two to six times the continuous current, it does not present a problem for the NZM. It can master shutdown of even the smallest short-circuit currents within a few milliseconds. A setting which ignores short-circuit currents for up to 1 s is possible for special tasks.

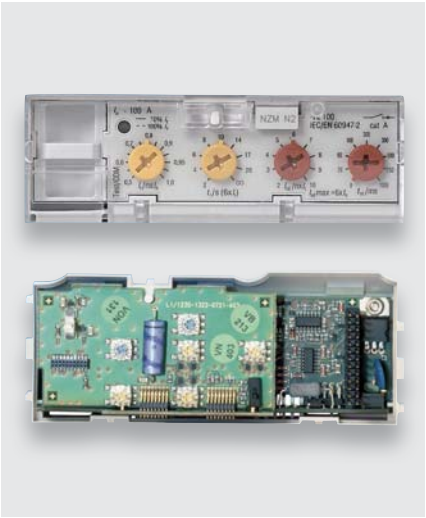




4 NZM protects with fault currents

The mains and auxiliary voltage independent residual current circuit-breaker trips as soon as the set rated fault currents are exceeded. The module is pulse current sensitive and also discriminative.

The $I_{\Delta N}$ = 30 mA in this function module also ensures personnel safety.



Trip electronics featuring micro-processors enhance the operating continuity

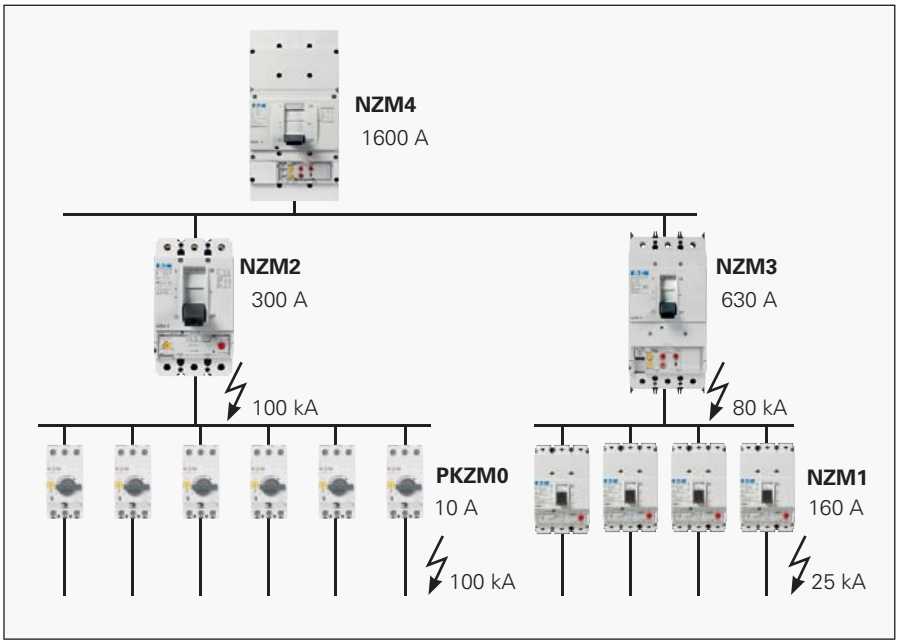
The microprocessor controlled digital electronics determine r.m.s. values for the load current to be monitored. In contrast to analog electronics, any harmonics which may be in the power grid will be correctly evaluated and do not cause premature and unexpected trips. This prevents a standstill.

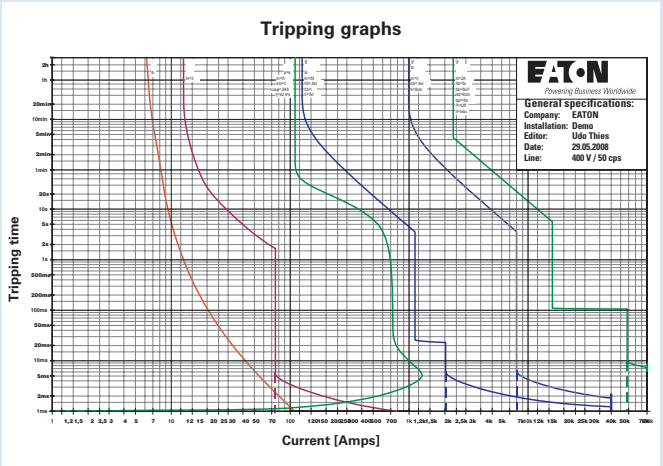
Special components simulate a thermal memory even when the switch trips during a currentless period due to a load overload. Thus, safe protection of the connected equipment is guaranteed – even when the device is switched back on after a brief cooling off phase.

All electronics have been routinely tested and preaged in an oven. This corresponds to a real operating time of about six months. Thermocouples guarantee a safety-oriented trip of the circuit-breaker in the improbable case that an inadmissible overtemperature is due to the electronic components.

Selectivity table

Circuit-breakers NZM achieve selectivity during a short-circuit even without additional electronic short-time delayed devices. For example, the 1000 A circuit-breaker in combination with a 300 A outgoing circuit-breaker is fully selective up to a maximum existing short-circuit current of 100 000 A. Even two high energy incoming supplies of e.g. two parallel 2 000 kVA distribution transformers are cost-effective and are simple to engineer with high levels of supply reliability.





Simpler visualisation, comparison and documentation of characteristic curves
The free-of-charge characteristic curve program supports documentation of the circuit-breakers which are used in completed switchgear systems. All setting parameters can be easily determined, graphically displayed and printed-out. A direct comparison of circuit-breaker NZM and circuit-breaker IZM in combination with h.b.c. fuses enables assessment of the selectivity for the overload and time-delayed overcurrent range. Motor staring characteristics can be created which assist in the selection and adjustment of the corresponding protection device.

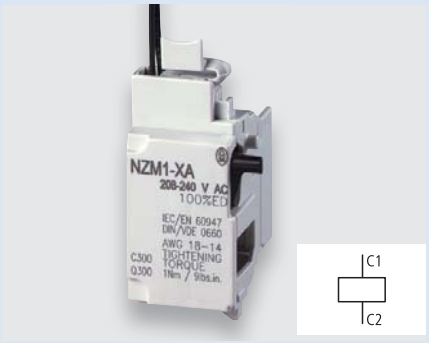
www.eaton.eu/curves

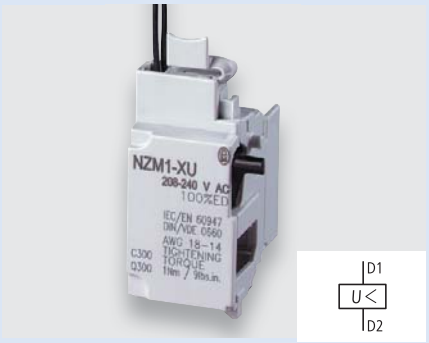
System benefits – the universal accessory range

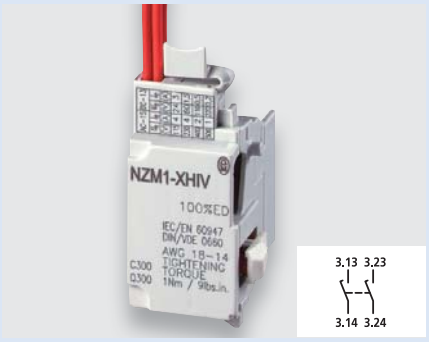
NZM05EN

Online catalogue Quicklink to
www.eaton.com/moellerproducts









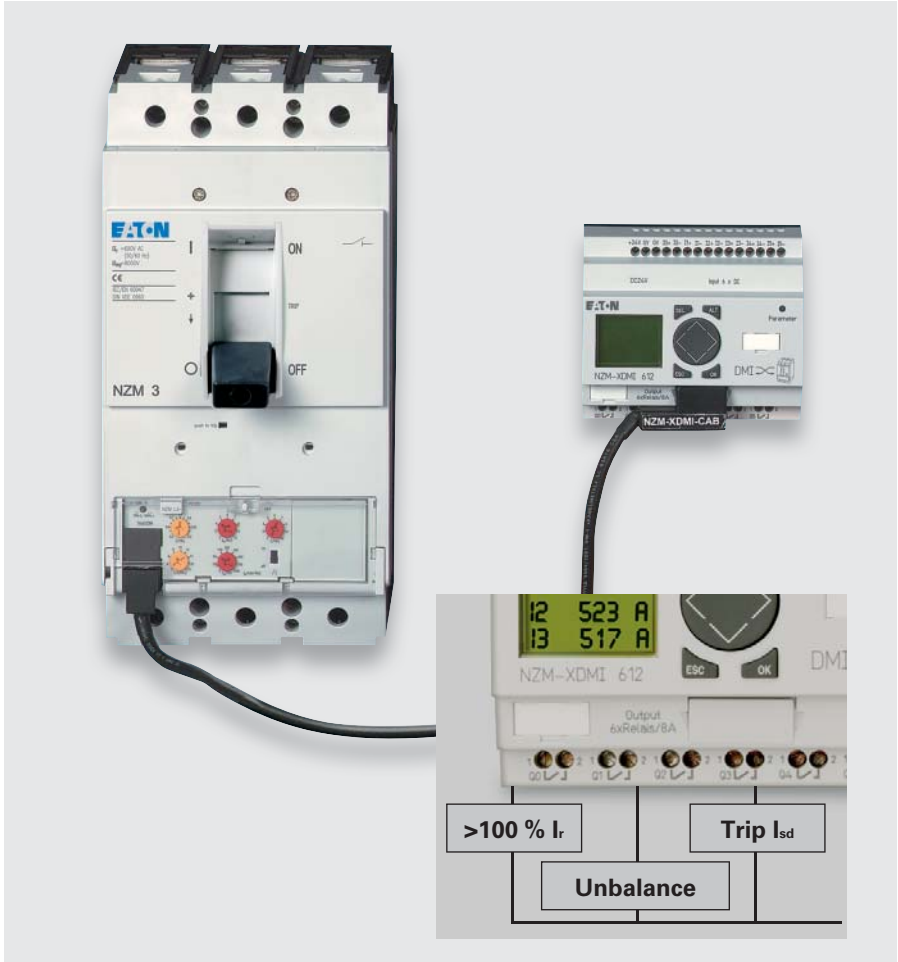
The method of functioning and fitting of the accessories is identical for every size.

Contact elements from the RMQ-Titan® range of control circuit devices are used for the entire NZM range of circuit-breakers.

This has many advantages: it ensures a reduction in the variety of types, a decrease in ordering expense and effort and consequently, simpler inventory management. The contact elements can be simply clipped-on from the front. The position determines the function: signalling contact or trip-indicating auxiliary contact, and like all auxiliary contacts and releases, they are available with terminal bolts or spring-loaded connections, for circuit-breakers or switch-disconnector's. The new twin contacts provide twice as many auxiliary and signalling contacts in the same amount of space. They feature spring-loaded terminal connections.

Flexible solutions for safety and interlock functions

Effective shunt or undervoltage releases, combined also with early-make auxiliary contacts for Emergency-Stop functions or load-shedding circuits, offer elegant solutions for a wide range of functioning applications. All contact points are available with sturdy bolt connection.



All messages in detail – the Data Management Interface

It does not matter if the causes for a trip or a warning message with unbalance are required, or if all phase currents are to be displayed directly on-site and corrective actions are to be implemented with a critical load state. The Data Management Interface (DMI) always signals exact details. The relay outputs of the DMI signal up to 6 different messages. All trip causes are available as group signals and I_i, I_r, I_{sd}, I^2t, and I_{dn} detail signals. The trip cause, phase state, switch setting as well as date and time can be accessed via the 4-line display. Representation of the actual phase currents can be in absolute or relative (% I_r) terms. Warnings with regard to the load status are issued at 70 %, 100 % and 120 % I_r. Thus, the DMI is perfect for direct display on-site or for the integration in higher-level energy management concepts.



A single tool for all screws

The heads on all screws used in the circuit-breakers – with the exception of the main connection screws – feature a plus-minus profile. The advantage is that a fast screw driving machine can be used with the single Posidriv 2 screwdriver tool, or alternatively, a flat-bladed screwdriver can also be used. This applies for all fixing screws, auxiliary connection terminals, as well as hinged flaps and covers and also all setting buttons.



The plus-minus slot can be used like the Pozidriv slot to apply a high torque and provides improved centring performance and a lower high loading pressure to an area. Furthermore, it can be used with several tool designs and is particularly suitable for high-maintenance devices.

Variable operation – toggle, turn, automatic operation



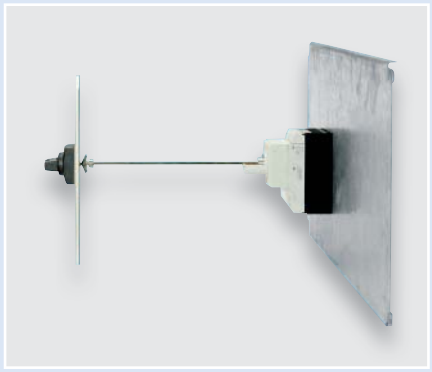
Circuit-breaker NZM2: Rotary handle for main switches of machine controls in North America

The North American user guidelines prescribe that the actuating device must be permanently connected to the switch. This also applies when the control panel door is open. The new door coupling handle developed by Eaton, with additional handle on the switch, complies with this requirement. The new handle complies with the latest NFPA79 and UL508A standards in terms of a deliberate action.
The deliberate action is based on the presumption that the additional handle must initially be rotated by about 15° (1), so that it is subsequently pressed (2) and rotated (3) simultaneously to switch on the switch. The most important safety attributes, such as the actuation options, switch position indication and interlocking features, are provided twofold, both externally on the door coupling rotary handle as well as internally on the switch.



Door coupling rotary handles – ergonomic switching

Shaft lengths which can be cut to suit enable device installation in various control panels and housings up to a depth of 600 mm. A cost-effective and simple to mounting solution is available for the narrowest component mounting where the switch makes direct contact with the cover.



The main switch types – the side operator

Up to 1600 A, the side wall operator enables the switch to be operated from the right or left hand side as desired. Optional fitting of our mounting bracket results in optimum use of space in the control panel. The mounting plate can thus be used for other machine control elements.



The door coupling rotary handle – for uniform, flexible solutions

The base plate is the same for every door coupling rotary handle, this means faster fitting due to the identical drilling diagram. The switches can also be fitted vertically or horizontally in the control panel.

Application related locking

Multiple versions of the door coupling rotary handle provide individual solutions.

- The standard handle features automatic handle position locking, which facilitates comfortable locking of control panel doors even with differing switch positions.
- The second version can be locked with padlocks and automatically locks the doors when closed. This is the typical application for a main switch as the control panels can only be opened in the Off position.
- With the third version, there is an additional locking feature directly on the switch. For example, the switches can be locked individually in a complex energy distribution system.

Handles in red/yellow contrasting colours are available for the emergency-stop function.



Operator on rear for switches up to 300 A rated current

If a power disconnecting device with door coupling rotary handle is to be used in a confined space: up to 300 A rated current can be quickly mounted using the compact mechanical features and comfortably operated using the solid rotary handle. All switch variants from the NZM1 and NZM2 range – regardless of if they are circuit-breakers or switch-disconnectors – can be combined with a rear operator.



The economic remote operator for standard tasks for NZM2 to NZM4

The switching time of the new remote operator is a max. of just 170 ms and can thus be used with standard applications for automated or remote operated energy control.
The folding mounting plate enables a quick inspection of the installed auxiliary contacts and voltage releases. The narrow construction design of the remote operator requires no additional mounting area. It is equipped with a selector switch which guarantees a secure differentiation of the connected positions. Furthermore, the switches can be securely locked in the 0 setting using padlocks.



The comfortable remote operator for synchronisation tasks for NZM2 to NZM4

The spring-powered actuator permits closing delays of 60 or 100 ms, thereby also allowing application in the field of synchronization. Short function sequences and fewer parts ensure a high degree of stability and a long service life. Safety is also emphasized here by the sealing option for the Auto function and by the facility for padlocking the remote operator.



Safe to operate, easy to handle



The plug-in unit – open to possibilities

The plug-in feature enables rapid and uncomplicated exchange of circuit-breakers without having to shutdown the entire system. The same widths for the fixed and withdrawable circuit-breakers ensure simple engineering during the system design phase.

A very visible isolating distance can be implemented in addition to the isolating characteristics by the use of plug-in breakers. The open plug-in contacts are finger-proof (IP2X).

If the system is to be modified at a later date, the use of plug-in sockets for reserve outgoers is recommended.



The withdrawable unit – signalling of states

As usual, Eaton offers plug-in and withdrawable units in addition to the fixed mounted option. It makes it easier to quickly adapt to malfunctions or increases in the rated current range and thus avoid long downtimes. Uniform racking handle operation for withdrawable units enhances operating safety and ensures a test position for function testing without having to switch the main contacts.

The “Inserted“, “Test“ and “Retracted“ positions can be remotely signalled using auxiliary switch contacts RMQ.

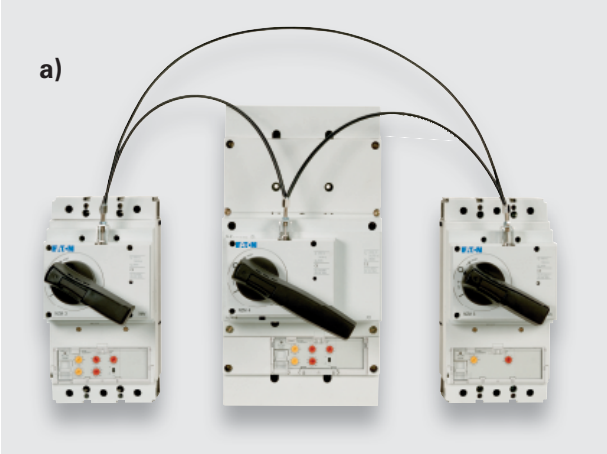


Mesh network switch provides enhanced trip security

Eaton offers two solutions for the mesh network switch application: a shunt which functions as specified in a range from 10 to 110 % of the control voltage, and a special shunt release which also provides trip security in conjunction with a capacitor unit, if up to 12 hours have elapsed since the power loss.

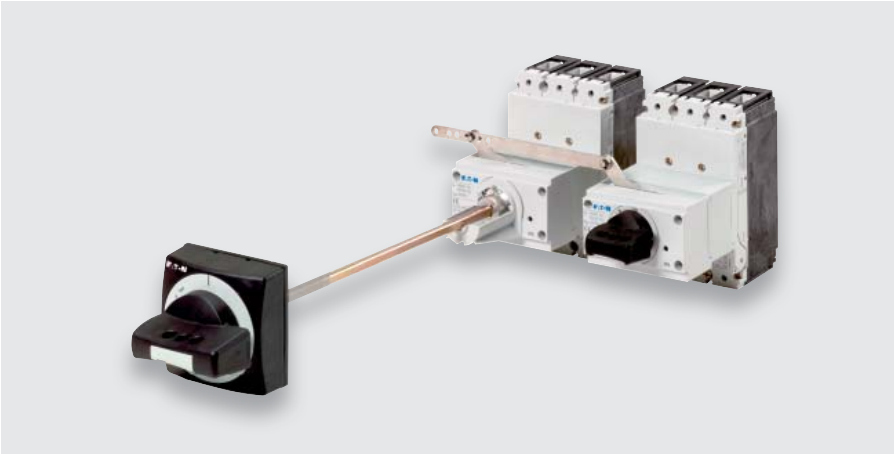
Interlock with Bowden cable technology

Mechanical interlock components enable the interlocking of two or three switches, equipped with rotary handles (a) or remote operators (b), which can also feature different frame sizes. The Bowden cable technology enables free installation of the switches in differing positions. The switches can be installed up to 1 m apart – e.g. in different control panel sections.



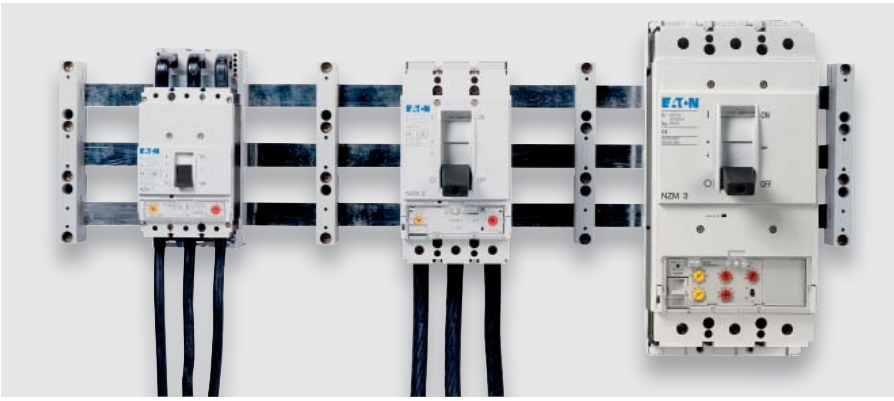
Parallel operation: smart technology

Parallel drives for switches up to 630 A enable simultaneous switching with just a single action – e.g. with main or auxiliary circuits. In this manner the main and auxiliary circuits can be switched simultaneously with process and processing machines.



Busbar adapter

Busbar adapters featuring space-saving contacts enable installation of many devices in confined spaces. They can be used universally on every 60 mm busbar system. The three frame sizes for 160, 250 as well as 630 A can be snapped on.



Switches in enclosures – certified safety

The transparent enclosures available with protection degrees up to IP 65 provide mechanical protection with impact resistant polycarbonate.
The 3- and 4-pole switches are equipped ready for installation with rotary handles. Additional isolated terminations for a 4th or 5th conductor are also available.





"You realise the competence of the people working for Eaton with every solution. All the features you require are implemented."

Clever mounting and connection increases economy

1



2



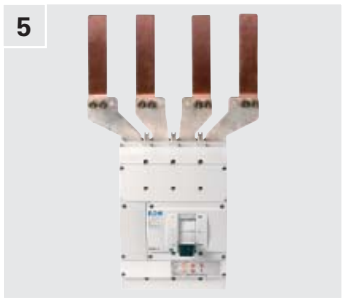
3



4



5



6



Back of hand or finger-proof

Cable-lug, box-terminal or tunnel terminal, it does not matter as covers will always ensure that they are back-of-hand proof.

Fingerproof to IP2X, conform to IEC/EN 60204-1 for main switches is fast and easy to implement. The new additional covers can be matched to every cross-section.



1 Easy to connect

Circuit-breakers NZM and switch disconnectors PN, N can be connected with and without cable lugs, braided copper bands or copper busbars. And there's another special feature: Special narrow cable lug versions are available for bolt connection of round conductors up to 240 mm.

2 Screw terminal

The screw terminal is the most attractively priced solution for the connection of cable-lugs, flat drilled metal strip or copper busbars.

3 Box terminal for copper cable

Box terminals guarantee secure contact for the direct connection of 1 – 2 flexible copper conductors or flat strip. With NZM2 and NZM3, the top of the box terminal can be opened for easy insertion.

4 Terminal for aluminium and copper cables

The terminal area of these special terminals is tunnel-shaped to prevent the typical "flow-properties" of aluminium under great pressing power. Up to four copper or aluminium conductors can be connected depending on the type.

5 Connection preparation for multiple conductors

It enables the connection of up to six conductors with cable lugs per phase. Auxiliary busbars are no longer required.

6 Rear connection

This method of connection allows busbars or round conductors to be connected at the rear. Partitioning of the switch area, terminal area and operator area is carried out without difficulty.

Control circuit terminals

The control circuit terminals are simply screwed onto the respective connection type. The tap-offs for voltage meters, control transformers and undervoltage releases are implemented quickly.





The spacer – saving time and expense

All switches including the accessories fitted on them were designed with the grid spacing of the spacer. Different depths of switch are evened-out simply by means of inexpensive, rapidly fitted spacers.

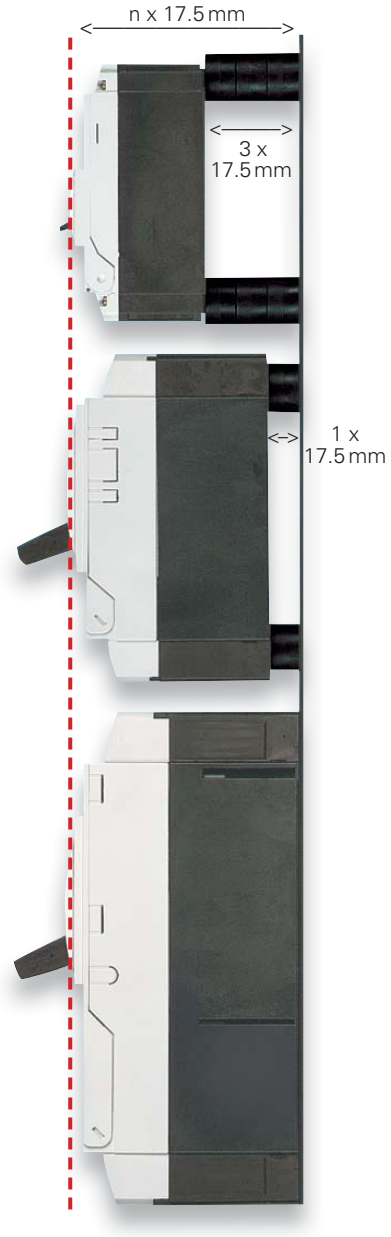
The result is a cost-effective alternative to the door coupling rotary handle with extension shaft for external operation of the circuit-breaker.

This worldwide innovation gains time and saves expense.

Clever installation and terminations

Fast and efficient top-hat rail installation with the use of a clip plate. Just simply attach the clip plate from the rear onto the circuit-breaker and clip it onto the top-hat rail. No need to drill holes in the mounting plate.

The particular advantage of the small NZM1: the "standard dimension" enables side-by-side installation with miniature circuit breakers in service distribution boards.





The insulating surrounds have IP 40 degree of protection and the inscription labels can be simply clipped in.

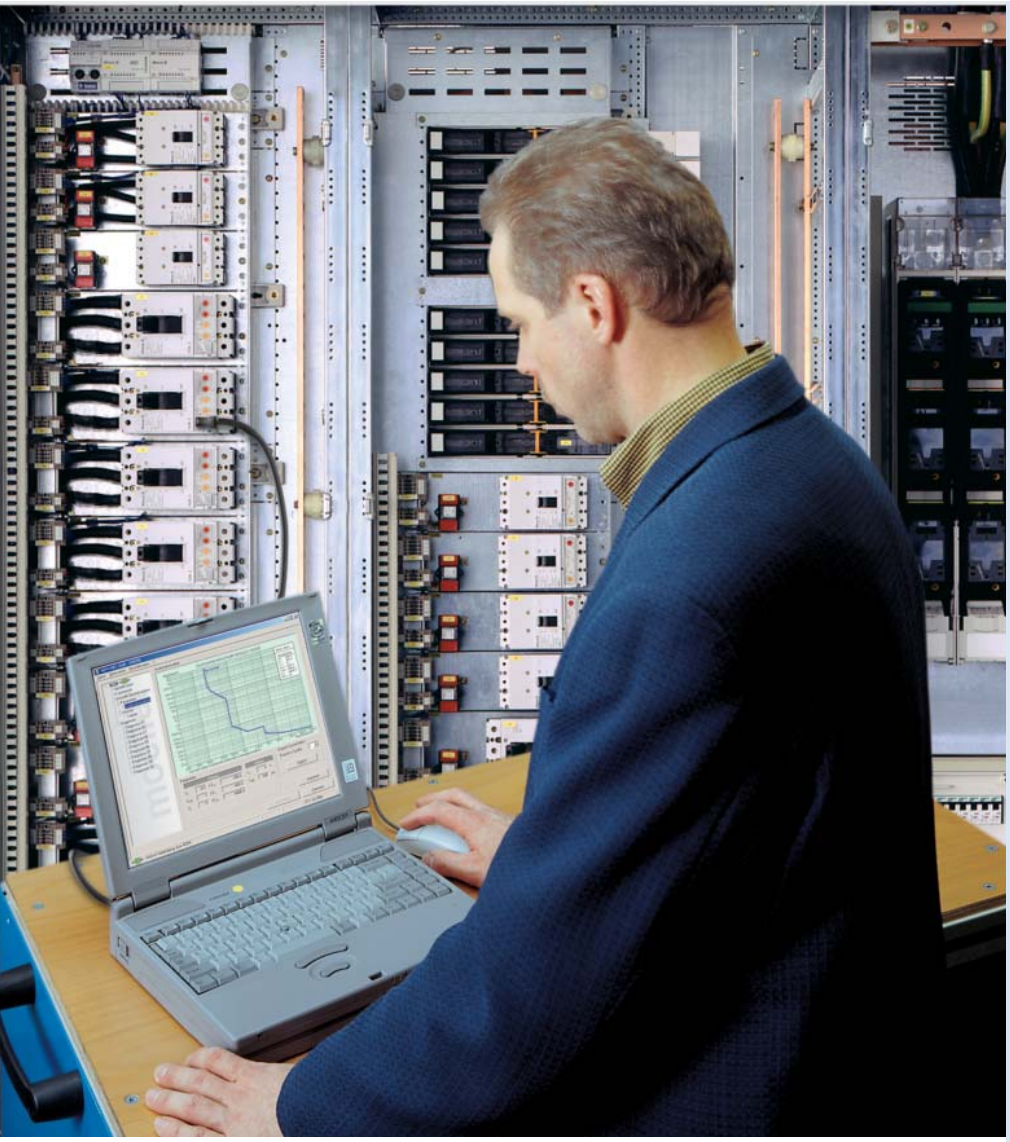
Insulating surrounds – always the right fit

The insulated surround always fits. Regardless of if the circuit-breaker is equipped with a toggle-lever, rotary drive or remote operator. It is unnecessary to keep differing insulating surrounds in stock. It is the cost-effective method to operate circuit-breakers externally when the control panel door is closed.

Insulating surround XBRS for the toggle lever

Narrow design for space-saving side by side mounting.

Diagnostics included!
NZM circuit-breakers



NZM circuit breakers provide on-site diagnostics – easily accessed from its clever electronic trip unit

NZM circuit breakers protect people, installations and power supply networks. Faults are immediately recognised and reliably disconnected – but the following must be clarified in order to quickly re-establish the power supply safely.

- Was there an overload or short-circuit?
- Which phases were affected?
- Which chain of events led to the trip?
- Have settings been adjusted in the meantime?
- Is it possible – and more importantly – is it safe - to re-close the circuit breaker and restore power?

In such events NZM circuit breakers from Eaton provide valuable insight with diagnostic information that's quickly and easily accessible with a standard PC.



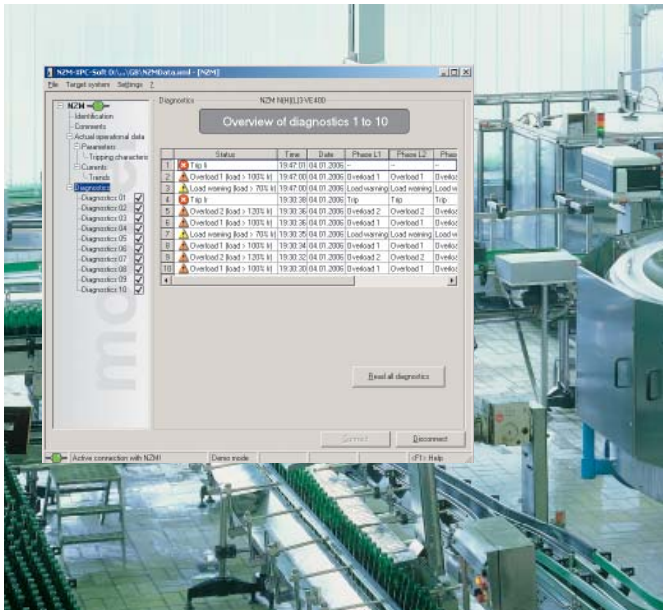
NZM provides the quick overview – directly onsite

NZM delivers all the necessary diagnostics information via an integrated interface directly to a PC or laptop. Configuration in advance is not necessary.

The connection is quickly established: Simply plug the connection cable into the front of the intelligent electronic trip unit – and you are ready to go. This diagnostics access is possible at any time, regardless of if the system is operational or not.

"System diagnostics was never so easy to implement. That's what I call real Plug & Work!"

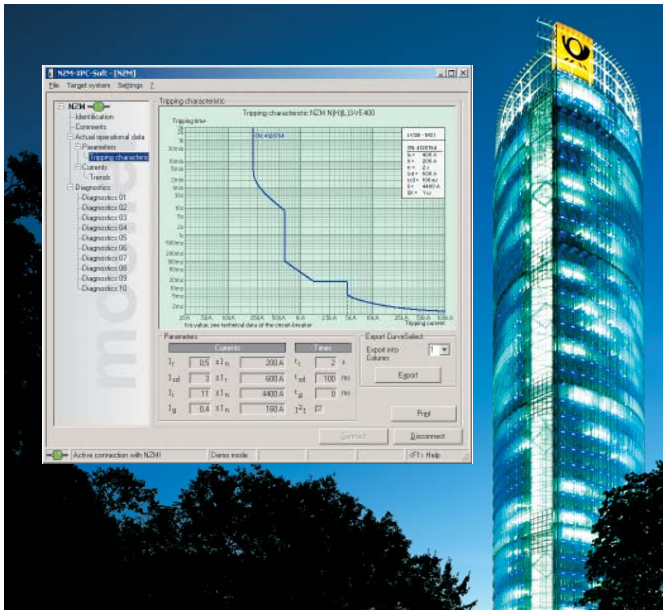




NZM provides diagnostic analysis after a fault that eliminates ambiguity and error!

The cause of a trip is documented by the clever circuit-breaker NZM in its internal memory. Ten events are logged in detail which enables the source of the fault to be quickly identified based on hard facts. The information is clearly and unambiguously displayed onsite with the NZM-XPC-SOFT software. It can be saved as a file, printed and sent for the purpose of analysis.
The NZM event protocol eliminates ambiguities and "human error" of keeping notes during the entire lifecycle of the circuit-breaker and the low-voltage installation. Even replacement circuit-breakers can be identified and traced based on their serial number.

The NZM-XPC-SOFT supports nine languages for maximum safety and operating availability world-wide.



NZM validates protection settings at a glance

With NZM a power disruption can be limited to the areas which are directly affected by the fault using a selective design concept. The effects and costs of a malfunction are minimised without making any compromises in safety.
The active tripping curve and the planned selectivity can be exactly represented in the NZM-XPC-SOFT based on the selected switch settings and tripping characteristic. Selection of the optimum protective parameters and validation of the desired selectivity is supported during the commissioning phase by a direct comparison of the upstream and downstream protective devices. Possible fault sources are immediately indicated by a visual comparison of the individual breaker settings. Later modifications are clearly illustrated. Even the matching of the protection settings of a specific motor characteristic is illustrated by graphic optimisation of the inrush-, starting- and operating current of the motor.



NZM load analysis for valuable resource management

Electrical energy is a valuable and critical resource. Each clever NZM is capable of being transformed into a load analysis tool with the help of NZM-XPC-SOFT. Simply plug-in the PC connection cable at the electronic trip block and both graphical and data-logging trend measurement commences.
The effective values of all phases can be recorded over the time periods of minutes, hours or even days. Power distribution is therefore transparent.
Measurements and trends over defined periods can be compared or processed further using the protocol function to generate files for MS Excel©.
Evaluating the performance of manufacturing processes and assessing preventative maintenance of motors are examples of important resource management functions easily carried out with this simple software.

Metering and communication module for energy distribution and motor control centres



The new compact solution

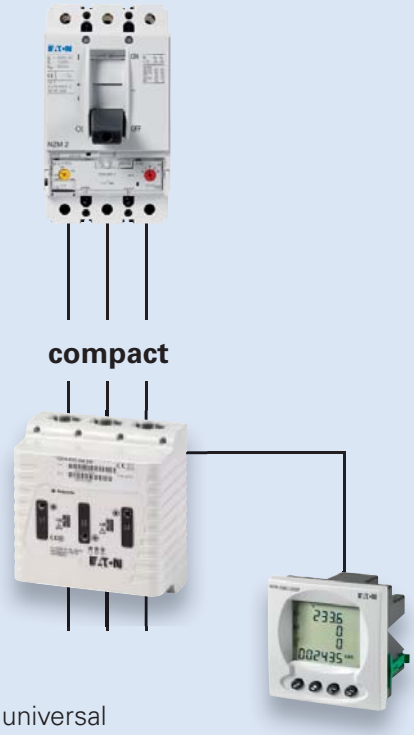
A combination of current transformer, voltage tap-off, measurement electronics, fieldbus interface and display interface in an enclosure is a very interesting solution. Four individual devices (3 current transformers and 1 measurement device) are combined in a single enclosure. Considerable wiring and installation effort and expense are avoided. The installation of the metering and communication module can be undertaken at any location in the control panel. The system is independent of the switch design and model. All existing circuit-breakers and switch disconnectors can be used, only the minimum clearances required by the design of the respective switches must be observed. This solution offers a very large range of applications and can even be retrofitted in a short time to existing switchboards.

Recording energy consumption

The requirement for a simple metering function to detect the transferred energy is in demand with energy distribution and motor control centres. Energy is a precious resource and everyone is urged to conserve it. A prerequisite for reduction in consumption requires knowledge of the level of consumption, and accordingly simple sensors for recording energy consumption are becoming ever more important.

The product range

The new range of metering and communication modules (XMC) are specially designed for circuit-breakers NZM2 and NZM3 and can be used universally in a voltage range from 35 V - 500 V and in a current range from 65 - 630 A. There are two sizes matched to the NZM current ranges. Size 2 (NZM2-XMC) extends up to 250 A and size 3 (NZM3-XMC) accordingly up to 500 A. Each of these sizes are available as 3 or 4-pole versions.



+ universal
+ simple installation
+ low price



XMC as a data source for 3 recipients
All relevant data is provided for the control level in addition to the local display for on-site personnel. These include the current states OPEN/CLOSED/TRIP of the circuit-breaker as well as control of a remote operator for automatic switch functions. The **management level** is concerned with the present values of currents, voltages and powers which can be individually displayed as well as saved. The course for optimization of consumption can be set here.

Mechanical connection
A central factor in its success is the simplicity of the mechanical installation of the devices. The cables or braids are connected through the apertures of the XMC to the switching/protective device. They can be mounted on both the incoming and outgoing side. The tunnel diameter for the NZM3 modul type with a diameter of 27.5 mm is suitable for max. 185 mm² conductor cross-sections. Alternatively, a 11 x 21 x 1 mm copper braid can be used. An adapter is supplied for smaller conductors.

Pre-processing in the XMC enables load shedding

Pre-processing means reducing the load on the processing stations. A simple form of optimization is load shedding. If a defined threshold is reached, a digital output can be controlled that is integrated into the interlock. A range of digital and analog input/output expansion boards are available for this extended functionality. These boards are installed in the base unit and can be supplied directly with the unit, or retrofitted later. The following expansion boards are available:

1. 2 outputs as a changeover contact
2. 4 outputs as NO contacts
3. 4 digital inputs / 4 digital outputs
4. 1 analog output 4 - 20 mA / 1 - 10 V

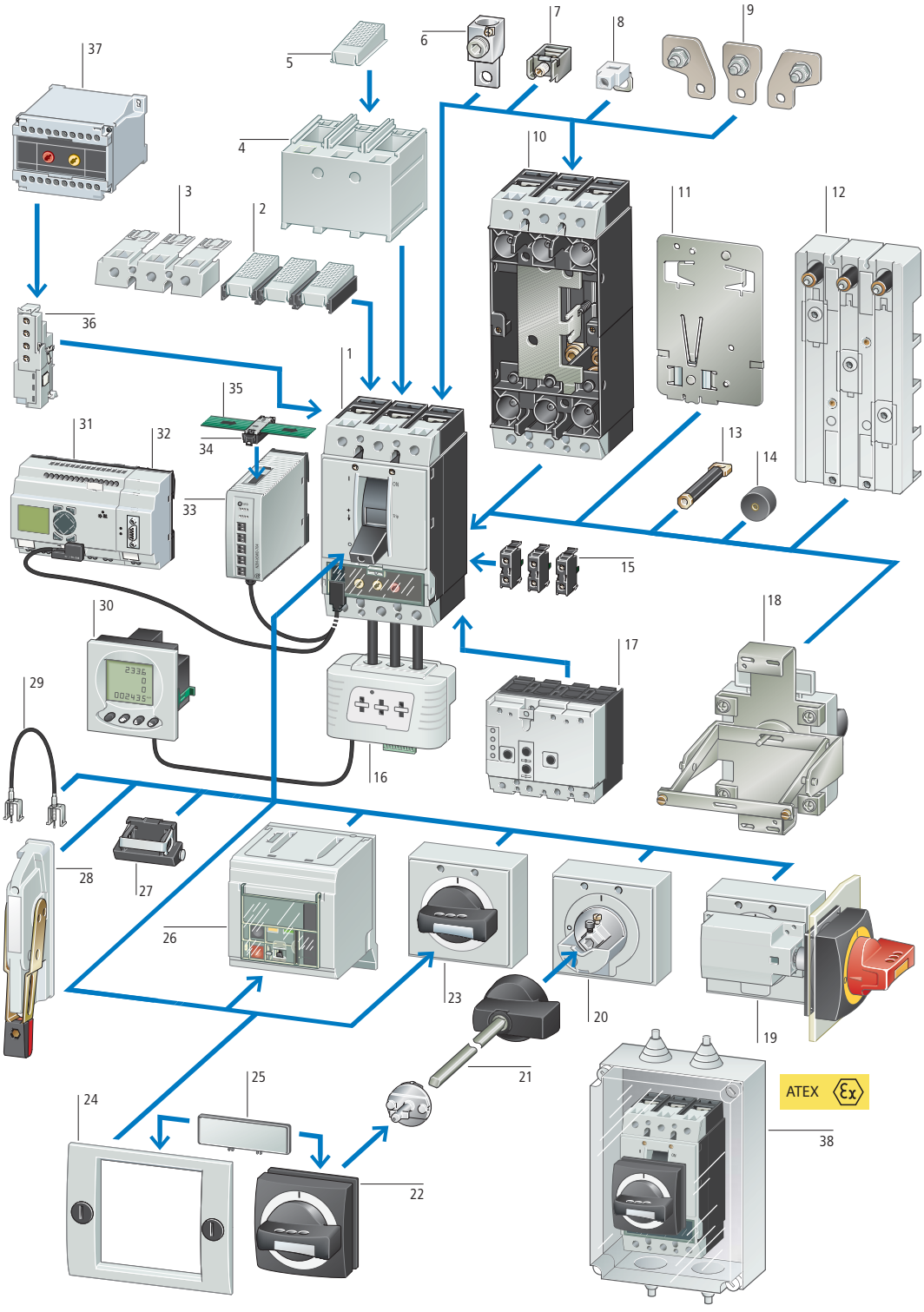
As an intelligent pre-processing unit the XMC offers further information for the control and management level. For example, the **maximum values** of measured values can be calculated and issued over a time period, or **time window values** can also be mapped for a specific time. The XMC can also score points in terms of **diagnostics**. Load warnings can be issued to counteract tripping due to an overload.

	Part no.	Number of poles	Maximum rating	Main Mainfeature
	**NZM2-XMC-S0**	3	300 A	Digital S0 output
	NZM3-XMC-S0	3	500 A	Digital S0 output
	NZM2-XMC-MB	3	300 A	Modbus, 2 S0 outputs, display interface
	NZM3-XMC-MB	3	500 A	Modbus, 2 S0 outputs, display interface
	**NZM2-XMC-MB-250**	3	250 A	Modbus, 2 S0 outputs, display interface
	**NZM3-4-XMC-S0**	4	500 A	Digital S0 output
	NZM2-4-XMC-MB	4	300 A	Modbus, 2 S0 outputs, display interface
	NZM3-4-XMC-MB	4	500 A	Modbus, 2 S_0 outputs, display interface
	NZM2-4-XMC-MB-250	4	250 A	Modbus, 2 S0 outputs, display interface
	NZM-XMC-USB485			XMC-PC Cable to Configuration

Display for all Modbus types	Part no.
	**NZM-XMC-DISP**

Power supply for AC supply	Part no.
	**NZM-XMC-AC**

System Overview
Circuit-Breakers, Switch-Disconnectors



1 Switch-disconnetor, circuit-breaker, circuit-breaker for North America; Moulded case switches for North America
2 IP2X protection against contact with a finger
3 Terminal cover, knockout
4 Terminal cover
5 IP2X protection against contact with a finger
6 Tunnel terminal
7 Box terminals
8 Control circuit terminal
9 Connection width extension
10 Plug-in and withdrawable unit
11 Adapter plate
12 Busbar adapters
13 Connection on rear
14 Spacers
15 Standard auxiliary contact (HIV), trip-indicating auxiliary switch (HIA), voltage release
16 Measuring and communication module
17 Residual-current protection device
18 Rear driver
19 Main switch rotary handle for side panel mounting
20 Door coupling rotary handle
22
21 Extension shaft
23 Rotary handle
24 Insulating surrounds
25 External warning plate/marking plate
26 Remote operator
27 Toggle lever locking device
28 Side operator handle
29 Mechanical interlock
30 Display
31 Data management interface (DMI module)
32 PROFIBUS-DP interface
33 NZM communication module
35 for Smartwire-DT
36 Early-make auxiliary contacts
37 Deley unit for undervoltage releases
38 Insulated enclosures

Switch Disconnectors

IEC/EN 60947-2
UL 489





Switch-Disconnectors	3-pole IEC		4-pole IEC		IEC 3-pole UL/CSA	
rated current = Rated uninterrupted current $I_n = I_u$ **A**	2 switch positions[1]	3 switch positions[2]	2 switch positions[1]	3 switch positions[2]	rated current = Rated uninterrupted current $I_n = I_u$ **A**	3 switch positions[2]
Box Terminals standard Terminal screws as accessories						
63	PN1-63	N1-63	PN1-4-63	N1-4-63	63	NS1-63-NA
100	PN1-100	N1-100	PN1-4-100	N1-4-100	100	NS1-100-NA
125	PN1-125	N1-125	PN1-4-125	N1-4-125	125	NS1-125-NA
160	PN1-160	N1-160	PN1-4-160	N1-4-160		
Terminal screws standard Box Terminals screws as accessories						
200	PN2-200	N2-200	PN2-4-200	N2-4-200	160	NS2-160-NA
250	PN2-250	N2-250	PN2-4-250	N2-4-250	200	NS2-200-NA
400	PN3-400	N3-400	PN3-4-400	N3-4-400	250	NS2-250-NA
630	PN3-630	N3-630	PN3-4-630	N3-4-630	400	NS3-400-NA
800	–	N4-800	–	N4-4-800	600	NS3-600-NA
1000	–	N4-1000	–	N4-4-1000	800	NS4-800-NA
1250	–	N4-1250	–	N4-4-1250	1000	NS4-1000-NA
1600	–	N4-1600	–	N4-4-1600	1200	NS4-1200-NA

[1] I, 0 ; Cannot be remotely operated
[2] I, + , 0 ; Can be remotely operated with U/A voltage release

Circuit Breakers Motorprotection

IEC/EN 60947-3







Rated operational current = rated uninterrupted current $I_n = I_u$ **A**	Overload releases Setting range I_r **A**	Short-circuit releases Non-delayed $I_i = I_n$ x ...	Rated operating power AC-3 50/60 Hz 400 V P **kW**	Rated operational current AC-3 50/60 Hz 400 V I_e **A**	**Basic switching capacity 25 kA** 400/415V 50/60 Hz Part no.	**Normal switching capacity 50 kA** 400/415V 50/60 Hz Part no.	**High switching capacity 100 kA** 400/415V 50/60 Hz Part no.
Motor protection, thermomagnetic release NZM...1-M...: with phase failure sensitivity, tripping class 10 A							
Box Terminals standard Terminal screws as accessories							
40	32-40	8 - 14	18.5	36	**NZMB1-M40**	**NZMN1-M40**	**NZMH1-M40**
50	40-50	8 - 14	22	41	**NZMB1-M50**	**NZMN1-M50**	**NZMH1-M50**
63	50-63	8 - 14	30	55	**NZMB1-M63**	**NZMN1-M63**	**NZMH1-M63**
80	63-80	8 - 14	37	68	**NZMB1-M80**	**NZMN1-M80**	**NZMH1-M80**
100	800-100	8 - 12.5	45	81	**NZMB1-M100**	**NZMN1-M100**	**NZMH1-M100**
Terminal screws standard Box Terminals as accessories							
125	100-125	8 - 14	55	99	**NZMB2-M125**	**NZMN2-M125**	**NZMH2-M125**
160	125-160	8 - 14	75	134	**NZMB2-M160**	**NZMN2-M160**	**NZMH2-M160**
200	160-200	8 - 14	110	196	**NZMB2-M200**	**NZMN2-M200**	**NZMH2-M200**
Motor protection, electronic releases with phase failure sensitivity, tripping class adjustable							
Terminal screws standard Box Terminals as accessories							
220	110-220	2 - 14	110	196		**NZMN3-ME220**	**NZMH3-ME220**
350	175-350	2 - 14	200	349		**NZMN3-ME350**	**NZMH3-ME350**
450	225-450	2 - 12	250	437		**NZMN3-ME450**	**NZMH3-ME450**













Thermomagnetic release						
Rated current = rated uninterrupted current	Overload release 1-pole	Overload release Setting range overload release	Short-circuit release 1-pole	Short-circuit release adjustable 3-pole	Circuit-breaker with **Exonomy switching capacity 18 kA at 230 V 50/60 Hz**	**Bas at 415 V 50/60 Hz**
					Part No.	Part No.
In=Iu A	Ir A	Ir A	Ii A	Ii A	1-pole	1-pole
Box terminals standard						
16	16	-	350	-	**NZME1-1-AF16**	**NZMB1-1-AF16**
20	20	15-20	350	350	**NZME1-1-AF20**	**NZMB1-1-AF20**
25	25	20-25	350	350	**NZME1-1-AF25**	**NZMB1-1-AF25**
32	32	25-32	350	350	**NZME1-1-AF32**	**NZMB1-1-AF32**
40	40	32-40	350	320-400	**NZME1-1-AF40**	**NZMB1-1-AF40**
50	50	40-50	600	300-500	**NZME1-1-AF50**	**NZMB1-1-AF50**
63	63	50-63	600	380-630	**NZME1-1-AF63**	**NZMB1-1-AF63**
80	80	63-80	1000	480-800	**NZME1-1-AF80**	**NZMB1-1-AF80**
100	100	80-100	1000	600-1000	**NZME1-1-AF100**	**NZMB1-1-AF100**
125	125	100-125	1000	750-1250	**NZME1-1-AF125**	**NZMB1-1-AF125**
160	160	125-160	-	1280	-	-
Terminal screws standard						
20		15-20	350			
25		20-25	350			
32		25-32	350			
40		32-40	320-400			
50		40-50	300-500			
63		50-63	380-630			
80		63-80	480-800			
100		80-100	600-1000			
125		100-125	750-1250			
160		125-160	960-1600			
160		125-160	960-1600			
200		160-200	1280-2000			
200		160-200	1280-2000			
250		200-250	1500-2500			
250		200-250	1500-2500			
300		240-300	2000-2500			
300		240-300	2000-2500			
Box terminals standard						
20		15-20	350			
25		20-25	350			
32		25-32	350			
40		32-40	320-400			
50		40-50	300-500			
63		50-63	380-630			
80		63-80	480-800			
100		80-100	600-1000			
125		100-125	750-1250			
160		125-160	960-1600			
200		160-200	1280-2000			
250		200-250	1500-2500			
300		240-300	2000-2500			
Terminal screws standard						
320		250-320	1920-3200			
320		250-320	1920-3200			
400		320-400	2400-4000			
400		320-400	2400-4000			
500		400-500	3000-5000			
500		400-500	3000-5000			
Box terminals standard						
320		250-320	1920-3200			
400		320-400	2400-4000			
500		400-500	3000-5000			
Electronic releases, terminal screws standard, Box terminals as accessories						
630		315-630	1260-5040			
630		315-630	1260-5040			
800		400-800	1600-9600			
800		400-800	1600-9600			
1000		500-1000	2000-12000			
1000		500-1000	2000-12000			
1250		630-1250	2500-15000			
1250		630-1250	2500-15000			
1600		800-1600	3200-19200			
1600		800-1600	3200-19200			

1) Applies for NZM1
2) applies for NZM2 and NZM3
3) 60% release on neutral pole

Circuit-breaker with **sic switching capacity 25 kA at 415 V 50/60 Hz**		Circuit-breaker with **Comfort switching capacity 36 kA at 415 V 50/60 Hz**		Circuit-breaker with **Normal switching capacity 50 kA at 415 V 50/60 Hz**		Circuit-breaker with **High switching capacity 100[1]/150[2] kA at 415 V 50/60 Hz**	
Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
3-pole	4-pole	3-pole	4-pole	3-pole	4-pole	3-pole	4-pole
-	-						
NZMB1-A20	**NZMB1-4-A20**	**MZMC1-A20**	**NZMC1-4-A20**	**NZMN1-A20**	**NZMN1-4-A20**	**NZMH1-A20**	**NZMH1-4-A20**
NZMB1-A25	**NZMB1-4-A25**	**NZMC1-A25**	**NZMC1-4-A25**	**NZMN1-A25**	**NZMN1-4-A25**	**NZMH1-A25**	**NZMH1-4-A25**
NZMB1-A32	**NZMB1-4-A32**	**NZMC1-A32**	**NZMC1-4-A32**	**NZMN1-A32**	**NZMN1-4-A32**	**NZMH1-A32**	**NZMH1-4-A32**
NZMB1-A40	**NZMB1-4-A40**	**NZMC1-A40**	**NZMC1-4-A40**	**NZMN1-A40**	**NZMN1-4-A40**	**NZMH1-A40**	**NZMH1-4-A40**
NZMB1-A50	**NZMB1-4-A50**	**NZMC1-A50**	**NZMC1-4-A50**	**NZMN1-A50**	**NZMN1-4-A50**	**NZMH1-A50**	**NZMH1-4-A50**
NZMB1-A63	**NZMB1-4-A63**	**NZMC1-A63**	**NZMC1-4-A63**	**NZMN1-A63**	**NZMN1-4-A63**	**NZMH1-A63**	**NZMH1-4-A63**
NZMB1-A80	**NZMB1-4-A80**	**NZMC1-A80**	**NZMC1-4-A80**	**NZMN1-A80**	**NZMN1-4-A80**	**NZMH1-A80**	**NZMH1-4-A80**
NZMB1-A100	**NZMB1-4-A100**	**NZMC1-A100**	**NZMC1-4-A100**	**NZMN1-A100**	**NZMN1-4-A100**	**NZMH1-A100**	**NZMH1-4-A100**
NZMB1-A125	**NZMB1-4-A125**	**NZMC1-A125**	**NZMC1-4-A125**	**NZMN1-A125**	**NZMN1-4-A125**	**NZMH1-A125**	**NZMH1-4-A125**
NZMB1-A160	**NZMB1-4-A160**	**NZMC1-A160**	**NZMC1-4-A160**	**NZMN1-A160**	**NZMN1-4-A160**	**NZMH1-A160**	**NZMH1-4-A160**
-	-	-	-	-	-	**NZMH2-A20**	**NZMH2-4-A20**
-	-	-	-	-	-	**NZMH2-A25**	**NZMH2-4-A25**
-	-	-	-	-	-	**NZMH2-A32**	**NZMH2-4-A32**
-	-	-	-	-	-	**NZMH2-A40**	**NZMH2-4-A40**
-	-	-	-	-	-	**NZMH2-A50**	**NZMH2-4-A50**
-	-	-	-	-	-	**NZMH2-A63**	**NZMH2-4-A63**
-	-	-	-	-	-	**NZMH2-A80**	**NZMH2-4-A80**
-	-	-	-	-	-	**NZMH2-A100**	**NZMH2-4-A100**
-	-	-	-	-	-	**NZMH2-A125**	**NZMH2-4-A125**
NZMB2-A160	**NZMB2-4-A160**	**NZMC2-A160**	**NZMC2-4-A160**	**NZMN2-A160**	**NZMN2-4-A160**	**NZMH2-A160**	**NZMH2-4-A160**
-	**NZMB2-4-A160/100**[3]	-	**NZMC2-4-A160/100**[3]	-	**NZMN2-4-A160/100**[3]	-	**NZMH2-4-A160/100**[3]
NZMB2-A200	**NZMB2-4-A200**	**NZMC2-A200**	**NZMC2-4-A200**	**NZMN2-A200**	**NZMN2-4-A200**	**NZMH2-A200**	**NZMH2-4-A200**
-	**NZMB2-4-A200/125**[3]	-	**NZMC2-4-A200/125**[3]	-	**NZMN2-4-A200/125**[3]	-	**NZMH2-4-A200/125**[3]
NZMB2-A250	**NZMB2-4-A250**	**NZMC2-A250**	**NZMC2-4-A250**	**NZMN2-A250**	**NZMN2-4-A250**	**NZMH2-A250**	**NZMH2-4-A250**
-	**NZMB2-4-A250/160**[3]	-	**NZMC2-4-A250/160**[3]	-	**NZMN2-4-A250/160**[3]	-	**NZMH2-4-A250/160**[3]
NZMB2-A300	**NZMB2-4-A300**	**NZMC2-A300**	**NZMC2-4-A300**	**NZMN2-A300**	**NZMN2-4-A300**	**NZMH2-A300**	**NZMH2-4-A300**
-	**NZMB2-4-A300/200**[3]	-	**NZMC2-4-A300/200**[3]	-	**NZMN2-4-A300/200**[3]	-	**NZMH2-4-A300/200**[3]
-	-	-	-	-	-	**NZMH2-A20-BT**	-
-	-	-	-	-	-	**NZMH2-A25-BT**	-
-	-	-	-	-	-	**NZMH2-A32-BT**	-
-	-	-	-	-	-	**NZMH2-A40-BT**	-
-	-	-	-	-	-	**NZMH2-A50-BT**	-
-	-	-	-	-	-	**NZMH2-A63-BT**	-
-	-	-	-	-	-	**NZMH2-A80-BT**	-
-	-	-	-	-	-	**NZMH2-A100-BT**	-
-	-	-	-	-	-	**NZMH2-A125-BT**	-
NZMB2-A160-BT	-	**NZMC2-A160-BT**	-	**NZMN2-A160-BT**	-	**NZMH2-A160-BT**	-
NZMB2-A200-BT	-	**NZMC2-A200-BT**	-	**NZMN2-A200-BT**	-	**NZMH2-A200-BT**	-
NZMB2-A250-BT	-	**NZMC2-A250-BT**	-	**NZMN2-A250-BT**	-	**NZMH2-A250-BT**	-
NZMB2-A300-BT	-	**NZMC2-A300-BT**	-	**NZMN2-A300-BT**	-	**NZMH2-A300-BT**	-
-	-	**NZMC3-A320**	**NZMC3-4-A320**	**NZMN3-A320**	**NZMN3-4-A320**	**NZMH3-A320**	**NZMH3-4-A320**
-	-	-	**NZMC3-4-A320/200**[3]	-	**NZMN3-4-A320/200**[3]	-	**NZMH3-4-A320/200**[3]
-	-	**NZMC3-A400**	**NZMC3-4-A400**	**NZMN3-A400**	**NZMN3-4-A400**	**NZMH3-A400**	**NZMH3-4-A400**
-	-	-	**NZMC3-4-A400/250**[3]	-	**NZMN3-4-A400/250**[3]	-	**NZMH3-4-A400/250**[3]
-	-	**NZMC3-A500**	**NZMC3-4-A500**	**NZMN3-A500**	**NZMN3-4-A500**	**NZMH3-A500**	**NZMH3-4-A500**
-	-	-	**NZMC3-4-A500/320**[3]	-	**NZMN3-4-A500/320**[3]	-	**NZMH3-4-A500/320**[3]
-	-	**NZMC3-A320-BT**	-	**NZMN3-A320-BT**	-	**NZMH3-A320-BT**	-
-	-	**NZMC3-A400-BT**	-	**NZMN3-A400-BT**	-	**NZMH3-A400-BT**	-
-	-	**NZMC3-A500-BT**	-	**NZMN3-A500-BT**	-	**NZMH3-A500-BT**	-
-	-	-	-	**NZMN3-AE630**	**NZMN3-4-AE630**	**NZMH3-AE630**	**NZMH3-4-AE630**
-	-	-	-	-	**NZMN3-4-AE630/400**	-	**NZMH3-4-AE630/400**
-	-	-	-	**NZMN4-AE800**	**NZMN4-4-AE800**	**NZMH4-AE800**	**NZMH4-4-AE800**
-	-	-	-	-	**NZMN4-4-AE800/500**	-	**NZMH4-4-AE800/500**
-	-	-	-	**NZMN4-AE1000**	**NZMN4-4-AE1000**	**NZMH4-AE1000**	**NZMH4-4-AE1000**
-	-	-	-	-	**NZMN4-4-AE1000/630**	-	**NZMH4-4-AE1000/630**
-	-	-	-	**NZMN4-AE1250**	**NZMN4-4-AE1250**	**NZMH4-AE1250**	**NZMH4-4-AE1250**
-	-	-	-	-	**NZMN4-4-AE1250/800**	-	**NZMH4-4-AE1250/800**
-	-	-	-	**NZMN4-AE1600**	**NZMN4-4-AE1600**	**NZMH4-AE1600**	**NZMH4-4-AE1600**
-	-	-	-	-	**NZMN4-4-AE1600/1000**	-	**NZMH4-4-AE1600/1000**

UL 489











Circuit-breaker			
Rated current = Rated uninterrupted current		Setting ranges of the release	
	$I_n = I_u$	I_r	I_i
	A	A	A
Distribution circuit and line protection			
Terminals standard Terminal screws as accessories	15	15	350
	20	20	350
	25	25	350
	30	30	350
	35	35	320 - 400
	40	40	320 - 400
	45	45	300 - 500
	50	50	300 - 500
	60	60	380 - 630
	70	70	480 - 800
	80	80	480 - 800
	90	90	600 - 1000
	100	100	600 - 1000
	110	110	750 - 1250
	125	125	750 - 1250
	150	150	960 - 1600
	175	175	1200 - 2000
	200	200	1200 - 2000
	225	225	1500 - 2500
	250	250	1500 - 2500
	300	300	600 - 3300
	350	350	700 - 3850
	400	400	800 - 4400
	450	450	900 - 3600
Standard terminal screws Terminals as accessories	500	500	1000 - 4000
	550	550	1100 - 4400
	600	600	1200 - 4800
	700	700	1400 - 8400
	800	800	1600 - 9600
	900	900	1800 - 10800
	1000	1000	2000 - 12000
	1200	1200	2400 - 14400
Motor protection in conjunction with contactors and overload relays with short-circuit releases without overload release			
Terminals standard Terminal screws as accessories	1.2	–	8 - 14
	2	–	12.8 - 22.4
	3	–	19.2 - 33.6
	5	–	32 - 56
	8	–	48 - 84
	12	–	80 - 140
	18	–	128 - 224
	26	–	200 - 350
	33	–	256 - 448
	40	–	320 - 560
	50	–	400 - 700
	63	–	504 - 882
	80	–	640 - 1120
	100	–	800 - 1250
	125	–	1000 - 1750
	160	–	1280 - 2240
Standard terminal screws Terminals as accessories	200	–	1600 - 2500
	250	–	2000 - 2500

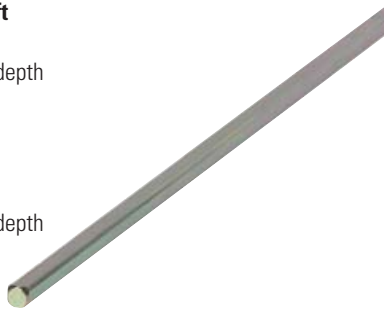
	3-pole		
	Switching capacity		
	Basic 25 kA 480 V 60 Hz 18 kA 600 V 60 Hz	Standard 35/42 kA 480 V 60 Hz 25/35 kA 600 V 60 Hz	High 85/100kA 480V 60 Hz 50kA 600V 60 Hz
	NZMB1-AF15-NA	**NZMN1-AF15-NA**	**NZMH2-AF15-NA**
	NZMB1-AF20-NA	**NZMN1-AF20-NA**	**NZMH2-AF20-NA**
	NZMB1-AF25-NA	**NZMN1-AF25-NA**	**NZMH2-AF25-NA**
	NZMB1-AF30-NA	**NZMN1-AF30-NA**	**NZMH2-AF30-NA**
	NZMB1-AF35-NA	**NZMN1-AF35-NA**	**NZMH2-AF35-NA**
	NZMB1-AF40-NA	**NZMN1-AF40-NA**	**NZMH2-AF40-NA**
	NZMB1-AF45-NA	**NZMN1-AF45-NA**	**NZMH2-AF45-NA**
	NZMB1-AF50-NA	**NZMN1-AF50-NA**	**NZMH2-AF50-NA**
	NZMB1-AF60-NA	**NZMN1-AF60-NA**	**NZMH2-AF60-NA**
	NZMB1-AF70-NA	**NZMN1-AF70-NA**	**NZMH2-AF70-NA**
	NZMB1-AF80-NA	**NZMN1-AF80-NA**	**NZMH2-AF80-NA**
	NZMB1-AF90-NA	**NZMN1-AF90-NA**	**NZMH2-AF90-NA**
	NZMB1-AF100-NA	**NZMN1-AF100-NA**	**NZMH2-AF100-NA**
	NZMB1-AF110-NA	**NZMN1-AF110-NA**	**NZMH2-AF110-NA**
	NZMB1-AF125-NA	**NZMN1-AF125-NA**	**NZMH2-AF125-NA**
	NZMB2-AF150-NA	**NZMN2-AF150-NA**	**NZMH2-AF150-NA**
	NZMB2-AF175-NA	**NZMN2-AF175-NA**	**NZMH2-AF175-NA**
	NZMB2-AF200-NA	**NZMN2-AF200-NA**	**NZMH2-AF200-NA**
	NZMB2-AF225-NA	**NZMN2-AF225-NA**	**NZMH2-AF225-NA**
	NZMB2-AF250-NA	**NZMN2-AF250-NA**	**NZMH2-AF250-NA**
	–	**NZMN3-AEF300-NA**	**NZMH3-AEF300-NA**
	–	**NZMN3-AEF350-NA**	**NZMH3-AEF350-NA**
	–	**NZMN3-AEF400-NA**	**NZMH3-AEF400-NA**
	–	**NZMN3-AEF450-NA**	**NZMH3-AEF450-NA**
	–	**NZMN3-AEF500-NA**	**NZMH3-AEF500-NA**
	–	**NZMN3-AEF550-NA**	**NZMH3-AEF550-NA**
	–	**NZMN3-AEF600-NA**	**NZMH3-AEF600-NA**
	–	**NZMN4-AEF700-NA**	**NZMH4-AEF700-NA**
	–	**NZMN4-AEF800-NA**	**NZMH4-AEF800-NA**
	–	**NZMN4-AEF900-NA**	**NZMH4-AEF900-NA**
	–	**NZMN4-AEF1000-NA**	**NZMH4-AEF1000-NA**
	–	**NZMN4-AEF1200-NA**	**NZMH4-AEF1200-NA**
	NZMB1-S1,2-CNA	**NZMN1-S1,2-CNA**	–
	NZMB1-S2-CNA	**NZMN1-S2-CNA**	–
	NZMB1-S3-CNA	**NZMN1-S3-CNA**	–
	NZMB1-S5-CNA	**NZMN1-S5-CNA**	–
	NZMB1-S8-CNA	**NZMN1-S8-CNA**	–
	NZMB1-S12-CNA	**NZMN1-S12-CNA**	–
	NZMB1-S18-CNA	**NZMN1-S18-CNA**	–
	NZMB1-S26-CNA	**NZMN1-S26-CNA**	–
	NZMB1-S33-CNA	**NZMN1-S33-CNA**	–
	NZMB1-S40-CNA	**NZMN1-S40-CNA**	–
	NZMB1-S50-CNA	**NZMN1-S50-CNA**	–
	NZMB1-S63-CNA	**NZMN1-S63-CNA**	–
	NZMB1-S80-CNA	**NZMN1-S80-CNA**	–
	NZMB1-S100-CNA	**NZMN1-S100-CNA**	–
	NZMB2-S125-CNA	**NZMN2-S125-CNA**	–
	NZMB2-S160-CNA	**NZMN2-S160-CNA**	–
	NZMB2-S200-CNA	**NZMN2-S200-CNA**	–
	NZMB2-S250-CNA	**NZMN2-S250-CNA**	–

Auxiliary contacts				
Version	For use with	Max. number of auxiliary contacts per switch	Contacts N/O = Normally open N/C = Normally closed	Part no.
Standard auxiliary contact (HIN) Switching with the main contacts Used for indicating and interlocking tasks		N(S)1, PN1, NZM1: 1 N(S)2, PN2, NZM2: 2 N(S)3, PN3, NZM3: 3 N(S)4, NZM4: 3		
With bolt connection 	NZM1(-4), 2(-4), 3(-4), 4(-4) PN1(-4), 2(-4), 3(-4) N(S)1(-4), 2(-4), 3(-4), 4(-4)		1 N/O – – 1 N/C	**M22-K10** **M22-K01**
With cage clamp connection.	NZM1(-4), 2(-4), 3(-4), 4(-4) PN1(-4), 2(-4), 3(-4) N(S)1(-4), 2(-4), 3(-4), 4(-4)		1 N/O 1 N/C 2 N/O – – 2 N/C	**M22-CK11** **M22-CK20** **M22-CK02**
Early-make auxiliary contacts For interlock and load-shedding circuits, as well as for early-make switching of the undervoltage release with main switch / emergency-Stop applications				
With clamp terminal on the left-hand switch side.	NZM1(-4) PN1(-4) N(S)1(-4)		2 N/O –	**NZM1-XHIV**
With clamp terminal on the right-hand switch side.	NZM1(-4) PN1(-4) N(S)1(-4)		2 N/O –	**NZM1-XHIVR**
With 3 m connecting cables instead of bolt connection. 	NZM1(-4) PN1(-4) N(S)1(-4)		2 N/O –	**NZM1-XHIVL**
With bolt connection	NZM2(-4), 3(-4) PN2(-4), 3(-4) N(S)2(-4), 3(-4)	N(S)1, NZM1: 1 N(S)2, NZM2: 1 N(S)3, NZM3: 1 N(S)4, NZM4: 2	2 N/O –	**NZM2/3-XHIV**
	NZM4(-4) N(S)4(-4)		2 N/O –	**NZM4-XHIV**
Trip indicating auxiliary contact (HIA)[1] General trip indication "+" with trip by voltage release, overload release or short-circuit release				
With bolt connection 	NZM1(-4), 2(-4), 3(-4), 4(-4) N(S)1(-4), 2(-4), 3(-4), 4(-4)		1 N/O – – 1 N/C	**M22-K10** **M22-K01**
With cage clamp connection.	NZM1(-4), 2(-4), 3(-4), 4(-4) N(S)1(-4), 2(-4), 3(-4), 4(-4)		1 N/O 1 N/C 2 N/O – – 2 N/C	**M22-CK11** **M22-CK20** **M22-CK02**

[1] not in conjunction with switch-disconnector PN

Release		Undervoltage release[1]		Overvoltage release[2]	
Version	For use with	Without auxiliary contact		Without auxiliary contact	
		Rated control voltage U_S V	**Part no.**	Rated control voltage U_S V	**Part no.**
With clamp terminal on the left-hand switch side. 	NZM1(-4), N(S)1(-4)	24 V 50/60 Hz 110 V – 130 V 50/60 Hz 208 V – 240 V 50/60 Hz 380 V – 440 V 50/60 Hz 12 V DC 24 V DC 110 V – 130 V DC 220 V – 250 V DC	**NZM1-XU24AC** **NZM1-XU110-130AC** **NZM1-XU208-240AC** **NZM1-XU380-440AC** **NZM1-XU12DC** **NZM1-XU24DC** **NZM1-XU110-130DC** **NZM1-XU220-250DC**	12 V AC/DC 24 V AC/DC 110 V – 130 V AC/DC 208 V – 250 V AC/DC 380 V – 440 V AC/DC	**NZM1-XA12AC/DC** **NZM1-XA24AC/DC** **NZM1-XA110-130AC/DC** **NZM1-XA208-250AC/DC** **NZM1-XA380-440AC/DC**
With 3 m connection cable instead of screw termination. 	NZM1(-4), N(S)1(-4)	24 V 50/60 Hz 110 V – 130 V 50/60 Hz 208 V – 240 V 50/60 Hz 380 V – 440 V 50/60 Hz 12 V DC 24 V DC 110 V – 130 V DC 220 V – 250 V DC	**NZM1-XUL24AC** **NZM1-XUL110-130AC** **NZM1-XUL208-240AC** **NZM1-XUL380-440AC** **NZM1-XUL12DC** **NZM1-XUL24DC** **NZM1-XUL110-130DC** **NZM1-XUL220-250DC**	12 V AC/DC 24 V AC/DC 110 V – 130 V AC/DC 208 V – 250 V AC/DC 380 V – 440 V AC/DC	**NZM1-XAL12AC/DC** **NZM1-XAL24AC/DC** **NZM1-XAL110-130AC/DC** **NZM1-XAL208-250AC/DC** **NZM1-XAL380-440AC/DC**
With clamp-type terminals 	NZM2(-4), N2(-4), NZM3(-4) N(S)3(-4)	24 V 50/60 Hz 110 V – 130 V 50/60 Hz 208 V – 240 V 50/60 Hz 380 V – 440 V 50/60 Hz 12 V DC 24 V DC 110 V – 130 V DC 220 V – 250 V DC	**NZM2/3-XU24AC** **NZM2/3-XU110-130AC** **NZM2/3-XU208-240AC** **NZM2/3-XU380-440AC** **NZM2/3-XU12DC** **NZM2/3-XU24DC** **NZM2/3-XU110-130DC** **NZM2/3-XU220-250DC**	12 V AC/DC 24 V AC/DC 110 V – 130 V AC/DC 208 V – 250 V AC/DC 380 V – 440 V AC/DC	**NZM2/3-XA12AC/DC** **NZM2/3-XA24AC/DC** **NZM2/3-XA110-130AC/DC** **NZM2/3-XA208-250AC/DC** **NZM2/3-XA380-440AC/DC**
With clamp-type terminals 	NZM4(-4), N(S)4(-4)	24 V 50/60 Hz 110 V – 130 V 50/60 Hz 208 V – 240 V 50/60 Hz 380 V – 440 V 50/60 Hz 12 V DC 24 V DC 110 V – 130 V DC 220 V – 250 V DC	**NZM4-XU24AC** **NZM4-XU110-130AC** **NZM4-XU208-240AC** **NZM4-XU380-440AC** **NZM4-XU12DC** **NZM4-XU24DC** **NZM4-XU110-130DC** **NZM4-XU220-250DC**	12 V AC/DC 24 V AC/DC 110 V – 130 V AC/DC 208 V – 250 V AC/DC 380 V – 440 V AC/DC	**NZM4-XA12AC/DC** **NZM4-XA24AC/DC** **NZM4-XA110-130AC/DC** **NZM4-XA208-250AC/DC** **NZM4-XA380-440AC/DC**

[1] non-delayed shut down of circuit-breaker NZM or switch-disconnector N with drop of the control voltage below 35 – 70% U_S.
For use with Emergency-Stop devices in conjunction with Emergency-Stop button.
[2] switches are tripped by a voltage pulse or by the application of uninterrupted voltage

Door coupling rotary handles			Connection types
Version	For use with	**Part no.**	
Door coupling rotary handle Complete including rotary drive and coupling parts With the NZM...-XTVD... as well as NZM...-XTVD...60 types, an additional extension shaft is required. Degree of protection IP66/NEMA 4X Standard, black/grey 	NZM1(-4), PN1(-4), N(S)1(-4) NZM2(-4), PN2(-4), N(S)2(-4) NZM3(-4), PN3(-4), N(S)3(-4) NZM4(-4), N(S)4(-4)	**NZM1-XTVD** **NZM2-XTVD** **NZM3-XTVD** **NZM4-XTVD**	 
Lockable on handle and switch. Can be locked in 0 position, with adequate modification also in I position. Lockable door as additional feature, locking facility on circuit-breaker in 0 position. 	NZM1(-4), PN1(-4), N(S)1(-4) NZM2(-4), PN2(-4), N(S)2(-4) NZM3(-4), PN3(-4), N(S)3(-4) NZM4(-4), N(S)4(-4)	**NZM1-XTVDV** **NZM2-XTVDV** **NZM3-XTVDV** **NZM4-XTVDV**	
Red-yellow for Emergency-Stop Lockable on handle and switch. Can be locked in 0 position, with adequate modification also in I position. Lockable door as additional feature, locking facility on circuit-breaker in 0 position. 	NZM1(-4), PN1(-4), N(S)1(-4) NZM2(-4), PN2(-4), N(S)2(-4) NZM3(-4), PN3(-4), N(S)3(-4) NZM4(-4), N(S)4(-4)	**NZM1-XTVDVR** **NZM2-XTVDVR** **NZM3-XTVDVR** **NZM4-XTVDVR**	 
Extension shaft 400 mm Max. mounting depth  600 mm Max. mounting depth	NZM1(-4), PN1(-4), N(S)1(-4) NZM2(-4), PN2(-4), N(S)2(-4) NZM3(-4), PN3(-4), N(S)3(-4) NZM4(-4), N(S)4(-4) NZM1(-4), PN1(-4), N(S)1(-4) NZM2(-4), PN2(-4), N(S)2(-4) NZM3(-4), PN3(-4), N(S)3(-4) NZM4(-4), N(S)4(-4)	**NZM1/2-XV4** **NZM3/4-XV4** **NZM1/2-XV6** **NZM3/4-XV6**	
Toggle lever locking facilities 	NZM1-1 NZM1(-4), PN2(-4), N(S)1(-4) NZM2/3(-4), PN2/3(-4), N(S)2/3(-4)	**NZM1-1-XKAV** **NZM1-XKAV** **NZM2/3-XKAV**	

For use with	Conductor type	Conductor cross-section (applies for 3-pole and 4-pole switches)				**Part no.**
		mm^2	AWG/kcmil	Cu-Band mm	Copper strip mm	O=fitted at top U=fitted at bottom
Box terminal						
NZM2, PN2, N(S)2 3-pole ≤ 160 A NZM2, PN2, N(S)2 200 A, 250 A	Cu cables Cu cable	1 x 4 – 185 2 x 4 – 70	1 x 12 – 350	f 2 x 9 x 0.8		+**NZM2-160-XKCO** +**NZM2-160-XKCU** +**NZM2-250-XKCO** +**NZM2-250-XKCU**
NZM2-4, PN2-4, N2-4 4-pole ≤ 160 A NZM2-4, PN2-4, N2-4 200 A, 250 A						+**NZM2-4-160-XKCO** +**NZM2-4-160-XKCU** +**NZM2-4-250-XKCO** +**NZM2-4-250-XKCU**
max. 500 A, and 400 A UL/CSA NZM3, PN3, N(S)3 3-pole NZM3-4, PN3-4, N3-4 4-pole	Cu cables Cu cable	1 x 35 – 240 2 x 16 – 120	1 x 2 – 500	min. 6 x 16 x 0.8 max. 10 x 24 x 1.0		+**NZM3-XKCO** +**NZM3-XKCU** +**NZM3-4-XKCO** +**NZM3-4-XKCU**
630 A				10 x 24 x 1.0 + 5 x 24 x 1.0		
Shroud						
NZM1-1 1-pole NZM2, PN2, N(S)2 3-pole NZM3, PN3, N(S)3						**NZM1-1-XKSA** **NZM2-XKSA** **NZM3-XKSA**
NZM2-4, PN2-4, N2-4 4-pole NZM3-4, PN3-4, N3-4						**NZM2-4-XKSA** **NZM3-4-XKSA**
Screw terminal Standard equipment max. 1250 A NZM4, N(S)4 3- and NZM4-4, N4-4) 4-pole 1600 A	Cu lugs	1 x 120 – 185 4 x 50 – 185	1 x 250 – 350 4 x 0 – 350	(2 x) 10 x 50 x 1.0	(2 x) 50 x 10	
Module plate						
max. 1250A 1-hole NZM4, N(S)4 3-pole NZM4-4, N4-4 4-pole	Cu lugs	1 x 120 – 300 2 x 95 – 300	1 x 250 – 600 2 x 000 – 600	(2 x) 10 x 40 x 1.0 (2 x) 10 x 50 x 1.0	(2 x) 40 x 10 (2 x) 50 x 10	**NZM4-XKM1** **NZM4-4-XKM1**
max. 1400A 2-hole NZM4, N(S)4 3-pole NZM4-4, N4-4 4-pole	Cu lugs	2 x 95 – 185 4 x 35 – 185	2 x 000 – 350 4 x 2 – 350			**NZM4-XKM2** **NZM4-4-XKM2**
max. 1500A				(2 x) 10 x 50 x 1.0	(2 x) 50 x 10	
Module plate						
max. 1250A 2-hole NZM4, N(S)4 3-pole NZM4-4, N4-4 4-pole	Cu lugs	2 x 95 – 300	2 x 000 –600			**NZM4-XKM2S-1250** **NZM4-4-XKM2S-1250**
1600A 2-hole NZM4, N(S)4 3-pole NZM4-4, N4-4 4-pole				(2 x) 10 x 50 x 1.0	(2 x) 50 x 10	**NZM4-XKM2S-1600** **NZM4-4-XKM2S-1600**
Connection width extension 630 A						
NZM3, PN3, N(S)3 3-pole NZM3-4, PN3-4, N3-4 4-pole 1600 A	Cu-lugs Al lugs	2 x 300	2 x 500	(2 x) 10 x 50 x 1.0	(2 x) 10 x 50	**NZM3-XKV70** **NZM3-4-XKV70**
NZM4, N(S)4 3-pole NZM4-4, N4-4 4-pole	Cu lugs	4 x 300 6 x 95 – 240	4 x 600 6 x 000 – 500	max. (2 x) 10 x 80 x 1.0	max. (2 x) 80 x 10	**NZM4-XKV95** **NZM4-XKV110** **NZM4-4-XKV95** **NZM4-4-XKV120**

Residual-current protection module up to 250 A rated current





The residual-current protection modules can be connected to the bottom of the circuit-breaker NZM1 and NZM2, and on the NZM1 also on the right hand side with the same contour design. A compact and mounting-friendly solution. An external auxiliary voltage is not required. The residual-current protection module of the NZM2 is independent of the mains voltage and can thus be used for personnel protection in Germany. It is available in pulse current sensitive and also in AC/DC current sensitive devices. In almost every mains configuration 3-pole and 4-pole variants as well as rated fault currents from 30 mA to time-discriminating 3 A are on offer.
During a fault the rising fault current will initially be indicated by an LED on the RCCB for the NZM1. The circuit-breaker trips via the residual-current release only after the set fault current is exceeded, i.e. the main contacts will be opened. The cause of the fault is indicated mechanically on the device with the NZM1 and 2. Optional auxiliary contacts can be clipped on in order to remotely indicate the trip. The circuit-breaker and the residual-current release must be reset and switched back on in order to restore the power supply.

Fault current trip				**3-pole**	**4-pole**
Version		Rated uninterrupted current	Rated fault current delay time	**Part no.**	**Part no.**
Pulse current sensitive					
Mounted at side		max 160A	$I_{\Delta n}$ = 0.03 A	**NZM1-XFI30R**	**NZM1-4-XFI30R**
Mounted at bottom		max 100A		**NZM1-XFI30U**	**NZM1-4-XFI30U**
Mounted at side		max 160A	$I_{\Delta n}$ = 0.3 A	**NZM1-XFI300R**	**NZM1-4-XFI300R**
Mounted at bottom		max 100A		**NZM1-XFI300U**	**NZM1-4-XFI300U**
Mounted at side		max 160A	$I_{\Delta n}$ = 0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 A tv = 10 - 60 - 150 - 300 - 450 ms	**NZM1-XFIR**	**NZM1-4-XFIR**
Mounted at bottom		max 100A		**NZM1-XFIU**	**NZM1-4-XFIU**
Mounted at bottom		max 250A	$I_{\Delta n}$ = 0.03 A	**-**	**NZM2-4-XFI30**
		max 250A	$I_{\Delta n}$ = 0.1 - 0.3 - 1 - 3 A tv = 60 - 150 - 300 - 450 ms	**-**	**NZM2-4-XFI**
AC/DC sensitive					
Mounted at bottom		max 250A	$I_{\Delta n}$ = 0.03 A	**-**	**NZM2-4-XFIA30**
		max 250A	$I_{\Delta n}$ = 0.1 - 0.3 - 1 A tv = 60 - 150 - 300 - 450 ms	**-**	**NZM2-4-XFIA**

NZM 2 with RCCB module for welding applications



The 3-pole circuit-breaker with residual-current release for equipment with power electronics such as inverters and frequency inverters is particularly suitable for welding applications. The RCCB module is pulse current sensitive and operates according to the core-balance principle in a range from 0 –100 kHz. Unwanted trips due to transient, pulse-shaped errors of the operating current are prevented. The function is mains voltage independent.

- Suitable for use in three-phase systems
- Rated operational voltage 400V/ 50/60 Hz
- Rated fault current I_D n = 0.03 A
- Built-in power supply U_e = 50 – 400 V
- Pulse current sensitive
- Non-UL/CSA approved

Circuit-breaker with residual-current release			
Rated current = rated uninterrupted current $I_n = I_u$ A	Overload release I_r A	Short-circuit release I_i A	**Part no.** Typical high switching capacity 150 kA at 415 V 50/60 Hz
160	125...160	960...1600	**NZMH2-A160-FIA30**
200	160...200	1200...2000	**NZMH2-A200-FIA30**
250	200...250	1500...2500	**NZMH2-A250-FIA30**

Circuit-breakers for applications up to 1000 V AC



The special series for up to 1000 V 50Hz rated operational voltage further extends the area of application for circuit-breakers and switch-disconnectors. They are particularly suitable for use under special environmental conditions such as mines, street tunnels, refineries, chemical plants and electric railways. Typical applications include higher power drives and general industrial power supply with long power lines.

Circuit-breaker 3-pole for 1000 V AC								
With main switch characteristics to IEC/EN 60204 and isolating characteristics to IEC/EN 60947, VDE 660								
Switching capacity	**Protection of systems and cables**			**Selectively-opening circuit-breakers**			**Motor protection**	
1000 V kA/cos v I_{cu}	10 / 0.5	15 / 0.5	20 / 0.3	10 / 0.5	15 / 0.5	20 / 0.3	15 / 0.5	20 / 0.3
rated uninterrupted current I_u = rated current I_n	I_u	I_u	I_u	I_u	I_u	I_u	I_u	I_u
ambient temperature at 100% I_u min./max. -25 / +50	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**
	NZMH2-A...-S1 20 - 300	**NZMH3-AE...-S1** 250 - 630	**NZMH4-AE...-S1** 630 - 1600	**NZMH2-VE...-S1** 100 - 250	**NZMH3-VE...-S1** 400 - 630	**NZMH4-VE...-S1** 630 - 1600	**NZMH3-ME...-S1** 220 - 450	**NZMH4-ME...-S1** 550 - 1400

Flexible fault current protection up to 1800 A current rating







Protection against the dangers of electrical energy with insulation faults

The new Eaton relay/transducer combination covers operating currents in a range from 1 to 1800 A. The wide spectrum of applications ranges from general power distribution tasks to individual motor controls. The fault currents which are detected and processed by the relay range from 30 mA to 5 A. The adjustable relay provides a pre-warn function which alerts before the set fault current is exceeded. The pre-warning allows preventative action to be taken to prevent shutdown of the electrical energy.

The application range of the relay/transducer combinations extend – depending on the regulations which apply – from personnel protection to fire protection, and even extends up to protection of systems for 1 to 4 pole power grids. The current relay signals that the set fault current has been exceeded with a changeover contact. Depending on the application, the contact signal can be subsequently processed in the controls, as well as by the shunt or undervoltage releases of a circuit-breaker which initiate the trip. The relay and transducer can be combined with every circuit-breaker. The compact ring-type transducer with no particular space requirement is placed at a suitable position on the cable run. The relay simply requires a free electrical cable connection.

Compact, safe, adaptable ...

... just as it should be, the fault current protection which is particularly suited for cramped spaces such as for example in service distribution systems.
Ring-type transducers which are arranged in a space saving manner on the cabling run and the measuring relay which is simply snapped onto the DIN mounting rail, combine to form a functional unit.
After a critical fault current has been exceeded, the output signal can be optionally channelled to an acoustic/optical signalling device, upstream control or directly to the shunt or undervoltage release of a motor-protective circuit-breaker/circuit-breaker for instantaneous shutdown.
Three different relay variants are available for different protective tasks: 30 mA as well as 300 mA sensitivity with a fixed setting and 30 mA to 5 A adjustable in fixed steps, which can be combined with a time delay of 20 ms to 5 s.
The non-delayed standard devices are particularly suited for protection of systems. The time-delayed variants are intended for discriminative series connection of multiple switch/relay combinations. This ensures, that only the switch in the direct vicinity of the fault will trip.



Two colour LED's signal operating and fault states

Possible wiring faults between relay and transducers are indicated by illumination of both LED's. Diagnostics function with adjustable PFR-5 relay: If the set fault current is exceeded by more than 25, 50 or 75%, the red LED will flash at different frequencies. This alert feature ensures that trouble-shooting for the cause of the fault can commence before a critical state is reached.

Two pushbuttons enable test and reset of the relay

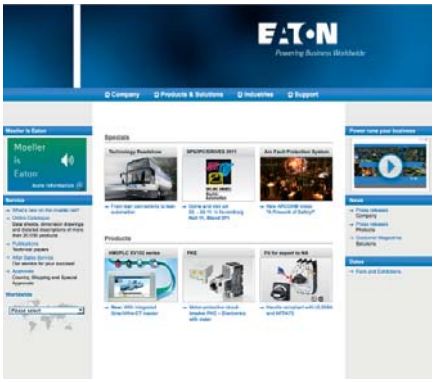
Test: The function of the relay electronics is tested and the trip signal can be used to control the shunt or undervoltage release of the connected circuit-breaker. This test checks the operation of the entire function chain comprised of measured value input, processing, signal routing as well as switch release.
Reset: The release signal is reset regardless of if it is received from a fault current or by operation of the test button.

Residual current relay with ring-type transducer

		Part no.	
Residual current relay Pulse current sensitive 	Rated control voltage: U_s = 230V A.C. (50/60 Hz) Integrated auxiliary switch (1 changeover contact)		
	Rated fault current $I_{\Delta n}$ = 0.03 A	**PFR-003**	
	Rated fault current $I_{\Delta n}$ = 0.3 A	**PFR-03**	
	Rated fault current $I_{\Delta n}$ = 0.03...5 A Adjustable fault current and delay time Fault current prewarning by flashing red LED	**PFR-5**	PFR-5: Adjustable fault current: 0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 A Adjustable delay time: 0.02 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 s
Ring-type transducer 	Internal diameter 20 mm	**PFR-W-20**	PFR-W-20 and PFR-W-30 incl. attachment clip for DIN top-hat rail
	Internal diameter 30 mm	**PFR-W-30**	
	Internal diameter 35 mm	**PFR-W-35**	PFR-W-35 and all larger transducers incl. screw fitting
	Internal diameter 70 mm	**PFR-W-70**	
	Internal diameter 105 mm	**PFR-W-105**	Engineering note: The transducer diameter must be selected to be 1.5 times larger than the diameter of the conductor lead through (see Technical Data).
	Internal diameter 140 mm	**PFR-W-140**	
	Internal diameter 210 mm	**PFR-W-210**	



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Published by:
Eaton Industries (Austria) GmbH
Scheydgasse 42
A-1215 Vienna

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Subject to technical modifications.
No responsibility is taken for misprints or errata.
Printed in Austria (12/11)
Graphic design: SRA, Schrems
Printing: Rabl, Schrems
W1230-7590GB
Article No.: 110412

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- The door of the enclosure is easy to remove in case any further mechanical work needs to be carried out. Concealed inside hinges according quick-change technology are easy to remove for this purpose and provide for quick and easy reversal of the hinging from left to right and vice-versa.

Technical features at a glance

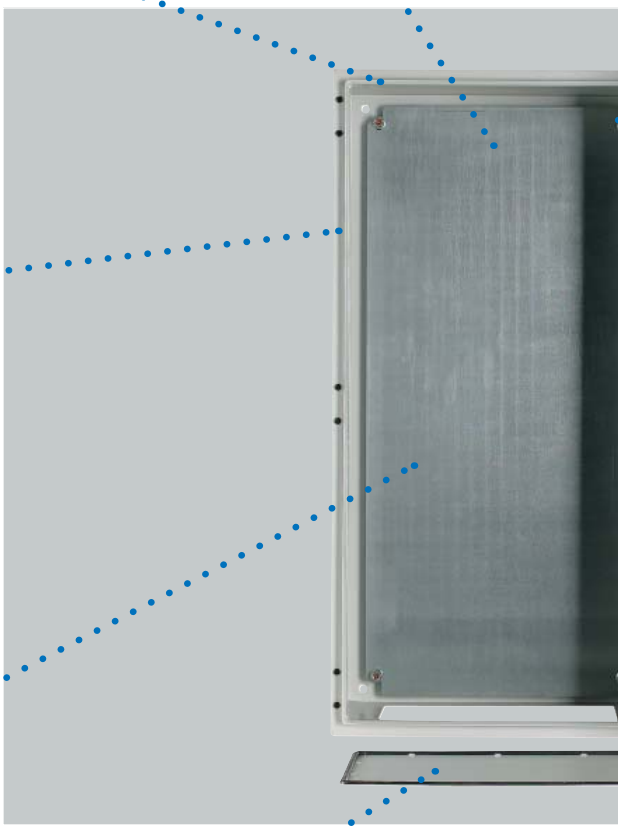
- **Rainwater drain profile**
  Prevents liquids (such as water or oil) and dirt from penetrating when opening the door.



- **Stable design of the enclosures**
  Made of high-grade sheet steel. Protection against mechanical impact.



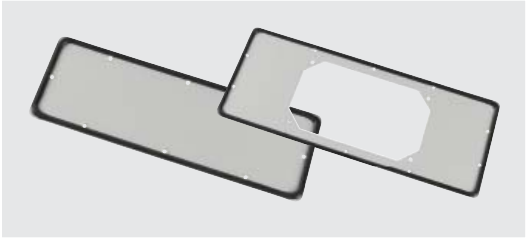
- **RAL7035**
  Surface and corrosion protection through a rough-type powder-coating inside and out, RAL 7035.



- **Mounting plate**
  Galvanized sheet steel 2 - 3 mm thick for safe installation of switchgear and basic EMC protection.



- **Flange plate**
  With coextruded seal, sSheet steel for own production. The enclosure can be turned by 180° for cable insertion at the top or bottom.



- **Wall-mounting brackets**
  For fixing the enclosures on the wall. Mounting in horizontal and vertical direction possible.





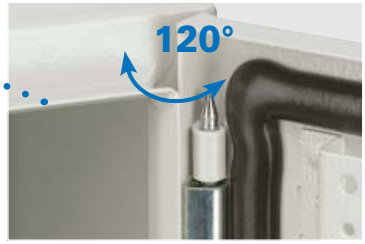
- **Foamed sealing**
  Guarantees absolute tightness. IP66 is guaranteed for the entire series.



- **Standardized locking system**
  with twist lock.
  For use with standardized locks.



- **Door-hinging**
  Optionally left or right-hinged on either 2 or 3 inside hinges.



- **Hinge bolt with quick-change technology**
  For quick and easy removal of the door in case of further work to be carried out.



CS Wall-Mounted Sheet Steel Enclosures with Mounting Plate

VT41014



VT42614



VT52114



Dimensions [mm] Height A	Width B	Depth C	Number of doors	Number of locks	Number of hinges	Door-Profiles Number
250	200	150	1	1	2	1
300	200	150	1	1	2	1
300	300	150	1	1	2	2
300	300	200	1	1	2	2
300	400	200	1	1	2	2
400	300	150	1	1	2	2
400	300	200	1	1	2	2
400	400	150	1	1	2	2
400	400	200	1	1	2	2
400	600	200	1	1	2	2
400	600	250	1	1	2	2
400	600	300	1	1	2	2
500	400	150	1	2	2	2
500	400	200	1	2	2	2
500	400	250	1	2	2	2
500	500	250	1	2	2	2
600	400	150	1	2	2	2
600	400	200	1	2	2	2
600	400	250	1	2	2	2
600	500	150	1	2	2	2
600	500	200	1	2	2	2
600	500	250	1	2	2	2
600	600	200	1	2	2	2
600	600	250	1	2	2	2
600	600	300	1	2	2	2
600	800	300	1	2	2	2
700	500	200	1	2	2	2
700	500	250	1	2	2	2
800	400	200	1	2	3	2
800	400	250	1	2	3	2
800	600	200	1	2	3	2
800	600	250	1	2	3	2
800	600	300	1	2	3	2
800	800	200	1	2	3	2
800	800	300	1	2	3	2
800	1000	300	1	2	3	2
1000	600	250	1	3P	3	2
1000	600	300	1	3P	3	2
1000	800	250	1	3P	3	2
1000	800	300	1	3P	3	2
1000	1000	300	1	3P	3	2
1200	600	250	1	3P	3	2
1200	800	300	1	3P	3	2
1200	1000	300	1	3P	3	2
1200	1200	250	1	3P	3	2

3P: 3-Point-Locking-System

Flange plates Number	t1 x t2 [mm]	max. F3A	Dimensions [mm] of mounting plate	Weight [kg] incl. mounting plate	Type Designation	Article No.	Units per package (pcs.)
1	112 x 182	0	220 x 150	3,4	CS-2520/150	111646	1
1	112 x 182	0	270 x 150	3,9	CS-32/150	111647	1
1	112 x 232	0	270 x 250	5,2	CS-33/150	111648	1
1	172 x 262	1	270 x 250	6,1	CS-33/200	111649	1
1	172 x 332	1	270 x 350	7,4	CS-34/200	111680	1
1	112 x 232	0	370 x 250	6,6	CS-43/150	111681	1
1	172 x 262	1	370 x 250	7,6	CS-43/200	111682	1
1	112 x 332	0	370 x 350	8,7	CS-44/150	111683	1
1	172 x 332	1	370 x 350	9,7	CS-44/200	111684	1
1	172 x 532	2	370 x 550	13,4	CS-46/200	111685	1
1	172 x 532	2	370 x 550	14,3	CS-46/250	111686	1
1	172 x 532	2	370 x 550	15,7	CS-46/300	111687	1
1	112 x 332	0	470 x 350	10,1	CS-54/150	111688	1
1	172 x 332	1	470 x 350	10,9	CS-54/200	111689	1
1	172 x 332	1	470 x 350	11,9	CS-54/250	111690	1
1	172 x 432	1	470 x 450	14,5	CS-55/250	111691	1
1	112 x 332	0	570 x 350	12,4	CS-64/150	111692	1
1	172 x 332	1	570 x 350	13,2	CS-64/200	111693	1
1	172 x 332	1	570 x 350	14,5	CS-64/250	111694	1
1	112 x 332	0	570 x 450	15,4	CS-65/150	111695	1
1	172 x 432	1	570 x 450	16,8	CS-65/200	111696	1
1	172 x 432	1	570 x 450	17,1	CS-65/250	111697	1
1	172 x 532	2	570 x 550	21,8	CS-66/200	111698	1
1	172 x 532	2	570 x 550	23,1	CS-66/250	111699	1
1	172 x 532	2	570 x 550	24,5	CS-66/300	111700	1
1	172 x 732	3	570 x 750	34,8	CS-68/300	111701	1
1	172 x 432	1	670 x 450	21,1	CS-75/200	111702	1
1	172 x 432	1	670 x 450	21,6	CS-75/250	111703	1
1	172 x 332	1	770 x 350	21,7	CS-84/200	111704	1
1	172 x 332	1	770 x 350	23,2	CS-84/250	111705	1
1	172 x 532	2	770 x 550	30,2	CS-86/200	111706	1
1	172 x 532	2	770 x 550	32,8	CS-86/250	111707	1
1	172 x 532	2	770 x 550	34,9	CS-86/300	111708	1
1	172 x 732	3	770 x 750	39,0	CS-88/200	111709	1
1	172 x 732	3	770 x 750	42,8	CS-88/300	111710	1
1	172 x 932	3	770 x 950	54,2	CS-810/300	111711	1
1	172 x 532	2	970 x 550	43,3	CS-106/250	111712	1
1	172 x 532	2	970 x 550	45,4	CS-106/300	111713	1
1	172 x 732	3	970 x 750	55,5	CS-108/250	111714	1
1	172 x 732	3	970 x 750	56,1	CS-108/300	111715	1
1	172 x 932	3	970 x 950	68,0	CS-1010/300	111716	1
1	172 x 532	2	1170 x 550	50,2	CS-126/250	111717	1
1	172 x 732	3	1170 x 750	67,7	CS-128/300	111718	1
1	172 x 932	3	1170 x 950	83,2	CS-1210/300	111719	1
2	2x 172x532	4	1170 x 1150	94,2	CS-1212/250	111720	1

Set of Wall-Mounting Brackets

- For fixing the enclosures on the wall
- Vertical or horizontal mounting
- Material of the brackets: zinc-plated sheet steel 3 mm
- One set includes 4 wall-mounting brackets plus mounting accessories

VT03010



For enclosure	Type Designation	Article No.	Units per package (pcs.)
CS	WFB-SET-CS	112639	1

Universal Locks

- Lock plate made of high-grade, shock-proof zinc die-casting
- Lock inserts and lock bolts made of metal
- Colour dusty grey RAL 7037, powder-coated
- For indoor and outdoor applications
- Counternut of metal, with chamfering
- Compatible with standard lock bolts
- For standardized door cut-outs sized 22.5 x 20.4 mm

VT11910, VT11810, VT12010



Description	Type Designation	Article No.	Units per package (pcs.)
3 mm two-way key-bit	LC-DBIT3-CS	133102	1
5 mm two-way key-bit	LC-DBIT5-CS	133103	1
Identical locking, lock cylinder with 2 keys	LC-ZSBIT-CS	133104	1

Ease-of-use Rotary Handle

- Rotary handle suitable for standardized profile half-cylinders
- With integrated indication of lock position
- Available as a retro-fitting or complete set
- Handle made of high-grade shock-proof zinc die-casting
- Compatible with all LC-... universal locks
- For standardized door cut-outs sized 22.5 x 20.4 mm
- Colour dusty grey RAL 7037, powder-coated
- Profile half-cylinder to be ordered separately

VT12210, VT12110



PHZ-A-COMP



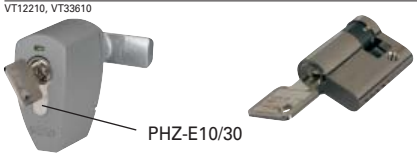
PHZ-A-ADD-ON

Description	Type Designation	Article No.	Units per package (pcs.)
Complete set	PHZ-A-COMP	133105	1
Retro-fitting set	PHZ-A-ADD-ON	133106	1

Profile Half-Cylinder for Ease-of-use Handles

- For rotary and clip-down ease-of-use handles
- Lock-cylinder finish according to DIN 18252 and DIN EN 1303
- Profile half-cylinder 10/30 with pin closures made of nickel silver
- 8-fold adjustable lock bit, 5 pairs of pins
- Keyed alike or different

VT12210, VT33610



Description	Type Designation	Article No.	Units per package (pcs.)
1 Key included, keyed alike	PHZ-E10/30-GS	138574	1
3 Keys included, keyed different	PHZ-E10/30-VS	138575	1

Spare Key for Profile Half-Cylinder

- For profile half-cylinder PHZ-E...-GS

VT12510

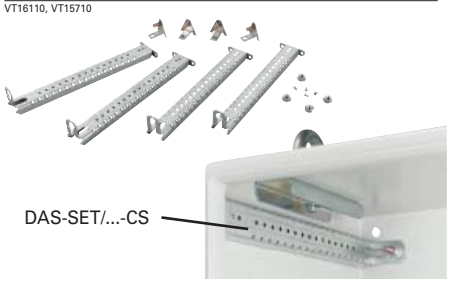


Description	Type Designation	Article No.	Units per package (pcs.)
Identical locking	KEY-E10/30-GS	138576	4

Depth-Adjustment Elements for Mounting Plates

- Depth-adjustable on a 25 mm grid
- Sheet steel, zinc-plated
- Fastening material included

VT16110, VT15710



Dimensions Enclosure Depth (mm)	Type Designation	Article No.	Units per package (pcs.)
150	DAS-SET/150-CS	138656	1
200	DAS-SET/200-CS	138657	1
250	DAS-SET/250-CS	138658	1
300	DAS-SET/300-CS	138659	1

Cage Nuts for Mounting Plates with Punch Holes MPP...

wa_vt29413

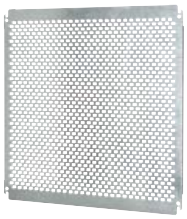


Thread of screw	Type Designation	Article No.	Units per package (pcs.)
M6	CANU-M6-CS	138710	100
M8	CANU-M8-CS	138711	100

Mounting Plate with Punch Holes, for Cage Nuts

- Punch holes for cage nuts size M6 or M8
- Sheet steel, zinc-plated
- Fastening material not included

VT15210



Dimensions Enclosure HeightxWidth (mm)	Type Designation	Article No.	Units per package (pcs.)
250x200	MPP-2520-CS	138685	1
300x200	MPP-3020-CS	138686	1
300x300	MPP-3030-CS	138687	1
300x40	MPP-3040-CS	138688	1
400x300	MPP-4030-CS	138689	1
400x400	MPP-4040-CS	138690	1
400x600	MPP-4060-CS	138691	1
500x400	MPP-5040-CS	138692	1
500x500	MPP-5050-CS	138693	1
600x400	MPP-6040-CS	138694	1
600x500	MPP-6050-CS	138695	1
600x600	MPP-6060-CS	138696	1
600x800	MPP-6080-CS	138697	1
700x500	MPP-7050-CS	138698	1
800x400	MPP-8040-CS	138699	1
800x600	MPP-8060-CS	138700	1
800x800	MPP-8080-CS	138701	1
800x1000	MPP-80100-CS	138702	1
1000x600	MPP-10060-CS	138703	1
1000x800	MPP-10080-CS	138704	1
1000x1000	MPP-100100-CS	138705	1
1200x600	MPP-12060-CS	138706	1
1200x800	MPP-12080-CS	138707	1
1200x1000	MPP-120100-CS	138708	1
1200x1200	MPP-120120-CS	138709	1

Mounting Plate without Punch Holes, Powder-coated RAL 2000

- Without punch holes, powder-coated RAL 2000
- Sheet steel
- Fastening material not included

VT15410



Dimensions Enclosure HeightxWidth (mm)	Type Designation	Article No.	Units per package (pcs.)
250x200	MPL-2520/RAL2000-CS	138712	1
300x200	MPL-3020/RAL2000-CS	138713	1
300x300	MPL-3030/RAL2000-CS	138714	1
300x400	MPL-3040/RAL2000-CS	138715	1
400x300	MPL-4030/RAL2000-CS	138716	1
400x400	MPL-4040/RAL2000-CS	138717	1
400x600	MPL-4060/RAL2000-CS	138718	1
500x400	MPL-5040/RAL2000-CS	138719	1
500x500	MPL-5050/RAL2000-CS	138720	1
600x400	MPL-6040/RAL2000-CS	138721	1
600x500	MPL-6050/RAL2000-CS	138722	1
600x600	MPL-6060/RAL2000-CS	138723	1
600x800	MPL-6080/RAL2000-CS	138724	1
700x500	MPL-7050/RAL2000-CS	138725	1
800x400	MPL-8040/RAL2000-CS	138726	1
800x600	MPL-8060/RAL2000-CS	138727	1
800x800	MPL-8080/RAL2000-CS	138728	1
800x1000	MPL-80100/RAL2000-CS	138729	1
1000x600	MPL-10060/RAL2000-CS	138730	1
1000x800	MPL-10080/RAL2000-CS	138731	1
1000x1000	MPL-100100/RAL2000-CS	138732	1
1200x600	MPL-12060/RAL2000-CS	138733	1
1200x800	MPL-12080/RAL2000-CS	138734	1
1200x1000	MPL-120100/RAL2000-CS	138735	1
1200x1200	MPL-120120/RAL2000-CS	138736	1

Mounting Plate, without Punch Holes, Galvano Zinc-plated

- Without punch holes, galvano zinc-plated
- Sheet steel
- Fastening material not included

VT15310

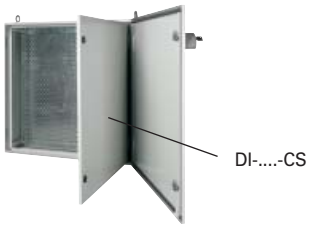


Dimensions Enclosure HeightxWidth (mm)	Type Designation	Article No.	Units per package (pcs.)
250x200	MPL-2520-CS	138747	1
300x200	MPL-3020-CS	138748	1
300x300	MPL-3030-CS	138749	1
300x400	MPL-3040-CS	138750	1
400x300	MPL-4030-CS	138751	1
400x400	MPL-4040-CS	138752	1
400x600	MPL-4060-CS	138753	1
500x400	MPL-5040-CS	138754	1
500x500	MPL-5050-CS	138755	1
600x400	MPL-6040-CS	138756	1
600x500	MPL-6050-CS	138757	1
600x600	MPL-6060-CS	138758	1
600x800	MPL-6080-CS	138759	1
700x500	MPL-7050-CS	138760	1
800x400	MPL-8040-CS	138761	1
800x600	MPL-8060-CS	138762	1
800x800	MPL-8080-CS	138763	1
800x1000	MPL-80100-CS	138764	1
1000x600	MPL-10060-CS	138765	1
1000x800	MPL-10080-CS	138766	1
1000x1000	MPL-100100-CS	138767	1
1200x600	MPL-12060-CS	138768	1
1200x800	MPL-12080-CS	138769	1
1200x1000	MPL-120100-CS	138770	1
1200x1200	MPL-120120-CS	138771	1

Door for Internal Separation

- Inside door for operating and signalling devices
- Sheet steel, powder-coated RAL 7035
- Depth-adjustment elements DAS-SET...-CS for mounting plates, required in addition
- Locks are not included in the scope of delivery LC-...BIT-CS

VT14210



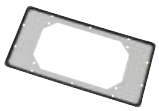
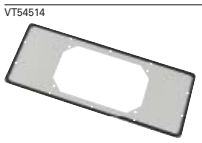
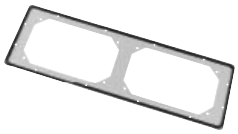
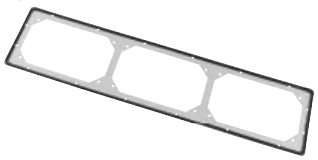
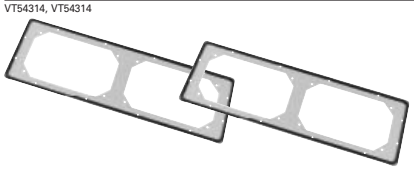
VT15610



Dimensions Enclosure HeightxWidth (mm)	Type Designation	Article No.	Units per package (pcs.)
250x200	DI-2520-CS	138660	1
300x200	DI-3020-CS	138661	1
300x300	DI-3030-CS	138662	1
300x400	DI-3040-CS	138663	1
400x300	DI-4030-CS	138664	1
400x400	DI-4040-CS	138665	1
400x600	DI-4060-CS	138666	1
500x400	DI-5040-CS	138667	1
500x500	DI-5050-CS	138668	1
600x400	DI-6040-CS	138669	1
600x500	DI-6050-CS	138670	1
600x600	DI-6060-CS	138671	1
600x800	DI-6080-CS	138672	1
700x500	DI-7050-CS	138673	1
800x400	DI-8040-CS	138674	1
800x600	DI-8060-CS	138675	1
800x800	DI-8080-CS	138676	1
800x1000	DI-80100-CS	138677	1
1000x600	DI-10060-CS	138678	1
1000x800	DI-10080-CS	138679	1
1000x1000	DI-100100-CS	138680	1
1200x600	DI-12060-CS	138681	1
1200x800	DI-12080-CS	138682	1
1200x1000	DI-120100-CS	138683	1
1200x1200	DI-120120-CS	138684	1

Bottom Panels with F3A Flange Openings

- Not suitable for CS-.../150 enclosures
- For F3A-... flanges
- With foam sealant, max. degree of protection is IP66 if correctly used with F3A-...
- Material: Sheet steel, powder-coated RAL 7035
- Can also be used as a top panel if the enclosure is turned by 180°

	For enclosure dimensions width (mm)	Number of flange	Suitable for openings	Type Designation	Article No.	Units per package (pcs.)
 VT54114	300	1	CS-33/200 CS-43/200	AFP-3-CS	112914	1
 VT54214	400	1	CS-34/200 CS-44/200 CS-54/200 CS-54/250 CS-64/200 CS-64/250 CS-84/200 CS-84/250	AFP-4-CS	112915	1
 VT54514	500	1	CS-55/250 CS-65/200 CS-65/250 CS-75/200 CS-75/250	AFP-5-CS	112916	1
 VT54314	600	2	CS-46/200 CS-46/250 CS-46/300 CS-66/200 CS-66/250 CS-66/300 CS-86/200 CS-86/250 CS-86/300 CS-106/250 CS-106/300 CS-126/250	AFP-6-CS	112917	1
 VT54414	800	3	CS-68/300 CS-88/200 CS-88/300 CS-108/250 CS-108/300 CS-128/300	AFP-8-CS	112918	1
 VT54014	1000	3	CS-810/300 CS-1010/300 CS-1210/300	AFP-10-CS	112919	1
 VT54314, VT54314	1200	2x2	CS-1212/250	AFP-12-CS	112920	1

Bottom Panels with FL21 Flange Openings

- Not suitable for CS2520/150 and CS-32/150 enclosures
- For FL21 flanges
- With foam sealant, max. degree of protection is IP66 if correctly used with FL21
- Material: Sheet steel, powder-coated RAL7035
- Can also be used as a top panel if the enclosure is turned by 180°

VT15810



For enclosure dimensions width (mm)	Number of flange	Suitable for openings	Type Designation	Article No.	Units per package (pcs.)
300	1	CS-33/150 CS-43/150	AFP-FL21/112X232-CS	144201	1
400	1	CS-44/150 CS-54/150 CS-65/150	AFP-FL21/112X332-CS	144202	1
300	1	CS-33/200 CS-43/200	AFP-FL21/172X262-CS	144203	1
400	1	CS-34/200 CS-44/200 CS-54/200 CS-54/250 CS-64/200 CS-64/250 CS-84/200 CS-84/250	AFP-FL21/172X332-CS	144204	1
500	1	CS-55/250 CS-65/200 CS-65/250 CS-75/200 CS-75/250	AFP-FL21/172X432-CS	144205	1
600	2	CS-46/200 CS-46/250 CS-46/300 CS-66/200 CS-66/250 CS-66/300 CS-86/200 CS-86/250 CS-86/300 CS-106/250 CS-106/300 CS-126/250	AFP-FL21/172X532-CS	144206	1
800	3	CS-68/300 CS-88/200 CS-88/300 CS-108/250 CS-108/300 CS-128/300	AFP-FL21/172X732-CS	144207	1
1000	3	CS-810/300 CS-1010/300 CS-1210/300	AFP-FL21/172X932-CS	144208	1
1200	2x2	CS-1212/250	AFP-FL21/172X532-CS	144206	1

Bottom Panels without Openings

- Degree of protection of the enclosure: IP66
- With foam sealant all around
- Sealant is protected in the deep-drawn area
- Powder-coated RAL 7035

wa_vt24913



Dimensions Enclosure WidthxDepth (mm)	Type Designation	Article No.	Units per pack. (pcs.)
182x112	SFP-112X182-CS	138738	1
232x112	SFP-112X232-CS	138739	1
332x112	SFP-112X332-CS	138740	1
262x172	SFP-172X262-CS	138741	1
332x172	SFP-172X332-CS	138742	1
432x172	SFP-172X432-CS	138743	1
532x172	SFP-172X532-CS	138744	1
732x172	SFP-172X732-CS	138745	1
932x172	SFP-172X932-CS	138746	1

Set of Lifting Eyebolts and Profile Brackets

- As a re-enforcement of the inside enclosure, to accommodate the lifting eyebolts
- Lifting eyebolts with an M12 thread
- Profile brackets made of stable, 3 mm thick sheet steel
- IP66 degree of protection is maintained
- Each set includes 2 lifting eyebolts, profile brackets and seals

VT16210, VT15710



Length (mm)	Type Designation	Article No	Units per pack. (pcs.)
135	TOR-SET/135-CS	140479	2

Material for Fixing on a Mast

- For fixing on round or square masts
- Set consisting of profile rail, tensioning strap and tensioning screw
- Sheet steel, zinc-plated, tensioning strap made of stainless steel
- For mast diameters of 150 to 215 mm

VT33510

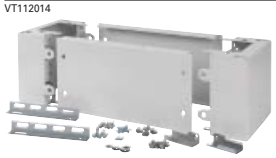


Dimensions Enclosure Width (mm)	Type Designation	Article No	Units per pack. (pcs.)
300	MAST-FIT-CS	140478	1
400			
500			
600			
800			

Cable Interconnect Base

- Height 200 mm
- Sheet steel, powder-coated RAL 7035
- Front and side panels can be removed
- Fastening material is included
- Cable strain relief rail is not included in the scope of delivery

VT112014

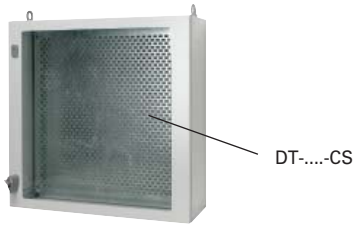


Dimensions Enclosure WidthxDepth (mm)	Type Designation	Article No	Units per (pcs.)
600x250	PLI-6/250-200-CS	140472	1
600x300	PLI-6/300-200-CS	140473	1
800x250	PLI-8/250-200-CS	140474	1
800x300	PLI-8/300-200-CS	140475	1
1000x300	PLI-10/300-200-CS	140476	1
1200x250	PLI-12/250-200-CS	140477	1

Doors with an Inspection Glass

- Degree of protection of the enclosure: IP66
- Frame made of sheet steel, powder-coated, safety inspection glass
- Without hinges, without lock

VT14710



VT15110



Dimensions Enclosure HeightxWidth (mm)	Type Designation	Article No	Units per package (pcs.)
250x200	DT-2520-CS	140480	1
300x200	DT-3020-CS	140481	1
300x300	DT-3030-CS	140482	1
300x40	DT-3040-CS	140483	1
400x300	DT-4030-CS	140484	1
400x400	DT-4040-CS	140485	1
400x600	DT-4060-CS	140486	1
500x400	DT-5040-CS	140487	1
500x500	DT-5050-CS	140488	1
600x400	DT-6040-CS	140489	1
600x500	DT-6050-CS	140490	1
600x600	DT-6060-CS	140491	1
600x800	DT-6080-CS	140492	1
700x500	DT-7050-CS	140493	1
800x400	DT-8040-CS	140494	1
800x600	DT-8060-CS	140495	1
800x800	DT-8080-CS	140496	1
800x1000	DT-80100-CS	140497	1
1000x600	DT-10060-CS	140498	1
1000x800	DT-10080-CS	140499	1
1000x1000	DT-100100-CS	140500	1
1200x600	DT-12060-CS	140501	1
1200x800	DT-12080-CS	140502	1
1200x1000	DT-120100-CS	140503	1
1200x1200	DT-120120-CS	140504	1

Doors (without inspection glass)

- Degree of protection of the enclosure: IP66
- Sheet steel, powder-coated
- Without hinges, without lock

VT15510



Dimensions Enclosure HeightxWidth (mm)	Type Designation	Article No	Units per package (pcs.)
250x200	DS-2520-CS	140505	1
300x200	DS-3020-CS	140506	1
300x300	DS-3030-CS	140507	1
300x40	DS-3040-CS	140508	1
400x300	DS-4030-CS	140509	1
400x400	DS-4040-CS	140510	1
400x600	DS-4060-CS	140511	1
500x400	DS-5040-CS	140512	1
500x500	DS-5050-CS	140513	1
600x400	DS-6040-CS	140514	1
600x500	DS-6050-CS	140515	1
600x600	DS-6060-CS	140516	1
600x800	DS-6080-CS	140517	1
700x500	DS-7050-CS	140518	1
800x400	DS-8040-CS	140519	1
800x600	DS-8060-CS	140520	1
800x800	DS-8080-CS	140521	1
800x1000	DS-80100-CS	140522	1
1000x600	DS-10060-CS	140523	1
1000x800	DS-10080-CS	140524	1
1000x1000	DS-100100-CS	140525	1
1200x600	DS-12060-CS	140526	1
1200x800	DS-12080-CS	140527	1
1200x1000	DS-120100-CS	140528	1
1200x1200	DS-120120-CS	140529	1

Door Arrestor

- To stop a door in a defined position
- Sheet steel, zinc-plated
- Fastening material included

VT16010



Dimensions Enclosure Width (mm)	Type Designation	Article No	Units per pack. (pcs.)
500 600 800 1000 1200	DOOR-RET-CS	138737	1

Universal Brackets for Door Contact Switches, Cable Duct Holders

- For fixing door contact switches or cable duct holders
- Sheet steel, zinc-plated

VT27110



Dimensions Enclosure Width (mm)	Type Designation	Article No	Units per pack. (pcs.)
300 400 500 600 800 1000 1200	UNI-BRA-CS	140535	2

Quick-C Hinge Pin

- With Quick-Change system, for removal without the need of using any tools

VT55114



Type Designation	Article No	Units per pack. (pcs.)
QUICK-C-CS	138773	6

Mounting Brackets, inclined

- For mounting TS35X7.5 or TS35X15 support rails in an inclined position
- Sheet steel, zinc-plated

VT27110



Type Designation	Article No	Units per pack. (pcs.)
TS1-BRA-CS	138772	50

Mounting Webs for Door Profile Bars and Cable Ducts

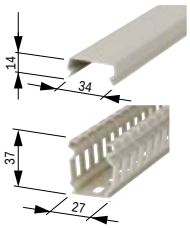
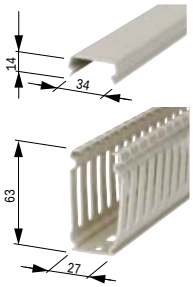
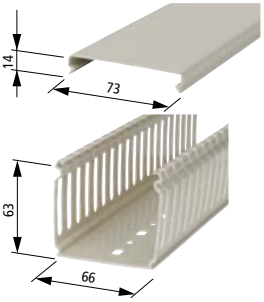
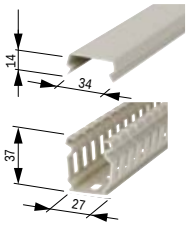
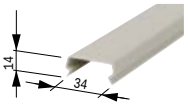
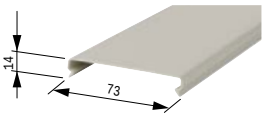
- For fixing on vertical door profiles
- For screw-less mounting of KL... cable ducts by snapping cable duct covers onto the rear
- M6 fixing holes every 25 mm
- Sheet steel, zinc-plated

wa_vt28913



Dimensions Enclosure Width (mm)	Type Designation	Article No	Units per pack. (pcs.)
300	MTR-D3-CS	140530	2
400	MTR-D4-CS	140531	2
500	MTR-D5-CS	140532	2
600	MTR-D6-CS	140533	2
800	MTR-D8-CS	140534	2

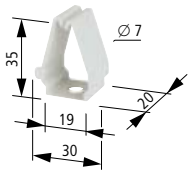
Cable ducts

	Supplied in lengths of mm	Cable carrying capacity. Max. no. of cables (approximate)	Type and cross-section H 0... V-K mm²	H 0... V-K AWG	Type Designation	Article No	Units per package (pcs.)
	Screw fixing						
00006555_0, VT08709, VT08609 	1500	60 40 25 15	0,75 1,5 2,5 4	– 14 10 –	KL25/35	012531	60
00006558_0, VT08709, VT08509 	1500	100 70 45 30 25	0,75 1,5 2,5 4 6	– 14 10 –	KL25/60	017277	40
00006558_0, VT08409, VT08309 	1500	260 180 120 80 65	0,75 1,5 2,5 4 6	– 14 10 –	KL60/60	029142	20
	Self-adhesive • Ambient temperature max. +55°C						
00006555_0, VT08709, VT08609 	650	60 40 25	0,75 1,5 2,5	– 2 10	KL25/35K	014904	50
	Cable duct cover • For replacement delivery						
00008397_0, VT08709 	1500	–	–	–	KD25	019649	1
00025953_0, VT08409 	1500	–	–	–	KD60	024395	1

Cable support brackets

• Can be used in KL25/35 (K) cable ducts, screw fixing

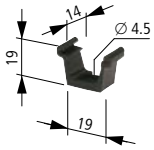
VT28009



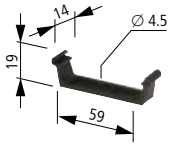
Supplied in lengths of mm	Cable carrying capacity. Max. no. of cables (approximate)	Type and cross-section H 0... V-K mm^2	Type Designation	Article No	Units per package (pcs.)
–	15	4	KH25/35	078974	20

Clamping brackets for cable ducts

VT27909



VT27809



Type Designation	Article No	Units per (pcs.)
KL25/...: Fixing interval less than 500 mm		
KK25	081347	100
K60/60: Fixing interval less than 300 mm		
KK60	083720	100

Canopy

• For direct fixing on the base body of the enclosures
• Material: Sheet steel, powder-coated, RAL7035
• Fastening material included in the delivery

VT112214



For enclosure sizes [mm] Width	Depth	Height of Top	Type Designation	Article No	Units per pack. (pcs.)
200	150	30	CNP-2/150-CS	112890	1
300	150	30	CNP-3/150-CS	112891	1
300	200	34	CNP-3/200-CS	112892	1
400	150	30	CNP-4/150-CS	112893	1
400	200	34	CNP-4/200-CS	112894	1
400	250	38	CNP-4/250-CS	112895	1
500	150	30	CNP-5/150-CS	112896	1
500	200	34	CNP-5/200-CS	112897	1
500	250	38	CNP-5/250-CS	112898	1
600	200	34	CNP-6/200-CS	112899	1
600	250	38	CNP-6/250-CS	112900	1
600	300	42	CNP-6/300-CS	112901	1
800	200	34	CNP-8/200-CS	112902	1
800	250	38	CNP-8/250-CS	112903	1
800	300	42	CNP-8/300-CS	112904	1
1000	300	42	CNP-10/300-CS	112905	1
1200	250	38	CNP-12/250-CS	112906	1

Ventilation Louvers

- For direct fixing on the base body of the enclosures
- Material: Sheet steel, powder-coated, RAL7035
- Fastening material included in the delivery
- Degree of protection IP23

wa_vt25113

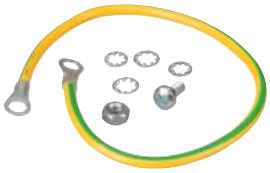


Positioning of the slots	Dimensions (mm) Height	Width	Type Designation	Article No	Units per pack. (pcs.)
vertical	157	105	LVP-20V12-CS	112907	1
horizontal	164	105	LVP-20H12-CS	112908	1
vertical	180	130	LVP-30V15-CS	112909	1
horizontal	250	130	LVP-30H15-CS	112910	1

Earthing set for Door, BFZ-DES

- Cross section 6 mm^2
- Assembly accessories included

wa_vt25113

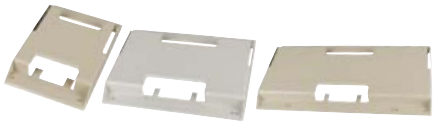


Description	Type Designation	Article No	Units per pack. (pcs.)
	BFZ-DES	101665	1

Circuit Diagram Bag, SPT

- Made of insulating material, fixing by self-sticker, RAL 7035 light gray

wa_vt01315, wa_vt01215, wa_vt01115



Description	Type Designation	Article No	Units per pack. (pcs.)
DIN A4 crosswise	SPT4	002275	1
DIN A5 crosswise	SPT5	002276	1
DIN A6 crosswise	SPT6	002277	1

Flask with Brush Applicator, BPZ-CPS-7035

- Plastic material, self-adhesive, RAL 7035 light gray

VT09405



Colour	Type Designation	Article No	Units per pack. (pcs.)
RAL 7035	BPZ-CPS-7035	286771	1

ITB Industrial Cable Tie Wraps

- For bundling up and fixing of wires, wire harnesses, conduits, pipes ...
- Continuously ribbed to the tip
- Temperature resistant from -40 to +85° C
- Material PO 6.6, natural colour, low flammability UL 94 V2
- Resistant to oils, petrol, salt water; solvents, mould

	Length mm	Width mm	Bundle Range mm	Special Features	Tensile Strength N	Type Designation	Article No	Units per package (pcs.)
VT08809	98	2,5	21	–	8	ITB1	083550	1000
VT08909	140	3,6	35	-	13	ITB2	085923	1000
VT09009 	205	4,2	60	with mounting eye 4.8 mm	220	ITB3	088296	100

F3A Flanges

- Colour RAL 7035
- Degree of protection IP66 (F3A-D with degree of protection reduced to IP54)

	Description	Type Designation	Article No	Units per pack. (pcs.)
VT17407, VT09208, VT17507, VT17307, VT17607, VT17707, VT17807, VT17207 	Blind flange	F3A-0	074182	1
	Blind flange, sheet steel	F3A-XP	113426	1
	4xM16, 6xM25/16, 8xM32/20	F3A-4	081301	1
	2xM20, 8xM25/16, 4xM32/20, 1xM50/32	F3A-8	091468	1
	2xM16, 12xM20, 2xM40/25, 2xM50/32	F3A-12	076555	1
	24xM16, 13xM20	F3A-34	078928	1
	2 Grommets for cables up to Ø 70mm	F3A-KTD	083674	1
	Cellular rubber insertion flange 40 cables Ø 10-13mm, 4 cables Ø 17-21mm, 2 cables Ø 27-30mm	F3A-D	010145	1

Membrane Grommets - Metric

- IP66, with integrated insertion membrane
- PE and thermoplastic elastomer, halogen-free

VT06508



Cable Insertion	Hole Diameter mm	Outer Cable Diameter mm	Use of Cable NYM/NYY, 4-wire mm^2	Type Designation	Article No	Units per package (pcs.)
M16	16.5	1 – 9	H03VV-F3 x 0.75 mm^2, NYM 1 x 16/3 x 1.5 mm^2	KT-M16	216983	100
M20	20.5	1 – 13	H03VV-F3 x 0.75 mm^2, NYM 5 x 1.5/5 x 2.5 mm^2	KT-M20	207602	100
M25	25.5	1 – 18	H03VV-F3 x 0.75 mm^2, NYM 4 x 10 mm^2	KT-M25	207603	100
M32	32.5	1 – 25	H03VV-F3 x 0.75 mm^2, NYM 4 x 16/5 x 10 mm^2	KT-M32	207604	100

Cable Glands - Metric, according to EN 50262

- IP68 up to 5 bar, polyamide, halogen-free
- Fire classification V2 according to UL94
- Colour RAL 7035

VT05708



Cable Insertion	Hole Diameter mm	Outer Cable Diameter mm	Use of Cable NYM/NYY, 4-wire mm^2	Type Designation	Article No	Units per package (pcs.)
Cable glands, metric, with counternut and integrated strain relief						
M12	12.5	3 – 7	H03VV-F 3 x 0.75 mm^2, NYM 1 x 2.5 mm^2	V-M12	215078	20
M16	16.5	4.5 – 10	H03VV-F 3 x 1.5 mm^2, NYM 1 x 16/3 x 1.5 mm^2	V-M16	215077	20
M20	20.5	6 – 13	H05VV-F 4 x 2.5/3 x 4 mm^2, NYM 5 x 1.5/5 x 2.5 mm^2	V-M20	206910	20
M25	25.5	9 – 17	H05VV-F 5 x 2.5/5 x 4 mm^2, NYM 5 x 2.5/5 x 6 mm^2	V-M25	206911	20
M32	32.5	13 – 21	NYM 5 x 10 mm^2	V-M32	206912	10
M40	40.5	16 – 28	NYM 5 x 16 mm^2	V-M40	209668	10
M50	50.5	21 – 35	NYM 4 x 35/5 x 25 mm^2	V-M50	206913	5
M63	63.5	34 – 48	NYM 4 x 35 mm^2	V-M63	214835	3
Multiple Sealing, Metric, for Cable Glands V-M...						
M25	–	4 x 5 – 6	H03VV-F 2 x 0.75/3 x 0.75 mm^2	MFD25	215451	25
M32	–	4 x 3.5 – 7	H03VV-F 4 x 0.75 mm^2	MFD32	215452	25
Sealing Plugs for Spare Openings in Multiple Sealing MFD...						
M25	–	–	–	MFV25-6	215453	50
M32	–	–	–	MFV32-7	215454	50

VT06708



VT07208



Cable Grommets PG

- For a wall thickness of 2-8 mm
- Colour RAL 7035
- Plasticised PVC, cadmium- and lead free
- IP66, cable insertion from bottom

VT05708



Cable Insertion	Hole Diameter mm	Outer Cable Diameter mm	Use of Cable NYM/NYY, 4-wire mm^2	Type Designation	Article No	Units per package (pcs.)
PG13.5	21.5	7 – 16	1.5 – 4	KT13,5	019658	1
PG16	23.5	7 – 17	1.5 – 10	KT16	022031	1
PG21	29.5	12.5 – 20	1.5 – 16	KT21	026777	1
PG29	38	12.5 – 31	1.5 – 35	KT29	029150	1
PG36	48	18 – 40	10 – 70	KT36	033896	1
PG42	55	18 – 47	10 – 95	KT42	038642	1

Cable Grommets

- For a panel thickness of 2 to 3 mm
- Colour RAL 7035
- Plasticised PVC
- IP66, cable insertion from bottom

VT05608



Cable Insertion	Hole Diameter mm	Outer Cable Diameter mm	Use of Cable NYM/NYY, 4-wire mm^2	Type Designation	Article No	Units per package (pcs.)
–	58	14 – 54	–	KT3	031523	2
–	75	14 – 68	–	KT4	036269	3

Cable Gland for Ventilation IP69K

- Colour RAL 7035

VT02610



Cable Insertion	Hole Diameter mm	Outer Cable Diameter mm	Use of Cable NYM/NYY, 4-wire mm^2	Type Designation	Article No	Units per package (pcs.)
M20	20.5	6-13	H05VV-F 4 x 2.5 / 3 x 4 mm^2, NYM 5 x 1.5 / 5 x 2.5 mm^2	V-M20-VENT	120814	1

Technical Data

General information		
Standards and regulations		IEC/EN 62208, UL508A (E336299)
Climatic resistance		Moist heat, constant according to IEC 60068-2-78, Moist heat, periodic according to IEC 60068-2-30
Ambient temperature	°C	-40 to +70
Degree of protection		IP66
Degree of protection with ventilation panels		IP23
Set-up locations		Indoor/outdoor[1)]
Incorporation grid	mm	25
Dissipated power loss		See separate table

Material		
Material		Sheet steel
Surface finish		Structured powder-coating on Polyester base
Colour		RAL 7035, light grey
Surface		Slightly structured
Degree of gloss		Glossy
Body	mm	≤ CS-65/...: 1,2; ≥ CS-66/...: 1,5
Mounting plate	mm	2; as of height 800 x width 400mm: 3
Door	mm	≤ CS-43/...: 1,0; ≤ CS-64/...: 1,2; ≤ CS-88/...: 1,5; ≤ CS-1212/...: 2,0
Bottom panel	mm	1.5

Material properties		
Mechanical		
Shock-resistance rating		IK09 according to EN 62262
Assembly weight - entire cabinet		See separate table
Assembly weight - door		See separate table
Assembly weight - mounting plate		See separate table
Assembly weight - wall-mounting brackets		See separate table

Description/Basic equipment		
Type of construction		Folded and seam-welded, 2 M6 threaded bolts are included for protective conductor connection inside the enclosure
Rear panel		9 mm holes for wall-fixing
Side panels		No holes
Top panel		No holes
Bottom panel		No holes, foam sealant, removable for F3A-... flanges or for customized solutions
Mounting plate		Basic equipment, sheet steel, sendzimir zinc-plated. 15 mm clearance to rear panel. Mounted onto M8 copper thread-welding bolt. Therefore an additional protective conductor connection is not compulsory.
Door		1 M6 thread-welding bolt for protective conductor connections in the door. **Where electrical operating material needs to be integrated in the door, a consistent and permanent protective conductor connection needs to be established by means of a protective conductor cable. Please use the thread-welding bolts on the door and on the side panel of the body as connecting points.**
Door hinges		Right side, can be reversed on-site
Door opening angle	°	120
Locking system		Metal turnbuckle. standard lock. 3 mm two-way key-bit.
Locks	Number	See Ordering Section

General information		
Load of wall-mounting		500 kg with vertically and horizontally fixed mounting brackets, symmetrical load
Material plastic		free from halogen
Resistance of plastics to glow wire	°C	650°C
Intended location		outdoor[1)] and indoor

[1)] Outdoor location only under a separate protective roof. The enclosure must be permanently protected from the rays of the sun and the weather.

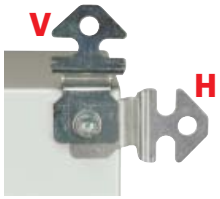
Technical Data

Maximum assembly weight

	Max. kg Enclosure	Max. kg Mounting Plate	Max. kg Door
			
CS-2520/150	150	125	25
CS-32/150	150	125	25
CS-33/150	150	125	25
CS-33/200	150	125	25
CS-34/200	175	150	25
CS-43/150	175	150	25
CS-43/200	175	150	25
CS-44/150	225	200	25
CS-44/200	225	200	25
CS-46/200	225	200	25
CS-46/250	225	200	25
CS-46/300	225	200	25
CS-54/150	225	200	25
CS-54/200	225	200	25
CS-54/250	225	200	25
CS-55/250	225	200	25
CS-64/150	225	200	25
CS-64/200	225	200	25
CS-64/250	225	200	25
CS-65/150	275	250	25
CS-65/200	275	250	25
CS-65/250	275	250	25
CS-66/200	275	250	25
CS-66/250	275	250	25
CS-66/300	275	250	25
CS-68/300	275	250	25
CS-75/200	275	250	25
CS-75/250	275	250	25
CS-84/200	325	300	25
CS-84/250	325	300	25
CS-86/200	325	300	25
CS-86/250	325	300	25
CS-86/300	325	300	25
CS-88/200	325	300	25
CS-88/300	325	300	25
CS-810/300	390	350	40
CS-106/250	390	350	40
CS-106/300	390	350	40
CS-108/250	390	350	40
CS-108/300	390	350	40
CS-1010/300	390	350	40
CS-126/250	390	350	40
CS-128/300	390	350	40
CS-1210/300	390	350	40
CS-1212/250	390	350	40

Technical Data

Maximum assembly weight per set

Adjustment of bracket	symmetrical load	n brackets	position of bracket
			
V or H	500 kg	4	top and bottom

Amount of heat to be dissipated

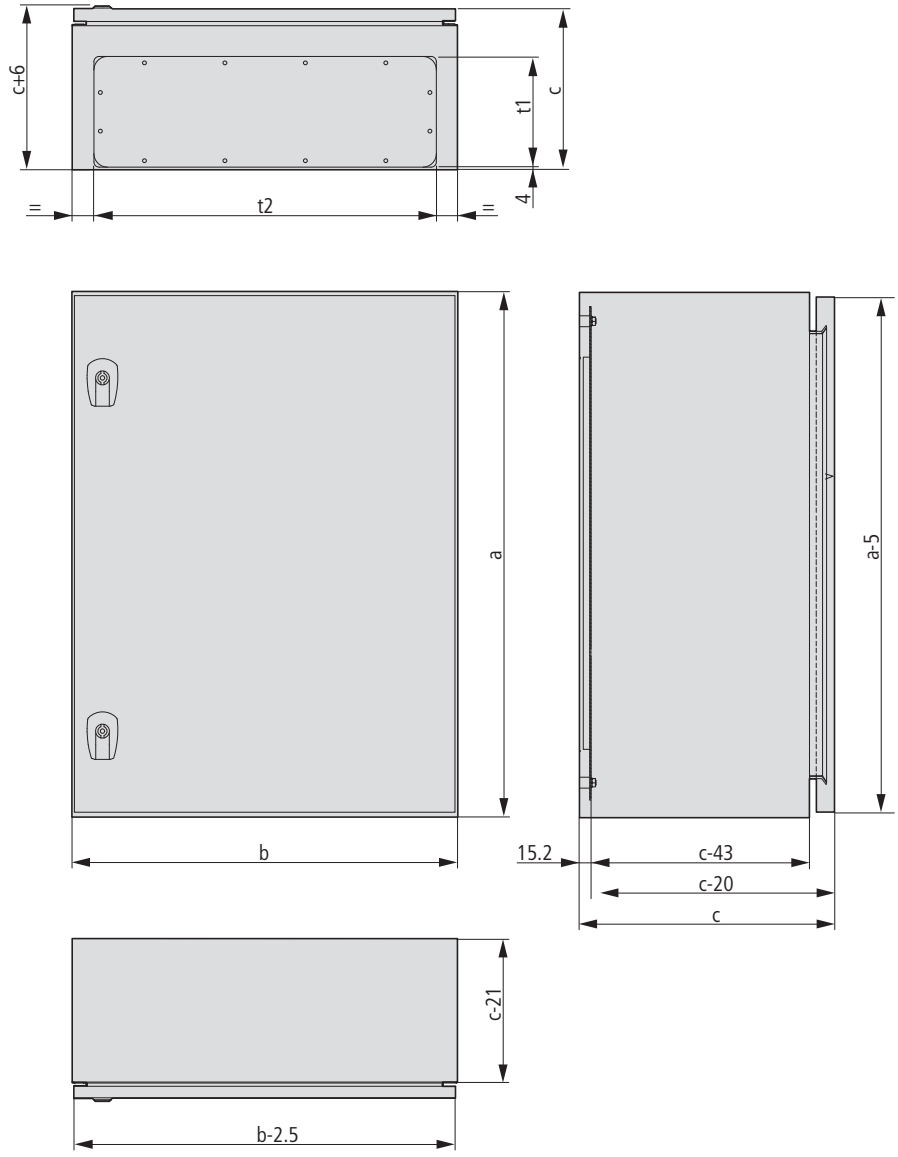
Amount of heat to be dissipated (power loss) P_V [W] for all-over closed, wall-mounted Eaton CS sheet steel enclosures without internal separations..

Example: Max. ambient temperature 35°C; excess temperature ΔT = 20 K; relative humidity = 75%.

Code	Max. power loss P_V Single wall-mounted enclosure	Max. power loss P_V First wall-mounted enclosure	Max. power loss P_V Wall-mounted enclosure in the center
CS-2520/150	11 W	10 W	9 W
CS-32/150	13 W	11 W	10 W
CS-33/150	16 W	15 W	14 W
CS-33/200	19 W	18 W	16 W
CS-34/200	23 W	22 W	21 W
CS-43/150	21 W	19 W	18 W
CS-43/200	24 W	22 W	20 W
CS-44/150	25 W	24 W	22 W
CS-44/200	29 W	27 W	25 W
CS-54/150	30 W	28 W	27 W
CS-54/200	35 W	32 W	30 W
CS-46/200	39 W	37 W	35 W
CS-46/250	44 W	42 W	39 W
CS-46/300	49 W	46 W	43 W
CS-54/250	39 W	36 W	33 W
CS-55/250	45 W	42 W	39 W
CS-64/150	35 W	33 W	31 W
CS-64/200	40 W	37 W	34 W
CS-65/150	42 W	39 W	37 W
CS-65/200	47 W	44 W	41 W
CS-64/250	45 W	42 W	38 W
CS-65/250	55 W	49 W	45 W
CS-66/200	54 W	51 W	48 W
CS-66/250	60 W	56 W	52 W
CS-66/300	65 W	61 W	57 W
CS-68/300	81 W	76 W	72 W
CS-75/200	53 W	50 W	47 W
CS-75/250	59 W	55 W	51 W
CS-84/200	51 W	47 W	44 W
CS-84/250	57 W	53 W	48 W
CS-86/200	68 W	64 W	60 W
CS-86/300	82 W	76 W	70 W
CS-88/200	85 W	81 W	77 W
CS-86/250	75 W	70 W	65 W
CS-88/300	101 W	95 W	89 W
CS-810/300	120 W	113 W	108 W
CS-106/250	91 W	85 W	79 W
CS-106/300	99 W	91 W	84 W
CS-108/250	112 W	106 W	100 W
CS-108/300	121 W	113 W	106 W
CS-1010/300	143 W	136 W	128 W
CS-126/250	106 W	99 W	92 W
CS-128/300	141 W	132 W	123 W
CS-1210/300	166 W	158 W	149 W
CS-1212/250	180 W	173 W	166 W

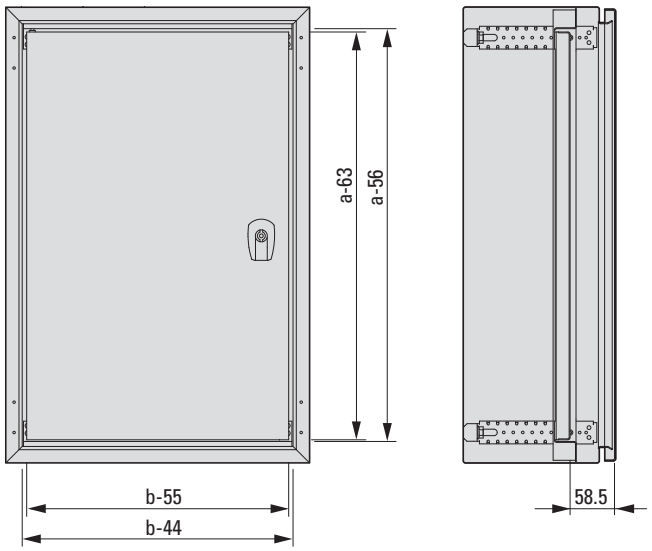
Dimensions (mm)

CS Wall-mounted Enclosure with door and blind flanges



Doors for internal separation

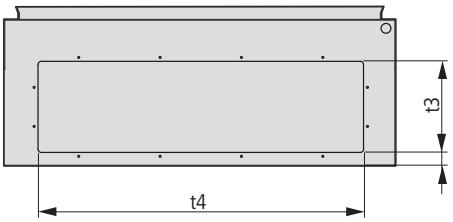
DI-....-CS

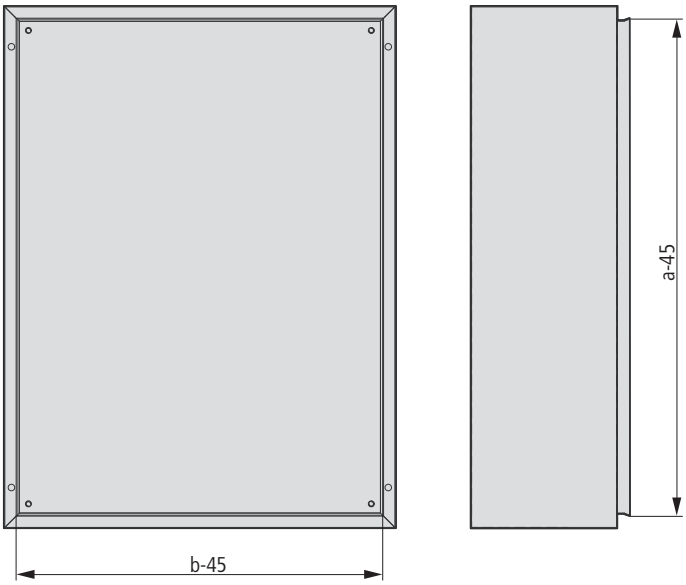


Note:
Please refer to selection page xx for A, B, C, t1, t2 values

Dimensions (mm)

CS Wall-mounted Enclosure without door, without blind flanges

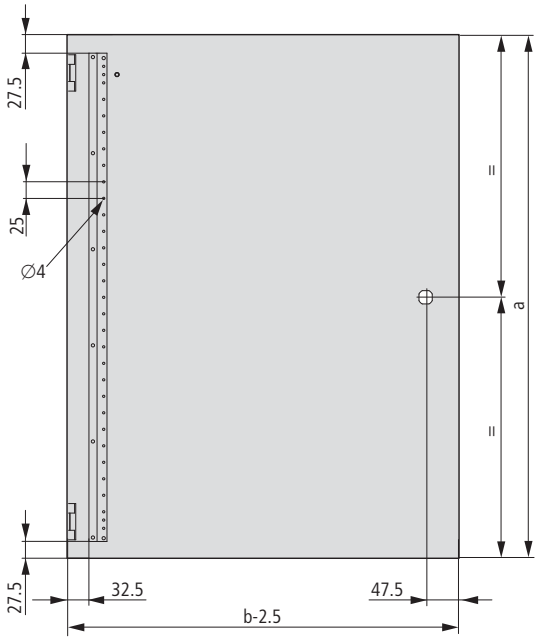




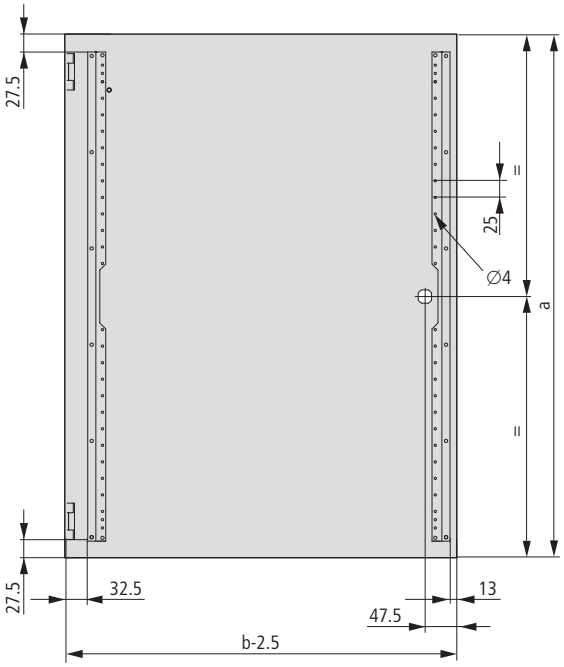
Dimensions (mm)

Doors

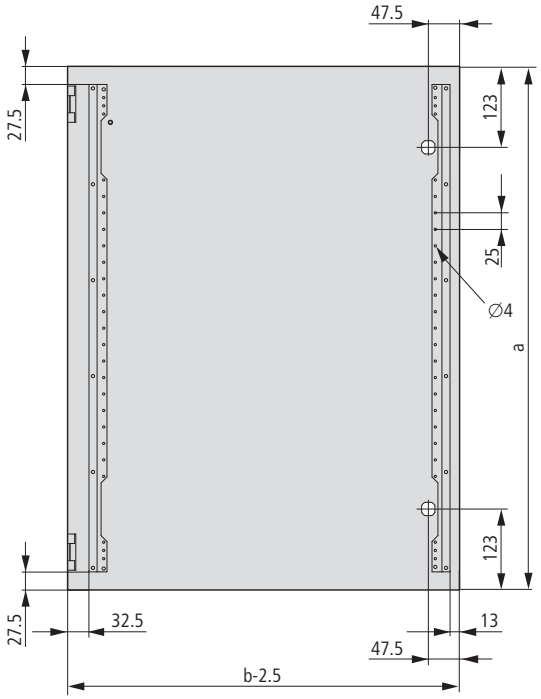
CS-2520/150, CS-32/150
DS-2520-CS, DS-3020-CS



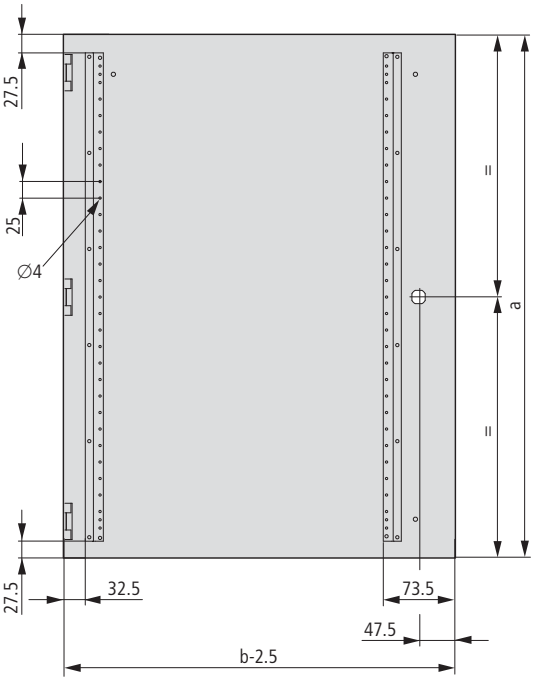
CS-33/..., CS-34/..., CS-4.../...
DS-3030-CS, DS-3040-CS, DS-4...-CS



CS-5.../..., CS-6.../..., CS-7.../...
DS-5...-CS, DS-6...-CS, DS-7...-CS



CS-8.../...
DS-8...-CS

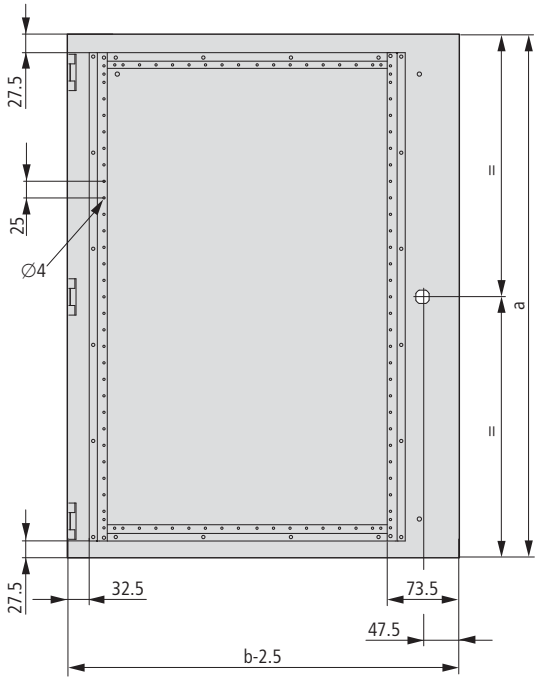


Note:
Please refer to selection page xx for A, B, C values

Dimensions (mm)

Doors

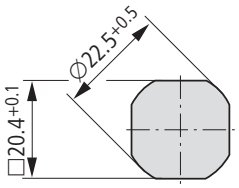
CS-10.../..., CS-12.../...
DS-10...-CS, DS-12...-CS



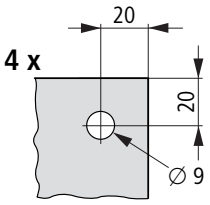
Distance between two holes between two door profile bars:

Width B	Distance between two holes (mm)
300	203,4
400	303,4
500	403,4
600	503,4
800	703,4
1000	903,4
1200	1103,4

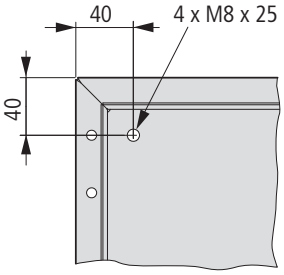
Mounting Opening - Lock



Position of the 4 holes at the rear panel of the enclosure for wall-mounting



Position of the 4 threaded bolts at the rear panel of the enclosure



Dimensions (mm)

Dimensions Enclosure

Type	a	b	c	t1	t2	t3	t4
CS-2520/150	250	200	150	112	182	80	150
CS-32/150	300	200	150	112	182	80	150
CS-33/150	300	300	150	112	232	80	200
CS-33/200	300	300	200	172	262	140	230
CS-34/200	300	400	200	172	332	140	300
CS-43/150	400	300	150	112	232	80	200
CS-43/200	400	300	200	172	262	140	230
CS-44/150	400	400	150	112	332	80	300
CS-44/200	400	400	200	172	332	140	300
CS-46/200	400	600	200	172	532	140	500
CS-46/250	400	600	250	172	532	140	500
CS-46/300	400	600	300	172	532	140	500
CS-54/150	500	400	150	112	332	80	300
CS-54/200	500	400	200	172	332	140	300
CS-54/250	500	400	250	172	332	140	300
CS-55/250	500	500	250	172	432	140	400
CS-64/150	600	400	150	112	332	80	300
CS-64/200	600	400	200	172	332	140	300
CS-64/250	600	400	250	172	332	140	300
CS-65/150	600	500	150	112	332	80	300
CS-65/200	600	500	200	172	432	140	400
CS-65/250	600	500	250	172	432	140	400
CS-66/200	600	600	200	172	532	140	500
CS-66/250	600	600	250	172	532	140	500
CS-66/300	600	600	300	172	532	140	500
CS-68/300	600	800	300	172	732	140	700
CS-75/200	700	500	200	172	432	140	400
CS-75/250	700	500	250	172	432	140	400
CS-84/200	800	400	200	172	332	140	300
CS-84/250	800	400	250	172	332	140	300
CS-86/200	800	600	200	172	532	140	500
CS-86/250	800	600	250	172	532	140	500
CS-86/300	800	600	300	172	532	140	500
CS-88/200	800	800	200	172	732	140	700
CS-88/300	800	800	300	172	732	140	700
CS-810/300	800	1000	300	172	932	140	900
CS-106/250	1000	600	250	172	532	140	500
CS-106/300	1000	600	300	172	532	140	500
CS-108/250	1000	800	250	172	732	140	700
CS-108/300	1000	800	300	172	732	140	700
CS-1010/300	1000	1000	300	172	932	140	900
CS-126/250	1200	600	250	172	532	140	500
CS-128/300	1200	800	300	172	732	140	700
CS-1210/300	1200	1000	300	172	932	140	900
CS-1212/250	1200	1200	250	2x172	532	140	500

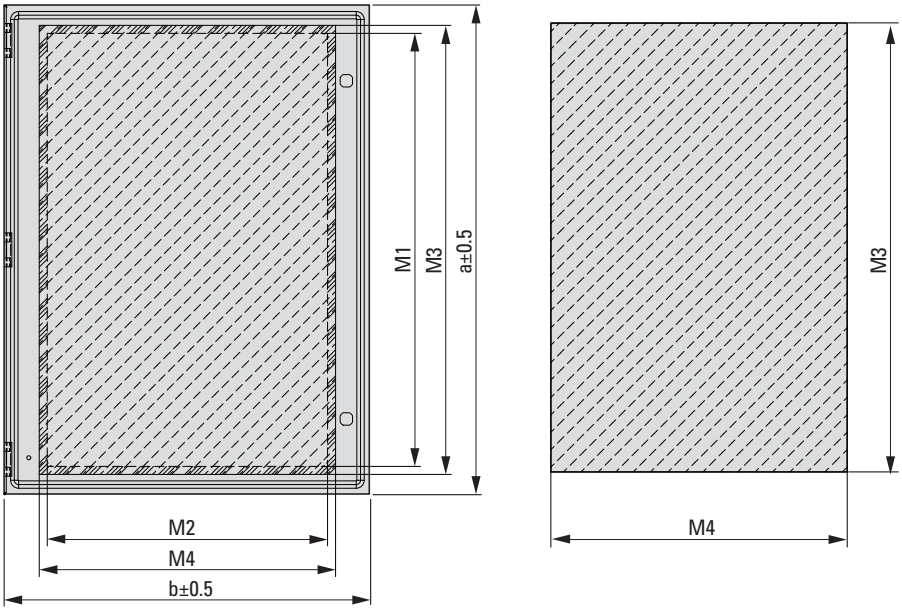
Dimensions Doors

Enclosure		Door	
Height	Width	Height	Width
250	200	248	197,5
300	200	298	197,5
300	300	298	297,5
300	400	298	397,5
400	300	398	297,5
400	400	398	397,5
400	600	398	597,5
500	400	498	397,5
500	500	498	497,5
600	400	598	397,5
600	500	598	497,5
600	600	598	597,5
600	800	598	797,5
700	500	698	497,5
800	400	798	397,5
800	600	798	597,5
800	800	798	797,5
800	1000	798	997,5
1000	600	998	597,5
1000	800	998	797,5
1000	1000	998	997,5
1200	600	1198	597,5
1200	800	1198	797,5
1200	1000	1198	997,5
1200	1200	1198	1197,5

Dimensions (mm)

Doors with an Inspection Glass

DT-....-CS



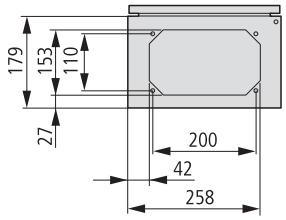
Dimensions for Doors with an Inspection Glass

Enclosure Height a	Enclosure Width b	M1	M2	M3	M4
250	200	132	84	158	110
250	250	152	104	178	130
300	200	182	84	208	110
300	250	202	104	228	130
300	300	202	154	228	180
300	400	202	254	228	280
400	300	302	154	328	180
400	400	302	254	328	280
400	500	302	354	328	380
400	600	302	454	328	480
500	300	402	154	428	180
500	400	402	254	428	280
500	500	402	354	428	380
600	400	502	254	528	280
600	500	503	355	529	381
600	600	503	455	529	481
600	800	503	655	529	681
700	500	603	355	629	381
800	400	703	255	729	281
800	600	703	455	729	481
800	800	703	655	729	681
800	1000	703	855	729	881
1000	600	904	425	930	451
1000	800	904	625	930	651
1000	1000	904	825	930	851
1200	600	1104	425	1130	451
1200	800	1104	625	1130	651
1200	900	1104	725	1130	751
1200	1000	1104	825	1130	851
1200	1200	1104	1025	1130	1051

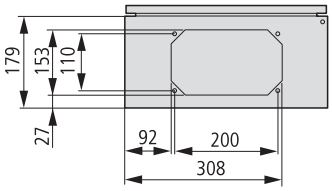
Dimensions (mm)

Bottom of Enclosure with F3A Flange Openings

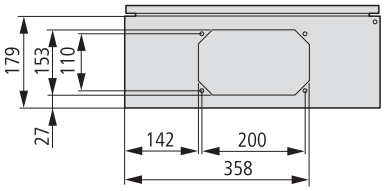
300 x 200



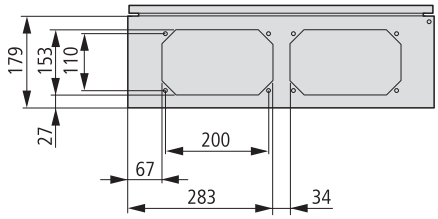
400 x 200



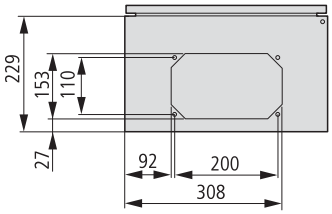
500 x 200



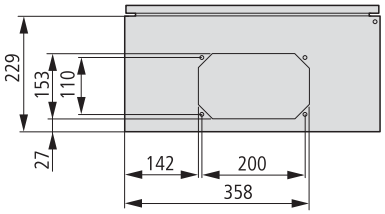
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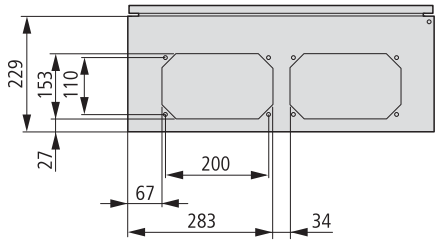
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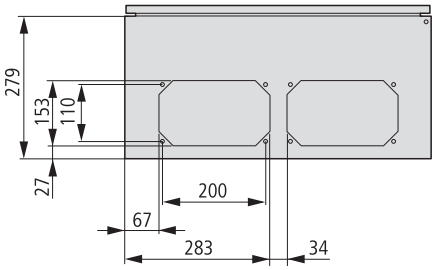
500 x 250



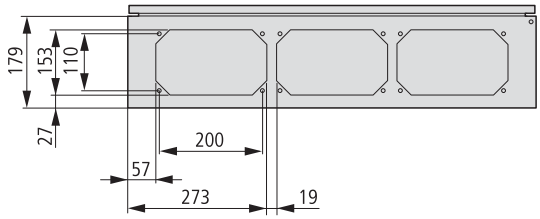
300 x 250



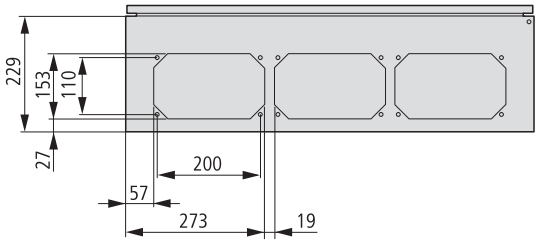
600 x 300



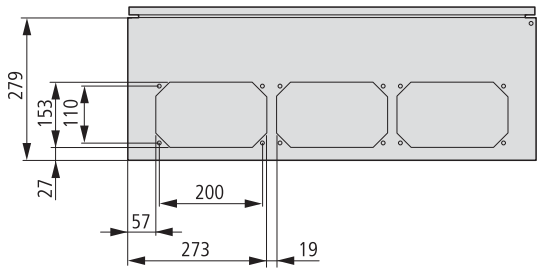
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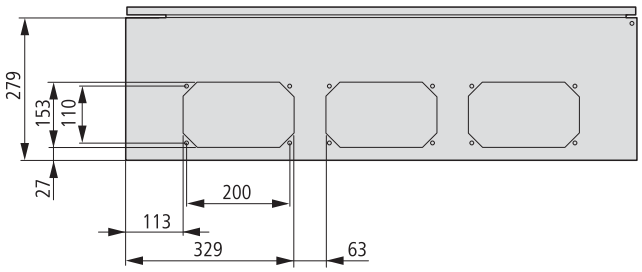
800 x 250



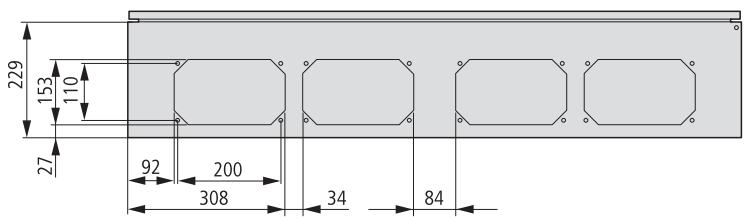
800 x 300



1000 x 300



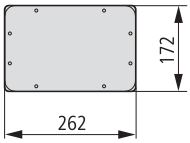
1200 x 250



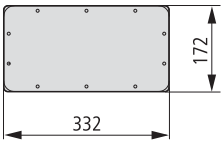
Dimensions (mm)

Bottom of Enclosure, with Flange Openings F3A

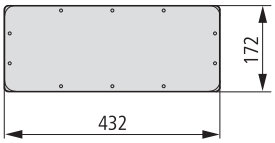
300 x 200



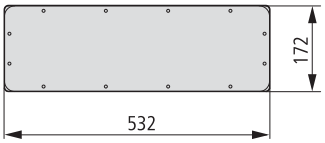
400 x 200



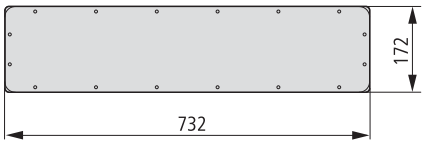
500 x 200



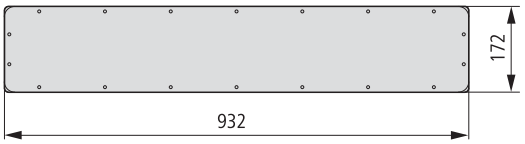
600 x 200



800 x 200

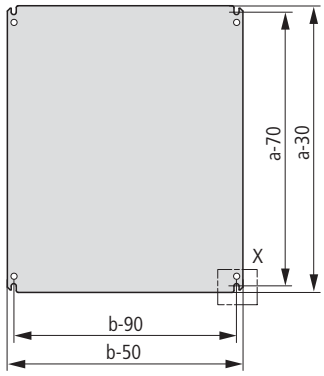


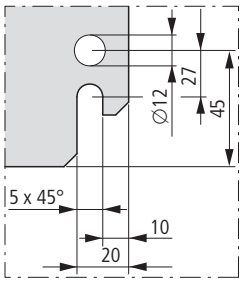
1000 x 200



Mounting Plates

MPP, MPL



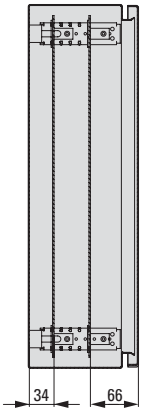


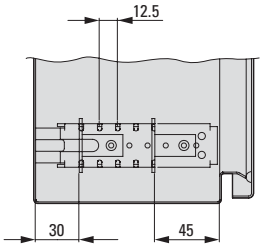
a, b = Dimensions of the enclosure

Type	Mounting Plate Height	Width
CS-2520/150	220	150
CS-32/150	270	150
CS-33/150	270	250
CS-33/200	270	250
CS-34/200	270	350
CS-43/150	370	250
CS-43/200	370	250
CS-44/150	370	350
CS-44/200	370	350
CS-46/200	370	550
CS-46/250	370	550
CS-46/300	370	550
CS-54/150	470	350
CS-54/200	470	350
CS-54/250	470	350
CS-55/250	470	450
CS-64/150	570	350
CS-64/200	570	350
CS-64/250	570	350
CS-65/150	570	450
CS-65/200	570	450
CS-65/250	570	450
CS-66/200	570	550
CS-66/250	570	550
CS-66/300	570	550
CS-68/300	550	770
CS-75/200	670	450
CS-75/250	670	450
CS-84/200	770	350
CS-84/250	770	350
CS-86/200	770	550
CS-86/250	770	550
CS-86/300	770	550
CS-88/200	770	750
CS-88/300	770	750
CS-810/300	770	750
CS-106/250	970	550
CS-106/300	970	550
CS-108/250	970	750
CS-108/300	970	750
CS-1010/300	970	950
CS-126/250	1170	550
CS-128/300	1170	750
CS-1210/300	1170	950
CS-1212/250	1170	1150

Depth-adjustment elements for mounting plates

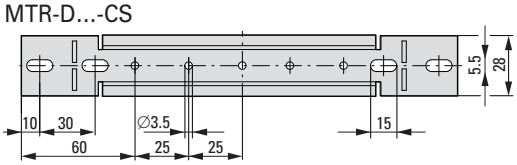
DAS-SET/...-CS

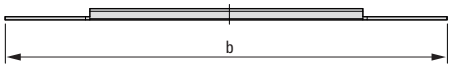




Mounting webs for door profile bars and cable ducts

MTR-D...-CS



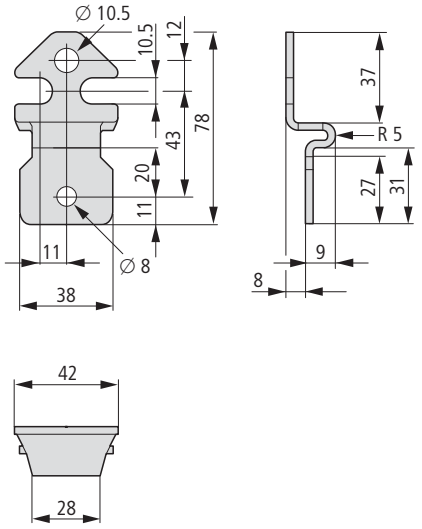


Type	B
MTR-D3-CS	220
MTR-D4-CS	320
MTR-D5-CS	420
MTR-D6-CS	520
MTR-D8-CS	720

Dimensions (mm)

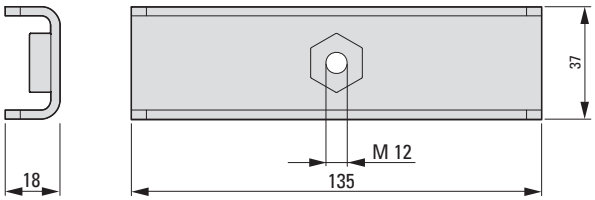
Wall-mounting bracket

WFB-SET-CS



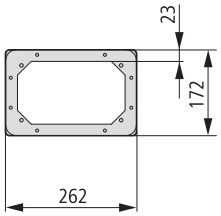
Set of lifting eyebolts with profile brackets

TOR-SET/135-CS

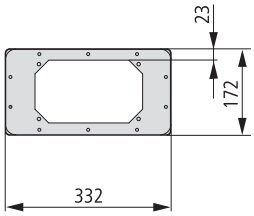


Bottom Panels with Flange Openings (for F3A Flanges)

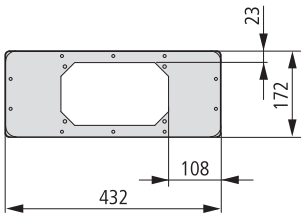
AFP-3-CS



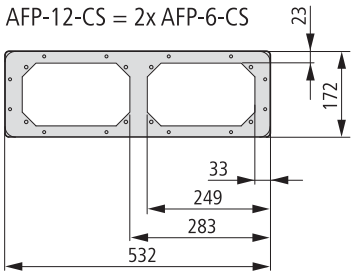
AFP-4-CS



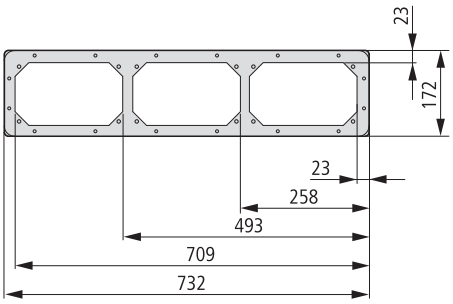
AFP-5-CS



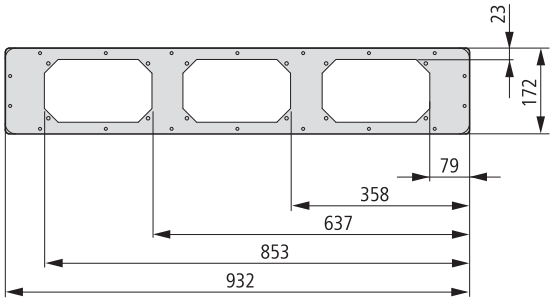
AFP-6-CS
AFP-12-CS = 2x AFP-6-CS



AFP-8-CS

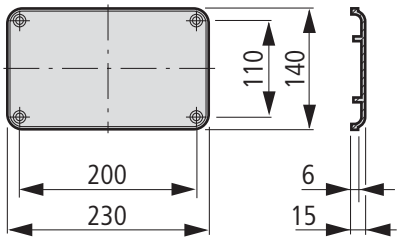


AFP-10-CS

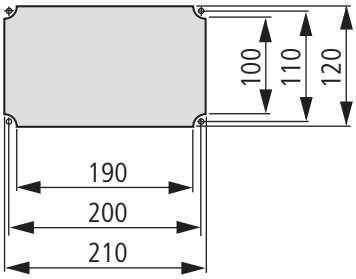


Dimensions (mm)

Flange Plastic F3A

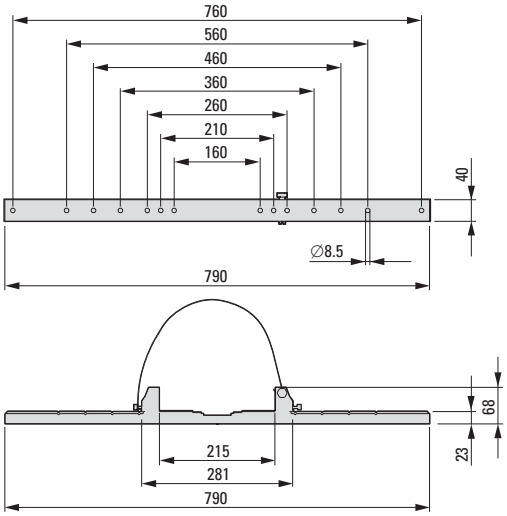


Opening of Flange



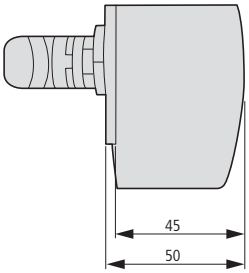
Fixing on a mast

MAST-FIT-CS



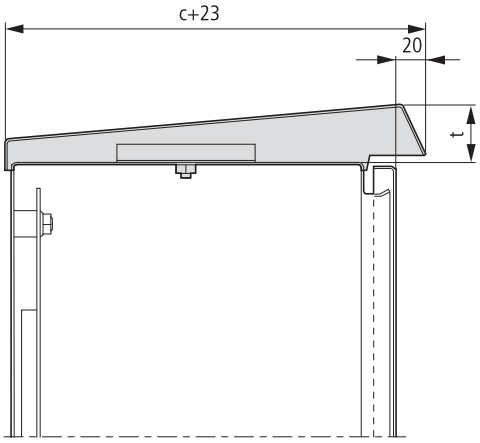
Ease-of-use Rotary Handle

PHZ-A



Canopy

CNP



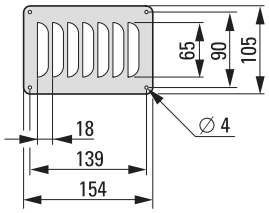
Type	c+23 (mm)	t (mm)
CNP-2/150-CS	173	30
CNP-3/150-CS	173	30
CNP-3/200-CS	223	34
CNP-4/150-CS	173	30
CNP-4/200-CS	223	34
CNP-4/250-CS	273	38
CNP-5/150-CS	173	30
CNP-5/200-CS	223	34
CNP-5/250-CS	273	38
CNP-6/200-CS	223	34
CNP-6/250-CS	273	38
CNP-6/300-CS	323	42
CNP-8/200-CS	223	34
CNP-8/250-CS	273	38
CNP-8/300-CS	323	42
CNP-10/300-CS	323	42
CNP-12/250-CS	273	38

c = Depth of enclosure

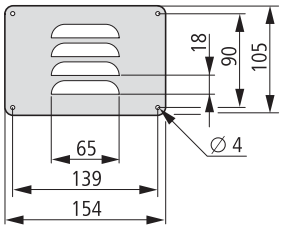
Dimensions (mm)

Ventilation Louvers

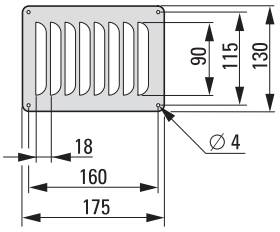
LVP-20V12-CS



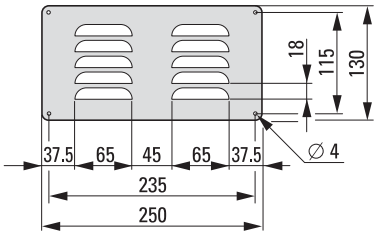
LVP-20H12-CS



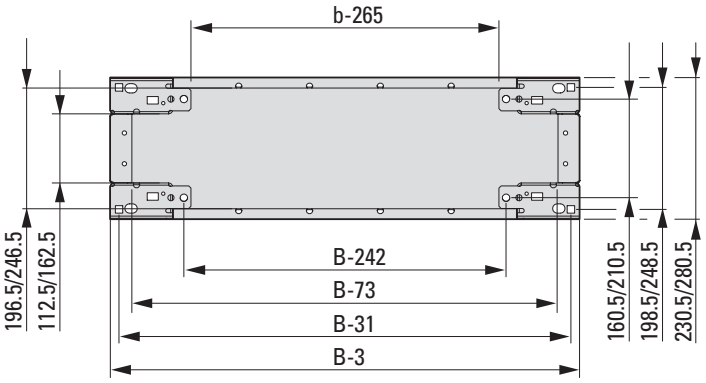
LVP-30V15-CS

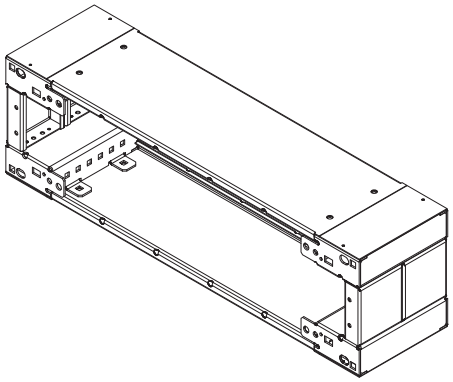


LVP-30H15-CS



Cable Interconnect Base PLI-./...-200-CS

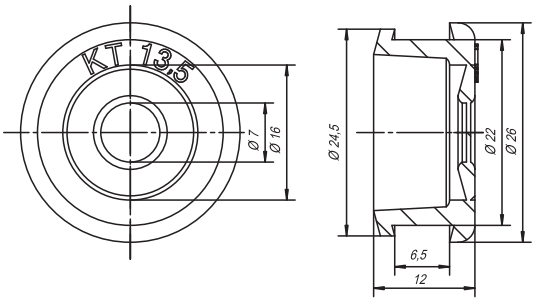




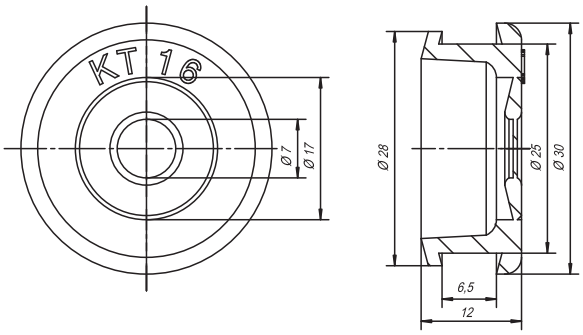
Dimensions (mm)

Cable Grommets PG

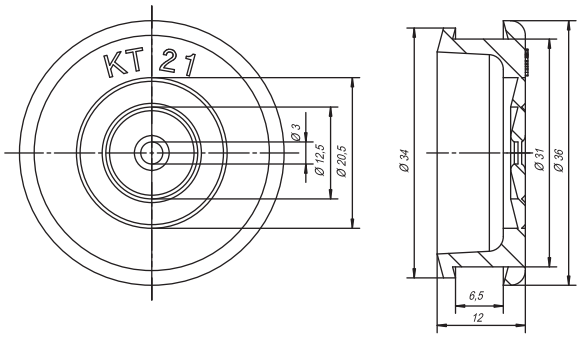
KT13,5



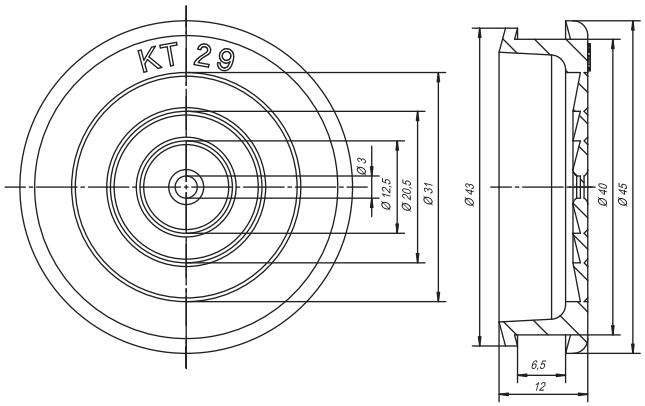
KT16



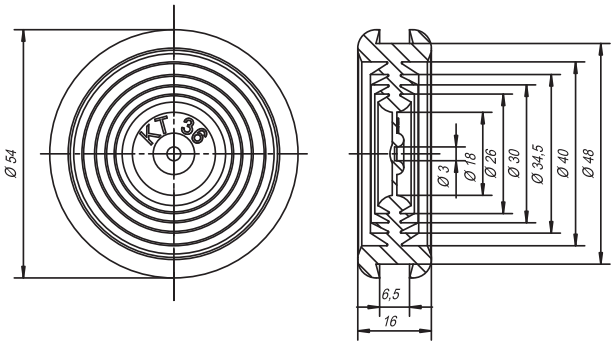
KT21



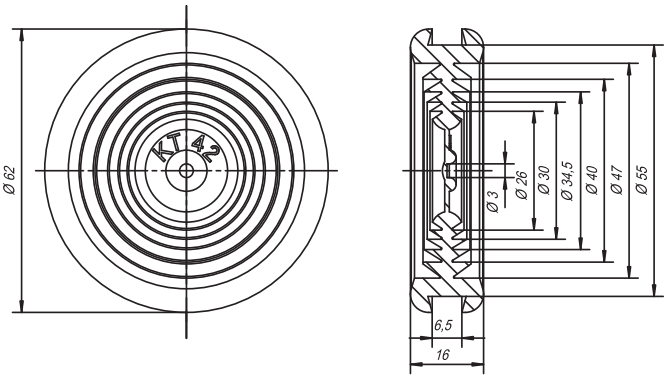
KT29



KT36



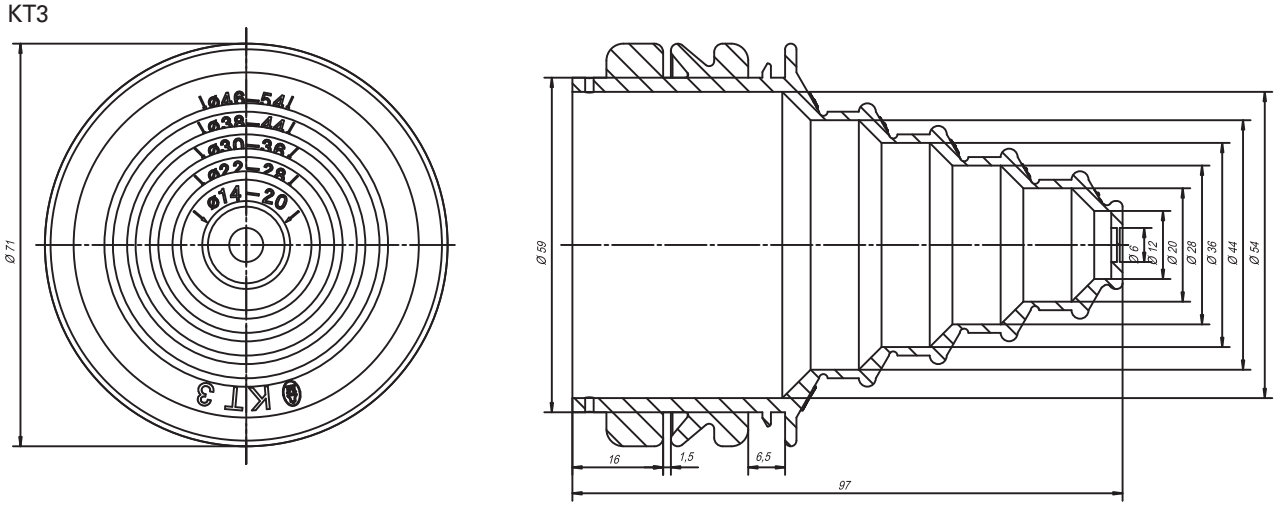
KT42



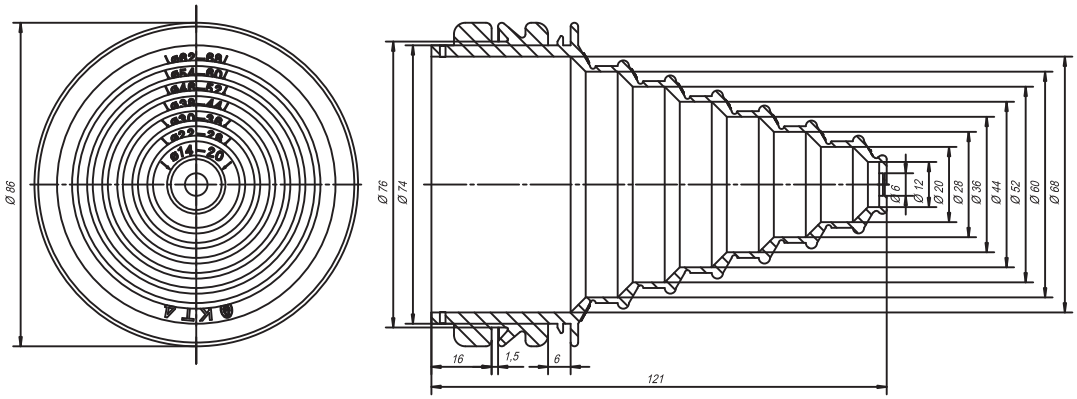
Dimensions (mm)

Cable Grommets

KT3



KT4



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Publication No. FK4300-1178GB
Printed in Austria
March 2017
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- Add-on options
- Depth 250 / 300 / 400 mm
- Generous wiring space
- Protection against mechanical impact up to IK08
- Grey (RAL 7035) or White (RAL 9016)

wa_vt00112, wa_vt00212



wa_vt03613, wa_vt04013



Surface-Mounting Installation Distribution Boards - Fully Assembled, IP30, **BP-O-...-C**

- including base frame, side panels, top/bottom panels and door
- including DIN-rail sets BPZ-DINR...B
- including front plates (150 mm) with device cutout (45 mm)
- including cable entry at the top, with pass-through flange
- with Bottom Panel blind
- assembling from the base frame - no mounting side wall MSW

wa_vt07713



wa_vt07813



Rotary door handle, Grey

Width / Outside Height (mm) / MU / Rows	Type Designation	Article No.	Units per package
600 / 760 / 96 / 4	BP-O-600/7-C	293307	1
600 / 1060 / 144 / 6	BP-O-600/10-C	293308	1
600 / 1260 / 168 / 7	BP-O-600/12-C	293309	1
600 / 1560 / 216 / 9	BP-O-600/15-C	293310	1
800 / 760 / 140 / 4	BP-O-800/7-C	293311	1
800 / 1060 / 210 / 6	BP-O-800/10-C	293312	1
800 / 1260 / 245 / 7	BP-O-800/12-C	293313	1
800 / 1560 / 315 / 9	BP-O-800/15-C	293314	1

Rotary door handle, White

- additional cable entry at the bottom, with pass-through flange

600 / 760 / 96 / 4	BP-O-600/7-C-W	105534	1
600 / 1060 / 144 / 6	BP-O-600/10-C-W	105535	1
600 / 1260 / 168 / 7	BP-O-600/12-C-W	105536	1
600 / 1560 / 216 / 9	BP-O-600/15-C-W	105537	1
800 / 760 / 140 / 4	BP-O-800/7-C-W	105538	1
800 / 1060 / 210 / 6	BP-O-800/10-C-W	105539	1
800 / 1260 / 245 / 7	BP-O-800/12-C-W	105540	1
800 / 1560 / 315 / 9	BP-O-800/15-C-W	105541	1

Surface-Mounting Installation Distribution Boards - Fully Assembled, IP30, **BP-O-...**

- including base frame, side panels, top/bottom panels and door
- including cable entry at the top, with pass-through flange
- with bottom panel blind
- assembling from the base frame - no mounting side wall MSW

wa_vt04713



Rotary door handle, Grey

Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
400 / 460 / 350	BP-O-400/4	100959	1
400 / 760 / 650	BP-O-400/7	100960	1
400 / 1060 / 950	BP-O-400/10	100961	1
400 / 1260 / 1150	BP-O-400/12	100962	1
600 / 460 / 350	BP-O-600/4	100963	1
600 / 760 / 650	BP-O-600/7	100964	1
600 / 1060 / 950	BP-O-600/10	100965	1
600 / 1260 / 1150	BP-O-600/12	100966	1
600 / 1560 / 1450	BP-O-600/15	100967	1
800 / 760 / 650	BP-O-800/7	100968	1
800 / 1060 / 950	BP-O-800/10	100969	1
800 / 1260 / 1150	BP-O-800/12	100970	1
800 / 1560 / 1450	BP-O-800/15	100971	1
1000 / 1060 / 950	BP-O-1000/10	100972	1
1000 / 1260 / 1150	BP-O-1000/12	100973	1
1000 / 1560 / 1450	BP-O-1000/15	100974	1
1200 / 1260 / 1150	BP-O-1200/12	100975	1
1200 / 1560 / 1450	BP-O-1200/15	100976	1

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Surface-Mounting Installation Distribution Boards - Fully Assembled, IP30, **BP-O-...-MSW**

- including base frame, side panels with MSW assembling, top/bottom panels and door
- including cable entry at the top, with pass-through flange
- with bottom panel blind
- Snap Element BPZ-SNAP-MSW-CTS already mounted
- MSW assembling

wa_vt04713



Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
Rotary door handle, Grey			
400 / 460 / 350	BP-O-400/4-MSW	149116	1
400 / 760 / 650	BP-O-400/7-MSW	149117	1
400 / 1060 / 950	BP-O-400/10-MSW	149118	1
400 / 1260 / 1150	BP-O-400/12-MSW	149119	1
400 / 1560 / 1450	BP-O-400/15-MSW	149150	1
600 / 460 / 350	BP-O-600/4-MSW	149151	1
600 / 760 / 650	BP-O-600/7-MSW	149152	1
600 / 1060 / 950	BP-O-600/10-MSW	149153	1
600 / 1260 / 1150	BP-O-600/12-MSW	149154	1
600 / 1560 / 1450	BP-O-600/15-MSW	149155	1
800 / 460 / 350	BP-O-800/4-MSW	149156	1
800 / 760 / 650	BP-O-800/7-MSW	149157	1
800 / 1060 / 950	BP-O-800/10-MSW	149158	1
800 / 1260 / 1150	BP-O-800/12-MSW	149159	1
800 / 1560 / 1450	BP-O-800/15-MSW	149160	1
1000 / 1060 / 950	BP-O-1000/10-MSW	149161	1
1000 / 1260 / 1150	BP-O-1000/12-MSW	149162	1
1000 / 1560 / 1450	BP-O-1000/15-MSW	149163	1
1200 / 1260 / 1150	BP-O-1200/12-MSW	149164	1
1200 / 1560 / 1450	BP-O-1200/15-MSW	149165	1

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Surface-Mounting Installation Distribution Boards - Fully Assembled, IP30, fire resistance, **BP-O-...-EW**

- including base frame, side panels, top/bottom panels and door
- including cable entry at the top, with pass-through flange
- with Bottom Panel blind
- fire resistance
- assembling from the base frame - no mounting side wall MSW

Width / Outside Height (mm) / MU	Type Designation	Article No.	Units per package
Rotary door handle, Grey			
400 / 460 / 350	BP-O-400/4-EW	116614	1
400 / 760 /650	BP-O-400/7-EW	116615	1
400 / 1060 / 950	BP-O-400/10-EW	116616	1
400 / 1260 / 1150	BP-O-400/12-EW	116617	1
400 / 1560 / 1150	BP-O-400/15-EW	116618	1
600 / 460 / 350	BP-O-600/4-EW	116619	1
600 / 760 / 650	BP-O-600/7-EW	116620	1
600 / 1060 / 950	BP-O-600/10-EW	116621	1
600 / 1260 / 1150	BP-O-600/12-EW	116622	1
600 / 1560 / 1450	BP-O-600/15-EW	116623	1
800 / 460 / 350	BP-O-800/4-EW	116624	1
800 / 760 / 650	BP-O-800/7-EW	116625	1
800 / 1060 / 950	BP-O-800/10-EW	116626	1
800 / 1260 / 1150	BP-O-800/12-EW	116627	1
800 / 1560 / 1450	BP-O-800/15-EW	116628	1
1000 / 1060 / 950	BP-O-1000/10-EW	116629	1
1000 / 1260 / 1150	BP-O-1000/12-EW	116630	1
1000 / 1560 / 1450	BP-O-1000/15-EW	116631	1
Rotary door handle, White			
400 / 460 / 350	BP-O-400/4-EW-W	116632	1
400 / 760 /650	BP-O-400/7-EW-W	116633	1
400 / 1060 / 950	BP-O-400/10-EW-W	116634	1
400 / 1260 / 1150	BP-O-400/12-EW-W	116635	1
400 / 1560 / 1150	BP-O-400/15-EW-W	116636	1
600 / 460 / 350	BP-O-600/4-EW-W	116637	1
600 / 760 / 650	BP-O-600/7-EW-W	116638	1
600 / 1060 / 950	BP-O-600/10-EW-W	116639	1
600 / 1260 / 1150	BP-O-600/12-EW-W	116640	1
600 / 1560 / 1450	BP-O-600/15-EW-W	116641	1
800 / 460 / 350	BP-O-800/4-EW-W	116642	1
800 / 760 / 650	BP-O-800/7-EW-W	116643	1
800 / 1060 / 950	BP-O-800/10-EW-W	116644	1
800 / 1260 / 1150	BP-O-800/12-EW-W	116645	1
800 / 1560 / 1450	BP-O-800/15-EW-W	116646	1
1000 / 1060 / 950	BP-O-1000/10-EW-W	116647	1
1000 / 1260 / 1150	BP-O-1000/12-EW-W	116648	1
1000 / 1560 / 1450	BP-O-1000/15-EW-W	116649	1

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VT10808



Surface-Mounting Istallation Distribution Boards - Flatpack, IP30, **BP-O-...FLAT**

- incl. Base frame, side panels, top/bottom panels and door (rotary door handle)
- including cable entry at the top with pass-through flange
- with Bottom Panel blind
- assembling from the base frame - no mounting side wall MSW

Width / Outside Height (mm) / MU	Type Designation	Article No.	Units per package
Rotary door handle, Grey			
600 / 760 / 96	BP-O-600/7-FLAT	113170	1
600 / 1060 / 144	BP-O-600/10-FLAT	113171	1
600 / 1260 / 168	BP-O-600/12-FLAT	113172	1
600 / 1560 / 216	BP-O-600/15-FLAT	113173	1
800 / 1060 / 210	BP-O-800/10-FLAT	113174	1
800 / 1260 / 245	BP-O-800/12-FLAT	113175	1
800 / 1560 / 315	BP-O-800/15-FLAT	113176	1
Rotary door handle, White			
600 / 760 / 96	BP-O-600/7-FLAT-W	113177	1
600 / 1060 / 144	BP-O-600/10-FLAT-W	113178	1
600 / 1260 / 168	BP-O-600/12-FLAT-W	113179	1
600 / 1560 / 216	BP-O-600/15-FLAT-W	113180	1
800 / 1060 / 210	BP-O-800/10-FLAT-W	113181	1
800 / 1260 / 245	BP-O-800/12-FLAT-W	113182	1
800 / 1560 / 315	BP-O-800/15-FLAT-W	113183	1

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Surface-Mounting Installation Distribution Board - Components

VT11404



Base Frame, BP-MF

- including base plate, 4 towers and screws

Width / Outside Height / Front plate Height (mm)	Type Designation	Article No.	Units per package
400 / 460 / 350	BP-MF-400/4	286653	1
400 / 760 / 650	BP-MF-400/7	286654	1
400 / 1060 / 950	BP-MF-400/10	286655	1
400 / 1260 / 1150	BP-MF-400/12	286656	1
400 / 1560 / 1450	BP-MF-400/15	286657	1
600 / 460 / 350	BP-MF-600/4	286658	1
600 / 760 / 650	BP-MF-600/7	286659	1
600 / 1060 / 950	BP-MF-600/10	286660	1
600 / 1260 / 1150	BP-MF-600/12	286661	1
600 / 1560 / 1450	BP-MF-600/15	286662	1
800 / 460 / 350	BP-MF-800/4	286663	1
800 / 760 / 650	BP-MF-800/7	286664	1
800 / 1060 / 950	BP-MF-800/10	286665	1
800 / 1260 / 1150	BP-MF-800/12	286666	1
800 / 1560 / 1450	BP-MF-800/15	286667	1
1000 / 1060 / 950	BP-MF-1000/10	293521	1
1000 / 1260 / 1150	BP-MF-1000/12	293522	1
1000 / 1560 / 1450	BP-MF-1000/15	293523	1
1200 / 1260 / 1150	BP-MF-1200/12	293524	1
1200 / 1560 / 1450	BP-MF-1200/15	293525	1

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VT16504



wa_vt51213

VT03605



Top/Bottom Panels, BP-TBP

- pair (for top and bottom), screws included
- with or without opening for cable entry

Width / Description	Type Designation	Article No.	Units per package
Grey			
400 / blind (without cutout)	BP-TBP-400-BL	286698	1
600 / blind (without cutout)	BP-TBP-600-BL	286700	1
800 / blind (without cutout)	BP-TBP-800-BL	286702	1
1000 / blind (without cutout)	BP-TBP-1000-BL	293550	1
1200 / blind (without cutout)	BP-TBP-1200-BL	293554	1
400 / with opening for cable entry	BP-TBP-400-CE	286699	1
600 / with opening for cable entry	BP-TBP-600-CE	286701	1
800 / with opening for cable entry	BP-TBP-800-CE	286703	1
1000 / with opening for cable entry	BP-TBP-1000-CE	293552	1
1200 / with opening for cable entry	BP-TBP-1200-CE	293556	1
White			
400 / blind (without cutout)	BP-TBP-400-BL-W	292420	1
600 / blind (without cutout)	BP-TBP-600-BL-W	292422	1
800 / blind (without cutout)	BP-TBP-800-BL-W	292424	1
1000 / blind (without cutout)	BP-TBP-1000-BL-W	293551	1
1200 / blind (without cutout)	BP-TBP-1200-BL-W	293555	1
400 / with opening for cable entry	BP-TBP-400-CE-W	292421	1
600 / with opening for cable entry	BP-TBP-600-CE-W	292423	1
800 / with opening for cable entry	BP-TBP-800-CE-W	292425	1
1000 / with opening for cable entry	BP-TBP-1000-CE-W	293553	1
1200 / with opening for cable entry	BP-TBP-1200-CE-W	293557	1

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wa_vt02213



vt03605



Top/Bottom Panels, BP-TBP1

- single item, screws included
- with or without opening for cable entry

Grey

Width / Description	Type Designation	Article No.	Units per package
400 / blind (without cutout)	BP-TBP1-400-BL	144689	1
600 / blind (without cutout)	BP-TBP1-600-BL	144700	1
800 / blind (without cutout)	BP-TBP1-800-BL	144701	1
1000 / blind (without cutout)	BP-TBP1-1000-BL	144702	1
1200 / blind (without cutout)	BP-TBP1-1200-BL	144703	1
400 / with opening for cable entry	BP-TBP1-400-CE	144704	1
600 / with opening for cable entry	BP-TBP1-600-CE	144705	1
800 / with opening for cable entry	BP-TBP1-800-CE	144706	1
1000 / with opening for cable entry	BP-TBP1-1000-CE	144707	1
1200 / with opening for cable entry	BP-TBP1-1200-CE	144708	1

White

400 / blind (without cutout)	BP-TBP1-400-BL-W	144709	1
600 / blind (without cutout)	BP-TBP1-600-BL-W	144710	1
800 / blind (without cutout)	BP-TBP1-800-BL-W	144711	1
1000 / blind (without cutout)	BP-TBP1-1000-BL-W	144712	1
1200 / blind (without cutout)	BP-TBP1-1200-BL-W	144713	1
400 / with opening for cable entry	BP-TBP1-400-CE-W	144714	1
600 / with opening for cable entry	BP-TBP1-600-CE-W	144715	1
800 / with opening for cable entry	BP-TBP1-800-CE-W	144716	1
1000 / with opening for cable entry	BP-TBP1-1000-CE-W	144717	1
1200 / with opening for cable entry	BP-TBP1-1200-CE-W	144718	1

VT00705

VT00505



VT00605



VT02905

VT02705



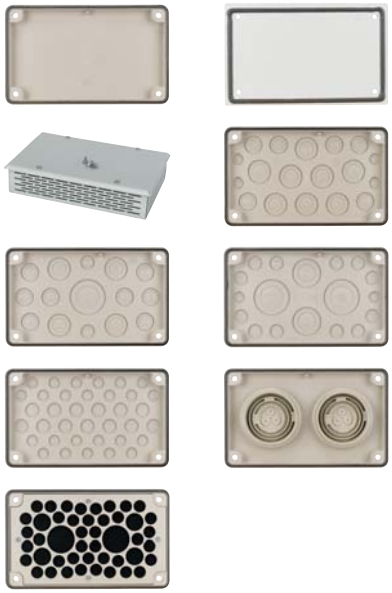
VT02805



Width (mm) / Description	Type Designation	Article No.	Units per package
Cable Entry/Flange Plate, BP-FLP			
Grey			
for IP30 applications, for surface- and floor standing boards			
400 / blind	BP-FLP-400-BL	286704	1
600 / blind	BP-FLP-600-BL	286707	1
800 / blind	BP-FLP-800-BL	286710	1
1000 / blind	BP-FLP-1000-BL	293558	1
1200 / blind	BP-FLP-1200-BL	293564	1
400 / pass-through flange	BP-FLP-400-2K	286705	1
600 / pass-through flange	BP-FLP-600-2K	286708	1
800 / pass-through flange	BP-FLP-800-2K	286711	1
1000 / pass-through flange	BP-FLP-1000-2K	293560	1
1200 / pass-through flange	BP-FLP-1200-2K	293566	1
for IP54 applications, for surface- and floor standing boards			
400 / prepared for F3A flanges	BP-FLP-400-F3A	286706	1
600 / prepared for F3A flanges	BP-FLP-600-F3A	286709	1
800 / prepared for F3A flanges	BP-FLP-800-F3A	286712	1
1000 / prepared for F3A flanges	BP-FLP-1000-F3A	293562	1
1200 / prepared for F3A flanges	BP-FLP-1200-F3A	293568	1
White			
for IP30 applications, for surface- and floor standing boards			
400 / blind	BP-FLP-400-BL-W	292426	1
600 / blind	BP-FLP-600-BL-W	292429	1
800 / blind	BP-FLP-800-BL-W	292432	1
1000 / blind	BP-FLP-1000-BL-W	293559	1
1200 / blind	BP-FLP-1200-BL-W	293565	1
400 / pass-through flange	BP-FLP-400-2K-W	292427	1
600 / pass-through flange	BP-FLP-600-2K-W	292430	1
800 / pass-through flange	BP-FLP-800-2K-W	292433	1
1000 / pass-through flange	BP-FLP-1000-2K-W	293561	1
1200 / pass-through flange	BP-FLP-1200-2K-W	293567	1
for IP54 applications, for surface- and floor standing boards			
400 / prepared for F3A flanges	BP-FLP-400-F3A-W	292428	1
600 / prepared for F3A flanges	BP-FLP-600-F3A-W	292431	1
800 / prepared for F3A flanges	BP-FLP-800-F3A-W	292434	1
1000 / prepared for F3A flanges	BP-FLP-1000-F3A-W	293563	1
1200 / prepared for F3A flanges	BP-FLP-1200-F3A-W	293569	1

F3A Flanges

VT17407, VT09208, VT28210, VT17507, VT17307, VT17607, VT17707, VT17807, VT17207



	Type Designation	Article No.	Units per package
for IP54 applications, for surface- and floor standing boards			
Blind flange	F3A-0	074182	1
Blind flange sheet-steel	F3A-XP	113426	1
Flange with ventilating	F3A-V	149194	1
4xM16, 6xM25/16, 8xM32/20	F3A-4	081301	1
2xM20, 8xM25/16, 4xM32/20, 1xM50/32	F3A-8	091468	1
2xM16, 12xM20, 2xM40/25, 2xM50/32	F3A-12	076555	1
24xM16, 13xM20	F3A-34	078928	1
2 Grommets for cables up to Ø 70mm	F3A-KTD	083674	1
Cellular rubber insertion flange 40 cables Ø 10-13mm 4 cables Ø 17-21mm 2 cables Ø 27-30mm	F3A-D	010145	1

Pass-through Flange ZSD-2K/FLA

wa_vt07113



pass-through flange for diverse wire cross-section, for IP30 applications

14 cables Ø 11mm 8 cables Ø 15mm 2 cables Ø 28mm	ZSD-2K/FLA	272166	1

Width (mm)	Type Designation	Article No.	Units per package
Shift-back flange, BP-FLP-...-VS			
• for IP30 applications, for surface- and floor standing boards • flange rotable for inside and outside mounting • for wall mounting and floor standing boards with a width of 400, 600, 800 mm is one shift-back flange necessary • for floor standing boards with a width of 1000 and 1200 mm two shift-back flanges, width 600 and 400 mm or width 600 and 600 mm are necessary			
Grey			
400	BP-FLP-400-VS	119355	1
600	BP-FLP-600-VS	119356	1
800	BP-FLP-800-VS	119357	1
1000	BP-FLP-1000-VS	119358	1
1200	BP-FLP-1200-VS	119359	1
White			
400	BP-FLP-400-VS-W	131573	1
600	BP-FLP-600-VS-W	131574	1
800	BP-FLP-800-VS-W	131575	1
1000	BP-FLP-1000-VS-W	131576	1
1200	BP-FLP-1200-VS-W	131577	1

VT13208



Width (mm)	Type Designation	Article No.	Units per package
Cover 2K Flange, 2K/BLIND			
• flange cover sheet steel for 2K pass-through flange			
Grey			
	2K/BLIND	151178	1

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VT16704, VT16804



VT03805, VT03905



Outside Height (mm)	Type Designation	Article No.	Units per package

Side Panels, BP-SP

- pair (for left and right side), screws included
- assembling from the base frame

Grey

460	BP-SP-4	286693	1
760	BP-SP-7	286694	1
1060	BP-SP-10	286695	1
1260	BP-SP-12	286696	1
1560	BP-SP-15	286697	1

White

460	BP-SP-4-W	292415	1
760	BP-SP-7-W	292416	1
1060	BP-SP-10-W	292417	1
1260	BP-SP-12-W	292418	1
1560	BP-SP-15-W	292419	1

VT12007, VT12007



Outside Height (mm)	Type Designation	Article No.	Units per package

Side Panels, BP-SP-MSW

- pair (for left and right side), screws included
- for MSW applications

Grey

460	BPZ-SP-MSW-4	111339	1
760	BPZ-SP-MSW-7	111341	1
1060	BPZ-SP-MSW-10	111342	1
1260	BPZ-SP-MSW-12	111343	1
1560	BPZ-SP-MSW-15	111344	1

White

460	BPZ-SP-MSW-4-W	111345	1
760	BPZ-SP-MSW-7-W	111347	1
1060	BPZ-SP-MSW-10-W	111348	1
1260	BPZ-SP-MSW-12-W	111349	1
1560	BPZ-SP-MSW-15-W	111350	1

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wa_vt80613



wa_vt03313



Sheet Steel Doors IP30, BP-DS

Rotary door handle, Grey

Width / Height (mm)	Type Designation	Article No.	Units per package
400 / 400	BP-DS-400/4	286713	1
400 / 700	BP-DS-400/7	286714	1
400 / 1000	BP-DS-400/10	286715	1
400 / 1200	BP-DS-400/12	286716	1
400 / 1500	BP-DS-400/15	286717	1
600 / 400	BP-DS-600/4	286718	1
600 / 700	BP-DS-600/7	286719	1
600 / 1000	BP-DS-600/10	286720	1
600 / 1200	BP-DS-600/12	286721	1
600 / 1500	BP-DS-600/15	286722	1
800 / 400	BP-DS-800/4	286723	1
800 / 700	BP-DS-800/7	286724	1
800 / 1000	BP-DS-800/10	286725	1
800 / 1200	BP-DS-800/12	286726	1
800 / 1500	BP-DS-800/15	286727	1
600+400L / 1000	BP-DS-600/10	286720	1
	BP-DS-400/10-L	293570	1
600+400L / 1200	BP-DS-600/12	286721	1
	BP-DS-400/12-L	293572	1
600+400L / 1500	BP-DS-600/15	286722	1
	BP-DS-400/15-L	293574	1
600+600L / 1200	BP-DS-600/12	286721	1
	BP-DS-600/12-L	293576	1
600+600L / 1500	BP-DS-600/15	286722	1
	BP-DS-600/15-L	293578	1

Rotary door handle, White

400 / 400	BP-DS-400/4-W	292435	1
400 / 700	BP-DS-400/7-W	292436	1
400 / 1000	BP-DS-400/10-W	292437	1
400 / 1200	BP-DS-400/12-W	292438	1
400 / 1500	BP-DS-400/15-W	292439	1
600 / 400	BP-DS-600/4-W	292440	1
600 / 700	BP-DS-600/7-W	292441	1
600 / 1000	BP-DS-600/10-W	292442	1
600 / 1200	BP-DS-600/12-W	292443	1
600 / 1500	BP-DS-600/15-W	292444	1
800 / 400	BP-DS-800/4-W	292445	1
800 / 700	BP-DS-800/7-W	292446	1
800 / 1000	BP-DS-800/10-W	292447	1
800 / 1200	BP-DS-800/12-W	292448	1
800 / 1500	BP-DS-800/15-W	292449	1
600+400L / 1000	BP-DS-600/10-W	292442	1
	BP-DS-400/10-L-W	293571	1
600+400L / 1200	BP-DS-600/12-W	292443	1
	BP-DS-400/12-L-W	293573	1
600+400L / 1500	BP-DS-600/15-W	292444	1
	BP-DS-400/15-L-W	293575	1
600+600L / 1200	BP-DS-600/12-W	292443	1
	BP-DS-600/12-L-W	293577	1
600+600L / 1500	BP-DS-600/15-W	292444	1
	BP-DS-600/15-L-W	293579	1

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Width / Height (mm)	Type Designation	Article No.	Units per package
Clip-down handle, Grey			
400 / 400	BP-DS-400/4-P	119063	1
400 / 700	BP-DS-400/7-P	119064	1
400 / 1000	BP-DS-400/10-P	119065	1
400 / 1200	BP-DS-400/12-P	119066	1
400 / 1500	BP-DS-400/15-P	119067	1
600 / 400	BP-DS-600/4-P	119068	1
600 / 700	BP-DS-600/7-P	119069	1
600 / 1000	BP-DS-600/10-P	119070	1
600 / 1200	BP-DS-600/12-P	119071	1
600 / 1500	BP-DS-600/15-P	119072	1
800 / 400	BP-DS-800/4-P	119073	1
800 / 700	BP-DS-800/7-P	119074	1
800 / 1000	BP-DS-800/10-P	119075	1
800 / 1200	BP-DS-800/12-P	119076	1
800 / 1500	BP-DS-800/15-P	119077	1
Clip-down handle, White			
400 / 400	BP-DS-400/4-P-W	119078	1
400 / 700	BP-DS-400/7-P-W	119079	1
400 / 1000	BP-DS-400/10-P-W	119080	1
400 / 1200	BP-DS-400/12-P-W	119081	1
400 / 1500	BP-DS-400/15-P-W	119082	1
600 / 400	BP-DS-600/4-P-W	119083	1
600 / 700	BP-DS-600/7-P-W	119084	1
600 / 1000	BP-DS-600/10-P-W	119085	1
600 / 1200	BP-DS-600/12-P-W	119086	1
600 / 1500	BP-DS-600/15-P-W	119087	1
800 / 400	BP-DS-800/4-P-W	119088	1
800 / 700	BP-DS-800/7-P-W	119089	1
800 / 1000	BP-DS-800/10-P-W	119090	1
800 / 1200	BP-DS-800/12-P-W	119091	1
800 / 1500	BP-DS-800/15-P-W	119092	1

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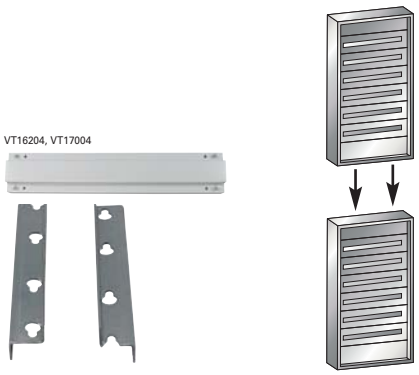


Transparent Doors (Sheet Steel), IP30, BP-DT

Width / Height (mm)	Type Designation	Article No.	Units per package
Rotary door handle, Grey			
400 / 400	BP-DT-400/4	286728	1
400 / 700	BP-DT-400/7	286729	1
400 / 1000	BP-DT-400/10	286730	1
400 / 1200	BP-DT-400/12	286731	1
400 / 1500	BP-DT-400/15	286732	1
600 / 400	BP-DT-600/4	286733	1
600 / 700	BP-DT-600/7	286734	1
600 / 1000	BP-DT-600/10	286735	1
600 / 1200	BP-DT-600/12	286736	1
600 / 1500	BP-DT-600/15	286737	1
800 / 400	BP-DT-800/4	286738	1
800 / 700	BP-DT-800/7	286739	1
800 / 1000	BP-DT-800/10	286740	1
800 / 1200	BP-DT-800/12	286741	1
800 / 1500	BP-DT-800/15	286742	1
600+400L / 1000	BP-DT-600/10	286735	1
	BP-DT-400/10-L	293580	1
600+400L / 1200	BP-DT-600/12	286736	1
	BP-DT-400/12-L	293582	1
600+400L / 1500	BP-DT-600/15	286737	1
	BP-DT-400/15-L	293584	1
600+600L / 1200	BP-DT-600/12	286736	1
	BP-DT-600/12-L	293586	1
600+600L / 1500	BP-DT-600/15	286737	1
	BP-DT-600/15-L	293588	1
Rotary door handle, White			
400 / 400	BP-DT-400/4-W	292450	1
400 / 700	BP-DT-400/7-W	292451	1
400 / 1000	BP-DT-400/10-W	292452	1
400 / 1200	BP-DT-400/12-W	292453	1
400 / 1500	BP-DT-400/15-W	292454	1
600 / 400	BP-DT-600/4-W	292455	1
600 / 700	BP-DT-600/7-W	292456	1
600 / 1000	BP-DT-600/10-W	292457	1
600 / 1200	BP-DT-600/12-W	292458	1
600 / 1500	BP-DT-600/15-W	292459	1
800 / 400	BP-DT-800/4-W	292460	1
800 / 700	BP-DT-800/7-W	292461	1
800 / 1000	BP-DT-800/10-W	292462	1
800 / 1200	BP-DT-800/12-W	292463	1
800 / 1500	BP-DT-800/15-W	292464	1
600+400L / 1000	BP-DT-600/10-W	292457	1
	BP-DT-400/10-L-W	293581	1
600+400L / 1200	BP-DT-600/12-W	292458	1
	BP-DT-400/12-L-W	293583	1
600+400L / 1500	BP-DT-600/15-W	292459	1
	BP-DT-400/15-L-W	293585	1
600+600L / 1200	BP-DT-600/12-W	292458	1
	BP-DT-600/12-L-W	293587	1
600+600L / 1500	BP-DT-600/15-W	292459	1
	BP-DT-600/15-L-W	293589	1

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VT16204, VT17004



VT03305, VT04005



Width (mm)	Type Designation	Article No.	Units per package

Horizontal/Middle Add-on Connection Element, BP-MFL

- for different widths
- horiz. add-on connection element between 2 distr. boards (one on top of the other), screws incl.
- for surface-mounted boards IP30
- bottom panel of the top board and top panel of the bottom board are not used, one set is used for both connected boards

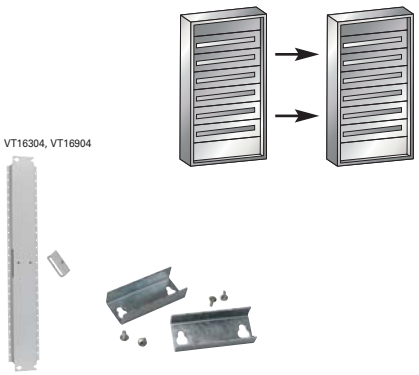
Grey

400	BP-MFL-400	286743	1
600	BP-MFL-600	286744	1
800	BP-MFL-800	286745	1
1000	BP-MFL-1000	111431	1
1200	BP-MFL-1200	111432	1

White

400	BP-MFL-400-W	292465	1
600	BP-MFL-600-W	292466	1
800	BP-MFL-800-W	292467	1
1000	BP-MFL-1000-W	111433	1
1200	BP-MFL-1200-W	111434	1

VT16304, VT16904



VT03405, VT16904



Height (mm)	Type Designation	Article No.	Units per package

Vertical/Middle Add-on Connection Element, BP-MSL

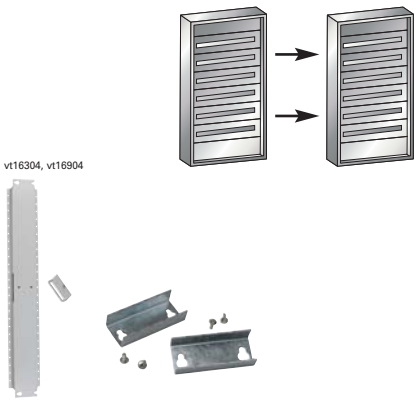
- for different heights
- vert. add-on connection element between 2 distr. boards (one next to the other), screws incl.
- for surface-mounted boards IP30
- for connection of boards with side panel BP-SP
- inner side panel are not used, one set is used for both connected boards
- to preserve max. opening angle the left board must have left closing door and the right board must have right closing door
- add-on with side panel BP-SP

Grey

460	BP-MSL-4	286746	1
760	BP-MSL-7	286747	1
1060	BP-MSL-10	286748	1
1260	BP-MSL-12	286749	1
1560	BP-MSL-15	286750	1

White

460	BP-MSL-4-W	292468	1
760	BP-MSL-7-W	292469	1
1060	BP-MSL-10-W	292470	1
1260	BP-MSL-12-W	292471	1
1560	BP-MSL-15-W	292472	1



vt16304, vt16904

Height (mm)	Type Designation	Article No.	Units per package

Vertical/Middle Add-on Connection Element, BP-MSL-MSW

- for different heights
- vert. add-on connection element between 2 distr. boards (one next to the other), screws incl. for MSW applications
- for surface-mounted boards IP30
- for connection of boards with side panel BP-SP-...-MSW
- inner side panel are not used, one set is used for both connected boards
- to preserve max. opening angle the left board must have left closing door and the right board must have right closing door

Grey

460	BP-MSL-MSW-4	111419	1
760	BP-MSL-MSW-7	111421	1
1060	BP-MSL-MSW-10	111422	1
1260	BP-MSL-MSW-12	111423	1
1560	BP-MSL-MSW-15	111424	1

White

460	BP-MSL-MSW-4-W	111425	1
760	BP-MSL-MSW-7-W	111427	1
1060	BP-MSL-MSW-10-W	111428	1
1260	BP-MSL-MSW-12-W	111429	1
1560	BP-MSL-MSW-15-W	111430	1

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Moisture Proof-Surface Mounting Installation Distribution Boards IP54, BPM-O-...

- welded construction with door and two-way key bit
- open cable entry above, prepared for F3A-Flanges
- interior fitting system possible via MSW or Towers
- to assemble with MSW, 2 pair Corner Tower Sets BPZ-CTS-S and 1 piece Snap Element BPZ-SNAP-MSW-CTS have to be ordered separately
- to assemble on the main frame 2 pieces Frontplate Support BPZ-FPS have to be ordered separately

Two-way key bit, Grey

Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
400 / 460 / 350	BPM-O-400/4	110837	1
400 / 760 /650	BPM-O-400/7	110838	1
400 / 1060 / 950	BPM-O-400/10	110839	1
400 / 1260 / 1150	BPM-O-400/12	111020	1
400 / 1560 / 1450	BPM-O-400/15	111021	1
600 / 460 / 350	BPM-O-600/4	111022	1
600 / 760 / 650	BPM-O-600/7	111023	1
600 / 1060 / 950	BPM-O-600/10	111024	1
600 / 1260 / 1150	BPM-O-600/12	111025	1
600 / 1560 / 1450	BPM-O-600/15	111026	1
800 / 460 / 350	BPM-O-800/4	111027	1
800 / 760 / 650	BPM-O-800/7	111028	1
800 / 1060 / 950	BPM-O-800/10	111029	1
800 / 1260 / 1150	BPM-O-800/12	111030	1
800 / 1560 / 1450	BPM-O-800/15	111031	1
1000 / 1060 / 950	BPM-O-1000/10	111032	1
1000 / 1260 / 1150	BPM-O-1000/12	111033	1
1000 / 1560 / 1450	BPM-O-1000/15	111034	1
1200 / 1260 / 1150	BPM-O-1200/12	111035	1
1200 / 1560 / 1450	BPM-O-1200/15	111036	1

Two-way key bit, White

400 / 460 / 350	BPM-O-400/4-W	111057	1
400 / 760 /650	BPM-O-400/7-W	111058	1
400 / 1060 / 950	BPM-O-400/10-W	111059	1
400 / 1260 / 1150	BPM-O-400/12-W	111060	1
400 / 1560 / 1450	BPM-O-400/15-W	111061	1
600 / 460 / 350	BPM-O-600/4-W	111062	1
600 / 760 / 650	BPM-O-600/7-W	111063	1
600 / 1060 / 950	BPM-O-600/10-W	111064	1
600 / 1260 / 1150	BPM-O-600/12-W	111065	1
600 / 1560 / 1450	BPM-O-600/15-W	111066	1
800 / 460 / 350	BPM-O-800/4-W	111067	1
800 / 760 / 650	BPM-O-800/7-W	111068	1
800 / 1060 / 950	BPM-O-800/10-W	111069	1
800 / 1260 / 1150	BPM-O-800/12-W	111070	1
800 / 1560 / 1450	BPM-O-800/15-W	111071	1
1000 / 1060 / 950	BPM-O-1000/10-W	111072	1
1000 / 1260 / 1150	BPM-O-1000/12-W	111073	1
1000 / 1560 / 1450	BPM-O-1000/15-W	111074	1
1200 / 1260 / 1150	BPM-O-1200/12-W	111075	1
1200 / 1560 / 1450	BPM-O-1200/15-W	111076	1

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Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
Clip-down handle, Grey			
400 / 460 / 350	BPM-O-400/4-P	116653	1
400 / 760 /650	BPM-O-400/7-P	116654	1
400 / 1060 / 950	BPM-O-400/10-P	116655	1
400 / 1260 / 1150	BPM-O-400/12-P	116656	1
400 / 1560 / 1450	BPM-O-400/15-P	116657	1
600 / 460 / 350	BPM-O-600/4-P	116658	1
600 / 760 / 650	BPM-O-600/7-P	116659	1
600 / 1060 / 950	BPM-O-600/10-P	116660	1
600 / 1260 / 1150	BPM-O-600/12-P	116661	1
600 / 1560 / 1450	BPM-O-600/15-P	116662	1
800 / 460 / 350	BPM-O-800/4-P	116663	1
800 / 760 / 650	BPM-O-800/7-P	116664	1
800 / 1060 / 950	BPM-O-800/10-P	116665	1
800 / 1260 / 1150	BPM-O-800/12-P	116666	1
800 / 1560 / 1450	BPM-O-800/15-P	116667	1
1000 / 1060 / 950	BPM-O-1000/10-P	116668	1
1000 / 1260 / 1150	BPM-O-1000/12-P	116669	1
1000 / 1560 / 1450	BPM-O-1000/15-P	116670	1
1200 / 1260 / 1150	BPM-O-1200/12-P	116671	1
1200 / 1560 / 1450	BPM-O-1200/15-P	116672	1

Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
Basic Enclosure without door, Grey			
600 / 760 / 650	BPM-O-600/7-F	174358	1
600 / 1060 / 950	BPM-O-600/10-F	174359	1
600 / 1260 / 1150	BPM-O-600/12-F	174360	1
600 / 1560 / 1450	BPM-O-600/15-F	174361	1
800 / 1060 / 950	BPM-O-800/10-F	174364	1
800 / 1260 / 1150	BPM-O-800/12-F	174365	1
800 / 1560 / 1450	BPM-O-800/15-F	174366	1
1000 / 1560 / 1450	BPM-O-1000/15-F	174369	1

Width / Height (mm)	Type Designation	Article No.	Units per package
Steel sheet Doors with clip-down handle, Grey, IP54, BPZ-DMS			
570 / 730	BPZ-DMS-600/7-P	174372	1
570 / 1030	BPZ-DMS-600/10-P	174373	1
570 / 1230	BPZ-DMS-600/12-P	174374	1
570 / 1530	BPZ-DMS-600/15-P	174341	1
770 / 1030	BPZ-DMS-800/10-P	174344	1
770 / 1230	BPZ-DMS-800/12-P	174345	1
770 / 1530	BPZ-DMS-800/15-P	174346	1
600+370 / 1530	BPZ-DMS-1000/15-P	174349	1

Width / Height (mm)	Type Designation	Article No.	Units per package
Transparent Doors (steel sheet) with clip-down handle, Grey, IP54, BPZ-DMT			
370 / 430	BPZ-DMT-400/4-P	173575	1
370 / 730	BPZ-DMT-400/7-P	173576	1
370 / 1030	BPZ-DMT-400/10-P	173577	1
370 / 1230	BPZ-DMT-400/12-P	173578	1
370 / 1530	BPZ-DMT-400/15-P	173579	1
570 / 430	BPZ-DMT-600/4-P	173580	1
570 / 730	BPZ-DMT-600/7-P	173581	1
570 / 1030	BPZ-DMT-600/10-P	173582	1
570 / 1230	BPZ-DMT-600/12-P	173583	1
570 / 1530	BPZ-DMT-600/15-P	173584	1
770 / 430	BPZ-DMT-800/4-P	173587	1
770 / 730	BPZ-DMT-800/7-P	173588	1
770 / 1030	BPZ-DMT-800/10-P	173589	1
770 / 1230	BPZ-DMT-800/12-P	173590	1
770 / 1530	BPZ-DMT-800/15-P	173591	1
600+370 / 1030	BPZ-DMT-1000/10-P	173594	1
600+370 / 1230	BPZ-DMT-1000/12-P	173595	1
600+370 / 1530	BPZ-DMT-1000/15-P	173596	1
600+570 / 1230	BPZ-DMT-1200/12-P	173599	1
600+570 / 1530	BPZ-DMT-1200/15-P	173600	1

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Flush-Mounting Installation Distribution Boards-Fully Assembled, IP30, **BP-U-...-C**

- including wall-box, top/bottom panels for the wall-Box , flush-mounting door frame and mounting side wall
- only for MSW mounting
- installation depth 240 mm
- including DIN-rail sets
- including front plates (150 mm) with device cutout (45 mm)

Width / Outside Height (mm) / MU / Rows	Type Designation	Article No.	Units per package
Rotary door handle, Grey			
600 / 700 / 96 / 4	BP-U-600/7-C	293315	1
600 / 1000 / 144 / 6	BP-U-600/10-C	293316	1
600 / 1200 / 168 / 7	BP-U-600/12-C	293317	1
600 / 1500 / 216 / 9	BP-U-600/15-C	293318	1
800 / 700 / 140 / 4	BP-U-800/7-C	293319	1
800 / 1000 / 210 / 6	BP-U-800/10-C	293320	1
800 / 1200 / 245 / 7	BP-U-800/12-C	293321	1
800 / 1500 / 315 / 9	BP-U-800/15-C	293322	1
Rotary door handle, White			
600 / 700 / 96 / 4	BP-U-600/7-C-W	105937	1
600 / 1000 / 144 / 6	BP-U-600/10-C-W	105938	1
600 / 1200 / 168 / 7	BP-U-600/12-C-W	105939	1
600 / 1500 / 216 / 9	BP-U-600/15-C-W	105940	1
800 / 700 / 140 / 4	BP-U-800/7-C-W	105941	1
800 / 1000 / 210 / 6	BP-U-800/10-C-W	105942	1
800 / 1200 / 245 / 7	BP-U-800/12-C-W	105943	1
800 / 1500 / 315 / 9	BP-U-800/15-C-W	105944	1

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Flush-Mounting Installation Distribution Boards - 2-Step System

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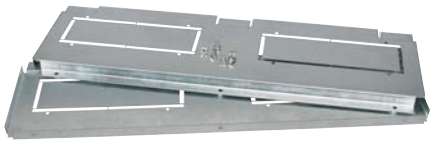


Wall Box - for 2-Step System, BPZ-WBO2S

- without top/bottom panel

Width / Outside Height (mm)	Type Designation	Article No.	Units per package
Depth 1 (180 mm)			
400 / 400	BPZ-WBO2S-400/4/1	293349	1
400 / 700	BPZ-WBO2S-400/7/1	293351	1
400 / 1000	BPZ-WBO2S-400/10/1	293353	1
400 / 1200	BPZ-WBO2S-400/12/1	293355	1
600 / 400	BPZ-WBO2S-600/4/1	293357	1
600 / 700	BPZ-WBO2S-600/7/1	293359	1
600 / 1000	BPZ-WBO2S-600/10/1	293361	1
600 / 1200	BPZ-WBO2S-600/12/1	293363	1
600 / 1500	BPZ-WBO2S-600/15/1	293365	1
800 / 700	BPZ-WBO2S-800/7/1	293371	1
800 / 1000	BPZ-WBO2S-800/10/1	293373	1
800 / 1200	BPZ-WBO2S-800/12/1	293375	1
800 / 1500	BPZ-WBO2S-800/15/1	293377	1
1000 / 1000	BPZ-WBO2S-1000/10/1	293383	1
1000 / 1200	BPZ-WBO2S-1000/12/1	293385	1
1000 / 1500	BPZ-WBO2S-1000/15/1	293387	1
1200 / 1200	BPZ-WBO2S-1200/12/1	293393	1
1200 / 1500	BPZ-WBO2S-1200/15/1	293395	1
Depth 2 (240 mm)			
400 / 400	BPZ-WBO2S-400/4/2	293350	1
400 / 700	BPZ-WBO2S-400/7/2	293352	1
400 / 1000	BPZ-WBO2S-400/10/2	293354	1
400 / 1200	BPZ-WBO2S-400/12/2	293356	1
600 / 400	BPZ-WBO2S-600/4/2	293358	1
600 / 700	BPZ-WBO2S-600/7/2	293360	1
600 / 1000	BPZ-WBO2S-600/10/2	293362	1
600 / 1200	BPZ-WBO2S-600/12/2	293364	1
600 / 1500	BPZ-WBO2S-600/15/2	293366	1
800 / 700	BPZ-WBO2S-800/7/2	293372	1
800 / 1000	BPZ-WBO2S-800/10/2	293374	1
800 / 1200	BPZ-WBO2S-800/12/2	293376	1
800 / 1500	BPZ-WBO2S-800/15/2	293378	1
1000 / 1000	BPZ-WBO2S-1000/10/2	293384	1
1000 / 1200	BPZ-WBO2S-1000/12/2	293386	1
1000 / 1500	BPZ-WBO2S-1000/15/2	293388	1
1200 / 1200	BPZ-WBO2S-1200/12/2	293394	1
1200 / 1500	BPZ-WBO2S-1200/15/2	293396	1

VT07005



Top/Bottom Panel for Wall Box, Depth 2 (240 mm), BPZ-WB2STBP

Width (mm) / Depth	Type Designation	Article No.	Units per package
400 / 2	BPZ-WB2STBP-400/2	293401	1
600 / 2	BPZ-WB2STBP-600/2	293402	1
800 / 2	BPZ-WB2STBP-800/2	293403	1
1000 / 2	BPZ-WB2STBP-1000/2	293404	1
1200 / 2	BPZ-WB2STBP-1200/2	293405	1

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Width / Outside Height / Front plate Height (mm)	Type Designation	Article No.	Units per package
2-Step Flush-Mounting Door Frame, with Door, BP-U			
Rotary door handle, Grey			
400 / 400 / 350	BP-U-400/4	100977	1
400 / 700 / 650	BP-U-400/7	100978	1
400 / 1000 / 950	BP-U-400/10	100979	1
400 / 1200 / 1150	BP-U-400/12	100980	1
600 / 400 / 350	BP-U-600/4	100981	1
600 / 700 / 650	BP-U-600/7	100982	1
600 / 1000 / 950	BP-U-600/10	100983	1
600 / 1200 / 1150	BP-U-600/12	100984	1
600 / 1500 / 1450	BP-U-600/15	100985	1
800 / 700 / 650	BP-U-800/7	100986	1
800 / 1000 / 950	BP-U-800/10	100987	1
800 / 1200 / 1150	BP-U-800/12	100988	1
800 / 1500 / 1450	BP-U-800/15	100989	1
1000 / 1000 / 950	BP-U-1000/10	100990	1
1000 / 1200 / 1150	BP-U-1000/12	100991	1
1000 / 1500 / 1450	BP-U-1000/15	100992	1
1200 / 1200 / 1150	BP-U-1200/12	100993	1
1200 / 1500 / 1450	BP-U-1200/15	100994	1

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Frontplate Height (mm)	Type Designation	Article No.	Units per package
Mounting Side Wall, BPZ-MSW			
• application without snap element, fixed mounting • enable assembling into mounting frame and connection of devices outside of the board • for assembling of inner equipment into flush-mounted boards • enables also a comfort assembling of installation devices into surface-mounted and floor-standing boards			
350	BPZ-MSW-4	293406	1 pair
650	BPZ-MSW-7	293407	1 pair
950	BPZ-MSW-10	293408	1 pair
1150	BPZ-MSW-12	293409	1 pair
1450	BPZ-MSW-15	293410	1 pair
1650	BPZ-MSW-17	293411	1 pair
1950	BPZ-MSW-20	293412	1 pair

Flush-Mounting Installation Distribution Boards - 3-Step System

- only MSW mounting

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Wall Box - for 3-Step System, BPZ-WBO3S

Width / Outside Height (mm)	Type Designation	Article No.	Units per package
Depth 1 (180 mm)			
400 / 460	BPZ-WB3S-400/4/1	111097	1
400 / 760	BPZ-WB3S-400/7/1	111098	1
400 / 1060	BPZ-WB3S-400/10/1	111099	1
400 / 1260	BPZ-WB3S-400/12/1	111100	1
600 / 460	BPZ-WB3S-600/4/1	111101	1
600 / 760	BPZ-WB3S-600/7/1	111102	1
600 / 1060	BPZ-WB3S-600/10/1	111103	1
600 / 1260	BPZ-WB3S-600/12/1	111104	1
600 / 1560	BPZ-WB3S-600/15/1	111105	1
600 / 1760	BPZ-WB3S-600/17/1	111106	1
600 / 2060	BPZ-WB3S-600/20/1	111107	1
800 / 760	BPZ-WB3S-800/7/1	111108	1
800 / 1060	BPZ-WB3S-800/10/1	111109	1
800 / 1260	BPZ-WB3S-800/12/1	111110	1
800 / 1560	BPZ-WB3S-800/15/1	111111	1
800 / 1760	BPZ-WB3S-800/17/1	111112	1
800 / 2060	BPZ-WB3S-800/20/1	111113	1
1000 / 1060	BPZ-WB3S-1000/10/1	111114	1
1000 / 1260	BPZ-WB3S-1000/12/1	111115	1
1000 / 1560	BPZ-WB3S-1000/15/1	111116	1
1000 / 1760	BPZ-WB3S-1000/17/1	111117	1
1000 / 2060	BPZ-WB3S-1000/20/1	111118	1
1200 / 1260	BPZ-WB3S-1200/12/1	111119	1
1200 / 1560	BPZ-WB3S-1200/15/1	111120	1
1200 / 1760	BPZ-WB3S-1200/17/1	111121	1
1200 / 2060	BPZ-WB3S-1200/20/1	111122	1
Depth 2 (240 mm)			
400 / 460	BPZ-WB3S-400/4/2	111123	1
400 / 760	BPZ-WB3S-400/7/2	111124	1
400 / 1060	BPZ-WB3S-400/10/2	111125	1
400 / 1260	BPZ-WB3S-400/12/2	111126	1
600 / 460	BPZ-WB3S-600/4/2	111127	1
600 / 760	BPZ-WB3S-600/7/2	111128	1
600 / 1060	BPZ-WB3S-600/10/2	111129	1
600 / 1260	BPZ-WB3S-600/12/2	111130	1
600 / 1560	BPZ-WB3S-600/15/2	111131	1
600 / 1760	BPZ-WB3S-600/17/2	111132	1
600 / 2060	BPZ-WB3S-600/20/2	111133	1
800 / 760	BPZ-WB3S-800/7/2	111134	1
800 / 1060	BPZ-WB3S-800/10/2	111135	1
800 / 1260	BPZ-WB3S-800/12/2	111136	1
800 / 1560	BPZ-WB3S-800/15/2	111137	1
800 / 1760	BPZ-WB3S-800/17/2	111138	1
800 / 2060	BPZ-WB3S-800/20/2	111139	1
1000 / 1060	BPZ-WB3S-1000/10/2	111140	1
1000 / 1260	BPZ-WB3S-1000/12/2	111141	1
1000 / 1560	BPZ-WB3S-1000/15/2	111142	1
1000 / 1760	BPZ-WB3S-1000/17/2	111143	1
1000 / 2060	BPZ-WB3S-1000/20/2	111144	1
1200 / 1260	BPZ-WB3S-1200/12/2	111145	1
1200 / 1560	BPZ-WB3S-1200/15/2	111146	1
1200 / 1760	BPZ-WB3S-1200/17/2	111147	1
1200 / 2060	BPZ-WB3S-1200/20/2	111148	1

VT11807



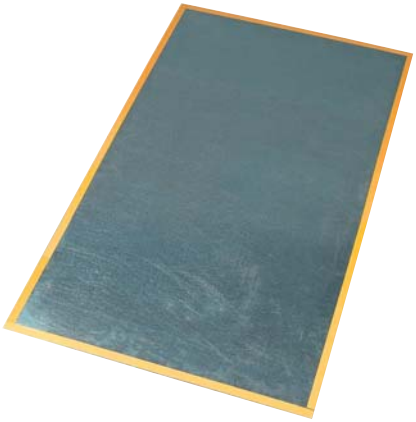
Coupling Flange, BPZ-BR/WB3S/

- for mutual connection of wall boxes BPZ-WB3S
- defines respective distance between wall boxes

Depth (mm)	Type Designation	Article No.	Units per package
180	BPZ-BR/WB3S/1	111337	1
240	BPZ-BR/WB3S/2	111338	1

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Rear Walls, BPZ-RP...

Width / Height (mm)	Type Designation	Article No.	Units per package
Steel Sheet			
400 / 460	BPZ-RP-400/4	111285	1
400 / 760	BPZ-RP-400/7	111286	1
400 / 1060	BPZ-RP-400/10	111287	1
400 / 1260	BPZ-RP-400/12	111288	1
600 / 460	BPZ-RP-600/4	111289	1
600 / 760	BPZ-RP-600/7	111290	1
600 / 1060	BPZ-RP-600/10	111291	1
600 / 1260	BPZ-RP-600/12	111292	1
600 / 1560	BPZ-RP-600/15	111293	1
600 / 1760	BPZ-RP-600/17	111294	1
600 / 2060	BPZ-RP-600/20	111295	1
800 / 760	BPZ-RP-800/7	111296	1
800 / 1060	BPZ-RP-800/10	111297	1
800 / 1260	BPZ-RP-800/12	111298	1
800 / 1560	BPZ-RP-800/15	111299	1
800 / 1760	BPZ-RP-800/17	111300	1
800 / 2060	BPZ-RP-800/20	111301	1
1000 / 1060	BPZ-RP-1000/10	111302	1
1000 / 1260	BPZ-RP-1000/12	111303	1
1000 / 1560	BPZ-RP-1000/15	111304	1
1000 / 1760	BPZ-RP-1000/17	111305	1
1000 / 2060	BPZ-RP-1000/20	111306	1
1200 / 1260	BPZ-RP-1200/12	111307	1
1200 / 1560	BPZ-RP-1200/15	111308	1
1200 / 1760	BPZ-RP-1200/17	111309	1
1200 / 2060	BPZ-RP-1200/20	111310	1
Plastic			
400 / 460	BPZ-RPP-400/4	111311	1
400 / 760	BPZ-RPP-400/7	111312	1
400 / 1060	BPZ-RPP-400/10	111313	1
400 / 1260	BPZ-RPP-400/12	111314	1
600 / 460	BPZ-RPP-600/4	111315	1
600 / 760	BPZ-RPP-600/7	111316	1
600 / 1060	BPZ-RPP-600/10	111317	1
600 / 1260	BPZ-RPP-600/12	111318	1
600 / 1560	BPZ-RPP-600/15	111319	1
600 / 1760	BPZ-RPP-600/17	111320	1
600 / 2060	BPZ-RPP-600/20	111321	1
800 / 760	BPZ-RPP-800/7	111322	1
800 / 1060	BPZ-RPP-800/10	111323	1
800 / 1260	BPZ-RPP-800/12	111324	1
800 / 1560	BPZ-RPP-800/15	111325	1
800 / 1760	BPZ-RPP-800/17	111326	1
800 / 2060	BPZ-RPP-800/20	111327	1
1000 / 1060	BPZ-RPP-1000/10	111328	1
1000 / 1260	BPZ-RPP-1000/12	111329	1
1000 / 1560	BPZ-RPP-1000/15	111330	1
1000 / 1760	BPZ-RPP-1000/17	111331	1
1000 / 2060	BPZ-RPP-1000/20	111332	1
1200 / 1260	BPZ-RPP-1200/12	111333	1
1200 / 1560	BPZ-RPP-1200/15	111334	1
1200 / 1760	BPZ-RPP-1200/17	111335	1
1200 / 2060	BPZ-RPP-1200/20	111336	1

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Width / Outside Height / Front plate Height (mm)	Type Designation	Article No.	Units per package
3-Step Flush-Mounting Door Frame IP30, with Door, BP-U-3S...			
Rotary door handle, Grey			
400 / 460 / 350	BP-U-3S-400/4	111149	1
400 / 760 / 650	BP-U-3S-400/7	111150	1
400 / 1060 / 950	BP-U-3S-400/10	111151	1
400 / 1260 /1150	BP-U-3S-400/12	111152	1
600 / 460 / 350	BP-U-3S-600/4	111153	1
600 / 760 / 650	BP-U-3S-600/7	111154	1
600 / 1060 / 950	BP-U-3S-600/10	111155	1
600 / 1260 / 1150	BP-U-3S-600/12	111156	1
600 / 1560 / 1450	BP-U-3S-600/15	111157	1
600 / 1760 / 1650	BP-U-3S-600/17	111158	1
600 / 2060 / 1950	BP-U-3S-600/20	111159	1
800 / 760 / 650	BP-U-3S-800/7	111162	1
800 / 1060 / 950	BP-U-3S-800/10	111163	1
800 / 1260 / 1150	BP-U-3S-800/12	111164	1
800 / 1560 / 1450	BP-U-3S-800/15	111165	1
800 / 1760 / 1650	BP-U-3S-800/17	111166	1
800 / 2070 / 1950	BP-U-3S-800/20	111167	1
1000 / 1060 / 950	BP-U-3S-1000/10	111170	1
1000 / 1260 / 1150	BP-U-3S-1000/12	111171	1
1000 / 1560 / 1450	BP-U-3S-1000/15	111172	1
1000 / 1760 / 1650	BP-U-3S-1000/17	111173	1
1000 / 2060 / 1950	BP-U-3S-1000/20	111174	1
1200 / 1260 / 1150	BP-U-3S-1200/12	111177	1
1200 / 1560 / 1450	BP-U-3S-1200/15	111178	1
1200 / 1760 / 1650	BP-U-3S-1200/17	111179	1
1200 / 2060 / 1950	BP-U-3S-1200/20	111180	1
Rotary door handle, White			
400 / 460 / 350	BP-U-3S-400/4-W	111183	1
400 / 760 / 650	BP-U-3S-400/7-W	111184	1
400 / 1060 / 950	BP-U-3S-400/10-W	111185	1
400 / 1260 /1150	BP-U-3S-400/12-W	111186	1
600 / 460 / 350	BP-U-3S-600/4-W	111187	1
600 / 760 / 650	BP-U-3S-600/7-W	111188	1
600 / 1060 / 950	BP-U-3S-600/10-W	111189	1
600 / 1260 / 1150	BP-U-3S-600/12-W	111190	1
600 / 1560 / 1450	BP-U-3S-600/15-W	111191	1
600 / 1760 / 1650	BP-U-3S-600/17-W	111192	1
600 / 2060 / 1950	BP-U-3S-600/20-W	111193	1
800 / 760 / 650	BP-U-3S-800/7-W	111196	1
800 / 1060 / 950	BP-U-3S-800/10-W	111197	1
800 / 1260 / 1150	BP-U-3S-800/12-W	111198	1
800 / 1560 / 1450	BP-U-3S-800/15-W	111199	1
800 / 1760 / 1650	BP-U-3S-800/17-W	111200	1
800 / 2070 / 1950	BP-U-3S-800/20-W	111201	1
1000 / 1060 / 950	BP-U-3S-1000/10-W	111204	1
1000 / 1260 / 1150	BP-U-3S-1000/12-W	111205	1
1000 / 1560 / 1450	BP-U-3S-1000/15-W	111206	1
1000 / 1760 / 1650	BP-U-3S-1000/17-W	111207	1
1000 / 2060 / 1950	BP-U-3S-1000/20-W	111208	1
1200 / 1260 / 1150	BP-U-3S-1200/12-W	111211	1
1200 / 1560 / 1450	BP-U-3S-1200/15-W	111212	1
1200 / 1760 / 1650	BP-U-3S-1200/17-W	111213	1
1200 / 2060 / 1950	BP-U-3S-1200/20-W	111214	1

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Width / Outside Height / Front plate Height (mm)	Type Designation	Article No.	Units per package
Clip-down handle, Grey			
400 / 460 / 350	BP-U-3S-400/4-P	119093	1
400 / 760 / 650	BP-U-3S-400/7-P	119094	1
400 / 1060 / 950	BP-U-3S-400/10-P	119095	1
400 / 1260 /1150	BP-U-3S-400/12-P	119096	1
600 / 460 / 350	BP-U-3S-600/4-P	119097	1
600 / 760 / 650	BP-U-3S-600/7-P	119098	1
600 / 1060 / 950	BP-U-3S-600/10-P	119099	1
600 / 1260 / 1150	BP-U-3S-600/12-P	119100	1
600 / 1560 / 1450	BP-U-3S-600/15-P	119101	1
600 / 1760 / 1650	BP-U-3S-600/17-P	111160	1
600 / 2060 / 1950	BP-U-3S-600/20-P	111161	1
800 / 760 / 650	BP-U-3S-800/7-P	119102	1
800 / 1060 / 950	BP-U-3S-800/10-P	119103	1
800 / 1260 / 1150	BP-U-3S-800/12-P	119104	1
800 / 1560 / 1450	BP-U-3S-800/15-P	119105	1
800 / 1760 / 1650	BP-U-3S-800/17-P	111168	1
800 / 2070 / 1950	BP-U-3S-800/20-P	111169	1
1000 / 1060 / 950	BP-U-3S-1000/10-P	119106	1
1000 / 1260 / 1150	BP-U-3S-1000/12-P	119107	1
1000 / 1560 / 1450	BP-U-3S-1000/15-P	119108	1
1000 / 1760 / 1650	BP-U-3S-1000/17-P	111175	1
1000 / 2060 / 1950	BP-U-3S-1000/20-P	111176	1
1200 / 1260 / 1150	BP-U-3S-1200/12-P	119109	1
1200 / 1560 / 1450	BP-U-3S-1200/15-P	119110	1
1200 / 1760 / 1650	BP-U-3S-1200/17-P	111181	1
1200 / 2060 / 1950	BP-U-3S-1200/20-P	111182	1
Clip-down handle, White			
400 / 460 / 350	BP-U-3S-400/4-P-W	119111	1
400 / 760 / 650	BP-U-3S-400/7-P-W	119112	1
400 / 1060 / 950	BP-U-3S-400/10-P-W	119113	1
400 / 1260 /1150	BP-U-3S-400/12-P-W	119114	1
600 / 460 / 350	BP-U-3S-600/4-P-W	119115	1
600 / 760 / 650	BP-U-3S-600/7-P-W	119116	1
600 / 1060 / 950	BP-U-3S-600/10-P-W	119117	1
600 / 1260 / 1150	BP-U-3S-600/12-P-W	119118	1
600 / 1560 / 1450	BP-U-3S-600/15-P-W	119119	1
600 / 1760 / 1650	BP-U-3S-600/17-P-W	111194	1
600 / 2060 / 1950	BP-U-3S-600/20-P-W	111195	1
800 / 760 / 650	BP-U-3S-800/7-P-W	119120	1
800 / 1060 / 950	BP-U-3S-800/10-P-W	119121	1
800 / 1260 / 1150	BP-U-3S-800/12-P-W	119122	1
800 / 1560 / 1450	BP-U-3S-800/15-P-W	119123	1
800 / 1760 / 1650	BP-U-3S-800/17-P-W	111202	1
800 / 2070 / 1950	BP-U-3S-800/20-P-W	111203	1
1000 / 1060 / 950	BP-U-3S-1000/10-P-W	119124	1
1000 / 1260 / 1150	BP-U-3S-1000/12-P-W	119125	1
1000 / 1560 / 1450	BP-U-3S-1000/15-P-W	119126	1
1000 / 1760 / 1650	BP-U-3S-1000/17-P-W	111209	1
1000 / 2060 / 1950	BP-U-3S-1000/20-P-W	111210	1
1200 / 1260 / 1150	BP-U-3S-1200/12-P-W	119127	1
1200 / 1560 / 1450	BP-U-3S-1200/15-P-W	119128	1
1200 / 1760 / 1650	BP-U-3S-1200/17-P-W	111215	1
1200 / 2060 / 1950	BP-U-3S-1200/20-P-W	111216	1

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Width / Outside Height / Front plate Height (mm)	Type Designation	Article No.	Units per package
3-Step Flush-Mounting Door Frame IP30, with Door, fireproof, BP-U-3S...-EW			
Rotary door handle, Grey			
400 / 460 / 350	BP-U-3S-400/4-EW	116570	1
400 / 760 / 650	BP-U-3S-400/7-EW	116571	1
400 / 1060 / 950	BP-U-3S-400/10-EW	116572	1
400 / 1260 /1150	BP-U-3S-400/12-EW	116573	1
600 / 460 / 350	BP-U-3S-600/4-EW	116574	1
600 / 760 / 650	BP-U-3S-600/7-EW	116575	1
600 / 1060 / 950	BP-U-3S-600/10-EW	116576	1
600 / 1260 / 1150	BP-U-3S-600/12-EW	116577	1
600 / 1560 / 1450	BP-U-3S-600/15-EW	116578	1
600 / 1760 / 1650	BP-U-3S-600/17-EW	116579	1
600 / 2060 / 1950	BP-U-3S-600/20-EW	116580	1
800 / 760 / 650	BP-U-3S-800/7-EW	116581	1
800 / 1060 / 950	BP-U-3S-800/10-EW	116582	1
800 / 1260 / 1150	BP-U-3S-800/12-EW	116583	1
800 / 1560 / 1450	BP-U-3S-800/15-EW	116584	1
800 / 1760 / 1650	BP-U-3S-800/17-EW	116585	1
800 / 2070 / 1950	BP-U-3S-800/20-EW	116586	1
1000 / 1060 / 950	BP-U-3S-1000/10-EW	116587	1
1000 / 1260 / 1150	BP-U-3S-1000/12-EW	116588	1
1000 / 1560 / 1450	BP-U-3S-1000/15-EW	116589	1
1000 / 1760 / 1650	BP-U-3S-1000/17-EW	116590	1
1000 / 2060 / 1950	BP-U-3S-1000/20-EW	116591	1
Rotary door handle, White			
400 / 460 / 350	BP-U-3S-400/4-EW-W	116592	1
400 / 760 / 650	BP-U-3S-400/7-EW-W	116593	1
400 / 1060 / 950	BP-U-3S-400/10-EW-W	116594	1
400 / 1260 /1150	BP-U-3S-400/12-EW-W	116595	1
600 / 460 / 350	BP-U-3S-600/4-EW-W	116596	1
600 / 760 / 650	BP-U-3S-600/7-EW-W	116597	1
600 / 1060 / 950	BP-U-3S-600/10-EW-W	116598	1
600 / 1260 / 1150	BP-U-3S-600/12-EW-W	116599	1
600 / 1560 / 1450	BP-U-3S-600/15-EW-W	116600	1
600 / 1760 / 1650	BP-U-3S-600/17-EW-W	116601	1
600 / 2060 / 1950	BP-U-3S-600/20-EW-W	116602	1
800 / 760 / 650	BP-U-3S-800/7-EW-W	116603	1
800 / 1060 / 950	BP-U-3S-800/10-EW-W	116604	1
800 / 1260 / 1150	BP-U-3S-800/12-EW-W	116605	1
800 / 1560 / 1450	BP-U-3S-800/15-EW-W	116606	1
800 / 1760 / 1650	BP-U-3S-800/17-EW-W	116607	1
800 / 2070 / 1950	BP-U-3S-800/20-EW-W	116608	1
1000 / 1060 / 950	BP-U-3S-1000/10-EW-W	116609	1
1000 / 1260 / 1150	BP-U-3S-1000/12-EW-W	116610	1
1000 / 1560 / 1450	BP-U-3S-1000/15-EW-W	116611	1
1000 / 1760 / 1650	BP-U-3S-1000/17-EW-W	116612	1
1000 / 2060 / 1950	BP-U-3S-1000/20-EW-W	116613	1

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3-Step Flush-Mounting Door Frame for Outdoor Installation, IP43, with Door, BPA-U-3S...

Width / Outside Height / Front plate Height (mm)	Type Designation	Article No.	Units per package
Dual-bit lock, Grey			
400 / 460 / 350	BPA-U-3S-400/4	111217	1
400 / 760 / 650	BPA-U-3S-400/7	111218	1
400 / 1060 / 950	BPA-U-3S-400/10	111219	1
400 / 1260 /1150	BPA-U-3S-400/12	111220	1
600 / 460 / 350	BPA-U-3S-600/4	111221	1
600 / 760 / 650	BPA-U-3S-600/7	111222	1
600 / 1060 / 950	BPA-U-3S-600/10	111223	1
600 / 1260 / 1150	BPA-U-3S-600/12	111224	1
600 / 1560 / 1450	BPA-U-3S-600/15	111225	1
600 / 1760 / 1650	BPA-U-3S-600/17	111226	1
600 / 2060 / 1950	BPA-U-3S-600/20	111227	1
800 / 760 / 650	BPA-U-3S-800/7	111230	1
800 / 1060 / 950	BPA-U-3S-800/10	111231	1
800 / 1260 / 1150	BPA-U-3S-800/12	111232	1
800 / 1560 / 1450	BPA-U-3S-800/15	111233	1
800 / 1760 / 1650	BPA-U-3S-800/17	111234	1
800 / 2070 / 1950	BPA-U-3S-800/20	111235	1
1000 / 1060 / 950	BPA-U-3S-1000/10	111238	1
1000 / 1260 / 1150	BPA-U-3S-1000/12	111239	1
1000 / 1560 / 1450	BPA-U-3S-1000/15	111240	1
1000 / 1760 / 1650	BPA-U-3S-1000/17	111241	1
1000 / 2060 / 1950	BPA-U-3S-1000/20	111242	1
1200 / 1260 / 1150	BPA-U-3S-1200/12	111245	1
1200 / 1560 / 1450	BPA-U-3S-1200/15	111246	1
1200 / 1760 / 1650	BPA-U-3S-1200/17	111247	1
1200 / 2060 / 1950	BPA-U-3S-1200/20	111248	1
Clip-down handle, Grey			
400 / 460 / 350	BPA-U-3S-400/4-P	119129	1
400 / 760 / 650	BPA-U-3S-400/7-P	119130	1
400 / 1060 / 950	BPA-U-3S-400/10-P	119131	1
400 / 1260 /1150	BPA-U-3S-400/12-P	119132	1
600 / 460 / 350	BPA-U-3S-600/4-P	119133	1
600 / 760 / 650	BPA-U-3S-600/7-P	119134	1
600 / 1060 / 950	BPA-U-3S-600/10-P	119135	1
600 / 1260 / 1150	BPA-U-3S-600/12-P	119136	1
600 / 1560 / 1450	BPA-U-3S-600/15-P	119137	1
600 / 1760 / 1650	BPA-U-3S-600/17-P	111228	1
600 / 2060 / 1950	BPA-U-3S-600/20-P	111229	1
800 / 760 / 650	BPA-U-3S-800/7-P	119138	1
800 / 1060 / 950	BPA-U-3S-800/10-P	119139	1
800 / 1260 / 1150	BPA-U-3S-800/12-P	119140	1
800 / 1560 / 1450	BPA-U-3S-800/15-P	119141	1
800 / 1760 / 1650	BPA-U-3S-800/17-P	111236	1
800 / 2070 / 1950	BPA-U-3S-800/20-P	111237	1
1000 / 1060 / 950	BPA-U-3S-1000/10-P	119142	1
1000 / 1260 / 1150	BPA-U-3S-1000/12-P	119143	1
1000 / 1560 / 1450	BPA-U-3S-1000/15-P	119144	1
1000 / 1760 / 1650	BPA-U-3S-1000/17-P	111243	1
1000 / 2060 / 1950	BPA-U-3S-1000/20-P	111244	1
1200 / 1260 / 1150	BPA-U-3S-1200/12-P	119145	1
1200 / 1560 / 1450	BPA-U-3S-1200/15-P	119146	1
1200 / 1760 / 1650	BPA-U-3S-1200/17-P	111249	1
1200 / 2060 / 1950	BPA-U-3S-1200/20-P	111250	1

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Width / Outside Height / Front plate Height (mm)	Type Designation	Article No.	Units per package
3-Step Flush-Mounting Moisture-proof Door Frame, IP54, with Door, BPM-U-3S...			
Dual-bit lock, Grey			
400 / 460 / 350	BPM-U-3S-400/4	111251	1
400 / 760 / 650	BPM-U-3S-400/7	111252	1
400 / 1060 / 950	BPM-U-3S-400/10	111253	1
400 / 1260 /1150	BPM-U-3S-400/12	111254	1
600 / 460 / 350	BPM-U-3S-600/4	111255	1
600 / 760 / 650	BPM-U-3S-600/7	111256	1
600 / 1060 / 950	BPM-U-3S-600/10	111257	1
600 / 1260 / 1150	BPM-U-3S-600/12	111258	1
600 / 1560 / 1450	BPM-U-3S-600/15	111259	1
600 / 1760 / 1650	BPM-U-3S-600/17	111260	1
600 / 2060 / 1950	BPM-U-3S-600/20	111261	1
800 / 760 / 650	BPM-U-3S-800/7	111264	1
800 / 1060 / 950	BPM-U-3S-800/10	111265	1
800 / 1260 / 1150	BPM-U-3S-800/12	111266	1
800 / 1560 / 1450	BPM-U-3S-800/15	111267	1
800 / 1760 / 1650	BPM-U-3S-800/17	111268	1
800 / 2070 / 1950	BPM-U-3S-800/20	111269	1
1000 / 1060 / 950	BPM-U-3S-1000/10	111272	1
1000 / 1260 / 1150	BPM-U-3S-1000/12	111273	1
1000 / 1560 / 1450	BPM-U-3S-1000/15	111274	1
1000 / 1760 / 1650	BPM-U-3S-1000/17	111275	1
1000 / 2060 / 1950	BPM-U-3S-1000/20	111276	1
1200 / 1260 / 1150	BPM-U-3S-1200/12	111279	1
1200 / 1560 / 1450	BPM-U-3S-1200/15	111280	1
1200 / 1760 / 1650	BPM-U-3S-1200/17	111281	1
1200 / 2060 / 1950	BPM-U-3S-1200/20	111282	1
Clip-down handle, Grey			
400 / 460 / 350	BPM-U-3S-400/4-P	119147	1
400 / 760 / 650	BPM-U-3S-400/7-P	119148	1
400 / 1060 / 950	BPM-U-3S-400/10-P	119149	1
400 / 1260 /1150	BPM-U-3S-400/12-P	119150	1
600 / 460 / 350	BPM-U-3S-600/4-P	119151	1
600 / 760 / 650	BPM-U-3S-600/7-P	119152	1
600 / 1060 / 950	BPM-U-3S-600/10-P	119153	1
600 / 1260 / 1150	BPM-U-3S-600/12-P	119154	1
600 / 1560 / 1450	BPM-U-3S-600/15-P	119155	1
600 / 1760 / 1650	BPM-U-3S-600/17-P	111262	1
600 / 2060 / 1950	BPM-U-3S-600/20-P	111263	1
800 / 760 / 650	BPM-U-3S-800/7-P	119156	1
800 / 1060 / 950	BPM-U-3S-800/10-P	119157	1
800 / 1260 / 1150	BPM-U-3S-800/12-P	119158	1
800 / 1560 / 1450	BPM-U-3S-800/15-P	119159	1
800 / 1760 / 1650	BPM-U-3S-800/17-P	111270	1
800 / 2070 / 1950	BPM-U-3S-800/20-P	111271	1
1000 / 1060 / 950	BPM-U-3S-1000/10-P	119160	1
1000 / 1260 / 1150	BPM-U-3S-1000/12-P	119161	1
1000 / 1560 / 1450	BPM-U-3S-1000/15-P	119162	1
1000 / 1760 / 1650	BPM-U-3S-1000/17-P	111277	1
1000 / 2060 / 1950	BPM-U-3S-1000/20-P	111278	1
1200 / 1260 / 1150	BPM-U-3S-1200/12-P	119163	1
1200 / 1560 / 1450	BPM-U-3S-1200/15-P	119164	1
1200 / 1760 / 1650	BPM-U-3S-1200/17-P	111283	1
1200 / 2060 / 1950	BPM-U-3S-1200/20-P	111284	1

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Dual-bit lock, White

400 / 460 / 350	BPM-U-3S-400/4-W	144237	1
400 / 760 / 650	BPM-U-3S-400/7-W	144238	1
400 / 1060 / 950	BPM-U-3S-400/10-W	144239	1
400 / 1260 /1150	BPM-U-3S-400/12-W	144240	1
600 / 460 / 350	BPM-U-3S-600/4-W	144241	1
600 / 760 / 650	BPM-U-3S-600/7-W	144242	1
600 / 1060 / 950	BPM-U-3S-600/10-W	144243	1
600 / 1260 / 1150	BPM-U-3S-600/12-W	144244	1
600 / 1560 / 1450	BPM-U-3S-600/15-W	144245	1
600 / 1760 / 1650	BPM-U-3S-600/17-W	144246	1
600 / 2060 / 1950	BPM-U-3S-600/20-W	144247	1
800 / 760 / 650	BPM-U-3S-800/7-W	144248	1
800 / 1060 / 950	BPM-U-3S-800/10-W	144249	1
800 / 1260 / 1150	BPM-U-3S-800/12-W	144250	1
800 / 1560 / 1450	BPM-U-3S-800/15-W	144251	1
800 / 1760 / 1650	BPM-U-3S-800/17-W	144252	1
800 / 2070 / 1950	BPM-U-3S-800/20-W	144253	1
1000 / 1060 / 950	BPM-U-3S-1000/10-W	144254	1
1000 / 1260 / 1150	BPM-U-3S-1000/12-W	144255	1
1000 / 1560 / 1450	BPM-U-3S-1000/15-W	144256	1
1000 / 1760 / 1650	BPM-U-3S-1000/17-W	144257	1
1000 / 2060 / 1950	BPM-U-3S-1000/20-W	144258	1
1200 / 1260 / 1150	BPM-U-3S-1200/12-W	144259	1
1200 / 1560 / 1450	BPM-U-3S-1200/15-W	144260	1
1200 / 1760 / 1650	BPM-U-3S-1200/17-W	144261	1
1200 / 2060 / 1950	BPM-U-3S-1200/20-W	144262	1

wa_vt18013



Frontplate Height (mm)	Type Designation	Article No.	Units per package

Mounting Side Wall for 3-Step System, BPZ-MSW

- incl. pre-mounted snap-on element

350	BPZ-MSW-4/SNAP	112284	1 pair
650	BPZ-MSW-7/SNAP	112285	1 pair
950	BPZ-MSW-10/SNAP	112286	1 pair
1150	BPZ-MSW-12/SNAP	112287	1 pair
1450	BPZ-MSW-15/SNAP	112288	1 pair
1650	BPZ-MSW-17/SNAP	112289	1 pair
1950	BPZ-MSW-20/SNAP	112300	1 pair

wa_vt61813



Height (mm)	Type Designation	Article No.	Units per package

Segaration frame, BPZ-USF

- for flush-mounting boards
- only for width of 1000 or 1200 mm
- for MSW application
- angle accessories are included

Grey

10	BPZ-USF-10	119302	1
12	BPZ-USF-12	119303	1
15	BPZ-USF-15	119304	1
17	BPZ-USF-17	119305	1
20	BPZ-USF-20	119306	1

White

10	BPZ-USF-10-W	131568	1
12	BPZ-USF-12-W	131569	1
15	BPZ-USF-15-W	131570	1
17	BPZ-USF-17-W	131571	1
20	BPZ-USF-20-W	131572	1

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Floor-Standing Distribution Board with Rotary Door Handle, IP30, BP-F-...

- depth 300 mm
- including pass-through flange on top and bottom
- including metal door with rotary door handle
- to assemble with MSW, 2 pair Corner Tower Sets BPZ-CTS-S and 1 piece Snap Element BPZ-SNAP-MSW-CTS have to be ordered separately
- to assemble on the main frame 2 pieces Frontplate Support BPZ-FPS have to be ordered separately

Rotary door handle, Grey

Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
400 / 1760 / 1650	BP-F-400/17/3	102055	1
400 / 2060 / 1950	BP-F-400/20/3	102056	1
600 / 1760 / 1650	BP-F-600/17/3	102057	1
600 / 2060 / 1950	BP-F-600/20/3	102058	1
800 / 1760 / 1650	BP-F-800/17/3	102059	1
800 / 2060 / 1950	BP-F-800/20/3	102320	1
1000 / 1760 / 1650	BP-F-1000/17/3	102321	1
1000 / 2060 / 1950	BP-F-1000/20/3	102322	1
1200 / 1760 / 1650	BP-F-1200/17/3	102323	1
1200 / 2060 / 1950	BP-F-1200/20/3	102324	1

Rotary door handle, White

400 / 1760 / 1650	BP-F-400/17/3-W	102335	1
400 / 2060 / 1950	BP-F-400/20/3-W	102336	1
600 / 1760 / 1650	BP-F-600/17/3-W	102337	1
600 / 2060 / 1950	BP-F-600/20/3-W	102338	1
800 / 1760 / 1650	BP-F-800/17/3-W	102339	1
800 / 2060 / 1950	BP-F-800/20/3-W	102340	1
1000 / 1760 / 1650	BP-F-1000/17/3-W	102341	1
1000 / 2060 / 1950	BP-F-1000/20/3-W	102342	1
1200 / 1760 / 1650	BP-F-1200/17/3-W	102343	1
1200 / 2060 / 1950	BP-F-1200/20/3-W	102344	1

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Floor-Standing Distribution Board with Clip-Down Handle, IP30, BP-F-...-P

- depth 300 mm
- including pass-through flange on top and bottom
- including metal door with clip-down handle
- to assemble with MSW, 2 pair Corner Tower Sets BPZ-CTS-S and 1 piece Snap Element BPZ-SNAP-MSW-CTS have to be ordered separately
- to assemble on the main frame 2 pieces Frontplate Support BPZ-FPS have to be ordered separately

Clip-down handle, Grey

Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
400 / 1760 / 1650	BP-F-400/17/3-P	102355	1
400 / 2060 / 1950	BP-F-400/20/3-P	102356	1
600 / 1760 / 1650	BP-F-600/17/3-P	102357	1
600 / 2060 / 1950	BP-F-600/20/3-P	102358	1
800 / 1760 / 1650	BP-F-800/17/3-P	102359	1
800 / 2060 / 1950	BP-F-800/20/3-P	102360	1
1000 / 1760 / 1650	BP-F-1000/17/3-P	102361	1
1000 / 2060 / 1950	BP-F-1000/20/3-P	102362	1
1200 / 1760 / 1650	BP-F-1200/17/3-P	102363	1
1200 / 2060 / 1950	BP-F-1200/20/3-P	102364	1

Clip-down handle, White

400 / 1760 / 1650	BP-F-400/17/3-P-W	102375	1
400 / 2060 / 1950	BP-F-400/20/3-P-W	102376	1
600 / 1760 / 1650	BP-F-600/17/3-P-W	102377	1
600 / 2060 / 1950	BP-F-600/20/3-P-W	102378	1
800 / 1760 / 1650	BP-F-800/17/3-P-W	102379	1
800 / 2060 / 1950	BP-F-800/20/3-P-W	102380	1
1000 / 1760 / 1650	BP-F-1000/17/3-P-W	102381	1
1000 / 2060 / 1950	BP-F-1000/20/3-P-W	102382	1
1200 / 1760 / 1650	BP-F-1200/17/3-P-W	102383	1
1200 / 2060 / 1950	BP-F-1200/20/3-P-W	102384	1

Floor-Standing Distribution Board with Clip-Down Handle, tightened door construction, IP30, BP-F-T-...-P

- depth 300 mm
- including pass-through flange on top and bottom
- including metal door with clip-down handle
- tightened door construction
- to assemble with MSW, 2 pair Corner Tower Sets BPZ-CTS-S and 1 piece Snap Element BPZ-SNAP-MSW-CTS have to be ordered separately
- to assemble on the main frame 2 pieces Frontplate Support BPZ-FPS have to be ordered separately

wa_vt03613



Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
Clip-down handle, Grey			
400 / 1760 / 1650	BP-F-T-400/17/3-P	142284	1
400 / 2060 / 1950	BP-F-T-400/20/3-P	142285	1
600 / 1760 / 1650	BP-F-T-600/17/3-P	142286	1
600 / 2060 / 1950	BP-F-T-600/20/3-P	142287	1
800 / 1760 / 1650	BP-F-T-800/17/3-P	142288	1
800 / 2060 / 1950	BP-F-T-800/20/3-P	142289	1
1000 / 1760 / 1650	BP-F-T-1000/17/3-P	142430	1
1000 / 2060 / 1950	BP-F-T-1000/20/3-P	142431	1
1200 / 1760 / 1650	BP-F-T-1200/17/3-P	142432	1
1200 / 2060 / 1950	BP-F-T-1200/20/3-P	142433	1

Floor-Standing Distribution Board flexible assembling, IP30, **BP-F-...-F**

- depth 250 mm
- empty housing without buildup, flange plates, door or frontplate support
- installation frame (rear side) without mounting holm
- only MSW application (no Corner Tower BPZ-CTS-... necessary)

wa_vt03713



Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
Grey			
400 / 2060 / 1950	BP-F-400/20/2,5-F	120754	1
600 / 2060 / 1950	BP-F-600/20/2,5-F	120755	1
800 / 2060 / 1950	BP-F-800/20/2,5-F	120756	1
1000 / 2060 / 1950	BP-F-1000/20/2,5-F	120757	1
1200 / 2060 / 1950	BP-F-1200/20/2,5-F	120758	1

Floor-Standing Distribution Board flexible assembling, IP30, **BP-F-...-F**

- depth 300 mm
- no body
- no flange
- no door
- no frontplate support BPZ-FPS
- to assemble with MSW, 2 pair Corner Tower Sets BPZ-CTS-S and 1 piece Snap Element BPZ-SNAP-MSW-CTS have to be ordered separately
- to assemble on the main frame 2 pieces Frontplate Support BPZ-FPS have to be ordered separately

wa_vt03713



Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
Grey			
400 / 1760 / 1650	BP-F-400/17/3-F	102395	1
400 / 2060 / 1950	BP-F-400/20/3-F	102396	1
600 / 1760 / 1650	BP-F-600/17/3-F	102397	1
600 / 2060 / 1950	BP-F-600/20/3-F	102398	1
800 / 1760 / 1650	BP-F-800/17/3-F	102399	1
800 / 2060 / 1950	BP-F-800/20/3-F	102400	1
1000 / 1760 / 1650	BP-F-1000/17/3-F	120691	1
1000 / 2060 / 1950	BP-F-1000/20/3-F	120692	1
1200 / 1760 / 1650	BP-F-1200/17/3-F	120693	1
1200 / 2060 / 1950	BP-F-1200/20/3-F	120694	1
White			
400 / 1760 / 1650	BP-F-400/17/3-F-W	102407	1
400 / 2060 / 1950	BP-F-400/20/3-F-W	102408	1
600 / 1760 / 1650	BP-F-600/17/3-F-W	102409	1
600 / 2060 / 1950	BP-F-600/20/3-F-W	102410	1
800 / 1760 / 1650	BP-F-800/17/3-F-W	102411	1
800 / 2060 / 1950	BP-F-800/20/3-F-W	102412	1
1000 / 1760 / 1650	BP-F-1000/17/3-F-W	120695	1
1000 / 2060 / 1950	BP-F-1000/20/3-F-W	120696	1
1200 / 1760 / 1650	BP-F-1200/17/3-F-W	120697	1
1200 / 2060 / 1950	BP-F-1200/20/3-F-W	120698	1

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Floor-Standing Distribution Board flexible assembling, IP30, **BP-F-...-F**

- depth 400 mm
- empty housing without buildup, flange plates, door or frontplate support
- installation frame (rear side) without mounting holm
- only MSW application (no Corner Tower BPZ-CTS-... necessary)

Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
Grey			
400 / 2060 / 1950	BP-F-400/20/4-F	120759	1
600 / 2060 / 1950	BP-F-600/20/4-F	120760	1
800 / 2060 / 1950	BP-F-800/20/4-F	120761	1
1000 / 2060 / 1950	BP-F-1000/20/4-F	120762	1
1200 / 2060 / 1950	BP-F-1200/20/4-F	120763	1

Floor-Standing Distribution Board with Rotary Door Handle, IP30, **BP-F-...**

- depth 250 mm
- including pass-through flange on top and bottom
- including metal door with rotary door handle
- installation frame (rear side) without mounting holm
- only MSW application (no Corner Tower BPZ-CTS-... necessary)

wa_vt03513



Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
Rotary door handle, Grey			
400 / 2060 / 1950	BP-F-400/20/2,5	119187	1
600 / 2060 / 1950	BP-F-600/20/2,5	119188	1
800 / 2060 / 1950	BP-F-800/20/2,5	119189	1
1000 / 2060 / 1950	BP-F-1000/20/2,5	119190	1
1200 / 2060 / 1950	BP-F-1200/20/2,5	119191	1

Floor-Standing Distribution Board with Clip-down Handle, IP30, **BP-F-...-P**

- depth 400 mm
- including pass-through flange on top and bottom
- including metal door with clip-down handle
- installation frame (rear side) without mounting holm
- only MSW application (no Corner Tower BPZ-CTS-... necessary)

wa_vt03613



Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
Clip-down handle, Grey			
400 / 2060 / 1950	BP-F-400/20/4-P	119192	1
600 / 2060 / 1950	BP-F-600/20/4-P	119193	1
800 / 2060 / 1950	BP-F-800/20/4-P	119194	1
1000 / 2060 / 1950	BP-F-1000/20/4-P	119195	1
1200 / 2060 / 1950	BP-F-1200/20/4-P	119196	1

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wa_vt51313



Width / Height (mm)	Type Designation	Article No.	Units per package
Sheet Steel Doors, BPZ-DS-...			
Rotary door handle, Grey			
400 / 1696,5	BPZ-DS-400/17	102419	1
400 / 1996,5	BPZ-DS-400/20	102420	1
600 / 1696,5	BPZ-DS-600/17	102421	1
600 / 1996,5	BPZ-DS-600/20	102422	1
800 / 1696,5	BPZ-DS-800/17	102423	1
800 / 1996,5	BPZ-DS-800/20	102424	1
600+400L / 1696,5	BPZ-DS-600/17	102421	1
	BPZ-DS-400/17-L	106374	1
600+400L / 1996,5	BPZ-DS-600/20	102422	1
	BPZ-DS-400/20-L	106375	1
600+600L / 1696,5	BPZ-DS-600/17	102421	1
	BPZ-DS-600/17-L	106376	1
600+600L / 1996,5	BPZ-DS-600/20	102422	1
	BPZ-DS-600/20-L	106377	1
Rotary door handle, White			
400 / 1696,5	BPZ-DS-400/17-W	102443	1
400 / 1996,5	BPZ-DS-400/20-W	102444	1
600 / 1696,5	BPZ-DS-600/17-W	102445	1
600 / 1996,5	BPZ-DS-600/20-W	102446	1
800 / 1696,5	BPZ-DS-800/17-W	102447	1
800 / 1996,5	BPZ-DS-800/20-W	102448	1
600+400L / 1696,5	BPZ-DS-600/17-W	102445	1
	BPZ-DS-400/17-L-W	106378	1
600+400L / 1996,5	BPZ-DS-600/20-W	102446	1
	BPZ-DS-400/20-L-W	106379	1
600+600L / 1696,5	BPZ-DS-600/17-W	102445	1
	BPZ-DS-600/17-L-W	106420	1
600+600L / 1996,5	BPZ-DS-600/20-W	102446	1
	BPZ-DS-600/20-L-W	106421	1

wa_vt03913



Width / Height (mm)	Type Designation	Article No.	Units per package
Sheet Steel Doors, BPZ-DS-...-P			
Clip-down handle, Grey			
400 / 1696,5	BPZ-DS-400/17-P	102425	1
400 / 1996,5	BPZ-DS-400/20-P	102426	1
600 / 1696,5	BPZ-DS-600/17-P	102427	1
600 / 1996,5	BPZ-DS-600/20-P	102428	1
800 / 1696,5	BPZ-DS-800/17-P	102429	1
800 / 1996,5	BPZ-DS-800/20-P	102430	1
600+400L / 1696,5	BPZ-DS-600/17-P	102427	1
	BPZ-DS-400/17-L	106374	1
600+400L / 1996,5	BPZ-DS-600/20-P	102428	1
	BPZ-DS-400/20-L	106375	1
600+600L / 1696,5	BPZ-DS-600/17-P	102427	1
	BPZ-DS-600/17-L	106376	1
600+600L / 1996,5	BPZ-DS-600/20-P	102428	1
	BPZ-DS-600/20-L	106377	1
Clip-down handle, White			
400 / 1696,5	BPZ-DS-400/17-P-W	102449	1
400 / 1996,5	BPZ-DS-400/20-P-W	102450	1
600 / 1696,5	BPZ-DS-600/17-P-W	102451	1
600 / 1996,5	BPZ-DS-600/20-P-W	102452	1
800 / 1696,5	BPZ-DS-800/17-P-W	102453	1
800 / 1996,5	BPZ-DS-800/20-P-W	102454	1
600+400L / 1696,5	BPZ-DS-600/17-P-W	102451	1
	BPZ-DS-400/17-L-W	106378	1
600+400L / 1996,5	BPZ-DS-600/20-P-W	102452	1
	BPZ-DS-400/20-L-W	106379	1
600+600L / 1696,5	BPZ-DS-600/17-P-W	102451	1
	BPZ-DS-600/17-L-W	106420	1
600+600L / 1996,5	BPZ-DS-600/20-P-W	102452	1
	BPZ-DS-600/20-L-W	106421	1

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Width / Height (mm)	Type Designation	Article No.	Units per package
Sheet Steel Doors, tightened construction, BPZ-DS-T-...-P			
Clip-down handle, Grey			
400 / 1696,5	BPZ-DS-T-400/17-P	142434	1
400 / 1996,5	BPZ-DS-T-400/20-P	142435	1
600 / 1696,5	BPZ-DS-T-600/17-P	142436	1
600 / 1996,5	BPZ-DS-T-600/20-P	142437	1
800 / 1696,5	BPZ-DS-T-800/17-P	142438	1
800 / 1996,5	BPZ-DS-T-800/20-P	142439	1
600+400L / 1696,5	BPZ-DS-T-600/17-P	142436	1
	BPZ-DS-T-400/17-L	142440	1
600+400L / 1996,5	BPZ-DS-T-600/20-P	142437	1
	BPZ-DS-T-400/20-L	142441	1
600+600L / 1696,5	BPZ-DS-T-600/17-P	142436	1
	BPZ-DS-T-600/17-L	142442	1
600+600L / 1996,5	BPZ-DS-T-600/20-P	142437	1
	BPZ-DS-T-600/20-L	142443	1

VT00106



Width / Height (mm)	Type Designation	Article No.	Units per package
Transparent Doors (Sheet Steel), BPZ-DT-...			
Rotary door handle, Grey			
400 / 1696,5	BPZ-DT-400/17	102431	1
400 / 1996,5	BPZ-DT-400/20	102432	1
600 / 1696,5	BPZ-DT-600/17	102433	1
600 / 1996,5	BPZ-DT-600/20	102434	1
800 / 1696,5	BPZ-DT-800/17	102435	1
800 / 1996,5	BPZ-DT-800/20	102436	1
600+400L / 1696,5	BPZ-DT-600/17	102433	1
	BPZ-DT-400/17-L	106422	1
600+400L / 1996,5	BPZ-DT-600/20	102434	1
	BPZ-DT-400/20-L	106423	1
600+600L / 1696,5	BPZ-DT-600/17	102433	1
	BPZ-DT-600/17-L	106424	1
600+600L / 1996,5	BPZ-DT-600/20	102434	1
	BPZ-DT-600/20-L	106425	1
Rotary door handle, White			
400 / 1696,5	BPZ-DT-400/17-W	102455	1
400 / 1996,5	BPZ-DT-400/20-W	102456	1
600 / 1696,5	BPZ-DT-600/17-W	102457	1
600 / 1996,5	BPZ-DT-600/20-W	102458	1
800 / 1696,5	BPZ-DT-800/17-W	102459	1
800 / 1996,5	BPZ-DT-800/20-W	102460	1
600+400L / 1696,5	BPZ-DT-600/17-W	102457	1
	BPZ-DT-400/17-L-W	106426	1
600+400L / 1996,5	BPZ-DT-600/20-W	102458	1
	BPZ-DT-400/20-L-W	106427	1
600+600L / 1696,5	BPZ-DT-600/17-W	102457	1
	BPZ-DT-600/17-L-W	106428	1
600+600L / 1996,5	BPZ-DT-600/20-W	102458	1
	BPZ-DT-600/20-L-W	106429	1

VT00206



Width / Height (mm)	Type Designation	Article No.	Units per package
Transparent Doors (Sheet Steel), BPZ-DT-...-P			
Clip-down handle, Grey			
400 / 1696,5	BPZ-DT-400/17-P	102437	1
400 / 1996,5	BPZ-DT-400/20-P	102438	1
600 / 1696,5	BPZ-DT-600/17-P	102439	1
600 / 1996,5	BPZ-DT-600/20-P	102440	1
800 / 1696,5	BPZ-DT-800/17-P	102441	1
800 / 1996,5	BPZ-DT-800/20-P	102442	1
600+400L / 1696,5	BPZ-DT-600/17-P	102439	1
	BPZ-DT-400/17-L	106422	1
600+400L / 1996,5	BPZ-DT-600/20-P	102440	1
	BPZ-DT-400/20-L	106423	1
600+600L / 1696,5	BPZ-DT-600/17-P	102439	1
	BPZ-DT-600/17-L	106424	1
600+600L / 1996,5	BPZ-DT-600/20-P	102440	1
	BPZ-DT-600/20-L	106425	1
Clip-down handle, White			
400 / 1696,5	BPZ-DT-400/17-P-W	102461	1
400 / 1996,5	BPZ-DT-400/20-P-W	102462	1
600 / 1696,5	BPZ-DT-600/17-P-W	102463	1
600 / 1996,5	BPZ-DT-600/20-P-W	102464	1
800 / 1696,5	BPZ-DT-800/17-P-W	102465	1
800 / 1996,5	BPZ-DT-800/20-P-W	102466	1
600+400L / 1696,5	BPZ-DT-600/17-P-W	102463	1
	BPZ-DT-400/17-L-W	106426	1
600+400L / 1996,5	BPZ-DT-600/20-P-W	102464	1
	BPZ-DT-400/20-L-W	106427	1
600+600L / 1696,5	BPZ-DT-600/17-P-W	102463	1
	BPZ-DT-600/17-L-W	106428	1
600+600L / 1996,5	BPZ-DT-600/20-P-W	102464	1
	BPZ-DT-600/20-L-W	106429	1

Moisture Proof-Floor-Standing Board, IP54, **BPM-F-...**

- depth 320 mm
- welded construction with door and two-way key bit
- open cable entry below and above, prepared for F3A-Flanges
- interior fitting system possible via MSW or Towers
- to assemble with MSW, 2 pair Corner Tower Sets BPZ-CTS-S and 1 piece Snap Element BPZ-SNAP-MSW-CTS have to be ordered separately
- to assemble on the main frame 2 pieces Frontplate Support BPZ-FPS have to be ordered separately

wa_vt17213



wa_vt17313



Two-way heybit, Grey

Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
400 / 1760 / 1650	BPM-F-400/17	111037	1
400 / 2060 / 1950	BPM-F-400/20	111038	1
600 / 1760 / 1650	BPM-F-600/17	111039	1
600 / 2060 / 1950	BPM-F-600/20	111040	1
800 / 1760 / 1650	BPM-F-800/17	111041	1
800 / 2060 / 1950	BPM-F-800/20	111042	1
1000 / 1760 / 1650	BPM-F-1000/17	111043	1
1000 / 2060 / 1950	BPM-F-1000/20	111044	1
1200 / 1760 / 1650	BPM-F-1200/17	111045	1
1200 / 2060 / 1950	BPM-F-1200/20	111046	1

Two-way heybit, White

400 / 1760 / 1650	BPM-F-400/17-W	111077	1
400 / 2060 / 1950	BPM-F-400/20-W	111078	1
600 / 1760 / 1650	BPM-F-600/17-W	111079	1
600 / 2060 / 1950	BPM-F-600/20-W	111080	1
800 / 1760 / 1650	BPM-F-800/17-W	111081	1
800 / 2060 / 1950	BPM-F-800/20-W	111082	1
1000 / 1760 / 1650	BPM-F-1000/17-W	111083	1
1000 / 2060 / 1950	BPM-F-1000/20-W	111084	1
1200 / 1760 / 1650	BPM-F-1200/17-W	111085	1
1200 / 2060 / 1950	BPM-F-1200/20-W	111086	1

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Moisture Proof-Floor-Standing Board with Clip-down Handle, IP54, **BPM-F-...-P**

- depth 320 mm
- welded construction with door and clip-down handle
- open cable entry below and above, prepared for F3A-Flanges
- interior fitting system possible via MSW or Towers
- to assemble with MSW, 2 pair Corner Tower Sets BPZ-CTS-S and 1 piece Snap Element BPZ-SNAP-MSW-CTS have to be ordered separately
- to assemble on the main frame 2 pieces Frontplate Support BPZ-FPS have to be ordered separately

wa_vt03613



Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
Clip-down handle, Grey			
400 / 1760 / 1650	BPM-F-400/17-P	111047	1
400 / 2060 / 1950	BPM-F-400/20-P	111048	1
600 / 1760 / 1650	BPM-F-600/17-P	111049	1
600 / 2060 / 1950	BPM-F-600/20-P	111050	1
800 / 1760 / 1650	BPM-F-800/17-P	111051	1
800 / 2060 / 1950	BPM-F-800/20-P	111052	1
1000 / 1760 / 1650	BPM-F-1000/17-P	111053	1
1000 / 2060 / 1950	BPM-F-1000/20-P	111054	1
1200 / 1760 / 1650	BPM-F-1200/17-P	111055	1
1200 / 2060 / 1950	BPM-F-1200/20-P	111056	1
Clip-down handle, White			
400 / 1760 / 1650	BPM-F-400/17-P-W	111087	1
400 / 2060 / 1950	BPM-F-400/20-P-W	111088	1
600 / 1760 / 1650	BPM-F-600/17-P-W	111089	1
600 / 2060 / 1950	BPM-F-600/20-P-W	111090	1
800 / 1760 / 1650	BPM-F-800/17-P-W	111091	1
800 / 2060 / 1950	BPM-F-800/20-P-W	111092	1
1000 / 1760 / 1650	BPM-F-1000/17-P-W	111093	1
1000 / 2060 / 1950	BPM-F-1000/20-P-W	111094	1
1200 / 1760 / 1650	BPM-F-1200/17-P-W	111095	1
1200 / 2060 / 1950	BPM-F-1200/20-P-W	111096	1

Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
Basic Enclosure without door, Grey			
600 / 1760 / 1650	BPM-F-600/17-F	174362	1
600 / 2060 / 1950	BPM-F-600/20-F	174363	1
800 / 1760 / 1650	BPM-F-800/17-F	174367	1
800 / 2060 / 1950	BPM-F-800/20-F	174368	1
1000 / 1760 / 1650	BPM-F-1000/17-F	174370	1
1000 / 2060 / 1950	BPM-F-1000/20-F	174371	1

Width / Height (mm)	Type Designation	Article No.	Units per package
Steel sheet Doors with clip-down handle, Grey, IP54, BPZ-DMS			
570 / 1730	BPZ-DMS-600/17-P	174342	1
570 / 2030	BPZ-DMS-600/20-P	174343	1
770 / 1730	BPZ-DMS-800/17-P	174347	1
770 / 2030	BPZ-DMS-800/20-P	174348	1
600+370 / 1730	BPZ-DMS-1000/17-P	174350	1
600+370 / 2030	BPZ-DMS-1000/20-P	174351	1

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Width / Height (mm)	Type Designation	Article No.	Units per package
Transparent Doors (steel sheet) with clip-down handle, Grey, IP54, BPZ-DMT			
570 / 1730	BPZ-DMT-600/17-P	173585	1
570 / 2030	BPZ-DMT-600/20-P	173586	1
770 / 1730	BPZ-DMT-800/17-P	173592	1
770 / 2030	BPZ-DMT-800/20-P	173593	1
600+370 / 1730	BPZ-DMT-1000/17-P	173597	1
600+370 / 2030	BPZ-DMT-1000/20-P	173598	1

wa_vt24113



Mounting insert, Front Plates steel, BPZ-MES-...-ST

- overview scheme at the technic part
- with MSW application
- Insert fits in Surface-, Flush-mounting and Open Distribution Board IP30
- 2 pair Corner Tower BPZ-CTS-S and 1 set Snap Elements BPZ-SNAP-MSW-CTS are in the scope of delivery of the floor standing boards (hights 17, 20)
- 1 set Snap Elements BPZ-SNAP-MSW-CTS are in the scope of delivery of the surface boards (hights 4, 7, 10, 12, 15), Corner Tower BPZ-CTS-S are in the scope of delivery
- 2 pair Corner Tower BPZ-CTS-S are needed additional for wall boards IP54 (BPM-O-...)

Width / Height / Rows	Type Designation	Article No.	Units per package
400 / 7 / 4	BPZ-MES-400/7-ST	119307	1
400/ 10 / 5	BPZ-MES-400/10-ST	119308	1
400 / 12 / 6	BPZ-MES-400/12-ST	119309	1
600 / 4 / 3	BPZ-MES-600/4-ST	119310	1
600 / 7 / 4	BPZ-MES-600/7-ST	119311	1
600 / 10 / 5	BPZ-MES-600/10-ST	119312	1
600 / 12 / 6	BPZ-MES-600/12-ST	119313	1
600 / 15 / 7	BPZ-MES-600/15-ST	119314	1
600 / 17 / 8	BPZ-MES-600/17-ST	119315	1
600 / 20 /9	BPZ-MES-600/20-ST	119316	1
800 / 10 / 5	BPZ-MES-800/10-ST	119317	1
800 / 12 / 6	BPZ-MES-800/12-ST	119318	1
800 / 15 / 7	BPZ-MES-800/15-ST	119319	1
800 / 17 / 8	BPZ-MES-800/17-ST	119320	1
800 / 20 / 9	BPZ-MES-800/20-ST	119321	1
1000 / 10 / 5	BPZ-MES-1000/10-ST	119322	1
1000 / 12 / 6	BPZ-MES-1000/12-ST	119323	1
1000 / 15 / 7	BPZ-MES-1000/15-ST	119324	1
1000 / 17 / 8	BPZ-MES-1000/17-ST	119325	1
1000 / 20 / 9	BPZ-MES-1000/20-ST	119326	1
1200 / 12 / 6	BPZ-MES-1200/12-ST	119327	1
1200 / 15 / 7	BPZ-MES-1200/15-ST	119328	1
1200 / 17 / 8	BPZ-MES-1200/17-ST	119329	1
1200 / 20 / 9	BPZ-MES-1200/20-ST	119330	1

wa_vt24113



Mounting insert, Plastic Front Plates, BPZ-MES-...-K

- overview scheme at the technic part
- with MSW application
- Insert fits in Surface-, Flush-mounting and Open Distribution Board IP30
- 2 pair Corner Tower BPZ-CTS-S and 1 set Snap Elements BPZ-SNAP-MSW-CTS are in the scope of delivery of the floor standing boards (hights 17, 20)
- 1 set Snap Elements BPZ-SNAP-MSW-CTS are in the scope of delivery of the surface boards (hights 4, 7, 10, 12, 15), Corner Tower BPZ-CTS-S are in the scope of delivery
- 2 pair Corner Tower BPZ-CTS-S are needed additional for wall boards IP54 (BPM-O-...)

Width / Height / Rows	Type Designation	Article No.	Units per package
400 / 7 / 4	BPZ-MES-400/7-K	119331	1
400/ 10 / 5	BPZ-MES-400/10-K	119332	1
400 / 12 / 6	BPZ-MES-400/12-K	119333	1
600 / 4 / 3	BPZ-MES-600/4-K	119334	1
600 / 7 / 4	BPZ-MES-600/7-K	119335	1
600 / 10 / 5	BPZ-MES-600/10-K	119336	1
600 / 12 / 6	BPZ-MES-600/12-K	119337	1
600 / 15 / 7	BPZ-MES-600/15-K	119338	1
600 / 17 / 8	BPZ-MES-600/17-K	119339	1
600 / 20 /9	BPZ-MES-600/20-K	119340	1
800 / 10 / 5	BPZ-MES-800/10-K	119341	1
800 / 12 / 6	BPZ-MES-800/12-K	119342	1
800 / 15 / 7	BPZ-MES-800/15-K	119343	1
800 / 17 / 8	BPZ-MES-800/17-K	119344	1
800 / 20 / 9	BPZ-MES-800/20-K	119345	1
1000 / 10 / 5	BPZ-MES-1000/10-K	119346	1
1000 / 12 / 6	BPZ-MES-1000/12-K	119347	1
1000 / 15 / 7	BPZ-MES-1000/15-K	119348	1
1000 / 17 / 8	BPZ-MES-1000/17-K	119349	1
1000 / 20 / 9	BPZ-MES-1000/20-K	119350	1
1200 / 12 / 6	BPZ-MES-1200/12-K	119351	1
1200 / 15 / 7	BPZ-MES-1200/15-K	119352	1
1200 / 17 / 8	BPZ-MES-1200/17-K	119353	1
1200 / 20 / 9	BPZ-MES-1200/20-K	119354	1

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Open Distribution Board, IP30, BP-MN-...

- with MSW application but without mounting insert
- only the board without insert BPZ-MES
- Shift-back flange on top
- welded board
- Depth 175 mm

wa_vt24013



Symbolic picture

Width / Outside Height / Frontplate Height (mm)	Type Designation	Article No.	Units per package
Grey			
573 / 400 / 350	BP-MN-600/4/1,75	119197	1
573 / 700 / 650	BP-MN-600/7/1,75	119198	1
573 / 1000 / 950	BP-MN-600/10/1,75	119199	1
573 / 1200 / 1150	BP-MN-600/12/1,75	119200	1
573 / 1500 / 1450	BP-MN-600/15/1,75	119201	1
573 / 1700 / 1650	BP-MN-600/17/1,75	119202	1
573 / 2000 / 1950	BP-MN-600/20/1,75	119203	1
773 / 1000 / 950	BP-MN-800/10/1,75	119204	1
773 / 1200 / 1150	BP-MN-800/12/1,75	119205	1
773 / 1500 / 1450	BP-MN-800/15/1,75	119206	1
773 / 1700 / 1650	BP-MN-800/17/1,75	119207	1
773 / 2000 / 1950	BP-MN-800/20/1,75	119208	1
973 / 1000 / 950	BP-MN-1000/10/1,75	119209	1
973 / 1200 / 1150	BP-MN-1000/12/1,75	119210	1
973 / 1500 / 1450	BP-MN-1000/15/1,75	119211	1
973 / 1700 / 1650	BP-MN-1000/17/1,75	119212	1
973 / 2000 / 1950	BP-MN-1000/20/1,75	119213	1

Outdoor Distribution Board, IP43, BP-VF-...

- aluminium enclosure, power coated
- fits for base A-KU
- for MSW application
- for Mounting Insert BPZ-MES

Width / Outside Height	Type Designation	Article No.	Units per package
Grey			
400 / 1060	BP-VF-400/10	125830	1
400 / 1260	BP-VF-400/12	125833	1
600 / 1060	BP-VF-600/10	125831	1
600 / 1260	BP-VF-600/12	125834	1
800 / 1060	BP-VF-800/10	125832	1
800 / 1260	BP-VF-800/12	125835	1

Plastic Cover for Base, A-KU

- for outdoor enclosure BP-VF

For Width	Type Designation	Article No.	Units per package
400	A-KU3	274823	1
600	A-KU4	274824	1
800	A-KU5	274825	1

wa_vt51413



Width / Height (mm)	Type Designation	Article No.	Units per package
Front Cover for Base, BPZ-FS			
Grey			
400 / 100	BPZ-FS-400/1	293493	1
400 / 200	BPZ-FS-400/2	293495	1
600 / 100	BPZ-FS-600/1	293497	1
600 / 200	BPZ-FS-600/2	293499	1
800 / 100	BPZ-FS-800/1	293501	1
800 / 200	BPZ-FS-800/2	293503	1
1000 / 100	BPZ-FS-1000/1	293505	1
1000 / 200	BPZ-FS-1000/2	293507	1
1200 / 100	BPZ-FS-1200/1	293509	1
1200 / 200	BPZ-FS-1200/2	293511	1
White			
400 / 100	BPZ-FS-400/1-W	293494	1
400 / 200	BPZ-FS-400/2-W	293496	1
600 / 100	BPZ-FS-600/1-W	293498	1
600 / 200	BPZ-FS-600/2-W	293500	1
800 / 100	BPZ-FS-800/1-W	293502	1
800 / 200	BPZ-FS-800/2-W	293504	1
1000 / 100	BPZ-FS-1000/1-W	293506	1
1000 / 200	BPZ-FS-1000/2-W	293508	1
1200 / 100	BPZ-FS-1200/1-W	293510	1
1200 / 200	BPZ-FS-1200/2-W	293512	1

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Height / Depth (mm)	Type Designation	Article No.	Units per package
Side Cover for Base, BPZ-SS			
Floor Standing Board			
Grey, IP30			
100 / 250	BPZ-SS-1/250	119166	1
100 / 300	BPZ-SS-1/3	293513	1
100 / 400	BPZ-SS-1/400	119165	1
200 / 250	BPZ-SS-2/250	119170	1
200 / 300	BPZ-SS-2/3	293517	1
200 / 400	BPZ-SS-2/400	119169	1
White, IP30			
100 / 300	BPZ-SS-1/3-W	293514	1
200 / 300	BPZ-SS-2/3-W	293518	1
Grey, IP54			
100 / 320	BPZ-SS-1/320	112348	1
200 / 320	BPZ-SS-2/320	112349	1
White , IP54			
100 / 320	BPZ-SS-1/320-W	112350	1
200 / 320	BPZ-SS-2/320-W	112351	1

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Height / Depth (mm) / Design	Type Designation	Article No.	Units per package
Surface Mounting			
Grey, IP30			
100 / 249	BPZ-SS-1/249	119168	1
200 / 249	BPZ-SS-2/249	119172	1
Grey , IP54			
100 / 270	BPZ-SS-1/270	119167	1
200 / 270	BPZ-SS-2/270	119171	1
White, IP30			
100 / 249	BPZ-SS-1/249-W	119174	1
200 / 249	BPZ-SS-2/249-W	119176	1
White , IP54			
100 / 270	BPZ-SS-1/270-W	119173	1
200 / 270	BPZ-SS-2/270-W	119175	1

Height / Depth (mm) / Design	Type Designation	Article No.	Units per package
Side Cover Set for Base, BPZ-SS-.../SET			
Floor Standing Board, BO . . . blind-open, OO . . . open-open			
Grey, IP30			
100 / 300	BPZ-SS-1/300/SET/BO	119181	1
100 / 300	BPZ-SS-1/300/SET/OO	119182	1
100 / 400	BPZ-SS-1/400/SET/BO	119177	1
100 / 400	BPZ-SS-1/400/SET/OO	119178	1
Grey, IP54			
100 / 320	BPZ-SS-1/320/SET/BO	119179	1
100 / 320	BPZ-SS-1/320/SET/OO	119180	1
White, IP30			
100 / 300	BPZ-SS-1/300/SET/BO-W	119185	1
100 / 300	BPZ-SS-1/300/SET/OO-W	119186	1
White, IP54			
100 / 320	BPZ-SS-1/320/SET/BO-W	119183	1
100 / 320	BPZ-SS-1/320/SET/OO-W	119184	1

Height / Depth (mm) / Design	Type Designation	Article No.	Units per package
Surface Mounting, OO ... open-open			
Grey , IP54			
100 / 270	BPZ-SS-1/270/SET/OO	174352	1

wa_vt51413



Width / Height (mm)	Type Designation	Article No.	Units per package
Front cover for Base, BPZ-MN-FS-...			
• for open installation boards			
573 / 100	BPZ-MN-FS-600/1	120685	1
573 / 200	BPZ-MN-FS-600/2	120686	1
773 / 100	BPZ-MN-FS-800/1	120687	1
773 / 200	BPZ-MN-FS-800/2	120688	1
973 / 100	BPZ-MN-FS-1000/1	120689	1
973 / 200	BPZ-MN-FS-1000/2	120690	1

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Height / Depth (mm) / Design	Type Designation	Article No.	Units per package
Side Cover for Base, PBZ-MN-SS...			
Open Distribution Board			
Grey			
100 / 175	BPZ-MN-SS/1/175	119214	1
200 / 175	BPZ-MN-SS/2/175	119215	1

Powering Business Worldwide

Cable Interconnect Frame, BPZ-KR

- For **IP30** Profi+ enclosures
- Delivery fully assembled
- Sheet steel, powder-coated in RAL 7035 light grey or RAL 9016 white
- Panelling can be removed from all sides
- Can be mounted at the top and bottom of the enclosure
- Fixing material included

wa_vt23313



Width / Height / Depth (mm)	Type Designation	Article No.	Units per package
Light Grey			
400 / 100 / 300	BPZ-KR41/300	116269	1
400 / 200 / 300	BPZ-KR42/300	116270	1
600 / 100 / 300	BPZ-KR61/300	116271	1
600 / 200 / 300	BPZ-KR62/300	116272	1
830 / 100 / 300	BPZ-KR81/300	116273	1
830 / 200 / 300	BPZ-KR82/300	116274	1
1200 / 100 / 300	BPZ-KR121/300	116275	1
1200 / 200 / 300	BPZ-KR122/300	116276	1
White			
400 / 100 / 300	BPZ-KR41/300-W	116277	1
400 / 200 / 300	BPZ-KR42/300-W	116278	1
600 / 100 / 300	BPZ-KR61/300-W	116279	1
600 / 200 / 300	BPZ-KR62/300-W	116280	1
830 / 100 / 300	BPZ-KR81/300-W	116281	1
830 / 200 / 300	BPZ-KR82/300-W	116282	1
1200 / 100 / 300	BPZ-KR121/300-W	116283	1
1200 / 200 / 300	BPZ-KR122/300-W	116284	1

Cable Interconnect Frame, BPZ-KR

- For **IP54** Profi+ enclosures
- Delivery fully assembled
- Sheet steel, powder-coated in RAL 7035 light grey
- Panelling can be removed from all sides
- Can be mounted at the top and bottom of the enclosure
- Fixing material included

wa_vt23313



Width / Height / Depth (mm)	Type Designation	Article No.	Units per package
Light Grey			
400 / 100 / 320	BPZ-KR41/320	116285	1
400 / 200 / 320	BPZ-KR42/320	116286	1
600 / 100 / 320	BPZ-KR61/320	116287	1
600 / 200 / 320	BPZ-KR62/320	116288	1
830 / 100 / 320	BPZ-KR81/320	116289	1
830 / 200 / 320	BPZ-KR82/320	116290	1
1200 / 100 / 320	BPZ-KR121/320	116291	1
1200 / 200 / 320	BPZ-KR122/320	116292	1

Cable Strain-Relief Rails, C-Profile, BPZ-KFS

- Suitable for use with cable interconnect frame BPZ-KR...
- C-Profile 16mm, for hammerfoot yoke clamps, galvanized
- Fixing material included

wa_vt23413



Width (mm)	Type Designation	Article No.	Units per package
400	BPZ-KFS-400	116293	1
600	BPZ-KFS-600	116294	1
830	BPZ-KFS-830	116295	1
1200	BPZ-KFS-1200	116296	1

Powering Business Worldwide

VT10206



Frontplate Height (mm)	Type Designation	Article No.	Units per package

Frontplate Support, BPZ-FPS

- pair (for left and right), including screws
- intended for mounting of front plates without using BPZ-MSW
- shorter types enables combination of an installation section with BPZ-MSW and power section without BPZ-MSW in one board
- must be used for mounting of meter troughs into surface-mounted boards IP54 or floor-standing boards if BPZ-MSW is not used

200	BPZ-FPS/2	106439	1
300	BPZ-FPS/3	106438	1
350	BPZ-FPS/350	112343	1
500	BPZ-FPS/5	106437	1
650	BPZ-FPS/650	112344	1
700	BPZ-FPS/7	106436	1
800	BPZ-FPS/8	106435	1
950	BPZ-FPS/950	112345	1
1000	BPZ-FPS/10	106434	1
1150	BPZ-FPS/1150	112346	1
1300	BPZ-FPS/13	106433	1
1450	BPZ-FPS/1450	112347	1
1600	BPZ-FPS/16	106432	1
1650	BPZ-FPS/17	106431	1
1950	BPZ-FPS/20	106430	1

wa_vt09413



BPZ-CTS-L

wa_vt09513



BPZ-CTS-S

Description	Type Designation	Article No.	Units per package

Corner Tower Set, BPZ-CTS

- pair (for left and right), including screws
- enables mounting of BPZ-MSW into floor standing boards or surface-mounting boards
- for mounting of terminal support bar BPZ-TSB
- Corner Tower Set short - for mounting MSW in floor standing boards or floor standing boards with separation frame
- Corner Tower Set long - used for wall mounted boards

short	BPZ-CTS-S	106445	1
long	BPZ-CTS-L	106446	1

VT10106



Hight (mm)	Type Designation	Article No.	Units per package

Separation Frame for split build up, BPZ-SF

- for Floor Standing Distribution Board with a width of 1000 or 1200 mm, IP 30 and IP54

Grey

1655	BPZ-SF-17	108374	1
1955	BPZ-SF-20	108375	1

White

1655	BPZ-SF-17-W	108376	1
1955	BPZ-SF-20-W	108377	1

VT01310



	Type Designation	Article No.	Units per package

Snap element, BPZ-SNAP-MSW-CTS

- designed for comfort inserting and fixing BPZ-MSW with use BPZ-SNAP to board
- for boards with MSW application fpr BP-O, BPM-O and BP-F, BPM-F boards
- for IP30 and IP54 boards
- mount on Corner Tower Set BPZ-CTS

	BPZ-SNAP-MSW-CTS	131559	1

Powering Business Worldwide

wa_vt18013



Frontplate Height (mm)	Type Designation	Article No.	Units per package
Mounting Side Wall, BPZ-MSW			
• incl. pre-mounted snap-on element			
350	BPZ-MSW-4/SNAP	112284	1 pair
650	BPZ-MSW-7/SNAP	112285	1 pair
950	BPZ-MSW-10/SNAP	112286	1 pair
1150	BPZ-MSW-12/SNAP	112287	1 pair
1450	BPZ-MSW-15/SNAP	112288	1 pair
1650	BPZ-MSW-17/SNAP	112289	1 pair
1950	BPZ-MSW-20/SNAP	112300	1 pair

VT12008



	Type Designation	Article No.	Units per package
Unit for MSW, BPZ-SNAP			
	BPZ-SNAP	116677	1

VT13608



Hight (mm)	Type Designation	Article No.	Units per package
Door Support bar, BPZ-TP-...			
• door support bar for mounting the C-Profile Rail BPZ-CP			
• overview at the technical part			
Grey			
300	BPZ-TP-4	119216	1
550	BPZ-TP-7	119217	1
850	BPZ-TP-10	119218	1
1000	BPZ-TP-12	119219	1
1350	BPZ-TP-15	119220	1
1550	BPZ-TP-17	119221	1
1850	BPZ-TP-20	119222	1
White			
300	BPZ-TP-4-W	131561	1
550	BPZ-TP-7-W	131562	1
850	BPZ-TP-10-W	131563	1
1000	BPZ-TP-12-W	131564	1
1350	BPZ-TP-15-W	131565	1
1550	BPZ-TP-17-W	131566	1
1850	BPZ-TP-20-W	131567	1

wa_vt24213



Lenght (mm)	Type Designation	Article No.	Units per package
C-Profile rail for Door Support bar, BPZ-CP			
• standard lenght 1200 mm			
• zinc coated			
1200	BPZ-CP-TP1,2	119223	1

VT13508



Width (mm)	Type Designation	Article No.	Units per package
Separation horizontal, BPZ-AS			
• metal base frame with plastic insert			
• for MSW application			
400	BPZ-AS-400	119224	1
600	BPZ-AS-600	119225	1
800	BPZ-AS-800	119226	1
1000	BPZ-AS-1000	119227	1
1200	BPZ-AS-1200	119228	1

Powering Business Worldwide

VT01510



Height	Type Designation	Article No.	Units per package
Separation Add-on board, BPZ-ASB/..			
• vertical separation between 2 boards without knockouts • fixing on the rear frame - no mounting side wall MSW			
400	BPZ-ASB/4	120727	1
700	BPZ-ASB/7	120728	1
1000	BPZ-ASB/10	120729	1
1200	BPZ-ASB/12	120730	1
1500	BPZ-ASB/15	120731	1
1700	BPZ-ASB/17	152617	1
2000	BPZ-ASB/20	152618	1

wa_vt27613



Width (mm)	Type Designation	Article No.	Units per package
Separation, BPZ-ASMF-...			
• mounted on main frame • mounted horizontal with knockouts			
400	BPZ-ASMF-400	120722	1
600	BPZ-ASMF-600	120723	1
800	BPZ-ASMF-800	120724	1
1000	BPZ-ASMF-1000	120725	1
1200	BPZ-ASMF-1200	120726	1

wa_vt39413



Height x depth (mm)	Type Designation	Article No.	Units per package
Depth Straps, TIW-1			
• mounting onto BPZ-MSW • for assembling of mounting plates deeper than it is possible with BPZ-MSW itself • pairs			
75 x 90	TIW-1	275430	1

Powering Business Worldwide

VT00305



Front Plates, Blind, BPZ-FP-..-BL

- Sheet steel
- self-earthing fasteners

Grey

Width / Height (mm)	Type Designation	Article No.	Units per package
400 / 50	BPZ-FP-400/050-BL	286675	1
400 / 100	BPZ-FP-400/100-BL	286676	1
400 / 125	BPZ-FP-400/125-BL	151252	1
400 / 150	BPZ-FP-400/150-BL	286677	1
400 / 175	BPZ-FP-400/175-BL	151257	1
400 / 200	BPZ-FP-400/200-BL	286679	1
400 / 250	BPZ-FP-400/250-BL	108389	1
400 / 300	BPZ-FP-400/300-BL	108390	1
400 / 350	BPZ-FP-400/350-BL	119229	1
400 / 400	BPZ-FP-400/400-BL	119230	1
400 / 500	BPZ-FP-400/500-BL	119231	1
400 / 800	BPZ-FP-400/800-BL	119232	1
600 / 50	BPZ-FP-600/050-BL	286681	1
600 / 100	BPZ-FP-600/100-BL	286682	1
600 / 125	BPZ-FP-600/125-BL	151253	1
600 / 150	BPZ-FP-600/150-BL	286683	1
600 / 175	BPZ-FP-600/175-BL	151258	1
600 / 200	BPZ-FP-600/200-BL	286685	1
600 / 250	BPZ-FP-600/250-BL	108391	1
600 / 300	BPZ-FP-600/300-BL	108392	1
600 / 350	BPZ-FP-600/350-BL	119233	1
600 / 400	BPZ-FP-600/400-BL	119234	1
600 / 500	BPZ-FP-600/500-BL	119235	1
600 / 800	BPZ-FP-600/800-BL	119236	1
800 / 50	BPZ-FP-800/050-BL	286687	1
800 / 100	BPZ-FP-800/100-BL	286688	1
800 / 125	BPZ-FP-800/125-BL	151254	1
800 / 150	BPZ-FP-800/150-BL	286689	1
800 / 175	BPZ-FP-800/175-BL	151259	1
800 / 200	BPZ-FP-800/200-BL	286691	1
800 / 250	BPZ-FP-800/250-BL	108393	1
800 / 300	BPZ-FP-800/300-BL	108394	1
800 / 350	BPZ-FP-800/350-BL	119237	1
800 / 400	BPZ-FP-800/400-BL	119238	1
800 / 500	BPZ-FP-800/500-BL	119239	1
800 / 800	BPZ-FP-800/800-BL	119240	1
1000 / 50	BPZ-FP-1000/050-BL	293526	1
1000 / 100	BPZ-FP-1000/100-BL	293528	1
1000 / 125	BPZ-FP-1000/125-BL	151255	1
1000 / 150	BPZ-FP-1000/150-BL	293530	1
1000 / 175	BPZ-FP-1000/175-BL	151730	1
1000 / 200	BPZ-FP-1000/200-BL	293534	1
1000 / 250	BPZ-FP-1000/250-BL	108395	1
1000 / 300	BPZ-FP-1000/300-BL	108396	1
1000 / 350	BPZ-FP-1000/350-BL	119241	1
1000 / 400	BPZ-FP-1000/400-BL	119242	1
1000 / 500	BPZ-FP-1000/500-BL	119243	1
1000 / 800	BPZ-FP-1000/800-BL	119244	1
1200 / 50	BPZ-FP-1200/050-BL	293538	1
1200 / 100	BPZ-FP-1200/100-BL	293540	1
1200 / 125	BPZ-FP-1200/125-BL	151256	1
1200 / 150	BPZ-FP-1200/150-BL	293542	1
1200 / 175	BPZ-FP-1200/175-BL	151731	1
1200 / 200	BPZ-FP-1200/200-BL	293546	1
1200 / 250	BPZ-FP-1200/250-BL	108397	1
1200 / 300	BPZ-FP-1200/300-BL	108398	1
1200 / 500	BPZ-FP-1200/500-BL	152516	1
1200 / 800	BPZ-FP-1200/800-BL	152517	1

VT02505



White

400 / 50	BPZ-FP-400/050-BL-W	292397	1
400 / 100	BPZ-FP-400/100-BL-W	292398	1
400 / 150	BPZ-FP-400/150-BL-W	292399	1
400 / 200	BPZ-FP-400/200-BL-W	292401	1
400 / 250	BPZ-FP-400/250-BL-W	108399	1
400 / 300	BPZ-FP-400/300-BL-W	108400	1
400 / 350	BPZ-FP-400/350-BL-W	119245	1
400 / 400	BPZ-FP-400/400-BL-W	119246	1
400 / 500	BPZ-FP-400/500-BL-W	119247	1
400 / 800	BPZ-FP-400/800-BL-W	119248	1
600 / 50	BPZ-FP-600/050-BL-W	292403	1
600 / 100	BPZ-FP-600/100-BL-W	292404	1
600 / 150	BPZ-FP-600/150-BL-W	292405	1
600 / 200	BPZ-FP-600/200-BL-W	292407	1
600 / 250	BPZ-FP-600/250-BL-W	108401	1
600 / 300	BPZ-FP-600/300-BL-W	108402	1
600 / 350	BPZ-FP-600/350-BL-W	119249	1
600 / 400	BPZ-FP-600/400-BL-W	119250	1
600 / 500	BPZ-FP-600/500-BL-W	119251	1
600 / 800	BPZ-FP-600/800-BL-W	119252	1
800 / 50	BPZ-FP-800/050-BL-W	292409	1
800 / 100	BPZ-FP-800/100-BL-W	292410	1
800 / 150	BPZ-FP-800/150-BL-W	292411	1
800 / 200	BPZ-FP-800/200-BL-W	292413	1
800 / 250	BPZ-FP-800/250-BL-W	108403	1
800 / 300	BPZ-FP-800/300-BL-W	108404	1
800 / 350	BPZ-FP-800/350-BL-W	119253	1
800 / 400	BPZ-FP-800/400-BL-W	119254	1
800 / 500	BPZ-FP-800/500-BL-W	119255	1
800 / 800	BPZ-FP-800/800-BL-W	119256	1
1000 / 50	BPZ-FP-1000/050-BL-W	293527	1
1000 / 100	BPZ-FP-1000/100-BL-W	293529	1
1000 / 150	BPZ-FP-1000/150-BL-W	293531	1
1000 / 200	BPZ-FP-1000/200-BL-W	293535	1
1000 / 250	BPZ-FP-1000/250-BL-W	108405	1
1000 / 300	BPZ-FP-1000/300-BL-W	108406	1
1000 / 350	BPZ-FP-1000/350-BL-W	119257	1
1000 / 400	BPZ-FP-1000/400-BL-W	119258	1
1000 / 500	BPZ-FP-1000/500-BL-W	119259	1
1000 / 800	BPZ-FP-1000/800-BL-W	119260	1
1200 / 50	BPZ-FP-1200/050-BL-W	293539	1
1200 / 100	BPZ-FP-1200/100-BL-W	293541	1
1200 / 150	BPZ-FP-1200/150-BL-W	293543	1
1200 / 200	BPZ-FP-1200/200-BL-W	293547	1
1200 / 250	BPZ-FP-1200/250-BL-W	108407	1
1200 / 300	BPZ-FP-1200/300-BL-W	108408	1
1200 / 500	BPZ-FP-1200/500-BL-W	152518	1
1200 / 800	BPZ-FP-1200/800-BL-W	152519	1

vt00305



Front Plattes, blind, BPZ-FPK-..-BL

- Plastic (PVC)

Grey

Width / Height (mm)	Type Designation	Article No.	Units per package
400 / 50	BPZ-FPK-400/50-BL	119261	1
400 / 100	BPZ-FPK-400/100-BL	119262	1
400 / 150	BPZ-FPK-400/150-BL	119263	1
400 / 200	BPZ-FPK-400/200-BL	119264	1
600 / 50	BPZ-FPK-600/50-BL	119265	1
600 / 100	BPZ-FPK-600/100-BL	119266	1
600 / 150	BPZ-FPK-600/150-BL	119267	1
600 / 200	BPZ-FPK-600/200-BL	119268	1
600 / 250	BPZ-FPK-600/250-BL	119269	1
600 / 300	BPZ-FPK-600/300-BL	119270	1
600 / 350	BPZ-FPK-600/350-BL	119271	1
800 / 50	BPZ-FPK-800/50-BL	119272	1
800 / 100	BPZ-FPK-800/100-BL	119273	1
800 / 150	BPZ-FPK-800/150-BL	119274	1
800 / 200	BPZ-FPK-800/200-BL	119275	1
800 / 250	BPZ-FPK-800/250-BL	119276	1
800 / 300	BPZ-FPK-800/300-BL	119277	1
800 / 350	BPZ-FPK-800/350-BL	119278	1
1000 / 50	BPZ-FPK-1000/50-BL	119279	1
1000 / 100	BPZ-FPK-1000/100-BL	119280	1
1000 / 150	BPZ-FPK-1000/150-BL	119281	1
1000 / 200	BPZ-FPK-1000/200-BL	119282	1
1000 / 250	BPZ-FPK-1000/250-BL	119283	1
1000 / 300	BPZ-FPK-1000/300-BL	119284	1
1000 / 350	BPZ-FPK-1000/350-BL	119285	1
1200 / 100	BPZ-FPK-1200/100-BL	119286	1
1200 / 150	BPZ-FPK-1200/150-BL	119287	1
1200 / 200	BPZ-FPK-1200/200-BL	119288	1
1200 / 250	BPZ-FPK-1200/250-BL	119289	1
1200 / 300	BPZ-FPK-1200/300-BL	119290	1
1200 / 350	BPZ-FPK-1200/350-BL	119291	1

VT00405



Front Plates with 45 mm Device Cutout, BPZ-FP-..-45

- Sheet steel
- self-earthing fasteners

Grey

Width (mm) / Height (mm) / MU	Type Designation	Article No.	Units per package
400 / 125 / 13	BPZ-FP-400/125-45	120783	1
400 / 150 / 13	BPZ-FP-400/150-45	286678	1
400 / 175 / 13	BPZ-FP-400/175-45	120784	1
400 / 200 / 13	BPZ-FP-400/200-45	286680	1
600 / 125 / 24	BPZ-FP-600/125-45	120785	1
600 / 150 / 24	BPZ-FP-600/150-45	286684	1
600 / 175 / 24	BPZ-FP-600/175-45	120786	1
600 / 200 / 24	BPZ-FP-600/200-45	286686	1
800 / 125 / 35	BPZ-FP-800/125-45	120787	1
800 / 150 / 35	BPZ-FP-800/150-45	286690	1
800 / 175 / 35	BPZ-FP-800/175-45	120788	1
800 / 200 / 35	BPZ-FP-800/200-45	286692	1
1000 / 125 / 46	BPZ-FP-1000/125-45	120789	1
1000 / 150 / 46	BPZ-FP-1000/150-45	293532	1
1000 / 175 / 46	BPZ-FP-1000/175-45	120790	1
1000 / 200 / 46	BPZ-FP-1000/200-45	293536	1
1200 / 125 / 57	BPZ-FP-1200/125-45	120791	1
1200 / 150 / 57	BPZ-FP-1200/150-45	293544	1
1200 / 150 / 57	BPZ-FP-1200/175-45	120792	1
1200 / 200 / 57	BPZ-FP-1200/200-45	293548	1

EATON
Powering Business Worldwide

VT02605



White

400 / 150 / 13	BPZ-FP-400/150-45-W	292400	1
400 / 200 / 13	BPZ-FP-400/200-45-W	292402	1
600 / 150 / 24	BPZ-FP-600/150-45-W	292406	1
600 / 200 / 24	BPZ-FP-600/200-45-W	292408	1
800 / 150 / 35	BPZ-FP-800/150-45-W	292412	1
800 / 200 / 35	BPZ-FP-800/200-45-W	292414	1
1000 / 150 / 46	BPZ-FP-1000/150-45-W	293533	1
1000 / 200 / 46	BPZ-FP-1000/200-45-W	293537	1
1200 / 150 / 57	BPZ-FP-1200/150-45-W	293545	1
1200 / 200 / 57	BPZ-FP-1200/200-45-W	293549	1

Width (mm) / Height (mm) / MU	Type Designation	Article No.	Units per package

Front Plates with 45 mm Device Cutout, BPZ-FPK-..-45

- Plastic (PVC)

Grey

400 / 125 / 13	BPZ-FPK-400/125-45	120793	1
400 / 150 / 13	BPZ-FPK-400/150-45	119292	1
400 / 175 / 13	BPZ-FPK-400/175-45	120794	1
400 / 200 / 13	BPZ-FPK-400200-45	119293	1
600 / 125 / 24	BPZ-FPK-600/125-45	120795	1
600 / 150 / 24	BPZ-FPK-600/150-45	119294	1
600 / 175 / 24	BPZ-FPK-600/175-45	120796	1
600 / 200 / 24	BPZ-FPK-600/200-45	119295	1
800 / 125 / 35	BPZ-FPK-800/125-45	120797	1
800 / 150 / 35	BPZ-FPK-800/150-45	119296	1
800 / 175 / 35	BPZ-FPK-800/175-45	120798	1
800 / 200 / 35	BPZ-FPK-800/200-45	119297	1
1000 / 125 / 46	BPZ-FPK-1000/125-45	120799	1
1000 / 150 / 46	BPZ-FPK-1000/150-45	119298	1
1000 / 175 / 46	BPZ-FPK-1000/175-45	120800	1
1000 / 200 / 46	BPZ-FPK-1000/200-45	119299	1
1200 / 125 / 57	BPZ-FPK-1200/125-45	120801	1
1200 / 150 / 57	BPZ-FPK-1200/150-45	119300	1
1200 / 175 / 57	BPZ-FPK-1200/175-45	120802	1
1200 / 200 / 57	BPZ-FPK-1200/200-45	119301	1

Powering Business Worldwide

VT25306



Front Plates, Steel sheet with Plastic Insert, BPZ-FPP-...-BL

- Sheet steel frame with plastic insert
- self-earthing fasteners
- universal front plate suitable for different outputs

Width (mm) / Height (mm) / MU	Type Designation	Article No.	Units per package
Grey			
400 / 150	BPZ-FPP-400/150-BL	120732	1
400 / 300	BPZ-FPP-400/300-BL	108291	1
600 / 150	BPZ-FPP-600/150-BL	120733	1
600 / 300	BPZ-FPP-600/300-BL	108292	1
600 / 500	BPZ-FPP-600/500-BL	108293	1
800 / 150	BPZ-FPP-800/150-BL	120734	1
800 / 300	BPZ-FPP-800/300-BL	108294	1
800 / 500	BPZ-FPP-800/500-BL	108295	1
1000 / 150	BPZ-FPP-1000/150-BL	120735	1
1000 / 300	BPZ-FPP-1000/300-BL	134202	1
1000 / 500	BPZ-FPP-1000/500-BL	134203	1
1200 / 150	BPZ-FPP-1200/150-BL	120736	1
1200 / 300	BPZ-FPP-1200/300-BL	134204	1
1200 / 500	BPZ-FPP-1200/500-BL	134205	1
Weiß			
400 / 150	BPZ-FPP-400/150-BL-W	120737	1
400 / 300	BPZ-FPP-400/300-BL-W	108296	1
600 / 150	BPZ-FPP-600/150-BL-W	120738	1
600 / 300	BPZ-FPP-600/300-BL-W	108297	1
600 / 500	BPZ-FPP-600/500-BL-W	108298	1
800 / 150	BPZ-FPP-800/150-BL-W	120739	1
800 / 300	BPZ-FPP-800/300-BL-W	108299	1
800 / 500	BPZ-FPP-800/500-BL-W	108330	1
1000 / 150	BPZ-FPP-1000/150-BL-W	120740	1
1000 / 300	BPZ-FPP-1000/300-BL-W	134206	1
1000 / 500	BPZ-FPP-1000/500-BL-W	134207	1
1200 / 150	BPZ-FPP-1200/150-BL-W	120741	1
1200 / 300	BPZ-FPP-1200/300-BL-W	134208	1
1200 / 500	BPZ-FPP-1200/500-BL-W	134209	1

VT25506



Front Plates for Command Devices RMQ-Titan, BPZ-FP-...-RMQ

- Sheet steel
- self-earthing fasteners

Width (mm) / Height (mm) / RMQ (pcs.)	Type Designation	Article No.	Units per package
Grey			
400 / 100 / 7	BPZ-FP-400/100-RMQ	108370	1
600 / 100 / 12	BPZ-FP-600/100-RMQ	108371	1
White			
400 / 100 / 7	BPZ-FP-400/100-RMQ-W	108372	1
600 / 100 / 12	BPZ-FP-600/100-RMQ-W	108373	1

wa_vt38213



AP-45-W

wa_vt07213



AP-45

VT19505



AM-45

wa_vt07313

NPB-1000..

Blanking Strips

Description	Type Designation	Article No.	Units per package
Blanking strip, white, 0.5 mod.	AM-45	275409	10 units
Blanking strip, white, 2x 10 mod.	AP-45	275410	2 units+4 wedges
Blanking strip, white, 6 mod.	AP-45-W	275411	1 unit
Blanking strip, grey, 1m long	NBP-1000	275413	1 unit
Blanking strip, white, 1m long	NBP-1000-W	101666	1 unit
Blanking strip, grey, 12 mod.	VST12	002322	10 units

Powering Business Worldwide

SG13506



Width (mm) / Height (mm) / MU	Type Designation	Article No.	Units per package
Blanking Strip for SASY 60i, AM-195/54			
• plastic cover for SASY 60i cut outs, RAL 7035 • to clip on and click onto place • possibility to shorten			
54 / 195 / 3	AM-195/45	107963	1

VT01210



for	Type Designation	Article No.	Units per package
Front plate screw, BPZ-FPV			
• Replacement part (plastic part and screw)			
Front plate	BPZ-FPV	120721	1

Powering Business Worldwide

VT00805



VT24806



Universal Mounting Plate, BPZ-MPL

- suitable for mounting into flush-, surface- and floorstanding boards
- screws included

Width / Height (mm)	Type Designation	Article No.	Units per package
400 / 30	BPZ-MPL30-400	104316	1
600 / 30	BPZ-MPL30-600	104317	1
800 / 30	BPZ-MPL30-800	104318	1
1000 / 30	BPZ-MPL30-1000	104319	1
1200 / 30	BPZ-MPL30-1200	104330	1
400 / 80	BPZ-MPL80-400	286765	1
600 / 80	BPZ-MPL80-600	286766	1
800 / 80	BPZ-MPL80-800	286767	1
1000 / 80	BPZ-MPL80-1000	293609	1
1200 / 80	BPZ-MPL80-1200	293610	1
400 / 180	BPZ-MPL180-400	102472	1
600 / 180	BPZ-MPL180-600	102473	1
800 / 180	BPZ-MPL180-800	102474	1
1000 / 180	BPZ-MPL180-1000	102475	1
1200 / 180	BPZ-MPL180-1200	102476	1
400 / 350	BPZ-MPL350-400	108333	1
600 / 350	BPZ-MPL350-600	108340	1
800 / 350	BPZ-MPL350-800	108347	1
1000 / 350	BPZ-MPL350-1000	153022	1
1200 / 350	BPZ-MPL350-1200	153023	1
400 / 650	BPZ-MPL650-400	108334	1
600 / 650	BPZ-MPL650-600	108341	1
800 / 650	BPZ-MPL650-800	108348	1
1000 / 650	BPZ-MPL650-1000	153024	1
1200 / 650	BPZ-MPL650-1200	153025	1
400 / 950	BPZ-MPL950-400	108335	1
600 / 950	BPZ-MPL950-600	108342	1
800 / 950	BPZ-MPL950-800	108349	1
1000 / 950	BPZ-MPL950-1000	153026	1
1200 / 950	BPZ-MPL950-1200	153027	1
400 / 1150	BPZ-MPL1150-400	108336	1
600 / 1150	BPZ-MPL1150-600	108343	1
800 / 1150	BPZ-MPL1150-800	108350	1
1000 / 1150	BPZ-MPL1150-1000	153028	1
1200 / 1150	BPZ-MPL1150-1200	153029	1
400 / 1450	BPZ-MPL1450-400	108337	1
600 / 1450	BPZ-MPL1450-600	108344	1
800 / 1450	BPZ-MPL1450-800	108351	1
1000 / 1450	BPZ-MPL1450-1000	153030	1
1200 / 1450	BPZ-MPL1450-1200	153031	1
400 / 1650	BPZ-MPL1650-400	108338	1
600 / 1650	BPZ-MPL1650-600	108345	1
800 / 1650	BPZ-MPL1650-800	108352	1
1000 / 1650	BPZ-MPL1650-1000	153032	1
1200 / 1650	BPZ-MPL1650-1200	153033	1
400 / 1950	BPZ-MPL1950-400	108339	1
600 / 1950	BPZ-MPL1950-600	108346	1
800 / 1950	BPZ-MPL1950-800	108353	1
1000 / 1950	BPZ-MPL1950-1000	153034	1
1200 / 1950	BPZ-MPL1950-1200	153035	1

VT00905



Width (mm)	Type Designation	Article No.	Units per package
Mounting Plate for multiple mounting NZM, BPZ-MPL-NZM..-...-MV			
• without front plate • for vertical use of NZM switches			
400	BPZ-MPL-NZM1X-400-MV	120742	1
600	BPZ-MPL-NZM1X-600-MV	120743	1
800	BPZ-MPL-NZM1X-800-MV	120744	1
1000	BPZ-MPL-NZM1X-1000-MV	173619	1
1200	BPZ-MPL-NZM1X-1200-MV	173620	1
400	BPZ-MPL-NZM2X-400-MV	120745	1
600	BPZ-MPL-NZM2X-600-MV	120746	1
800	BPZ-MPL-NZM2X-800-MV	120747	1
1000	BPZ-MPL-NZM2X-1000-MV	173621	1
1200	BPZ-MPL-NZM2X-1200-MV	173622	1
600	BPZ-MPL-NZM3X-600-MV	120748	1
800	BPZ-MPL-NZM3X-800-MV	120749	1
1000	BPZ-MPL-NZM3X-1000-MV	173623	1
1200	BPZ-MPL-NZM3X-1200-MV	173624	1

Width (mm) / Height (mm) / max. No. of 3-/4-pole NZM	Type Designation	Article No.	Units per package
Front plate multiple mounting NZM, BPZ-FP			
• sheet steel • fastening connected with electrical grounding • prepared cut-outs in the front plate • without mounting plate • only for mounting in the XVTL system • incl. cover for not used openings (NZM2, NZM3 and NZM4) • use AP-45 cover strip with NZM1 front plates			
Vertical - grey			
400 / 200 / 2xNZM1/2xNZM1	BPZ-FP-400/200-45	286680	1
600 / 200 / 4xNZM1/3xNZM1	BPZ-FP-600/200-45	286686	1
800 / 200 / 7xNZM1/5xNZM1	BPZ-FP-800/200-45	286692	1
1000 / 200 / 9xNZM1/6xNZM1	BPZ-FP-1000/200-45	293536	1
1200 / 200 / 11xNZM1/8xNZM1	BPZ-FP-1200/200-45	293548	1
400 / 300 / 2xNZM2/---	BPZ-FP-NZM2X-2/0-400-MV	173607	1
600 / 300 / 3xNZM2/2xNZM2	BPZ-FP-NZM2X-3/2-600-MV	173608	1
800 / 300 / 4xNZM2/4xNZM2	BPZ-FP-NZM2X-4/4-800-MV	173609	1
1000 / 300 / 4xNZM2/4xNZM2	BPZ-FP-NZM2X-4/4-1000-MV	173610	1
1200 / 300 / 4xNZM2/4xNZM2	BPZ-FP-NZM2X-4/4-1200-MV	173611	1
600 / 500 / 2xNZM3/2xNZM3	BPZ-FP-NZM3X-2/2-600-MV	173612	1
800 / 500 / 3xNZM3/3xNZM3	BPZ-FP-NZM3X-3/3-800-MV	173613	1
1000 / 500 / 3xNZM3/3xNZM3	BPZ-FP-NZM3X-3/3-1000-MV	173614	1
1200 / 500 / 3xNZM3/3xNZM3	BPZ-FP-NZM3X-3/3-1200-MV	173615	1
800 / 800 / 2xNZM4/2xNZM4 *)	BPZ-FP-NZM4X-2/2-800-MV-XVTL	173616	1
1000 / 800 / 3xNZM4/2xNZM4 *)	BPZ-FP-NZM4X-3/2-1000-MV-XVTL	173617	1
1200 / 800 / 3xNZM4/3xNZM4 *)	BPZ-FP-NZM4X-3/3-1200-MV-XVTL	173618	1

*) only for mounting in the XVTL system

Front plate single mounting NZM4, BPZ-FP-NZM4-...-M.-XVTL			
• sheet steel • fastening connected with electrical grounding • prepared cut-outs in the front plate • without mounting plate • only for mounting in the XVTL system			
Grey			
400 / 800 / 1xNZM4 vertical	BPZ-FP-NZM4-400-MV-XVTL	173603	1
600 / 800 / 1xNZM4 vertical	BPZ-FP-NZM4-600-MV-XVTL	173604	1
800 / 800 / 1xNZM4 vertical	BPZ-FP-NZM4-800-MV-XVTL	173605	1
800 / 400 / 1xNZM4 horizontal	BPZ-FP-NZM4-800-MH-XVTL	173606	1

Powering Business Worldwide

Width (mm) / max. No. of NZM	Type Designation	Article No.	Units per package
Mounting Plate NZM symmetrical, prepared for rear connection, BPZ-MPL-NZM..-...-MX			
• without front plate • for vertical and horizontal use of NZM switches • only 1 NZM with horizontal use			
600 / 3xNZM1 vertical	BPZ-MPL-NZM1X-600-MX	174390	1
800 / 4xNZM1 vertical	BPZ-MPL-NZM1X-800-MX	174399	1
600 / 2xNZM2 vertical	BPZ-MPL-NZM2X-600-MX	174391	1
800 / 3xNZM2 vertical	BPZ-MPL-NZM2X-800-MX	174400	1
600 / 1xNZM3 vertical	BPZ-MPL-NZM3-600-MX	174395	1
800 / 1xNZM3 vertical	BPZ-MPL-NZM3-800-MX	174404	1
600 / 1xNZM4 vertical *)	BPZ-MPL-NZM4-600-MX-XVTL	174397	1
800 / 1xNZM4 vertical *)	BPZ-MPL-NZM4-800-MX-XVTL	174406	1

*) only for mounting in the XVTL system

MU / suitable for	Type Designation	Article No.	Units per package
DIN-Rail, BPZ-DINR			
• installation onto mounting plate BPZ-MPL-NZM1X-...-MX • in case of use 1xNZM1 vertical			
17 / Art.-No. 174390	BPZ-DINR17-MPL-NZM1X-600-MV	174382	1
27 / Art.-No. 174399	BPZ-DINR27-MPL-NZM1X-800-MV	174383	1

Width (mm) / Height (mm) / max. No. of 4-pole NZM	Type Designation	Article No.	Units per package
Front plate NZM symmetrical, BPZ-FP/S			
• sheet steel • fastening connected with electrical grounding • prepared cut-outs in the front plate • without mounting plate • only useful in combination with mounting plate NZM symmetrical			
Vertical - grey			
600 / 200 / 3xNZM1	BPZ-FP-600/200-45	286686	1
600 / 200 / 1xNZM1+XFI	BPZ-FP-600/200-45	286686	1
600 / 300 / 1xNZM2	BPZ-FP/S-NZM2-600-MV	174392	1
600 / 300 / 2xNZM2	BPZ-FP/S-NZM2-2/2-600-MV	174393	1
600 / 400 / 1xNZM2+XFI	BPZ-FP/S-NZM2-XFI-600-MV	174394	1
600 / 400 / 1xNZM3	BPZ-FP/S-NZM3-600-MV	174396	1
600 / 600 / 1xNZM4 *)	BPZ-FP/S-NZM4-600-MV-XVTL	174398	1
800 / 200 / 4xNZM1	BPZ-FP-800/200-45	286692	1
800 / 200 / 2xNZM1+XFI	BPZ-FP-800/200-45	286692	1
800 / 300 / 1xNZM2	BPZ-FP/S-NZM2-800-MV	174401	1
800 / 300 / 3xNZM2	BPZ-FP/S-NZM2X-3/3-800-MV	174402	1
800 / 400 / 1xNZM2+XFI	BPZ-FP/S-NZM2-XFI-800-MV	174403	1
800 / 400 / 1xNZM3	BPZ-FP/S-NZM3-800-MV	174405	1
800 / 600 / 1xNZM4 *)	BPZ-FP/S-NZM4-800-MV-XVTL	174407	1

*) only for mounting in the XVTL system

Width (mm) / Height (mm) / max. No. of 4-pole NZM	Type Designation	Article No.	Units per package
Horizontal - grey			
600 / 200 / 1xNZM1	BPZ-FP/S-NZM1-600-MH	174408	1
600 / 200 / 1xNZM2	BPZ-FP/S-NZM2-600-MH	174409	1
600 / 200 / 1xNZM2+XFI	BPZ-FP/S-NZM2-XFI-600-MH	174410	1
600 / 400 / 1xNZM3	BPZ-FP/S-NZM3-600-MH	174411	1
600 / 600 / 1xNZM4 *)	BPZ-FP-NZM4-600-MH-XVTL	174375	1
800 / 200 / 1xNZM1	BPZ-FP/S-NZM1-800-MH	174376	1
800 / 200 / 1xNZM2	BPZ-FP/S-NZM2-800-MH	174377	1
800 / 200 / 1xNZM2+XFI	BPZ-FP/S-NZM2-XFI-800-MH	174378	1
800 / 400 / 1xNZM3	BPZ-FP/S-NZM3-800-MH	174379	1
800 / 600 / 1xNZM4 *)	BPZ-FP/S-NZM4-800-MH-XVTL	174380	1

*) only for mounting in the XVTL system

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Width / Height (mm)	Type Designation	Article No.	Units per package
Mounting Set, BPZ-NZM			
• kits for NZM1, 2 and 3 (horizontal or vertical), front plate and screws included			
Vertical - grey			
400 / 300	BPZ-NZM1-400-MV	286757	1
400 / 400	BPZ-NZM2-400-MV	286758	1
400 / 500	BPZ-NZM3-400-MV	286759	1
600 / 300	BPZ-NZM1-600-MV	286762	1
600 / 400	BPZ-NZM2-600-MV	286763	1
600 / 500	BPZ-NZM3-600-MV	286764	1
800 / 300	BPZ-NZM1-800-MV	293603	1
800 / 400	BPZ-NZM2-800-MV	293605	1
800 / 500	BPZ-NZM3-800-MV	293607	1
Vertical - white			
400 / 300	BPZ-NZM1-400-MV-W	292473	1
400 / 400	BPZ-NZM2-400-MV-W	292474	1
400 / 500	BPZ-NZM3-400-MV-W	292475	1
600 / 300	BPZ-NZM1-600-MV-W	292478	1
600 / 400	BPZ-NZM2-600-MV-W	292479	1
600 / 500	BPZ-NZM3-600-MV-W	292480	1
800 / 300	BPZ-NZM1-800-MV-W	293604	1
800 / 400	BPZ-NZM2-800-MV-W	293606	1
800 / 500	BPZ-NZM3-800-MV-W	293608	1
Horizontal - grey			
400 / 200	BPZ-NZM1-400-MH	173601	1
400 / 200	BPZ-NZM2-400-MH	173602	1
600 / 200	BPZ-NZM1-600-MH	286760	1
600 / 200	BPZ-NZM2-600-MH	286761	1
600 / 300	BPZ-NZM3-600-MH	120750	1
800 / 200	BPZ-NZM1-800-MH	293599	1
800 / 200	BPZ-NZM2-800-MH	293601	1
800 / 300	BPZ-NZM3-800-MH	120751	1
Horizontal - white			
600 / 200	BPZ-NZM1-600-MH-W	292476	1
600 / 200	BPZ-NZM2-600-MH-W	292477	1
600 / 300	BPZ-NZM3-600-MH-W	120752	1
800 / 200	BPZ-NZM1-800-MH-W	293600	1
800 / 200	BPZ-NZM2-800-MH-W	293602	1
800 / 300	BPZ-NZM3-800-MH-W	120753	1

vt00905



vt03205



vt00905



vt03205



Width (mm) / Height (mm)	Type Designation	Article No.	Units per package
Mounting-Set for NZM with rotary door handle, BPZ-NZM...-RH			
Vertical - grey			
400 / 300	BPZ-NZM1-400-MV-RH	116679	1
400 / 400	BPZ-NZM2-400-MV-RH	116680	1
400 / 500	BPZ-NZM3-400-MV-RH	116681	1
600 / 300	BPZ-NZM1-600-MV-RH	116682	1
600 / 400	BPZ-NZM2-600-MV-RH	116683	1
800 / 300	BPZ-NZM1-800-MV-RH	116684	1
800 / 400	BPZ-NZM2-800-MV-RH	116685	1
Vertical - white			
400 / 300	BPZ-NZM1-400-MV-RH-W	105217	1
400 / 400	BPZ-NZM2-400-MV-RH-W	105218	1
400 / 500	BPZ-NZM3-400-MV-RH-W	105527	1
600 / 300	BPZ-NZM1-600-MV-RH-W	105219	1
600 / 400	BPZ-NZM2-600-MV-RH-W	105520	1
800 / 300	BPZ-NZM1-800-MV-RH-W	105521	1
800 / 400	BPZ-NZM2-800-MV-RH-W	105522	1
Horizontal - grey			
600 / 200	BPZ-NZM1-600-MH-RH	116686	1
600 / 200	BPZ-NZM2-600-MH-RH	116687	1
800 / 200	BPZ-NZM1-800-MH-RH	116688	1
800 / 200	BPZ-NZM2-800-MH-RH	116689	1
Horizontal - white			
600 / 200	BPZ-NZM1-600-MH-RH-W	105523	1
600 / 200	BPZ-NZM2-600-MH-RH-W	105524	1
800 / 200	BPZ-NZM1-800-MH-RH-W	105525	1
800 / 200	BPZ-NZM2-800-MH-RH-W	105526	1

vt10908



VT10908

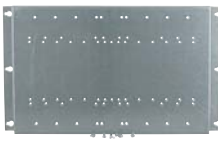


Width (mm) / Height (mm)	Type Designation	Article No.	Units per package
Mounting-Set NZM for MSW, BPZ-NZM./MSW			
• mounting on MSW			
• mounting with BEL into side wall (MSW)			
Vertical - grey			
400 / 300	BPZ-NZM1/MSW-400-MV	116923	1
400 / 400	BPZ-NZM2/MSW-400-MV	116924	1
600 / 300	BPZ-NZM1/MSW-600-MV	116925	1
600 / 400	BPZ-NZM2/MSW-600-MV	116926	1
800 / 300	BPZ-NZM1/MSW-800-MV	116927	1
800 / 400	BPZ-NZM2/MSW-800-MV	116928	1
Vertical - white			
400 / 300	BPZ-NZM1/MSW-400-MV-W	116929	1
400 / 400	BPZ-NZM2/MSW-400-MV-W	116930	1
600 / 300	BPZ-NZM1/MSW-600-MV-W	116931	1
600 / 400	BPZ-NZM2/MSW-600-MV-W	116932	1
800 / 300	BPZ-NZM1/MSW-800-MV-W	116933	1
800 / 400	BPZ-NZM2/MSW-800-MV-W	116934	1
Horizontal - grey			
600 / 200	BPZ-NZM1/MSW-600-MH	116935	1
600 / 200	BPZ-NZM2/MSW-600-MH	116936	1
800 / 200	BPZ-NZM1/MSW-800-MH	116937	1
800 / 200	BPZ-NZM2/MSW-800-MH	116938	1
Horizontal - white			
600 / 200	BPZ-NZM1/MSW-600-MH-W	116939	1
600 / 200	BPZ-NZM2/MSW-600-MH-W	116940	1
800 / 200	BPZ-NZM1/MSW-800-MH-W	116941	1
800 / 200	BPZ-NZM2/MSW-800-MH-W	116942	1

VT25406



VT25606



Width (mm) / Height (mm) / for 3-/4-pole	Type Designation	Article No.	Units per package
Mounting-Set NZM for multiple mounting, BPZ-NZM.X...			
Vertical - grey			
400 / 200 / 2xNZM1/2xNZM1	BPZ-NZM1X-400-MV	108354	1
600 / 200 / 4xNZM1/3xNZM1	BPZ-NZM1X-600-MV	108355	1
800 / 200 / 7xNZM1/5xNZM1	BPZ-NZM1X-800-MV	108356	1
1000 / 200 / 9xNZM1/6xNZM1	BPZ-NZM1X-1000-MV	134190	1
1200 / 200 / 11xNZM1/8xNZM1	BPZ-NZM1X-1200-MV	134191	1
400 / 300 / 2xNZM2/1xNZM2	BPZ-NZM2X-400-MV	108357	1
600 / 300 / 3xNZM2/3xNZM2	BPZ-NZM2X-600-MV	108358	1
800 / 300 / 5xNZM2/4xNZM2	BPZ-NZM2X-800-MV	108359	1
1000 / 300 / 7xNZM2/5xNZM2	BPZ-NZM2X-1000-MV	134192	1
1200 / 300 / 9xNZM2/7xNZM2	BPZ-NZM2X-1200-MV	134193	1
600 / 500 / 3xNZM3/2xNZM3	BPZ-NZM3X-600-MV	108360	1
800 / 500 / 4xNZM3/3xNZM3	BPZ-NZM3X-800-MV	108361	1
1000 / 500 / 5xNZM3/4xNZM3	BPZ-NZM3X-1000-MV	134194	1
1200 / 500 / 7xNZM3/5xNZM3	BPZ-NZM3X-1200-MV	134195	1
Vertical - white			
400 / 200 / 2xNZM1/2xNZM1	BPZ-NZM1X-400-MV-W	108362	1
600 / 200 / 4xNZM1/3xNZM1	BPZ-NZM1X-600-MV-W	108363	1
800 / 200 / 7xNZM1/5xNZM1	BPZ-NZM1X-800-MV-W	108364	1
1000 / 200 / 9xNZM1/6xNZM1	BPZ-NZM1X-1000-MV-W	134196	1
1200 / 200 / 11xNZM1/8xNZM1	BPZ-NZM1X-1200-MV-W	134197	1
400 / 300 / 2xNZM2/1xNZM2	BPZ-NZM2X-400-MV-W	108365	1
600 / 300 / 3xNZM2/3xNZM2	BPZ-NZM2X-600-MV-W	108366	1
800 / 300 / 5xNZM2/4xNZM2	BPZ-NZM2X-800-MV-W	108367	1
1000 / 300 / 7xNZM2/5xNZM2	BPZ-NZM2X-1000-MV-W	134198	1
1200 / 300 / 9xNZM2/7xNZM2	BPZ-NZM2X-1200-MV-W	134199	1
600 / 500 / 3xNZM3/2xNZM3	BPZ-NZM3X-600-MV-W	108368	1
800 / 500 / 4xNZM3/3xNZM3	BPZ-NZM3X-800-MV-W	108369	1
1000 / 500 / 5xNZM3/4xNZM3	BPZ-NZM3X-1000-MV-W	134200	1
1200 / 500 / 7xNZM3/5xNZM3	BPZ-NZM3X-1200-MV-W	134201	1

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Width (mm) / Height (mm)	Type Designation	Article No.	Units per package
Mounting-Set for max. Installation depth, BPZ-KIT-MPL-...			
• set contains bended mounting plate, bended front plate and screws • for max. installation depth 224mm • mounting plate with steel front plate			
Grey			
400 / 300	BPZ-KIT-MPL-400	134210	1
600 / 300	BPZ-KIT-MPL-600	134211	1
800 / 300	BPZ-KIT-MPL-800	134212	1
1000 / 300	BPZ-KIT-MPL-1000	134213	1
1200 / 300	BPZ-KIT-MPL-1200	134214	1
White			
400 / 300	BPZ-KIT-MPL-400-W	134215	1
600 / 300	BPZ-KIT-MPL-600-W	134216	1
800 / 300	BPZ-KIT-MPL-800-W	134217	1
1000 / 300	BPZ-KIT-MPL-1000-W	134218	1
1200 / 300	BPZ-KIT-MPL-1200-W	134219	1

Width(mm)	Type Designation	Article No.	Units per package
Mounting Plate for multiple mounting, BZM1, BZM2, BPZ-MPL-BZM1/2			
• without front plate			
400	BPZ-MPL-BZM1/2-400-MV	144232	1
600	BPZ-MPL-BZM1/2-600-MV	144233	1
800	BPZ-MPL-BZM1/2-800-MV	144234	1
1000	BPZ-MPL-BZM1/2-1000-MV	144235	1
1200	BPZ-MPL-BZM1/2-1200-MV	144236	1

Width (mm) / Height (mm) / Phases	Type Designation	Article No.	Units per package

Mounting-Set BZM for multiple mounting, BPZ-BZM1/2

- for BZM1 and BZM2 mounting (2-, 3- and 4-pole)
- mounting plate with steel front plate (300 mm) with cutout (45 mm)

Grey

400 / 300	BPZ-BZM1/2-400-MV	144222	1
600 / 300	BPZ-BZM1/2-600-MV	144223	1
800 / 300	BPZ-BZM1/2-800-MV	144224	1
1000 / 300	BPZ-BZM1/2-1000-MV	144225	1
1200 / 300	BPZ-BZM1/2-1200-MV	144226	1

White

400 / 300	BPZ-BZM1/2-400-MV-W	144227	1
600 / 300	BPZ-BZM1/2-600-MV-W	144228	1
800 / 300	BPZ-BZM1/2-800-MV-W	144229	1
1000 / 300	BPZ-BZM1/2-1000-MV-W	144230	1
1200 / 300	BPZ-BZM1/2-1200-MV-W	144231	1

VT08605, VT08705



Width (mm) / Height (mm) / Phases	Type Designation	Article No.	Units per package

Mounting Set for Disjoncteur d'Abonné, BPZ-KIT-PD

Grey

600 / 350 / 1	BPZ-KIT-PD-600	293611	1
600 / 650 / 3	BPZ-KIT-PD3-600	102469	1

White

600 / 350 / 1	BPZ-KIT-PD-600-W	293612	1
600 / 650 / 3	BPZ-KIT-PD3-600-W	102470	1

Rated Current / Height (mm)	Type Designation	Article No.	Units per package

Mounting Set for Yellow Tarification, BPZ-KIT-TJ

- 250 A and 400 A
- prepared for Socomec switch together with NZM2 ("250 A") or NZM3 ("400 A") Socomec lateral to NZM; screws included
- for boxes of 600 mm width

Grey

250A / 400	BPZ-KIT-TJ-250A-600	286768	1
400A / 450+500	BPZ-KIT-TJ-400A-600	286769	1

White

250A / 400	BPZ-KIT-TJ-250A-600-W	292481	1
400A / 450+500	BPZ-KIT-TJ-400A-600-W	292482	1

VT08905, VT08805



	Type Designation	Article No.	Units per package

Sealing angle, BPZ-PW-...

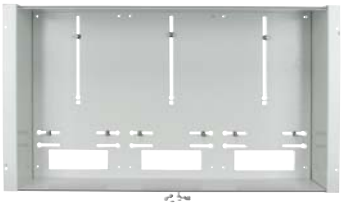
- sealing angle for IP30 Surface-Mounting board
- set includes 2 angles and 8 screws

	BPZ-PW-ZVT	120764	1

VT01410



VT25906



Width / Height (mm) / Meter Plates	Type Designation	Article No.	Units per package
Meter Troughs, BPZ-MT-...			
400 / 400 / 1	BPZ-MT-400/400-1	108383	1
600 / 400 / 2	BPZ-MT-600/400-2	108384	1
800 / 400 / 3	BPZ-MT-800/400-3	108385	1
1000 / 400 / 4	BPZ-MT-1000/400-4	108386	1
1200 / 400 / 5	BPZ-MT-1200/400-5	108387	1
400 / 450 / 1	BPZ-MT-400/450-1	112293	1
600 / 450 / 2	BPZ-MT-600/450-2	112294	1
800 / 450 / 3	BPZ-MT-800/450-3	112295	1
1000 / 450 / 4	BPZ-MT-1000/450-4	112296	1
1200 / 450 / 5	BPZ-MT-1200/450-5	112297	1
Accessories			
DIN-Rail Set instead of Meter Plates	BPZ-DRS-MT/400-1	108388	1
Meter Plate 370 x 210 mm	ZBR	279261	1

wa_vt14613



BPZ-DRS-MT/400-1

wa_vt41613



ZBR

VT11408



Type Designation	Article No.	Units per package
Sealing Set, BPZ-SS		
• for sealing of front plates		
• set consists of 4 pcs. of sealing strips, 4 pcs. of sealing screws M5 and 1 pc. of taptite screw M5		
BPZ-SS	116652	1

Type Designation	Article No.	Units per package
Sealing Screw to seal meter trough, BPZ-S		
• sealing screw		
BPZ-S	120765	1

VT25806



Width / Height (mm) / Meter Plates	Type Designation	Article No.	Units per package
Meter Troughs, assembled with Meter Plates, BPZ-MT-...-A			
400 / 450 / 1	BPZ-MT-400/450-1-A	112298	1
600 / 450 / 2	BPZ-MT-600/450-2-A	112299	1
800 / 450 / 3	BPZ-MT-800/450-3-A	112340	1
1000 / 450 / 4	BPZ-MT-1000/450-4-A	112341	1
1200 / 450 / 5	BPZ-MT-1200/450-5-A	112342	1

VT25706



Width / Height (mm) / Meter Plates	Type Designation	Article No.	Units per package
Meter Troughs Switzerland, BPZ-MT-...-CH			
400 / 450 / 1	BPZ-MT-400/450-1-CH	109164	1
600 / 450 / 1	BPZ-MT-600/450-1-CH	109165	1
800 / 450 / 2	BPZ-MT-800/450-2-CH	109166	1
1000 / 450 / 3	BPZ-MT-1000/450-3-CH	109167	1
1200 / 450 / 4	BPZ-MT-1200/450-4-CH	109168	1

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VT25806



Meter Troughs, BPZ-MT-MSW-...

Width / Height (mm) / Meter Plates	Type Designation	Article No.	Units per package
400 / 400 / 1	BPZ-MT-MSW-400/400-1-A	120767	1
400 / 425 / 1	BPZ-MT-MSW-400/425-1-A	120768	1
600 / 400 / 2	BPZ-MT-MSW-600/400-2-A	120769	1
600 / 425 / 2	BPZ-MT-MSW-600/425-2-A	120770	1
800 / 400 / 3	BPZ-MT-MSW-800/400-3-A	120771	1
800 / 425 / 3	BPZ-MT-MSW-800/425-3-A	120772	1
1000 / 400 / 4	BPZ-MT-MSW-1000/400-4-A	120773	1
1000 / 425 / 4	BPZ-MT-MSW-1000/425-4-A	120774	1
1200 / 400 / 5	BPZ-MT-MSW-1200/400-5-A	120775	1
1200 / 425 / 5	BPZ-MT-MSW-1200/425-5-A	120776	1

Counter Wire Protection, BPZ-ZDS

- plastic cover (PVC)

Width / Height (mm) / Meter Plates	Type Designation	Article No.	Units per package
125 / 425 (400) / 1	BPZ-ZDS-1	144879	1
335 / 425 (400) / 2	BPZ-ZDS-2	144880	1
545 / 425 (400) / 3	BPZ-ZDS-3	144881	1
670 / 425 (400) / 4	BPZ-ZDS-2 (2x)	144880 (2x)	1
880 / 425 (400) / 5	BPZ-ZDS-2 + BPZ-ZDS-3	144880	1
		+144881	1

wa_vt27413



DIN Rail Set, BPZ-DRS-MT-MSW

Width / Height (mm) / Meter Plates	Type Designation	Article No.	Units per package
1000 / 400 / 2	BPZ-DRS-MT-MSW-1000/400-2-A	120777	1
1000 / 425 / 2	BPZ-DRS-MT-MSW-1000/425-2-A	120778	1
1200 / 400 / 2	BPZ-DRS-MT-MSW-1200/400-2-A	120779	1
1200 / 425 / 2	BPZ-DRS-MT-MSW-1200/425-2-A	120780	1
1200 / 400 / 3	BPZ-DRS-MT-MSW-1200/400-3-A	120781	1
1200 / 425 / 3	BPZ-DRS-MT-MSW-1200/425-3-A	120782	1

VT19305



Door Grounding Set, BFZ-DES

Cross-section (mm^2) / Length (mm)	Type Designation	Article No.	Units per package
6 / 300	BFZ-DES	101665	1

wa_vt08913



Cable Strain Relief C-Profile, BPZ-KAS

Width (mm)	Type Designation	Article No.	Units per package
400	BPZ-KAS-400	106440	1
600	BPZ-KAS-600	106441	1
800	BPZ-KAS-800	106442	1
1000	BPZ-KAS-1000	106443	1
1200	BPZ-KAS-1200	106444	1

wa_nt09013



Cable Clamps NWS-K/AC

- relief of mechanical strain of installed devices (cable strain relief)
- mounting onto BPZ-KAS

Cable Ø (mm)	Type Designation	Article No.	Units per package
12-16	NWS-K/AC16	255197	1
16-20	NWS-K/AC20	255198	1
20-24	NWS-K/AC24	255199	1
24-28	NWS-K/AC28	255200	1
36-40	NWS-K/AC40	255201	1
48-52	NWS-K/AC52	255202	1

wa_vt09313



Width (mm)	Type Designation	Article No.	Units per package
Terminal Support Bar, BPZ-TSB			
400	BPZ-TSB-400	106447	1
600	BPZ-TSB-600	106448	1
800	BPZ-TSB-800	106449	1
1000	BPZ-TSB-1000	106450	1
1200	BPZ-TSB-1200	106451	1

General Accessories

wa_vt51013



Busbar with Thread, BPZ-BB/T

Height x Thickness x Length (mm)	Type Designation	Article No.	Units per package
15 x 5 x 1000, M6, 218 A	BPZ-BB/T-15/5/1000	289861	4
20 x 5 x 1000, M6, 274 A	BPZ-BB/T-20/5/1000	289862	4
32 x 5 x 1000, M6, 400 A	BPZ-BB/T-32/5/1000	289863	4
15 x 5 x 2000, M6, 218 A	BPZ-BB/T-15/5/2000	289864	4
20 x 5 x 2000, M6, 274 A	BPZ-BB/T-20/5/2000	289865	4
20 x 10 x 1000, M8, 427 A	BPZ-BB/T-20/10/1000	289866	4
30 x 10 x 1000, M8, 573 A	BPZ-BB/T-30/10/1000	289867	4

wa_vt34613



Spacer, BPZ-BBS/DH-M6

- for protective covers and other elements

Length (mm)	Type Designation	Article No.	Units per package
70	BPZ-BBS/DH-M6/70	289940	100
120	BPZ-BBS/DH-M6/120	289941	100

Protective Cover, BPZ-BBS/PC-1000/250/3

Width x Height x Thickness (mm)	Type Designation	Article No.	Units per package
1000 x 250 x 3	BPZ-BBS/PC-1000/250/3	289942	1

vt60513, vt60313



4-Pole Busbar Support, BPZ-BBS-4

Rated Current / Rail Dimensions (mm)	Type Designation	Article No.	Units per package
160-250 A / 15x5 and 20x5	BPZ-BBS-4/250	289868	10
160-630 A / 15x5 up to 30x10	BPZ-BBS-4/630	289869	2

wa_vt04913



Mounting elements for 4-pole Busbar Support 630 A, BPZ-BR/BBS630/V

- Pair

Width (mm)	Type Designation	Article No.	Units per package
400	BPZ-BR/BBS630/V	104331	1

wa_vt51613



wa_vt51713



Width (mm) / MU	Type Designation	Article No.	Units per package

DIN-Rail Set, BPZ-DINR

- sets inclusive of towers and fixing elements (BEL01)
- not assembled

Towers - adjustable

400 / 13	BPZ-DINR13-400-T	286751	10
600 / 24	BPZ-DINR24-600-T	286753	10
800 / 35	BPZ-DINR35-800-T	286755	10
1000 / 46	BPZ-DINR46-1000-T	293590	10
1200 / 57	BPZ-DINR57-1200-T	293592	10

Towers - fixed

400 / 13	BPZ-DINR13-400-B	286752	10
600 / 24	BPZ-DINR24-600-B	286754	10
800 / 35	BPZ-DINR35-800-B	286756	10
1000 / 46	BPZ-DINR46-1000-B	293591	10
1200 / 57	BPZ-DINR57-1200-B	293593	10

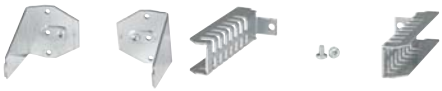
Width (mm) / MU	Type Designation	Article No.	Units per package

Towers - fix, BPZ-DINR

- protruding DIN-Rail cutted on both sides
- for better mounting of vertical cable ducts

600 / 24	BPZ-DINR24S-600-B	174384	10
800 / 35	BPZ-DINR35S-800-B	174385	10

wa_vt61513, wa_vt61413



Description	Type Designation	Article No.	Units per package

Towers, BPZ-T

fixed	BPZ-TF/2	116651	1 pair
adjustable	BPZ-TA/2	116650	1 pair

Description	Type Designation	Article No.	Units per package

Fastening Elements, BEL

- BEL12 insulated, pre-mounted (grout screws)
- BEL01 for conductive connection, pre-mounted (grout screws)

wa_nt19713



Pairs

white	BEL12	275199	1 pair
green	BEL01	275200	1 pair

wa_nt19713



200 Stk. lose im Karton

white	BEL12-E	237837 *)	200 pcs.
green	BEL01-E	237836 *)	200 pcs.

*) Article No. and price per piece

- BEL12A insulated, delivery in single parts

wa_nt19713



Pairs

white	BEL12A	275201	1 pair

wa_vt39713, wa_vt42813



Description	Type Designation	Article No.	Units per package
Support Plate, STL / Adapter, SAA			
• for mounting LTS-00 type HRC load breakers in series onto mounting support rails of different heights			
• for mounting of PE/PEN busbars and nonstandard components onto fastening elements BEL			
Grey			
Support plate (set of 2 pieces)	STL-1	275427	1
Support plate (set of 2 pieces)	STL-2	275428	1
Adapter (set of 4 pieces)	SAA	275429	1

wa_vt51813



Width (mm) / MU	Type Designation	Article No.	Units per package
DIN-Rail, BPZ-DINR			
400 / 13	BPZ-DINR13-400	293594	1
600 / 24	BPZ-DINR24-600	293595	1
800 / 35	BPZ-DINR35-800	293596	1
1000 / 46	BPZ-DINR46-1000	293597	1
1200 / 57	BPZ-DINR57-1200	293598	1

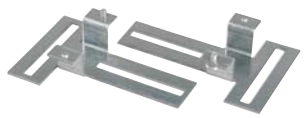
Width (mm) / MU / for width of cable duct (mm)	Type Designation	Article No.	Units per package
DIN-Rail, BPZ-TSK			
• DIN-Rail cutted on one side			
• enable fixing of vertical cable ducts on one side			
600 / 23 / 40	BPZ-TSK-600/40	151166	1
600 / 22 / 60	BPZ-TSK-600/60	151167	1
600 / 21 / 80	BPZ-TSK-600/80	151168	1
800 / 34 / 40	BPZ-TSK-800/40	151169	1
800 / 33 / 60	BPZ-TSK-800/60	151170	1
800 / 32 / 80	BPZ-TSK-800/80	151171	1
1000 / 45 / 40	BPZ-TSK-1000/40	151172	1
1000 / 44 / 60	BPZ-TSK-1000/60	151173	1
1000 / 43 / 80	BPZ-TSK-1000/80	151174	1
1200 / 56 / 40	BPZ-TSK-1200/40	151175	1
1200 / 55 / 60	BPZ-TSK-1200/60	151176	1
1200 / 54 / 80	BPZ-TSK-1200/80	151177	1

wa_vt39513



	Type Designation	Article No.	Units per package
Cable Duct Angles, KKW			
• for MSW mounting			
• enable fixing of vertical cable ducts			
• KKW-40 for 60 mm cable ducts			
• KKW-DIN for 80 mm cable ducts			
• device rails has to be shortened			
	KKW-40	275242	1
	KKW-DIN	275243	1

wa_vt07013



Height (mm)	Type Designation	Article No.	Units per package
Fixing Material for Cable Duct, BPZ-CDB			
• mounting on main frame			
• enable fixing of vertical and horizontal cable ducts			
• for boards of width 400,600			
8	BPZ-CDB	102471	1
23	BPZ-CDB23	105216	1
58	BPZ-CDB58	109169	1

VT11108



Height (mm)	Type Designation	Article No.	Units per package
Fixing Material for Cable Duct C-profile, BPZ-CDB../CP			
• mounting on main frame • enable fixing of vertical and horizontal cable ducts • for boards of width 600, 800, 1000, 1200 • in combination with C-Profil Rail BPZ-CP-...			
8	BPZ-CDB/CP	116915	1
23	BPZ-CDB23/CP	116916	1
58	BPZ-CDB58/CP	116917	1
• for better mounting of vertical cable ducts • in combination with DIN-Rail Set BPZ-DINR..S-...-B (DIN-Rail shortened)			
8	BPZ-CDB08/CP	174384	1
49	BPZ-CDB49/CP	174385	1

VT11008



Width (mm)	Type Designation	Article No.	Units per package
C-Profil Rail for Cable Duct Angles, BPZ-CP			
400	BPZ-CP-400	116918	1
600	BPZ-CP-600	116919	1
800	BPZ-CP-800	116920	1
1000	BPZ-CP-1000	116921	1
1200	BPZ-CP-1200	116922	1

Width (mm)	Type Designation	Article No.	Units per package
Aluminum Rail for vertical interior fittings, BPZ-MAH			
• enable fixing of busbar support and other devices			
400	BPZ-MAH-400	154953	1
600	BPZ-MAH-600	154954	1
800	BPZ-MAH-800	154955	1
1000	BPZ-MAH-1000	154956	1
1200	BPZ-MAH-1200	154957	1

VT25106



VT25206



BPZ-BR/SASY/H-400

VT24906



VT25006



BPZ-BR/SASY/H-1200

Poles / Width / Hight (mm)	Type Designation	Article No.	Units per package
Mounting Set for 3-pole IEC Busbar Support 630A SASY 60i, BPZ-BR/SASY/			
• mounted on base frame • Set			
1 / 400 / 100	BPZ-BR/SASY/MSW/H-1/400	152837	1
1 / 600 / 100	BPZ-BR/SASY/MSW/H-1/600	152838	1
1 / 800 / 100	BPZ-BR/SASY/MSW/H-1/800	152839	1
1 / 1000 / 100	BPZ-BR/SASY/MSW/H-1/1000	153020	1
1 / 1200 / 100	BPZ-BR/SASY/MSW/H-1/1200	153021	1
- / 400 / -	BPZ-BR/SASY/H-400	108378	1
- / 600 / -	BPZ-BR/SASY/H-600	108379	1
- / 800 / -	BPZ-BR/SASY/H-800	108380	1
- / 1000 / -	BPZ-BR/SASY/H-1000	108381	1
- / 1200 / -	BPZ-BR/SASY/H-1200	108382	1

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Mounting Set for IEC Busbar Support 630A SASY60i, BPZ-BR/SASY/H-...

- for MSW application
- at the 5 pole completion -2 frontplates (300 mm and 150 mm)
- 2, 3, 4, 5 poles availible
- set includes support bars, copper, frontplates

Poles / Width / Height (mm)	Type Designation	Article No.	Units per package
2 / 400 / 200	BPZ-BR/SASY/MSW/H-2/400	120699	1
2 / 600 / 200	BPZ-BR/SASY/MSW/H-2/600	120700	1
2 / 800 / 200	BPZ-BR/SASY/MSW/H-2/800	120701	1
2 / 1000 / 200	BPZ-BR/SASY/MSW/H-2/1000	120702	1
2 / 1200 / 200	BPZ-BR/SASY/MSW/H-2/1200	120703	1
3 / 400 / 300	BPZ-BR/SASY/MSW/H-3/400	120704	1
3 / 600 / 300	BPZ-BR/SASY/MSW/H-3/600	120705	1
3 / 800 / 300	BPZ-BR/SASY/MSW/H-3/800	120706	1
3 / 1000 / 300	BPZ-BR/SASY/MSW/H-3/1000	120707	1
3 / 1200 / 300	BPZ-BR/SASY/MSW/H-3/1200	120708	1
4 / 400 / 300	BPZ-BR/SASY/MSW/H-4/400	120709	1
4 / 600 / 300	BPZ-BR/SASY/MSW/H-4/600	120710	1
4 / 800 / 300	BPZ-BR/SASY/MSW/H-4/800	120711	1
4 / 1000 / 300	BPZ-BR/SASY/MSW/H-4/1000	120712	1
4 / 1200 / 300	BPZ-BR/SASY/MSW/H-4/1200	120713	1
5 / 400 / 450	BPZ-BR/SASY/MSW/H-5/400	120714	1
5 / 600 / 450	BPZ-BR/SASY/MSW/H-5/600	120715	1
5 / 800 / 450	BPZ-BR/SASY/MSW/H-5/800	120716	1
5 / 1000 / 450	BPZ-BR/SASY/MSW/H-5/1000	120717	1
5 / 1200 /450	BPZ-BR/SASY/MSW/H-5/1200	120718	1

VT09405



VT12208



Flask with Brush Applicator, BPZ-CPS, PAINT-RAL; Spray BPZ-SPRAY-7035

Colour	Type Designation	Article No.	Units per package
RAL 7035, 30ml	BPZ-CPS-7035	286771	1
RAL 9016, 30ml	PAINT-RAL9016	288948	1
RAL 9010, 30ml	PAINT-RAL9010	288947	1
Spray RAL 7035, 400ml	BPZ-SPRAY-7035	116678	1

VT28704



4-Phase Busbar, BPZ-KB-24/250

Outputs	Type Designation	Article No.	Units per package
12 outputs per phase, neutral wiring 24 outputs	BPZ-KB-24/250	289971	1

VT07805



Mounting elements for 4-Phase Busbar, BPZ-BR/KB24

- pair

	BPZ-BR/KB24	102477	1

VT08209



Wall Angle Bracket Set, for Moisture Proof-Surface Mounting Installation Board

- for IP54 Surface mounting boards
- for fixing the enclosures on the wall
- vertical or honrizontal mounting
- galvanized shett steel 3 mm
- one set includes 4 wall-mounting angles plus mounting accessories

Description	Type Designation	Article No.	Units per package
	WFB-SET-CS	112639	1

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VT28610



Description	Type Designation	Article No.	Units per package
Wall Angle Bracket Set, for Floor-Standing boards			
• for IP30 and IP54 Floor-Standing boards • one set includes 2 angles plus mounting accessories	BPZ-WW	142474	1

VT18705



Colour	Length	Type Designation	Article No.	Units per package
Flexible Connector for 4-Phase Busbar, BPZ-P				
• 6 mm²				
black	120 mm	BPZ-P/L-6/120	102692	10
blue	120 mm	BPZ-P/N-6/120	102693	10
black	320 mm	BPZ-P/L-6/320	102696	10
blue	320 mm	BPZ-P/N-6/320	102697	10
• 10 mm²				
black	120 mm	BPZ-P/L-10/120	102694	10
blue	120 mm	BPZ-P/N-10/120	102695	10
black	320 mm	BPZ-P/L-10/320	102698	10
blue	320 mm	BPZ-P/N-10/320	102699	10

wa_vt08213



VT18605



Cross section (mm²)	Type Designation	Article No.	Units per package
Connector with Insulated Crimp, BPZ-P/C-4/6			
4 - 6	BPZ-P/C-4/6	102700	20
Connector with Screw Terminal, BPZ-P/S-2/10			
2.5 - 10	BPZ-P/S-2/10	102701	10

VT29004



BPZ-KB-4/80

VT28904



BPZ-KB-6/160

wa_vt03113



BPZ-KB-11/250

wa_vt08113



BPZ-KB-6/80-ALU

wa_vt08013



BPZ-KB-10/175-ALU

wa_vt07913



BPZ-KB-2/2/800-ALU

Rated current	Output Terminals	Type Designation	Article-No.	Units per package
1-Pole Terminal Blocks, BPZ-KB				
• Mounting onto DIN-rail and mounting plate				
80 A	6	BPZ-KB-4/80	289969	1
125 A	6	BPZ-KB-6/125	102714	1
160 A	6	BPZ-KB-6/160	289970	1
175 A	10	BPZ-KB-10/175	102715	1
250 A	11	BPZ-KB-11/250	289967	1
400 A	11	BPZ-KB-11/400	102713	1
• Mounting onto DIN-Rail and mounting plate, aluminium				
80 A	6	BPZ-KB-6/80-ALU	102702	1
125 A	6	BPZ-KB-6/125-ALU	102703	1
160 A	6	BPZ-KB-6/160-ALU	102704	1
175 A	1	BPZ-KB-1/175-ALU	102709	1
175 A	10	BPZ-KB-10/175-ALU	102707	1
250 A	11	BPZ-KB-11/250-ALU	102705	1
400 A	1	BPZ-KB-1/400-ALU	102710	1
400 A	11	BPZ-KB-11/400-ALU	102706	1
800 A	2	BPZ-KB-1/2/800-ALU	102712	1
800 A	2	BPZ-KB-2/2/800-ALU	102711	1

VT18505



Dimensions LxWxH (mm)	Suitable for	Type Designation	Article No.	Units per package
Connection Latch for 1-Pole Terminal Block, BPZ-CL				
7x65x25	289967	BPZ-CL-65/25	102720	10
9x70x30	102713	BPZ-CL-70/30	102721	10

wa_vt08313



Dimensions LxWxH (mm)	Suitable for	Type Designation	Article No.	Units per package
Connection Bar 27 mm for 1-Pole Terminal Block, BPZ-CB				
16x44x14	102714	BPZ-CB-44/14	102722	10

wa_vt06913



Rated current	Inputs	Outputs	Type Designation	Article No.	Units per package
3-Pole Terminal Block, BPZ-KB/6/175					
• Mounting onto DIN-rail and mounting plate					
175 A	1	6	BPZ-KB-6/175	102717	1
• Mounting onto DIN-rail and mounting plate, aluminium					
175 A	1	6	BPZ-KB-6/175-ALU	102708	1

wa_vt50913



BPZ-KB-8/125

wa_vt03013



BPZ-KB-11/160

Rated current	Inputs	Outputs	Type Designation	Article No.	Units per package
4-Pole Terminal Blocks, BPZ-KB					
125A, in: 1x(L1/L2/L3/N), out: 7x(L1/L2/L3), 10xN			BPZ-KB-8/125	289968	1
125 A			BPZ-KB-9/125	102718	1
125 A			BPZ-KB-13/125	102719	1
160A, in: 1x(L1/L2/L3/N), out: 11x(L1/L2/L3/N)			BPZ-KB-11/160	102716	1

VT1698



	Type Designation	Article No.	Units per package
Lifting-Eye Bolt, BPZ-LE			
	BPZ-LE	286770	1

wa_vt38713



Description	Type Designation	Article No.	Units per package
Fixing Material, EGM, KM-6			
Fixing cage (set of 100 pieces)	EGM-F	275417	1
Slide nut M4 (set of 100 pieces)	EGM-4	275418	1
Slide nut M5 (set of 100 pieces)	EGM-5	275419	1
Castel nut M6 (set of 20 pieces)	KM-6	275420	1

wa_vt36813



VT18305



VT12108



wa_vt27713



Description	Type Designation	Article No.	Units per package
Locks, 61005			
• Type SS-KS-61005: lock and key set 61005			
• Number of locks required per door in the technic part!			
Lock and key set 61005	SS-KS-61005	275422	1
Metal key 61005	MS-61005	275423	1
Plastic key 61005	KS-61005	275424	1
Clip-down handle Softline short	BPZ-SH	116690	1
Clip-down handle Softline long (overview sheme at the technical specifications)	BPZ-SH-L	131560	1
Comfort handle (changable just with clip-down handle Softline long)	DH-COMF	133107	1

VT12010



Description	Type Designation	Article No.	Units per package
Locks, BPZ-LOCK			
• Simultaneous locking			
• Cylinder with 2 keys			
• Change of rotary door lock for all IP30 and IP54 enclosures			
• Number of locks required per door in the technic part!			
Grey	BPZ-LOCK	102467	1
White	BPZ-LOCK-W	102468	1

Description	Type Designation	Article No.	Units per package
Locks, BPZ-LOCK			
• Profile half cylinder with 2 keys			
• For all boards with clip down handles			
• Number of locks required per door in the technic part!			
Lock Z	BPZ-LOCK/Z	120766	1

VT12110



Description	Type Designation	Article No.	Units per package
Accessory for BPZ-LOCK			
• Set for change to a cylinder insert			
• Position indicator			
• Profile half cylinder is not in the scope of delivery			
	PHZ-A-ADD-ON	133106	1

Profile Half-Cylinder for diverse Handles

- For rotary and clip-down ease-of-use handles
- Lock-cylinder finish according to DIN 18252 and DIN EN 1303
- Profile half-cylinder 10/30 with pin closures made of nickel silver
- 8-fold adjustable lock bit, 5 pairs of pins
- Identical or different locking
- Number of locks required per door in the technic part!

VT33610



Description	Type Designation	Article No.	Units per Package
1 Key included, keyed alike	PHZ-E10/30-GS	138574	1
3 Keys included, keyed different	PHZ-E10/30-VS	138575	1

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Spare Key for Profile Half-Cylinder

- For profile half-cylinder PHZ-E...-GS

VT12510



Description	Type Designation	Article No.	Units per Package
Identical locking	KEY-E10/30-GS	138576	4

Locks with keys SH6, DH; BPZ-LOCK, BPZ-KEY

VT11608



VT11808



Lock SH6 (cylinder lock)	BPZ-LOCK/SH6	116673	1
Key SH6	BPZ-KEY/SH6	116674	1
Lock SH6 with accessory (change of rotary door lock)	BPZ-LOCK/SH6METAL	116913	1

VT11708



VT11908



Lock DH (cylinder lock)	BPZ-LOCK/DH	116675	1
Key DH	BPZ-KEY/DH	116676	1
Lock DH with accessory (change of rotary door lock)	BPZ-LOCK/DHMETAL	116914	1

wa_nt08913



Lock inserts NWS-SHE

No. of Photo / Version		Type Designation	Article No.	Units per package
1	7mm square lock insert	NWS-SHE/4K/7	255306	1
2	8mm square lock insert	NWS-SHE/4K/8	255307	1
3	7mm triangular lock insert	NWS-SHE/3K/7	255304	1
4	8mm triangular lock insert	NWS-SHE/3K/8	255305	1
5	Two-way key bit, 3mm pin	NWS-SHE/DLB/DN3	255309	1
6	Two-way key bit, 5mm pin	NWS-SHE/DLB/DN5	255310	1
7	Daimler-Benz insert	NWS-SHE/DB	255308	1
8	Screw driver-type insert	NWS-SHE/SZ	255311	1

N8299



Keys for Lock Inserts NWS-SL

No. of Photo / Version		Type Designation	Article No.	Units per package
1	7mm square lock insert	NWS-SL/4K/7	255314	1
2	8mm square lock insert	NWS-SL/4K/8	255315	1
3	7mm triangular lock insert	NWS-SL/3K/7	255312	1
4	8mm triangular lock insert	NWS-SL/3K/8	255313	1
5	Two-way key bit, 3mm pin	NWS-SL/DLB/3	255317	1
6	Two-way key bit, 5mm pin	NWS-SL/DLB/5	255318	1
7	Daimler-Benz	NWS-SL/DB	255316	1

VT01705, VT01805



KT-3



KT-5

Terminal Supports, KT

Terminal Points / Description	Type Designation	Article No.	Units per package
horizontal	KT-3	275445	1
vertical	KT-5	275447	1

VT01905



Terminal Strips, KL

7	KL-7	219724	1
15	KL-15	219726	1
29	KL-29	275449	1
45	KL-45	275450	1
60	KL-60	275451	1
1 meter	KLM	275452	1
Connection terminal for 35 mm^2	KLA	275453	1

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wa_vt10103.eps



Thread / Length (mm)	Type Designation	Article No.	Units per package
Screws, BPZ-S-...			
• M5x12 (standard screw of the board) • M4x8 (flange plate)			
M5 / 12	BPZ-S-M5x12	120719	20
M4 / 8	BPZ-S-M4x8	120720	20

Inscription Strip LAB-BAR

wa_vt14413

Module units (MU)	Type Designation	Article No.	Units per package
Holder for Inscription Strip, LAB-BAR			
13	LAB-BAR_13TE	107884	10
24	LAB-BAR_24TE	107901	10
35	LAB-BAR_35TE	107903	10
46	LAB-BAR_46TE	107906	10
57	LAB-BAR_57TE	107909	10

Length	Type Designation	Article No.	Units per package
Holder for Inscription Strip universal, LAB-BAR			
1 m	LAB-BAR_1000	107911	10
3 m	LAB-BAR_3000	107912	10

Accessories Inscription Strip LAB

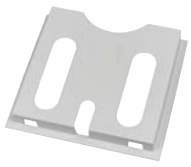
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	Type Designation	Article No.	Units per package
Enclosure leaves for the inscription strips, LAB-TAPE_A4			
empty	LAB-TAPE_A4_BLANK	107952	10
imprint	LAB-TAPE_A4_PRINT	107953	10
Circuit Diagram Bag, LAB-BAG_A4			
Size A4	LAB-BAG_A4	107913	1

XAB4 Circuit Diagram Box

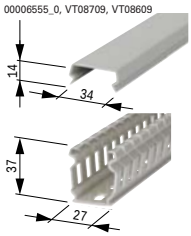
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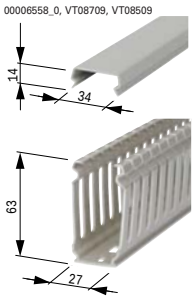


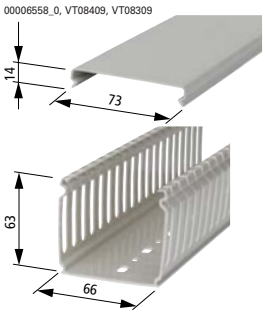
Description	Type Designation	Article No.	Units per package
A4 panel format, self-adhesive	XAB4	283482	1

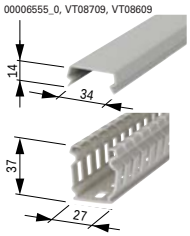
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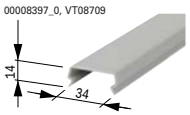
Supplied in lengths of mm	Cable carrying capacity. Max. no. of cables (approximate)	Type and cross-section H 0... V-K mm²	H 0... V-K AWG	Designation	Article No.	Units per package
Cable ducts						
Screw fixing						
1500	60 40 25 15	0.75 1.5 2.5 4	– 14 10 –	KL25/35	012531	60
1500	100 70 45 30 25	0.75 1.5 2.5 4 6	– 14 10 –	KL25/60	017277	40
1500	260 180 120 80 65	0.75 1.5 2.5 4 6	– 14 10 –	KL60/60	029142	20
Self-adhesive • Max. ambient temperature +55°C						
650	60 40 25	0.75 1.5 2.5	– 2 10	KL25/35K	014904	50
Cable duct cover • Supplied as spares						
1500	–	–	–	KD25	019649	1
1500	–	–	–	KD60	024395	1

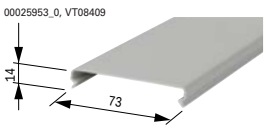












Distribution Boards BP-...
for installation system EP

- Installation Distribution Boards (floor-standing and surface-mounting boards)
- IP54
- Protection class I
- Sheet steel enclosure, polyesterpowder coated
- Frontplates useable as trayer or coater lid
- Modular construction EP
- Depth 250 mm
- Generous wiring space
- Protection against mechanical impact up to IK08
- Grey (RAL 7035)

VT04110



Floor Standing Distribution Board

- Distribution Installation board
- Degree of protection IP54
- Powder coated RAL 7035
- Protection class I
- Closed enclosure with 3 point clip down handle
- Changeable door hinges
- Prepared top/bottom cable entry for F3A flanges (flanges not in the scope of delivery)
- Prepared for norm insert system EP
- BPZ-TW mounting angles included (left and right) with left and right vertical rail
- BPZ-WW wall brackets included
- Depth 250 mm

VT03710



Width x Height x Depth (mm)	Type Designation	Article No.	Units per package
350 x 1910 x 250	BPM-F-350/19/2-P-EP	147399	1
600 x 1910 x 250	BPM-F-600/19/2-P-EP	147410	1
850 x 1910 x 250	BPM-F-850/19/2-P-EP	147411	1
1100 x 1910 x 250	BPM-F-1100/19/2-P-EP	147412	1
1350 x 1910 x 250	BPM-F-1350/19/2-P-EP	147413	1
350 x 2060 x 250	BPM-F-350/20/2-P-EP	142444	1
600 x 2060 x 250	BPM-F-600/20/2-P-EP	142445	1
850 x 2060 x 250	BPM-F-850/20/2-P-EP	142446	1
1100 x 2060 x 250	BPM-F-1100/20/2-P-EP	142447	1
1350 x 2060 x 250	BPM-F-1350/20/2-P-EP	142448	1

Doors

- Sheet steel door with 3 point clip down handle

wa_vt03913



Width x Height (mm)	Type Designation	Article No.	Units per package
350 x 1910	BPZ-DMS-350/19-P-EP	147414	1
600 x 1910	BPZ-DMS-600/19-P-EP	147415	1
850 x 1910	BPZ-DMS-850/19-P-EP	147416	1
1100 x 1910 (600+500)	BPZ-DMS-1100/19-P-EP	147417	1
1350 x 1910 (600+750)	BPZ-DMS-1350/19-P-EP	147418	1
350 x 2060	BPZ-DMS-350/20-P-EP	142449	1
600 x 2060	BPZ-DMS-600/20-P-EP	142450	1
850 x 2060	BPZ-DMS-850/20-P-EP	142451	1
1100 x 2060 (600+500)	BPZ-DMS-1100/20-P-EP	142452	1
1350 x 2060 (600+750)	BPZ-DMS-1350/20-P-EP	142453	1

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Cover for base

- 1 pair side covers (right and left) incl. fixing material
- Sheet steel powder coated RAL 7035

VT06905



Depth x Height (mm)	Type Designation	Article No.	Units per package
250 x 100	BPZ-SS-1/250-EP	142454	1
250 x 200	BPZ-SS-2/250-EP	142455	1

- 1 front cover for base incl. fixing material
- Sheet steel powder coated RAL 7035

wa_vt51413



Width x Height (mm)	Type Designation	Article No.	Units per package
350 x 100	BPZ-FS-350/1	142456	1
600 x 100	BPZ-FS-600/1	293497	1
850 x 100	BPZ-FS-850/1	142457	1
1100 x 100	BPZ-FS-1100/1	142458	1
1350 x 100	BPZ-FS-1350/1	142459	1
350 x 200	BPZ-FS-350/2	142460	1
600 x 200	BPZ-FS-600/2	293499	1
850 x 200	BPZ-FS-850/2	142461	1
1100 x 200	BPZ-FS-1100/2	142462	1
1350 x 200	BPZ-FS-1350/2	142463	1

Cable Interconnect Frame

- For floorstanding board IP54
- Pre-assembled delivery
- Sheet steel powder coated RAL 7035
- Inner cover removeable
- Frame can be mounted on top or bottom
- Suitable for use with cable strain relief rail
- Fixing material included

wa_vt23313



Width x Height x Depth (mm)	Type Designation	Article No.	Units per package
350 x 100 x 250	BPZ-KR3.51/250	142464	1
600 x 100 x 250	BPZ-KR61/250	142465	1
850 x 100 x 250	BPZ-KR8.51/250	142466	1
1100 x 100 x 250	BPZ-KR111/250	142467	1
1350 x 100 x 250	BPZ-KR131/250	142468	1
350 x 200 x 250	BPZ-KR3.52/250	142469	1
600 x 200 x 250	BPZ-KR62/250	142470	1
850 x 200 x 250	BPZ-KR8.52/250	142471	1
1100 x 200 x 250	BPZ-KR112/250	142472	1
1350 x 200 x 250	BPZ-KR132/250	142473	1

Wall Bracket

- Sheet steel zink coated
- Fixing material included
- Scope of delivery: 1 pair

vt28610



Type Designation	Article No.	Units per package
BPZ-WW	142474	1

Cable Strain Relief Rail

- Suitable for use with BPZ-KR... cable interconnect frame
- C-Profil 16mm, zink coated
- Fixing material included

wa_vt23413



Width (mm)	Type Designation	Article No.	Units per package
350	BPZ-KFS-350	142475	1
600	BPZ-KFS-600	116294	1
850	BPZ-KFS-850	142476	1
1100	BPZ-KFS-1100	142477	1
1350	BPZ-KFS-1350	142478	1

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Universal Angle

- For fixing horizontal rail elements

VT08910



Type Designation	Article No.	Units per package
WEQV	143993	1

Spicial Angle

- For fixing horizontal rail elements

VT09010



Type Designation	Article No.	Units per package
WMPO	143994	1

Support Rail

- For vertical interior fittings
- With drilled holes for mounting devices
- Interior fitting of the Profi+ board with:
  – vertical support rail EPTV
  – assembly equipment BPZ-TW (for 250 mm)

VT07810



Height (mm)	Type Designation	Article No.	Units per package
1800	EPTV1800	143844	1
1950	EPTV1950A-BP	143850	1

Support Rail Angle, 250 mm depth, for Profi+

- For mount the vertical rail EPTV
- Fixing material included
- Scope of delivery: 1 pair

VT08710



Depth (mm)	Type Designation	Article No.	Units per package
250	BPZ-TW	143864	1

SPD Catalogue

for AC applications



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The need for Surge Protection

Overvoltage surges can cause irreparable damage to electrical equipment that our infrastructure, industry and homes are becoming increasingly reliant upon. These transient events can lead to corrupted software, industrial downtime and PCB damage which can be catastrophic due to the loss of information, loss of output and high replacement cost.

Surges can be caused by a variety of different sources; such as lightning strikes, industrial machinery and power switching.

It is essential to protect electrical equipment against these events to ensure power quality and maximise the lifetime of the electrical devices.

After extensive research and development has been conducted, Bussmann is able to offer a comprehensive protective solution for your equipment, eliminating the disruptive and damaging effects that surge and overvoltage conditions can cause.

Causes of transients and surges

- **Lightning strikes:**
  - Large scale impact with high current and voltage but the least common occurrence.
- **Power switching:**
  - Utility and customer load switching such as motors, large loads, capacitor banks, fuse and circuit breaker operation.

Damaging effects of transients and surges

1. **Disruptive**—a voltage transient enters an electronic component and it is interpreted as a valid logic command resulting in system lock-up, malfunction, faults or corrupted files.
2. **Dissipative**—associated with short duration, low level energy surges, resulting in equipment failure over time including electronic components, ballasts, motors and controllers, service entrance equipment, panelboards and switchgear.
3. **Destructive**—associated with high level energy surges, resulting in immediate equipment failure including electronic components, motors and controllers, service entrance equipment, panelboards and switchgear.

Earthing system protection

International standard, IEC 60364 defines the three families of Earthing System protection that uses two letter codes to signify the protection that it provides, TN, TT and IT. The configuration of surge protection will depend on the Earthing System used.

TN

Within TN systems there is a direct connection point with Earth and a direct connection to neutral at the origin of the installation, usually the start point of the three-phase system.

TN-S

Separate Protective Earth (PE) and Neutral (N) conductors from transformer to consuming device, which are not connected together at any point after the building distribution point.

Typical Applications:

- Residential
- Industrial

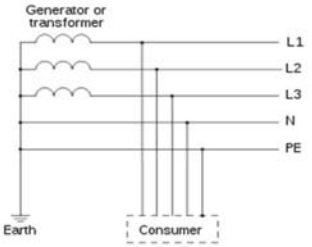


Figure 1: TN-S wiring diagram.

TN-C

Combined PE and N conductor from the transformer to the consuming element. This system is not permitted for conductors of less than 10mm² or for portable equipment. The PEN conductor must be connected to a number of Earth electrodes in the installation.

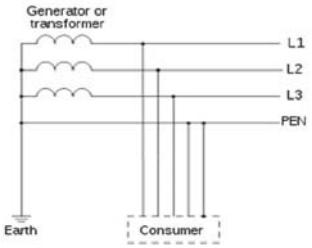


Figure 2: TN-C wiring diagram.

TT

In a TT earthing system the customer must provide their own connection to Earth, independent of any Earth connection at the generator.

Typical Applications:

- Telecommunications

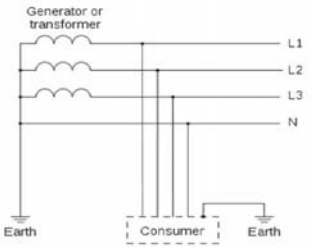


Figure 3: TT wiring diagram.

IT

In an IT network the electrical distribution system has no connection to Earth or it only has a high impedance connection. In an IT system, an insulation monitoring device is used to monitor the impedance.

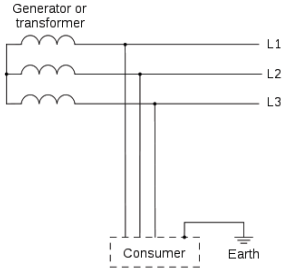


Figure 4: IT wiring diagram.

Degrees of protection

SPDs are divided into three different levels of protection , Type 1, Type 2 and Type 3, depending on their function application, as determined by IEC 61643-1.

SPD Type 1

T1

A Type 1 SPD protects electrical installations to the lightning grid or rod. It can discharge the surge current from the effect of lightning spreading from the Earth conductor to the network conductors.

Figure 5 characterises the current wave from a direct lightning strike.

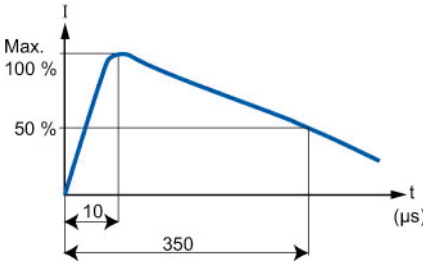


Figure 5: 10/350µs current wave.

SPD Type 2

T2

A Type 2 SPD is the secondary protection system for all low voltage electric installations. This is installed into each electrical switchboard and prevents the spread of overvoltage's in the electrical systems, protecting the loads.

Figure 6 characterises the current wave from the effects of an indirect lightning strike.

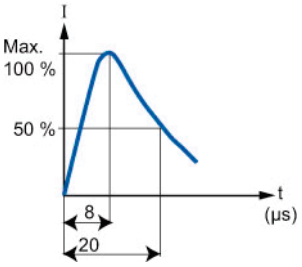


Figure 6: 8/20µs current wave

SPD Type 3

T3

A Type 3 SPD has a low discharge current capacity. They must therefore be installed as a supplement to a Type 2 SPD in the vicinity of sensitive loads.

Type 3 SPDs are characterised by the wave form shown in Figure 7.

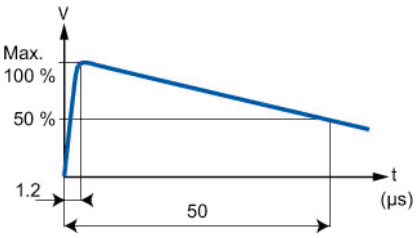


Figure 7: 1.2/ 50µs voltage wave

Plug-in modules

Description

When an SPD reaches the end of its life and indicates that it needs to replaced, Bussmann is able to provide replacement modules for the entire voltage range on offer.

These thermoplastic modules are IEC certified to IEC61643 and save both time and money by simply clipping into the place of the operated module. This swift exchange of parts ensures that the system is protected which prevents industrial downtime or periods when the electrical equipment is left vulnerable to voltage surges.



SPCT2-335

Ordering information

Part numbers	SPCT2-075	SPCT2-135	SPCT2-175	SPCT2-280	SPCT2-335	SPCT2-385	SPCT2-460	SPCT2-580	SPCT2-NPE60
System voltage	75 V	135 V	175 V	280 V	335 V	385 V	460 V	580 V	260V
Article numbers	167577	167582	167587	167592	167597	167602	167607	167612	167617
Specifications									
Max.continuous operating AC voltage [U_c]	75 VAC	135 VAC	175 VAC	280 VAC	335 VAC	385 VAC	460 VAC	580 VAC	260 VAC
Voltage protection level [U_p]	< 550 V	< 800 V	< 1.0 kV	< 1.4 kV	< 1.6 kV	< 1.8 kV	< 2.2 kV	< 2.6 kV	1.0 Kv
Voltage protection level at 5kA [U_p]	400 V	550 V	700 V	1000 V	1200 V	1350 V	1700 V	2000 V	-
Max. mains-side overcurrent protection	125 A gL/gG -	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	-
Short circuit withstand capability for max. mains-side overcurrent protection	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	-
Temporary overvoltage (TOV) U_T	75 VAC	135 VAC	175 VAC	350 VAC	415 VAC	415 VAC	580 VAC	580 VAC	-
Temporary overvoltage NPE									1200 VAC (200 ms)
Response time [tA]	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 100 ns
Follow current extinguishing capability [I_f]	-	-	-	-	-	-	-	-	100 A rms
Nominal discharge current (8/20µs) I_n	15 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
Max discharge current [I_{max}]	30 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA
Standards information	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643
SPD according to EN 61643-11	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2
SPD according to IEC 61643-1	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Class II
Operating temperature range	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C
Operating state/Fault indication	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	Blue, good.
Cross sectional area (min.)	4 mm²	4 mm²	4 mm²	4 mm²	4 mm²	4 mm²	4 mm²	4 mm²	4mm²
Cross sectional area (max.)	25 mm²	25 mm²	25 mm²	25 mm²	25 mm²	25 mm²	25 mm²	25 mm²	25mm²
Mounting	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715
Enclosure material	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2
Location category	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor
Rated frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50/ 60 Hz
Degree of protection	IP40	IP40	IP40	IP40	IP40	IP40	IP40	IP40	IP40

Single pole T1 and T1/T2

Description

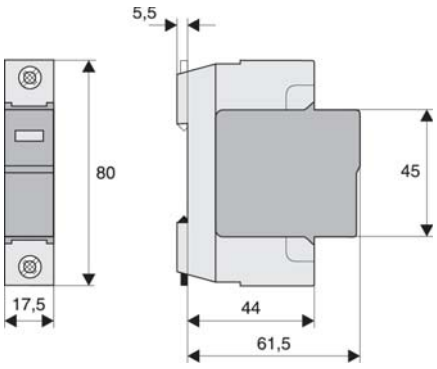
Bussmann is able to provide SPDs to meet a variety of applications and requirements. This range is specifically designed and manufactured for customised protective system solutions.

The modular designs feature integrated fault indication which turns from green to red, visually alerting the operator to whether or not the device has reached the end of its life and needs to be replaced with a new module. Manufactured from thermoplastic, the SPDs are IEC certified for use in environments with an operational temperature range from –40°C to +70°C.

Configurations of SPDs can be customised for the application or for the installation location, the module locking system with module release buttons make the replacement easy and without tools by depressing the buttons and lifting the module out.



SPBT12-280



General arrangement

Ordering information	T1			T1 /T2		
Part numbers	**SPI-35-400**	**SPI-50-NPE**	**SPI-100-NPE**	**SPBT12-280-1**	**SPBT12-280-1-NPE**	**SPBT12-NPE100**
System voltage/poles	440 V / 1	260 V / 1+NPE	260 V / 1+NPE	280 V / 1	280 V /1 + NPE	255 V
Article numbers	267487	263138	263139	158306	158308	158307
Replacement modules	-	-	-	SPBT12-280	SPBT12-280	SPBT12-NPE100
Specifications						
Max. continuous operating AC voltage [U_c]	440 VAC	260 VAC	260 VAC	280 VAC	280 VAC / 255 VAC	255 VAC
Voltage protection level [U_p]	1.5 kV	1.5 kV	1.5 kV	< 1.5 kV	< 1.5 kV	< 1.5 kV
Voltage protection level at 5 kA [U_p]	-	-	-	950 V	950 V	-
Max. mains-side overcurrent protection	125 A gL	-	-	160 A gL/gG	160 A gL/gG	-
Short circuit withstand capability for max. mains-side overcurrent protection	-	-	-	50 kA rms	50 kA rms	-
Temporary overvoltage test value U_T (5 s)	25 kA rms	-	-	370 VAC	348 / 370 VAC	-
Temporary overvoltage NPE	440 VAC	1200 VAC	1200 VAC	-	1200 VAC	1200 VAC (200 ms)
Response time (rate of voltage rise 5 kV/µs)	< 100 ns	< 100 ns	< 100 ns	< 25 ns	< 25 ns/ < 100 ns	< 100 ns
Follow current interrupt rating [I_fi]	3 kA rms	500 A rms	100 A rms	-	100 A rms	100A rms
Lightning impulse current (10/350µs) [I_{imp}]	35 kA	50 kA	100 kA	12.5 kA	12.5 kA / 100 kA	100 kA
Nominal discharge current (8/20µs) I_n	35 kA	50 kA	100 kA	25 kA	25 kA / 100 kA	100 kA
Max discharge current [I_{max}]	35 kA	50 kA	100 kA	50 kA	50 kA / 100 kA	100 kA
Standards information	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643
SPD according to EN 61643-11	Type 1	Type 1	Type 1	Type 1 & 2	Type 1 & 2	Type 1 & 2
SPD according to IEC 61643-1	Class I	Class I	Class I	Class I & II	Class I & II	Class I & II
Operating temperature range	-40°C to +85°C	-40°C to +85°C	40°C to +85°C	-40°C to +70°C	-40°C to +70°C	-40°C to + 70°C
Operating state/Fault indication	-	-	-	green (good) / red (replace)	green (good) / red (replace)	green (good)/ red (replace)
Cross sectional area (min.)	45 mm²	45 mm²	45 mm²	4 mm²	4 mm²	4 mm²
Cross sectional area (max.)	90 mm²	90 mm²	90 mm²	25 mm²	25 mm²	25 mm²
Mounting	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/EN 60715
Enclosure material	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2
Location category	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor
Rated frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50/60Hz
Degree of protection	IP40	IP40	IP40	IP40	IP40	IP40
Product warranty	2 Years	2 Years	2 Years	2 Years	2 Years	2 years
Auxiliary switch	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSX-SPM	ASAUXSX-SPM	ASAUXSC-SPM

Single pole T2

Description

Bussmann is able to offer a variety of T2 single pole and single pole plus neutral SPDs. These devices are suitable for use within a range of applications, allowing the customisation of the configuration of SPDs within a specific system. The neutral and protective earth unit incorporates a spark gap device, shown by the blue indicator screen built into the unit, adding extra levels of protection into the configuration of SPDs.

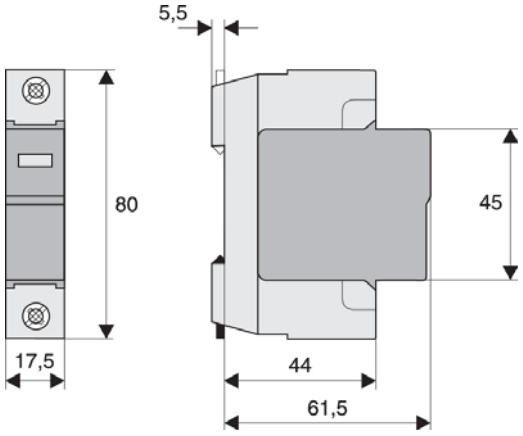
Additionally, there are local and remote monitoring options available. The ASAUXC-SPM device clips onto the end of any configuration of SPDs, providing real time information to the operator's computer system on the status of the SPDs.

Ordering information **T2**

Part numbers	**SPCT2-075-1**	**SPCT2-135-1**	**SPCT2-175-1**	**SPCT2-280-1**	**SPCT2-335-1**	**SPCT2-385-1**	**SPCT2-460-1**
System voltage/poles	75 V / 1	135 V / 1	175 V / 1	280 V / 1	335 V / 1	385 V / 1	460 V / 1
Article numbers	167578	167583	167588	167593	167598	167603	167608
Replacement modules	SPCT2-075	SPCT2-135	SPCT2-175	SPCT2-280	SPCT2-335	SPCT2-385	SPCT2-460
Specifications							
Max. continuous operating AC voltage [U_c]	75 VAC	135 VAC	175 VAC	280 VAC	335 VAC	385 VAC	460 VAC
Voltage protection level [U_p]	< 550 V	< 800 V	< 1.0 kV	< 1.4 kV	< 1.6 kV	<1.8 kV	< 2.2 kV
Voltage protection level at 5 kA [U_p]	400 V	550 V	700 V	1000 V	1200 V	1350 V	1700 V
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Short circuit withstand capability for max. mains-side overcurrent protection	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms
Temporary overvoltage test value U_T (5 s)	75 VAC	135 VAC	175 VAC	350 VAC	415 VAC	415 VAC	580 VAC
Temporary overvoltage NPE	-	-	-	-	-	-	-
Response time (rate of voltage rise 5 kV/µs)	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns
Follow current interrupt rating [I_fi]	-	-	-	-	-	-	-
Lightning impulse current (10/350µs) [I_{imp}]	-	-	-	-	-	-	-
Nominal discharge current (8/20µs) I_n	15 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
Max discharge current [I_{max}]	30 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA
Standards information	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643
SPD according to EN 61643-11	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2
SPD according to IEC 61643-1	Class II	Class II	Class II	Class II	Class II	Class II	Class II
Operating temperature range	-40°C to +70°C	-40°C to +70°C	-40°C to + 70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
Operating state/Fault indication	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)
Cross sectional area (min.)	4 mm²	4 mm²	4 mm²	4 mm²	4 mm²	4 mm²	4 mm²
Cross sectional area (max.)	25 mm²	25 mm²	25 mm²	25 mm²	25 mm²	25 mm²	25 mm²
Mounting	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715
Enclosure material	Thermoplastic UL 94 V2	Thermoplastic UL 94V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2
Location category	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor
Rated frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Degree of protection	IP40	IP40	IP40	IP40	IP40	IP40	IP40
Product warranty	2 Years	2 Years	2 years	2 years	2 years	2 years	2 years
Auxiliary switch	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM



SPCT2-280-1



General arrangement

SPCT2-580-1	SPCT2-NPE60-1	SPCT2-280-1-NPE	SPCT2-335-1-NPE	SPCT2-385-1-NPE	SPCT2-460-1-NPE	SPCT2-580-1-NPE
580 V / 1	260V/ 1	280 V / 1 + NPE	335 V / 1 + NPE	385 V / 1 + NPE	460 V / 1 + NPE	580 V / 1 + NPE
167613	167618	167619	167621	167623	167625	167627
SPCT2-580	SPCT2-NPE60	SPCT2-280	SPCT2-335	SPCT2-385	SPCT2-460	SPCT2-580
580 VAC	260 VAC	280 VAC	335 VAC	385 VAC	460 VAC	580 VAC
< 2.6 kV	1.0 Kv	< 1.4 kV	< 1.6 kV	< 1.8 kV	< 2.2 kV	< 2.6 kV
2000 V	-	1000 V	1200 V	1350 V	1700 V	2000 V
125 A gL/gG	-	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
50 kA rms	-	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms
580 VAC	-	350 VAC	415 VAC	415 VAC	580 VAC	580 VAC
-	1200 VAC (200 ms)	1200 VAC	1200 VAC	1200 VAC	1200 VAC	1200 VAC
< 25 ns	<100 ns	< 25 ns / < 100 ns	< 25 ns / < 100 ns	< 25 ns / < 100 ns	< 25 ns / < 100 ns	< 25 ns / < 100 ns
-	100 A rms	100 A rms	100 A rms	100 A rms	100 A rms	100 A rms
-	-	-	-	-	-	-
20 kA	20 kA	20 kA / 100 kA	20 kA / 100 kA	20 kA / 100 kA	20 kA / 100 kA	20 kA / 100 kA
40 kA	40 kA	40 kA / 100 kA	40 kA / 100 kA	40 kA / 100 kA	40 kA / 100 kA	40 kA / 100 kA
IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643
Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2
Class II	Class II	Class II	Class II	Class II	Class II	Class II
-40°C to +70°C	-40°C to + 70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
green (good) / red (replace)	Blue, good.	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)
4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2
25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2
Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715
Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2
Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor
50 / 60 Hz	50/ 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
IP40	IP40	IP40	IP40	IP40	IP40	IP40
2 years	2 Years	2 years	2 years	2 years	2 years	2 years
ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM

TN-S protection systems

Description

Bussmann is able to provide a range of SPDs that are certified for use within TN-S protection systems. The TN-S system is appropriate within the many residential and industrial electric systems, especially in Europe. This is because the PE and N are separate conductors which are connected together only near a power source.

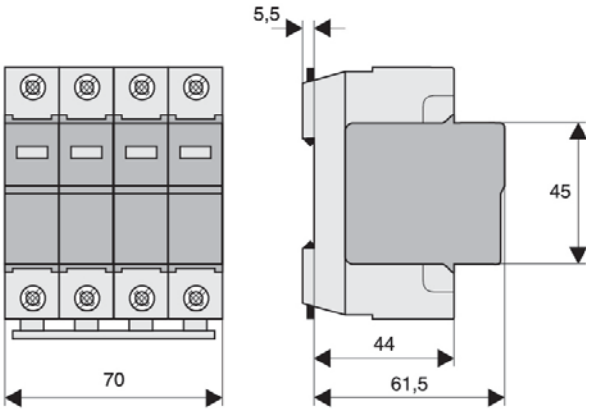
The modular designs feature integrated fault indication which turns from green to red, visually alerting the operator to whether or not the device has reached the end of its life and needs to be replaced with a new module. Manufactured from thermoplastic, the SPDs are IEC certified for use in environments with an operational temperature range from –40°C to +70°C

Configurations of SPDs can be customised for the application or for the installation location, the module locking system with module release buttons make the replacement easy and without tools by depressing the buttons and lifting the module out.

Ordering information	**T1/T2**					
Part numbers	**SPBT12-280-4**	**SPBT12-280-3-NPE**	**SPCT2-280-3-NPE**	**SPCT2-335-3-NPE**	**SPCT2-385-3-NPE**	**SPCT2-460-3-NPE**
System voltage/poles	280 V / 4	280 V / 3 + NPE	280 V / 3 + NPE	335 V / 3 + NPE	385 V / 3 + NPE	460 V / 3 + NPE
Article numbers	158331	158332	167620	167622	167624	167626
Replacement modules	SPBT12-280	SPBT12-280	SPCT2-280	SPCT2-335	SPCT2-385	SPCT2-460
Specifications						
Line system type	TN-S	TN-S	TN-S	TN-S	TN-S	TN-S
Max.continuous operating AC voltage [U_c]	280 VAC	280 VAC / 255 VAC	280 VAC	335 VAC	385 VAC	460 VAC
Voltage protection level [U_p]	< 1.5 kV	< 1.5 kV	< 1.4 kV	< 1.6 kV	< 1.8 kV	< 2.2 kV
Voltage protection level at 5 kA [U_p]	950 V	950 V	1000 V	1200 V	1350 V	1700 V
Max. mains-side overcurrent protection	160A gL/gG	160 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Short circuit withstand capability for max. mains-side overcurrent protection	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms
Temporary overvoltage test value U_T (5 s)	370 VAC	348 /370 VAC	350 VAC	415 VAC	415 VAC	580 VAC
Temporary overvoltage NPE	-	1200 VAC	1200 VAC	1200 VAC	1200 VAC	1200 VAC
Response time (rate of voltage rise 5 kV/µs)	< 25 ns	< 25 ns / < 100 ns	< 25 ns / < 100 ns	< 25 ns / < 100 ns	< 25 ns / < 100 ns	< 25 ns / < 100 ns
Follow current extinguishing capability [I_{fi}]	-	100 A rms	100 A rms	100 A rms	100 A rms	100 A rms
Lightning impulse current (10/350µs) [I_{imp}]	12.5 kA	3 x 12.5 kA / 100 kA	-	-	-	-
Nominal discharge current (8/20µs) I_n	25 kA	3 x 25 kA / 100 kA	3 x 20 kA / 100 kA	3 x 20 kA / 100 kA	3 x 20 kA / 100 kA	3 x 20 kA / 100 kA
Max discharge current [I_{max}]	50 kA	3 x 50 kA / 100 kA	3 x 40 kA / 100 kA	3 x 40 kA / 100 kA	3 x 40 kA / 100 kA	3 x 40 kA / 100 kA
Standards information	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643
SPD according to EN 61643-11	Type 1 & 2	Type 1 & 2	Type 2	Type 2	Type 2	Type 2
SPD according to IEC 61643-1	Class I & II	Class I & II	Class II	Class II	Class II	Class II
Operating temperature range	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
Operating state/Fault indication	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)
Cross sectional area (min.)	4 mm²	4 mm²	4 mm²	4 mm²	4 mm²	4 mm²
Cross sectional area (max.)	25 mm²	25 mm²	25 mm²	25 mm²	25 mm²	25 mm²
Mounting	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/EN 60715
Enclosure material	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2
Location category	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor
Rated frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Degree of protection	IP40	IP40	IP40	IP40	IP40	IP40
Product warranty	2 Years	2 Years	2 Years	2 Years	2 Years	2 Years
Auxiliary switch	ASAUXSX-SPM	ASAUXSX-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSX-SPM	ASAUXSX-SPM



SPCT2-280-3+NPE



General arrangement

T2

SPCT2-580-3-NPE	SPCT2-135-4	SPCT2-175-4	SPCT2-280-4	SPCT2-335-4	SPCT2-385-4	SPCT2-460-4	SPCT2-580-4
580 V / 3 + NPE	135 V	175 V	280 V	335 V	385 V	460 V	580 V / 4
167628	167586	167591	167596	167601	167606	167611	167616
SPCT2-580	SPCT2-135	SPCT2-175	SPCT2-280	SPCT2-335	SPCT2-385	SPCT2-460	SPCT2-580
TN-S	TN-S	TN-S	TN-S	TN-S	TN-S	TN-S	TN-S
580 VAC	135 VAC	175 VAC	280 VAC	335 VAC	385 VAC	460 VAC	580 VAC
< 2.6 kV	< 800 V	< 1.0 kV	< 1.4 kV	< 1.6 kV	< 1.8 kV	< 2.2 kV	< 2.6 kV
2000 V	550 V	700 V	1000 V	1200 V	1350 V	1700 V	2000 V
125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms
580 VAC	135 VAC	175 VAC	350 VAC	415 VAC	415 VAC	580 VAC	580 VAC
1200 VAC	-	-	-	-	-	-	-
< 25 ns / < 100 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns
100 A rms	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
3 x 20 kA / 100 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
3 x 40 kA / 100 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA
IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643
Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2
Class II	Class II	Class II	Class II	Class II	Class II	Class II	Class II
-40°C to +70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C
green (good) / red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)
4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2
25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2
Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715	Quick fastening on DIN rail according to IEC/ EN 60715
Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2
Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor
50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
IP40	IP40	IP40	IP40	IP40	IP40	IP40	IP40
2 Years	2 years	2 years	2 years	2 years	2 years	2 years	2 years
ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM

TN-C protection systems

Description

Bussmann is able to offer a range of SPDs for use within a TN-C system. This is where there is a combined PEN conductor which fulfils the role of the separate PE & N conductors.

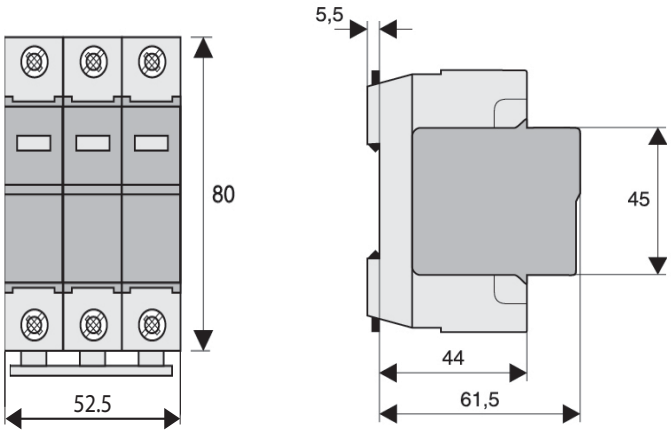
The modular designs feature integrated fault indication which turns from red to green, visually alerting the operator to whether or not the device has reached the end of its life and needs to be replaced with a new module. Manufactured from thermoplastic, the SPDs are IEC certified for use in environments with an operational temperature range from –40°C to +70°C.

Configurations of SPDs can be customised for the application or for the installation location, the module locking system with module release buttons make the replacement easy and without tools by depressing the buttons and lifting the module out.

Ordering information	**T1**	**T1 /T2**			
Part numbers	**SPI-35-440-3**	**SPBT12-280-3**	**SPCT2-075-3**	**SPCT2-135-3**	**SPCT2-175-3**
System voltage/poles	440 V / 3	280/3	75 V/3	135 V/3	175 V/3
Article numbers	267487	158330	167580	167585	167590
Replacement modules	-	SPBT12-280	SPCT2-075	SPCT2-135	SPCT2-175
Specifications					
Line system type	TN-C	TN-C	TN-C	TN-C	TN-C
Max.continuous operating AC voltage [U_C]	440 VAC	280 VAC	75 VAC	135 VAC	175 VAC
Voltage protection level [U_p]	1.5 kV	< 1.5 kV	< 550 V	< 800 V	< 1.0 kV
Voltage protection level at 5kA [U_p]	-	950 V	400 V	550 V	700 V
Max. mains-side overcurrent protection	125 A gL	160 A gL/gG	125A gL/gG	125A gL/gG	125A gL/gG
Short circuit withstand capability for max. mains-side overcurrent protection	25 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms
Temporary overvoltage test value U_T (5 s)	440 VAC	370 VAC	75 VAC	135 VAC	175 VAC
Response time (rate of voltage rise 5 kV/ µs)	< 100 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns
Follow current extinguishing capability [I_fi]	3 kA rms	-	-	-	-
Lightning impulse current (10/350µs) [I_{imp}]	35 kA	12.5 kA	-	-	-
Nominal discharge current (8/20µs) I_n	35 kA	25 kA	15 kA	20 kA	20 kA
Max discharge current [I_{max}]	35 kA	50 kA	30 kA	40 kA	40 kA
Standards information	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643
SPD according to EN 61643-11	Type 1	Type 1 & 2	Type 2	Type 2	Type 2
SPD according to IEC 61643-1	Class I	Class I & II	Class II	Class II	Class II
Operating temperature range	-40°C to +85°C	40°C to +70°C	-40°C to + 70°C	-40°C to +70°C	-40°C to +70°C
Operating state/Fault indication	-	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)
Cross sectional area (min.)	45 mm²	4 mm²	4 mm²	4 mm²	4 mm²
Cross sectional area (max.)	90 mm²	25 mm²	25 mm²	25 mm²	25 mm²
Mounting	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715
Enclosure material	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2
Location category	Indoor	Indoor	Indoor	Indoor	Indoor
Rated frequency	50 / 60 Hz	50 / 60 Hz	50/60 Hz	50 / 60 Hz	50 / 60 Hz
Degree of protection	IP40	IP40	IP40	IP40	IP40
Product warranty	2 Years	2 Years	2 years	2 years	2 years
Auxiliary switch	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM



SPCT2-280-3



General arrangement

T2

SPCT2-280-3	SPCT2-335-3	SPCT2-385-3	SPCT2-460-3	SPCT2-580-3
280 V/3	335 V/3	385 V/3	460 V/3	580 V/3
167595	167600	167605	167610	167615
SPCT2-280	SPCT2-335	SPCT2-385	SPCT2-460	SPCT2-580
TN-C	TN-C	TN-C	TN-C	TN-C
280 VAC	335 VAC	385 VAC	460 VAC	580 VAC
< 1.4 kV	< 1.6 kV	< 1.8 kV	< 2.2 kV	< 2.6 kV
1000 V	1200 V	1350 V	1700 V	2000 V
125A gL/gG	125A gL/gG	125A gL/gG	125A gL/gG	125A gL/gG
50 kA rms	50 kA rms	50 kA rms	50kA rms	50kA rms
350 VAC	415 VAC	415 VAC	580 VAC	580 VAC
< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25ns
-	-	-	-	-
-	-	-	-	-
20 kA	20 kA	20 kA	20 kA	20 kA
40 kA	40 kA	40 kA	40 kA	40 kA
IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643
Type 2	Type 2	Type 2	Type 2	Type 2
Class II	Class II	Class II	Class II	Class II
-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)
4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2
25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2
Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715
Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2
Indoor	Indoor	Indoor	Indoor	Indoor
50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 /60 Hz
IP40	IP40	IP40	IP40	IP40
2 years	2 years	2 years	2 years	2 years
ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM

TT protection systems

Description

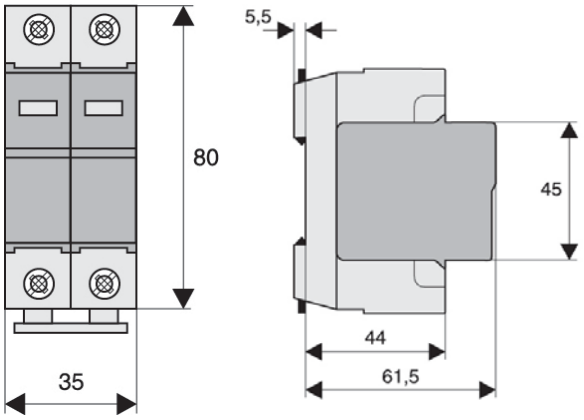
Bussmann is able to offer a selection of IEC certified thermoplastic SPDs for the TT earthing system. The TT system is often used in the telecommunication industry where interference-free earthing is required. One of the main advantages of the TT earthing system is that it is clear of both high and low frequency noises that come through the neutral wire of connected electrical equipment.

The modular designs feature integrated fault indication which turns from green to red, visually alerting the operator to whether or not the device has reached the end of its life and needs to be replaced with a new module. Manufactured from thermoplastic, the SPDs are IEC certified for use in environments with an operational temperature range from –40°C to +70°C

Ordering information	**T1 & T2**						
Part numbers	**SPBT12-280-2**	**SPCT2-075-2**	**SPCT2-135-2**	**SPCT2-175-2**	**SPCT2-280-2**	**SPCT2-335-2**	**SPCT2-385-2**	**SPCT2-460-2**
System voltage	280 V / 2	75 V	135 V	175 V	280 V	335 V	385 V	460 V
Article numbers	158309	167579	167584	167589	167594	167599	167604	167609
Replacement modules	SPBT12-280	SPCT2-075	SPCT2-135	SPCT2-175	SPCT2-280	SPCT2-335	SPCT2-385	SPCT2-460
Specifications								
Line system type	TT	TT	TT	TT	TT	TT	TT	TT
Max.continuous operating AC voltage [U_C]	280 VAC	75 VAC	135 VAC	175 VAC	280 VAC	335 VAC	385 VAC	460 VAC
Voltage protection level [U_p]	< 1.5 kV	< 550 V	< 800 V	< 1.0 kV	< 1.4 kV	< 1.6 kV	< 1.8 kV	< 2.2 kV
Voltage protection level at 5kA [U_p]	950 V	400 V	550 V	700 V	1000 V	1200 V	1350 V	1700 V
Max. mains-side overcurrent protection	160 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Short circuit withstand capability for max. mains-side overcurrent protection	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms
Temporary overvoltage (TOV) U_T	370 VAC	75 VAC	135 VAC	175 VAC	350 VAC	415 VAC	415 VAC	580 VAC
Response time [tA]	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns
Lightning impulse current (10/350µs) [I_{imp}]	12.5 kA	-	-	-	-	-	-	-
Nominal discharge current (8/20µs) I_n	25 kA	15 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
Max discharge current [I_{max}]	50 kA	30 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA
Standards information	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643
SPD according to EN 61643-11	Type 1 & 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2
SPD according to IEC 61643-11	Class I & II	Class II	Class II	Class II	Class II	Class II	Class II	Class II
Operating temperature range	-40°C to +70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C
Operating state/Fault indication	green (good) / red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)
Cross sectional area (min.)	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2
Cross sectional area (max.)	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2
Mounting	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715
Enclosure material	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2
Location category	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor
Rated frequency	50 / 60 Hz	50/60Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Degree of protection	IP40	IP40	IP40	IP40	IP40	IP40	IP40	IP40
Product warranty	2 Years	2 years	2 years	2 years	2 years	2 years	2 years	2 years
Auxiliary switch	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM



SPCT2-280-2



General arrangement

T2

SPCT2-580-2	SPCT2-075-4	SPCT2-135-4	SPCT2-175-4	SPCT2-280-4	SPCT2-335-4	SPCT2-385-4	SPCT2-460-4	SPCT2-580-4
580 V	75 V	135 V	175 V	280 V	335 V	385 V	460 V	580 V / 4
167614	167581	167586	167591	167596	167601	167606	167611	167616
SPCT2-580	SPCT2-075	SPCT2-135	SPCT2-175	SPCT2-280	SPCT2-335	SPCT2-385	SPCT2-460	SPCT2-580
TT	TT	TT	TT	TT	TT	TT	TT	TT
580 VAC	75 VAC	135 VAC	175 VAC	280 VAC	335 VAC	385 VAC	460 VAC	580 VAC
< 2.6 kV	< 550 V	< 800 V	< 1.0 kV	< 1.4 kV	< 1.6 kV	< 1.8 kV	< 2.2 kV	< 2.6 kV
2000 V	400 V	550 V	700 V	1000 V	1200 V	1350 V	1700 V	2000 V
125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms	50 kA rms
580 VAC	75 VAC	135 VAC	175 VAC	350 VAC	415 VAC	415 VAC	580 VAC	580 VAC
< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns
-	-	-	-	-	-	-	-	-
20 kA	15 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
40 kA	30 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA
IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643	IEC 61643
Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2
Class II	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Class II
-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C	-40°C to + 70°C
green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)	green (good)/ red (replace)
4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2	4 mm^2
25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2	25 mm^2
Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715
Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2	Thermoplastic UL 94 V2
Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor
50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
IP40	IP40	IP40	IP40	IP40	IP40	IP40	IP40	IP40
2 years	2 years	2 years	2 years	2 years	2 years	2 years	2 years	2 years
ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM	ASAUXSC-SPM

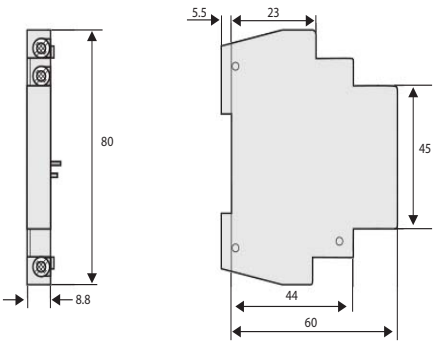
Remote signalling contact

Description

Bussmann is also able to offer an additional plug in Auxiliary Switch which is designed to be easily installed within each configuration of SPDs on offer. When SPDs are located in different areas of a facility or in hard to reach places, the Auxiliary Switch transmits a signal into the operators computer system to clearly indicate that the specific device needs to be changed when visual identification is not practical. The signalling occurs instantaneously when the device has functioned, providing an up to date status of the system to ensure that the equipment is secure against future strikes.



ASAUXSC-SPM



General arrangement

Ordering information

Part numbers	**ASAUXSC-SPM**
Article number	131785
Specifications	
Rated insulation voltage	250 VAC
Rated frequency	50 / 60 Hz
Switching contact	1 CO
Minimum voltage per contact	24 VAC
Rated operational current AC12	2 A / 250 VAC
Maximum back up fuse	2A gL
Overvoltage category	IV
Pollution degree	2
Frame size	45 mm
Device height	80 mm
Device width	8.8 mm
Weight	41 g
Mounting	DIN rail mounting with screw fixing
Degree of protection	IP 40
Finger and hand touch safe acc. to	BGV A3, ÖVE-EN 6
Upper and lower terminals	Lift terminals
Terminal capacity	2 x 2.5 mm^2
Tightening torque of terminal screws	0.8 - 1 Nm

Lead through terminals

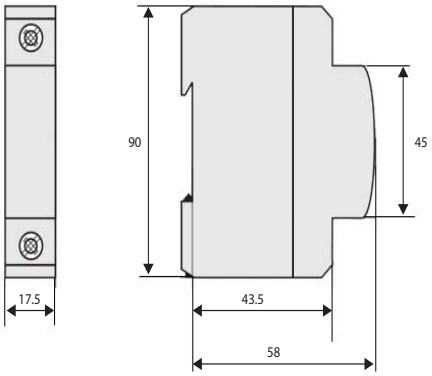
Description

There are two different Lead Through Terminals available for the range of SPDs (excluding 690 VAC). They permit the orderly wiring of the SPDs and serve to act as a lead through for circuits which require vertical connections from the upper to the lower SPD connection level.

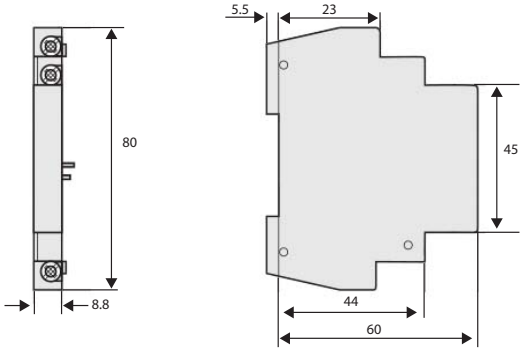
The ASLTT-63 is suitable for use alongside all T2 devices and the SPB-D-125 is suitable alongside all T1 devices.

Ordering information

Part numbers	**SPB-D-125**	**ASLTT-63**
Article number	248145	131784
Specifications		
Rated voltage U_c	500 V AC/DC	500 V AC/DC
Rated current I_N	125 A / 30°C	63A
Peak impulse current (10/350) µs	100 kA	-
Overvoltage category	III	-
Frame size	45 mm	45 mm
Device height	90 mm	90 mm
Device width	17.5 mm	17.5 mm
Mounting	Quick fastening on DIN rail IEC / EN 60715	Quick fastening on DIN rail IEC / EN 60715
Degree of protection	IP 40	IP 40
Upper and lower terminals	Lift and open-mouthed terminals	Lift and open-mouthed terminals
Terminal capacity	1 - 25 mm² (flexible) 1 - 35 mm² (rigid)	1 - 25 mm²
Tightening torque of terminals screws	4 - 4.5 Nm	2.4 - 3 Nm



SPB-D-125



ASLTT-63

690 VAC wind and industrial applications

Description

Bussmann range of 690 VAC surge protection devices are designed specifically for higher voltage industrial applications and installation into wind power applications.

Specifically designed for the higher system voltage of wind and industrial applications the 690 VAC SPDs have a high surge discharge capability due to heavy-duty zinc oxide varistor and spark-gap technology; and includes both Type 1 and Type 2 devices for protection against lightning strikes and voltage surges.

As well as meeting the requirements of the EN 61643-11 standard for low voltage Surge Protection Devices, the 690 VAC SPDs are also vibration and shock resistant according to the EN60068-2 standard making them especially suitable for industrial and wind applications.



BSPS1690WER

Ordering information	T1	T2	
Part numbers without remote signaliing	**BSPS1690WE**	**BSPM1690WE**	**BSPM3690WE**
Part numbers with remote signalling	**BSPS1690WER**	**BSPM1690WER**	**BSPM3690WER**
System voltage/poles	690 V / 1	690 V / 1	690 V / 3
Replacement modules	-	BPM750WE	BPM750WE
Specifications			
Line system type	TNS, TNC, IT	TN, TT	TNC
Max.continuous operating AC voltage [U_c]	760 VAC	600 VAC	600 VAC
Voltage protection level [U_p]	≤ 4 kV	≤ 3 kV	≤ 3 kV
Voltage protection level at 5kA [U_p]	-	≤ 2.5 kV	≤ 2.5 kV
Max. mains-side overcurrent protection	125 A gL/gG (L-L)	100 A gL/gG	100 A gL/gG
Temporary overvoltage test value (TOV) [U_T]	1000 V / 5 sec	900 V / 5 sec	900 V / 5 sec
Follow current extinguishing capability [I_fi]	25 kA rms	25 kA rms	25 kA rms
Lightning impulse current (10/350µs) [I_{imp}]	25 kA	-	-
Nominal discharge current (8/20µs) I_n	25 kA	15 kA	15 kA
Max discharge current [I_{max}]		25 kA	25 kA
Standards information	IEC 61643	IEC 61643	IEC 61643
SPD according to EN 61643-11	Type 1	Type 2	Type 2
SPD according to IEC 61643-1	Class I	Class II	Class II
Number of poles	1	1	3
Operating temperature range	-40°C to +80°C (parallel) -40°C to +60°C (series)	-40°C to +80°C	-40°C to +80°C
Operating state/Fault indication	green (good) / red (replace)	green (good) / red (replace)	green (good) / red (replace)
Cross sectional area (min.)	10 mm² solid / flexible	1.5 mm² solid / flexible	1.5 mm² solid / flexible
Cross sectional area (max.)	50 mm² stranded / 35 mm² flexible	35 mm² stranded 25 mm² flexible	35 mm² stranded 25 mm² flexible
Mounting	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715	Quick fastening on DIN rail according to IEC/EN 60715
Enclosure material	Thermoplastic UL 94 V0	Thermoplastic UL 94 V0	Thermoplastic UL 94 V0
Location category	Indoor	Indoor	Indoor
Degree of protection	IP 20	IP 20	IP 20
Product warranty	2 Years	2 Years	2 Years

Frequently asked questions (FAQs)

What is a surge protector?

A surge protector is a device that limits transient overvoltage's to a safe level, thus protecting equipment it is connected to from damage.

How does an SPD work?

A surge protector works by momentarily "switching" from an open circuit mode into a low impedance mode and shunting the surge energy to the ground and in doing so, it limits the overvoltage to a safe level.

When the surge event is over, the protector returns to its open circuit mode, ready for the next event or if it has reached the end of life then it remains open circuit safely until it is replaced. The visual indicator or remote signalling unit will clearly alert the operator when the SPD has reached the end of life

What is shunting?

Shunting is the term used to describe the process by which an SPD redirects voltage transient energy to the ground through a low impedance path.

How to size an SPD

An SPD size is determined by a variety of factors including geography, electrical environment, cost of downtime and the importance of equipment in operation, amongst others.

Call Bussmann to discuss your requirements on +44 (0)1509 882699

What is an MOV?

A Metal Oxide Varistor is a variable resistor typically made of a large block of zinc oxide grains. They act like semiconductors, an insulator below the conduction voltage and a low value resistor above it.

In conduction mode, the MOV diverts and dissipates the transient to earth. MOVs generally connect from the line conductors to earth. The thickness of the MOV determines the clamping voltage and diameter determines the current capacity.

How long does an SPD last?

How long an MOV based SPD lasts usually depends upon how often the MOV experiences an overvoltage event and for how long. Every time an MOV switches, its life is degraded. The greater the transient hit, the greater the degradation of the MOV.

Eaton is dedicated to ensuring that reliable, efficient and safe power is available when it's needed most. With unparalleled knowledge of electrical power management across industries, experts at Eaton deliver customized, integrated solutions to solve our customers' most critical challenges.

Our focus is on delivering the right solution for the application. But, decision makers demand more than just innovative products. They turn to Eaton for an unwavering commitment to personal support that makes customer success a top priority. For more information, visit www.eaton.com/electrical.

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Printed in the United Kingdom
Publication No. BR024003EN
February 2014

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Powering Business Worldwide

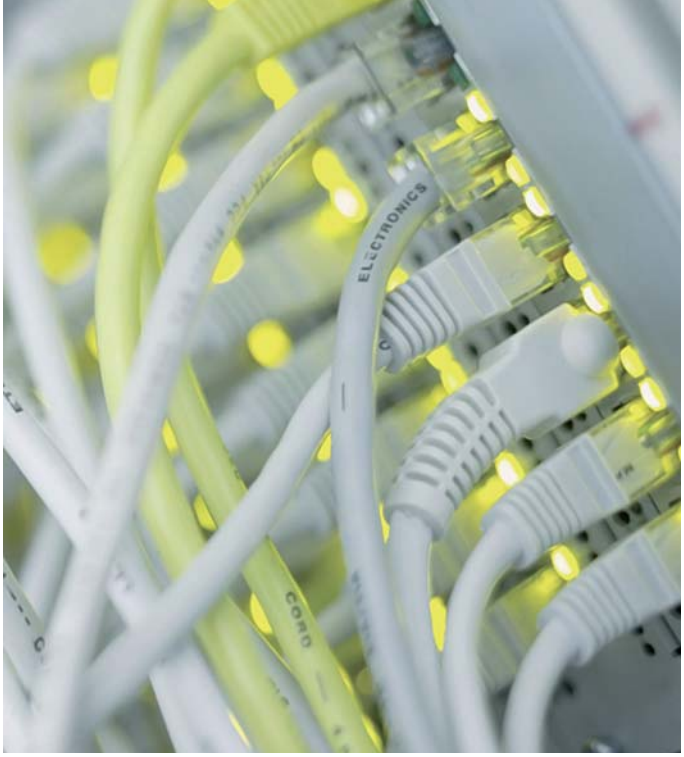
xComfort Compact Distribution Boxes -

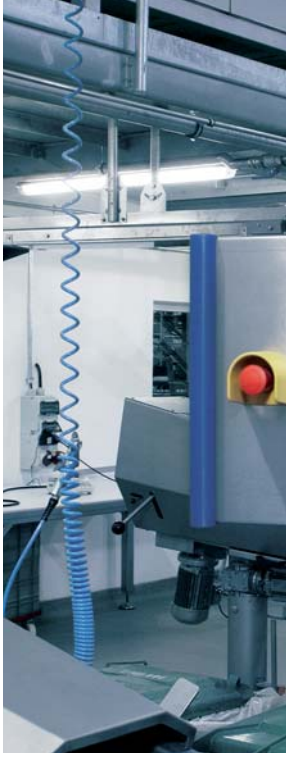
Home game for a safe electrical installation system



Powering Business Worldwide







Powering electrical systems worldwide

Buildings

- Residential
- Healthcare
- Education
- Commercial offices
- Retail
- Public sector
- Airports

- Electrical distribution solutions for safe and efficient power delivery
- Power quality systems for uptime and reliability
- Power metering and monitoring to add intelligence and save costs
- Industrial control products for HVAC applications

Information Technology

- Data centers
- Telecommunication
- Networks
- Computer rooms

- World's most efficient line of UPSs to reduce footprint and save energy
- Reliable power systems with inherent redundancy to improve availability
- Power metering and monitoring to diagnose problems and lower costs
- Local service and support for quick response





Public and private sectors

Buildings, Information Technology, Industrial & Machinery, Energy & Utilities
We provide reliable, efficient and safe power management.

Industrial & Machinery

- Manufacturing
- Agriculture
- Construction
- Mining and metals
- Processing:
  - Petrochemicals
  - Pharmaceuticals
  - Pulp and paper
- Material handling

- Electrical distribution equipment to deliver power throughout the enterprise
- Control & automation and power quality equipment for process control
- Power metering and monitoring to manage energy costs and uptime
- Power and motion control products to optimize productivity, reliability, safety and operator comfort

Energy & Utilities

- Renewable energy:
  - Solar
  - Wind
  - Hydropower
- Traditional energy:
  - Oil
  - Gas
- Smart grid
- Water and waste water

- Electrical balance of system and turnkey services for residential, utility and commercial solar installations
- Power distribution equipment, control components and system installations services
- Network power grid technology for intelligent data, lower costs and crew/public safety



Yesterday, the future was yet to come. Today, it's already here.

The future has already begun.

For us, innovation is tradition: in 1957 Eaton's Moeller segment developed the first fault current protection switch, and with this, a new era of electrical safety engineering began. And now, Eaton is still ahead of its time: the new digital switchgear range in the Eaton xEffect series communicates potential problems in advance and sets new standards in precision, security and convenient service.

Maximal safety with optimal ease

Modern Residual Current Circuit Breakers (RCCB) protect people and technical equipment conveniently and reliably against faulty currents. The digital RCCB from the xEffect series do more than just switch off. They monitor electrical installations and give advance warning of critical current flows. So plant / factory shutdowns – and the resulting costs – can be avoided.

Precise Release – Highest Reliability

Short-time fault currents or other briefly occurring malfunctions do not cause the digital protection switch to shut down, thanks to the short time delay and optimized tripping threshold. So the electrical installation is optimally protected against power failures.

Easy and adaptable installation for fast modernization

The big Eaton Plus: It is very easy to upgrade a switchboard! Simply replace the RCCB – and you have all advantages of digitalization.

xComfort Compact Distribution Boxes

Micro Compact distribution boxes



The smallest distribution board of this product family fascinates the user especially with its extremely fast way of attaching the device cover which automatically snaps into position thanks to an innovative locking mechanism. So screwing down or unscrewing the device cover is no longer necessary at all. For up to 2 or 4 module units

Benefit:

- Time-saving thanks to the extremely fast way of attaching the device cover using an innovative locking mechanism.

Features:

- Degree of protection IP30 (IK05)
- Surface-mounted
- Protection class II, totally insulated
- 1-row, 2 and 4 module units
- No tools required for enclosure assembly
- Support rail made of plastic
- Enclosure made of high-quality ABS plastic
- No window
- Glow wire test 650°C
- Pre-punched metric areas for cable entryall around
- Body RAL 9003
- Possibility of direct fixing on the wall, no need to drill holes into the enclosure

Mini Compact distribution boxes



It is the diversity of this member of the family that makes it so outstanding. An overall sufficient number of articles can be ordered to meet all the requirements of real life situations, from 2 to 6 module units, with or without a window, with or without connection terminals, and with a top-hung window as an option for retrofit-ting.

Benefit:

- Due to its diversity, it is the ideal solution for any application – available with or without connection terminals and with a top-hung window suitable for retrofitting.

Features:

- Degree of protection IP30 or IP20 (IK05)
- Surface-mounted
- Protection class II, totally insulated
- 1-row, 2, 3, 4, 5 and 6 TE
- Support rail made of plastic
- Enclosure made of high-quality ABS plastic
- Either with or without a window
- Window lead-sealable
- Glow wire test 650°C
- Pre-punched metric areas for cable entry all around
- Body RAL 9003
- Possibility of direct fixing on the wall, no need to drill holes into the enclosure

ECO Compact distribution boxes



Both as a surface-mounted and flush-mounted compact distribution board, this product series made of plastic attracts the customers' attention above all through its slim design and its interesting price/performance ratio. Truly classic products are its 12-module-unit versions which are usually used in hotel projects.

Benefit:

- Attractive price-performance ratio
- Slim design

Features:

- Degree of protection IP40
- Surface mounted / flush: 1-row, 5, 8, 12 and 18 module units
- Surface mounted / flush: 2-rows, 24 and 36 module units
- Surface mounted / flush: 3-rows, 36 module units
- Surface-mounted: 3-rows, 54 module units
- Protection class II
- Glow wire test 850°C

xComfort Compact Distribution Boxes

KLV Compact distribution boxes



The second generation of the successful KLV compact distribution board series provides even more flexibility. The product family has now been complemented by new flush-mounted and hollow-wall distribution boards as well as by expandable KSK combined plug-type terminals included as standard. Additional cable holders allow for neat wiring. The stable device cover offers optimal protection for the operator, which is especially important for the large 4-row version. The highlight is the new 3D plaster compensation which not only provides for corrective compensation in X and Y direction, but also for depth compensation for up to 18mm over the entire door frame. So any differences in the wall surface can be compensated in a time-saving way and without any additional parts thanks to this new standard feature. Another characteristic aspect is the version with a unique, super-flat door frame design which makes the compact installation distribution board almost invisible. The new offer is completed by integrated marking slots in the wall pan, a bubble level for fast alignment, 90° quick-acting closures at the device cover and many new accessories offered as options to add even more value. Thanks to its certification as a compact installation distribution board according to IEC/EN 60670-24 as well as to EN 62208, the KLV compact distribution board is the first choice for both small and large projects.

Projects - form of delivery 4PR

The second generation of the KLV compact distribution board series is also offered as a new project delivery form 4PR, which includes both the one-level and the two-level package.

While the one-level package represents the standard configuration including the wall pan, the two-level package optionally includes the doors/frames in the required RAL colour or with ventilation slots. So large projects, for example, can be executed using standard finishes or individually selected colour options.



Benefit:

- Clearly structured wiring thanks to additional cable holders
- Optimal protection for the operator thanks to the stable device cover
- Easy and time-saving to mount thanks to
  - 3D plaster compensation
  - Integrated marking slots
  - Bubble level for fast alignment, and quick-acting closures at the device cover

Features:

- Degree of protection IP30
- 1 to 4 rows, 12 module units and 2 spare MUs in each row
- Multimedia variants
- Hollow-wall and flush-mounted versions
- Flat and super flat door design
- Integrated spirit level
- 3D plaster compensation
- Terminals for neutral and protective conductors
- N-FI expansion terminal (FI = RCD = Residual Current Device)
- Pre-punched cable entries on all sides
- Protection class II, fully insulated
- Door and cover frame, sheet steel RAL 9016
- Low halogen level

xComfort Compact Distribution Boxes

KLV Multimedia DBs



The second generation of the KLV compact distribution board series now has a new family member – the multi-media distribution board. Equipped with the same enclosure features as the energy KLV distribution board, the multi-media distribution board meets the requirements of the new IEC/EN 60670-24 directive for multi-media applications in GP standard. Its high-quality basic equipment includes a carrier rail for patch modules, a micro-perforated mounting plate, device holders and a double power-socket, and it is completed by connection brackets for interlinking the wall pans in pairs.

KLV multi-media distribution boards are available in a normal-flat (F) as well as in a unique super-flat (SF) version. The doors come with ventilation systems for improved heat exchange. Like the energy distribution board, the multi-media KLV compact distribution board also includes the 3D plaster compensation in its scope of delivery.

Benefit:

- Same equipment as the KLV compact distribution board
- High-quality basic equipment with a carrier rail for patch modules, a micro-perforated mounting plate, device holders and a double power-socket
- Improved heat exchange thanks to doors equipped with ventilation systems

Features:

- Degree of protection IP30
- 3 to 4 rows
- Hollow-wall and flush-mounted versions
- Flat and super flat door design
- Integrated spirit level
- 3D plaster compensation
- Top row carrier rail
- Micro-perforated mounting plate
- Cable holder
- Device holder
- 2-fold electricity socket
- Pre-punched cable entries, on all sides
- Protection classII, fully insulated
- Door and cover frame, sheet steel RAL 9016
- Low halogen level
- IEC/EN 60670-24

xComfort Compact Distribution Boxes

IKA Surface-mounted compact distribution boxes, IP65



The easy-to-mount PE/N terminal rails, fixing possibilities directly at the wall without having to drill holes into the enclosure, and the spacious distance of 150 mm between the terminal rails allow you to install the IKA distribution board in an extremely convenient and fast way. Changing the door hinges can be done within seconds, without having to remove the cover or any other parts of the enclosure. Height-adjustable, stable device carrier rails and pre-punched holes for cable entries with a centration point are just a few of the many highly appreciated features, and the possibility of lead-sealing the enclosure cover and door comes as a standard feature as well, all without the need for any additional parts.

Highlights are the large wiring area under the carrier rail of 46 mm, the integrated module compensation in the cover used to compensate the different widths of the devices, and the possibility of installing additional functional units in the bottom panel of the enclosure.

Safe – thanks to the high degree of protection IP65, the foamed all-round sealing and the robust, halogen-free construction design of the door and body, safe operation with the IKA industrial distribution board made of polycarbonate can be guaranteed even in harsh industrial environments. More flexibility – thanks to 9 sizes with 4, 6 and 8 module units as well as with 12, 24, 36 or even with 18, 36 and 54 module units, you will find the optimal distribution board solution for any application and situation.

As the IKA surface-mounted compact distribution board meets the requirements of the EN 62208 and IEC/EN 60670-24 standards, it is the first choice for large projects according to IEC/EN 61439 as well as for small projects.

Benefit:

- Quick and easy to install thanks to the easy-to-mount PE/N terminal rail, fixing possibilities directly at the wall without having to drill holes into the enclosure and a spacious distance between the rails
- Reversing the door hinges can be done within seconds
- Pre-punched holes for cable insertions with a centration point
- Lead-sealing of enclosure cover and door does not require any additional parts

Features:

- Degree of protection IP65
- Protection classII, fully insulated
- Industrial version (PC) or PRO/Standard version (ABS)
- 1 to 3 rows, 12 and 18 module units
- Mini module with 4, 6 and 8 MU
- Glow wire test 850°C or 650°C
- CNC foamed sealing
- Fully removable DIN support rack
- Up to 46 mm wiring area under the DIN rail
- Module tolerance compensation in the cover
- Depth-adjustable DIN rail
- Neutral and protective conductor terminals
- Intuitive locking and unlocking of the door
- Body RAL 7035, door transparent
- Halogen-free

xComfort Compact Distribution Boxes

BF Flat distribution boxes, IP30



The BF series of Eaton's flat distribution boards makes a great visual impact thanks to its straight-forward and flat design. The installation distribution board is available in a surface-mounted as well as in a flush-mounted/hollow-wall version. There is a wide range of colours, device rows, module units and cable insertion options to choose from. The rack with the carrier rails can be completely removed and offers a convenient distance of 150 mm between the rows.

PE/N terminal rows as well as electric-shock protected installation sections with contact points at the metal front plates due to a special type of closure are included. The BF distribution board is made of solid, powder-coated steel sheet and is classified as protection class 1. As this flat distribution board meets the requirements of the 62208 as well as the IEC/EN 61439-1 and -3 standards, it is the right choice for a sub-distribution board up to 160A in a wide range of projects.

Benefit:

- Easy mounting of the components thanks to a convenient distance between the rows and the possibility to remove the carrier rails
- Increased safety thanks to electric-shock protected installation sections

Features:

- Degree of protection IP30
- Surface-mounted- or Flush-mounted Flat Distribution Boards
- 2- to 6-rows 24MU/row (Versions A, E, C)
- 4- to 6-rows 33MU/row (Versions A, C, P)
- Protection class I
- Sheet steel enclosure polyesterpowder coated (white RAL 9016; Version C also in grey RAL 7035)
- Prepared for Eaton MCCB Incoms
- Sheet steel front plates with contacting to the enclosure
- Removable DIN-rail frame
- Generous wiring space
- 150 mm DIN-rail distance (ideal for switchgear busbar system)
- Complete enclosure (including N/PE-terminals)
- Depth: 127 mm
- Universal mounting plate

EWK section distribution boxes, IP43



The next generation of the well-proven EWK surface-mounted field distribution board featuring a depth of 160 mm is outstanding thanks to its improved installation sections. Large-area shock-protection covers made of plastic which can be closed without the need for any tools, torsion-resistant carrier rails of 35x15 mm and the new combined plug-type terminals complete the list of its features. Traditional virtues such as the 2K membrane flanges at the top and bottom, 110° door opening angle, lead-sealable rotary bolt and 3-point rod lock for enclosures with double-wing doors will be continued with this latest generation as well. Thanks to its classification as protection class 2 and its certification according to standard 61439-3 up to 125A, the EWK surface-mounted field distribution board is above all used in public buildings.

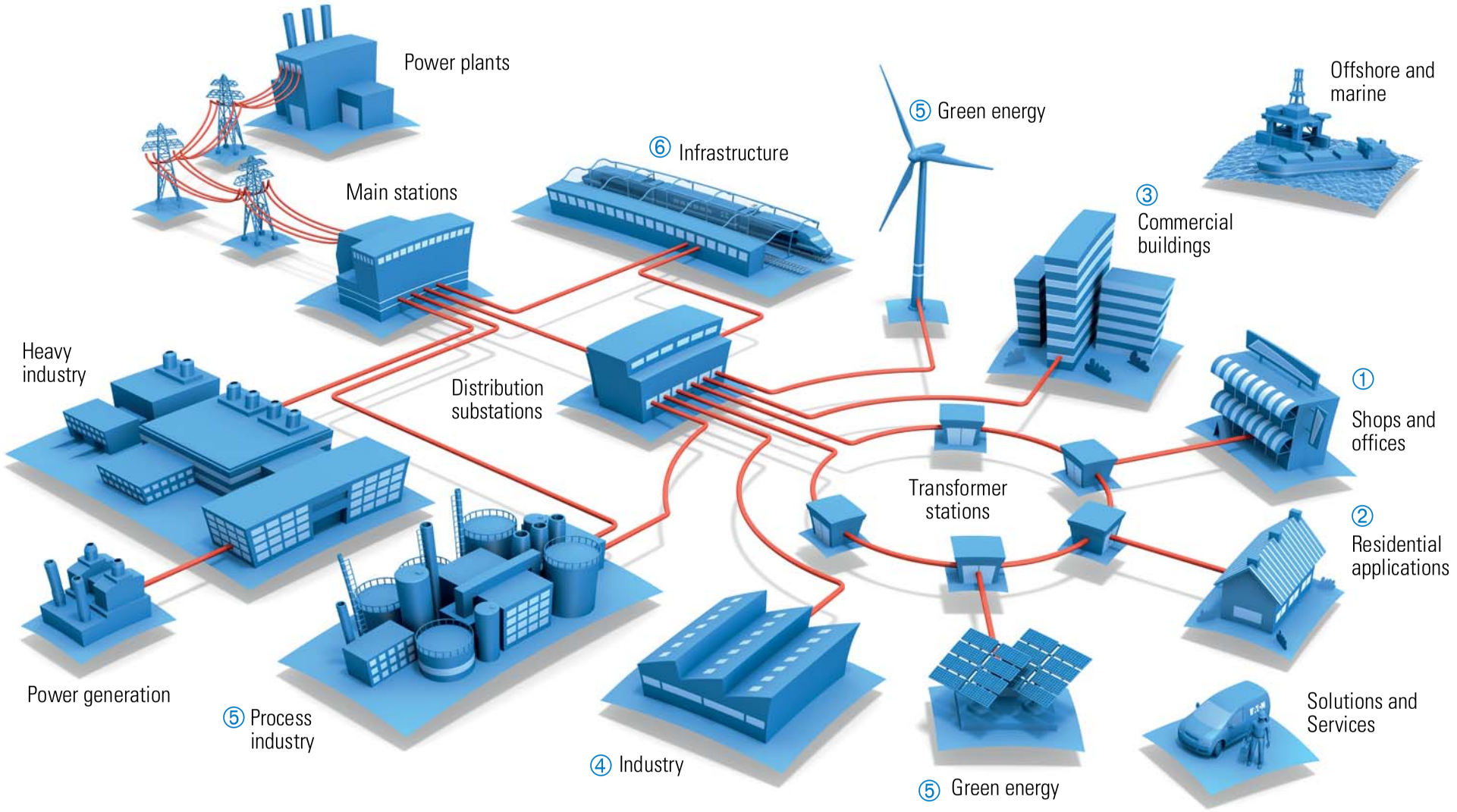
Benefit:

- Improved safety thanks to the large-area electric-shock protection cover
- Compactness thanks to torsion-resistant carrier rails
- Easy to mount thanks to the large wiring area behind the DIN rail

Features:

- Degree of protection IP43, IK09
- Protection class II, fully insulated
- 160 mm enclosure depth
- Complete with door and installation field for add-on devices
- Combined plug-type terminals for neutral and protective conductor
- Device cover with quick-acting closure
- 36 to 288 module units, 3 to 6 rows
- 16 different enclosure sizes
- Design with either one or two doors
- Larger enclosures with 3-point rod lock
- DIN carrier structure is fully withdrawable
- Stable and torsion-resistant DIN rail
- Possibility for direct fixing on the wall
- Quick and easy inversion of the door hinges
- 2K membrane flanges
- Body RAL 9016, door of non-transparent sheet steel

Anwendungsbereiche



Shops and offices ①



ECO



KLV



Multimedia



IKA Prof.



BF



EWK

Residential applications ②



Micro



Mini



Eco



KLV



Multimedia



IKA Prof.



BF

Commercial buildings, Hotels and Infrastructure ③+⑥



ECO



KLV



IKA Prof.



BF



EWK

Industry & Processindustry, green energy ④+⑤



IKA Industrial aus Polycarbonat

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Lookup

You can search by keywords, product names, article numbers, technical data: The search understands everything and takes you straight to the product you're looking for.

Graphical navigation

Graphical representation of the fields of application and product groups.

Selection aids

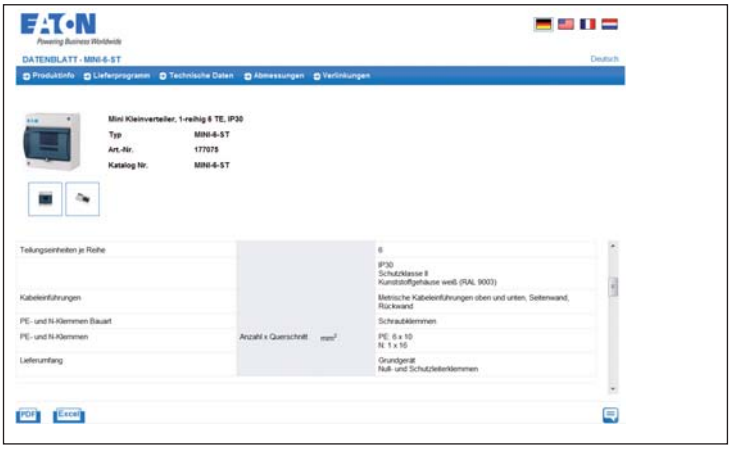
Tailored to the typical expert's approach, this search aid helps you quickly find the product you need.

Data sheets

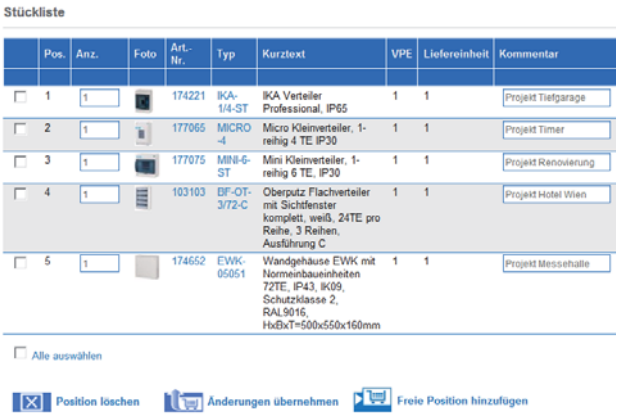
For every article the catalog can generate a technical data sheet, which you can convert to a PDF file for printing or saving with a single click.

Parts lists

From your search results you can create a parts list that you can then send to your Eaton sales partner as a query.



HTML data sheet; can be saved as PDF file.



Parts list, e.g. for queries to Eaton Sales.

You can find comprehensive up-to-date information about Eaton's automation products and switchgear in our Online Catalog.



Protective Devices

Protective Devices


Residual Current Devices (RCDs)


Residual Current Devices Digital (RCDs)


PBR Main Protective Device


Leakage Current Monitor


Combined RCD/ MCB Devices


Miniature Circuit Breakers (MCBs)


Manual Motor Starter and Power Limiter


Power Circuit-Breaker

Accessories for Protective Devices


Auxiliary Switch


RCD-Tripping Module


Shunt Trip Release


Undervoltage Release


Automatic Switching Device


Surge Protection


Measuring Instruments


Other Accessories

Controlling & Switching


Switches


Installation Contactors

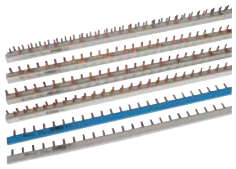

Relays


Signalling Devices


Transformers


Control-Relay Easy

Busbar System


Plug-in busbar and Busbar block

Benefit:

- The entire distribution board solution is technically inter-coordinated
- The ideal solution for any application, both in the private and industrial sector
- Expansions and adjustments at a later point in time are always possible
- Perfect image at the end-customer's thanks to a single-source solution

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Compact Distribution Boxes

VT78714



VT77114



VT25414



P06_KLV-36UPP-F



VT24814



P10_KLV-36UPM-F



wa_vt06213



VT91314



Micro & Mini Compact Distribution Boxes, IP30

VT78914



VT77714



VT77914



VT77114



MICRO-... and MINI-....

- Degree of protection IP20 or IP30
- Protection class II, totally insulated
- Either with or without a window
- 1-row, 3, 4, 5 and 6 MU
- High-quality ABS plastic
- Glow wire test 650°C
- Support rail made of plastic
- Possibility of direct fixing on the wall
- Pre-punched metric areas for cable entry all around
- Lead-sealable window
- Body RAL 9003, door transparent

Micro & Mini Compact Distribution Boxes

Type Code

MICRO	-	**4**
Micro	-	Module units
Compact distribution boxes		MU
		2
		4

MINI	-	**4**	-	**S**	**T**
MINI	-	Module units		Version	Version
Compact distribution boxes		MU		Indoor	Door
		2		S = Screw-type terminal	T = transparent
		3		„ _“ = without terminal	„ _“ = without door
		4			
		5			
		6			

System Overview Micro & Mini

Compact DB Version	**Protection class II (totally insulated)**	**Complies with European Standard EN 62208**	**IP30**	**RAL 9003**	**N/PE Terminals**	**Window**
Micro	■	■[1)]	■	■[2)]	-	-
Mini	■	■[1)]	■[3)]	■[2)]	■[4)]	■

[1)] Pre-requisite for building distribution boxes from empty enclosures according to IEC/EN 61439-3
[2)] Body and cover frame, window is transparent
[3)] Version without a window = IP20.
[4)] Only Mini-6-ST version

Legend Micro & Mini

Symbol	Explanation
	Totally insulated, according to EN 60670-24.
	Only for indoor applications.
	Resistance to abnormal heat and fire according IEC/EN 62208.

Micro Compact Distribution Boxes

IP30 (IK 05)



- Surface-mounted
- Protection class II, totally insulated
- 1-row, 2 and 4 module units
- No tools required for enclosure assembly
- Support rail made of plastic
- Enclosure made of high-quality ABS plastic
- No window
- Glow wire test 650°C
- Pre-punched metric areas for cable entry all around
- Body RAL 9003
- Possibility of direct fixing on the wall, no need to drill holes into the enclosure

	Rows / MU	Description	Window	Type designation	Article No.	Pack (pcs.)
	Micro					
VT79114 	1 / 2	No tools required for assembly thanks to easy click-assembly	no	MICRO-2	177081	1 / 20
VT78714 	1 / 4	No tools required for assembly thanks to easy click-assembly	no	MICRO-4	177065	1 / 12

Mini Compact Distribution Boxes

IP30 or IP20 (IK 05)



- Surface-mounted
- Protection class II, totally insulated
- 1-row, 2, 3, 4, 5 and 6 module units
- Support rail made of plastic
- Enclosure made of high-quality ABS plastic
- Either with or without a window
- Window lead-sealable
- Glow wire test 650°C
- Pre-punched metric areas for cable entry all around
- Body RAL 9003
- Possibility of direct fixing on the wall, no need to drill holes into the enclosure

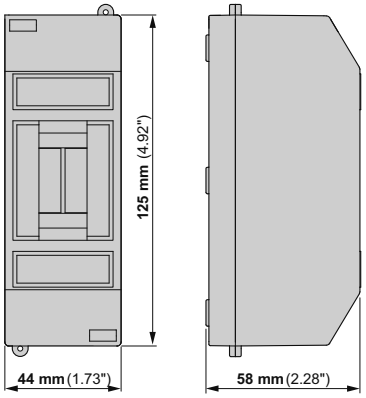
	Rows / MU	Description	Window	Type designation	Article No.	Pack (pcs.)
		Mini				
VT77714, VT78914 	1 / 2	without N/PE terminals	with	MINI-2-T	177071	1 / 20
			without	MINI-2	177066	1 / 20
VT77514, VT78514 	1 / 3	without N/PE terminals	with	MINI-3-T	177072	1 / 12
			without	MINI-3	177067	1 / 12
VT77714, VT78314 	1 / 4	without N/PE terminals	with	MINI-4-T	177073	1 / 12
			without	MINI-4	177068	1 / 12
VT77114, VT77914 	1 / 5	with N terminal 1x16mm²	with	MINI-5-ST	177074	1 / 9
		without N terminal	without	MINI-5	177069	1 / 9
VT76914, VT78114 	1 / 6	with N/PE terminals 6x10mm² + 1x16mm²	with	MINI-6-ST	177075	1 / 9
		without N/PE terminals	without	MINI-6	177070	1 / 9

Technical Data Micro & Mini

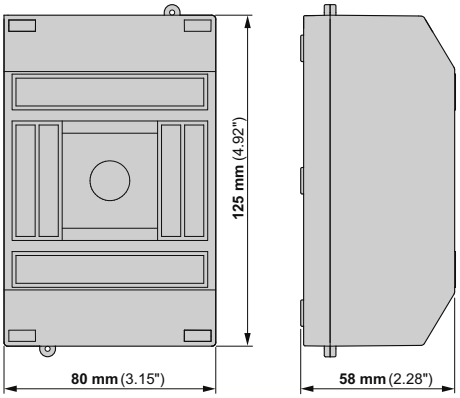
	Unit	
Electrical		
Version according to		IEC/EN 62208
Degree of protection		IP30 (IK05); Mini without window IP20; according to EN 60529
Protection class		II, totally insulated
Rated voltage	V	400 AC
Max. power loss admitted for all devices installed in the distribution box at a difference in temperature of 20°K:		
MICRO-2	W	10.0
MICRO-4	W	10.4
MINI-2	W	10.0
MINI-3	W	10.2
MINI-4	W	10.4
MINI-5	W	10.7
MINI-6	W	10.8
Mechanical		
Material:		
Enclosure		ABS
Window		SAN
Colour of the enclosure		white RAL 9003
Colour of the window		transparent
Distance between rows	mm	-
Support rail for devices		Plastic
UV resistant		No
Type of installation		
MICRO		Indoor
MINI		Indoor
Halogen-free, RoHs		Yes

Dimensions (mm)

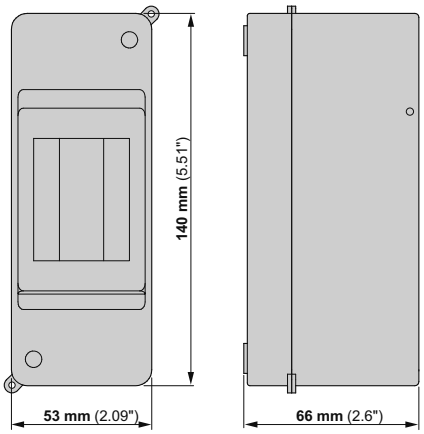
MICRO-2



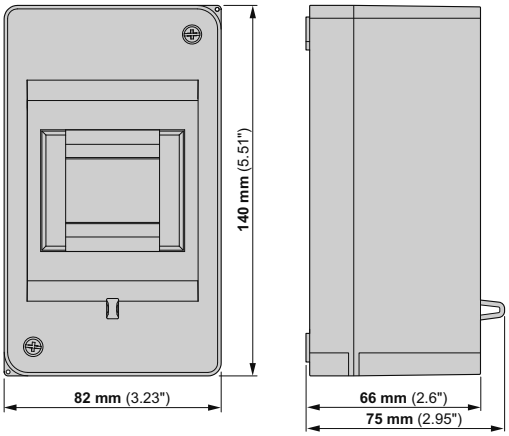
MICRO-4



MINI-2

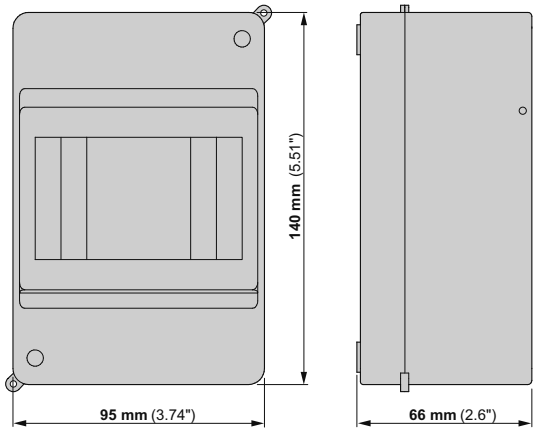


MINI-3

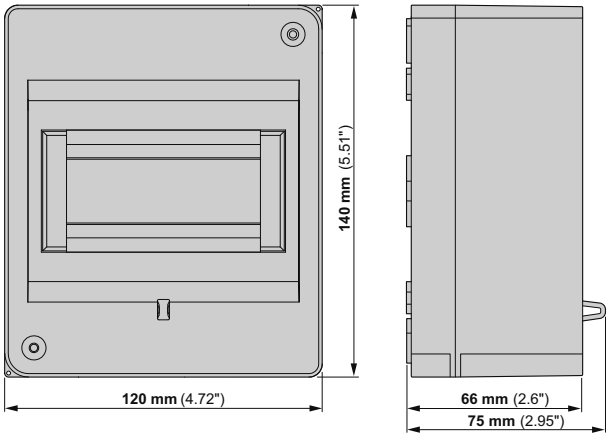


Dimensions (mm)

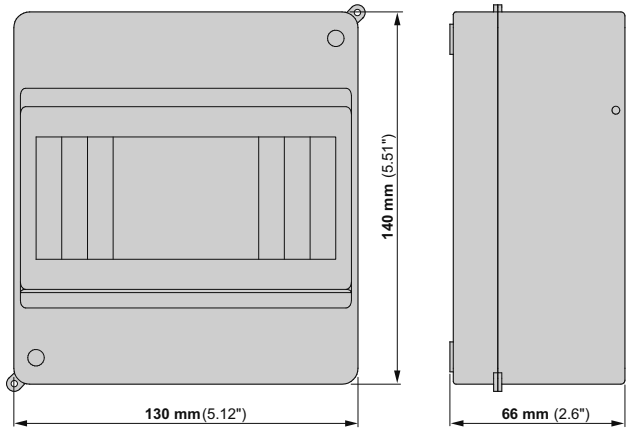
MINI-4



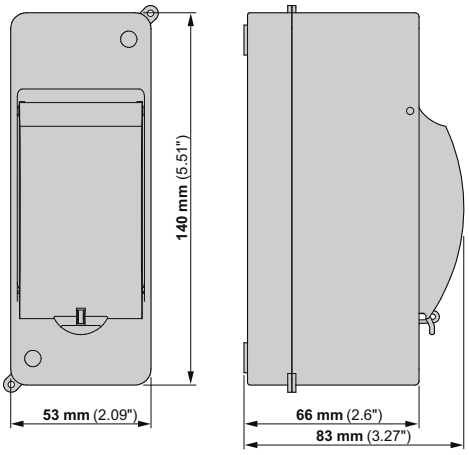
MINI-5



MINI-6

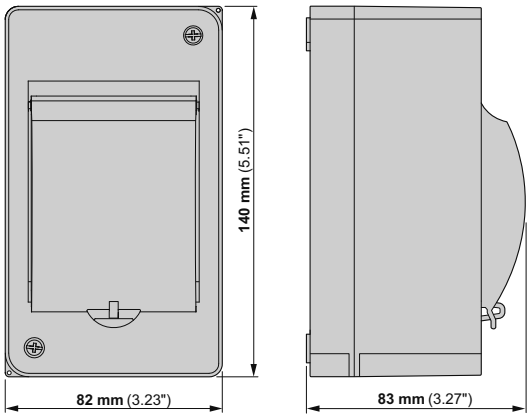


MINI-2-T

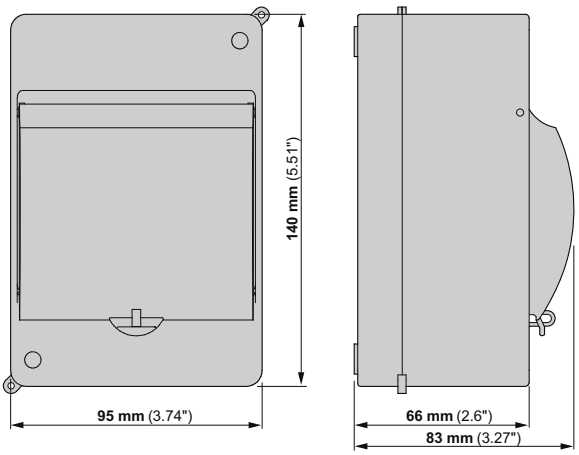


Dimensions (mm)

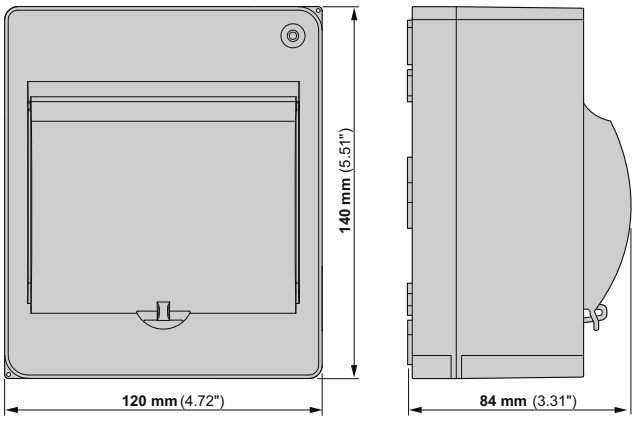
MINI-3-T



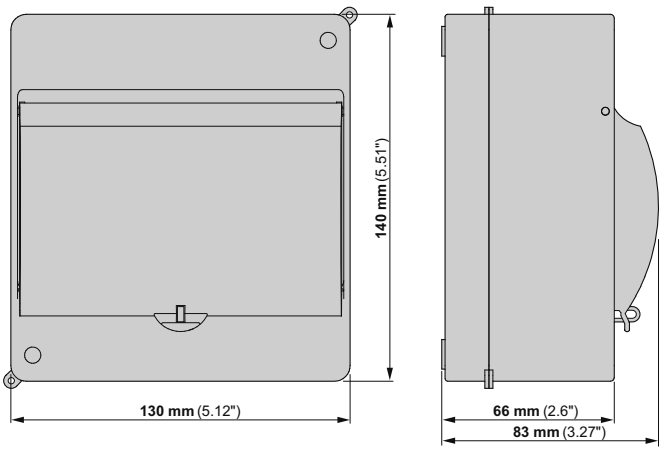
MINI-4-T



MINI-5-ST



MINI-6-ST



ECO Surface/Flush-Mounted Compact Distribution Boxes, IP40
BC-O-...(-TW)-ECO / BC-U-...(-TW)-ECO

wa_vt29613



wa_vt30113



wa_vt29713



wa_vt29913



BC-O-...(-TW)-ECO / BC-U-...(-TW)-ECO

- Surface mounted / flush: 1-row, 5, 8, 12 and 18 module units
- Surface mounted / flush: 2-rows, 24 and 36 module units
- Surface mounted / flush: 3-rows, 36 module units
- Surface-mounted: 3-rows, 54 module units
- Protection class II
- Degree of protection: IP40

Scope of delivery

- Enclosure
- Door transparent / white
- Device support rail
- Neutral and earth conductor terminals
- Instructions for installation

ECO Surface/Flush-Mounted Compact Distribution Boxes, IP40

Surface/Flush-Mounted Compact Distribution Boxes BC-O-...-ECO, BC-U-...-ECO

wa_vt30013



Surface-mounted compact distribution boxes, transparent door

Number of Rows / Module Units	Type designation	Article No.	Pack (pcs.)
1 / 5	BC-O-1/5-ECO	280345	1
1 / 8	BC-O-1/8-ECO	280346	1
1 / 12	BC-O-1/12-ECO	280347	1
1 / 18	BC-O-1/18-ECO	280348	1
2 / 24	BC-O-2/24-ECO	280349	1
2 / 36	BC-O-2/36-ECO	280350	1
3 / 36	BC-O-3/36-ECO	284640	1
3 / 54	BC-O-3/54-ECO	280351	1

wa_vt47513



Surface-mounted compact distribution boxes, white door

1 / 5	BC-O-1/5-TW-ECO	281649	1
1 / 8	BC-O-1/8-TW-ECO	281690	1
1 / 12	BC-O-1/12-TW-ECO	281691	1
1 / 18	BC-O-1/18-TW-ECO	281692	1
2 / 24	BC-O-2/24-TW-ECO	281693	1
2 / 36	BC-O-2/36-TW-ECO	281694	1
3 / 36	BC-O-3/36-TW-ECO	284642	1
3 / 54	BC-O-3/54-TW-ECO	281695	1

wa_vt29813



Flush-mounted compact distribution boxes, transparent door

1 / 5	BC-U-1/5-ECO	280352	1
1 / 8	BC-U-1/8-ECO	280353	1
1 / 12	BC-U-1/12-ECO	280354	1
1 / 18	BC-U-1/18-ECO	280355	1
2 / 24	BC-U-2/24-ECO	280356	1
2 / 36	BC-U-2/36-ECO	280357	1
3 / 36	BC-U-3/36-ECO	284641	1

wa_vt08814



Flush-mounted compact distribution boxes, white door

1 / 5	BC-U-1/5-TW-ECO	281696	1
1 / 8	BC-U-1/8-TW-ECO	281697	1
1 / 12	BC-U-1/12-TW-ECO	281698	1
1 / 18	BC-U-1/18-TW-ECO	281699	1
2 / 24	BC-U-2/24-TW-ECO	281710	1
2 / 36	BC-U-2/36-TW-ECO	281711	1
3 / 36	BC-U-3/36-TW-ECO	284643	1

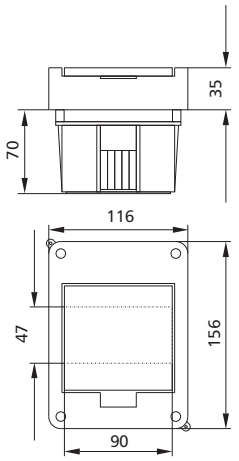
ECO Surface/Flush-Mounted Compact Distribution Boxes, IP40

Technical Data BC-O-...-ECO, BC-U-...-ECO

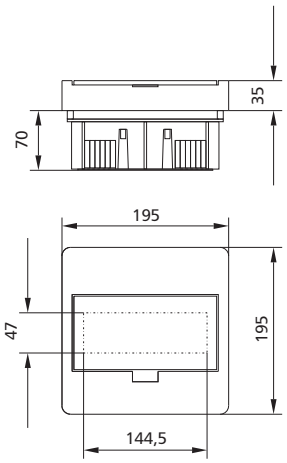
	Unit	
Electrical		
Design according to		EN 62208
Degree of protection		IP40 (IK07) according to EN 60529
Protection class		II
Rated voltage	V	400 AC
Mechanical		
Material		ABS
Colour		RAL 9003
Temperatue resistance	°C	-5 to +40

Dimensions (mm)

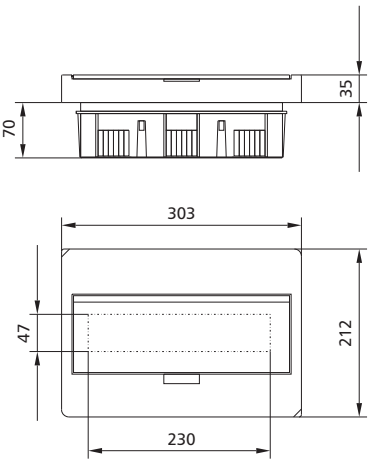
Flush-mounted compact distribution boxes BC-O-...(-TW)-ECO



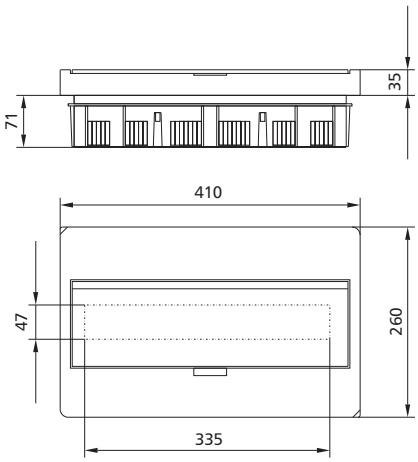
BC-U-1/5(-TW)-ECO



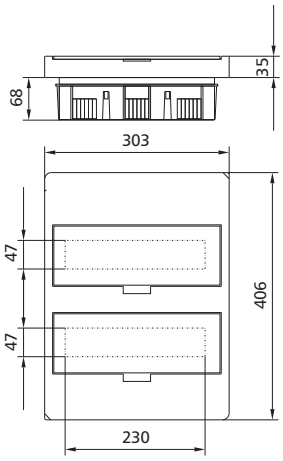
BC-U-1/8(-TW)-ECO



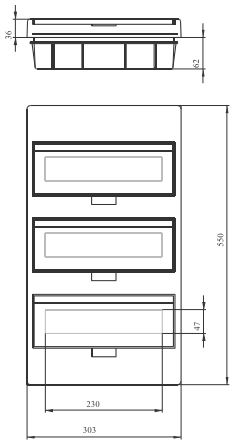
BC-U-1/12(-TW)-ECO



BC-U-1/18(-TW)-ECO



BC-U-2/24(-TW)-ECO

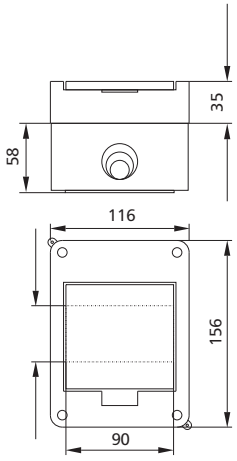


BC-U-3/36(-TW)-ECO

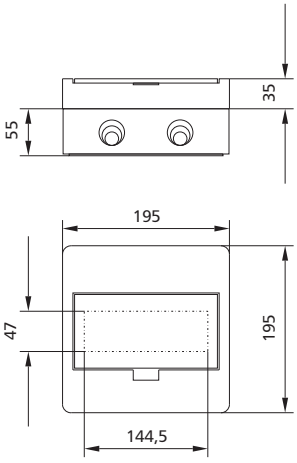
ECO Surface/Flush-Mounted Compact Distribution Boxes, IP40

Dimensions (mm)

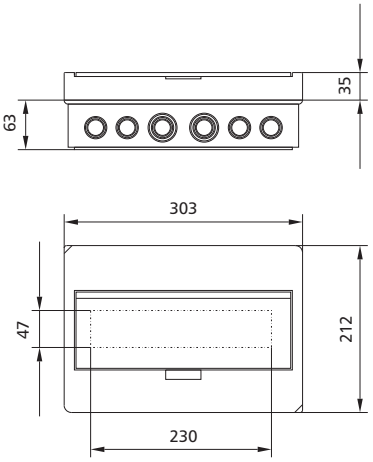
Surface-mounted compact distribution boxes, BC-O-...(-TW)-ECO



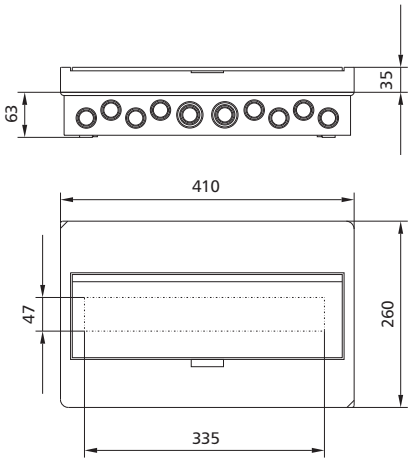
BC-O-1/5(-TW)-ECO



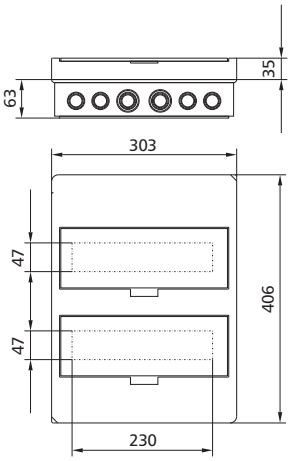
BC-O-1/8(-TW)-ECO



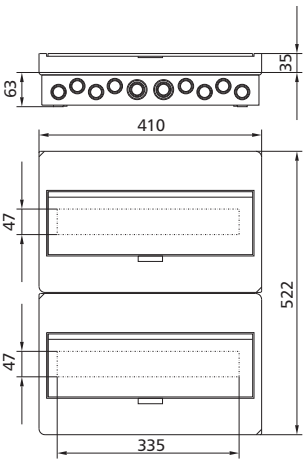
BC-O-1/12(-TW)-ECO



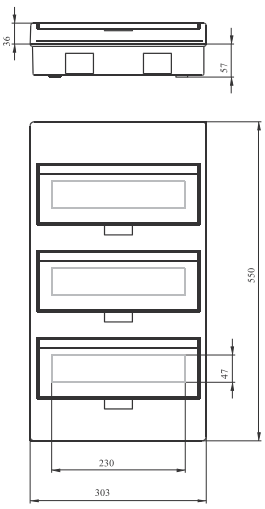
BC-O-1/18(-TW)-ECO



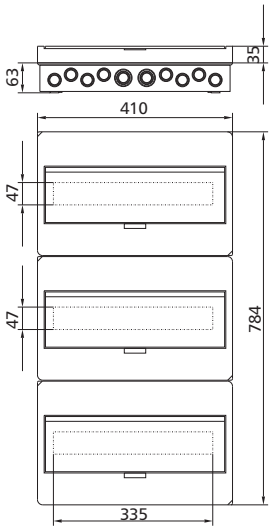
BC-O-2/24(-TW)-ECO



BC-O-2/36(-TW)-ECO



BC-O-3/36(-TW)-ECO



BC-O-3/54(-TW)-ECO

KLV Flush-mounted/Hollow-wall Compact DBs, IP30

P06_KLV-12UPP-F



P06_KLV-24UPP-F



P06_KLV-36UPP-F



P06_KLV-48UPP-F



KLV-...UP and KLV-...HW

- 1 to 4 rows, 12 module units and 2 spare MUs in each row
- Multimedia variants
- Hollow-wall and flush-mounted versions
- Flat and super flat door design
- Integrated spirit level
- 3D plaster compensation
- Terminals for neutral and protective conductors
- N-FI expansion terminal (FI = RCD = Residual Current Device)
- Pre-punched cable entries on all sides
- Degree of protection IP30
- Protection class II, fully insulated
- Door and cover frame, sheet steel RAL 9016
- Low halogen level

KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30

Type key

KLV	-	24	UP	P	-	F
Large DB with large wiring area	-	Module units MU	Type of installation of the wall pan	Design of inside equipment		Design of door and frame
		12	UP = Flush-mounted	P = Plug-type terminal		F = flat
		24	HW = Hollow-wall	S = Screw-type terminal		SF = super-flat
		36		M = Media		
		48				

System Overview of KLV Flush-mounted/Hollow-wall Compact DBs, IP30

Compact DB Design	Protection class II (fully insulated)	IP30	IEC/EN 62208	IEC/EN 60670-24	RAL 9016
Flush-mounted	■	■	■	■ 3)	■ 2)
Hollow-wall	■	■	■	■ 3)	■ 2)
Media	■ 1)	■	■	■	■ 2)

1) To maintain protection class II in media distribution boards, all devices installed must be of the fully insulated type.
2) Sheet steel door and frame
3) Rated current up to 63 A

KLV Flush-mounted/Hollow-wall Compact DBs, IP30

More and larger terminal points for practical use 1)

Rows / MU	Terminal points per N and PE acc. to EN 60670-24 (DIN 43871) required		Terminal points per N and PE Eaton KSK terminal (KSK= Combined plug-type terminal)		Terminal points per N and PE Eaton SK terminal (SK = Screw-type terminal)
1 / 12+2	10x 4mm^2	2x 16mm^2	14x 4mm^2	2x 25mm^2	13x 0.75-16mm^2
2 / 24+4	14x 4mm^2	2x 16mm^2	14x 4mm^2	2x 25mm^2	16x 0.75-16mm^2
3 / 36+6	17x 4mm^2	4x 16mm^2	28x 4mm^2	4x 25mm^2	25x 0.75-16mm^2
4 / 48+8	20x 4mm^2	4x 16mm^2	28x 4mm^2	4x 25mm^2	25x 0.75-16mm^2

1) Eaton compact distribution boards can be expanded in a modular way by adding N-FI (RCD) potentials. See Technical Data section for more details.

KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30

Scope of delivery - Overview of Compact Energy Distribution Boards Flush-mounted/Hollow-wall KLV

	KLV-...-**UPP**-...	KLV-...-**HWP**-...	KLV-...-**UPS**-...	KLV-...-**HWS**-...
Wall pan - flush-mounted	■	-	■	-
Wall pan - hollow-wall	-	■	-	■
Spirit level	■	■	■	■
Cable holder	■	■	■	■
Cover for electric shock protection	■	■	■	■
Flange slide	■	■	■	■
Nail straps	■	-	■	-
Hollow-wall anchor	-	■	-	■
DIN carrier rail with crossbar	■	■	■	■
N/PE combined plug-type terminal	■	■	-	-
N/PE screw-type terminal	-	-	■	■
N-FI terminal [1] (FI = RCD)	■	■	■	■
3D plaster compensation	■	■	■	■
Frame flat/super flat	■	■	■	■
Door flat/super flat	■	■	■	■
Power circuit sticker	■	■	■	■

[1] Note: Included in the scope of delivery of 2, 3 and 4 row distribution boards


P06_FTG_KLV-36UPP-F


P06_FTG_KLV-36UPP-F


P08_KLV-36UPS-SF


P08_KLV-36UPS-SF

Scope of delivery - Overview of Compact Media Distribution Boards Flush-mounted/Hollow-wall KLV

	KLV-...-**UPM**-...	KLV-...-**HWM**-...
Wall pan - flush-mounted	■	-
Wall pan - hollow-wall	-	■
Spirit level	■	■
Cable holder	■	■
Cover for electric shock protection	-	-
Flange slide	■	■
Nail straps	■	-
Hollow-wall anchor	-	■
DIN carrier rail (1x)	■	■
Mounting plate with holes prepared f. knock-out	■	■
2-fold electricity socket (EURO2)	■	■
3D plaster compensation	■	■
Frame flat/super flat	■	■
Door ventilated	■	■
Connection brackets	■	■


P10_KLV-36UPM-F


P10_KLV-48UPM-F

Short description of KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30

Symbols	Explanation
	Protective insulation, according to EN 60670-24.
	Approved for indoor use only.
	Glow-wire test according to IEC/EN 62208.
	Flush-mounting according to IEC/EN 60670-24.
	Hollow-wall mounting according to IEC/EN 60670-24.
MM	Multimedia applications in GP universal enclosure according to IEC/EN 60670-24.
4PR	Delivery form for projects, separate ordering and delivery of assemblies.

KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30 (combined plug-type terminal)

IP 30



- Approved according to IEC/EN 60670-24 and IEC/EN 62208, i.e. for distributions according to IEC/EN 61439-3
- N/PE combined plug-type terminal, finger-proof IP2X with combined snap-on and screw-technology, terminal points are easy to add to the carrier, with a separate N-FI terminal block (FI = RCD).
- Self-extinguishing plastic, resistant to abnormal heat and fire up to 650°C, glow-wire test according to IEC/EN 62208
- Door with frame made of sheet steel, with 3D plaster compensation (compensation possible up 18 mm), colour RAL 9016, optionally flat (F) or super flat (SF)
- Stable device cover made of plastic, with cut-outs for DIN switchgear and protective devices, 12+2 MU per row, 90° four-point lock, lead-sealing is possible, laser-labelled rating plate
- Wall pan made of plastic with integrated spirit level
- DIN carrier rails galvanised, stable design with crossbars, 125 mm distance between rows
- Wiring duct at the side, with cable holder for clearly structured wiring
- Cable insertion slide with pre-punched holes and snap-on fixing
- Door hinges are easy to inverse, hinges for manual handling
- Flat rotary closure of the door, can be replaced by one of the lock versions
- Nail straps for fixing on the wall

	Rows / MU	Description	Type designation	Article No.	Pack (pcs.)
		Flush-mounted UPP (combined plug-type terminal KSK)			
P06_FTG_KLV-12UPP-F 	1 / 12+2	with 1x N/PE comb. plug-type terminal 2x 2.5-25 mm² each and 14x 0.5-4 mm² each	KLV-12UPP-F KLV-12UPP-SF	178798 178799	1/90 1/90
P06_FTG_KLV-24UPP-F 	2 / 24+4	with 1x N/PE comb. plug-type terminal 2x 2.5-25 mm² each and 14x 0.5-4 mm² each 1x N-FI single terminal with 1x 2.5-25 mm² and 7x 0.5-4 mm²	KLV-24UPP-F KLV-24UPP-SF	178800 178801	1/60 1/60
P06_FTG_KLV-36UPP-F 	3 / 36+6	with 1x N/PE comb. plug-type terminal 4x 2.5-25 mm² each and 28x 0.5-4 mm² each with separate N-FI terminal block	KLV-36UPP-F KLV-36UPP-SF	178802 178803	1/60 1/60
P06_FTG_KLV-48UPP-F 	4 / 48+8	with 1x N/PE comb. plug-type terminal 4x 2.5-25 mm² each and 28x 0.5-4 mm² each with separate N-FI terminal block	KLV-48UPP-F KLV-48UPP-SF	178804 178805	1/45 1/45

KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30 (combined plug-type terminal)

IP 30



- Approved according to IEC/EN 60670-24 and IEC/EN 62208, i.e. for distributions according to IEC/EN 61439-3
- N/PE combined plug-type terminal, finger-proof IP2X with combined snap-on and screw technology, terminal points are easy to add to the carrier, with a separate N-FI terminal block (FI = RCD).
- Self-extinguishing plastic, resistant to abnormal heat and fire up to 850°C, glow-wire test according to IEC/EN 62208
- Door with frame made of sheet steel, with 3D plaster compensation (compensation possible up 18 mm), colour RAL 9016, optionally flat (F) or super flat (SF)
- Stable device cover made of plastic, with cut-outs for DIN switchgear and protective devices, 12+2 MU per row, 90° four-point lock, lead-sealing is possible, laser-labelled rating plate
- Wall pan made of plastic with integrated spirit level
- DIN carrier rails galvanised, stable design with crossbars, 125 mm distance between rows
- Wiring duct at the side, with cable holder for clearly structured wiring
- Cable insertion slide with pre-punched holes and snap-on fixing
- Door hinges are easy to inverse, hinges for manual handling
- Flat rotary closure of the door, can be replaced by one of the lock versions
- Hollow-wall anchor for fixing in a hollow wall

	Rows / MU	Description	Type designation	Article No.	Pack (pcs.)
		Hollow-wall mounting HWP (combined plug-type terminal KSK)			
P06_FTG_KLV-12UPP-F 	1 / 12+2	with 1x N/PE comb. plug-type terminal 2x 2.5-25 mm² each and 14x 0.5-4 mm² each	KLV-12HWP-F KLV-12HWP-SF	178806 178807	1/90 1/90
P06_FTG_KLV-24UPP-F 	2 / 24+4	with 1x N/PE comb. plug-type terminal 2x 2.5-25 mm² each and 14x 0.5-4 mm² 1x N-FI single terminal with 1x 2.5-25 mm² and 7x 0.5-4 mm²	KLV-24HWP-F KLV-24HWP-SF	178808 178809	1/60 1/60
P06_FTG_KLV-36UPP-F 	3 / 36+6	with 1x N/PE comb. plug-type terminal 4x 2.5-25 mm² each and 28x 0.5-4 mm² each with a separate N-FI terminal block	KLV-36HWP-F KLV-36HWP-SF	178810 178811	1/60 1/60
P06_FTG_KLV-48UPP-F 	4 / 48+8	with 1x N/PE comb. plug-type terminal 4x 2.5-25 mm² each and 28x 0.5-4 mm² each with separate N-FI terminal blcok	KLV-48HWP-F KLV-48HWP-SF	178812 178813	1/45 1/45

KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30 (screw-type terminal)

IP 30



- Approved according to IEC/EN 60670-24 and IEC/EN 62208, i.e. for distributions according to IEC/EN 61439-3
- N/PE screw-type terminal, with electric shock protection, additional terminal points are easy to add
- N-FI (FI = RCD) expansion terminal, comes as a standard feature in distribution boards with 2 to 4 rows, additional N-FI terminals of the accessories range can be added
- Self-extinguishing plastic, resistant to abnormal heat and fire up to 650°C, glow-wire test according to IEC/EN 62208
- Door with frame made of sheet steel, with 3D plaster compensation (compensation possible up 18 mm), colour RAL 9016, optionally flat (F) or super flat (SF)
- Stable device cover made of plastic, with cut-outs for DIN switchgear and protective devices, 12+2 MU per row, 90° four-point lock, lead-sealing is possible, laser-labelled rating plate
- Wall pan made of plastic with integrated spirit level
- DIN carrier rails galvanised, stable design with crossbars, 125 mm distance between rows
- Wiring duct at the side, with cable holder for clearly structured wiring
- Cable insertion slide with pre-punched holes and snap-on fixing
- Door hinges are easy to inverse, hinges for manual handling
- Flat rotary closure of the door, can be replaced by one of the lock versions
- Nail straps for fixing on the wall

	Rows / MU	Description	Type designation	Article No.	Pack (pcs.)
		Flush-mounted UPS (screw-type terminal SK)			
P08_KLV-12UPS-SF 	1 / 12+2	with 1x N/PE screw-type terminal 13x 0.75-16 mm² (N) and 13x 0.75-16 mm² (PE)	KLV-12UPS-F KLV-12UPS-SF	178814 178815	1/90 1/90
P08_KLV-24UPS-SF 	2 / 24+4	with 1x N/PE screw-type terminal 13x 0.75-16 mm² (N) and 16x 0.75-16 mm² (PE) plus 1x N-FI terminal with 4x 0.75-16 mm² each	KLV-24UPS-F KLV-24UPS-SF	178816 178817	1/60 1/60
P08_KLV-36UPS-SF 	3 / 36+6	with 2x N/PE screw-type terminal 25x 0.75-16 mm² (N) and 25x 0.75-16 mm² (PE) plus 1x N-FI terminal with 4x 0.75-16 mm² each	KLV-36UPS-F KLV-36UPS-SF	178818 178819	1/60 1/60
P08_KLV-48UPS-SF 	4 / 48+8	with 2x N/PE screw-type terminal 25x 0.75-16 mm² (N) and 25x 0.75-16 mm² (PE) plus 1x N-FI terminal with 4x 0.75-16 mm² each	KLV-48UPS-F KLV-48UPS-SF	178820 178821	1/45 1/45

KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30 (screw-type terminal)

IP 30



- Approved according to IEC/EN 60670-24 and IEC/EN 62208, i.e. for distributions according to IEC/EN 61439-3
- N/PE screw-type terminal, electric shock protection, additional terminal points are easy to add
- N-FI (FI = RCD) expansion terminal, comes as a standard feature in distribution boards with 2 to 4 rows, additional N-FI terminals of the accessories range can be added
- Self-extinguishing plastic, resistant to abnormal heat and fire up to 850°C, glow-wire test according to IEC/EN 62208
- Door with frame made of sheet steel, with 3D plaster compensation (compensation possible up 18 mm), colour RAL 9016, optionally flat (F) or super flat (SF)
- Stable device cover made of plastic, with cut-outs for DIN switchgear and protective devices, 12+2 MU per row, 90° four-point lock, lead-sealing is possible, laser-labelled rating plate
- Wall pan made of plastic with integrated spirit level
- DIN carrier rails galvanised, stable design with crossbars, 125 mm distance between rows
- Wiring duct at the side, with cable holder for clearly structured wiring
- Cable insertion slide with pre-punched holes and snap-on fixing
- Door hinges are easy to inverse, hinges for manual handling
- Flat rotary closure of the door, can be replaced by one of the lock versions
- Hollow-wall anchor for fixing in a hollow wall

	Rows / MU	Description	Type designation	Article No.	Pack (pcs.)
		Hollow-wall mounted HWS (screw-type terminal SK)			
P08_KLV-12UPS-SF 	1 / 12+2	with 1x N/PE screw-type terminal 13x 0.75-16 mm² (N) and 13x 0.75-16 mm² (PE)	KLV-12HWS-F KLV-12HWS-SF	178822 178823	1/90 1/90
P08_KLV-24UPS-SF 	2 / 24+4	with 1x N/PE screw-type terminal 13x 0.75-16 mm² (N) and 16x 0.75-16 mm² (PE) plus 1x N-FI terminal with 4x 0.75-16 mm² each	KLV-24HWS-F KLV-24HWS-SF	178824 178825	1/60 1/60
P08_KLV-36UPS-SF 	3 / 36+6	with 2x N/PE screw-type terminal 25x 0.75-16 mm² (N) and 25x 0.75-16 mm² (PE) plus 1x N-FI terminal with 4x 0.75-16 mm² each	KLV-36HWS-F KLV-36HWS-SF	178826 178827	1/60 1/60
P08_KLV-48UPS-SF 	4 / 48+8	with 2x N/PE screw-type terminal 25x 0.75-16 mm² (N) and 25x 0.75-16 mm² (PE) plus 1x N-FI terminal with 4x 0.75-16 mm² each	KLV-48HWS-F KLV-48HWS-SF	178828 178829	1/45 1/45

KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30

Technical Data KLV-...

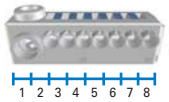
	Unit	
Electrical		
Design according to		IEC/EN 62208; IEC/EN 60670-24
Degree of protection		IP30 (IK05) according to EN 60529
Protection class		II, fully insulated
Rated voltage	V	400 AC
Insulation voltage	V	1000 AC
Max. power loss permitted for all devices installed in the distribution board, at a difference in temperature of 35°K:		
1/12+2	W	21
2/24+4	W	34
3/36+6	W	43
4/48+8	W	48
Mechanical		
Material:		
Enclosure		Polystyrole
Door/frame		Sheet steel, powder-coated with corrosion protection
Colour of the enclosure		White RAL 9016
Colour of the door/frame		White RAL 9016
Distance between the rows	mm	125
Carrier rail for devices		DIN rail 35 x 7.5 mm sheet steel, galvanised
UV resistant		No
Glow-wire test	°C	850 (hollow-wall), 650 (flush-mounted)
Installation type		
KLV-...-UP...		Indoor
KLV-...-HW...		Indoor
in areas exposed to a risk of fire		no
Halogen-free, RoHs		<1%, yes
Metrical or pre-punched holes prepared for knock-out		
1/12+2		Top/bottom: Pre-punched Rear panel: 10x Ø 28 mm Side panel: right and left 2x Ø 28 mm each
2/24+4		Top/bottom: Pre-punched Rear panel: 10x Ø 28 mm Side panel: right and left 2x Ø 28 mm each
3/36+6		Top/bottom: Pre-punched Rear panel: 10x Ø 28 mm Side panel: right and left 2x Ø 28 mm each
4/48+8		Top/bottom: Pre-punched Rear panel: 10x Ø 28 mm Side panel: right and left 2x Ø 28 mm each

KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30

Technical Data - Terminals

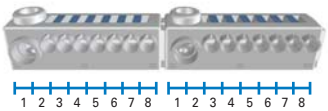
KSK-N, KSK-PE, configuration examples

P23_1xKSK-N



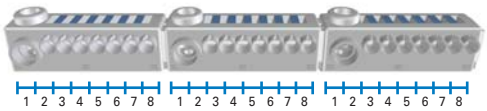
1x KSK-N (PE)

P23_2xKSK-N



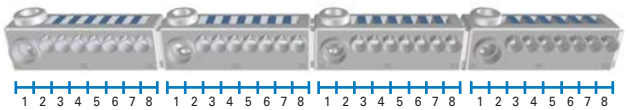
2x KSK-N (PE)

P23_3xKSK-N



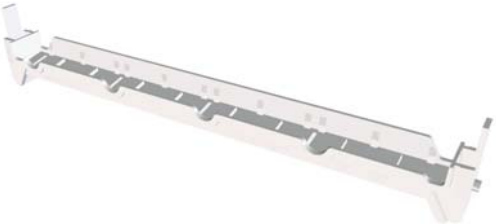
3x KSK-N (PE)

P23_4xKSK-N



4x KSK-N (PE)

P15_KSK-KLV



KSK-KLV

Cross sections of connections and other important information

Per block 1x screw-type connection for 2.5-25 mm^2 (single-wired/multiwired) or 2.5-16 mm^2 (fine-wired with professionally pressed wire end sleeve).
Per block 7x plug-type connection for 0.5-4 mm^2 (single-wired/multi-wired or fine-wired with professionally pressed wire end sleeve).
The tightening torque [Nm] of the screw connection is indicated on the terminal enclosure.
Minimum connection length in case of a plug-type connection is indicated on the terminal enclosure.
Max. electrical load 63A / 400V AC
Degree of protection IP2X

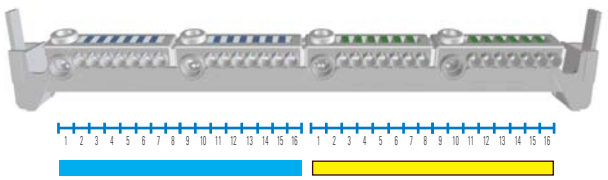
High safety level thanks to finger-proof plastic encapsulation, degree of protection IP2X
N potential in blue colour, protective-conductor potential in green colour
Modular as the additional block can be plugged onto the terminal carrier without any tools to provide additional separate RCD protective circuits. Up to 4 blocks per terminal carrier, up to 4 terminal carriers in each distribution board.
Separate blocks can be interlinked using cable links.
We recommend 4 mm^2 (rigid or flexible with wire end sleeve).
Vertical offset for terminal carriers in the distribution board to provide easy access to the connections and easy snap-on in the distribution board.

KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30

Technical Data - Terminals

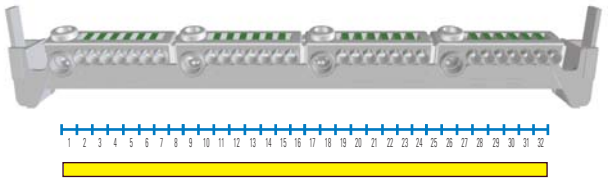
KSK-... included in the scope of delivery of the distribution board KLV-...UPP (HWP)

P24_KSK-2N_2PE-KLV



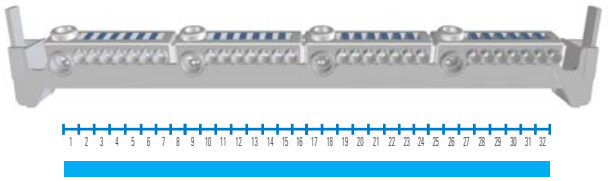
KSK-2N/2PE-KLV

P24_KSK-4PE-KLV



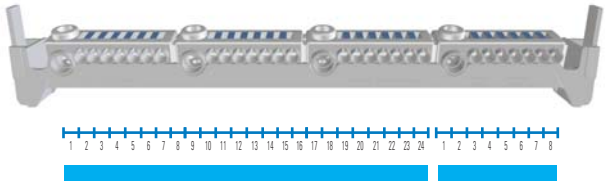
KSK-4PE-KLV

P24_KSK-4N-KLV



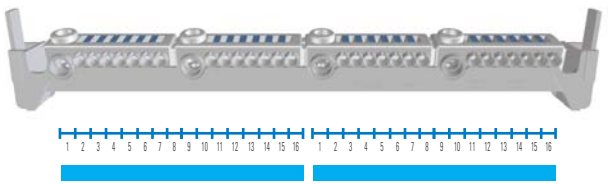
KSK-4N-KLV

P24_KSK-3N_1N-KLV



KSK-3N/1N-KLV

P24_KSK-2N_2N-KLV



KSK-2N/2N-KLV

Cross sections of connections and other important information

KSK-2N/2PE-KLV

Per potential 2x screw-type connection for 2.5-25 mm^2 (single-wired/multi-wired) or 2.5-16 mm^2 (fine-wired with professionally pressed wire end sleeve) as well as 14x plug-type connection for 0.5-4 mm^2 (single-wired/multi-wired or fine-wired with professionally pressed wire end sleeve).

KSK-4N..., KSK-3N/1N..., KSK-2N/2N..., KSK-4PE...

Per block 1x screw-type connection for 2.5-25 mm^2 (single-wired/multi-wired) or 2.5-16 mm^2 (fine-wired with professionally pressed wire end sleeve), as well as 7x plug-type connection for 0.5-4 mm^2 (single-wired/multi-wired or fine-wired with professionally pressed wire end sleeve).

The tightening torque [Nm] of the screw-type connection is indicated on the terminal enclosure.

Minimum connection length with plug-type connection is indicated on the terminal enclosure.

Max. electrical load 63A / 400V AC

Degree of protection IP2X

High safety level thanks to finger-proof plastic encapsulation, degree of protection IP2X

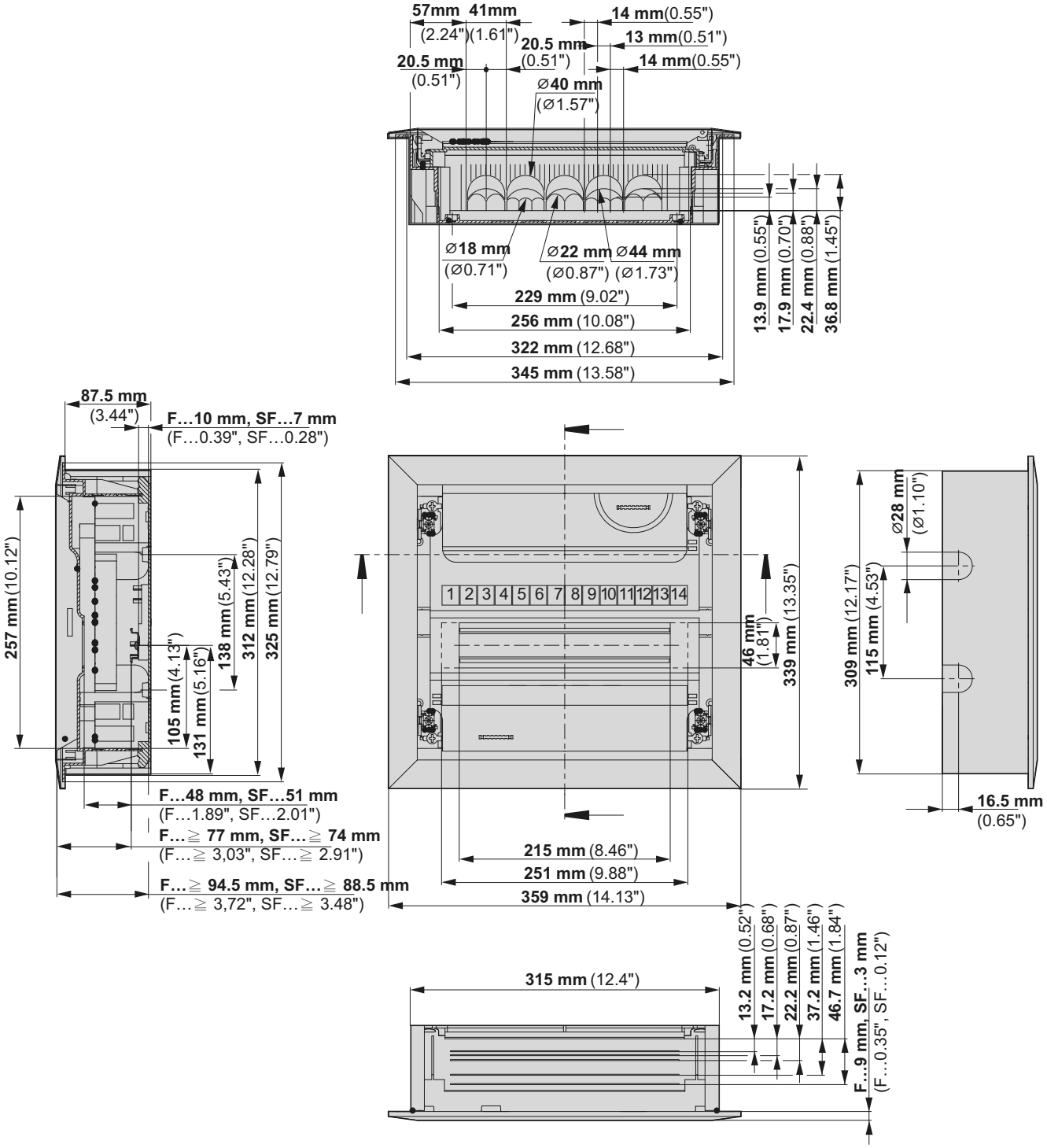
N potential in blue colour, protective-conductor potential in green colour

Vertical offset for terminal carriers in the distribution board to provide easy access to the connections and easy snap-on in the distribution board

KLV Flush-mounted/Hollow-wall Compact Distribution Board, IP30

Dimensions (mm)

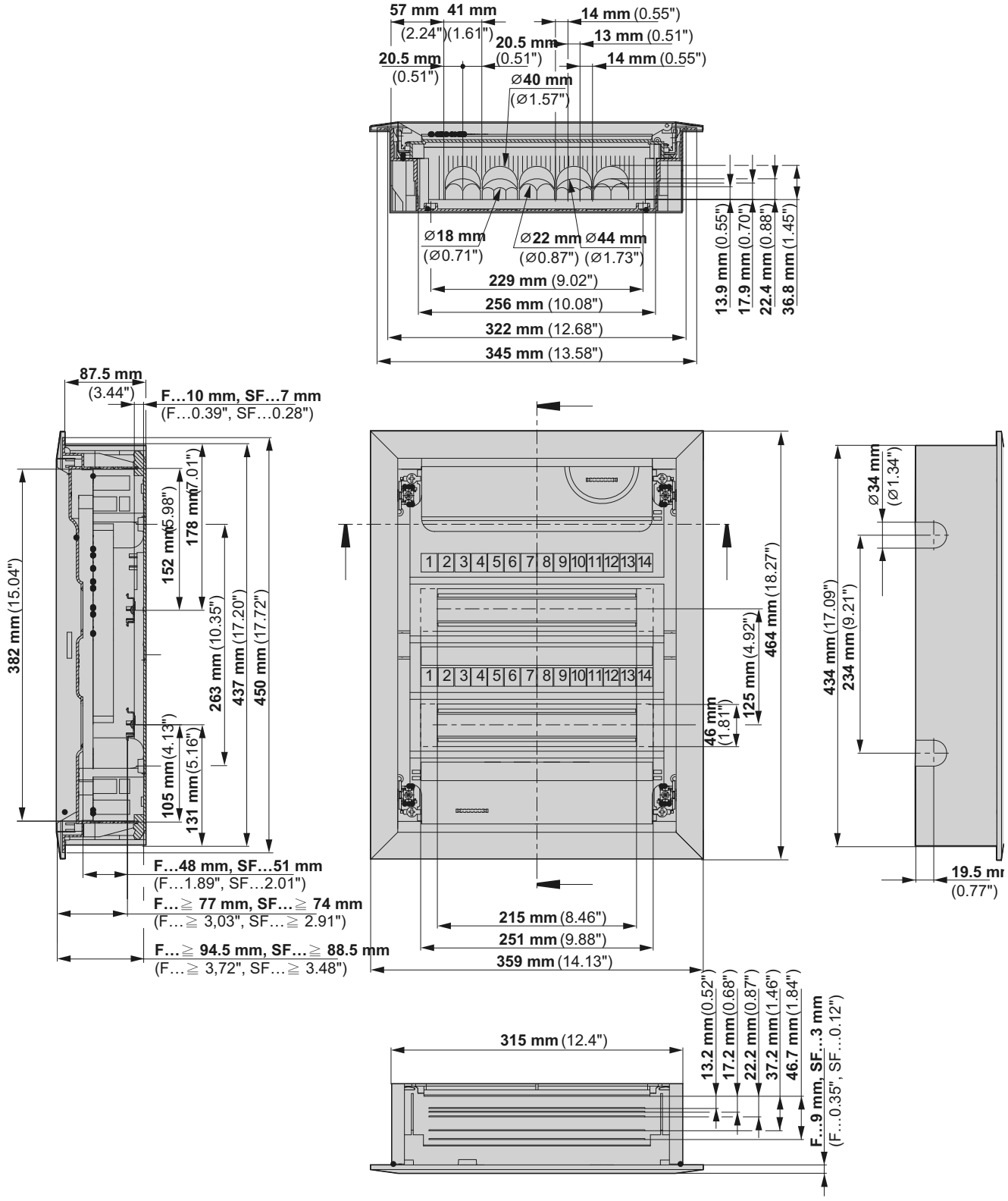
KLV-12...



KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30

Dimensions (mm)

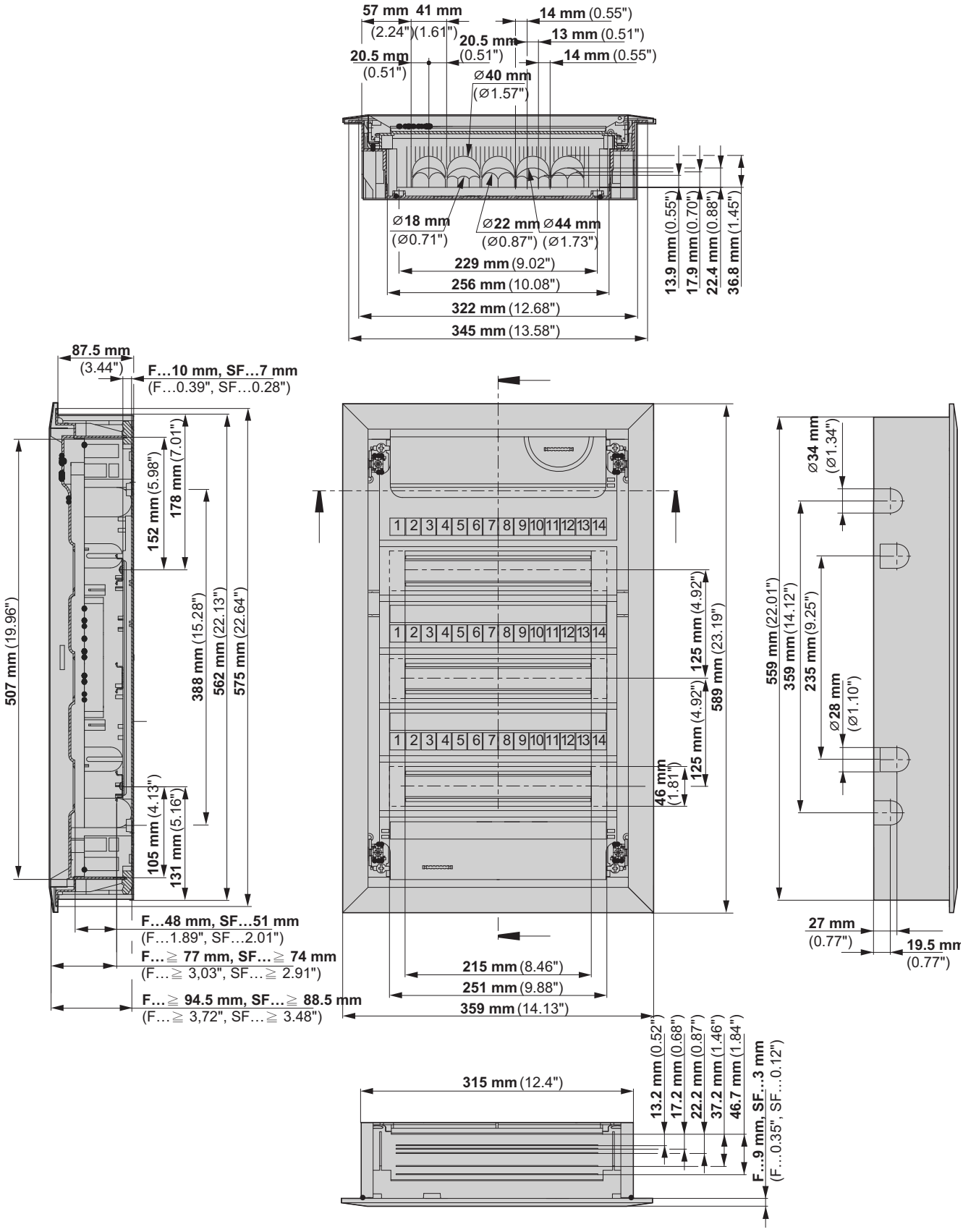
KLV-24...



KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30

Dimensions (mm)

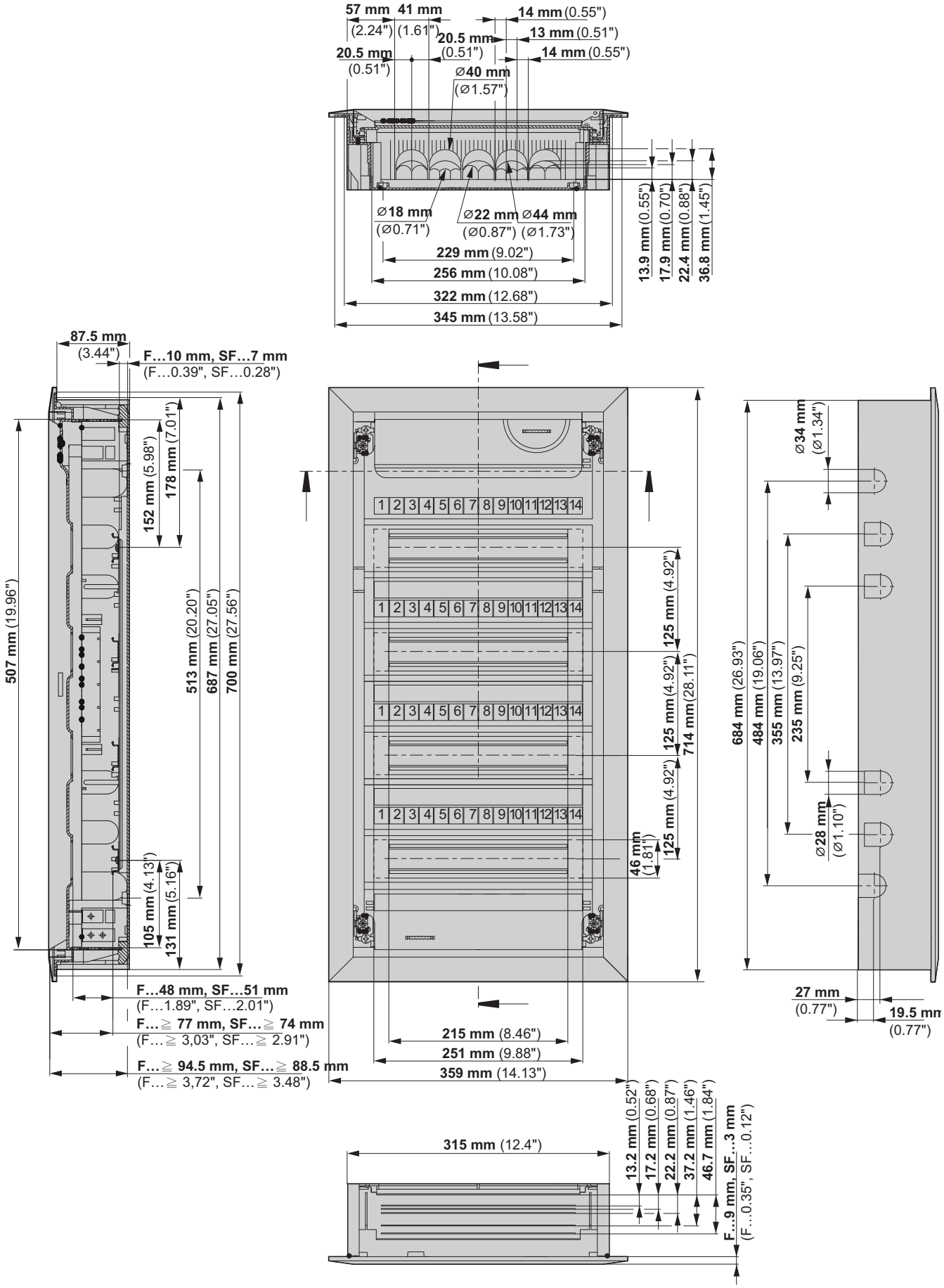
KLV-36...



KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30

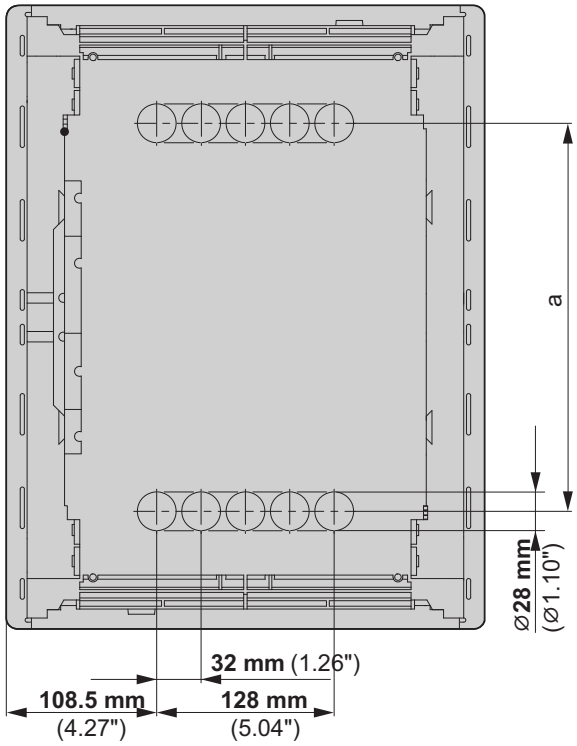
Dimensions (mm)

KLV-48...



KLV Flush-mounted/Hollow-wall Compact Distribution Boards, IP30

Dimensions (mm)



Type	a [mm]	a ['']
KLV-12...	155	6,10
KLV-24...	280	11,02
KLV-36...	405	15,94
KLV-48...	530	20,87

IKA Surface-mounted Compact Distribution Boxes, IP65

VT25314



VT24814



VT24614



IKA-...-UV ; IKA...-ST and IKA...-OT

- Degree of protection IP65
- Protection class II, totally insulated
- Industrial version (PC) or PRO/Standard version (ABS)
- 1 to 3 rows, 12 and 18 module units
- Mini module with 4, 6 and 8 MU
- Glow wire test 850°C or 650°C
- CNC foamed sealing
- Fully removable DIN support rack
- Up to 46 mm wiring area under the DIN rail
- Module tolerance compensation in the cover
- Possibility of direct fixing on the wall
- Depth-adjustable DIN rail
- Neutral and protective conductor terminals
- Fast and easy inversion of the door hinges
- Pre-punched metric areas for cable entries
- Intuitive locking and unlocking of the door
- Body RAL 7035, door transparent
- Halogen-free

IKA Compact Distribution Boxes

Type Code

IKA	-	2	/	24	S	T	-	UV
Insulation material Compact distribution boxes Surface-mounted	-	Rows Number	/	Module units MU	Version Indoor	Version Door	-	Material
		1		4	S = Screw-type terminal	T = transparent		UV = UV resistant
		2		6	O = without terminal	R = RAL		„ _“ = Standard
		3		8				
				12				
				24				
				36				
				18				
				36				
				54				

IKA System Overview

Compact DB Version	Protection class II (totally insulated)	Complies with European Standard EN 62208	IP65	RAL 7035	N/PE terminals	Doors transparent	Outdoor (UV resistant, ISO 4892-2)
Industrial	■	■ 1)	■	■ 2)	■	■ 3)	■ 4)
Professional	■	■ 1)	■	■ 2)	■	■	-
Standard	■	■ 1)	■	■ 2)	-	■	-

1) Pre-requisite for building distribution boxes from empty enclosures according to IEC/EN 61439-3
2) Body and cover frame, door is transparent
3) Doors non-transparent in RAL7035 available upon request
4) Eaton nevertheless recommends not to expose the product to direct solar radiation

IKA Overview of Scope of Delivery

	IKA-...-**UV** (Industrial)	IKA-...-**ST** (Professional)	IKA-...-**OT** (Standard)
Bottom part (PC)	■	-	-
Bottom part (ABS)	-	■	■
Cover frame (PC)	■	-	-
Cover frame (ABS)	-	■	■
Door (PC)	■	■	■
Removable DIN support rack	■ 1)	■ 1)	■ 1)
N/PE screw-type terminal IP2X	■	■	-
Cover for spare areas 6 MU	■	■	-
Closing screws, sealable	■	■	■
Closing caps	■	■	■
Labelling of power circuits	■	■	■

PC: Polycarbonate
ABS: Acrylonitrile butadiene styrene

1) For compact distribution boxes containing several rows only


VT25614


VT25814


VT26014

IKA-...UV Industrial Compact Distribution Boxes

IP 65 (IK 08)



- Surface-mounted
- Protection class II, totally insulated
- Industrial version completely made of high-quality polycarbonate, UV resistant according to ISO 4892-2
- 1 to 3 rows, 12 and 18 module units
- Mini modules with 4, 6 and 8 MU
- Completely removable DIN support rack in distribution boxes containing several rows
- Up to 46mm space under the DIN rail to allow for convenient laying of the cables
- Module tolerance compensation integrated in the cover frame
- Possibility of direct fixing on the wall, without the need of drilling holes into the enclosure
- Depth-adjustable DIN rail, 150 mm distance between the rows
- Neutral and protective conductor terminals, IP2X protection against insertion of fingers, with solid screw-technology
- Easy and fast inversion of door hinges
- Side panels with pre-punched metric areas for cable entries
- Intuitive locking and unlocking of doors, cylinder lock optionally with accessories
- Body RAL 7035, door transparent
- Glow wire test 850°C
- Halogen-free

	Rows / MU	Desription	Door	Type designation	Article No.	Pack (pcs.)
		Mini MU				
VT25314, VT24414 	1 / 4	with 1x N/PE screw termin. 2x 6 + 2x 10 mm² each and 1x 35 mm² each	transp.	IKA-1/4-ST-UV	174187	1
			RAL	IKA-1/4-SR-UV [1)]	174212	1
VT25214, VT24314 	1 / 6	with 1x N/PE screw termin. 2x 6 + 2x 10 mm² each and 1x 35 mm² each	transp.	IKA-1/6-ST-UV	174188	1
			RAL	IKA-1/6-SR-UV [1)]	174213	1
VT25114, VT24114 	1 / 8	with 1x N/PE screw termin. 2x 6 + 2x 10 mm² each and 1x 35 mm² each	transp.	IKA-1/8-ST-UV	174189	1
			RAL	IKA-1/8-SR-UV [1)]	174214	1
		12 MU in each row				
VT25014, VT24214 	1 / 12	with 1x N/PE screw termin. 6x 6 + 6x 10 mm² each and 1x 25 + 1x 35 mm² each	transp.	IKA-1/12-ST-UV	174190	1
			RAL	IKA-1/12-SR-UV [1)]	174215	1
VT24814, VT24014 	2 / 24	with 1x N/PE screw termin. 8x 6 + 8x 10 mm² each and 1x 25+1x 35 mm² each	transp.	IKA-2/24-ST-UV	174191	1
			RAL	IKA-2/24-SR-UV [1)]	174216	1
VT24614, VT23814 	3 / 36	with 2x N/PE screw termin. 12x 6 + 12x 10 mm² each and 1x 25+1x 35 mm² each	transp.	IKA-3/36-ST-UV	174192	1
			RAL	IKA-3/36-SR-UV [1)]	174217	1

	Rows / MU	Description	Door	Type designation	Article No.	Pack (pcs.)
	18 MU in each row					
VT24914, VT23914 	1 / 18	with 1x N/PE screw termin. 8x 6 + 8x 10 mm² each	transp.	IKA-1/18-ST-UV	174193	1
		and 1x 25+1x 35 mm² each	RAL	IKA-1/18-SR-UV [1]	174218	1
VT24714, VT23714 	2 / 36	with 2x N/PE screw termin. 12x 6 + 12x 10 mm² each	transp.	IKA-2/36-ST-UV	174194	1
		and 1x 25 + 1x 35 mm² each	RAL	IKA-2/36-SR-UV [1]	174219	1
VT24514, VT23614 	3 / 54	with 2x N/PE screw termin. 16x 6 + 16x 10 mm² each	transp.	IKA-3/54-ST-UV	174195	1
		and 2x 25+2x 35 mm² each	RAL	IKA-3/54-SR-UV [1]	174220	1

[1] Available upon request

IKA-...ST Professional Compact Distribution Boxes

IP 65 (IK 08)



- Surface-mounted
- Protection class II, totally insulated
- Professional version: Body made of ABS, door made of polycarbonate
- 1 to 3 rows, 12 and 18 module units
- Mini modules with 4, 6 and 8 MU
- Neutral and protective conductor terminals, IP2X protection against insertion of fingers, with solid screw-technology
- Completely removable DIN support rack in distribution boxes containing several rows
- Up to 46mm space under the DIN rail to allow for convenient laying of the cables
- Module tolerance compensation integrated in the cover frame
- Possibility of direct fixing on the wall, without the need of drilling holes into the enclosure
- Depth-adjustable DIN rail, 150 mm distance between the rows
- Easy and fast inversion of door hinges
- Side panels with pre-punched metric areas for cable entries
- Intuitive locking and unlocking of doors, cylinder lock optionally with accessories
- Body RAL 7035, door transparent
- Glow wire test 650°C
- Halogen-free

	Rows / MU	Description	Door	Type designation	Article No.	Pack (pcs.)
	Mini MU					
VT25314 	1 / 4	with 1x N/PE screw termin. 2x 6 + 2x 10 mm² each and 1x 35 mm² each	transp.	IKA-1/4-ST	174221	1
VT25214 	1 / 6	with 1x N/PE screw termin. 2x 6 + 2x 10 mm² each and 1x 35 mm² each	transp.	IKA-1/6-ST	174222	1
VT25114 	1 / 8	with 1x N/PE screw termin. 2x 6 + 2x 10 mm² each and 1x 35 mm² each	transp.	IKA-1/8-ST	174196	1
	12 MU in each row					
VT25014 	1 / 12	with 1x N/PE screw termin. 6x 6 + 6x 10 mm² each and 1x 25 + 1x 35 mm² each	transp.	IKA-1/12-ST	174197	1
VT24814 	2 / 24	with 1x N/PE screw termin. 8x 6 + 8x 10 mm² each and 1x 25 + 1x 35 mm² each	transp.	IKA-2/24-ST	174198	1
VT24614 	3 / 36	with 2x N/PE screw termin. 12x 6 + 12x 10 mm² each and 1x 25 + 1x 35 mm² each	transp.	IKA-3/36-ST	174199	1

	Rows / MU	Description	Door	Type designation	Article No.	Pack (pcs.)
	18 MU in each row					
VT24914 	1 / 18	with 1x N/PE screw termin. 8x 6 + 8x 10 mm² each and 1x 25 + 1x 35 mm² each	transp.	IKA-1/18-ST	174200	1
VT24714 	2 / 36	with 2x N/PE screw termin. 12x 6 + 12x 10 mm² each and 1x 25 + 1x 35 mm² each	transp.	IKA-2/36-ST	174201	1
VT24514 	3 / 54	with 2x N/PE screw termin. 16x 6 + 16x 10 mm² each and 2x 25 + 2x 35 mm² each	transp.	IKA-3/54-ST	174202	1

StandardIKA-...OT Compact Distribution Boxes

IP 65 (IK 08)



- Surface-mounted
- Protection class II, totally insulated
- Standard version: Body made of ABS, door made of polycarbonate
- No neutral and protective conductor terminals, no cover for spare areas
- 1 to 3 rows, 12 and 18 module units
- Mini modules with 4, 6 and 8 module unites
- Completely removable DIN support rack in distribution boxes containing several rows
- Up to 46mm space under the DIN rail to allow for convenient laying of the cables
- Module tolerance compensation integrated in the cover frame
- Possibility of direct fixing on the wall, without the need of drilling holes into the enclosure
- Depth-adjustable DIN rail, 150 mm distance between the rows
- Easy and fast inversion of door hinges
- Side panels with pre-punched metric areas for cable entries
- Intuitive locking and unlocking of doors, cylinder lock optionally with accessories
- Body RAL 7035, door transparent
- Glow wire test 650°C
- Halogen-free

	Rows / MU	Description	Door	Type designation	Article No.	Pack (pcs.)
	Mini MU					
VT25314 	1 / 4	no neutral and protective conductor terminals, no cover for spare areas	transp.	IKA-1/4-OT	174203	1
VT25214 	1 / 6	no neutral and protective conductor terminals, no cover for spare areas	transp.	IKA-1/6-OT	174204	1
VT25114 	1 / 8	no neutral and protective conductor terminals, no cover for spare areas	transp.	IKA-1/8-OT	174205	1
	12 MU in each row					
VT25014 	1 / 12	no neutral and protective conductor terminals, no cover for spare areas	transp.	IKA-1/12-OT	174206	1
VT24814 	2 / 24	no neutral and protective conductor terminals, no cover for spare areas	transp.	IKA-2/24-OT	174207	1
VT24614 	3 / 36	no neutral and protective conductor terminals, no cover for spare areas	transp.	IKA-3/36-OT	174208	1

	Rows / MU	Description	Door	Type designation	Article-No.	Pack (pcs.)
	18 MU in each row					
VT24914 	1 / 18	no neutral and protective conductor terminals, no cover for spare areas	transp.	IKA-1/18-OT	174209	1
VT24714 	2 / 36	no neutral and protective conductor terminals, no cover for spare areas	transp.	IKA-2/36-OT	174210	1
VT24514 	3 / 54	no neutral and protective conductor terminals, no cover for spare areas	transp.	IKA-3/54-OT	174211	1

Legend IKA

Symbol	Explanation
	Totally insulated, according to EN 60670-24.
	Only for indoor applications.
	For indoor applications and outdoor applications. Outdoor use under canopy is recommended.
	Final product UV resistant according ISO 4892-2.
	Resistance to abnormal heat and fire according IEC/EN 62208.

Technical Data for IKA

	Unit	
Electrical		
Versions according to		IEC/EN 62208; IEC/EN 60670-24
Degree of protection		IP65 (IK08) according to EN 60529
Protection class		II, totally insulated
Rated voltage	V	415 AC
Insulation voltage	V	1000 AC, 1500 DC
Max. power loss admitted for all devices installed in the distribution box, at a difference in temperature of 25°K:		
1/4	W	14.7
1/6	W	16.5
1/8	W	18.7
1/12	W	26.0
2/24	W	39.1
3/36	W	49.2
1/18	W	35.3
2/36	W	47.6
3/54	W	59.6
Mechanical		
Material:		
Enclosure		Polycarbonate (Industry), ABS (Professional, Standard)
Door		Polycarbonate
Colour of the enclosure		grey RAL 7035
Colour of the door		transparent; grey RAL 7035
Distance between the rows	mm	150
Support rail for devices		DIN rail 35 x 7.5 mm sheet steel, galvanized
UV resistance		all IKA...-UV resistant according to ISO 4892-2
Type of installation		
IKA-...-UV		Indoor or Outdoor, under canopy, surface-mounted
IKA-...-ST		Indoor, surface-mounted
IKA-...-OT		Indoor, surface-mounted
Halogene-free, RoHs		yes
Pre-punched metric areas		
IKA-1/4....,IKA-1/6....		Top: 2xM25 + 1xM40 Bottom: 2xM25 + 1xM40 Rear panel: 2x(2xM25)
IKA-1/8....		Top: 4xM25 + 1xM40 Bottom: 4xM25 + 1xM40 Rear panel: 2x(2xM25)
IKA-1/12....		Top: 6xM20 + 2xM25 + 2xM32 + 1xM40 Bottom: 6xM20 + 2xM25 + 2xM32 + 1xM40 Side panel: 4xM25 Rear panel: 2x(1xM25 + 1xM32 + 1xM25)
IKA-2/24....		Top: 6xM20 + 2xM25 + 2xM32 + 1xM40 Bottom: 6xM20 + 2xM25 + 2xM32 + 1xM40 Side panel: 4xM25 Rear panel: 2x(1xM25 + 1xM32 + 1xM25)
IKA-3/36....		Top: 6xM20 + 2xM25 + 2xM32 + 1xM40 Bottom: 6xM20 + 2xM25 + 2xM32 + 1xM40 Side panel: 4xM25 Rear panel: 2x(1xM25 + 1xM32 + 1xM25)
IKA-1/18....,IKA-2/36....,IKA-3/54....		Top: 12xM20 + 6xM25 + 2xM32 + 1xM40 Bottom: 12xM20 + 6xM25 + 2xM32 + 1xM40 Side panel: 4xM25 Rear panel: 2x(1xM25 + 1xM32 + 1xM25)

Technical Data IKA

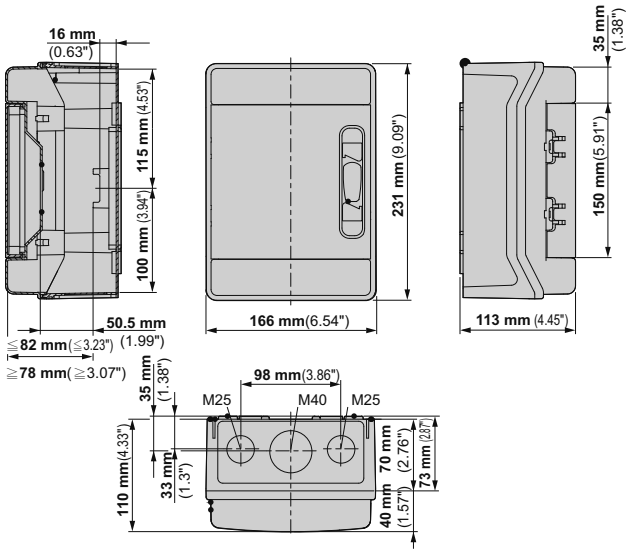
Max. connection cross-sections and equipment of N/PE screw terminals

	N [mm²]	PE [mm²]
IKA-1/4....	2x 2.5-6 + 2x 4-10+ 1x 16-35	2x 2.5-6 + 2x 4-10+ 1x 16-35
IKA-1/6....	2x 2.5-6 + 2x 4-10+ 1x 16-35	2x 2.5-6 + 2x 4-10+ 1x 16-35
IKA-1/8....	4x 2.5-6 + 4x 4-10+ 1x 16-35	4x 2.5-6 + 4x 4-10+ 1x 16-35
IKA-1/12....	6x 2.5-6 + 6x 4-10+ 1x 10-25+ 1x 16-35	6x 2.5-6 + 6x 4-10+ 1x 10-25+ 1x 16-35
IKA-2/24....	8x 2.5-6 + 8x 4-10+ 1x 10-25+ 1x 16-35	8x 2.5-6 + 8x 4-10+ 1x 10-25+ 1x 16-35
IKA-3/36....	12x 2.5-6 + 12x 4-10+ 1x 10-25+ 1x 16-35	12x 2.5-6 + 12x 4-10+ 1x 10-25+ 1x 16-35
IKA-1/18....	8x 2.5-6 + 8x 4-10+ 1x 10-25+ 1x 16-35	8x 2.5-6 + 8x 4-10+ 1x 10-25+ 1x 16-35
IKA-2/36....	12x 2.5-6 + 12x 4-10+ 1x 10-25+ 1x 16-35	12x 2.5-6 + 12x 4-10+ 1x 10-25+ 1x 16-35
IKA-3/54....	16x 2.5-6 + 16x 4-10+ 1x 10-25+ 1x 16-35	16x 2.5-6 + 16x 4-10+ 1x 10-25+ 1x 16-35

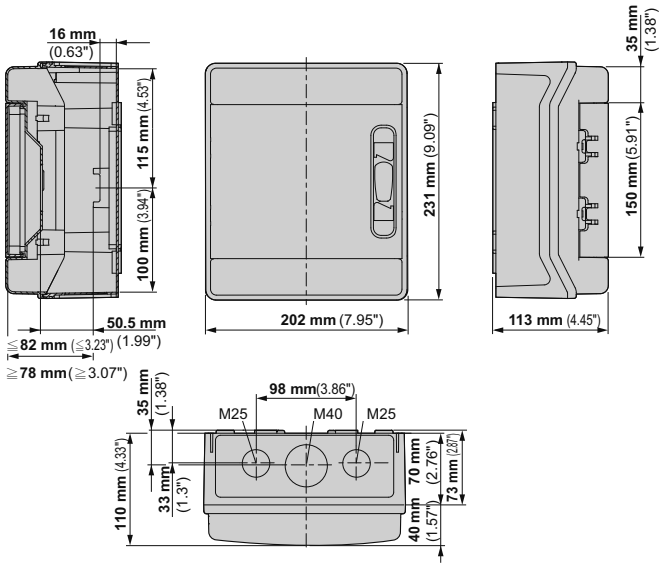
Note: Tightening torque values [Nm] of the N/PE screw terminals are directly indicated on the terminal enclosure.

Dimensions (mm)

IKA-1/4....

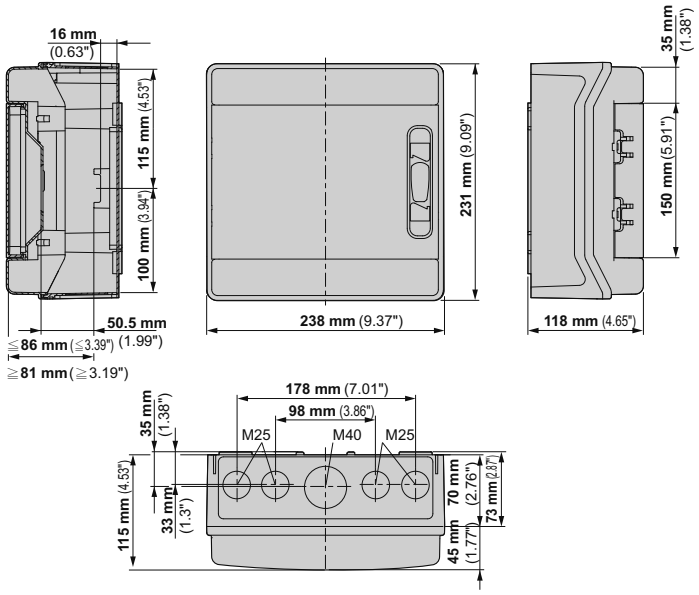


IKA-1/6....

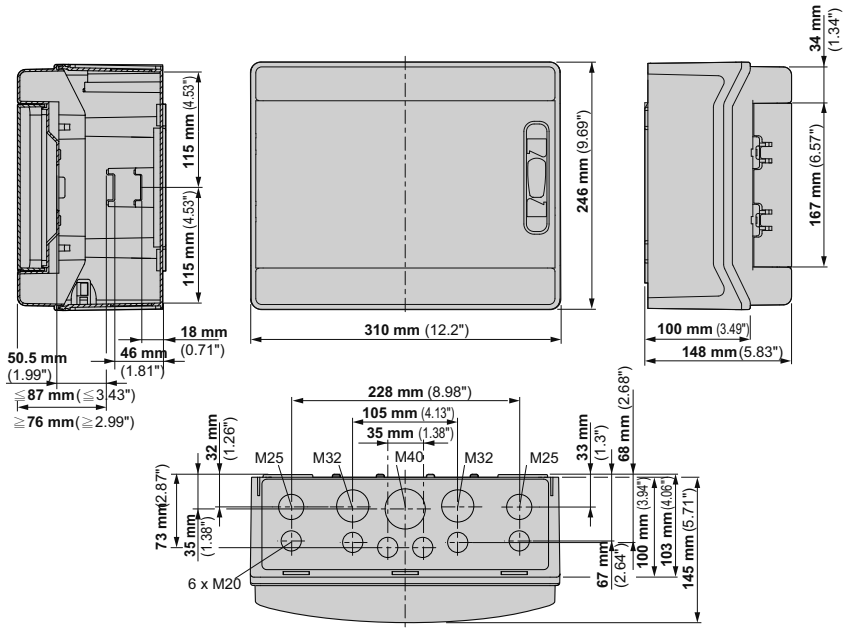


Dimensions (mm)

IKA-1/8....

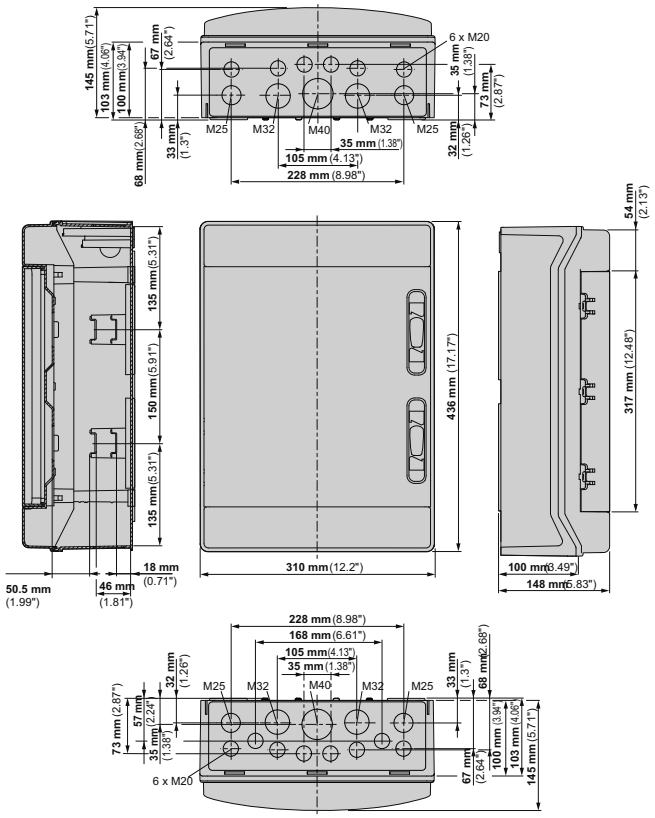


IKA-1/12....

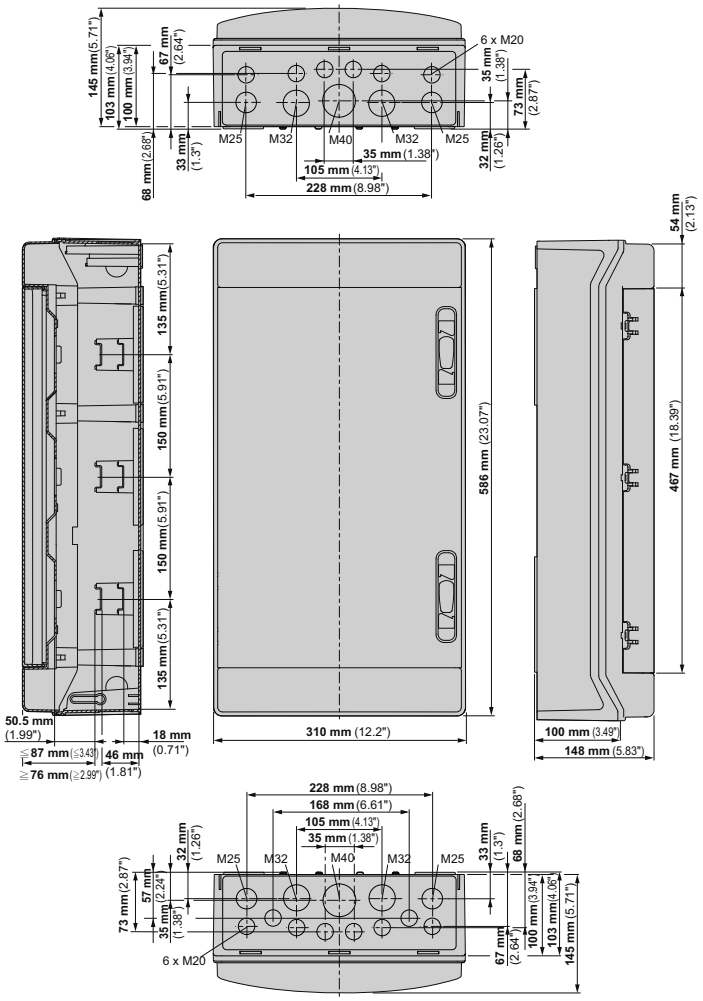


Dimensions (mm)

IKA-2/24....

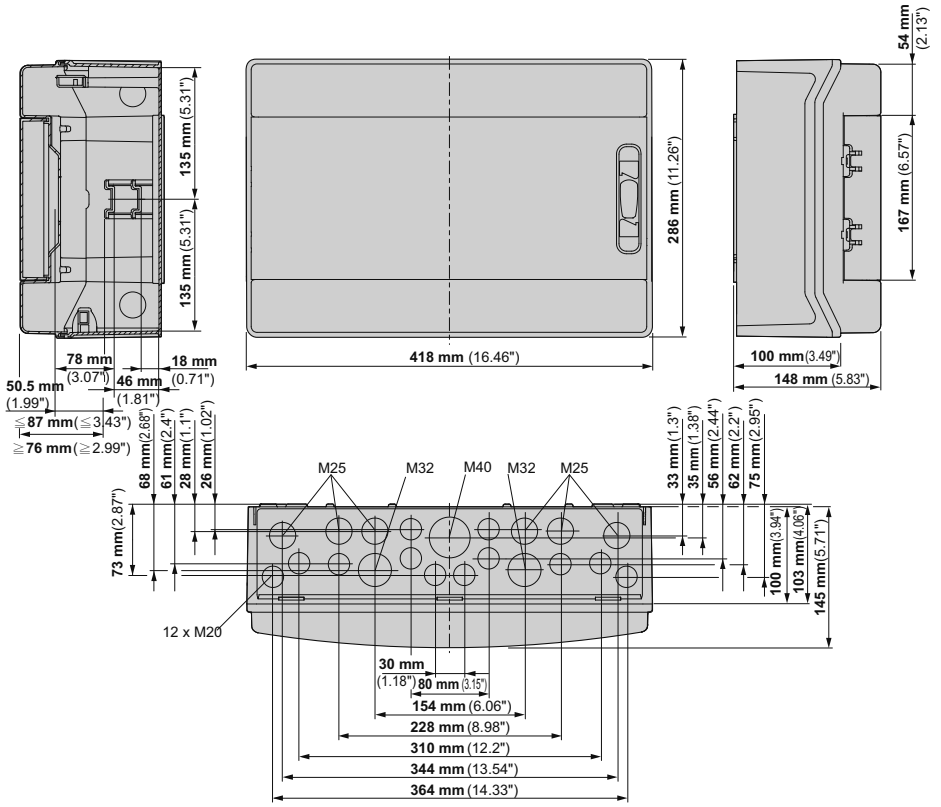


IKA-3/36....

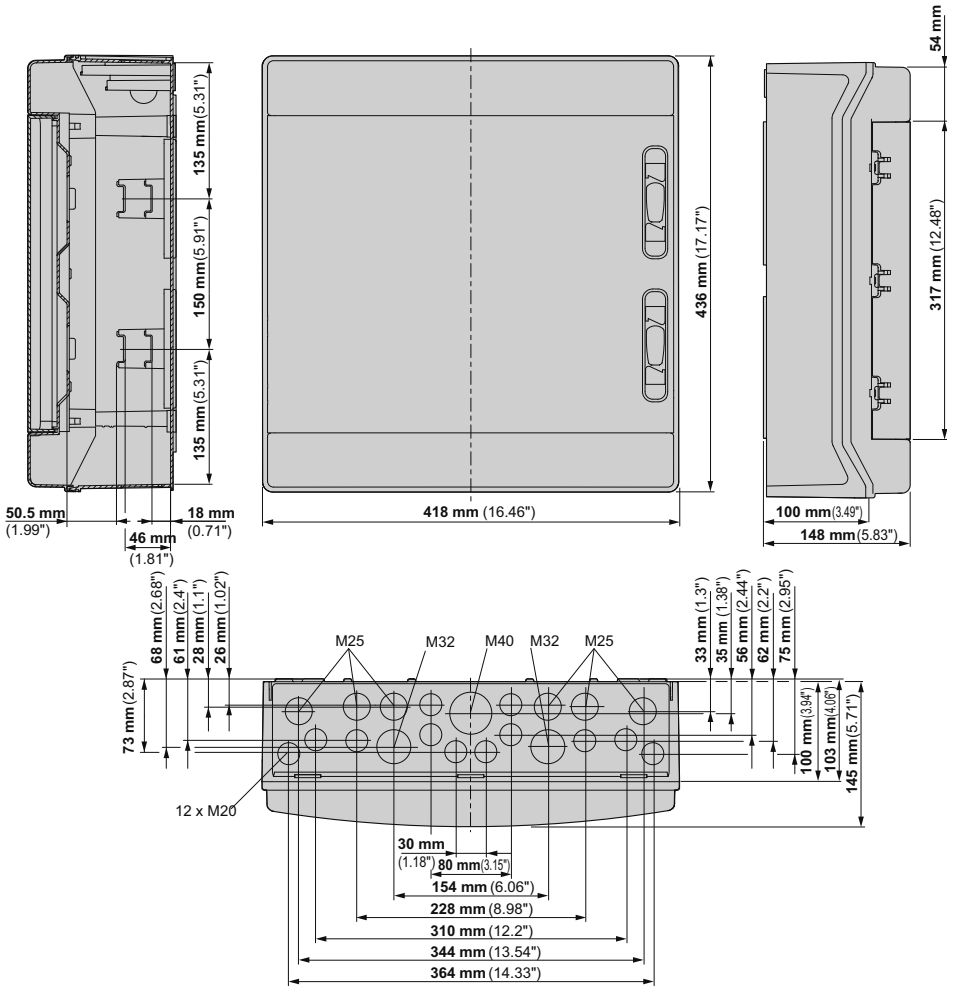


Dimensions (mm)

IKA-1/18....

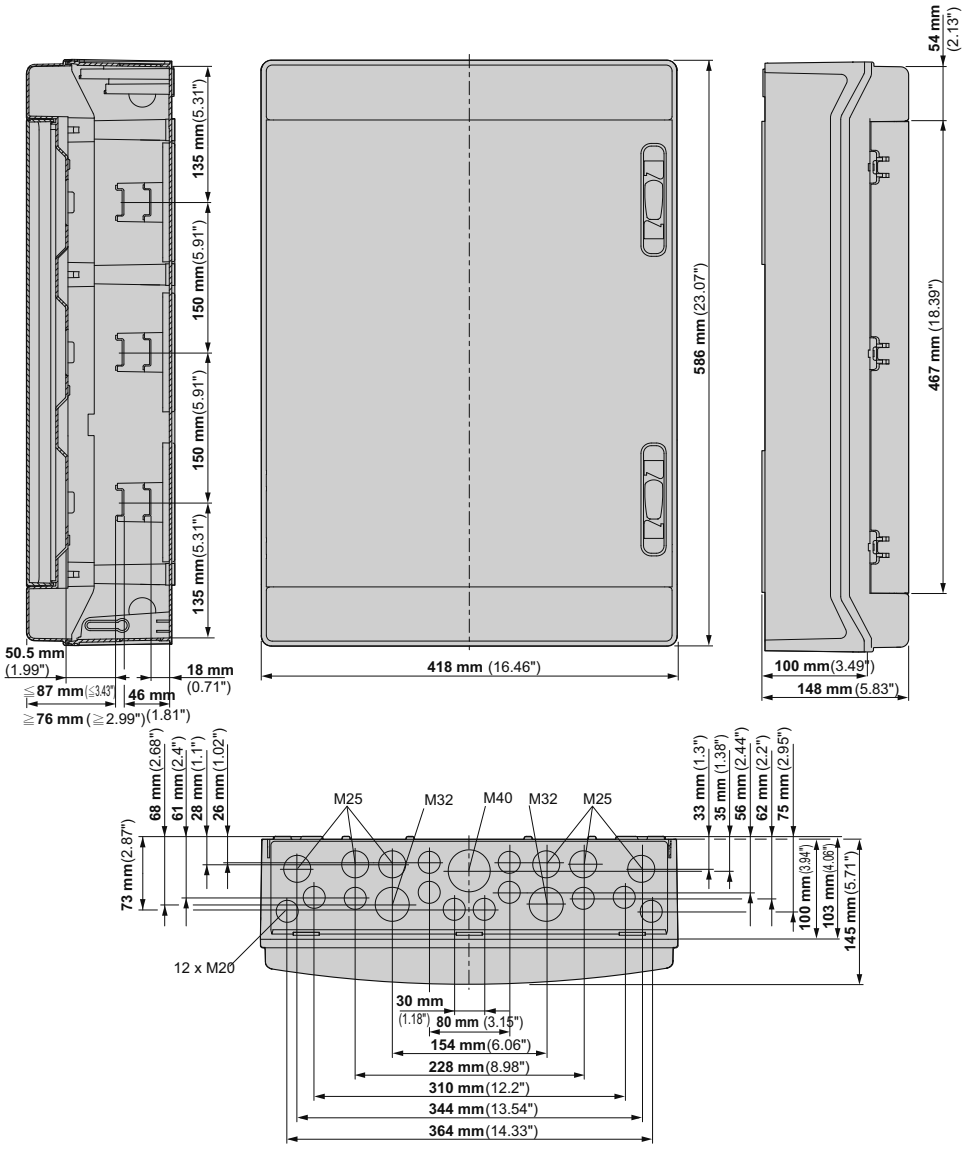


IKA-2/36....



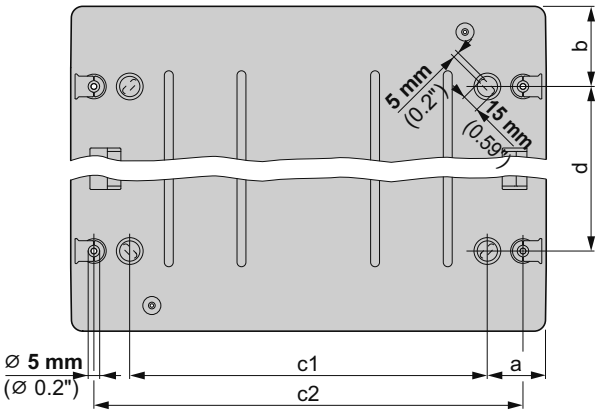
Dimensions (mm)

IKA-3/54....



Dimensions (mm)

Holes for wall-mountingIKA-...



Type	a [mm]	b [mm]	c1 [mm]	c2 [mm]	d [mm]
IKA-1/4...	45	55	76	126	121
IKA-1/6...	52.5	55	97	162	121
IKA-1/8...	52.5	55	133	198	121
IKA-1/12...	51.5	62.5	207	270	121
IKA-2/24...	51.5	70.5	207	270	295
IKA-3/36...	51.5	70.5	207	270	445
IKA-1/18...	51.5	70.5	315	378	145
IKA-2/36...	51.5	70.5	315	378	295
IKA-3/54...	51.5	70.5	315	378	445

Multimedia Distribution Boards

P10_KLV-36UPM-F



KLV-...UP and KLV-...HW

- 3 to 4 rows
- Hollow-wall and flush-mounted versions
- Flat and super flat door design
- Integrated spirit level
- 3D plaster compensation
- Top row carrier rail
- Micro-perforated mounting plate
- Cable holder
- Device holder
- 2-fold electricity socket
- Pre-punched cable entries, on all sides
- Degree of protection IP30
- Protection class II, fully insulated
- Door and cover frame, sheet steel RAL 9016
- Low halogen level
- IEC/EN 60670-24

Multimedia Distribution Boards Flush-mounted/Hollow-wall KLV-...UPM, KLV-...HWM

IP 30



- According to IEC/EN 60670-24
- Door with ventilation louvers and frame made of sheet steel
- 1 DIN carrier rail, e.g. for accommodating patch modules, 1 mounting plate with punch holes for fixing active and passive devices
- Device and cable holders for clear arrangement of devices
- 2-fold electricity socket incl. EURO2 adapter with plug-type terminal up to 2.5 mm^2
- Suitable for equipment of up to 80 mm max. depth
- Wall pan made of plastic with integrated spirit level
- Cable guidance slide with snap-on fixing
- Door with frame made of sheet steel, with 3D plaster compensation (compensation possible up to 18 mm), colour RAL 9016, optionally flat (F) or super flat (SF)
- Easy inversion of door hinges, hinges for manual handling
- Flat rotary door closure, easy to replace by one of the lock versions
- Hollow-wall anchor for fixing in the hollow wall (hollow-wall mounting only)
- Nail straps for fixing at the wall (flush-mounting only)
- Connection brackets for linking wall pans in pairs or fixing them on flush-mounted or hollow-wall mounted compact distribution boards KLV-UP..., KLV-HW...
- Dimensions according to standard distribution boards KLV-UP..., KLV-HW...
- Dimensions of the distribution boards according to DIN 43871

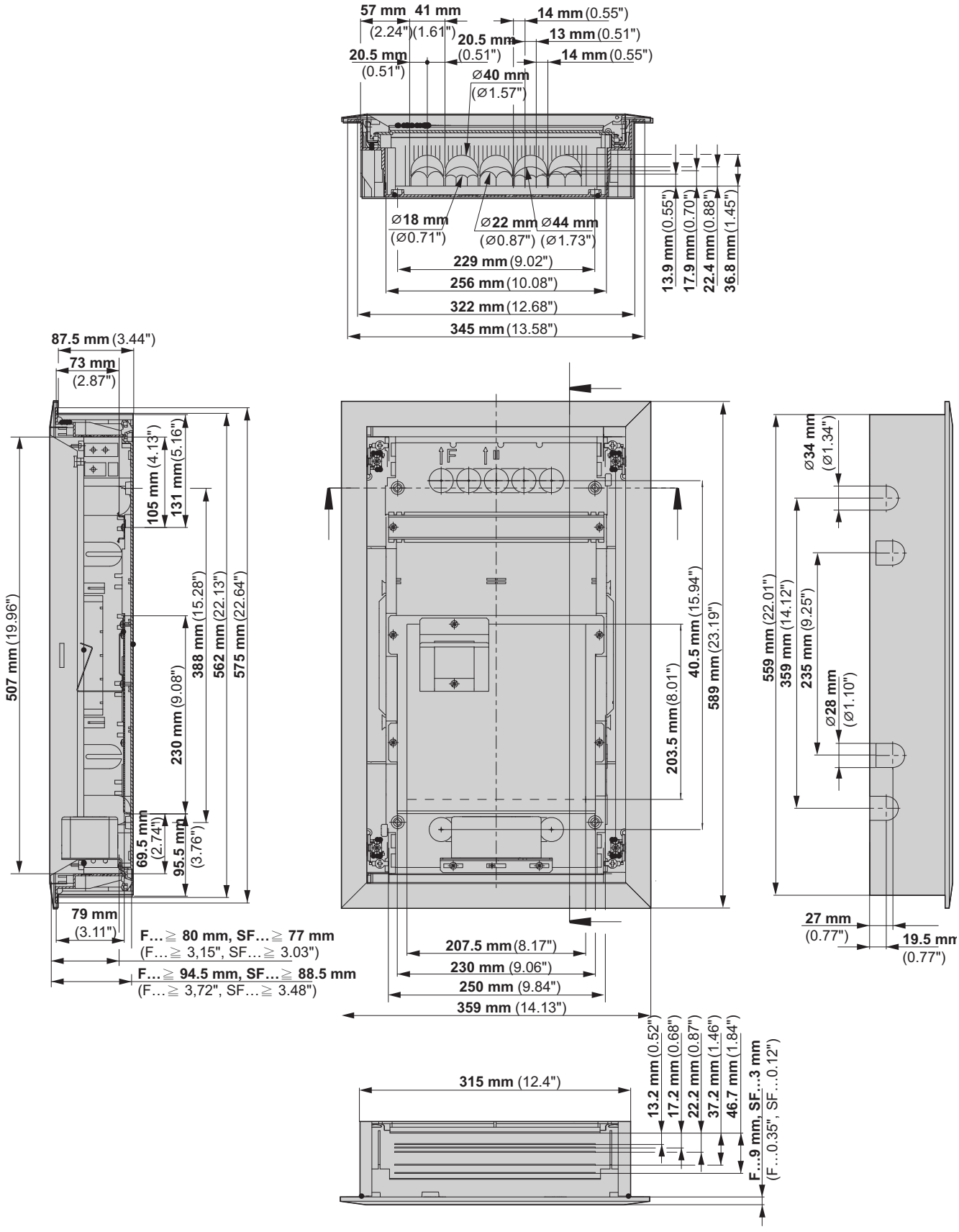
	Rows / DIN / MPL	Description	Type designation	Article No.	Pack (pcs.)
		Flush-mounting UPM			
P10_KLV-36UPM-F 	3 / 12+2 /	1st row DIN carrier rail, 2nd and 3rd row w. micro-perforated metal mounting plate for telecommunication devices, 2-fold electricity socket	KLV-36UPM-F KLV-36UPM-SF	178830 178831	1/60 1/60
P10_KLV-48UPM-F 	4 / 12+2 / 1	1st row DIN carrier rail, 2nd to 4th row w. micro-perforated metal mounting plate for telecommunication devices, 2-fold electricity socket	KLV-48UPM-F KLV-48UPM-SF	178832 178833	1/45 1/45
		Hollw-wall mounting HWM			
P10_KLV-36UPM-F 	3 / 12+2 / 1	1st row DIN carrier rail, 2nd and 3rd row w. micro-perforated metal mounting plate for telecommunication devices, 2-fold electricity socket	KLV-36HWM-F KLV-36HWM-SF	178834 178835	1/60 1/60
P10_KLV-48UPM-F 	4 / 12+2 / 1	1st row DIN carrier rail, 2nd to 4th row w. micro-perforated metal mounting plate for telecommunication devices, 2-fold electricity socket	KLV-48HWM-F KLV-48HWM-SF	178836 178837	1/45 1/45

* Note: Technical data same as for KLV-UP..., KLV-HW...

Multimedia Distribution Board - Flush-mounted/Hollow-wall KLV-...UPM, KLV-...HWM

Dimensions (mm)

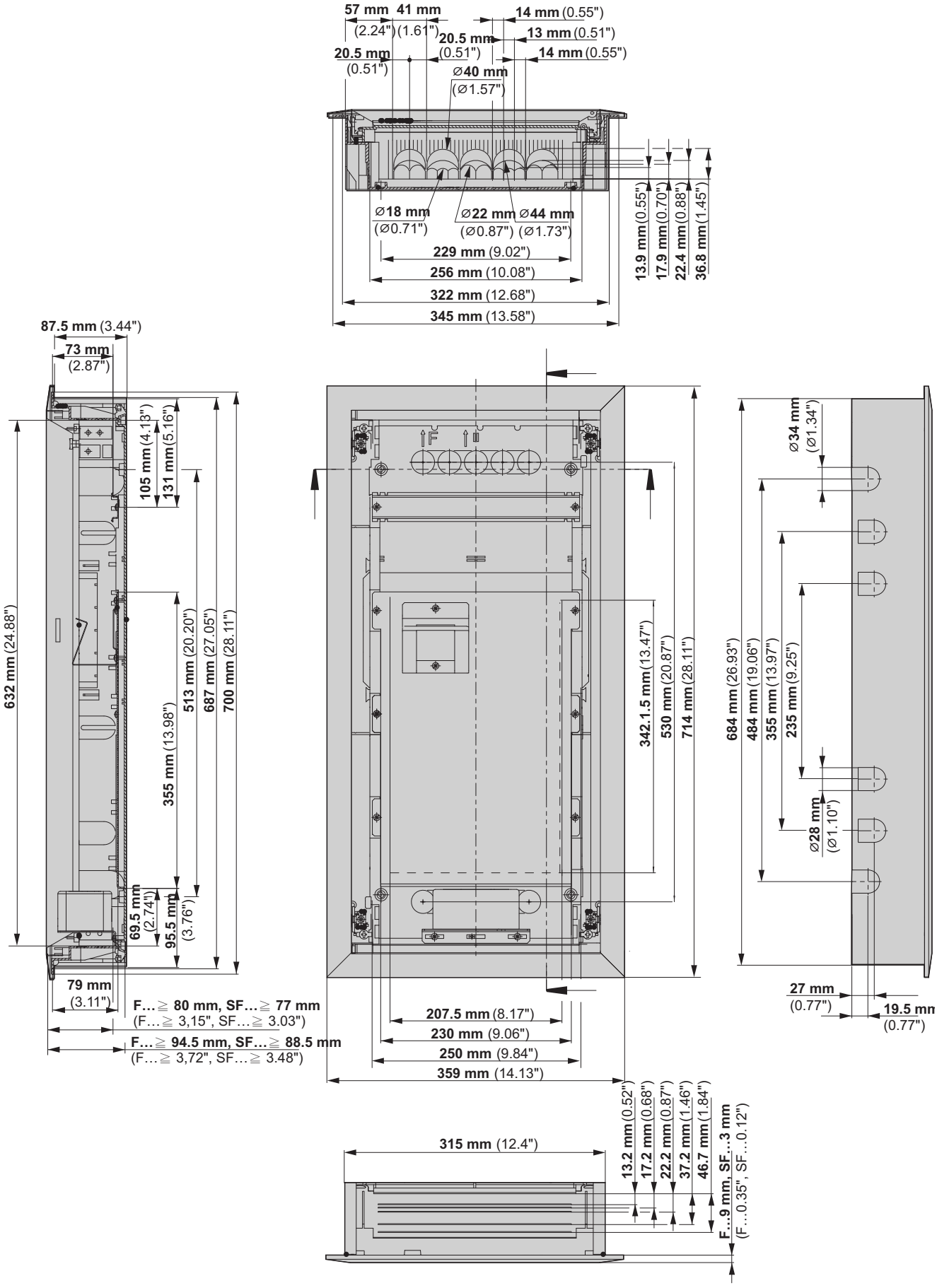
KLV-36...M-F (SF)



Multimedia Distribution Boards - Flush-mounted/Hollow-wall mounted KLV-...UPM, KLV-...HWM

Dimensions (mm)

KLV-48...M-F (SF)



Compact DBs - Delivery Form for Projects

P11_KLV-UP1-4PR



P11_KLV-F1UPP-4PR



P13_KLV-2UPP-4PR



P14_KLV-F2-4PR



KLV-...-4PR

- Same content as flush-mounted/hollow-wall or multimedia distribution boards
- Delivery form optimized for projects
- Finish in 2 or 3 steps
- N/PE combined plug-type terminals
- Multimedia
- Door and cover frame also available in other RAL colours

Delivery Form for Projects - Flush-mounted/Hollow-wall KLV-...4PR

IP 30



- Delivery form for projects, separate ordering and delivery of assemblies: Wall pan + equipment set
- Approved according to IEC/EN 60670-24 and IEC/EN 62208, i.e. for distributions according to IEC/EN 61439-3
- Wall pan, empty, optionally for flush-mounting or hollow-wall mounting
- Equipment set optionally with door and frame in flat or super flat design
- Technical parameters same as compact distribution boards KLV-...

	Description	Rows / MU	Type designation	Article No.	Pack (pcs.)
	Delivery form for projects - Wall pan				
P11_KLV-UP1-4PR 	Wall pan, empty, **for flush-mounting** with plaster protection and nail straps, integrated spirit level, flange slide, for equipment set	1 / 12+2	KLV-UP1-4PR	178838	1/90
		2 / 24+4	KLV-UP2-4PR	178839	1/60
		3 / 36+6	KLV-UP3-4PR	178840	1/60
		4 / 48+8	KLV-UP4-4PR	178841	1/45
P11_KLV-UP2-4PR 	Wall pan, empty, **for hollow-wall m.** with plaster protection and hollow-wall anchor, integrated spirit level, flange slide, for equipment set	1 / 12+2	KLV-HW1-4PR	178842	1/90
		2 / 24+4	KLV-HW2-4PR	178843	1/60
		3 / 36+6	KLV-HW3-4PR	178844	1/60
		4 / 48+8	KLV-HW4-4PR	178845	1/45
	Delivery form for projects - Equipment set for flush-mounting				
P11_KLV-F1UPP-4PR 	With DIN rail structure, door with door frame, optionally flat (F) or super flat (SF), **N-PE combined plug-type term.**, stable device cover, cable holder	1 / 12+2	KLV-F1UPP-4PR	178846	1/90
		2 / 24+4	KLV-F2UPP-4PR	178847	1/60
		3 / 36+6	KLV-F3UPP-4PR	178848	1/60
		4 / 48+8	KLV-F4UPP-4PR	178849	1/45
		1 / 12+2	KLV-SF1UPP-4PR	178850	1/90
		2 / 24+4	KLV-SF2UPP-4PR	178851	1/60
		3 / 36+6	KLV-SF3UPP-4PR	178852	1/60
		4 / 48+8	KLV-SF4UPP-4PR	178853	1/45
	Delivery form for projects - Equipment set for hollow-wall mounting				
P11_KLV-F2UPP-4PR 	With DIN rail structure, door with door frame, optionally flat (F) or super flat (SF), **N-PE combined plug-type term.**, stable device cover, cable holder	1 / 12+2	KLV-F1HWP-4PR	178854	1/90
		2 / 24+4	KLV-F2HWP-4PR	178855	1/60
		3 / 36+6	KLV-F3HWP-4PR	178856	1/60
		4 / 48+8	KLV-F4HWP-4PR	178857	1/45
		1 / 12+2	KLV-SF1HWP-4PR	178858	1/90
		2 / 24+4	KLV-SF2HWP-4PR	178859	1/60
		3 / 36+6	KLV-SF3HWP-4PR	178860	1/60
		4 / 48+8	KLV-SF4HWP-4PR	178861	1/45
	Delivery form for projects - Equipment set for flush-mounting or hollow-wall mounting				
P11_KLV-F3M-4PR 	1x DIN rail and **micro-perforated metal mounting plate**, door with frame, optionally flat (F) or super flat (SF), cable and device holder, 2-fold electricity socket, connection brackets	3 / 36+6	KLV-F3M-4PR	178862	1/60
		4 / 48+8	KLV-F4M-4PR	178863	1/45
		3 / 36+6	KLV-SF3M-4PR	178864	1/60
		4 / 48+8	KLV-SF4M-4PR	178865	1/45

Delivery Form for Projects - Flush-mounted/Hollow-wall mounted KLV-...4PR

IP 30

Indoor | IEC 62208 | 4PR

	Description	Rows / MU	Type designation	Article No.	Pack (pcs.)
	Delivery form for projects - Interieur, flush-mounted				
P13_KLV-2UPP-4PR 	With DIN rail structure, **N-PE comb. plug-type term.**, N-Fl term. stable device cover, cable holder	1 / 12+2	KLV-1UPP-4PR	178866	1/90
		2 / 24+4	KLV-2UPP-4PR	178867	1/60
		3 / 36+6	KLV-3UPP-4PR	178868	1/60
		4 / 48+8	KLV-4UPP-4PR	178869	1/45
	Delivery form for projects - Interieur, hollow-wall mounted				
P13_KLV-3UPP-4PR 	With DIN rail structure, **N-PE comb. plug-type term.**, N-Fl term. stable device cover, cable holder	1 / 12+2	KLV-1HWP-4PR	178870	1/90
		2 / 24+4	KLV-2HWP-4PR	178871	1/60
		3 / 36+6	KLV-3HWP-4PR	178872	1/60
		4 / 48+8	KLV-4HWP-4PR	178873	1/45
	Delivery form for projects - Exterieur				
vt115814 	Door with door frame, optionally flat (F) or super flat (SF), with 3D plaster compensation	1 / 12+2	KLV-F1-4PR	178874	1/90
		2 / 24+4	KLV-F2-4PR	178875	1/60
		3 / 36+6	KLV-F3-4PR	178876	1/60
		4 / 48+8	KLV-F4-4PR	178877	1/45
		1 / 12+2	KLV-SF1-4PR	178878	1/90
		2 / 24+4	KLV-SF2-4PR	178879	1/60
		3 / 36+6	KLV-SF3-4PR	178880	1/60
		4 / 48+8	KLV-SF4-4PR	178881	1/45
vt119414 	Door with **ventilation slots** and door frame, optionally flat (F) or super flat (SF), with 3D plaster compensation	3 / 36+6	KLV-F3L-4PR	178882	1/60
		4 / 48+8	KLV-F4L-4PR	178883	1/45
		3 / 36+6	KLV-SF3L-4PR	178884	1/60
		4 / 48+8	KLV-SF4L-4PR	178885	1/45
	Delivery form for projects - Exterieur, coloured				
vt115914 	Door with door frame, optionally flat (F) or super flat (SF), with 3D plaster compensation, RAL* = Colour requested	1 / 12+2	KLV-F1-4PR-RAL*	178886	1/90
		2 / 24+4	KLV-F2-4PR-RAL*	178887	1/60
		3 / 36+6	KLV-F3-4PR-RAL*	178888	1/60
		4 / 48+8	KLV-F4-4PR-RAL*	178889	1/45
		1 / 12+2	KLV-SF1-4PR-RAL*	178890	1/90
		2 / 24+4	KLV-SF2-4PR-RAL*	178891	1/60
		3 / 36+6	KLV-SF3-4PR-RAL*	178892	1/60
		4 / 48+8	KLV-SF4-4PR-RAL*	178893	1/45
P14_KLV-F4L-4PR 	Door with **ventilation slots** and door frame, optionally flat (F) or super flat (SF), with 3D plaster compensation, RAL* = Colour requested	3 / 36+6	KLV-F3L-4PR-RAL*	178894	1/60
		4 / 48+8	KLV-F4L-4PR-RAL*	178895	1/45
		3 / 36+6	KLV-SF3L-4PR-RAL*	178896	1/60
		4 / 48+8	KLV-SF4L-4PR-RAL*	178897	1/45

* Note: RAL colour code according to colour index, door bolt always RAL7037 dusty grey

BF-O Surface-mounted Flat Distribution Boards, IP30

wa_vt00913



wa_vt06213



- Surface-mounted Flat Distribution Board
- 2- to 6-rows 24MU/row (Versions A, E, C)
- 4- to 6-rows 33MU/row (Versions A, C, P)
- IP30
- Protection class I
- Sheet steel enclosure polyesterpowder coated (white RAL 9016; Version C also in grey RAL 7035)
- Prepared for Eaton MCCB Incoms
- Sheet steel front plates with contacting to the enclosure
- Removable DIN-rail frame
- Generous wiring space
- 150 mm DIN-rail distance (ideal for switchgear busbar system)
- Complete enclosure (including N/PE-terminals)
- Depth: 140 mm
- Universal mounting plate

BF-O Surface-mounted Flat Distribution Boards, IP30, Version A

Surface-mounted Flat Distribution Boards BF-O-./..-A, complete

Indoor

IEC 62208

Scope of Delivery:

- Enclosure
- Door with Rotary Door handle
- DIN-rail frame
- Cable Entry Flange (above)
- Front plates
- Neutral and protective earth terminals

wa_vt01813



MU per row / Number of rows	Type designation	Article No.	Pack (pcs.)
White			
24 / 2	BF-O-2/48-A	240732	1
24 / 3	BF-O-3/72-A	240733	1
24 / 4	BF-O-4/96-A	240734	1
24 / 5	BF-O-5/120-A	240735	1
24 / 6	BF-O-6/144-A	240736	1
33 / 4	BF-O-4/132-A	240742	1
33 / 5	BF-O-5/165-A	240743	1
33 / 6	BF-O-6/198-A	240744	1

BF-O Surface-mounted Flat Distribution Boards, IP30, Version A

Technical Data BF-O-./..-A

- Flat installation distribution board for surface-mounting
- 2- to 6-rows with 24 MU per row
- 4- to 6-rows with 33 MU per row

Enclosure:
- Closed Construction including rear wall
- Rear wall useable as mounting area
- 2 cable entry flanges at flat distribution board with 24MU width at the top
- 3 cable entry flanges at flat distribution board with 33MU width at the top
- Pre stamped cable entry openings at the bottom
- Terminals pre mounted at the enclosure (no losing of Module Units)

Wall Box:
- Wall Box with door frame
- Rear wall useable as mounting area
- Easy removeable knock-outs
- 127 mm depth
- Terminals pre mounted at the enclosure (no losing of Module Units)
- 4 lateral mounting straps

Door:
- Steel sheet door with rotary door handle white in the scope of delivery
- Steel sheet door with additional depth (required to install RMQ-Components at the door) is available as accessory (**BFZ-OTR-./...**)
- Steel sheet door with window is available as accessory (**BFZ-OTT-./...**)

DIN-Rail Frame:
- Removable DIN-rail frame
- For 45 mm Switchgear
- 150 mm distance between DIN-Rails
- Eaton MCCB integrate able by mounting set (**BFZ-NZM1-SET(/33)**)
- Universal mounting set for surface mounted enclosure (**BFZ-O-ITMPL..**)

Front plate:
- Contacting of the metal front plate by special catch on enclosure

Electrical	
Design according to	EN 61439-1,-3 EN 62208
Protection class	IP30 according to EN 60529
Protection class	I
Rated voltage	AC 240/415V; 50/60 Hz
Rated isolation voltage	AC 415V
Rated current range	max. 125/160 A (according to Incoming switch)
Max. power loss for all devices integrated in the flat distribution board at an ambient temperature of 35°C:	
BF-O-2/48	74 W
BF-O-3/72	88 W
BF-O-4/96	102 W
BF-O-4/132	128 W
BF-O-5/120	117 W
BF-O-5/165	139 W
BF-O-6/144	131 W
BF-O-6/198	155 W

Mechanical		
Enclosure	Steel sheet Polyester powder coated	
Door	Steel sheet Polyester powder coated	
Front plates	Steel sheet Polyester powder coated	
DIN-rail frame	Steel sheet galvanised	
Terminal support	PPO	
Colour	white RAL 9016	
Distance between DIN-Rails	150 mm	
N/PE terminals max. 63 A		
	N	PE
BF-O-2/48	2x25mm^2+9x16mm^2	2x25mm^2+27x16mm^2
BF-O-3/72	2x25mm^2+9x16mm^2	2x25mm^2+27x16mm^2
BF-O-4/96	2x25mm^2+9x16mm^2	2x25mm^2+43x16mm^2
BF-O-4/132	2x25mm^2+9x16mm^2	2x25mm^2+58x16mm^2
BF-O-5/120	2x25mm^2+9x16mm^2	2x25mm^2+58x16mm^2
BF-O-5/165	2x25mm^2+9x16mm^2	2x25mm^2+74x16mm^2
BF-O-6/144	2x25mm^2+9x16mm^2	2x25mm^2+58x16mm^2
BF-O-6/198	2x25mm^2+9x16mm^2	2x25mm^2+74x16mm^2

Cable entries above

	24MU per row		**33MU per row**	
	2x Flange:	14x ø11mm 8x ø15mm 2x ø28mm	3x Flange:	14x ø11mm 8x ø15mm 2x ø28mm
	Relief stamp:	2x M32/M40	Relief stamp:	1x M32/M40

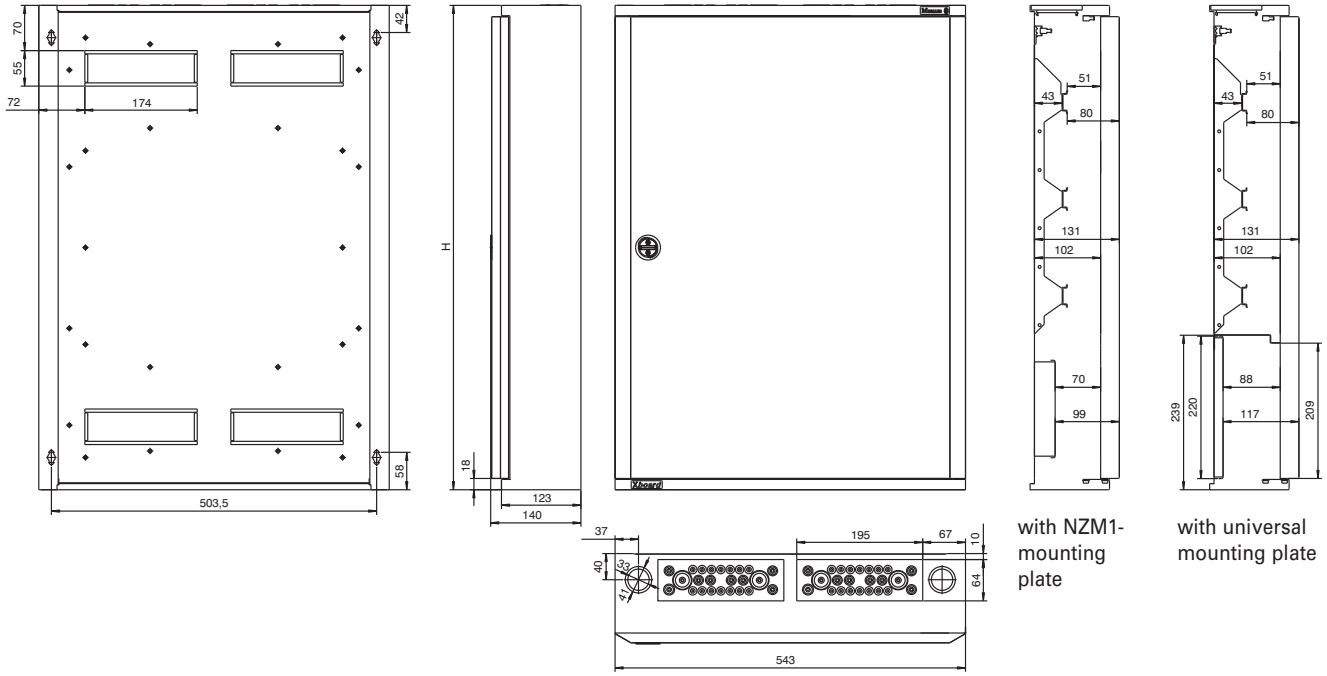
Cable entries below

	24MU per row		**33MU per row**	
	Relief stamp:	2x M32/M40 6x M25 8x M20	Relief stamp:	1x M32/M40 12x M25 8x M20

BF-O Surface-mounted Flat Distribution Boards, IP30, Version A

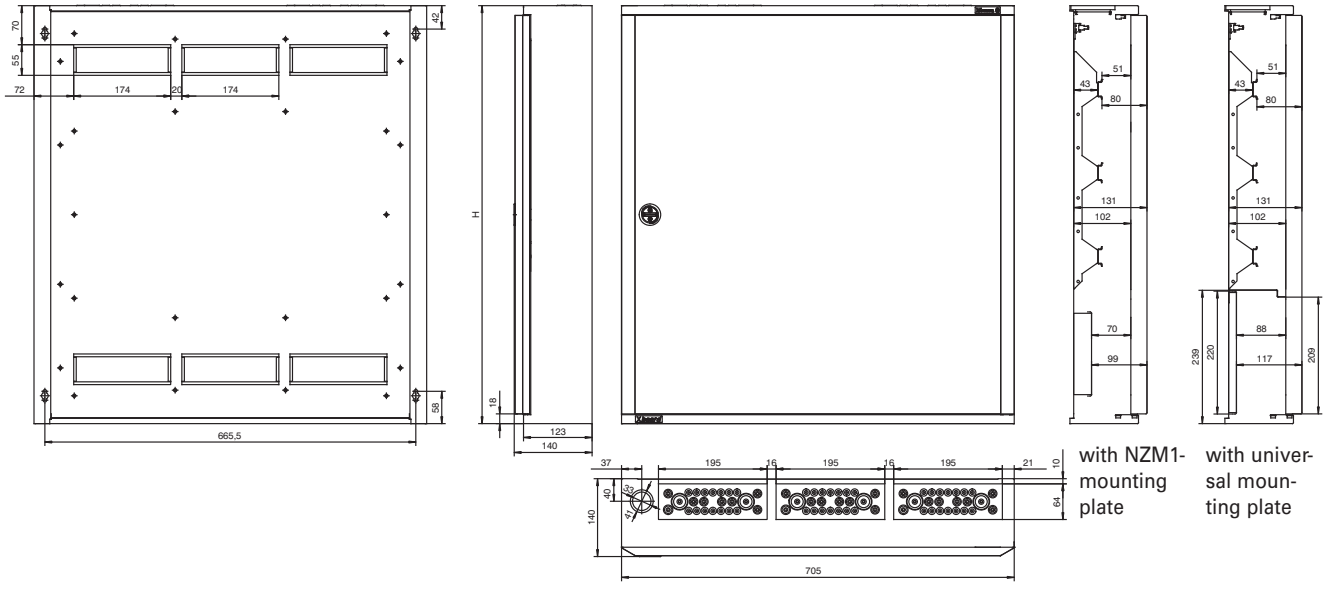
Dimensions (mm)

Surface-mounting Flat Distribution Boards with 24MU per row



Type	H
BF-O-2/48-A	450
BF-O-3/72-A	600
BF-O-4/96-A	750
BF-O-5/120-A	900
BF-O-6/144-A	1050

Surface-mounting Flat Distribution Boards with 33MU per row



Type	H
BF-O-4/132-A	750
BF-O-5/165-A	900
BF-O-6/198-A	1050

BF-O Surface-mounted Flat Distribution Boards, IP30, Version E

Surface-mounted Flat Distribution Boards BF-O-./..-E, complete

Indoor IEC 62208

Scope of Delivery:
- Enclosure
- Door with Rotary Door handle Profi-Line
- DIN-rail frame
- Cable Entry Flange (above)
- Front plates
- Neutral and protective earth terminals

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MU per row / Number of rows	Type designation	Article No.	Pack (pcs.)
White			
24 / 2	BF-O-2/48-E	283040	1
24 / 3	BF-O-3/72-E	283041	1
24 / 4	BF-O-4/96-E	283042	1
24 / 5	BF-O-5/120-E	283043	1
24 / 6	BF-O-6/144-E	285220	1

BF-O Surface-mounted Flat Distribution Boards, IP30, Version E

Technical Data BF-O-./..-E

- Flat installation distribution board for surface-mounting
- 2- to 6-rows with 24 MU per row

Enclosure:
- Closed Construction including rear wall
- Rear wall useable as mounting area
- 2 cable entry flanges at flat distribution board with 24MU width at the top
- Pre stamped cable entry openings at the bottom
- Terminals pre mounted at the enclosure (no losing of Module Units)

Wall Box:
- Wall Box with door frame
- Rear wall useable as mounting area
- Easy removeable knock-outs
- 127 mm depth
- Terminals pre mounted at the enclosure (no losing of Module Units)
- 4 lateral mounting straps

Door:
- Steel sheet door with rotary door handle white in the scope of delivery
- Steel sheet door with additional depth (required to install RMQ-Components at the door) is available as accessory (**BFZ-OTR-./...**)
- Steel sheet door with window is available as accessory (**BFZ-OTT-OR./...**)

DIN-Rail Frame:
- Removable DIN-rail frame
- For 45 mm Switchgear
- 150 mm distance between DIN-Rails
- Eaton MCCB integrate able by mounting set (**BFZ-NZM1-SET(/33)**)
- Universal mounting set for surface mounted enclosure (**BFZ-O-ITMPL..**)

Front plate:
- Contacting of the metal front plate by special catch on enclosure

Electrical	
Design according to	EN 61439-1,-3 EN 62208
Protection class	IP30 according to EN 60529
Protection class	I
Rated voltage	AC 240/415V; 50/60 Hz
Rated isolation voltage	AC 415V
Rated current range	max. 125/160 A (according to Incoming switch)
Max. power loss for all devices integrated in the flat distribution board at an ambient temperature of 35°C:	
BF-O-2/48	74 W
BF-O-3/72	88 W
BF-O-4/96	102 W
BF-O-5/120	117 W
BF-O-6/144	131 W

Mechanical		
Enclosure	Steel sheet Polyester powder coated	
Door	Steel sheet Polyester powder coated	
Front plates	Steel sheet Polyester powder coated	
DIN-rail frame	Steel sheet galvanised	
Terminal support	PPO	
Colour	white RAL 9016	
Distance between DIN-Rails	150 mm	
N/PE terminals max. 63 A		
	N	PE
BF-O-2/48	2x25mm^2+13x16mm^2	2x25mm^2+13x16mm^2
BF-O-3/72	2x25mm^2+13x16mm^2	2x25mm^2+13x16mm^2
BF-O-4/96	2x25mm^2+27x16mm^2	2x25mm^2+27x16mm^2
BF-O-5/120	2x25mm^2+27x16mm^2	2x25mm^2+27x16mm^2
BF-O-6/144	2x25mm^2+27x16mm^2	2x25mm^2+27x16mm^2

Cable entries above

	24MU per row
2x Flange:	14x ø11mm 8x ø15mm 2x ø28mm
Relief stamp:	2x M32/M40

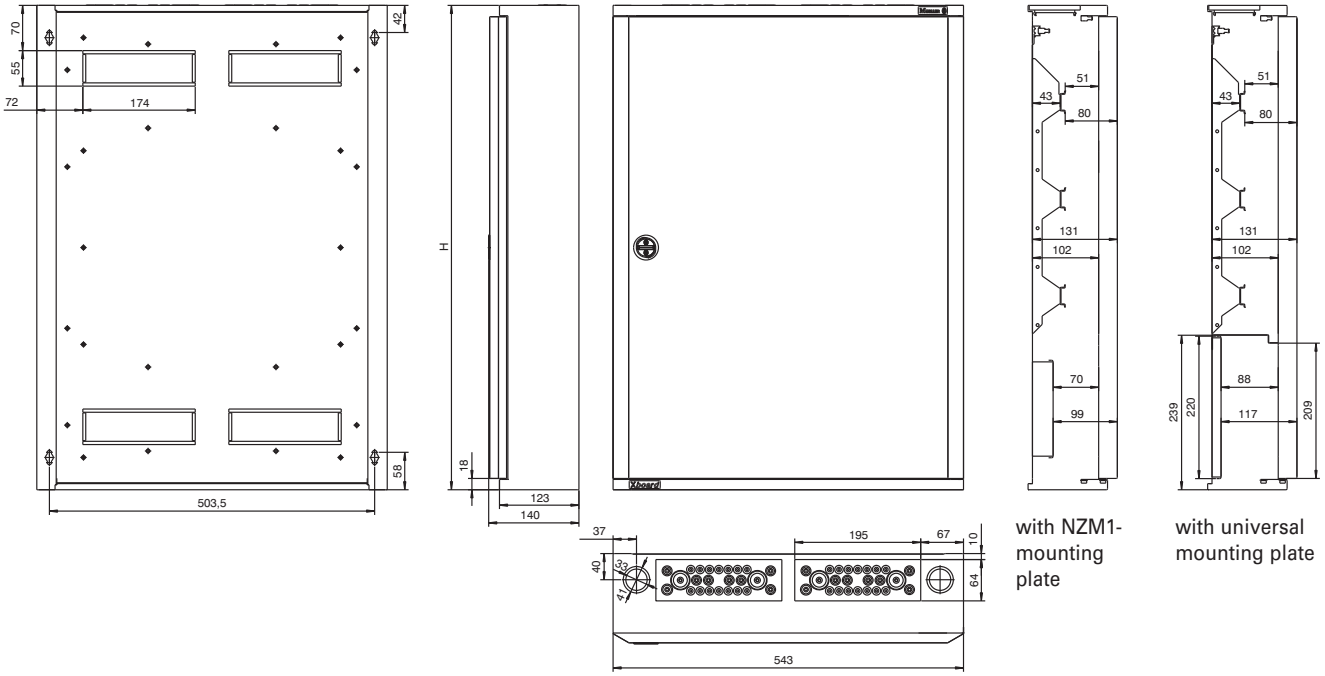
Cable entries below

	24MU per row
Relief stamp:	2x M32/M40 6x M25 8x M20

BF-O Surface-mounted Flat Distribution Boards, IP30, Version A

Dimensions (mm)

Surface-mounting Flat Distribution Boards with 24MU per row



with NZM1-mounting plate

with universal mounting plate

Type	H
BF-O-2/48-E	450
BF-O-3/72-E	600
BF-O-4/96-E	750
BF-O-5/120-E	900
BF-O-6/144-E	1050

BF-O Surface-mounted Flat Distribution Boards, IP30, Version C

Indoor

IEC 62208

Scope of Delivery:

- Enclosure (white oder grey)
- Door with Rotary Door handle (white and grey with or without window)
- DIN-rail frame
- Cable Entry Flange (above)
- Front plates (white oder grey)
- Neutral and protective earth terminals

Surface-mounted Flat Distribution Boards BF-O-./...(-G)-C without window, complete

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wa_vt01913



MU per row / Number of rows	Type designation	Article No.	Pack (pcs.)
White			
24 / 2	BF-O-2/48-C	113685	1
24 / 3	BF-O-3/72-C	283031	1
24 / 4	BF-O-4/96-C	283032	1
24 / 5	BF-O-5/120-C	283033	1
24 / 6	BF-O-6/144-C	283034	1
33 / 4	BF-O-4/132-C	103091	1
33 / 5	BF-O-5/165-C	103092	1
33 / 6	BF-O-6/198-C	103093	1
Grey			
24 / 2	BF-O-2/48-G-C	113686	1
24 / 3	BF-O-3/72-G-C	283044	1
24 / 4	BF-O-4/96-G-C	283045	1
24 / 5	BF-O-5/120-G-C	283046	1
24 / 6	BF-O-6/144-G-C	283047	1
33 / 4	BF-O-4/132-G-C	103094	1
33 / 5	BF-O-5/165-G-C	103095	1
33 / 6	BF-O-6/198-G-C	103096	1

Surface-mounted Flat Distribution Boards BF-OT-./...(-G)-C with window, complete

wa_vt06213



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MU per row / Number of rows	Type designation	Article No.	Pack (pcs.)
White			
24 / 2	BF-OT-2/48-C	113687	1
24 / 3	BF-OT-3/72-C	103103	1
24 / 4	BF-OT-4/96-C	103104	1
24 / 5	BF-OT-5/120-C	103105	1
24 / 6	BF-OT-6/144-C	103106	1
33 / 4	BF-OT-4/132-C	103107	1
33 / 5	BF-OT-5/165-C	103108	1
33 / 6	BF-OT-6/198-C	103109	1
Grey			
24 / 2	BF-OT-2/48-G-C	113688	1
24 / 3	BF-OT-3/72-G-C	103110	1
24 / 4	BF-OT-4/96-G-C	103111	1
24 / 5	BF-OT-5/120-G-C	103112	1
24 / 6	BF-OT-6/144-G-C	103113	1
33 / 4	BF-OT-4/132-G-C	103114	1
33 / 5	BF-OT-5/165-G-C	103115	1
33 / 6	BF-OT-6/198-G-C	103116	1

BF-O Surface-mounted Flat Distribution Boards, IP30, Version C

Technical Data BF-O.-./..-C

- Flat installation distribution board for surface-mounting
- 2- to 6-rows with 24 MU per row
- 4- to 6-rows with 33 MU per row

Enclosure:
- Closed Construction including rear wall
- Rear wall useable as mounting area
- 2 cable entry flanges at flat distribution board with 24MU width at the top
- Pre stamped cable entry openings at the bottom
- Terminals pre mounted at the enclosure (no losing of Module Units)

Wall Box:
- Wall Box with door frame
- Rear wall useable as mounting area
- Easy removeable knock-outs
- 127 mm depth
- Terminals pre mounted at the enclosure (no losing of Module Units)
- 4 lateral mounting straps

Door:
- Steel sheet door with rotary door handle white and gray in the scope of delivery
- Steel sheet door with window white and grey in the scope of delivery
- Steel sheet door with additional depth (required to install RMQ-Components at the door) is available as accessory (**BFZ-OTR-./...**)

DIN-Rail Frame:
- Removable DIN-rail frame
- For 45 mm Switchgear
- 150 mm distance between DIN-Rails
- Eaton MCCB integrate able by mounting set (**BFZ-NZM1-SET(/33)**)
- Universal mounting set for surface mounted enclosure (**BFZ-O-ITMPL..**)

Front plate:
- Contacting of the metal front plate by special catch on enclosure

Electrical	
Design according to	EN 61439-1,-3 EN 62208
Protection class	IP30 according to EN 60529
Protection class	I
Rated voltage	AC 240/415V; 50/60 Hz
Rated isolation voltage	AC 415V
Rated current range	max. 125/160 A (according to Incoming switch)
Max. power loss for all devices integrated in the flat distribution board at an ambient temperature of 35°C:	
BF-O(T)-2/48	74 W
BF-O(T)-3/72	88 W
BF-O(T)-4/96	102 W
BF-O(T)-4/132	128 W
BF-O(T)-5/120	117 W
BF-O(T)-5/165	139 W
BF-O(T)-6/144	131 W
BF-O(T)-6/198	155 W

Mechanical		
Enclosure	Steel sheet Polyester powder coated	
Door	Steel sheet Polyester powder coated	
Front plates	Steel sheet Polyester powder coated	
DIN-rail frame	Steel sheet galvanised	
Terminal support	PPO	
Colour	white RAL 9016 grey RAL 7035	
Distance between DIN-Rails	150 mm	
N/PE terminals max. 63 A		
	N	PE
BF-O-2/48	2x25mm^2+43x16mm^2	2x25mm^2+43x16mm^2
BF-O-3/72	2x25mm^2+43x16mm^2	2x25mm^2+43x16mm^2
BF-O-4/96	2x25mm^2+43x16mm^2	2x25mm^2+43x16mm^2
BF-O-4/132	2x25mm^2+58x16mm^2	2x25mm^2+58x16mm^2
BF-O-5/120	2x25mm^2+43x16mm^2	2x25mm^2+43x16mm^2
BF-O-5/165	2x25mm^2+58x16mm^2	2x25mm^2+58x16mm^2
BF-O-6/144	2x25mm^2+43x16mm^2	2x25mm^2+43x16mm^2
BF-O-6/198	2x25mm^2+58x16mm^2	2x25mm^2+58x16mm^2

Cable entries above

	24MU per row		**33MU per row**	
	2x Flange:	14x ø11mm 8x ø15mm 2x ø28mm	3x Flange:	14x ø11mm 8x ø15mm 2x ø28mm
	Relief stamp:	2x M32/M40	Relief stamp:	1x M32/M40

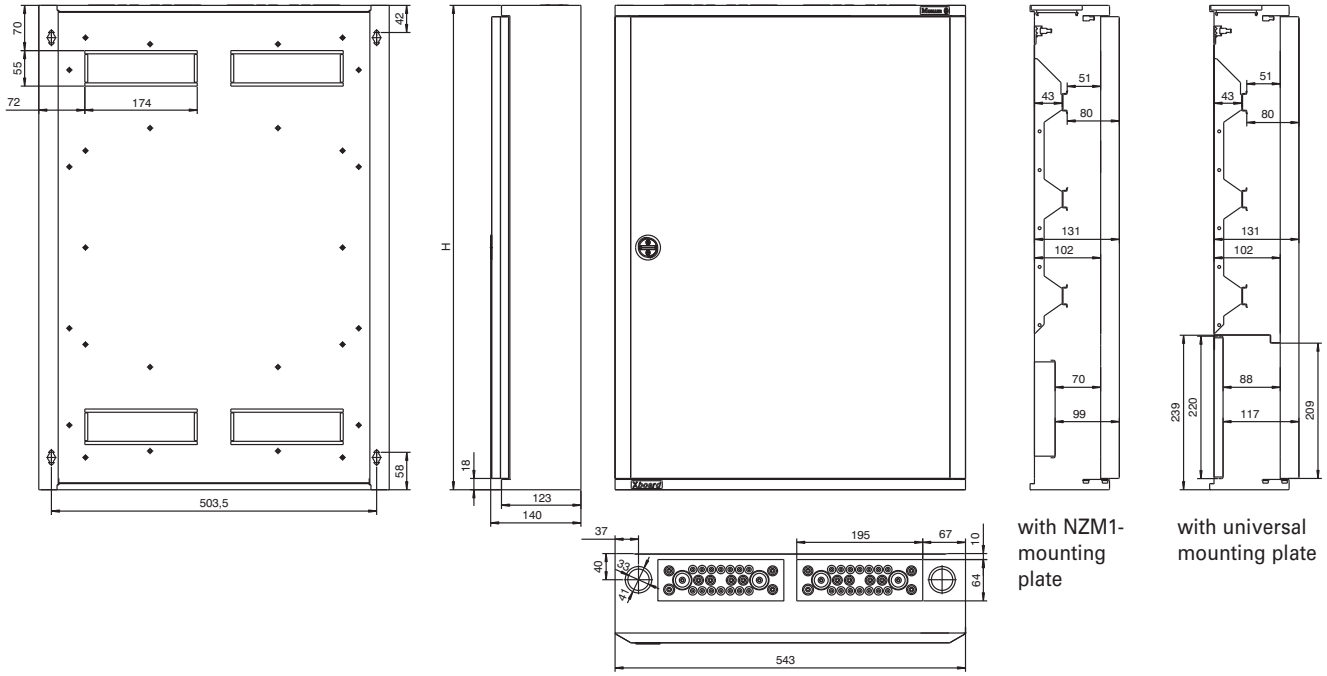
Cable entries below

	24MU per row		**33MU per row**	
	Relief stamp:	2x M32/M40 6x M25 8x M20	Relief stamp:	1x M32/M40 12x M25 8x M20

BF-O Surface-mounted Flat Distribution Boards, IP30, Version C

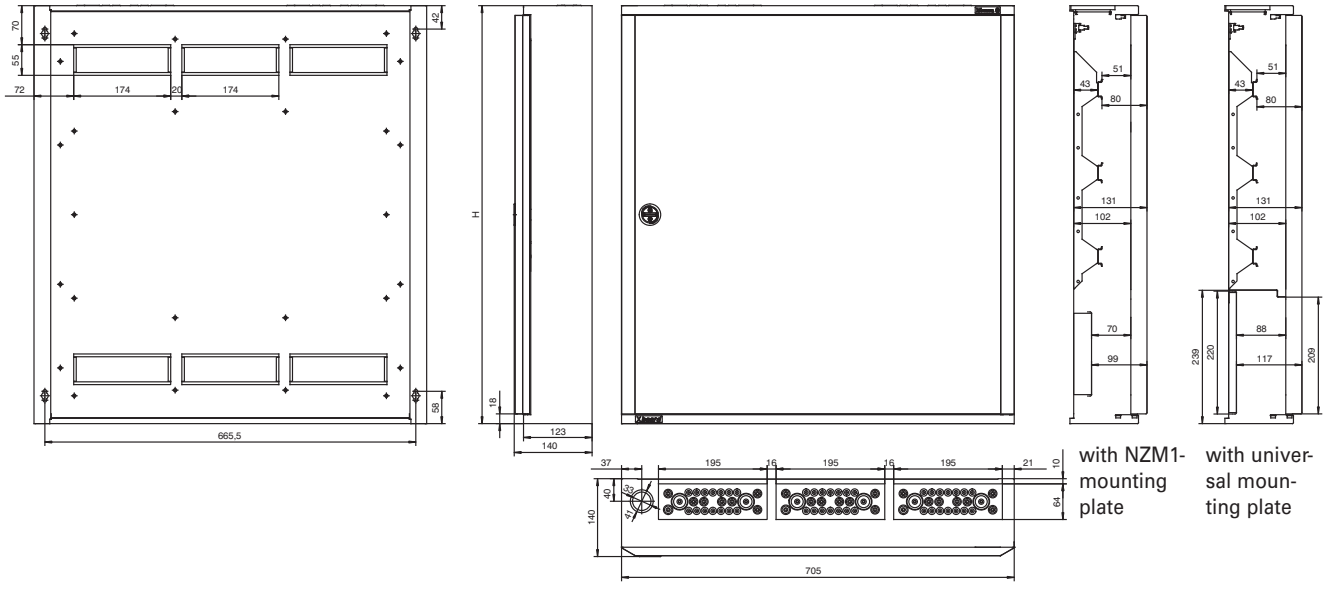
Dimensions (mm)

Surface-mounting Flat Distribution Boards with 24MU per row



Type	H
BF-O-2/48(-G)-C	450
BF-O-3/72(-G)-C	600
BF-O-4/96(-G)-C	750
BF-O-5/120(-G)-C	900
BF-O-6/144(-G)-C	1050

Surface-mounting Flat Distribution Boards with 33MU per row



Type	H
BF-O-4/132(-G)-C	750
BF-O-5/165(-G)-C	900
BF-O-6/198(-G)-C	1050

BF-O Surface-mounted Flat Distribution Boards, IP30, Version P

Indoor

IEC 62208

Scope of Delivery:

- Enclosure
- Door with Rotary Door handle (with or without window)
- DIN-rail frame
- Cable Entry Flange (above)
- Front plates
- Neutral and protective earth terminals

Surface-mounted Flat Distribution Boards BF-O-./...(-G)-P without window, complete

wa_vt01813



MU per row / Number of rows	Type designation	Article No.	Pack (pcs.)
White			
24 / 3	BF-O-3/72-P	285345	1
24 / 4	BF-O-4/96-P	285346	1
24 / 5	BF-O-5/120-P	285347	1
24 / 6	BF-O-6/144-P	285348	1

Surface-mounted Flat Distribution Boards BF-OT-./...(-G)-P with window, complete

wa_vt06213



MU per row / Number of rows	Type designation	Article No.	Pack (pcs.)
White			
24 / 3	BF-OT-3/72-P	289099	1
24 / 4	BF-OT-4/96-P	289130	1
24 / 5	BF-OT-5/120-P	289131	1
24 / 6	BF-OT-6/144-P	289132	1

BF-O Surface-mounted Flat Distribution Boards, IP30, Version P

Technical Data BF-O.-./..-P

- Flat installation distribution board for surface-mounting
- 3- to 6-rows with 24 MU per row

Enclosure:
- Closed Construction including rear wall
- Rear wall useable as mounting area
- 2 cable entry flanges at flat distribution board with 24MU width at the top
- Pre stamped cable entry openings at the bottom
- Terminals pre mounted at the enclosure (no losing of Module Units)

Wall Box:
- Wall Box with door frame
- Rear wall useable as mounting area
- Easy removeable knock-outs
- 127 mm depth
- Terminals pre mounted at the enclosure (no losing of Module Units)
- 4 lateral mounting straps

Door:
- Steel sheet door with rotary door handle white or steel sheet door with window and rotary door handle white in the scope of delivery
- Steel sheet door with additional depth (required to install RMQ-Components at the door) is available as accessory (**BFZ-OTR-./...**)

DIN-Rail Frame:
- Removable DIN-rail frame
- For 45 mm Switchgear
- 150 mm distance between DIN-Rails
- Eaton MCCB integrate able by mounting set (**BFZ-NZM1-SET(/33)**)
- Universal mounting set for surface mounted enclosure (**BFZ-O-ITMPL..**)

Front plate:
- Contacting of the metal front plate by special catch on enclosure

Electrical	
Design according to	EN 61439-1,-3 EN 62208
Protection class	IP30 according to EN 60529
Protection class	I
Rated voltage	AC 240/415V; 50/60 Hz
Rated isolation voltage	AC 415V
Rated current range	max. 125/160 A (according to Incoming switch)
Max. power loss for all devices integrated in the flat distribution board at an ambient temperature of 35°C:	
BF-O-3/72	88 W
BF-O-4/96	102 W
BF-O-5/120	117 W

Mechanical		
Enclosure	Steel sheet Polyester powder coated	
Door	Steel sheet Polyester powder coated	
Front plates	Steel sheet Polyester powder coated	
DIN-rail frame	Steel sheet galvanised	
Terminal support	PPO	
Colour	white RAL 9016	
Distance between DIN-Rails	150 mm	
N/PE terminals max. 63 A		
	N	PE
BF-O-3/72	2x25mm^2+43x16mm^2	2x25mm^2+43x16mm^2
BF-O-4/96	2x25mm^2+58x16mm^2	2x25mm^2+58x16mm^2
BF-O-5/120	2x25mm^2+58x16mm^2	2x25mm^2+58x16mm^2
BF-O-6/144	2x25mm^2+58x16mm^2	2x25mm^2+58x16mm^2

Cable entries above

	24MU per row
2x Flange:	14x ø11mm 8x ø15mm 2x ø28mm
Relief stamp:	2x M32/M40

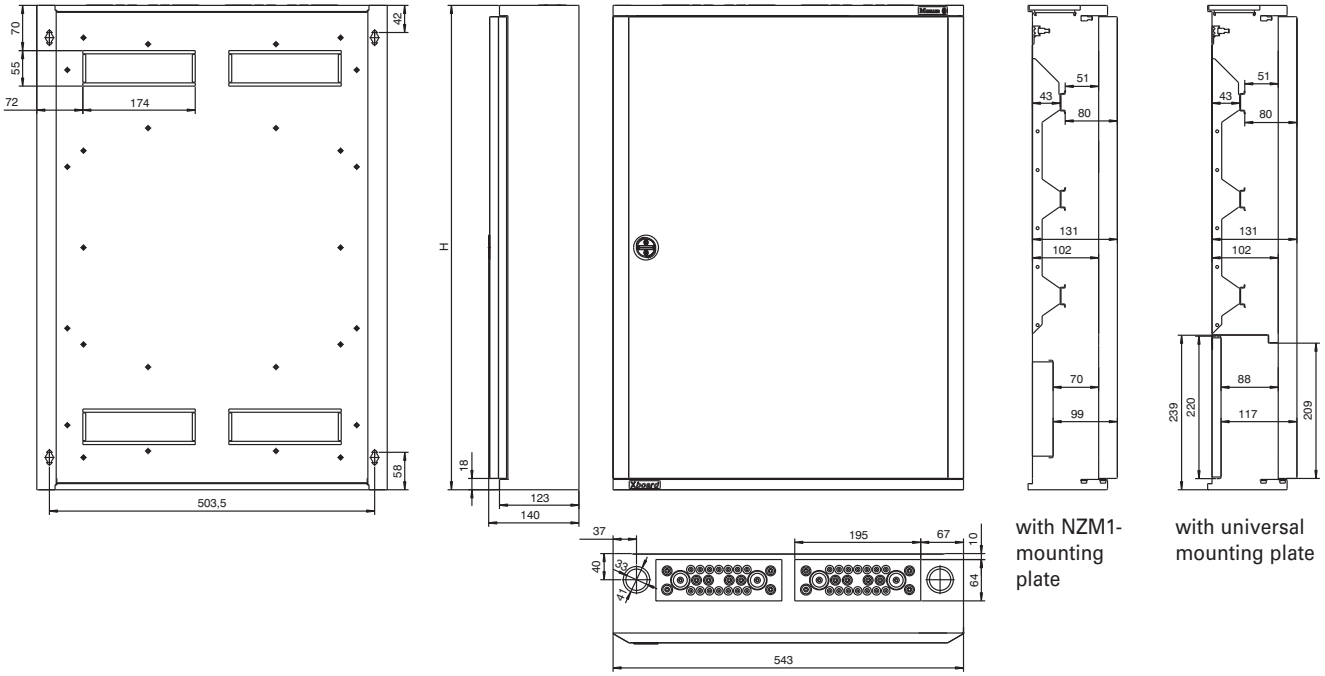
Cable entries below

	24MU per row
Relief stamp:	2x M32/M40 6x M25 8x M20

BF-O Surface-mounted Flat Distribution Boards, IP30, Version P

Dimensions (mm)

Surface-mounting Flat Distribution Boards with 24MU per row



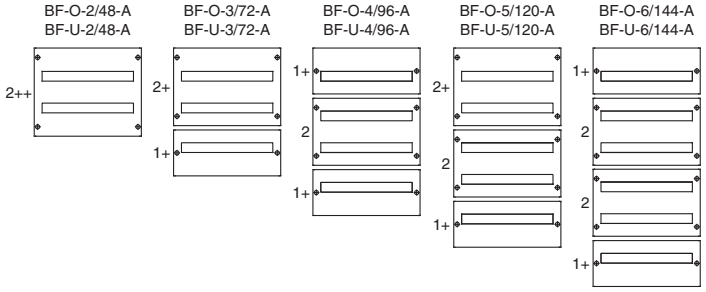
Type	H
BF-O(T)-3/72-P	600
BF-O(T)-4/96-P	750
BF-O(T)-5/120-P	900
BF-O(T)-6/144-P	1050

BF-O Surface-mounted Flat Distribution Boards, IP30

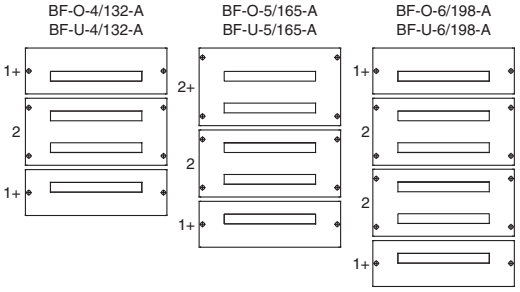
Allocation of front plate

Allocation of front plate (Delivery status), Version A

24MU per row

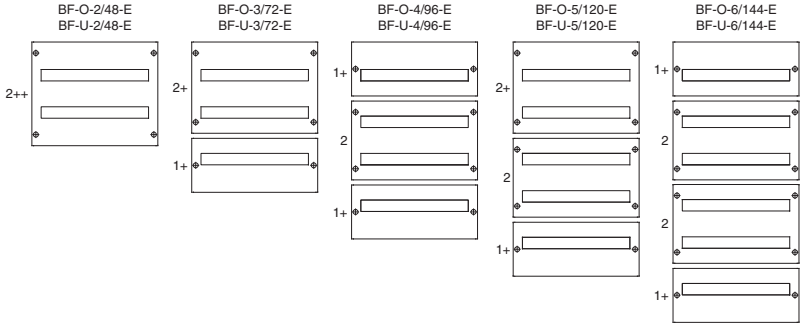


33MU per row



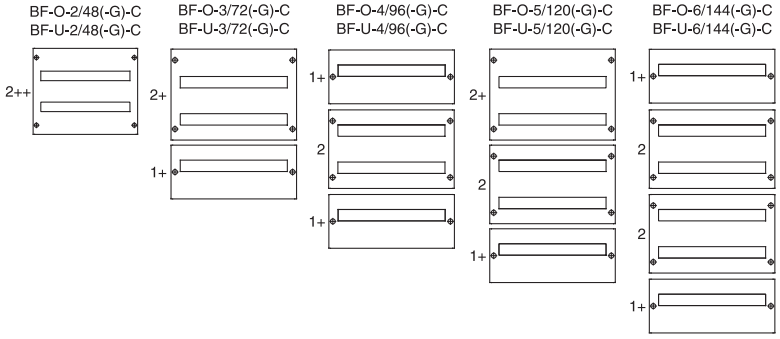
Allocation of front plate (Delivery status), Version E

24MU per row

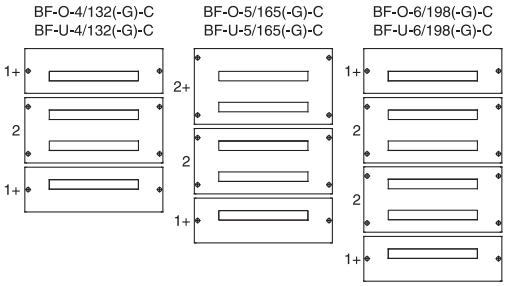


Allocation of front plate (Delivery status), Version C

24MU per row

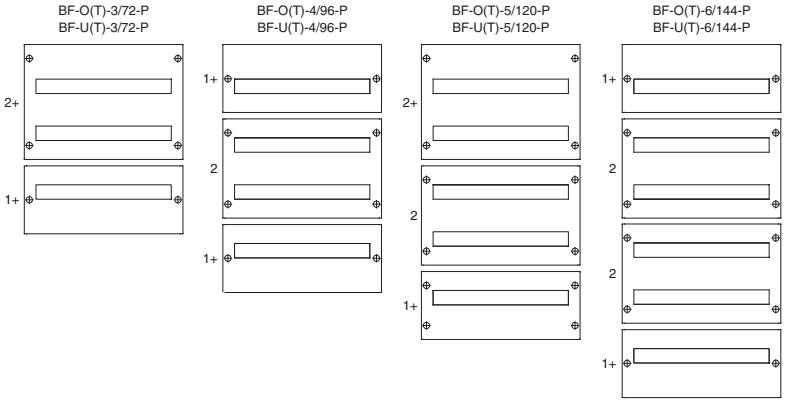


33MU per row



Allocation of front plate (Delivery status), Version P

24MU per row



BF-U Flush-mounted Flat Distribution Boards, IP30

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wa_vt06313



- Flush-mounted Flat Distribution Boards
- 2- to 6-rows 24MU/row (Versions A, E, C)
- 4- to 6-rows 33MU/row (Versions A, C, P)
- IP30
- Protection class I
- Sheet steel enclosure polyesterpowder coated (white RAL 9016; Version C also in grey RAL 7035)
- Prepared for Eaton MCCB Incoms
- Sheet steel front plates with contacting to the enclosure
- Removable DIN-rail frame
- Generous wiring space
- 150 mm DIN-rail distance (ideal for switchgear busbar system)
- Complete enclosure (including N/PE-terminals)
- Depth: 127 mm
- Universal mounting plate

BF-U Flush-mounted Flat Distribution Boards, IP30, Version A

Flush-mounted Flat Distribution Boards BF-U-./..-A, complete

Indoor

IEC 62208

Scope of Delivery:

- Wall Box with door frame
- Door with Rotary Door handle
- DIN-rail frame
- Front plates
- Neutral and protective earth terminals

wa_vt01513



MU per row / Number of rows	Type designation	Article No.	Pack (pcs.)
White			
24 / 2	BF-U-2/48-A	240737	1
24 / 3	BF-U-3/72-A	240738	1
24 / 4	BF-U-4/96-A	240739	1
24 / 5	BF-U-5/120-A	240740	1
24 / 6	BF-U-6/144-A	240741	1
33 / 4	BF-U-4/132-A	240745	1
33 / 5	BF-U-5/165-A	240746	1
33 / 6	BF-U-6/198-A	240747	1

BF-U Flush-mounted Flat Distribution Boards, IP30, Version A

Technical Data BF-U-./..-A

- Flat installation distribution board for flush-mounting
- 2- to 6-rows with 24 MU per row
- 4- to 6-rows with 33 MU per row

Enclosure:
- Closed Construction including rear wall
- Rear wall useable as mounting area
- 2 cable entry flanges at flat distribution board with 24MU width at the top
- 3 cable entry flanges at flat distribution board with 33MU width at the top
- Pre stamped cable entry openings at the bottom
- Terminals pre mounted at the enclosure (no losing of Module Units)

Wall Box:
- Wall Box with door frame
- Rear wall useable as mounting area
- Easy removeable knock-outs
- 127 mm depth
- Terminals pre mounted at the enclosure (no losing of Module Units)
- 4 lateral mounting straps

Door:
- Steel sheet door with rotary door handle white in the scope of delivery
- Steel sheet door with additional depth (required to install RMQ-Components at the door) is available as accessory (**BFZ-OTR-./...**)
- Steel sheet door with window is available as accessory (**BFZ-OTT-./...**)

DIN-Rail Frame:
- Removable DIN-rail frame
- For 45 mm Switchgear
- 150 mm distance between DIN-Rails
- Eaton MCCB integrate able by mounting set (**BFZ-NZM1-SET(/33)**)
- Universal mounting set for flush mounted enclosure (**BFZ-U-MPL..**)

Front plate:
- Contacting of the metal front plate by special catch on enclosure

Electrical	
Design according to	EN 61439-1,-3 EN 62208
Protection class	IP30 according to EN 60529
Protection class	I
Rated voltage	AC 240/415V; 50/60 Hz
Rated isolation voltage	AC 415V
Rated current range	max. 125/160 A (according to Incoming switch)
Max. power loss for all devices integrated in the flat distribution board at an ambient temperature of 35°C:	
BF-U-2/48	67 W
BF-U-3/72	81 W
BF-U-4/96	94 W
BF-U-4/132	118 W
BF-U-5/120	108 W
BF-U-5/165	134 W
BF-U-6/144	122 W
BF-U-6/198	142 W

Mechanical		
Enclosure	Steel sheet Polyester powder coated	
Door	Steel sheet Polyester powder coated	
Front plates	Steel sheet Polyester powder coated	
DIN-rail frame	Steel sheet galvanised	
Terminal support	PPO	
Colour	white RAL 9016	
Distance between DIN-Rails	150 mm	
N/PE terminals max. 63 A		
	N	PE
BF-U-2/48	2x25mm^2+9x16mm^2	2x25mm^2+27x16mm^2
BF-U-3/72	2x25mm^2+9x16mm^2	2x25mm^2+27x16mm^2
BF-U-4/96	2x25mm^2+9x16mm^2	2x25mm^2+43x16mm^2
BF-U-4/132	2x25mm^2+9x16mm^2	2x25mm^2+58x16mm^2
BF-U-5/120	2x25mm^2+9x16mm^2	2x25mm^2+58x16mm^2
BF-U-5/165	2x25mm^2+9x16mm^2	2x25mm^2+74x16mm^2
BF-U-6/144	2x25mm^2+9x16mm^2	2x25mm^2+58x16mm^2
BF-U-6/198	2x25mm^2+9x16mm^2	2x25mm^2+74x16mm^2

Cable entries above

	24MU per row		**33MU per row**	
	Relief stamp:	4x (88x46mm)	Relief stamp:	5x (88x46mm)

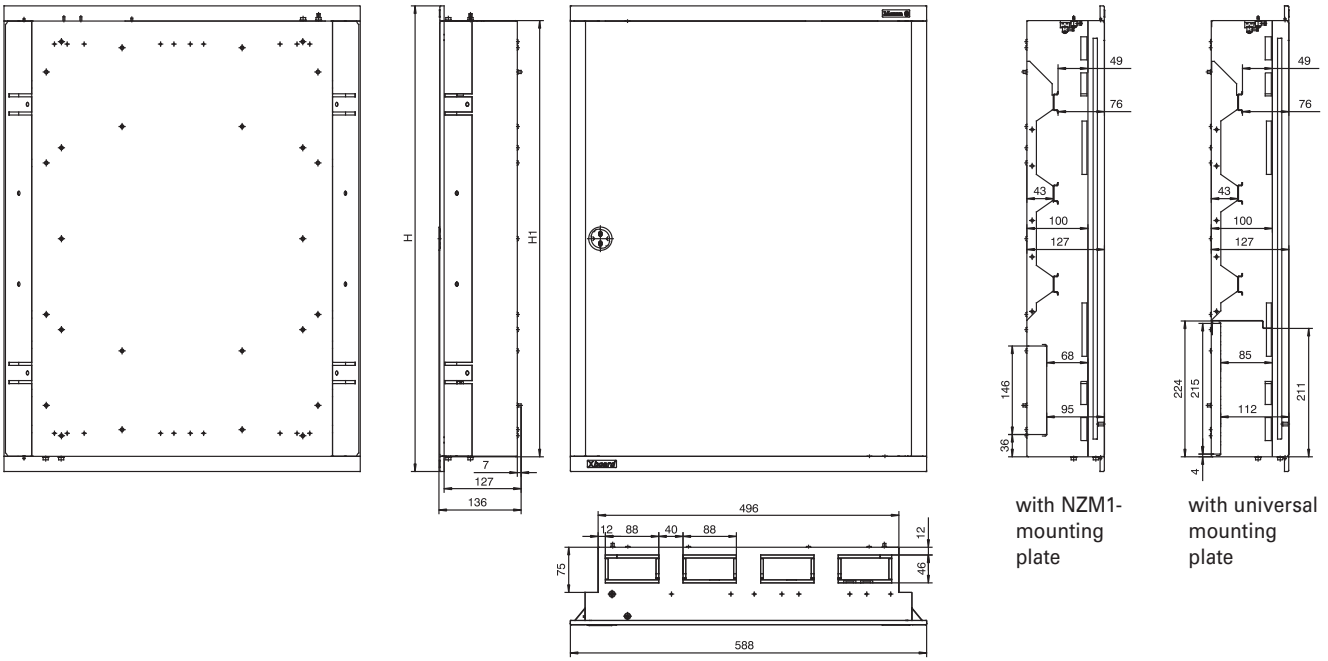
Cable entries below

	24MU per row		**33MU per row**	
	Relief stamp:	4x (88x46mm)	Relief stamp:	5x (88x46mm)

BF-U Flush-mounted Flat Distribution Boards, IP30, Version A

Dimensions (mm)

Flush-mounting Flat Distribution Boards with 24MU per row

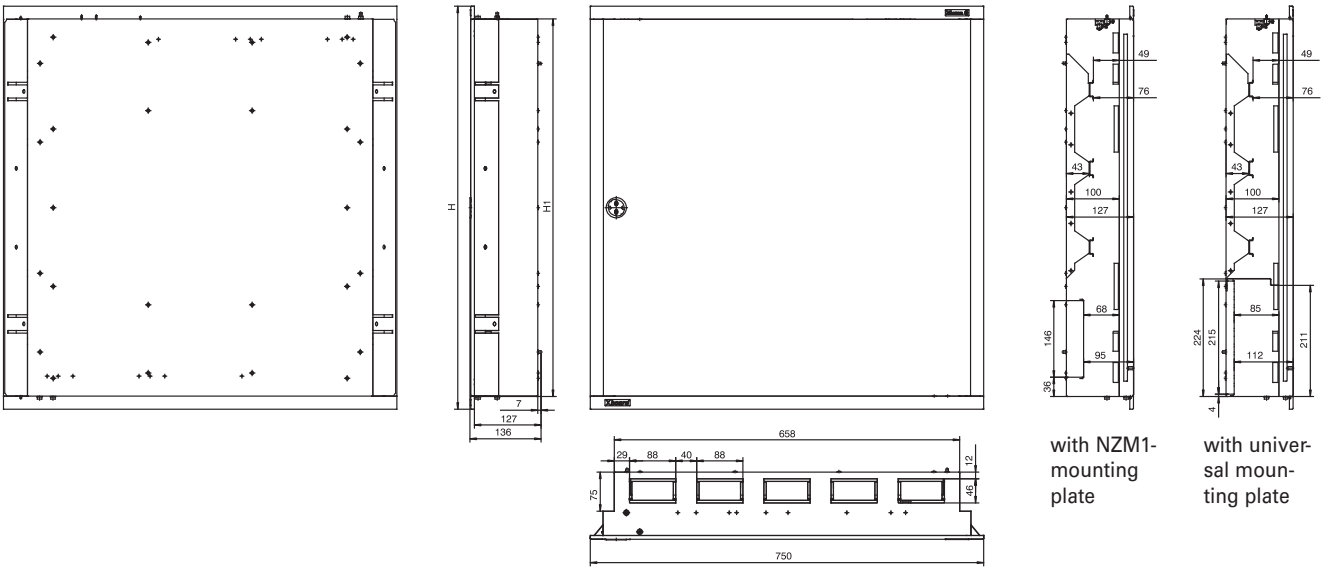


with NZM1-mounting plate

with universal mounting plate

Type	H	H1
BF-U-2/48-A	470	420
BF-U-3/72-A	620	570
BF-U-4/96-A	770	720
BF-U-5/120-A	920	870
BF-U-6/144-A	1070	1020

Flush-mounting Flat Distribution Boards with 33MU per row



with NZM1-mounting plate

with universal mounting plate

Type	H	H1
BF-U-4/132-A	770	720
BF-U-5/165-A	920	870
BF-U-6/198-A	1070	1020

BF-U Flush-mounted Flat Distribution Boards, IP30, Version E

Flush-mounted Flat Distribution Boards BF-U-./..-E, complete

Indoor

IEC 62208

Scope of Delivery:

- Wall Box with door frame
- Door with Rotary Door handle Profi-Line
- DIN-rail frame
- Front plates
- Neutral and protective earth terminals

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MU per row / Number of rows	Type designation	Article No.	Pack (pcs.)
White			
24 / 2	BF-U-2/48-E	283052	1
24 / 3	BF-U-3/72-E	283053	1
24 / 4	BF-U-4/96-E	283054	1
24 / 5	BF-U-5/120-E	283055	1
24 / 6	BF-U-6/144-E	285221	1

BF-U Flush-mounted Flat Distribution Boards, IP30, Version E

Technical Data BF-U-./..-E

- Flat installation distribution board for flush-mounting
- 2- to 6-rows with 24 MU per row

Enclosure:
- Closed Construction including rear wall
- Rear wall useable as mounting area
- 2 cable entry flanges at flat distribution board with 24MU width at the top
- Pre stamped cable entry openings at the bottom
- Terminals pre mounted at the enclosure (no losing of Module Units)

Wall Box:
- Wall Box with door frame
- Rear wall useable as mounting area
- Easy removeable knock-outs
- 127 mm depth
- Terminals pre mounted at the enclosure (no losing of Module Units)
- 4 lateral mounting straps

Door:
- Steel sheet door with rotary door handle white in the scope of delivery
- Steel sheet door with additional depth (required to install RMQ-Components at the door) is available as accessory (**BFZ-OTR-./...**)
- Steel sheet door with window is available as accessory (**BFZ-OTT-OR./...**)

DIN-Rail Frame:
- Removable DIN-rail frame
- For 45 mm Switchgear
- 150 mm distance between DIN-Rails
- Eaton MCCB integrate able by mounting set (**BFZ-NZM1-SET(/33)**)
- Universal mounting set for flush mounted enclosure (**BFZ-U-MPL..**)

Front plate:
- Contacting of the metal front plate by special catch on enclosure

Electrical	
Design according to	EN 61439-1,-3 EN 62208
Protection class	IP30 according to EN 60529
Protection class	I
Rated voltage	AC 240/415V; 50/60 Hz
Rated isolation voltage	AC 415V
Rated current range	max. 125/160 A (according to Incoming switch)
Max. power loss for all devices integrated in the flat distribution board at an ambient temperature of 35°C:	
BF-U-2/48	67 W
BF-U-3/72	81 W
BF-U-4/96	94 W
BF-U-5/120	108 W
BF-U-6/144	122 W

Mechanical		
Enclosure	Steel sheet Polyester powder coated	
Door	Steel sheet Polyester powder coated	
Front plates	Steel sheet Polyester powder coated	
DIN-rail frame	Steel sheet galvanised	
Terminal support	PPO	
Colour	white RAL 9016	
Distance between DIN-Rails	150 mm	
N/PE terminals max. 63 A		
	N	PE
BF-U-2/48	2x25mm^2+13x16mm^2	2x25mm^2+13x16mm^2
BF-U-3/72	2x25mm^2+13x16mm^2	2x25mm^2+13x16mm^2
BF-U-4/96	2x25mm^2+27x16mm^2	2x25mm^2+27x16mm^2
BF-U-5/120	2x25mm^2+27x16mm^2	2x25mm^2+27x16mm^2
BF-U-6/144	2x25mm^2+27x16mm^2	2x25mm^2+27x16mm^2

Cable entries above

24MU per row	
Relief stamp:	4x (88x46mm)

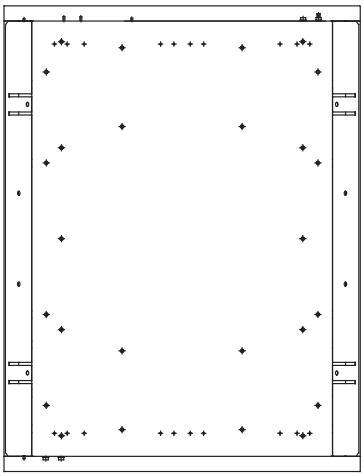
Cable entries below

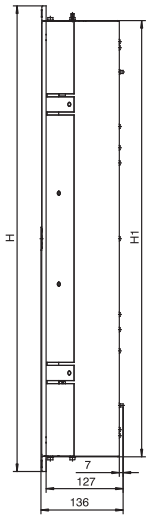
24MU per row	
Relief stamp:	4x (88x46mm)

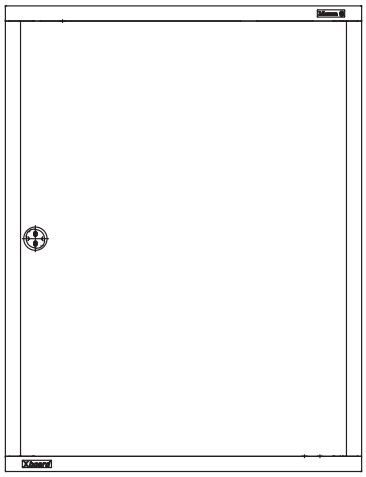
BF-U Flush-mounted Flat Distribution Boards, IP30, Version E

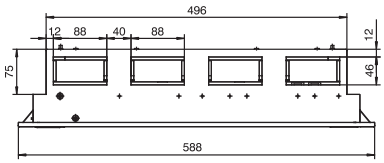
Dimensions (mm)

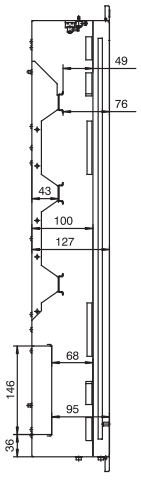
Flush-mounting Flat Distribution Boards with 24MU per row



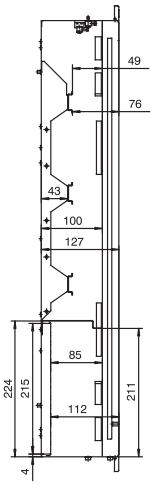








with NZM1-mounting plate



with universal mounting plate

Type	H	H1
BF-U-2/48-E	470	420
BF-U-3/72-E	620	570
BF-U-4/96-E	770	720
BF-U-5/120-E	920	870
BF-U-6/144-E	1070	1020

BF-U Flush-mounted Flat Distribution Boards, IP30, Version C

Indoor

IEC 62208

Scope of Delivery:

- Wall Box with door frame (white oder grey)
- Door with Rotary Door handle (white and grey with or without window)
- DIN-rail frame
- Front plates (white oder grey)
- Neutral and protective earth terminals

Flush-mounted Flat Distribution Boards BF-U-./...(-G)-C without window, complete

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MU per row / Number of rows	Type designation	Article No.	Pack (pcs.)
White			
24 / 2	BF-U-2/48-C	113689	1
24 / 3	BF-U-3/72-C	283048	1
24 / 4	BF-U-4/96-C	283049	1
24 / 5	BF-U-5/120-C	283050	1
24 / 6	BF-U-6/144-C	283051	1
33 / 4	BF-U-4/132-C	103097	1
33 / 5	BF-U-5/165-C	103098	1
33 / 6	BF-U-6/198-C	103099	1
Grey			
24 / 2	BF-U-2/48-G-C	113690	1
24 / 3	BF-U-3/72-G-C	283056	1
24 / 4	BF-U-4/96-G-C	283057	1
24 / 5	BF-U-5/120-G-C	283058	1
24 / 6	BF-U-6/144-G-C	283059	1
33 / 4	BF-U-4/132-G-C	103100	1
33 / 5	BF-U-5/165-G-C	103101	1
33 / 6	BF-U-6/198-G-C	103102	1

Flush-mounted Flat Distribution Boards BF-UT-./...(-G)-C with window, complete

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MU per row / Number of rows	Type designation	Article No.	Pack (pcs.)
White			
24 / 2	BF-UT-2/48-C	113691	1
24 / 3	BF-UT-3/72-C	103117	1
24 / 4	BF-UT-4/96-C	103118	1
24 / 5	BF-UT-5/120-C	103119	1
24 / 6	BF-UT-6/144-C	103120	1
33 / 4	BF-UT-4/132-C	103121	1
33 / 5	BF-UT-5/165-C	103122	1
33 / 6	BF-UT-6/198-C	103123	1
Grey			
24 / 2	BF-UT-2/48-G-C	113692	1
24 / 3	BF-UT-3/72-G-C	103124	1
24 / 4	BF-UT-4/96-G-C	103125	1
24 / 5	BF-UT-5/120-G-C	103126	1
24 / 6	BF-UT-6/144-G-C	103127	1
33 / 4	BF-UT-4/132-G-C	103128	1
33 / 5	BF-UT-5/165-G-C	103129	1
33 / 6	BF-UT-6/198-G-C	103130	1

BF-U Flush-mounted Flat Distribution Boards, IP30, Version C

Technical Data BF-U.-./..-C

- Flat installation distribution board for flush-mounting
- 2- to 6-rows with 24 MU per row
- 4- to 6-rows with 33 MU per row

Enclosure:
- Closed Construction including rear wall
- Rear wall useable as mounting area
- 2 cable entry flanges at flat distribution board with 24MU width at the top
- Pre stamped cable entry openings at the bottom
- Terminals pre mounted at the enclosure (no losing of Module Units)

Wall Box:
- Wall Box with door frame
- Rear wall useable as mounting area
- Easy removeable knock-outs
- 127 mm depth
- Terminals pre mounted at the enclosure (no losing of Module Units)
- 4 lateral mounting straps

Door:
- Steel sheet door with rotary door handle white and gray in the scope of delivery
- Steel sheet door with window white and grey in the scope of delivery
- Steel sheet door with additional depth (required to install RMQ-Components at the door) is available as accessory (**BFZ-OTR-./...**)

DIN-Rail Frame:
- Removable DIN-rail frame
- For 45 mm Switchgear
- 150 mm distance between DIN-Rails
- Eaton MCCB integrate able by mounting set (**BFZ-NZM1-SET(/33)**)
- Universal mounting set for flush mounted enclosure (**BFZ-U-MPL..**)

Front plate:
- Contacting of the metal front plate by special catch on enclosure

Electrical	
Design according to	EN 61439-1,-3 EN 62208
Protection class	IP30 according to EN 60529
Protection class	I
Rated voltage	AC 240/415V; 50/60 Hz
Rated isolation voltage	AC 415V
Rated current range	max. 125/160 A (according to Incoming switch)
Max. power loss for all devices integrated in the flat distribution board at an ambient temperature of 35°C:	
BF-U(T)-2/48	67 W
BF-U(T)-3/72	81 W
BF-U(T)-4/96	94 W
BF-U(T)-4/132	118 W
BF-U(T)-5/120	108 W
BF-U(T)-5/165	134 W
BF-U(T)-6/144	122 W
BF-U(T)-6/198	142 W

Mechanical		
Enclosure	Steel sheet Polyester powder coated	
Door	Steel sheet Polyester powder coated	
Front plates	Steel sheet Polyester powder coated	
DIN-rail frame	Steel sheet galvanised	
Terminal support	PPO	
Colour	white RAL 9016 grey RAL 7035	
Distance between DIN-Rails	150 mm	
N/PE terminals max. 63 A		
	N	PE
BF-U-2/48	2x25mm^2+43x16mm^2	2x25mm^2+43x16mm^2
BF-U-3/72	2x25mm^2+43x16mm^2	2x25mm^2+43x16mm^2
BF-U-4/96	2x25mm^2+43x16mm^2	2x25mm^2+43x16mm^2
BF-U-4/132	2x25mm^2+58x16mm^2	2x25mm^2+58x16mm^2
BF-U-5/120	2x25mm^2+43x16mm^2	2x25mm^2+43x16mm^2
BF-U-5/165	2x25mm^2+58x16mm^2	2x25mm^2+58x16mm^2
BF-U-6/144	2x25mm^2+43x16mm^2	2x25mm^2+43x16mm^2
BF-U-6/198	2x25mm^2+58x16mm^2	2x25mm^2+58x16mm^2

Cable entries above

	24MU per row		**33MU per row**	
	Relief stamp:	4x (88x46mm)	Relief stamp:	5x (88x46mm)

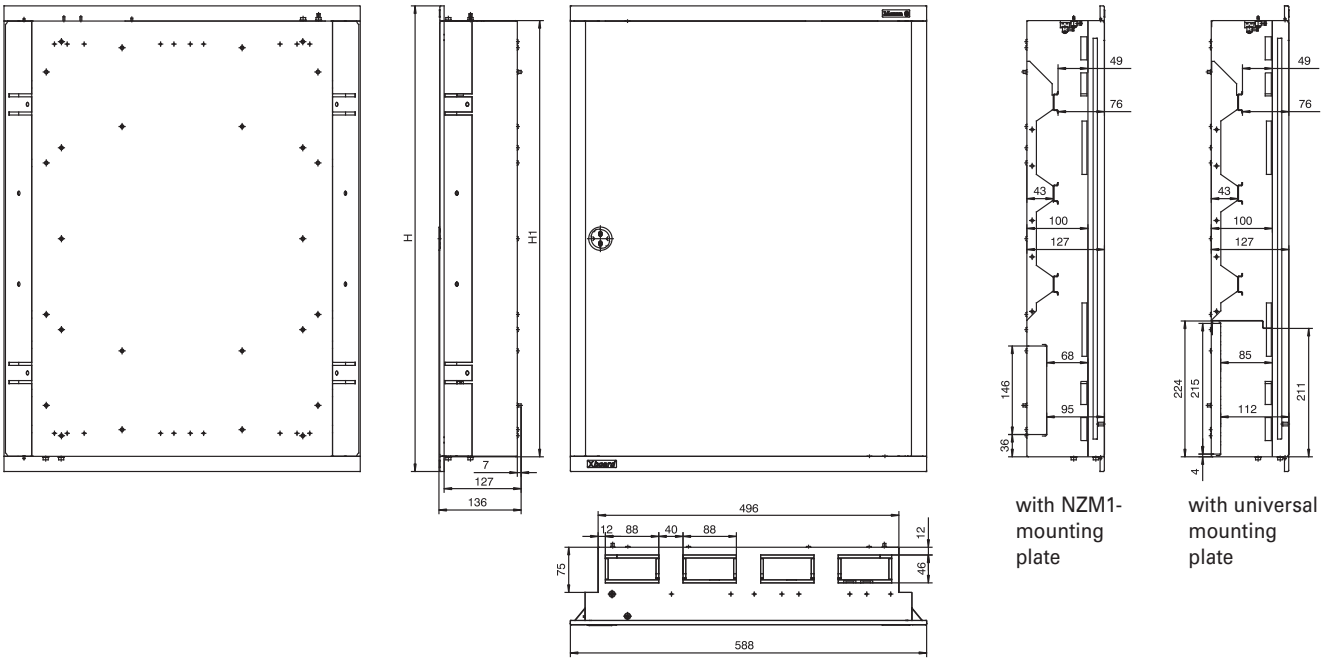
Cable entries below

	24MU per row		**33MU per row**	
	Relief stamp:	4x (88x46mm)	Relief stamp:	5x (88x46mm)

BF-U Flush-mounted Flat Distribution Boards, IP30, Version C

Dimensions (mm)

Flush-mounting Flat Distribution Boards with 24MU per row

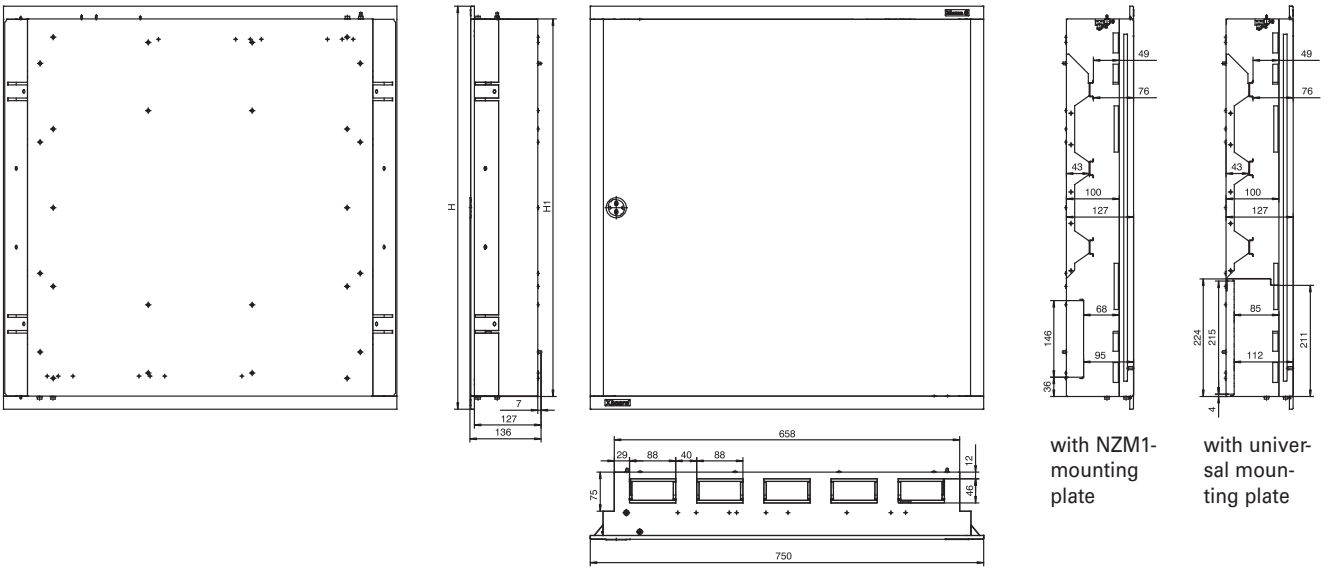


with NZM1-mounting plate

with universal mounting plate

Type	H	H1
BF-U-2/48(-G)-C	470	420
BF-U-3/72(-G)-C	620	570
BF-U-4/96(-G)-C	770	720
BF-U-5/120(-G)-C	920	870
BF-U-6/144(-G)-C	1070	1020

Flush-mounting Flat Distribution Boards with 33MU per row



with NZM1-mounting plate

with universal mounting plate

Type	H	H1
BF-U-4/132(-G)-C	770	720
BF-U-5/165(-G)-C	920	870
BF-U-6/198(-G)-C	1070	1020

BF-U Flush-mounted Flat Distribution Boards, IP30, Version P

Indoor

IEC 62208

Scope of Delivery:

- Wall Box with door frame
- Door with Rotary Door handle (with or without window)
- DIN-rail frame
- Front plates
- Neutral and protective earth terminals

Flush-mounted Flat Distribution Boards BF-U-./...(-G)-P without window, complete

wa_vt01513



MU per row / Number of rows	Type designation	Article No.	Pack (pcs.)
White			
24 / 3	BF-U-3/72-P	285349	1
24 / 4	BF-U-4/96-P	285350	1
24 / 5	BF-U-5/120-P	285351	1
24 / 6	BF-U-6/144-P	285352	1

Flush-mounted Flat Distribution Boards BF-UT-./...(-G)-P with window, complete

wa_vt06313



MU per row / Number of rows	Type designation	Article No.	Pack (pcs.)
White			
24 / 3	BF-UT-3/72-P	289133	1
24 / 4	BF-UT-4/96-P	289134	1
24 / 5	BF-UT-5/120-P	289135	1
24 / 6	BF-UT-6/144-P	289136	1

BF-U Flush-mounted Flat Distribution Boards, IP30, Version P

Technical Data BF-U.-./..-P

- Flat installation distribution board for flush-mounting
- 3- to 6-rows with 24 MU per row

Enclosure:
- Closed Construction including rear wall
- Rear wall useable as mounting area
- 2 cable entry flanges at flat distribution board with 24MU width at the top
- Pre stamped cable entry openings at the bottom
- Terminals pre mounted at the enclosure (no losing of Module Units)

Wall Box:
- Wall Box with door frame
- Rear wall useable as mounting area
- Easy removeable knock-outs
- 127 mm depth
- Terminals pre mounted at the enclosure (no losing of Module Units)
- 4 lateral mounting straps

Door:
- Steel sheet door with rotary door handle white or steel sheet door with window and rotary door handle white in the scope of delivery
- Steel sheet door with additional depth (required to install RMQ-Components at the door) is available as accessory (**BFZ-OTR-./...**)

DIN-Rail Frame:
- Removable DIN-rail frame
- For 45 mm Switchgear
- 150 mm distance between DIN-Rails
- Eaton MCCB integrate able by mounting set (**BFZ-NZM1-SET(/33)**)
- Universal mounting set for flush mounted enclosure (**BFZ-U-MPL..**)

Front plate:
- Contacting of the metal front plate by special catch on enclosure

Electrical	
Design according to	EN 61439-1,-3 EN 62208
Protection class	IP30 according to EN 60529
Protection class	I
Rated voltage	AC 240/415V; 50/60 Hz
Rated isolation voltage	AC 415V
Rated current range	max. 125/160 A (according to Incoming switch)
Max. power loss for all devices integrated in the flat distribution board at an ambient temperature of 35°C:	
BF-U-3/72	81 W
BF-U-4/96	94 W
BF-U-5/120	108 W
BF-U-6/144	122 W

Mechanical		
Enclosure	Steel sheet Polyester powder coated	
Door	Steel sheet Polyester powder coated	
Front plates	Steel sheet Polyester powder coated	
DIN-rail frame	Steel sheet galvanised	
Terminal support	PPO	
Colour	white RAL 9016	
Distance between DIN-Rails	150 mm	
N/PE terminals max. 63 A		
	N	PE
BF-U-3/72	2x25mm^2+43x16mm^2	2x25mm^2+43x16mm^2
BF-U-4/96	2x25mm^2+58x16mm^2	2x25mm^2+58x16mm^2
BF-U-5/120	2x25mm^2+58x16mm^2	2x25mm^2+58x16mm^2
BF-U-6/144	2x25mm^2+58x16mm^2	2x25mm^2+58x16mm^2

Cable entries above

	24MU per row
Relief stamp:	4x (88x46mm)

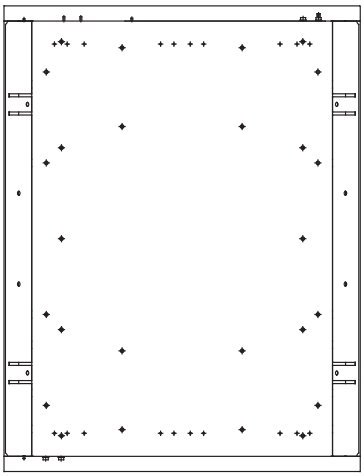
Cable entries below

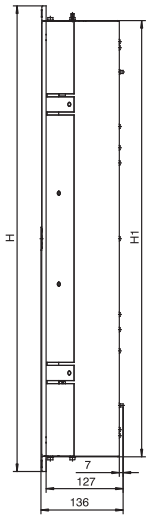
	24MU per row
Relief stamp:	4x (88x46mm)

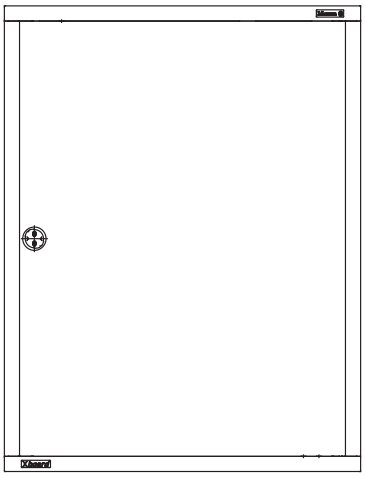
BF-U Flush-mounted Flat Distribution Boards, IP30, Version P

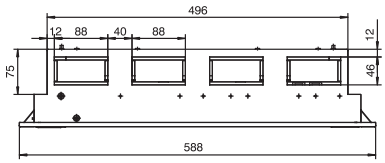
Dimensions (mm)

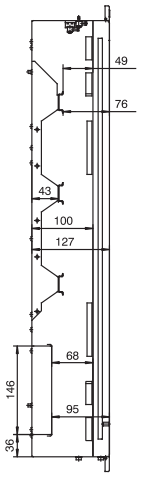
Flush-mounting Flat Distribution Boards with 24MU per row



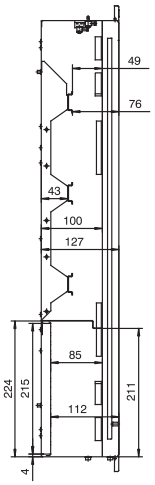








with NZM1-mounting plate



with universal mounting plate

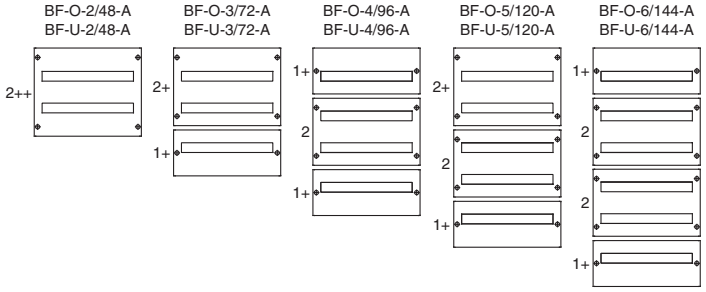
Type	H	H1
BF-U(T)-3/72-P	620	570
BF-U(T)-4/96-P	770	720
BF-U(T)-5/120-P	920	870
BF-U(T)-6/144-P	1070	1020

BF-U Flush-mounted Flat Distribution Boards, IP30

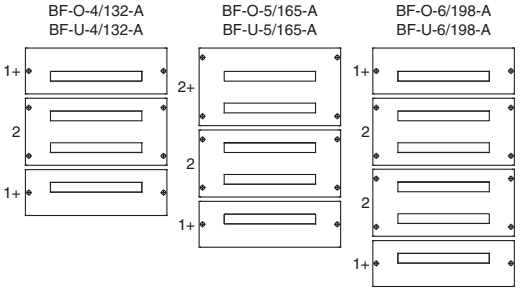
Allocation of front plate

Allocation of front plate (Delivery status), Version A

24MU per row

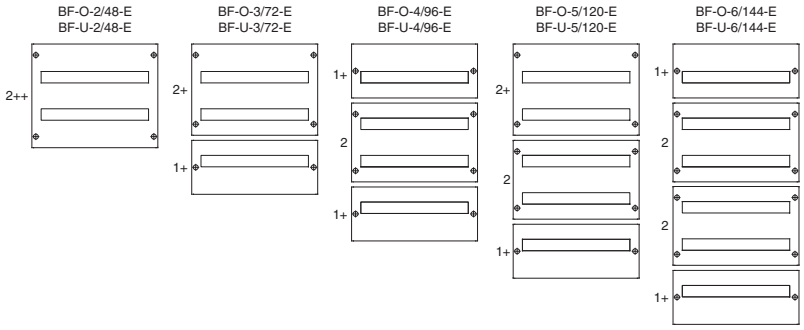


33MU per row



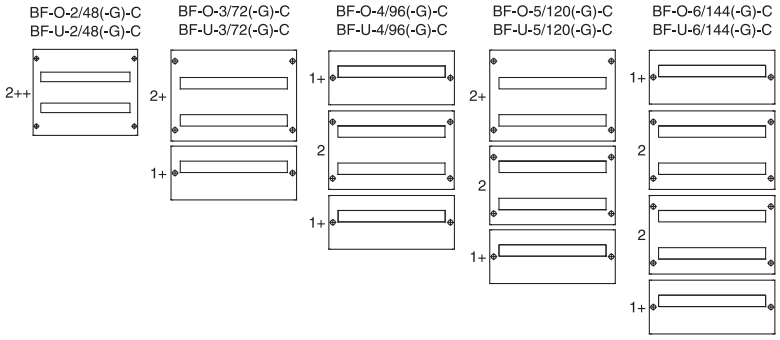
Allocation of front plate (Delivery status), Version E

24MU per row

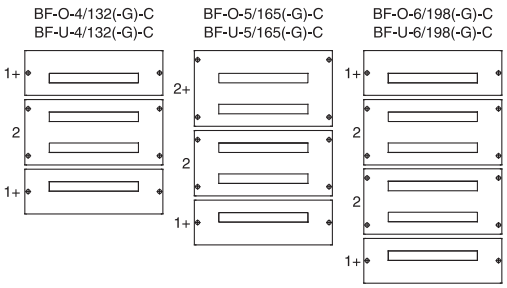


Allocation of front plate (Delivery status), Version C

24MU per row

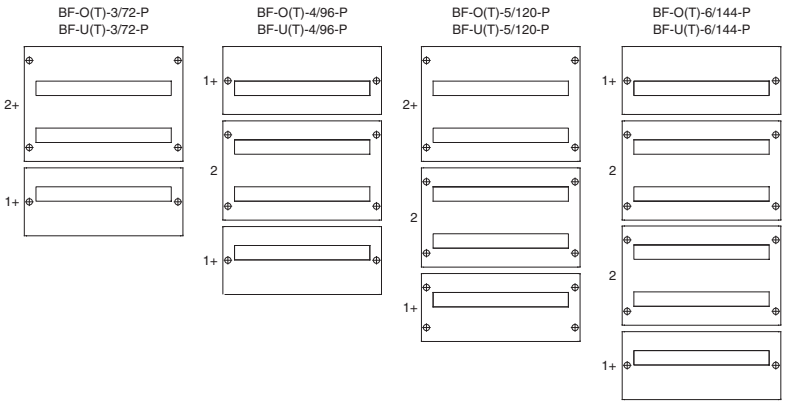


33MU per row



Allocation of front plate (Delivery status), Version P

24MU per row



EWK Surface-mounted Field Distribution Boards, IP43

VT94514



VT90414



- Degree of protection IP43, IK09
- Protection class II, fully insulated
- 160 mm enclosure depth
- Complete with door and installation field for add-on devices
- Combined plug-type terminals for neutral and protective conductor
- Device cover with quick-acting closure
- 36 to 288 module units, 3 to 6 rows
- 16 different enclosure sizes
- Design with either one or two doors
- Larger enclosures with 3-point rod lock
- DIN carrier structure is fully withdrawable
- Stable and torsion-resistant DIN rail
- Large wiring area behind the DIN rail
- Possibility for direct fixing on the wall
- Quick and easy inversion of the door hinges
- 2K membrane flanges
- Body RAL 9016, door of non-transparent sheet steel

EWK Surface-Mounted Field Distribution Boards, IP43

Type Key

EWK	-	05		06		1	
Surface-mounted Field distribution board complete	-	Width MU	mm	Height	mm	Depth	mm
		03	300	05	500	1	160
		05	550	06	650		
		08	800	08	800		
		10	1050	09	950		

System Overview - EWK Surface-mounted Field Distribution Boards, IP43

Compact DB fields Design	Protection class II (fully insulated)	Meets the European Standard EN 62208 [1] or EN 61439-3	IP43	IP54	RAL 9016	N/PE Terminals included	Installation included
EWK-...	■	■[1]	■	-	■[2]	■[3]	■[4]
EWS-...	■	■[1]	■	-	■[2]	-	-
EWP-...	■	■[1]	-	■	■[2]	-	-

[1] Prerequisite for transforming an empty enclosure into a distribution board according to IEC/EN 61439-3
[2] Body and door
[3] Combined plug-type terminal
[4] Installation fields are fully withdrawable

Legend EWK Surface-mounted Field Distribution Boards, IP43

Symbol	Explanation
	Protective insulation, according to EN 60670-24.
	Approved for indoor applications only.
	Glow-wire test according to IEC/EN 62208.

EWK Surface-mounted Field Distribution Boards, IP43

IP 43 (IK 09)



- Degree of protection IP43, IK09
- Protection class II, fully insulated
- Surface-mounted, enclosure depth of 160 mm
- Complete with door and installation field for add-on devices
- Combined plug-type terminals for neutral and protective conductor are included
- Device cover with quick-acting closure
- DIN carrier structure is fully withdrawable
- Stable and torsion-resistant DIN rail
- Large wiring area behind the DIN rail
- Possibility of direct fastening on the wall
- Wall-fastening straps are optionally available as an accessory
- Quick and easy inversion of the door hinges, 110° opening angle
- As of a width of 800 mm, the DB comes with a 3-point rod lock
- Standard closure is made of plastic, can be lead-sealed, other types of closures are available as an optional accessory
- 2K membrane flanges, at the top and bottom
- Body and door RAL9016, powder-coated
- According to EN 61439-3, rated current max. 125A

	Rows / MU	Description	Dimensions W x H x D [mm]	Type designation	Article No.	Pack (pcs.)
	3 rows					
VT94514 	3 / 36	with 1x PE and 1x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	300x500x160	EWK-03051	174651	1
VT94214 	3 / 72	with 2x PE and 2x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	550x500x160	EWK-05051	174652	1
VT93914 	3 / 108	with 3x PE and 3x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	800x500x160	EWK-08051	174653	1
VT93414 	3 / 144	with 4x PE and 4x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	1050x500x160	EWK-10051	174654	1

EWK Surface-mounted Field Distribution Boards, IP43

IP 43 (IK 09)

Indoor

IEC 62208

	Rows / MUs	Description	Dimensions W x H x D [mm]	Type designation	Article No.	Pack (pcs.)
	4 rows					
VT93114 	4 / 48	with 1x PE and 1x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	300x650x160	EWK-03061	174655	1
VT92814 	4 / 96	with 2x PE and 2x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	550x650x160	EWK-05061	174656	1
VT92514 	4 / 144	with 3x PE and 3x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	800x650x160	EWK-08061	174657	1
VT92214 	4 / 192	with 4x PE and 4x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	1050x650x160	EWK-10061	174658	1

EWK Surface-mounted Field Distribution Boards, IP43

IP 43 (IK 09)



	Rows / MUs	Description	Dimensions W x H x D [mm]	Typen designation	Article No.	Pack (pcs.)
	5 rows					
VT91914 	5 / 60	with 1x PE and 1x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	300x800x160	EWK-03081	174659	1
VT91614 	5 / 120	with 2x PE and 2x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	550x800x160	EWK-05081	174660	1
VT91014 	5 / 180	with 3x PE and 3x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	800x800x160	EWK-08081	174661	1
VT90714 	5 / 240	with 4x PE and 4x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	1050x800x160	EWK-10081	174662	1

EWK Surface-mounted Field Distribution Boards, IP43

IP 43 (IK 09)



	Rows / MUs	Description	Dimensions W x H x D [mm]	Type designation	Article No.	Pack (pcs.)
	6 rows					
VT91314 	6 / 72	with 1x PE and 1x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	300x950x160	EWK-03091	174663	1
VT89814 	6 / 144	with 2x PE and 2x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	550x950x160	EWK-05091	174664	1
VT90114 	6 / 216	with 3x PE and 3x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	800x950x160	EWK-08091	174665	1
VT90414 	6 / 288	with 4x PE and 4x N comb. plug-type terminal 6x 1.5-16 mm² + 21x 0.75-4 mm²	1050x950x160	EWK-10091	174666	1

EWK Surface-mounted Field Distribution Boards, IP43

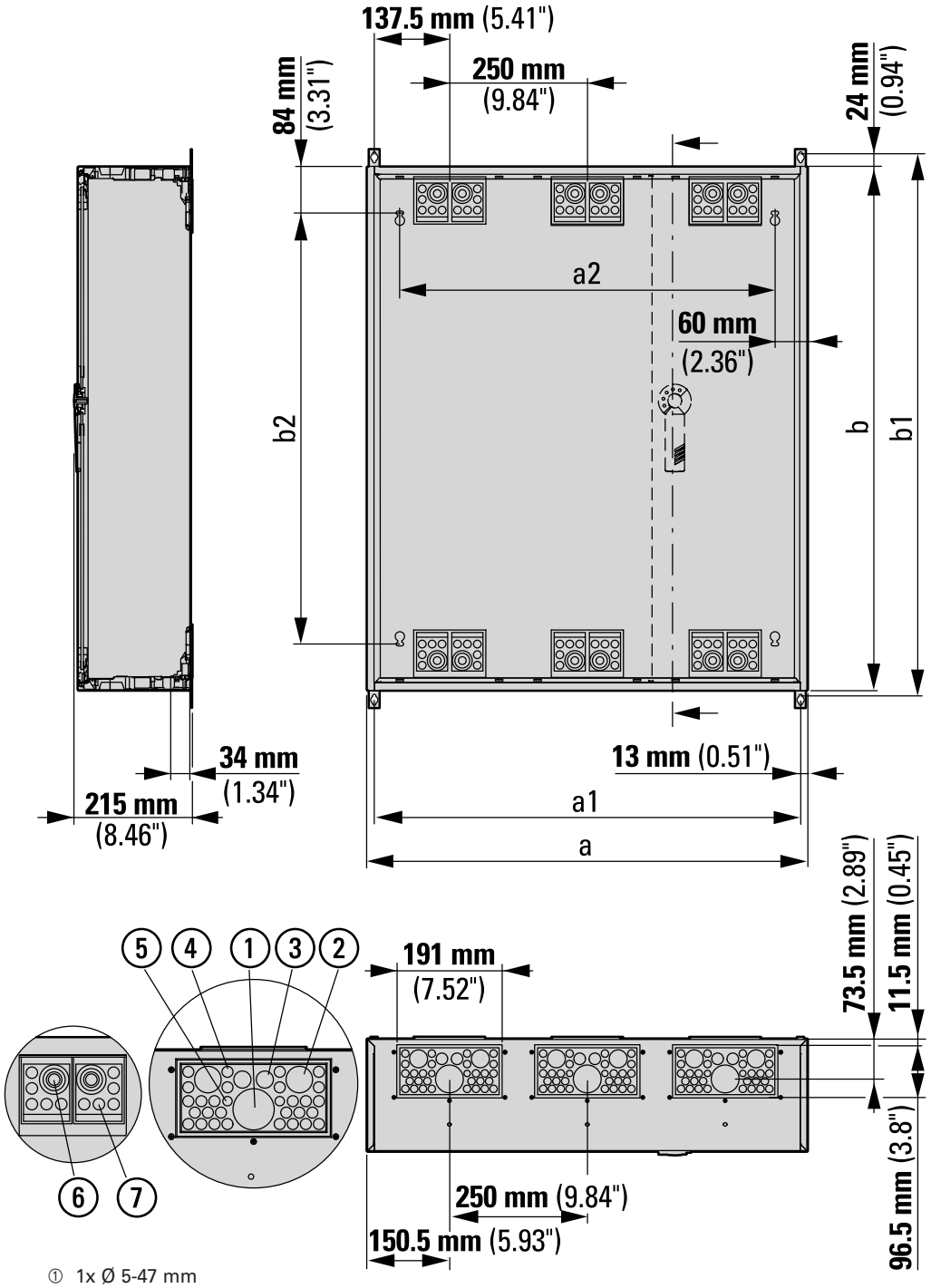
Technical Details EWK-...

	Unit	
Electrical		
Design according to		IEC/EN 61439-3
Degree of protection		IP43 (IK09) according to EN 60529
Protection class		II, fully insulated
Rated voltage	V	400 AC
Rated current max.	A	125
Insulation voltage	V	1000 AC
Max. power loss admitted for all devices installed in the distribution board, at 20°K temperature difference and 75% height:		
EWK-03051	W	21
EWK-05051	W	35
EWK-08051	W	49
EWK-10051	W	62
EWK-03061	W	26
EWK-05061	W	41
EWK-08061	W	57
EWK-10061	W	70
EWK-03081	W	32
EWK-05081	W	47
EWK-08081	W	67
EWK-10081	W	84
EWK-03091	W	36
EWK-05091	W	55
EWK-08091	W	73
EWK-10091	W	99
Mechanical		
Material:		
Enclosure		Sheet steel, powder-coated with corrosion protection, inside lined with plastic (Polystyrole).
Door/frame		Sheet steel, powder-coated with corrosion protection
Colour of the enclosure		White RAL 9016
Colour of the door		Non-transparent, white RAL 9016
Door opening angle	°	110
Distance between the rows	mm	125
Device carrier rail		DIN rail 35 x 15 mm sheet steel, galvanised
UV resistant		No
Installation type		
EWK-...		Indoor
Halogen-free, RoHs		<1%, yes
Metrical pre-punched holes		
EWK-03...		1x 2K membrane flange top 1x 2K membrane flange bottom
EWK-05...		2x 2K membrane flange top 2x 2K membrane flange bottom
EWK-08...		3x 2K membrane flange top 3x 2K membrane flange bottom
EWK-10...		4x 2K membrane flange top 4x 2K membrane flange bottom
Per 2K membrane flange:		1x 5–47 mm 2x 5-29 mm 2x 5-18 mm 28x 5-11 mm 2x 5-9 mm 2x 16/21/29/38 mm 10x 16 mm

Note: The tightening torques [Nm] of the N/PE combined plug-type terminal are indicated on the terminal enclosure.

EWK Surface-mounted Field Distribution Boards, IP43

Dimensions (mm)



① 1x Ø 5-47 mm
② 2x Ø 5-29 mm
③ 2x Ø 5-18 mm
④ 28x Ø 5-11 mm
⑤ 2x Ø 5-9 mm
⑥ 2x Ø 16/21/29/38 mm
⑦ 10x Ø 16 mm

See next page for tables specifying the respective values!

EWK Surface-mounted Field Distribution Boards, IP43

Dimensions (mm)

Type	a [mm]	b [mm]	a1 [mm]	b1 [mm]	a2 [mm]	b2 [mm]
EWK-03051	301	502	275	535	181	333
EWK-05051	551	502	525	535	431	333
EWK-08051	801	502	775	535	681	333
EWK-10051	1051	502	1025	535	931	333
EWK-03061	301	652	275	685	181	483
EWK-05061	551	652	525	685	431	483
EWK-08061	801	652	775	685	681	483
EWK-10061	1051	652	1025	685	931	483
EWK-03081	301	802	275	835	181	633
EWK-05081	551	802	525	835	431	633
EWK-08081	801	802	775	835	681	633
EWK-10081	1051	802	1025	835	931	633
EWK-03091	301	952	275	985	181	783
EWK-05091	551	952	525	985	431	783
EWK-08091	801	952	775	985	681	783
EWK-10091	1051	952	1025	985	931	783

Additional Equipment, Spare Parts

VT30414



VT29914



VT30314



VT27614



P19_UP1-KLV



P19_GAU1-KLV



P19_MIP3-KLV



Additional Equipment / Spare Parts Mini

VT79314



Suitable for	Description	Type designation	Article No.	Pack (pcs.)
Window				
1 / 2	Transparent window	T2-MINI	177076	1 / 10
1 / 3	Transparent window	T3-MINI	177077	1 / 10
1 / 4	Transparent window	T4-MINI	177078	1 / 10
1 / 5	Transparent window	T5-MINI	177079	1 / 10
1 / 6	Transparent window	T6-MINI	177080	1 / 10

Additional Equipment / Spare PartsIKA-...

Lock with 2 spare keys

VT30414



Suitable for	Description	Type designation	Article No.	Pack (pcs.)
all IKA	lock with 2 keys, keyed alike	LOCK-KIT-IKA	174166	1

Linking element

Suitable for	Description	Type designation	Article No.	Pack (pcs.)
all IKA	M32 linking element for linking several IKA enclosures placed next to each other	M32LUG-IKA	174168	2

IP2X Screw terminal

VT29914



Suitable for	Description	Type designation	Article No.	Pack (pcs.)
1 / 4 1 / 6	N/PE screw termin. 2x 4.5 + 2x 5.5 mm² each and 1x 8.5 mm² each	N/PE-4-IKA	174169	1
1 / 8	N/PE screw termin. 2x 4.5 + 2x 5.5 mm² each and 1x 8.5 mm² each	N/PE-8-IKA	174171	1
1 / 12	N/PE screw termin. 6x 4.5 + 6x 5.5 mm² each and 1x 7.5 + 1x 8.5 mm² each	N/PE-12-IKA	174172	1
2 / 24 1 / 18	N/PE screw termin. 8x 4.5 + 8x 5.5 mm² each and 1x 7.5 + 1x 8.5 mm² each	N/PE-24-IKA	174173	1
3 / 36 2 / 36	N/PE screw termin. 12x 4.5 + 12x 5.5 mm² each and 1x 7.5 + 1x 8.5 mm² each	N/PE-3/36-IKA	174174	1
3 / 54	N/PE screw termin. 16x 4.5 + 16x 5.5 mm² each and 2x 7.5 + 2x 8.5 mm² each	N/PE-54-IKA	174177	1

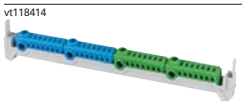
Additional Equipment / Spare PartsIKA-...

	Suitable for	Description	Type designation	Article No.	Pack (pcs.)
		Spare closing bolts			
VT30114 	all IKA	Closing plug made of insulating material, lead-sealable	BOLT-IKA	174178	20
		Spare hinges			
VT30214 	all IKA	Hinges made of insulating material	HINGE-IKA	174186	20
		Spare lock			
VT30314 	all IKA	Lock consisting of locking unit and logo clip	ETN-IKA	174185	10
		Spare plug			
VT30014	all IKA	Plugs for covering the holes for wall-mounting	HCAP-IKA	174167	20
		Spare doors			
VT27614 	1 / 4	Transparent, incl. lock Non-transparent, incl. lock	DOOR-1/4-T-IKA DOOR-1/4-R-IKA [1]	174179 174227	1 1
	1 / 6	Transparent, incl. lock Non-transparent, incl. lock	DOOR-1/6-T-IKA DOOR-1/6-R-IKA [1]	174180 174228	1 1
	1 / 8	Transparent, incl. lock Non-transparent, incl. lock	DOOR-1/8-T-IKA DOOR-1/8-R-IKA [1]	174181 174229	1 1
	1 / 12	Transparent, incl. lock Non-transparent, incl. lock	DOOR-1/12-T-IKA DOOR-1/12-R-IKA [1]	174182 174230	1 1
	2 / 24	Transparent, incl. lock Non-transparent, incl. lock	DOOR-2/24-T-IKA DOOR-2/24-R-IKA [1]	174183 174231	1 1
	3 / 36	Transparent, incl. lock Non-transparent, incl. lock	DOOR-3/36-T-IKA DOOR-3/36-R-IKA [1]	174223 174232	1 1
	1 / 18	Transparent, incl. lock Non-transparent, incl. lock	DOOR-1/18-T-IKA DOOR-1/18-R-IKA [1]	174224 174233	1 1
	2 / 36	Transparent, incl. lock Non-transparent, incl. lock	DOOR-2/36-T-IKA DOOR-2/36-R-IKA [1]	174225 174234	1 1
	3 / 54	Transparent, incl. lock Non-transparent, incl. lock	DOOR-3/54-T-IKA DOOR-3/54-R-IKA [1]	174226 174184	1 1
VT27514 [1] 					

[1] Available upon request

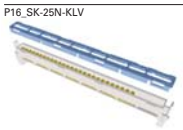
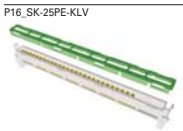
Additional Equipment KLV-...

- Combined plug-type terminal with plug-in terminal points for 0.5-4 mm² round conductors and screw-type terminal points for 2.5-25 mm² round conductors
- Terminal carriers KSK-KLV can be expanded by up to 4 individual N blocks for separate RCD protective circuits, or by additional PE blocks
- Terminal carriers are easy to snap on without any tools
- Finger proof IP2X

	Can be used for	Description	Type designation	Article No.	Pack (pcs.)
		Equipped combined plug-type terminal KSK			
 vt118414	1x N potential 1x PE potential	**N/PE** comb. plug-type terminal 2x 2.5-25 mm² each and 14x 0.5-4 mm² each	KSK-2N/2PE-KLV	178898	1
 vt118514	1x N potential	**N** comb. plug-type terminal 4x 2.5-25 mm² and 28x 0.5-4 mm²	KSK-4N-KLV	178899	1
 vt118614	2x N potential	**N/N** comb. plug-type terminal 4x 2.5-25 mm² and 28x 0.5-4 mm²	KSK-3N/1N-KLV	178900	1
 vt118714	2x N potential	**N/N** comb. plug-type terminal 4x 2.5-25 mm² and 28x 0.5-4 mm²	KSK-2N/2N-KLV	178901	1
 vt118814	1x PE potential	**PE** comb. plug-type terminal 4x 2.5-25 mm² and 28x 0.5-4 mm²	KSK-4PE-KLV	178902	1
		Individual combined plug-type terminal KSK			
 vt119014	1x N potential	**N** comb. plug-type terminal 1x 2.5-25 mm² 7x 0.5-4 mm²	KSK-N	178903	1/10
 vt118914	1x PE potential	**PE** comb. plug-type terminal 1x 2.5-25 mm² 7x 0.5-4 mm²	KSK-PE	178904	1/10
 vt119114	KSK-N and KSK-PE	**Terminal carrier** empty suitable for up to 4x KSK-N and/or 4x KSK-PE	KSK-KLV	178905	1/10

Additional Equipment KLV-...

- N/PE screw-type terminal, electric shock protection for 0.75-25 mm² round conductors
- Terminal carriers SK-KLV can be expanded by additional N blocks for separate RCD protective circuits
- The addtional block is easy to insert in the terminal carrier
- Cover in blue, green or blue/green

	Suitable for	Description	Type designation	Article No.	Pack (pcs.)
	Equipped screw-type terminal SK				
 P16_SK-13N_PE-KLV	1x N potential 1x PE potential	**N/PE** screw-type termin. 13x 0.75-16 mm² (N) and 13x 0.75-16 mm² (PE)	SK-13N/PE-KLV	178906	1
 P16_SK-13N_16PE-KLV	1x N potential 1x PE potential	**N/PE** screw-type termin. 13x 0.75-16 mm² (N) and 16x 0.75-16 mm² (PE)	SK-13N/16PE-KLV	178907	1
 P16_SK-25N-KLV	1x N potential	**N** screw-type terminal 25x 0.75-16 mm² (N)	SK-25N-KLV	178908	1
 P16_SK-25PE-KLV	1x PE potential	**PE** screw-type terminal 25x 0.75-16 mm² (N)	SK-25PE-KLV	178909	1
	Individual screw-type terminal KL				
 VT1800	N potential or PE potential	1x 25 mm² + 3x 16 mm²	KL-4	219723	1
		1x 25 mm² + 6x 16 mm²	KL-7	219724	1
		2x 25 mm² + 9x 16 mm²	KL-11	219725	1
		2x 25 mm² + 13x 16 mm²	KL-15	219726	1
		2x 25 mm² + 23x 16 mm²	KL-25	219727	1
 P16_SK-KLV	KL-4 to KL-25	Terminal carrier empty suitable for up to 27x screw-terminal points, incl. cover in blue and green	SK-KLV	178910	1
 P16_N-FI-KLV	1x N potential	N-FI expansion terminal for wall pan with screw-type terminal 1x 25 mm² + 3x 16 mm² incl. cover in blue	N-FI-KLV	178911	1
 VT19105	SK-...KLV	Expansion terminal with screw-type connection 1x 35 mm²	KLA	275453	1

Additional Equipment KLV-...

Lock set LOCK-KLV

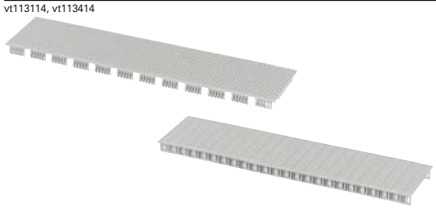
P17_LOCK-KLV



Can be used for	Description	Type designation	Article No.	Pack (pcs.)
KLV-...	Lock set for sheet steel door, keyed alike, incl. 2 keys	LOCK-KLV	178930	1

Empty-space cover BS-...-WH

vt113114, vt113414



Can be used for	Description	Type designation	Article No.	Pack (pcs.)
All Eaton distribution b.	Empty-space cover, white, fine-ribbed, 12 MU	BS-12MF-WH	178975	10/100
	Empty-space cover, gray, fine-ribbed, 12 MU	BS-12MF-GY	178980	10/100
	Empty-space cover, black, fine-ribbed, 12 MU	BS-12MF-BK	178981	10/100
	Empty-space cover, white, fine-ribbed, 6 MU	BS-6MF-WH	178976	10/100
	Empty-space cover, black, fine-ribbed, 6 MU	BS-6MF-BK	178982	10/100
	Empty-space cover, white, rough-ribbed, 12 MU	BS-12MB-WH	178977	10/100
	Empty-space cover, gray, rough-ribbed, 12 MU	BS-12MB-GY	178979	10/100
	Empty-space cover, white, rough-ribbed, 6 MU	BS-6MB-WH	178978	10/100

Internal partition [1)]

P17_HS-KLV



P17_VS2-KLV



Description	Can be used for	Type designation	Article No.	Pack (pcs.)
Partition horizontal as a partition between the rows, insulation material, can be combined with VS...-KLV	1 - 4 rows KLV-HW... and KLV-UP...	HS-KLV	178931	1
Partition vertical for internal separation, insulation material, can be comb. w. HS-KLV	KLV-12...	VS1-KLV	178932	1
	KLV-24...	VS2-KLV	178933	1
	KLV-36...	VS3-KLV	178934	1
	KLV-48...	VS4-KLV	178935	1

Reinforcement template VSB...-KLV

P17_VSB2-KLV



Description	Can be used for	Type designation	Article No.	Pack (pcs.)
Reinforcement template for poured concrete mounting	KLV-12...	VSB1-KLV	178936	1
	KLV-24...	VSB2-KLV	178937	1
	KLV-36...	VSB3-KLV	178938	1
	KLV-48...	VSB4-KLV	178939	1

Industrial cable tie-wrap ITB

VT08809



Can be used for	Type	Article No. designation	Pack (pcs.)
KLV-...	Continuously ribbed to the tip, colour natural, flame retardant UL94 V2	ITB1	083550	1000
		ITB2	085923	1000
		ITB3	088296	100

[1)] Not suitable for multimedia

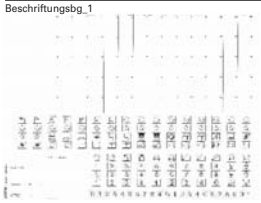
Additional Equipment KLV-...

	Description	Can be used for	Type designation	Article No.	Pack (pcs.)
	3D Plaster compensation				
P18_3D-KLV 	3D plaster compensation as a set in a pouch	KLV-...	3D-KLV	178940	1
	Hollow-wall anchor				
P18_HWS-KLV 	Hollow-wall anchor as a set in a pouch	KLV-...	HWS-KLV	178941	1
	Nail straps				
P18_NL-KLV 	Nail straps as a set in a pouch	KLV-...	NL-KLV	178942	1
	Rotary bolt lock				
P18_DV-KLV 	Rotary bolt lock white	KLV-...	DV-KLV	178943	1
	Flange				
P18_FUP-KLV 	Spare flange	KLV-UP...	FUP-KLV	178944	1
	without spirit level	KLV-HW...	FHW-KLV	178945	1
	Hinge				
P18_HP-KLV 	Spare hinges 1 pair in a pouch	KLV-...	HP-KLV	178946	1
	Cable holders				
P18_KH-KLV 	Cable holders 4 units in a pouch	KLV-...	KH-KLV	178947	1
	Closing screws				
P18_VS-KLV 	Closing screws 4 units in a pouch	KLV-...	VS-KLV	178948	1

Additional Equipment KLV-...

	Description	Can be used for	Type designation	Article No.	Pack (pcs.)
	Wall pan				
P19_UP1-KLV 	Spare wall pan flush-mounted	KLV-UP...	UP1-KLV	178949	1
			UP2-KLV	178950	1
			UP3-KLV	178951	1
			UP4-KLV	178952	1
P19_UP2-KLV 	Spare wall pan hollow-wall	KLV-HW...	HW1-KLV	178953	1
			HW2-KLV	178954	1
			HW3-KLV	178955	1
			HW4-KLV	178956	1
	Carrier rails and structure				
vt115614 	Spare carrier rails incl. fixing screws	KLV-...	TS1-KLV	178957	1
			TS2-KLV	178958	1
			TS3-KLV	178959	1
			TS4-KLV	178960	1
	Device cover				
P19_GAU1-KLV 	Spare device cover flush-mounted	KLV-UP...	GAU1-KLV	178961	1
			GAU2-KLV	178962	1
			GAU3-KLV	178963	1
			GAU4-KLV	178964	1
vt115714 	Spare device cover hollow-wall	KLV-HW...	GAH1-KLV	178965	1
			GAH2-KLV	178912	1
			GAH3-KLV	178913	1
			GAH4-KLV	178914	1
	Add-on connector				
P19_AVH-KLV 	Add-on connector set for DBs, **side by side**, 1 pair in a pouch	KLV-...	AVH-KLV	178915	1
P19_AVV-KLV 	Add-on connector set for DBs, **on top of each other**, 1 pair in a pouch	KLV-...	AVV-KLV	178916	1
	Mounting plate - micro-perforated				
P19_MIP3-KLV 	Mounting plate, micro-perforated, galvanised sheet steel, incl. fixing screws	KLV-36...	MIP3-KLV	178917	1
		KLV-48...	MIP4-KLV	178918	1
	Rounded head screw				
VT11110 	Rounded head screw M4x8 thread-forming	MIP3-KLV MIP4-KLV	EPLHS-M4X8	144028	1/100

Additional Equipment KLV-...

	Description	Can be used for	Type designation	Article No.	Pack (pcs.)
	Doors				
P20_T1-KLV	Spare door white, without hinges and without rotary bolt lock	KLV-...-F and KLV-...-SF	T1-KLV	178919	1
			T2-KLV	178920	1
			T3-KLV	178921	1
			T4-KLV	178922	1
	Doors with ventilation slots				
P20_TM3-KLV	Spare doors with ventilation slots white, without hinges and without rotary bolt lock	KLV-...-F and KLV-...-SF	TM3-KLV	178923	1
			TM4-KLV	178924	1
	Door frames				
P20_TRF1-KLV 	Spare door frames optionally flat (F) or super flat (SF), white, without hinges and without 3D plaster compensation	KLV-...	TRF1-KLV	178925	1
			TRF2-KLV	178926	1
			TRF3-KLV	178927	1
			TRF4-KLV	178928	1
			TRSF1-KLV	178929	1
			TRSF2-KLV	178966	1
			TRSF3-KLV	178967	1
			TRSF4-KLV	178968	1
	Device holder				
P20_GH-KLV 	Device holder for multimedia DBs, incl. fixing screws	Multimedia	GH-KLV	178969	1
	Single and double electricity socket EURO2				
P20_S1-KLV, P20_S2-KLV 	Socket with EURO2 insert and plug-in technology up to 2.5 mm^2 for multimedia DBs, incl. fixing screws	Multimedia	S1-KLV	178970	1
			S2-KLV	178971	1
	Holding bracket for sockets				
P20_HA-KLV 	Holding backet for multimedia DBs, incl. fixing screws	Multimedia	HA-KLV	178972	1
	Data module				
P21_E-DAT-RJ45 	Data module for the carrier rail 1 MU, with RJ45 jack or F/IEC coaxial jack	RJ45	E-DAT-RJ45	178973	1
		Coaxial	E-DAT-F/IEC-B	178974	1
	Labels sheet				
Beschriftungsbg_1 	Labels sheet self-adhesive, for power circuit labelling and numbering, photo symbols	KLV-...	KLV-BSB	279268	1/10

Additional Equipment / Spare Parts BF-O..., BF-U...

Doors sheet steel, BFZ-.TS

VT15004

for: MU per rows / Number of rows	Type designation	Article No.	Pack (pcs.)
For surface-mounting enclosure white			
24 / 2	BFZ-OTS-2/48	283070	1
24 / 3	BFZ-OTS-3/72	283071	1
24 / 4	BFZ-OTS-4/96	283072	1
24 / 5	BFZ-OTS-5/120	283073	1
24 / 6	BFZ-OTS-6/144	283074	1
33 / 4	BFZ-OTS-4/132	240756	1
33 / 5	BFZ-OTS-5/165	240757	1
33 / 6	BFZ-OTS-6/198	240758	1

VT15705

For flush-mounting enclosure white			
24 / 2	BFZ-UTS-2/48	283084	1
24 / 3	BFZ-UTS-3/72	283085	1
24 / 4	BFZ-UTS-4/96	283086	1
24 / 5	BFZ-UTS-5/120	283087	1
24 / 6	BFZ-UTS-6/144	283088	1
33 / 4	BFZ-UTS-4/132	240759	1
33 / 5	BFZ-UTS-5/165	240760	1
33 / 6	BFZ-UTS-6/198	240761	1

VT04305



For surface-mounting enclosure grey			
24 / 3	BFZ-OTS-3/72-G	283075	1
24 / 4	BFZ-OTS-4/96-G	283076	1
24 / 5	BFZ-OTS-5/120-G	283077	1
24 / 6	BFZ-OTS-6/144-G	283078	1

VT20405

For flush-mounting enclosure grey			
24 / 3	BFZ-UTS-3/72-G	283089	1
24 / 4	BFZ-UTS-4/96-G	283090	1
24 / 5	BFZ-UTS-5/120-G	283091	1
24 / 6	BFZ-UTS-6/144-G	283092	1

Doors sheet steel "RMQ", BFZ-OTR

- steel-sheet doors with more depth (suitable for mounting of e.g. RMQ in the door)
- with Ronis locking-system 455

wa_vt48513



for: MU per rows / Number of rows	Type designation	Article No.	Pack (pcs.)
For surface-mounting enclosure white			
24 / 2	BFZ-OTR-2/48	285643	1
24 / 3	BFZ-OTR-3/72	285644	1
24 / 4	BFZ-OTR-4/96	285645	1
24 / 5	BFZ-OTR-5/120	285646	1
24 / 6	BFZ-OTR-6/144	285647	1

Additional Equipment / Spare Parts BF-O..., BF-U...

Doors transparent (sheet steel), BFZ-.TT

VT14904



for: MU per rows / Number of rows	Type designation	Article No.	Pack (pcs.)
For surface-mounting enclosure white			
24 / 2	BFZ-OTT-2/48	283079	1
24 / 3	BFZ-OTT-3/72	283080	1
24 / 4	BFZ-OTT-4/96	283081	1
24 / 5	BFZ-OTT-5/120	283082	1
24 / 6	BFZ-OTT-6/144	283083	1
33 / 4	BFZ-OTT-4/132	240762	1
33 / 5	BFZ-OTT-5/165	240763	1
33 / 6	BFZ-OTT-6/198	240764	1
For flush-mounting enclosure white			
24 / 2	BFZ-UTT-2/48	283093	1
24 / 3	BFZ-UTT-3/72	283094	1
24 / 4	BFZ-UTT-4/96	283095	1
24 / 5	BFZ-UTT-5/120	283096	1
24 / 6	BFZ-UTT-6/144	285353	1
33 / 4	BFZ-UTT-4/132	240765	1
33 / 5	BFZ-UTT-5/165	240766	1
33 / 6	BFZ-UTT-6/198	240767	1

VT15605



Doors transparent with Profi Line handle (sheet steel), BFZ-.TT-DR

VT21005



for: MU per rows / Number of rows	Type designation	Article No.	Pack (pcs.)
For surface-mounting enclosure white			
24 / 2	BFZ-OTT-DR-2/48	285222	1
24 / 3	BFZ-OTT-DR-3/72	285223	1
24 / 4	BFZ-OTT-DR-4/96	285224	1
24 / 5	BFZ-OTT-DR-5/120	285225	1
24 / 6	BFZ-OTT-DR-6/144	285226	1
For flush-mounting enclosure white			
24 / 2	BFZ-UTT-DR-2/48	285227	1
24 / 3	BFZ-UTT-DR-3/72	285228	1
24 / 4	BFZ-UTT-DR-4/96	285229	1
24 / 5	BFZ-UTT-DR-5/120	285230	1
24 / 6	BFZ-UTT-DR-6/144	285231	1

VT21105



Additional Equipment / Spare Parts BF-O..., BF-U...

Accessories

Front plates blind white, BFZ-FP

VT00205

for: MU per rows / Number of rows	Type designation	Article No.	Pack (pcs.)
24 / 0+	BFZ-FP-0+/BL	286106	1
24 / 1	BFZ-FP-1/BL	293626	1
24 / 1+	BFZ-FP-1+/BL	286105	1
33 / 1	BFZ-FP-1/BL3	293627	1
33 / 1+	BFZ-FP-1+/BL3	240752	1

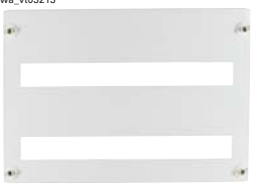
Front plates blind grey, BFZ-FP-G

VT00205

24 / 0+	BFZ-FP-0+/BL-G	113694	1
24 / 1	BFZ-FP-1/BL-G	113695	1
24 / 1+	BFZ-FP-1+/BL-G	113696	1
33 / 1	BFZ-FP-1/BL3-G	113697	1
33 / 1+	BFZ-FP-1+/BL3-G	113698	1

Front plates 45mm-Device cutout white, BFZ-FP

wa_vt03213



24 / 1	BFZ-FP-1/24	285650	1
24 / 1+	BFZ-FP-1+/24	283061	1
24 / 2	BFZ-FP-2/48	283060	1
24 / 2+	BFZ-FP-2+/48	283062	1
24 / 2++	BFZ-FP-2++/48	283064	1
24 / 3+	BFZ-FP-3+/72	283063	1
33 / 1	BFZ-FP-1/33	240748	1
33 / 1+	BFZ-FP-1+/33	240749	1
33 / 2	BFZ-FP-2/66	240750	1
33 / 2+	BFZ-FP-2+/66	240751	1

Front plates 45mm-Device cutout grey, BFZ-FP-G

wa_vt03413



24 / 1	BFZ-FP-1/24-G	116883	1
24 / 1+	BFZ-FP-1+/24-G	283066	1
24 / 2	BFZ-FP-2/48-G	283065	1
24 / 2+	BFZ-FP-2+/48-G	283067	1
24 / 2++	BFZ-FP-2++/48-G	283069	1
24 / 3+	BFZ-FP-3+/72-G	283068	1
33 / 1	BFZ-FP-1/33-G	116884	1
33 / 1+	BFZ-FP-1+/33-G	116885	1

DIN-rail frame (replacement), BFZ-DINS

wa_vt09314



24 / 2	BFZ-DINS-2/48	283101	1
24 / 3	BFZ-DINS-3/72	283102	1
24 / 4	BFZ-DINS-4/96	283103	1
24 / 5	BFZ-DINS-5/120	283104	1
24 / 6	BFZ-DINS-6/144	283105	1
33 / 4	BFZ-DINS-4/132	240753	1
33 / 5	BFZ-DINS-5/165	240754	1
33 / 6	BFZ-DINS-6/198	240755	1

Universal mounting plate, BFZ-.-ITMPL-1+

vt112414

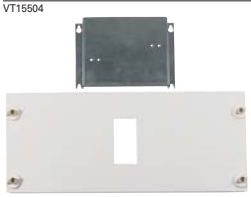


24 / for surface-mounting	BFZ-O-ITMPL-1+/24	285648	1
24 / for flush-mounting	BFZ-U-ITMPL-1+/24	285649	1
33 / for surface-mounting	BFZ-O-ITMPL-1+/33	240769	1
33 / for flush-mounting	BFZ-U-ITMPL-1+/33	240768	1

Additional Equipment / Spare Parts BF-O..., BF-U...

Accessories

VT15504



Description	Type designation	Article No.	Pack (pcs.)
Set for NZM-fitting, BFZ-NZM1-SET			
24 / white	BFZ-NZM1-SET	285233	1
24 / grey	BFZ-NZM1-SET-G	285234	1
33 / white	BFZ-NZM1-SET/33	293628	1
33 / grey	BFZ-NZM1-SET/33-G	113699	1

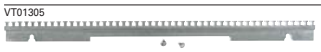
VT01205

for: MU per rows / Number of rows	Type designation	Article No.	Pack (pcs.)
Separating Plate white, BFZ-SP			
24	BFZ-SP-24	293621	1
33	BFZ-SP-33	293622	1

VT01205

Separating Plate grey, BFZ-SP-G			
24	BFZ-SP-24-G	113700	1
33	BFZ-SP-33-G	113701	1

VT01305



Wire Fixing Rail, BFZ-WFR			
24	BFZ-WFR-24	293623	1
33	BFZ-WFR-33	293624	1

VT01405

Flange Plate blind (Replacement for 2K-Flange), BFZ-FLP-BL			
white	BFZ-FLP-BL	293625	1
grey	BFZ-FLP-BL-G	113693	1

VT25904



Lock-set for door			
Lock-set for sheet steel door eyed alike, incl. 2 keys	LOCK-KLV	178930	1
Rotary door handle Profi-Line	BFZ-LS-PLDH	110165	1

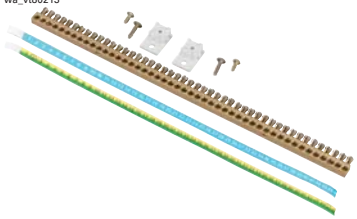
Additional Equipment / Spare Parts BF-O..., BF-U...

Accessories

Terminal-set N/PE, BFZ-TS-KL

• max. 63 A

wa_vt80213



Description	Type designation	Article No.	Pack (pcs.)
2x25 mm² + 9x16 mm²	BFZ-TS-KL11	293629	1
2x25 mm² + 13x16 mm²	BFZ-TS-KL15	293630	1
2x25 mm² + 27x16 mm²	BFZ-TS-KL29	293631	1
2x25 mm² + 43x16 mm²	BFZ-TS-KL45	293632	1
2x25 mm² + 58x16 mm²	BFZ-TS-KL60	293633	1
2x25 mm² + 74x16 mm²	BFZ-TS-KL76	293634	1

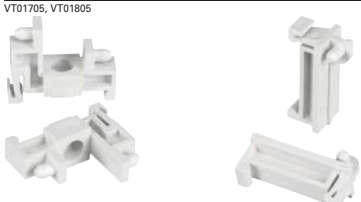
Terminal-set N/PE, BFZ-TS-N/PE-KL

• max. 63 A

2x (2x25 mm² + 27x16 mm²)	BFZ-TS-N/PE-KL29	113702	1
2x (2x25 mm² + 43x16 mm²)	BFZ-TS-N/PE-KL45	113703	1
2x (2x25 mm² + 58x16 mm²)	BFZ-TS-N/PE-KL60	113704	1
2x (2x25 mm² + 74x16 mm²)	BFZ-TS-N/PE-KL76	113705	1

Terminal supports, KT

VT01705, VT01805



KT-3 KT-5

horizontal	KT-3	275445	1
vertical	KT-5	275447	1

Terminal blocks, KL

• max. 63 A

VT1800



1x25 mm² + 3x16 mm²	KL-4	219723	1
1x25 mm² + 6x16 mm²	KL-7	219724	1
2x25 mm² + 9x16 mm²	KL-11	219725	1
2x25 mm² + 13x16 mm²	KL-15	219726	1
2x25 mm² + 23x16 mm²	KL-25	219727	1
2x25 mm² + 27x16 mm²	KL-29	275449	1
2x25 mm² + 43x16 mm²	KL-45	275450	1
2x25 mm² + 58x16 mm²	KL-60	275451	1
2x25 mm² + 74x16 mm²	KL-76	102066	1

Additional Equipment / Spare Parts BF-O..., BF-U...

Accessories

wa_vt16214, wa_vt16314, wa_vt13214



BPZ-KB-4/80 BPZ-KB-6/160 BPZ-KB-11/250

Rated current / Output terminals	Type designation	Article No.	Pack (pcs.)
Terminal blocks 1-pole, BPZ-KB			
80 A / 6	BPZ-KB-4/80	289969	1
160 A / 6	BPZ-KB-6/160	289970	1
250 A / 11	BPZ-KB-11/250	289967	1

- Mounting on DIN-Rail or on Mounting Plate
- UL listed
- Save time on wiring
- Save 80% on space used
- Modular construction, 1- to 4-pole systems can be built with several blocks
- Protection class IP20
- Max. operating voltage 1000V AC , 1500V DC

Technical Data

	BPZ-KB-4/80	torque (Nm)	BPZ-KB-6/160	torque (Nm)	BPZ-KB-11/250	torque (Nm)
Rated current	80 A		160 A		250 A	
Input terminals	1x2,5-16mm^2	1,5-3	1x10-70mm^2	5-6	1x35-120mm^2	19-21
Output terminals	4x2,5-6mm^2 2x2,5-16mm^2	0,8-1,5 1,5-3	6x2,5-16mm^2	1,5-3	2x6-35mm^2 5x1,5-16mm^2 4x1,5-10mm^2	3,5-7 2-3 2-3
Connection	–		lateral parallel connection possible with Cu 15x5		–	
Abmessungen L x B x H (mm)	66 x 27 x 47		92 x 35 x 49		95,5 x 44,5 x 49	

wa_vt16114, wa_vt14314



BPZ-KB-11/160

BPZ-KB-8/125

Rated current / Input terminals / Output terminals	Type designation	Article No.	Pack (pcs.)
Terminal blocks 4-pole, BPZ-KB			
125A / 1x(L1/L2/L3/N) / 7xL1/7xL2/7xL3/10xN	BPZ-KB-8/125	289968	1
160A / 1x(L1/L2/L3/N) / 11xL1/11xL2/11xL3/11xN	BPZ-KB-11/160	102716	1

- Mounting on DIN-Rail or on Mounting Plate
- Max. operating voltage
  BPZ-KB-8/125: 690V AC , 690V DC
  BPZ-KB-11/160: 1000V AC , 1500V DC

Technical Data

	BPZ-KB-8/125	torque (Nm)	BPZ-KB-11/160	torque (Nm)
Rated current	125 A		160 A	
Input terminals per pole	1x6-35mm^2	1,5	1x10-35mm^2	3,5-5
Output terminals per Phase (L1/L2/L3)	5x1,5-6mm^2 2x4-16mm^2	0,8-1,5	3x6-25mm^2 8x2,5-16mm^2	3,5-5
Output terminals N	4x1,5-10mm^2 6x4-16mm^2	1,5	3x6-25mm^2 8x2,5-16mm^2	3,5-5

Additional Equipment / Spare Parts BF-O..., BF-U...

Accessories

	Description	Type designation	Article No.	Pack (pcs.)
	Fastening Set for Cable Duct 60, BFZ-KKW-60			
	• 1 pair additional angles for Cable Duct 60/60 inclusive 2 screws			
wa_vt19504 		BFZ-KKW-60	285232	1
	Earthing set for door, BFZ-DES			
VT19305 		BFZ-DES	101665	1
	Blanking Strips 45-mm,, NBP			
wa_vt07313	white, 1m long	NBP-1000-W	101666	1
	grey, 1m long	NBP-1000	275413	1
	Mounting plate for Inscription Strip, LAB-BAR			
wa_vt14413	for 24MU per row	LAB-BAR_24TE	107901	10
	for 33MU per row	LAB-BAR_33TE	107902	10
	1m	LAB-BAR_1000	107911	10
	Enclosure leaves for the Inscription Strips, LAB-TAPE			
	empty	LAB-TAPE_A4_BLANK	107952	10
	Circuit Diagram Bag, LAB-BAG			
wa_vt14513 	Size A4	LAB-BAG_A4	107913	1

Additional Equipment/Spare Parts EWK-...

Accessories

	Can be used for	Description	Type designation	Article No.	Pack (pcs.)
		Wall-fastening straps			
wa_vt31413 	EWK-... EWS-...	Sheet steel, for fixing the enclosures on the wall. Set includes 4 straps.	WFB-SET-EW	178507	1
		Fixing material for wall-mounting			
	EWK-... EWS-...	Set consists of dowels and screws	WFM-SET-EW	178508	1
		Combined plug-type terminal IP2X			
wa_vt32013 	EWK-...	1x PE comb. plug-type terminal 6x1.5-16 mm^2 + 21x 0.75-4 mm^2	PE-EWK	178513	1
		1x N comb. plug-type terminal 6x1.5-16 mm^2 + 21x 0.75-4 mm^2	N-EWK	178514	1
		1x N/N comb. plug-type terminal 6x1.5-16 mm^2 + 21x 0.75-4 mm^2	NN-EWK	178515	1
		1x PE/N comb. plug-type terminal 6x1.5-16 mm^2 + 21x 0.75-4 mm^2	PEN-EWK	178516	1
		Insulation adapter			
	EWK-...	Plastic support for combined plug-type terminal. For positioning the terminal between the rows.	IRS-EWK	178517	1
		Enclosure-connecting set			
wa_vt31913 	EWK-... EWS-...	For connecting wall-mounted enclosures next to or on top of each other	SBS-SET-EWS	178509	1
		Cable insertion flange with adapter			
		• In addition to the factory-mounted insertion flange • Increase of 48 mm			
wa_vt31513 	EWK-...	22x M25	LP20-EW	178485	1
	EWS-...	14x M25/32	LP21-EW	178486	1
	EWP-...	6x M32/40/50	LP22-EW	178487	1
		2x M25/32, 1x M32/40, 2x M40/50/60	LP23-EW	178488	1
		Blind	LP24-EW	178489	1
		Sealing membrane	LP25-EW	178490	1
		Cable insertion flange with cable grommets KT3/KT4			
	EWK-... EWS-...	2x (14-54 mm) Outer diameter of cable	LP-KT3-EW	178497	1
	EWP-...	1x (14-54 mm) Outer diameter of cable	LP-KT4-EW	178498	1

Additional Equipment/Spare Parts EWK-...

Accessories

Cable strain relief rail

wa_vt31313



Can be used for	Description	Type designation	Article No.	Pack (pcs.)
EWK-...	For fastening the cables with cable tie wraps	KS-EWK	178501	1

Cable insertion flange

- To replace the factory-mounted insertion flange
- With pre-punched holes for metrical or PG insertions

wa_vt31613



Can be used for	Description	Type designation	Article No.	Pack (pcs.)
EWK-... EWS-... EWP-...	5x M20, 12x M16	LP2-1-EW	178491	1
	5x M20, 2x M50	LP2-2-EW	178492	1
	1x PG21-48, 2x PG16-29, 4x PG13.5	LP3-EW	178493	1
	17x PG13.5	LP4-EW	178494	1
	Blind	LP5-EW	178495	1
	Elastic insertions	LP6-EW	178496	1

Sealing plugs

Can be used for	Description	Type designation	Article No.	Pack (pcs.)
EWK-... EWS-... EWP-...	For closing holes made by mistake	SSCBF-EW	178499	1

Cable interconnect duct

- For interconnecting and covering wires
- To be fixed at the top of the enclosure
- RAL 9016

wa_vt31713



Can be used for	Description	Type designation	Article No.	Pack (pcs.)
EWK-...	Width 300	RK03-EW	178502	1
EWS-...	Width 550	RK05-EW	178503	1
	Width 800	RK08-EW	178504	1
	Width 1050	RK10-EW	178505	1

Transparent door

- As a modification set,
- Without closure, without hinges

wa_vt05612



Can be used for	Enclosure width [mm]	Enclosure height [mm]	Type designation	Article No.	Pack (pcs.)
EWK-... EWS-...	300 800	650	TT0306-EW	178520	1
	300 800	800	TT0308-EW	178521	1
	300 800	950	TT0309-EW	178522	1
	550 1050 1300	500	TT0505-EW	178523	1
	550 1050 1300	650	TT0506-EW	178524	1
	550 1050 1300	800	TT0508-EW	178525	1
	550 1050 1300	950	TT0509-EW	178526	1

Additional Equipment/Spare Parts EWK-...

Accessories

	Can be used for	Description	Type designation	Article No.	Pack (pcs.)
		Door locks			
 wa_vt31213	EWK-... EWS-...	Clip-down handle for Profile semi-cylinder.	SHG-EW	178527	1
 wa_vt31113	EWK-... EWS-...	T-handle	K-EW	178528	1
 wa_vt31013	EWK-... EWS-...	Two-way key bit 3 mm	TVD3-EW	178529	1
 VT104314	EWK-... EWS-...	Standard rotary bolt, Plastic, white	GS-EW	178530	1
		Spare parts			
 wa_vt09114	EWK-...	Quick-acting closure, Plastic cover EWK	SCREW-EWK	178531	1
 wa_vt09014	EWK-...	Fixing tower, Plastic cover EWK	TOWER-EWK	178510	1
 wa_vt05110	EWK-... EWS-...	Spare hinges, 1 pair	HINGE-EWKS	178518	1

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Printed in Austria (01/15)
Publication number CA015004EN

Grafics: SRA
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Technical Data



		PSL5…		PSL6…	
General					
Standards		IEC/EN 60947		IEC/EN 60947	
Rated Current (I_n)	at +40°C	800A, 1000A, 1250A, 1600A, 2000A, 2500A, 3200A, 4000A			
Ambient temperature	Storage	-25 - 70°C		-25 - 70°C	
	Operating (open)	-25 - 70°C		-25 - 70°C	
Utilization category		B		B	
Protection type		IP30, IP40 with door sealing frame		IP30, IP40 with door sealing frame	
Switching capacity					
Type of circuit breaker		800-2000 A	2500-4000 A	800-2000 A	2500-4000 A
N-pole rated current		100%In	100%In	100%In	100%In
Type of switching capacity		PSL5…	PSL5…	PSL6…	PSL6…
Rated impulse withstand voltage (U_{imp} , VAC)		12000	12000	12000	12000
Rated insulation voltage (U_i , VAC)		1000	1000	1000	1000
Rated operational voltage (U_e , VAC, 50/60Hz)		440	440	440	440
Ultimate breaking capacity (I_{cu} , kA)		55	55	66	66
Rated service breaking capacity (I_{cs} , kA, 1s)		55	55	66	66
Rated short-time withstand current (I_{cw} , kA)		55	55	66	66
Rated short-circuit making capacity (I_{cm} , kA)		121	121	145	145
Breaking time		≤30ms	≤30ms	≤30ms	≤30ms
Closing time		≤70ms	≤70ms	≤70ms	≤70ms
Durability and installation characteristics					
Lifespan	Mechanical, without maintenance	10000	10000	10000	10000
	Mechanical, with maintenance	20000	20000	20000	20000
	Electrical, without maintenance	6000	6000	6000	6000
Dimensions (H × W × D, mm)	Fixed 3P	398x362×332	394x422×339	398x362×332	394x422×339
	Fixed 4P	398x457×332	394x537×339	398x457×332	394x537×339
	Withdrawable 3P	432x375×430	432x435×450	432x375×430	432x435×450
	Withdrawable 4P	432x470×430	432x550×450	432x470×430	432x550×450
Weight (kg)	Fixed 3P	41	60	41	60
	Fixed 4P	50	72	50	72
	Withdrawable 3P	71	103	71	103
	Withdrawable 4P	91	120	91	120

Technical Data



Eaton P/N	PVR21
Display	Digital LED
Trip unit type	Current
Protective options	LSI, LSIG
Overload protection (L)	
Overload trip (I_r), x I_n	OFF, (0.4 ~ 1.0) × In
Protection curve options	I^2t
pickup time setting -- t	C1 ~ C11 (delay setting)
Thermal memory	fixed 30min
Short-time delayed short-circuit protection (S)	
Short delayed pickup (I_{sd}, Inverse / flat time) , x I_r	OFF, (1.5 ~ 15) × I_r
Short delay time, flat characteristic curve (t_{sd})	0.1s, 0.2s, 0.3s, 0.4s
Non-delayed short-circuit protection (I)	
Non-delayed pickup (I_i)	OFF, (1.0 ~ 20) × I_n
Conventional tripping/non-tripping	≤ 0.9I_i, not trip ≥ 1.1I_i, trip
Breaking action time (I > MCR setting)	< 30ms
Optional ground fault protection (G)	
Ground/Earth pickup (I_g), x I_n	OFF, (0.2 ~ 1.0) × I_n
Ground/Earth time (t_g)	0.1s, 0.2s, 0.3s, 0.4s
Conventional tripping/non-tripping	≤ 0.8I_g, not trip ≥ 1.0I_g, trip
Neutral protection setting	50% I_n, 100% I_n, OFF

Product Features

Design Features

The trip unit

- PVR21:
  Digital LED display and simplicity to use.
- Current protection features: A variety of protection function is offered including overload long-time delay protection, short-time delay, instantaneous, ground fault, neutral line N-pole protection, MCR circuit breaker making capacity protection;

Easy of installation

Zero flashover, and supports both forward and reverse power feeding.

Supports both horizontal or vertical connection.

Efficient arc extinguishing and breaking characteristics

Arcing chamber and contact system is designed with distinguished technology that can significantly improve the breaking capability of the breakers. It also optimizes the current sensing path and acting time that can greatly shorten the tripping time in case of large fault current.

High electrical lifetime and short circuit withstand ability

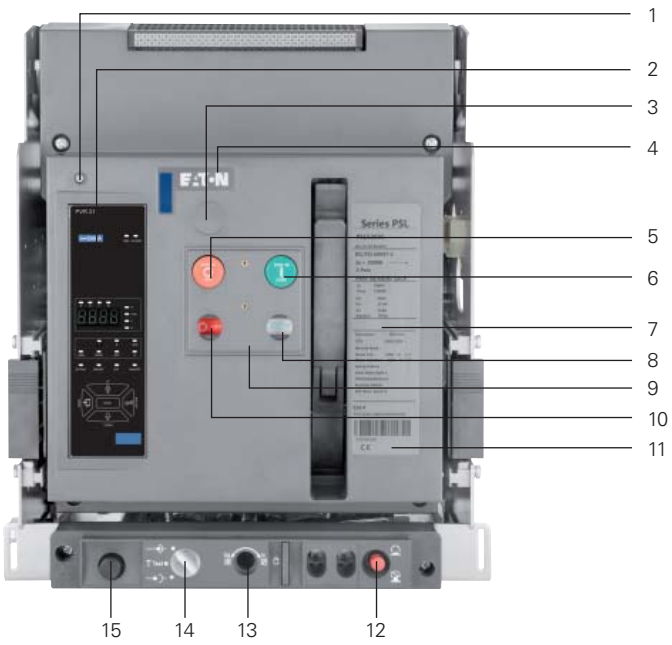
The breaker design adopts high strength DMC material, which has good insulation characteristics and mechanical strength. The double-contact structure improves the electric life of products; The optimized design of the mechanism realizes compensation to the contact pressure, and improves the product reliability and short circuit withstand ability.

More safety protection features

It has drawout type circuit breaker door interlocking, drawout type three-position interlocking device and off-position key lock, rear terminal protective cover, closing ready indicating device and other protection devices.

Structural Features

Introduction of Structure and Indications

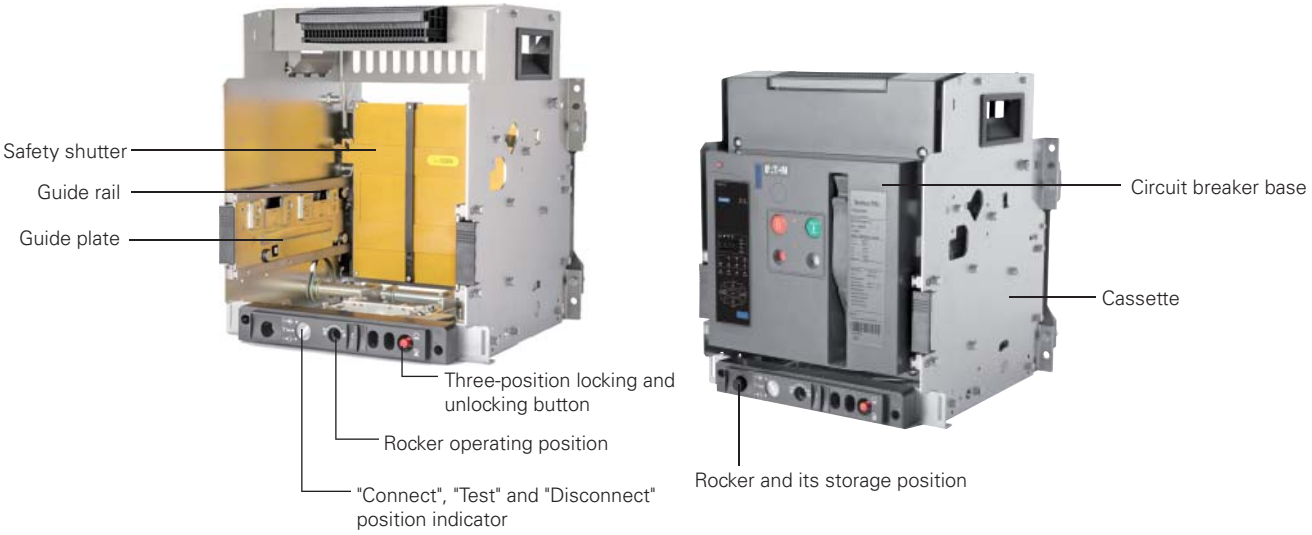


1. Reset button
2. Nominal current sign
3. Off-position key lock (optional function)
4. Eaton Logo
5. Disconnection button (OFF)
6. Closing button (ON)
7. Counter (knockout under label)
8. Spring charged Indicator
9. Ready to close "OK" indicator (optional function)
10. ON/OFF Indicator
11. Front label
12. "CONNECT", "TEST" and "DISCONNECT" position locking and unlocking device
13. Rocker operating position
14. Position indicator "CONNECT", "TEST" and "DISCONNECT"
15. Rocker and its storage position

Note: 12~15 for drawout type only

Drawout Type Circuit Breaker Structure

Drawout type circuit breaker is composed of the circuit breaker base and the cassette. The cassette has guide rails on both sides. There's a movable guide plate on the guide rail. The circuit breaker is mounted on both of the guide plates. The drawout type circuit breaker connects to the main circuit by inserting the busbar on the circuit breaker into the clusters of the cassette.



Scope of Application

PSL series of air circuit breaker (referred to as circuit breaker in the following) can be applied to the power grid of 50Hz/60Hz, rated current of 800A ~ 4000A, rated insulation voltage of 1000V, rated operational voltage of AC220V/230V/240V/380V/400V/415V/440V/480V. It can protect circuit and equipment from overload, short-circuit, under-voltage, grounding fault and harm of other faults. It can also be offered as isolation switch which is non-auto type (without trip unit).

It can offer the selective protection with high accuracy and also improve the safety and reliability of the power supply.

Operating Environment

Ambient temperature

Applicable ambient temperature is -25°C ~ + 70°C.

If the ambient temperature is higher than +40°C, de-rating of the rated current is needed.

Humidity

When the ambient air temperature is +40°C, the relative humidity shall not be more than 50%. Higher relative humidity is allowed in lower temperature. For example, in case of +25°C, the relative humidity can be 90%. For condensation due to temperature change, dehumidification or corresponding measures should be taken.

Anti-corrosion Level

Salt mist: Severe Level 2

Pollution Level

Pollution level: Level 3

Installation Conditions

With the vertical gradient no more than 5°, the circuit breaker shall be installed under the environment condition without explosion danger, conductive dust or the possibility of corroding metal and damaging the insulation.

Installation Category

Installation category of the circuit breaker's main circuit, under-voltage tripping coil and power transformer's primary coil is IV; the installation category of the auxiliary circuits and control circuits is III.

Protection Class

IP30 and IP40 (installed in a cubicle and equipped with a protective door frame).

Utility Category

Class B.

Recommended busbar

Frame size (A)	Rated current In (A) 40°C	Copper busbar specifications	
		Dimension	Number of busbars
2000	800	50mm×5mm	2
	1000	60mm×5mm	2
	1250	80mm×5mm	3
	1600	100mm×5mm	2
	2000	100mm×5mm	3
4000	2500	100mm×5mm	4
	3200, 4000	100mm×10mm	5

Note:
The table indicates the copper busbar specifications adopted when the circuit breaker is under the ambient temperature of 40°C and in the open area. If the temperature is higher than 40°C, more busbar should be used, or current de-rating should be applied.

Technical Characteristics

Trip unit

Trip unit is one of the main components of the circuit breaker, which can provide variety of protection functions like overload, short circuit, grounding. Trip unit has the function of measuring the current.

Model	PVR21
800-4000A	



Trip unit Functions

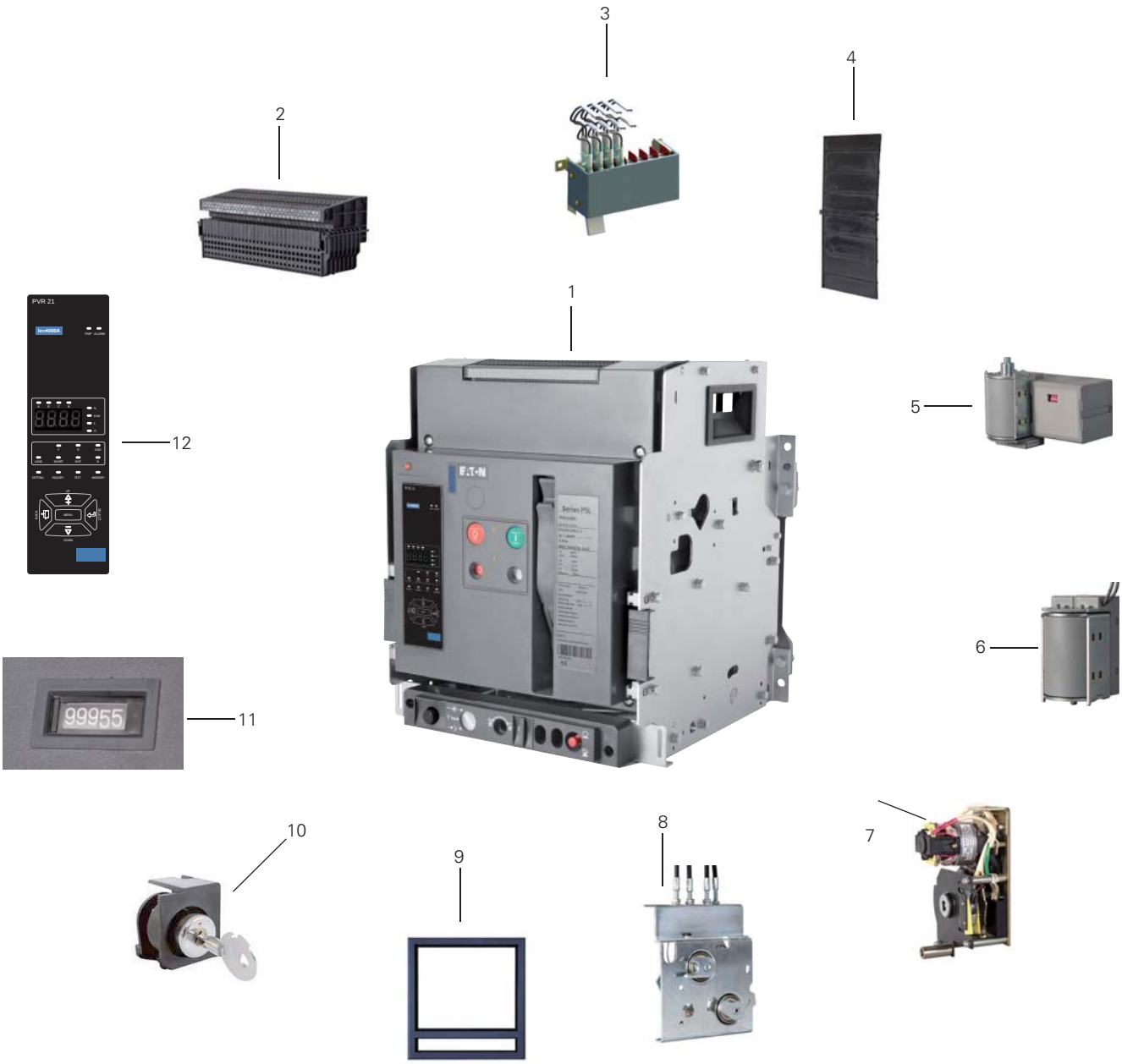
Functional items		PVR21
Display type	Digital LED and symbols display	√
Protection functions	Overload long-time delay protection	√
	Overload thermal memory	√
	Overload pre-alarm	√
	Short circuit short-time delay protection	√
	Short-time delay thermal memory	√
	Short circuit instantaneous protection	√
	Neutral line protection	√
	Current unbalance protection	√
	MCR	√
Measuring function	Current	√
Maintenance function	Fault status indication (LED)	√
	Fault event record(8 events) and query	√
	Self-diagnostic function	√
	Tripping simulation test	√
Others	DC trip units (DC220V, DC110V)	▲

"√" represents this function is available; "▲" represents optional functions for users

Factory default setting

Protection	Current	Time	Remarks
Overload long-time delay protection	1.0 I_n	60s	Thermal memory ON
Short circuit short-time delay protection	8 I_r	0.2s	Flat type of the curve
Instantaneous short circuit	10 I_n	-	-
Ground protection (if applicable)	0.5 I_n	0.1s	-
Current unbalance protection	OFF	-	Can be opened as needed

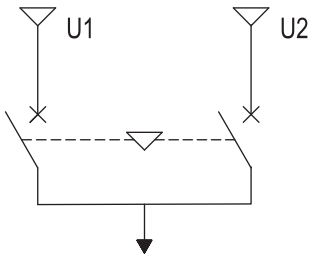
PSL system view



1	**PSL circuit breaker** PSL5: 55kA PSL6: 66kA 800~4000A, 3P/4P, drawout/fixed type	**5**	**Undervoltage release** 220VAC, 110VDC No delay/1s/3s/5s delay	**9**	**Door frame** (always included)
2	**Control terminal block** 800~2000A: 62 pins 2500~4000A: 62 pins	**6**	**Shunt trip / Spring release** 220VAC, 110VDC	**10**	**OFF position keylock**
3	**Auxiliary switch** None/4a4b/6a6b/4ON+4OFF/6ON+6OFF	**7**	**Motor operator** 220VAD	**11**	**Operation counter**
4	**Phase barrier** Default assembled on 2500~4000A optional for 800~2000A	**8**	**Mechanical interlock** MIL2C/MIL31C/MIL33C	**12**	**Trip unit**

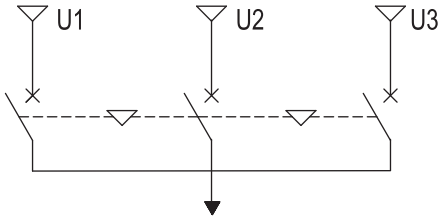
Accessories

- The circuit breaker can be applicable to interlocking in the following power supply states
  - MIL2C max. 1 of 2 breakers can be closed



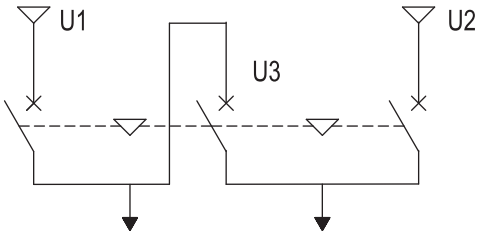
U1	U2
Close	Open
Open	Close
Open	Open

  - MIL33C (max. 1 of 3 breakers can be closed)



U1	U2	U3
Close	Open	Open
Open	Close	Open
Open	Open	Close
Open	Open	Open

  - MIL31C (max. 2 of 3 breakers can be closed)



U1	U2	U3
Open	Open	Open
Close	Close	Open
Close	Open	Close
Open	Close	Close

Eaton is a power management company with 2017 sales of $20.4 billion. We provide energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. Eaton is dedicated to improving the quality of life and the environment through the use of power management technologies and services. Eaton has approximately 96,000 employees and sells products to customers in more than 175 countries.

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Printed in Austria
Publication No. BR013002TR
Article number-MK
December 2018
Grafics: SRA, Schrems

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Powering Business Worldwide

Motor-Protective Circuit-Breaker **PKE**
Moeller® series

Flexible. Intelligent. Trendsetting.



Product Information

Motor-Protective Circuit-Breakers PKE up to 65 A

with Electronic Wide-Range Overload Protection.

IE3

EATON
Powering Business Worldwide



Obliged by Tradition

With its PKE series of devices, Eaton continues to improve and enhance Moeller's motor-protective circuit breakers. Moeller had already developed the motor-protective circuit-breaker PKZ in 1932. Our ideas and developments in the development center in Bonn have decisively influenced the trends in the protection of motors since then. The results are progressive concepts and marketable product innovations that again and again assume the role of international trendsetting, pioneering products.

It was Moeller who pioneered the integration of overload protection and short-circuit protection into a compact device thus abolishing the usual separation between both protective functions as used up to then. The awareness of this long tradition in the motor protection field has helped establish and maintain a core competence, which has been continued through to today by Eaton. The term PKZ is not just the embodiment of quality, but also the generally used synonym by experts for motor-protective circuit-breakers.









Motor-Protective Circuit-Breaker PKE – Switch and Protect Motors up to 65 A with Electronic Wide-Range Overload Protection



Modular design. Highest level of flexibility. Highest level of performance.

The functional safety and the service life of a motor depends mainly on the motor protection. Motor-protective circuit-breakers PKE with electronic wide-range overload protection offer an interesting alternative to the bimetal solutions here and complement the intelligent PKZ series from Eaton.

They provide the highest level of flexibility featuring a compact and modular design with its plug-in control unit. Control units are also available for system protection applications.

The PKE can be re-equipped in a single step for motor and system protection with various plug-in control units.

3 base units + 8 control units = current range up to 65 A





12 A (45 mm)	32 A (45 mm)	65 A (55 mm)
PKE 12	**PKE 32**	**PKE 65**



Motor protection

0.3 A – 12 A	1 A – 32 A	8 A – 65 A
0.09 - 5.5 kW (400 V)	0.37 - 15 kW (400 V)	4 - 30 kW (400 V)

System protection	15 A – 36 A	15 A – 65 A

8 plug-in trip blocks up to 65 A in 2 versions

0.3 A	12 A
1 A	4 A
3 A	12 A
8 A	32 A
16 A	65 A
15 A	36 A
16 A	65 A

Motor-protective circuit-breaker PKE: The benefits at a glance

Efficient: Wide current setting ranges
→ Reduces the number of variants minimizing the engineering work and costs accordingly.

Flexible: Plug-in trip blocks up to 65 A
→ Improves the service-friendliness - short conversion times, fast commissioning

Simple: 100 kA at 400 V
→ Simplify engineering

Compatible: Integrated into the modular system xStart
→ Facilitates enhanced flexibility through the use of standard components

Intelligent: Interface to SmartWire-DT
→ Increases the levels of system availability by the transfer of process-relevant data
→ Saves time-consuming troubleshooting during commissioning and maintenance

Compact: Motor starter design from standard components
→ Provides safety with 2 independent separate contact systems in the motor starter

Systematic Solutions











The motor-protective circuit-breaker PKE has versatile, approved accessories available from the xStart range for safe and rational control panel construction.

Modular standard components optimally matched to one another and simple to combine fulfil the customer requirements for exchangeable "standard" devices.



System advantages at a glance:

Expandable: Flexible solutions for divergent demands

→ Uses the existing system accessories from the system xStart

Modular (plug-in): Fast and cost-effective mounting and wiring

→ Configuration of motor-starter combinations up to 15A with plug-in main current wiring

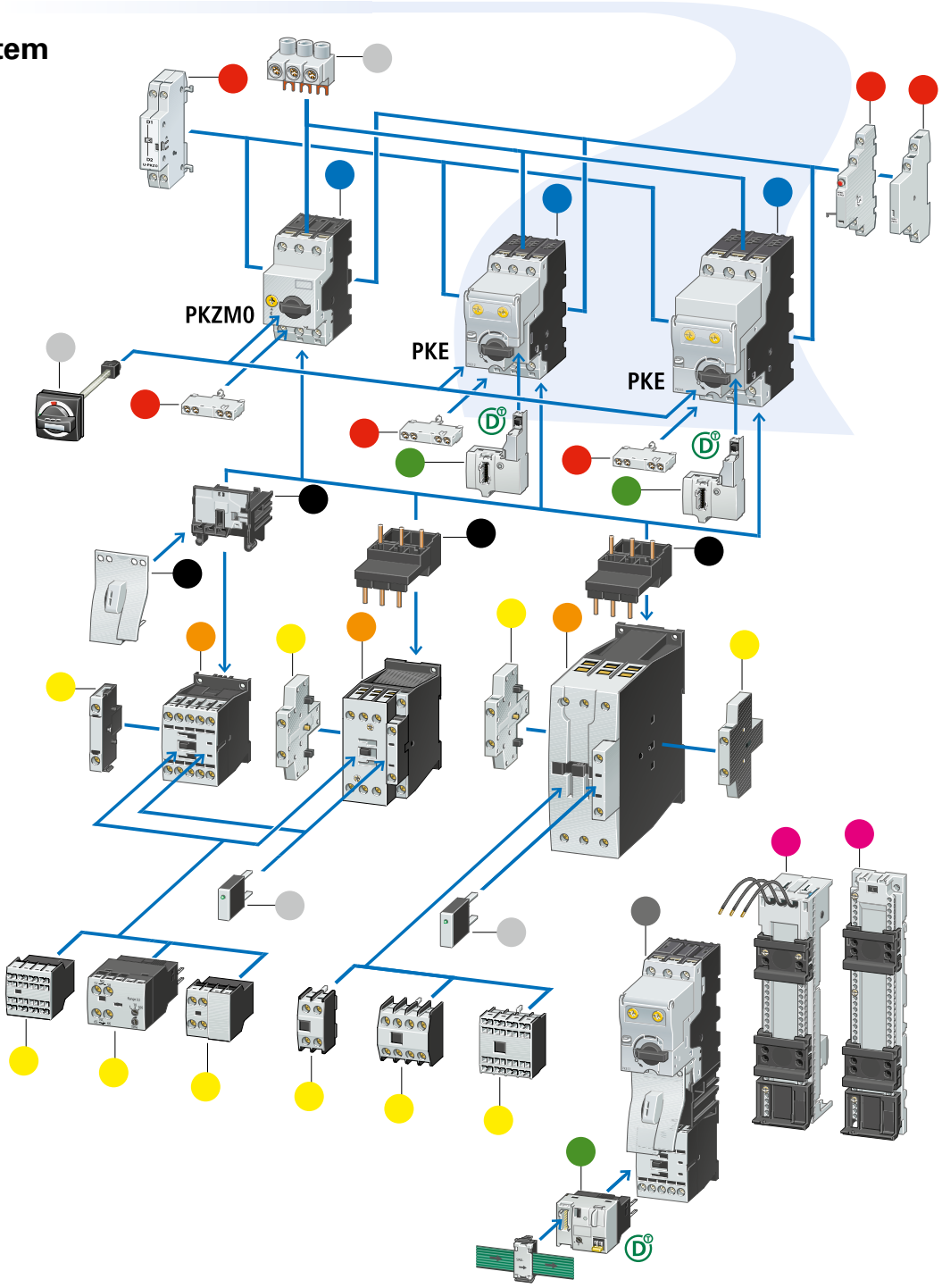
International: No problems with export of machines and systems

→ Worldwide approved system components and accessories

Whether on or off, overload or short-circuit: The differential signalling always leads quickly to the cause of the trip release. The auxiliary contacts can be installed without tools and inform with control circuit reliability about every switching state.

Particularly comfortable, the optional auxiliary contact NHI-E, which can be installed at a later date in circuit-breakers that are already installed and wired.
Of course all auxiliary contacts and releases are devices for world markets with the conventional mains voltages.

PKE in System



The modular xStart system

Modular standard components for motor starter configuration, optimally matched to one another and simple to combine with the same accessories from the PKZ system, fulfil the customer requirements for exchangeable “standard” devices.

- Base units PKE/PKZ
- Auxiliary contacts and trip releases PKE/PKZ
- Connection technology for motor starter configuration PKE/PKZ
- Contactors DIL
- Auxiliary contacts DIL
- Top-hat rail adapter and busbar adapter
- Communication module SmartWire-DT
- Accessories
- Motor starter MSC



Perfect Start







One of the main tasks of low-voltage switchgear is to switch and protect motors. This is specifically the task of the motor starter, which is available from Eaton in different versions for diverse applications.
The short-circuit safely under control. Whether coordination type “1” or coordination type “2”. Motor starter combinations PKE with the proven circuit-breakers DILM master short-circuit currents of 100 kA /400V up to 32A and 50 kA at 400V /65A. They ensure the highest level of operational continuity. Standstill times are reduced to a minimum.

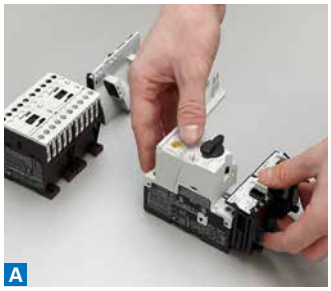
Safely switch energy-efficient IE3 motors

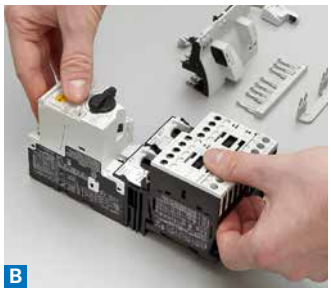
The use of energy-efficient motors belonging to efficiency class IE3 comes with higher loads for switchgear, especially when it comes to start-stop torques. Motor-protective circuit breakers and motor-starter combinations by Eaton guarantee that these energy-efficient motors will operate safely and be reliably protected. The motor starters' switching duty ensures trouble-free operation, while a modified short-circuit level prevents nuisance tripping caused by higher inrush currents.

* In order to comply with the requirement profile for coordination type “2, the motor starter must be suitable for renewed operation after a shut-down due to a short-circuit without a need to replace parts. Motor starters of this type ensure the highest level of operational continuity.

A reversing starter can be configured in just a few simple steps from a contactor DIL, a motor-protective circuit-breaker PKE and a wiring set.

A Snap-in mechanical plug-in connector.





B Push on the contactor.



C Plug on the electrical connectors and jumpers. Ready to go!

Lean solution: Motor starters from standard components

Up to 15 A, comfortable motor starters utilizing tool-less plug connection are on offer, requiring only a top-hat rail. A connector for direct-on-line and reversing starters is available for motor starters with rated motor current from 17 A to 65 A. Whether as a completed motor-starter combination MSC or assembled from individual components by the user, you are always on the safe side with tested motor-starters from Eaton. Motor starters with PKE and DILM up to 65 A are available in 3 narrow widths. Contactor DILM and circuit-breaker PKE always have the same compact width. No precious millimetre of control panel space is wasted.

→ Motor starter configuration from standard components enables a unique assignment of the protective devices PKE and switching device DIL M and enhances the safety with 2 independent separate contact systems in the motor starter.

→ Modular configuration principle facilitates the fast and cost-effective exchange of worn components instead of the complete motor starter.

Motor and System Protection



PKE as a circuit-breaker to IEC 60947-2

In addition to use as a motor-protective circuit-breaker, the PKE can also be used as a circuit-breaker to IEC/EN 60947-2.

With the corresponding trip blocks of type PKE-XTUCP-…, the PKE can also be used for protecting cables and wiring up to rated currents of 65 A. In contrast to motor protection, when a PKE is used as a circuit-breaker, an unsymmetrical loading due to different loads is possible. The additional adjustability of the electronic short-circuit release facilitates reliable protection with various cable lengths and cable cross-sections.

The advantages at a glance

Versatile: Flexible protection

→ Use as a circuit-breaker or motor-protective circuit-breaker using various trip blocks

Adaptable: For heavy starting duty also

→ Adjustable short-circuit releases, time-lag class settings for individual contactor characteristics

Robust: Safe shut-down

→ High short-circuit breaking capacity 100kA/400V

Economic: Guarantee availability

→ Fast exchange of individual components through the modular system concept

Safe: Even after long periods of operation

→ Configuration of motor-starter combinations with two separate contact systems



Everything at a Glance

SmartWire-DT is the innovative and intelligent connection technology for the control panel. Without control wiring, without distributed I/O level, without laborious addressing via DIP switch. Simply connect and work.

SmartWire-DT is continued in the peripherals directly on the machine and transforms standard switchgear to intelligent and communicative automation devices. RMQ-Titan control circuit devices are also connected with just a single cable.

SmartWire-DT is the optimum extension to the motor starter combinations PKE. It offers all the necessary information without complex wiring.



Innovative exhaust air system in the chemistry department

The exhaust air system in the buildings of the chemistry department of a major German university was re-conceived using SmartWire-DT, motor starters PKE and Eaton Touch Display controls. Around 500 Eaton PKE motor starters with a SmartWire-DT interface were used to control the exhaust air system. Compared to conventional HVAC building solutions, the new solution is based on high-performance standard components and offers verifiable cost savings using standard components, reduced wiring requirement, simple commissioning without complex troubleshooting. The data transparency significantly increases the efficiency and operational reliability of the system.



Data transparency for every motor

SmartWire-DT with PKE controls the conveyor system for transporting cement clinker at Holcim (Deutschland) AG. The data provided enables increased transparency in manufacturing processes to the early detection of critical states or failures right through to preventative maintenance management.



Universal networking for motor and system protection

The plug-in networking solution PKE-SWD-SP enables integration of the motor-protective circuit-breaker PKE into the system SmartWire-DT. In an instant, a motor-protective circuit-breaker is created with communication capability that signals both simple status data as well as the switching state, trip causes and switch settings as well as analog information such as the actual current value and thermal motor image. This provides a better insight into the system and optimization of processes and facilitates prevention of process failures. The combination of the function element PKE-SWD-SP can be undertaken with the PKE base units. This results in a universal networking solution for the current range from 0.3 A to 65 A. With the PKE-SWD-CP module the circuit-breakers PKE-XTU(W)ACP are combined with the system SmartWire-DT.



Networked PKE motor-starter combination up to 32 A

The function element PKE-SWD-32 enables the integration of PKE motor starter combinations up to 32 A into the system SmartWire-DT. The function element is plugged directly onto the contactor of the motor-starter combination and connected via an additional connection to the PKE motor-protective circuit-breaker. The integrated interface to the contactor coil enables the control of the motor-starter combination and reports its state. The control wiring required up to now as well as the respective digital input/output level of the PLC are no longer required. The measuring and state data of the circuit-breaker and the motor to be monitored are transferred via the connection to the PKE motor-protective circuit-breaker. With the assistance of the resulting data transparency, far-reaching possibilities exist for optimization of the manufacturing process.

Information at your fingertips thanks to SmartWire-DT

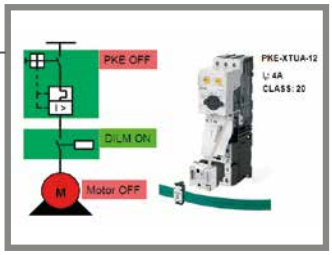
Through the integration of the the motor-protective circuit-breaker PKE to SmartWire-DT, all switching states and status messages, which were only accessible using additional equipment up to this point, are transferred to the control. This reduces the wiring effort of the motor connector and simultaneously provides enhanced transparency. The additional transfer of process data such as the actual motor current and thermal motor loading indicate potential process failures in advance. This improves the service-friendliness and availability of the system.

The advantages at a glance

- → Recording of switching states without the use of auxiliary contacts
- → Integrated current measurement and transfer without the use of additional measurement sensors and evelauation electronics
- → Facilitates avoidance of process failures with motor overloads
- → Monitoring of switch settings enables preventative motor protection
- → Refined tripping indication simplifies troubleshooting
- → Substitution of the control wiring and the digital I/O level by the SmartWire-DT concept

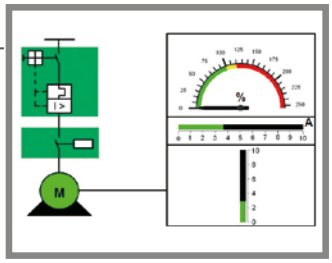
Status

– Switch position PKE, contactor
– Set rated current
– Set time-lag class



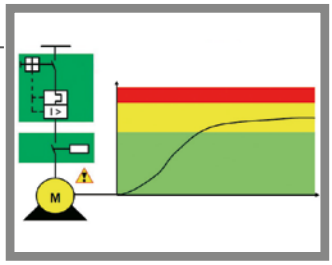
Current / capacity utilization

– Relative motor current value
– Thermal motor loading



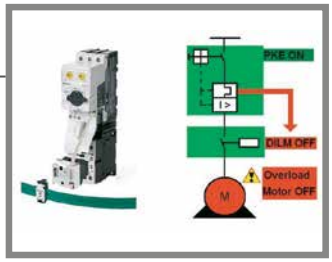
Diagnostics

– Overcurrent (short-circuit), phase loss, overload, test

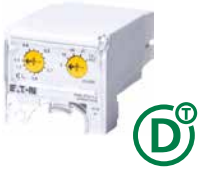


Additional functions

– Overload relay function (contactor is switched off at overload)
– Manual / automatic operation via rotary switch








Setting range Overload release I_r A	**Base unit** Part no.	Article no.:	**Control option Standard** Part no.	Article no.:	**Control option Advanced** Part no.	Article no.:	**Motor-protective circuit-breakers Standard Complete devices** Part no.	Article no.:
Motor-protective circuit-breaker PKE, Coordination type "1" and "2"								
0.3...1.2 A	**PKE12**	121721	**PKE-XTU-1.2**	121723	**PKE-XTUA-1.2**	121727	**PKE12/XTU-1.2**	121731
1...4 A	**PKE12**	121721	**PKE-XTU-4**	121724	**PKE-XTUA-4**	121728	**PKE12/XTU-4**	121732
3...12 A	**PKE12**	121721	**PKE-XTU-12**	121725	**PKE-XTUA-12**	121729	**PKE12/XTU-12**	121733
8...32 A	**PKE32**	121722	**PKE-XTU-32**	121726	**PKE-XTUA-32**	121730	**PKE32/XTU-32**	121734
Motor-protective circuit-breaker PKE with lockable handle								
0.3...1.2 A	**PKE12/AK**	158241	**PKE-XTU-1.2**	121723	**PKE-XTUA-1.2**	121727	**PKE12/AK/XTU-1.2**	158242
1...4 A	**PKE12/AK**	158241	**PKE-XTU-4**	121724	**PKE-XTUA-4**	121728	**PKE12/AK/XTU-4**	158244
3...12 A	**PKE12/AK**	158241	**PKE-XTU-12**	121725	**PKE-XTUA-12**	121729	**PKE12/AK/XTU-12**	158243
8...32 A	**PKE32/AK**	158245	**PKE-XTU-32**	121726	**PKE-XTUA-32**	121730	**PKE32/AK/XTU-32**	158246
Circuit-breaker PKE for cable and line protection								
15...36 A	**PKE32**	121722	**PKE-XTUCP-36**	153164	**PKE-XTUACP-36**	168795	**PKE32/XTUCP-36**	168972






Setting range Overload release I_r A	**Base unit** Part no.	Article no.:	**Control option Standard** Part no.	Article no.:	**Control option Advanced** Part no.	Article no.:	**Motor-protective circuit-breakers Standard Complete devices** Part no.	Article no.:
Motor-protective circuit-breaker PKE, Coordination type "1" and "2"								
8...32 A	**PKE65**	138258	**PKE-XTUW-32**	138261	**PKE-XTUWA-32**	138262	**PKE32/XTUW-32**	138517
16...65 A	**PKE65**	138258	**PKE-XTU-65**	138259	**PKE-XTUA-65**	138260	**PKE65/XTU-65**	138516
Motor-protective circuit-breaker PKE with lockable handle								
8...32 A	**PKE65/AK**	158247	**PKE-XTUW-32**	138261	**PKE-XTUWA-32**	138262	**PKE32/AK/XTUW-32**	158249
16...65 A	**PKE65/AK**	158247	**PKE-XTU-65**	138259	**PKE-XTUA-65**	138260	**PKE65/AK/XTU-65**	158248
Circuit-breaker PKE for cable and line protection								
15...36 A	**PKE65**	138258	**PKE-XTUWCP-36**	168796	**PKE-XTUWACP-36**	168797	**PKE65/XTUWCP-36**	168973
30...65 A	**PKE65**	138258	**PKE-XTUCP-65**	168798	**PKE-XTUACP-65**	168799	**PKE65/XTUCP-65**	168974

SmartWire-DT communication circuit for PKE12/32/65		**Part no.**	Article no.:
	Function element for PKE for motor protection	**PKE-SWD-SP**	150614
		PKE-SWD-CP	172735

Complete device MSC-DE	Motor data Rated short-circuit current 380–415 V Coordination type "1" I_q kA	380–415 V Coordination type "2" I_q kA	Setting range Overload release I_r A	Motor starter Actuating voltage 230 V 50 Hz Part no.	Article no.	Motor starter Actuating voltage 24 DC Part no.	Article no.
	100	–	0.3–1.2	**MSC-DE-1.2-M7(230V50HZ)**	121735	**MSC-DE-1.2-M7(24VDC)**	121736
	100	–	1–4	**MSC-DE-4-M7(230V50HZ)**	121737	**MSC-DE-4-M7(24VDC)**	121738
	100	–	3–12	**MSC-DE-12-M7(230V50HZ)**	121739	**MSC-DE-12-M7(24VDC)**	121740
	100	–	3–12	**MSC-DE-12-M9(230V50HZ)**	121741	**MSC-DE-12-M9(24VDC)**	121742
	100	–	3–12	**MSC-DE-12-M12(230V50HZ)**	121743	**MSC-DE-12-M12(24VDC)**	121744
	100	100	0.3 - 1.2	**MSC-DME-1.2-M17(230V50HZ)**	192753	**MSC-DME-1.2-M17(24VDC)**	192759
	100	100	1 - 4	**MSC-DME-4-M17(230V50HZ)**	192754	**MSC-DME-4-M17(24VDC)**	192760
	100	100	3–12	**MSC-DME-12-M17(230V50HZ)**	192755	**MSC-DME-12-M17(24VDC)**	192761
	100	100	8–32	**MSC-DME-32-M17(230V50HZ)**	192756	**MSC-DME-32-M17(24VDC)**	192762
	100	100	8–32	**MSC-DME-32-M25(230V50HZ)**	192757	**MSC-DME-32-M25(24VDC)**	192763
	100	100	8–32	**MSC-DME-32-M32(230V50HZ)**	192758	**MSC-DME-32-M32(24VDC)**	192764
	100	–	0.3–1.2	–	–	**MSC-DEA-1.2-M7(24VDC)**	121753
	100	–	1–4	–	–	**MSC-DEA-4-M7(24VDC)**	121754
	100	–	3–12	–	–	**MSC-DEA-12-M7(24VDC)**	121755
	100	–	3–12	–	–	**MSC-DEA-12-M9(24VDC)**	121756
	100	–	3–12	–	–	**MSC-DEA-12-M12(24VDC)**	121757
	100	100	0.3 - 1.2	–	–	**MSC-DMEA-1.2-M17(24VDC)**	192765
	100	100	1 - 4	–	–	**MSC-DMEA-4-M17(24VDC)**	192766
	100	100	3 - 12	–	–	**MSC-DMEA-12-M17(24VDC)**	192767
	100	100	8–32	–	–	**MSC-DMEA-32-M17(24VDC)**	192768
	100	100	8–32	–	–	**MSC-DMEA-32-M25(24VDC)**	192769
	100	100	8–32	–	–	**MSC-DMEA-32-M32(24VDC)**	192770

Complete devices type E	Short Circuit Current Rating 240 V kA	480 Y 277 V kA	600 Y 347 V kA	Setting range Overload release I_r A	Motor starter Actuating voltage 230 V 50 Hz Part no. Article no.	Motor starter Actuating voltage 24 DC Part no. Article no.
Standard up to 32 A	14	14	14	0.3–1.2	**MSC-DE-1.2-M17-SP(220V50HZ,240V60HZ)** 167806	**MSC-DE-1.2-M17-SP(24VDC)** 167818
	18	18	–	1–4	**MSC-DE-4-M17-SP(220V50HZ,240V60HZ)** 167807	**MSC-DE-4-M17-SP(24VDC)** 167819
	18	18	–	3–12	**MSC-DE-12-M17-SP(220V50HZ,240V60HZ)** 167808	**MSC-DE-12-M17-SP(24VDC)** 167820
	18	18	–	8–32	**MSC-DE-32-M32-SP(220V50HZ,240V60HZ)** 167809	**MSC-DE-32-M32-SP(24VDC)** 167821
Standard up to 65 A (without contactor)	65	65	25	8 - 32	**PKE65/AK/XTUW-32-SP** 170483	**PKE65/AK/XTUW-32-SP** 170483
	65	65	–	16 - 65	**PKE65/AK/XTU-65-SP** 170482	**PKE65/AK/XTU-65-SP** 170482

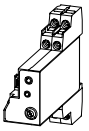
SmartWire-DT communication circuit for PKE12/32, MSC-DEA		Part no. Article no.:
	Function element MSC-DEA	**PKE-SWD-32** 126895

Incoming terminal



		Part no. Article no.:
For PKE32 use and rated currents exceeding 32 A	For three-phase commoning link protected against accidental contact U_e = 690 V, I_u = 63 A For conductor cross-sections: 2.5–25 mm² stranded 2.5–16 mm² flexible with ferrules For use on terminals 2, 4, 6	**BK25/3-PKZ0-U** 292886

Relay function module



		Part no. Article no.:
For use with PKE advanced trip blocks	When using PKE-XZMR module an overload does not cause the motor-protection circuit-breaker to trip. The overload indication is produced by means of two auxiliary contacts.	**PKE-XZMR** in preparation

Fixing bracket



	Part no. Article no.:
For screw fixing to mounting plate	**PKE32-XMB** 134837

Door coupling handle



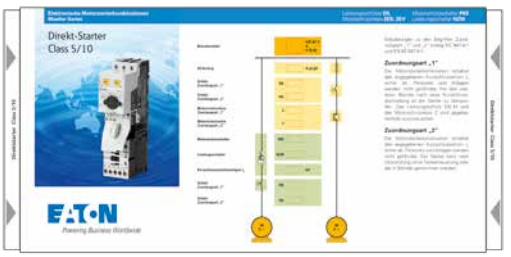
			Part no. Article no.:
Protection type IP65, UL/CS Type 4X/Type12	For use as main switch to IEC/EN 60204	black	**PKE-XH** 142416
	For use as main switch with Emergency-Stop function to IEC/EN 60204	red-yellow	**PKE-XRH** 142417
	For use as a main switch to EN 60204 in MCC power distribution systems and with PKE installed when rotated by 90°	black	**PKE-XH-MCC** 142418
	For use as a main switch to EN 60204 in MCC power distribution systems and with PKE installed when rotated by 90°	red-yellow	**PKE-XRH-MCC** 142419

Plug-in extension shaft PKZ0-XAH can be cut to desired length for mounting depths of 100…240 mm
Carrier with extension shaft included in delivery.
With ON/OFF switch position and "+" (tripped), lockable with 3 padlocks, 4 – 8 mm hasp.

Motor connect plug for motor starter combinations



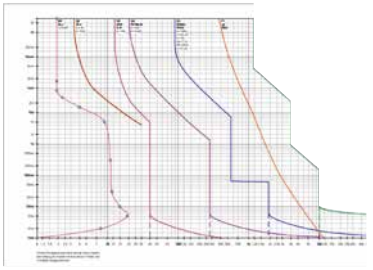
		Part no. Article no.:
Motor plate with PE module without contact plate	PKZM0/PKE + DILM(C)7 PKZM0/PKE + DILM(C)9 PKZM0/PKE + DILM(C)12 PKZM0/PKE + DILM(C)15 MSC-D(E)-…-M7… MSC-D(E)-…-M9… MSC-D(E)-…-M12… MSC-D(E)-…-M15…	**DILM12-XMCP/T** 121770



Engineering tool for motor starters and energy distribution

Selector slide for motor starter combinations

As a simple tool, the Eaton selection slider facilitates the dimensioning of different motor starter types taking the required coordination types for short-circuit coordination into consideration.



CurveSelect – Characteristics program for protection devices

CurveSelect is a free-of-charge tool that offers evaluation of tripping characteristics of several protective devices on the same time and current scale. The assessment of the interaction of the circuit-breakers of the NZM and IZM series, as well as motor-protective circuit-breakers PKE and PKZ, overload relay ZB and miniature circuit-breakers as well as low-voltage high-breaking-capacity fuses is made significantly easier.

www.eaton.eu/selectiontools

		Motor-protective circuit-breakers PKE 12 and PKE 32	Motor-protective circuit-breaker PKE65
General			
Standards and regulations		IEC/EN 60947-4-1, VDE0660 UL 508, CSA C22.2 No.14	IEC/EN 60947-4-1, VDE0660 UL 508, CSA C22.2 No.14
Climatic proofing		Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature	Storage	-25… +80°C	-25… +80°C
	Open	-25… +55°C	-25… +55°C
	Enclosed	-25… +40°C	-25… +40°C
Direction of incoming supply		any	any
Degree of protection	Device	IP20	IP20
	Terminals	IP00	IP00
Touch protection to EN50274		Finger- and back-of-hand-proof	Finger- and back-of-hand-proof
Mechanical shock resistance half-sinusoidal shock 10 ms to IEC 60068-2-27		25 g	10 g on top-hat rail 15 g on mounting plate
Altitude		max. 2000m	max. 2000m
Screw terminal conductor cross-section	Solid	1 x (1–6) mm² 1 x (1–6) mm²	1 x (0.75–16) mm² 1 x (0.75–16) mm²
	Stranded with ferrule to DIN 46228	1 x (1–6) mm² 1 x (1–6) mm²	1 x (0.75–35) mm² 1 x (0.75–35) mm²
	Solid or stranded	18–10 AWG	14–2 AWG
Main conductor		1.7 Nm	3.3 Nm
Auxiliary conductor		1 Nm	1 Nm
Main circuit			
Rated impulse withstand voltage	U_{imp}	6000 V AC	6000 V AC
Overvoltage category / pollution degree		III/3	III/3
Rated operational voltage	U_e	690V	690V
Rated uninterrupted current = rated output current	$I_u = I_e$	32A or setting value of the overcurrent release	65A or setting value of the overcurrent release
Rated frequency		40–60 Hz	40–60 Hz
Current heating losses (3-pole at operating temperature)		6W	11W
Lifespan, mechanical	Operations	0.05×10^6	0.05×10^6
Lifespan, electrical (AC-3 at 400 V)	Operations	0.05×10^6	0.05×10^6
Maximum operating frequency	Operations/h	60 ops./h	60 ops./h
Motor switching capacity AC	AC-3 up to 690 V	32A	65A
Trip release			
Temperature compensation			
to IEC/EN 60947, VDE 0660		-25… +55 °C	-25… +55 °C
Operating range		-25… +55 °C	-25… +55 °C
Temperature compensation residual error for T > 40°C		-	-
Overload release setting range		0.25–1	0.25–1
Short-circuit release tolerance		+ 20%	+ 20%
Single-phasing sensitivity		IEC/EN 60947-4-1, VDE 0660 part 102	IEC/EN 60947-4-1, VDE 0660 part 102

At Eaton, we're energized by the challenge of powering a world that demands more. With over 100 years experience in electrical power management, we have the expertise to see beyond today. From groundbreaking products to turnkey design and engineering services, critical industries around the globe count on Eaton. We power businesses with reliable, efficient and safe electrical power management solutions. Combined with our personal service, support and bold thinking, we are answering tomorrow's needs today. Follow the charge with Eaton.
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Printed in Germany 04/18
Publication No.: W1210-7613EN / CSSC-1049
ip April 2018
Article No.: 128851

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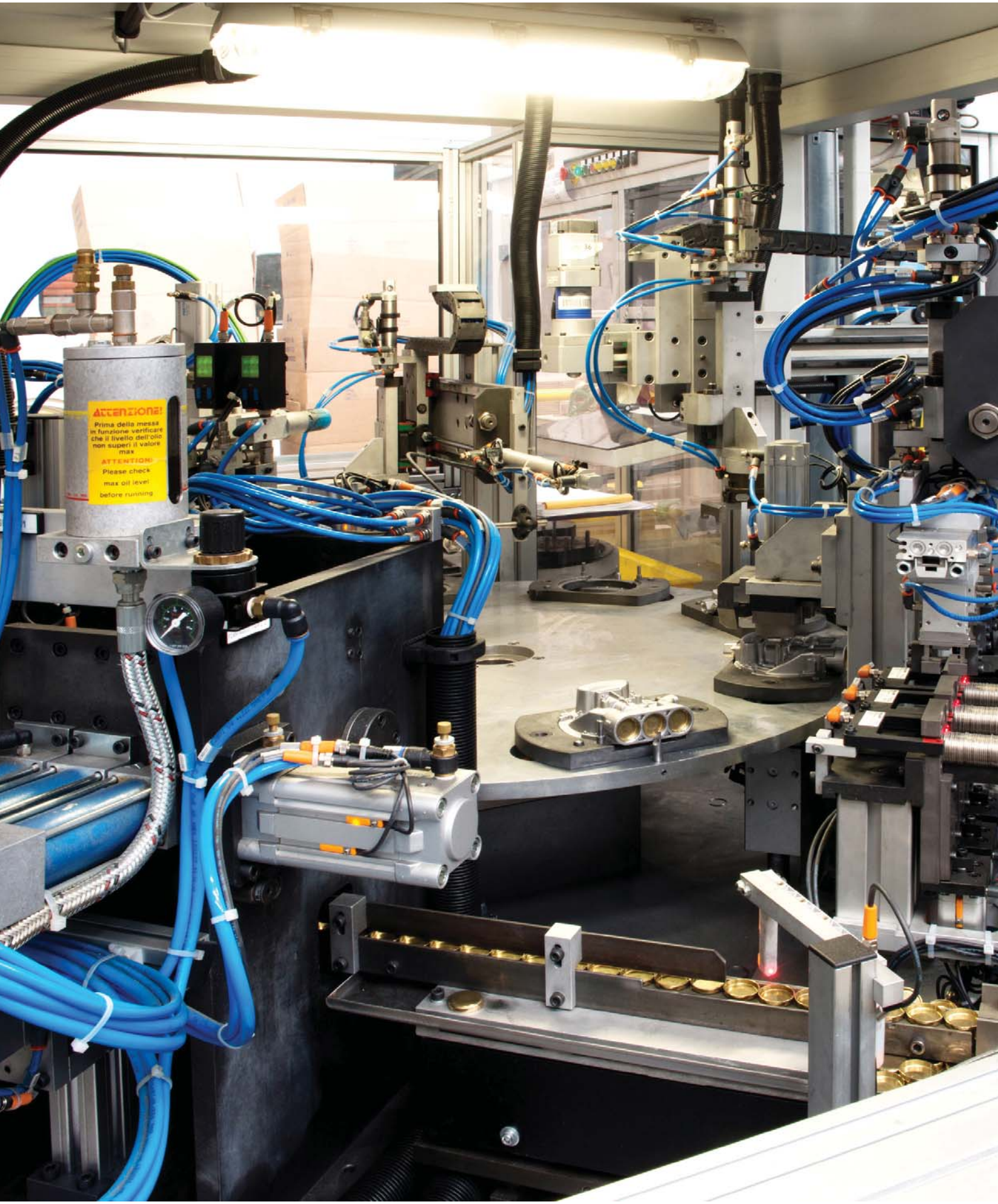
Powering Business Worldwide

Eaton - Elektronik otomatik sigortalarda yeni dönem

PXS24
24 VDC devreler için maksimum güvenilirlik



Powering Business Worldwide


ATTENZIONE!
Prima della messa
in funzione verificare
che il livello dell'olio
non superi il valore
max
ATTENTION!
Please check
max oil level
before running

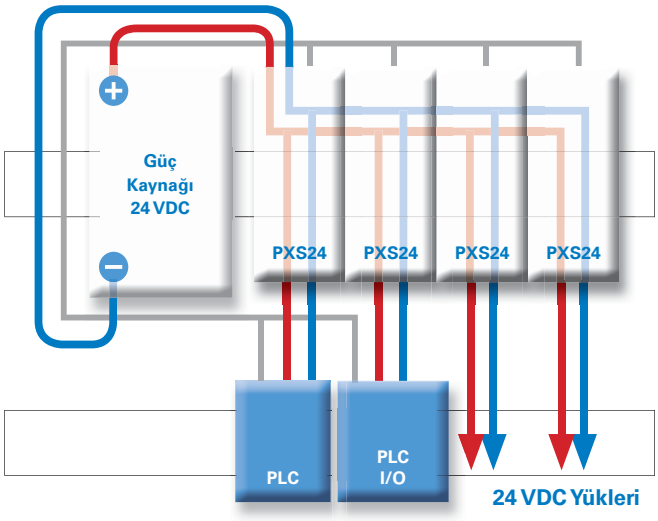
Maksimum güvenlik sağlayan
Elektronik aşırı yük koruması

Elektrik akım izlemenin yükselişi durdurulamaz !
Eaton, çok sayıda pratik avantajın yanısıra maksimum korumayı sunan elektronik çözümleri geliştirmede en ön sıralardadır.

Elektromekanik çözümler klasik güç kaynaklarını kullanan uygulamalarda yeterli koruma sağlarken, elektronik güç kaynakları için bu durum geçerli değildir. Bu güç kaynakları kısa devreye dayanıklıdır fakat arıza durumunda, çıkış gerilimini kalan enerjinin klasik devre kesicileri tetiklemek için çok zayıf olacağı seviyelere düşürmektedir.

Elektronik çözümler bu yüzden çok daha fazla güvenlik sağlamaktadır: Bu çözümler aşırı yükleri hızlı bir şekilde algılayabilmekte ve makinenin sadece arızalı kısımlarının enerjisini kesmektedir. Makine bu durumda kontrol altında kalmakta ve örneğin kontrollü bir şekilde de kapatılabilmektedir.

PXS24 sadece mümkün olan en yüksek sistem sürekliliğini sunmakla kalmaz, zamandan, yerden ve kurulum masraflarından da tasarruf sağlar.



PXS24'ün en önemli özellikleri:

- **Modüler sistem**
- **3 ayrı yüke kadar doğrudan bağlantı**
- **Kanala özel kontrol, anahtarlama ve sinyalizasyon**
- **Kanalların takip eden kontrolü ve basit bağlantısı**
- **Yaylı terminaller ve baralarla basit ve hızlı kurulum**

Modüler ve ölçeklenebilir sistem

Yerden ve maliyetten tasarruf sağlar



PXS24 ile tesisatlarınızda maliyetten ve yerden tasarruf edersiniz. 4 veya 8 kanallı modülleri satın almaya gerek yoktur. Ayrıca, kanalların sayısını daha sonra kolaylıkla arttırabilirsiniz. Bunu yapmak, örneğin tesisat esnasında bir kanal eksik olduğunda veya daha sonra ek kanallara ihtiyaç duyulduğunda, meyvesini verecektir.

Daha sonraki yükseltmeler için ek alan ayırmak ve bara sistemi kurmak isterseniz, daha sonra elektronik modüllerle değiştirilebilecek boş modülleri seçme şansına sahipsiniz.

Her şey kontrol altında & kontrol sistemiyle entegre

Bireysel ve toplu hata mesajları



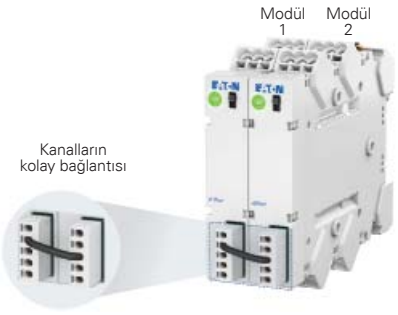
Pratikte, toplam hatanın gösterilmesi yeterli değildir. Sistemlerin profesyonel olarak izlenmesi ve görselleştirilmesi her bir kanal için bireysel durumları işleyebilme yeteneğini gerektirmektedir.

Bu çıkışlar, isteğe bağlı olarak, ayrı ayrı veya toplu halde PLC'ye bağlanabilmektedir.

PXS24 uzaktan resetleme fonksiyonuna sahiptir. Ek olarak, dijital girişler yüklerin fonksiyonel olarak anahtarlanmasına olanak tanımaktadır ki bu da kuplaj rölelerinin sayısını azaltabilmektedir.

Olumsuz etkileri önleme imkanı

Arıza esnasında diğer makine kısımları birbiri ardına kapatılabilir



Eğer sistemin herhangi bir kısmında bir arıza meydana gelirse, arızadan etkilenmeyen diğer ilgili kısımlar kapatılarak bu arızanın olumsuz etkileri asgari seviyeye indirgenebilir. Beton karıştırıcısı örneğini ele alalım: Eğer ana motor çalışmazsa, tıkanıklıktan ve dolayısıyla tesisin elle temizliğinden kaçınmak için konveyör hattı hemen durdurulmalıdır.

PXS24 bu sorunu algılamakta ve gerekli işlemi arıza çıkışıyla kontrol etmektedir. Arzu edildiği takdirde, PLC içinde ek bir konfigürasyona gerek olmadan, PXS24'ün hata çıkışı doğrudan diğer bir PXS24'e bağlanabilmektedir. PXS24 bir kaç milisaniye içinde ''ikincil'' PXS24'ü kapalı duruma getirecektir.

Potansiyel dağıtım terminallerini içermektedir

Kanal başına 3 yük



Bir devre kesicinin sadece bir yüke bağlanması ender görülen bir durumdur, devre kesici genellikle iki veya üç yüke bağlanmaktadır. Bu zamana kadar, bu durum devre kesici çıkışının her zaman ayrı bir terminal bloğuna bağlanmasını zorunlu kılmıştır. Bu kurulum hataya meyilli ve kullanışsızdır. PXS24 3 adet + 24 VDC ve GND terminaline sahiptir. Bu da karmaşık ve hataya meyilli kablolamayı ortadan kaldırmaktadır.

Her iki besleme kablosu da aynı cihazda başlar: PXS24
Bu cihaz döngülere olan (genellikle çok büyük) ihtiyacı ortadan kaldırmanın yanısıra elektromanyetik uyumluluğu da arttırmaktadır. (EMC)

Pratik kullanım

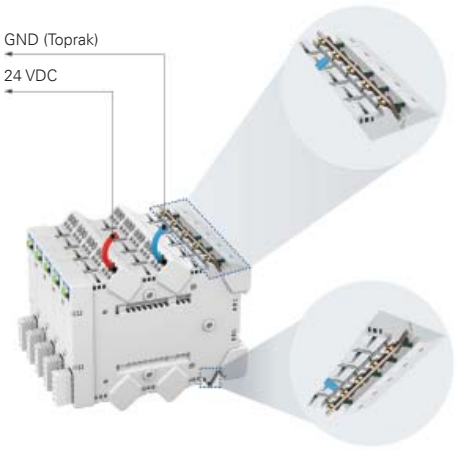
Bu akıllı kurulum sayesinde PXS24 zamandan tasarruf sağlamakta ve hata kaynaklarını azaltmaktadır:

Güvenilir koruma
Kapasitif yükler elektronik devre kesiciler için sorun teşkil ederken PXS24 bu sorunları aşmıştır. PXS24 20,000µF'ye kadar kontrol edilmiş, güvenilir ve korumalı beslemeyi garanti etmektedir. Sürücüler için, hemen hemen hiç bir (endüktif) limit bulunmamaktadır.

Sağlam tasarım
PXS24'ün tasarımı elektro mekanik devre kesicilerin sağlam ve tecrübeye dayanan tasarımına sadık kalmıştır. Bu tasarım da endüstriyel uygulamalarda gerek duyulan kolay kullanımı ve sağlamlığı temin etmektedir.

Yaylı terminaller
Tüm kablo bağlantıları basmalı terminal olarak yapılmıştır. Terminal kapasitesi pabuçlu esnek kablolar için 2.5 mm², tek damarlı kablolar için ise 4 mm²'dir. Tornavidaya ihtiyaç duyacağınız tek an bağlantıları sökmek için kilidi açacağınız andır.

Yaylı teknoloji endüstriyel uygulamalarda yaygın olarak görülen titreşimlere maruz kalındığında dahi, terminallerin güvenli olduğunu garanti etmektedir.



5 modülün yandan görünümü:
1 kanal terminallerdeki dahili kaynaktan beslenirken diğer 4 kanal baralardan beslenecektir.

Bara sistemi
Her PXS24 arka kısmında kaynağını diğer cihazlarla paylaşmasını sağlayan bara elemanına sahiptir. Baralar (1 metreye kadar) farklı boyutlarda bulunabildiği gibi, istenilen herhangi bir uzunluğa göre de kesilebilmektedir. Bu baralar herhangi bir alete ihtiyaç duymadan basit bir şekilde konnektörlerin içine itilebilmektedir.

Masrafları daha da azaltmak için, tüm PXS24 modellerini besleme terminalli veya besleme terminalsiz olarak sipariş edebilirsiniz. Örneğin, 10 PXS24 ünitesini birbirine bağlamak için sadece giriş terminalli tek bir üniteye ihtiyaç duyulmaktadır çünkü diğer modüllerin beslemesi baralar yoluyla yapılmaktadır.



2x kontrol çıkışı
2x kontrol girişi
1x GND (Toprak)

Girişler ve çıkışlar PLC ile uyumludur
Hem kontrol girişleri hem de kontrol çıkışları IEC- EN 61131-2 ile uyumludur.
Bu da:
– PLC ile olan iletişimin kusursuz bir şekilde yürümesini
– Girişin sensörlere tepki verecek kadar sağlam olmasını
– Ve girişin önceden ayrı bir PLC çıkışı gerektiren fonksiyonları kontrol edebilmesini sağlayacaktır.
PXS24, diğer özelliklerinin yanında, arıza durumunda diğer bir PXS24'ye doğrudan bağlanabilmeyi de mümkün kılmaktadır.



Lokal sürgülü anahtar
Lokal sürgülü anahtar PXS24'ü açık veya kapalı duruma getirecek ve ayrıca cihazı resetleyecektir.

Güvenlik sebebiyle, anahtar öncelikle kapalı durumda kalacaktır. Yani, sadece lokal sürgülü anahtar ''açık'' pozisyondayken ve PLC cihazı kapamıyorken, PXS24 aktif olacaktır.

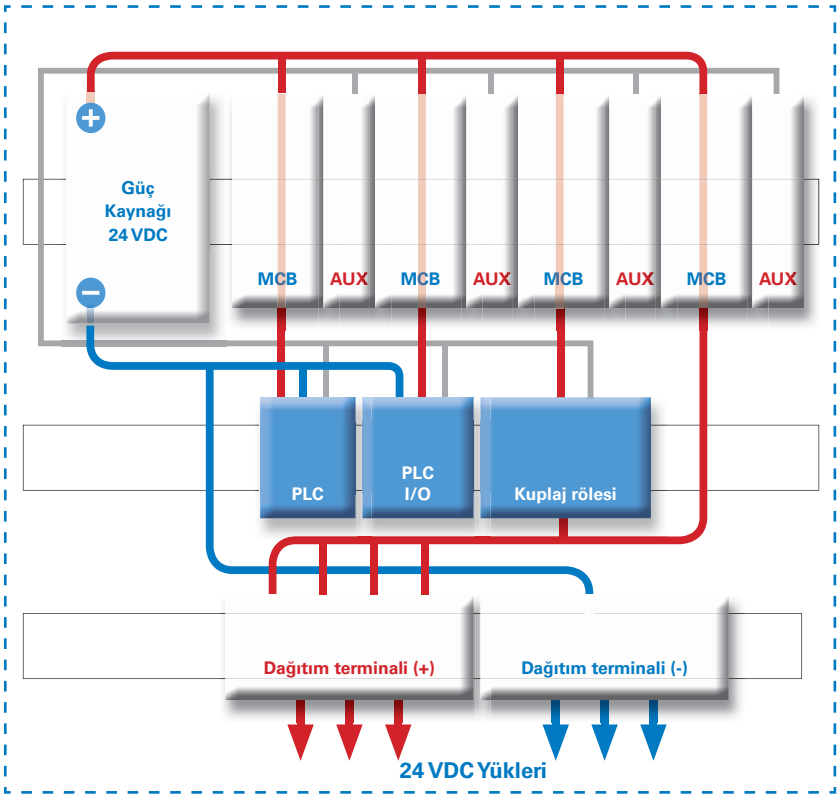
Küresel kullanım
Tüm PXS24 modelleri UL onayına sahiptir. Böylece PXS24'ün Kuzey Amerika'da kullanım için kurulumunda herhangi bir zorluk yaşanmayacaktır.

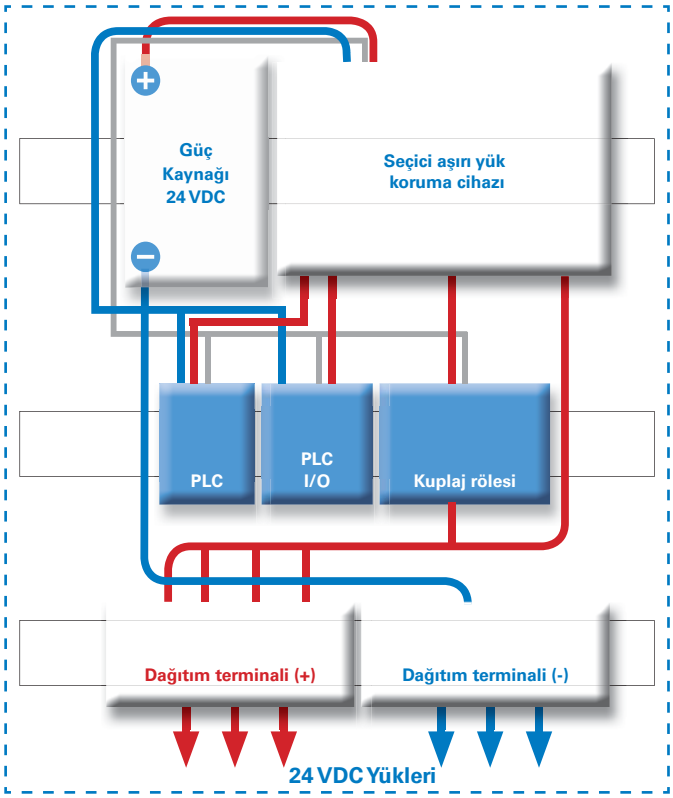


Kurulum konsepti

PXS24 kurulum konsepti 3 adede kadar yükün doğrudan çıkış tarafına bağlanmasına olanak tanıyacaktır. Bu da potansiyel dağıtım terminallerinin sayısını ve dolayısıyla kontrol kabininin boyutunu azaltmaya yardım edecektir.

Geleneksel kurulum örneği

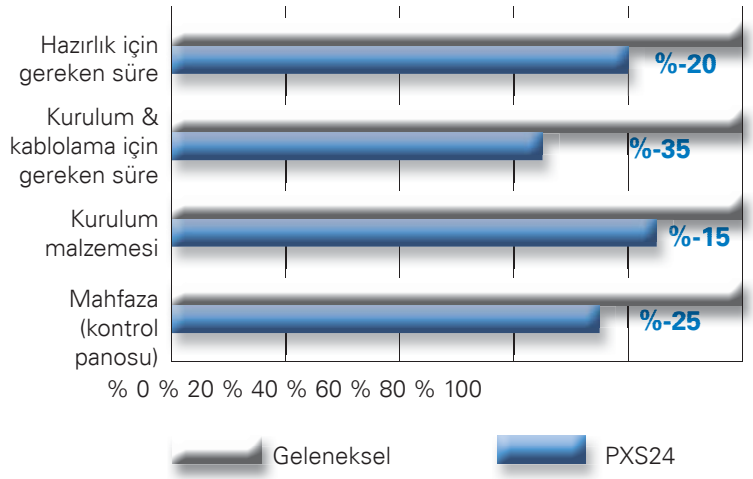


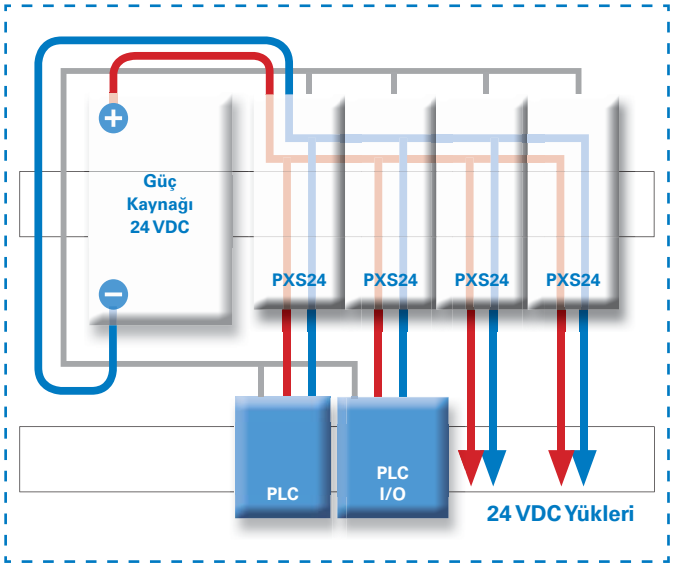


PXS24 kurulumu örneği

Ek olarak, yaylı terminaller veya bara gibi özellikler kurulum sürelerini azaltmaya yardım etmektedir. Operasyonel anahtarlama da PXS24 ile yapılacağı için kuplaj röleleri azaltılabilmektedir. Eaton'ın yeni PXS24 anlayışı kurulum maliyetlerini ve çabalarını düşürmekle kalmamakta, aynı zamanda kontrol panosunda alandan da tasarruf sağlamaktadır.

Eaton PXS24 ile sunulan muhtemel maliyet tasarrufları





Maliyetten tasarruf etme potansiyeli



Koruma Cihazları

PXS24. Seçim Bilgisi

sg05317



Açıklama

- 24 V DC devrelerde yüksek standartlarda güvenlik ve güvenilirlik
- 3 ayrı yüke kadar doğrudan bağlantı
- Basmalı terminal ve baralı sistemlerde basit ve hızlı kurulum
- Akım kısıtlaması
- Ardışık kontrol - kanalların birbirlerine kolayca bağlanması
- Modüler sistem
- Ayrı ve toplu hata mesajları
- AÇ-KAPA uzaktan sıfırlama fonksiyonu
- Arıza durumunda sistemin anahtarlanması
- PLC ile uyumlu ve IEC/EN 61131-2'ye uygun
- Entegre sürgülü düğme
- UL onayı

Koruma Cihazları

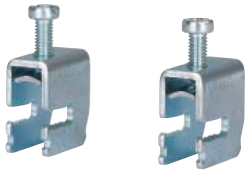
PXS24. Seçim Bilgisi - Elektronik Koruma Cihazları

	Anma Akımı I_n (A)	Anma gerilimi U_n (V)	Tip Tanımı	Ürün no.	VPE (Stk.)
			PXS24...F/ORT-IT		
			Besleme terminalli standart (heberleşme soketli)		
sg05317 	2	24	PXS24S-e2/F/ORT-IT	PXS24S02A001	1/42
	4	24	PXS24S-e4/F/ORT-IT	PXS24S04A001	1/42
	6	24	PXS24S-e6/F/ORT-IT	PXS24S06A001	1/42
	8	24	PXS24S-e8/F/ORT-IT	PXS24S08A001	1/42
	10	24	PXS24S-e10/F/ORT-IT	PXS24S10A001	1/42
	13	24	PXS24S-e13/F/ORT-IT	PXS24S13A001	1/42
	16	24	PXS24S-e16/F/ORT-IT	PXS24S16A001	1/42
			PXS24...F/ORT		
			Besleme terminalsiz standart (haberleşme soketli)		
sg05317 	2	24	PXS24S-e2/F/ORT	PXS24S02A002	1/42
	4	24	PXS24S-e4/F/ORT	PXS24S04A002	1/42
	6	24	PXS24S-e6/F/ORT	PXS24S06A002	1/42
	8	24	PXS24S-e8/F/ORT	PXS24S08A002	1/42
	10	24	PXS24S-e10/F/ORT	PXS24S10A002	1/42
	13	24	PXS24S-e13/F/ORT	PXS24S13A002	1/42
	16	24	PXS24S-e16/F/ORT	PXS24S16A002	1/42
			PXS24E...F-IT		
			Besleme terminalli ekonomik (haberleşme soketsiz)		
sg05417 	2	24	PXS24E-e2/F-IT	PXS24E02A001	1/42
	4	24	PXS24E-e4/F-IT	PXS24E04A001	1/42
	6	24	PXS24E-e6/F-IT	PXS24E06A001	1/42
	8	24	PXS24E-e8/F-IT	PXS24E08A001	1/42
	10	24	PXS24E-e10/F-IT	PXS24E10A001	1/42
			PXS24E...F		
			Besleme terminalsiz ekonomik (haberleşme soketsiz)		
sg05417 	2	24	PXS24E-e2/F	PXS24E02A002	1/42
	4	24	PXS24E-e4/F	PXS24E04A002	1/42
	6	24	PXS24E-e6/F	PXS24E06A002	1/42
	8	24	PXS24E-e8/F	PXS24E08A002	1/42
	10	24	PXS24E-e10/F	PXS24E10A002	1/42



Koruma Cihazları

PXS24 - Aksesuarlar

	Betriebsspannung	Uzunluk	Tip Tanımı	Ürün no.	VPE (Stk.)
		Bara			
		• Kesilebilir • Maksimum Akım: 80 A (55°C ortam sıcaklığında)			
sg03718 	Max. 30 V	1 m	PXS24-BB/80A/1M	PXS24BB00001	1/1
	Max. 30 V	4 TE (ca. 70 mm)	PXS24-BB/80A/4TE	PXS24BB00004	1/1
	Max. 30 V	8 TE (ca. 140 mm)	PXS24-BB/80A/8TE	PXS24BB00008	1/1
	Max. 30 V	12 TE (ca. 210 mm)	PXS24-BB/80A/12TE	PXS24BB000012	1/1
		Bara kapağı			
		• Kesilebilir			
sg03818 		1 m	PXS24-BBC	PXS24ACC0002	1/1
		Boş modül			
		• Herhangi bir elektriksel fonksiyonu yok			
sg03918_r 			PXS24-PCH	PXS24ACC0000	1/42
		Giriş terminalleri			
		• Her bir güç kaynağı için 2 adede ihtiyaç vardır ! • Terminal kapasitesi: kablo pabuçlü veya pabuçlu rijit ve esnek 1.5 - 16 mm² • Maksimum yük akımı: 60 A (50°C ortam sıcaklığında, sadece PXS24-BB ile bağlantılı olarak…)			
sg05917 			PXS24-IT	PXS24ACC0001	1/1



Koruma Cihazları

PXS24 - Teknik Veriler

Teknik Veriler

İşaretleme		CE
Sertifikasyon		UL508 + UL2367 (Kısım 10 ve 12)
Ürün Standardı		EN60947-1, EN60947-5-1, EN61009-1, EN61131-2 ve EN61000-4-2 nin uygulanabilir bölümleri Ayrıntılar için kurum içi WN-PXS24 standardını inceleyiniz
Elektrikselteknik özellikler		
İşletim Gerilimi	U_B	24 DC (16….30 V DC)
Anma akımı	I_N	Sabit; 2, 4, 6, 8, 10, 13, 16 A
Aşırı yük ve kısa devre koruması		Aktif akım kısıtlaması ile 1.3 x I_N, 1.25 x I_N de aktif akım sınırlama
Açtırma karakteristikleri		zaman/ akım tablosunu inceleyin
Kapasitif yükler		20,000 µF'ye kadar
Endüktif yükler		$I_N \leq 6$ A … $\tau_{max} \leq 60$ ms 6 A < $I_N \leq 10$ A … $\tau_{max} \leq 12$ ms 10 A < $I_N \leq 16$ A … $\tau_{max} \leq 7{,}5$ ms
Lebensdauer bei Nutzung als Relais		Zaman / Akım Tablosunu inceleyin
Mekanik Özellikler		
Kanal Sayısı		1
Genişlik		17.5 (1TE)
Yükseklik		92.5 mm
Derinlik		119.2 mm
Terminal tipi		Basmalı yaylı terminaller
Hat terminalleri (isteğe bağlı)		3x HAT (+) 3x GND (-)
Yük terminalleri		3x LOAD (+) 3x GND (-)
Terminal kapasitesi Giriş/Çıkış terminalleri		2,5 mm² (kablo pabuçlu esnek) 4 mm² (tek damarlı rijit)
Terminal kapasitesi Haberleşme soketi		1 mm² (kablo pabuçlu esnek) 1.5 mm² (tek damarlı rijit)
Haberleşme soketi		2x kontrol çıkışı (dahili olarak bağlı) 2x kontrol girişi (dahili olarak bağlı) 1x GND
Bara		HHAT (+) ve GND (-); maks. 80 A 1 m'ye kadar çeşitli uzunluklarda
Montaj		TH35 (EN 60715) DIN rayı üzerinde takılır
Durum LED'i		çift-renkli; Yeşil = OK; Kırmızı= hata açması; OFF = kanal kullanımda değil
Sürgülü anahtar		ON/OFF/Reset
Kontrol çıkışı		Hata açması; Haberleşme soketi ile ilgili (IEC 61131-2'ye uygun olarak), Sınıf: 0.1 A; Tip1/Tip2 ve Tip3 Dijital Girişler Maks. 30 PXS24V 0,2 A'e kadar @ 24 V diğer gösterge cihazları (EATON RMQ serileri…)
Kontrol girişi		ON/OFF/Reset; Haberleşme soketi ile ilgili (IEC 61131-2'ye uygun olarak) Tip1/Tip3; Maks. 30 PXS24V
Sıralayıcı		Haberleşme soketi ile ilgili
Metin alanı		17.5 x 6 mm
Koruma Derecesi		IP20
Çalışma sıcaklığı		-30 °C ila +55 °C
Depolama sıcaklığı		-40 °C ila +100 °C



Koruma Cihazları

PXS24 - Teknik Veriler

Zaman / Akım Tablosu

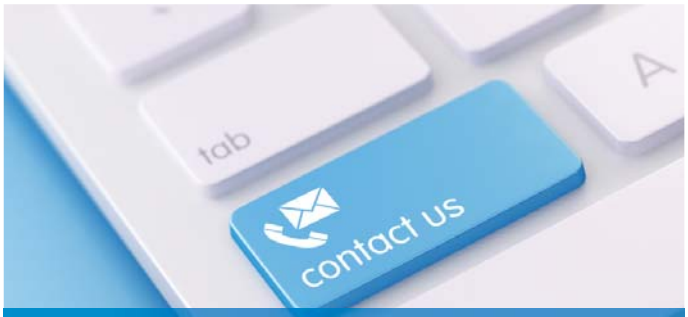
Anma Akımı I_N [A]	Sınıflandırma [ms]	Aktif akım sınırlama	Röle olarak kullandıldığında uzun servis ömrü t_{on} = 0,05 s / t_{off} = 10 s
2	470	1,25 x I_N	> 10.000.000
4	280	1,25 x I_N	> 10.000.000
6	170	1,25 x I_N	> 10.000.000
8	110	1,25 x I_N	400.000
10	90	1,25 x I_N	10.000
13	80	1,25 x I_N	röle olarak kullanılmamalıdır - yalnızca koruma amaçlıdır
16	70	1,25 x I_N	röle olarak kullanılmamalıdır - yalnızca koruma amaçlıdır

Özelliklerine genel bakış

Özellikler	Economi	Standart
Anma akımı Sabit; 2, 4, 6, 8, 10, 13, 16 A	**0-10 A**	**0-16 A**
Aktif akım sınırlama	**x**	**x**
Modüler sistem	**x**	**x**
3 yük bağlantısı (+/-)	**x**	**x**
Basmalı yaylı terminaller	**x**	**x**
Bara (+/-)	**x**	**x**
Lokal durum LED'i	**x**	**x**
Lokal sürgülü anahtar (on/off/reset)	**x**	**x**
Sıralayıcı		**x**
Dijital kontrol çıkışları (on/off/reset)		**x**
Dijital kontrol girişleri (on/off/reset)		**x**

Eaton, 2017 yılında 20,4 milyar $'lık satış gerçekleştirmiş bir güç yönetim şirketidir. Eaton, müşterilerine elektrik, hidrolik ve mekanik gücü daha verimli, güvenli ve sürdürülebilir bir şekilde yönetmeleri için yardımcı olan enerji verimliliği çözümlerini sunmaktadır. Eaton güç yönetimi teknolojilerinin ve hizmetlerinin kullanımıyla yaşam kalitesini arttırma ve çevreyi iyileştirme amacına kendini adamıştır.
Yaklaşık olarak 96.000 çalışanıyla Eaton, ürünlerini 175'ten fazla ülkedeki müşterilerine sunmaktadır.

Daha fazla bilgi için **www.eaton.com adresini ziyaret ediniz.**



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Tüm Hakları Saklıdır
Avusturya'da basılmıştır.
Basım Numarası. BR019007TR
Ürün numarası 195180-MK
Temmuz 2018
Grafikler: SRA, Schrems

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Güncel ürün ve destek bilgilerini almak için bizi sosyal medyada takip ediniz.

Powering Business Worldwide

Eaton – convincing in terms of safety, performance and operational availability.

IEC/EN 61439



Technical Guide –
xEnergy
Switchboard systems

Powering Business Worldwide



xEnergy: Controls systematically. Saves in three ways. Thinks ahead.

With Eaton, you have a business partner who supports your expertise in every respect. With Eaton xEnergy, you have a switchboard system that provides you with a wide variety of options for reliable power distribution and individual solutions to meet your customers' needs.

The xEnergy system range thinks ahead. This means it is designed to meet constantly increasing requirements. Geared towards a maximum of efficiency in implementing your individual projects, Eaton xEnergy provides optimum conditions for building-infrastructure up to 5000 A.

Every single function module in this switchgear assembly is perfectly prepared and systematically planned – from the switchgear and fitting system technology to enclosures and software tools.

Systematic switching = Shaping the future

You too should opt for this technically sophisticated and cost-effective unit of switchgear and protective devices, fitting systems and switchboard systems. It helps you to optimally switch and control power, in other words to dominate it. The system is module-based and offers smart combination options.

And there is a wide range of benefits for you. They do not only include the optimal added value in your own panel building business and the certainty that – with Eaton – you will always be building state-of-the-art and safety-tested panels. They will also help you to save time, money and space.





IZM

The variable circuit breaker up to 6300 A
Its module width will increase depending on the rated current, while height and depth of the switchgear will remain the same. Increased operational availability thanks to its robustness and the ability to communicate, cost-optimized planning thanks to modular design, suitable for worldwide use, with xEnergy and xVTL.



NZM

The compact circuit breaker up to 1600 A
Available in four breaking capacity levels, compact and space-saving, suitable as a main circuit breaker for machinery controlgear, incoming supply switches in installation distribution boards or outgoing switches in power distribution boards, for xEnergy and xVTL, for worldwide use.



SASY 60i

Modular busbar system
For effective power distribution in the switchboard cabinet. In combination with the latest motor protectors and circuit breakers, it forms a consistent solution for switching, controlling and distributing power. UL-certified.



PIFT

Plug In Fuse Terminal
Revolutionizes the fuse-related technology in distribution board building. With its wide range of different types, its modular setup and its uncomplicated options for expansion and conversion, it offers the required flexibility. It is convincing thanks to the extremely high level of short-circuit strength of up to 120 kA with AC500V, optional fuse monitoring and an integrated switch-on lock.

5 variants, with maXimum benefits.



XP Power Sections

- Incoming supplies, outgoers and couplings with circuit breakers
- Internal separation up to form 4
- Cable connection from the top or bottom
- Incoming supply system for drill-free cable connection



XF Fixed

- Power outgoers with circuit breakers and fuse switch disconnectors up to 630 A
- Internal separation up to form 4
- Individual outgoers, such as controlgear, motor starters, small power outgoers etc.



XG General

- Power factor corrections
- Fitting systems for sub-distribution with devices for modular installation
- Control technology with SASY 60i and xStart
- Individual fixed units on a mounting plate



XR Removable

- Power outgoers with circuit breakers and strip type switch-disconnector-fuse, up to 630 A
- Empty modules for individual applications
- Plug-in modules and strip type switch-disconnector-fuse can be replaced under live-line working conditions
- Internal separation up to form 4
- Easy maintenance and reduced down times



XW Withdrawable

- Power outgoers with circuit breakers up to 630 A
- Outgoers for motor starters up to 250 KW
- Empty drawers for individual applications
- Easy and uniform handling for all drawer sizes
- Drawers can be replaced under live-line working conditions
- Internal separation up to form 4
- Unambiguous position indicator for operating, test or de-energized status
- Easy maintenance without the need of using any special tools for replacement jobs
- Minimum down times

IEC/EN 61439

Eaton implements the new series of standards for low-voltage switchgear assemblies as early as NOW – and makes it significantly easier for panel builders to do their job.

To ensure the safety of low-voltage switchgear assemblies, many and the most varied characteristics of the individual components need to be harmonized and defined in a generally applicable standard.
So far the IEC/EN60439 series of standards covered this requirement. As of 2014, it will be replaced by a new standard. But Eaton builds its switchgear in line with the new standard as of now.

Innovations at a glance
The new standard makes a difference between the manufacturers – as usually practiced – between the original manufacturers on the one hand and the panel builders on the other hand. These two parties involved in building a switchboard system have to separately provide evidence of conformity to show that the part each one is responsible for meets the requirements of the standard.

This actually means that the panel builder now has to pay a lot more attention to providing the evidence of conformity for his part of the technical execution.

- The distinction between "type-tested assembly TTA" and "partially type-tested assembly PTTA" no longer exists in the new standard.

- Evidence of conformity with the standard is provided through design verifications, they include tests, calculations and the verification of whether the design rules have been respected – i.e. that from now on the systems will be design-verified. Panel builders who already build TTAs now do not have to expect many changes.

- The panel builder can-depending on the type of system – choose between three different ways of providing evidence of conformity:
  Verification by testing,
  Verification by design rules or
  Verification by calculation.
  All of them are equally valid, as defined by the standard.

- The term "TTA Switchgear assembly and controlgear assembly according to IEC/EN 60439-1" will be replaced by:
  "Power switchgear and controlgear assembly according to IEC/EN 61439-2, design verification by testing".

- If the panel builder carries out changes in the original system of a switchgear and controlgear assembly that are not covered in the design verification, these changes must be specified in a separate design-verification document.

- The new standard also includes requirements of the standard for empty enclosures, such as resistance to corrosion, resistance to heat of enclosure parts made of insulating material and protection against mechanical impacts.

xEnergy, in conformity with the standard
As an original manufacturer, we will continue to provide evidence of conformity for the system in the future as well. In order to make it easier for the panel builder to provide evidence of conformity for his part of the responsibility, a large number of applications have been split up into standardized modules and the design verification by testing has been carried out for them to provide the evidence of conformity. These modules, assembled in accordance with the corresponding instructions, will enable you to carry out your projects in a cost-effective way and in compliance with the requirements of the standard.

Service / Support / Software

Eaton actively supports the "Services in Automation" initiative of ZVEI (Association of the German electrical and electronics industry). For the services we offer, this means: The services are tailored to the customer's needs, they are easy to identify, they guarantee that the competences required for the services offered are available and that the results and performance data are defined together with the customer.

Service





Design-verified quality

Eaton is DIN ISO 9001 certified. The quality of Eaton products is reliable. For switchboard systems, Eaton trusts in a modular design principle consisting of accurately fitting function modules, design-verified in accordance with the IEC/EN 61439 standard.
The system modules can be arranged to comply with specific national requirements such as DIN VDE, CEI, NF or UNE.

So Eaton offers all relevant protective switchgear assemblies in the respective degree of protection up to 5000 A.
In addition, design verification of the entire unit of switchgear, fitting system technology and cabinet in accordance with IEC/EN 61439 provides for a high level of safety.

This modular system allows for easy expansion to meet increasing future requirements.

Delivery according to customer's needs

Eaton offers the entire product range in flat-packed versions, functionally packed as assembly groups, or as cabinets pre-assembled to customer specifications. Short delivery times make it easy to react to enquiries or modifications requested by the customer.

- Easy configuration and ordering thanks to tools that support the setup of parts lists
- Fast delivery ex warehouse thanks to lean logistic processes
- Easy handling of individual parts thanks to convenient packaging units
- Safe and time-saving assembly based on Eaton assembly instructions

The system offer is optimized for the incorporation of internationally available Eaton switchgear and protective devices and it is completed by configuration and planning tools.
The right tool for every project stage and safe power distribution!

Technical support



Eaton's technical support is both competent and reliable.
New customers are offered optional training on how to build a design-verified switchgear assembly.

The advantage of realizing the first switchgear assembly directly with the panel builder is an opportunity to communicate the optimal workflow.

Field Service:
+49 228602 3640

Product Support:
SupportDistributionboard
Austria@eaton.com

Website:
www.moeller.net/xEnergy

Software



Eaton provides you with the appropriate tools. Software tools for planning, documentation and calculation not only support planning engineers, but also panel builders or installers. Eaton's toolbox is perfectly designed for network and system planning right through to ordering. Using Eaton's tools including the system-specific data ensures a safer, faster and more efficient way of processing orders.

CurveSelect

The program for characteristic curves of protective devices is available free of charge and allows the user to display setup-specific tripping curves of several protective devices simultaneously – both in terms of time and electric current values.
The tool makes it easy for the user to analyze the interaction of NZM and IZM circuit breakers, PKZ motor-protective circuit breakers, ZB overload relays and circuit breakers as well as h.b.c. fuses.

Freely defined curves (FreeStyleCurves = FSC) enable the user to directly compare the

- selected motor protector and motor starter characteristics,
- incoming supply switches and up-stream medium-voltage protection
- intended expansions and existing protective equipment.

CurveSelect supports you in planning and documenting your system.

xSpider

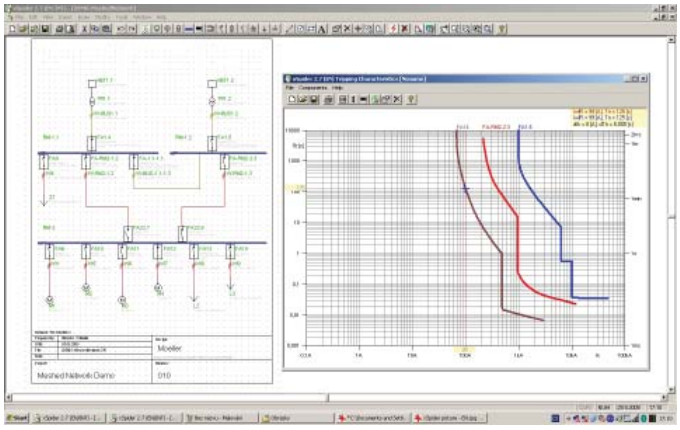
A graphic-oriented draft system for dimensioning low-voltage networks equipped with Eaton protective switchgear.
xSpider is available for free download.
The software includes a database with all protective switchgear (MCBs, MCCBs, ACBs, fuses, motor starters).
MatSelect is a database for the management of product and material data in both user-defined and standardized classification systems.

Configurator for xEnergy

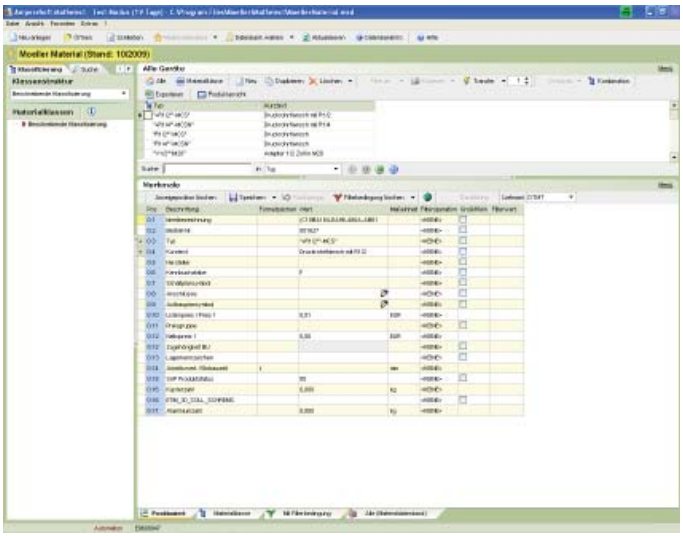
For a quick and easy configuration of the xEnergy switchgear assembly you want. Sets up an offer in no time and generates the parts list at the push of a button.

MatSelect MatSelect database

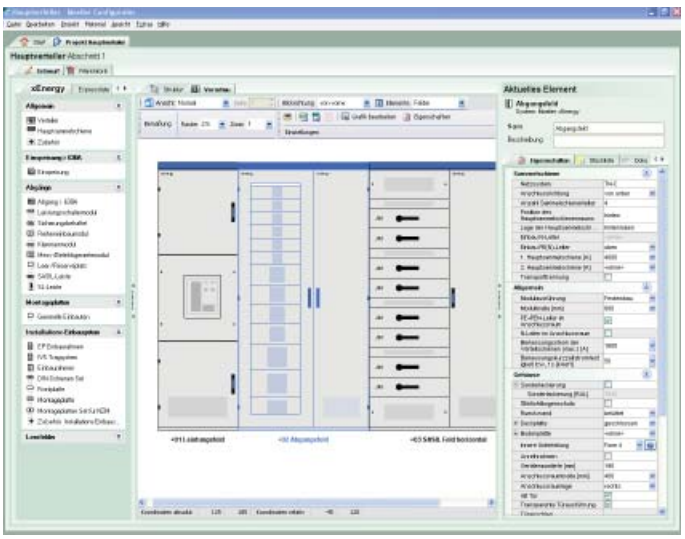
With MatSelect, you can manage all your product and material data in user-defined and standard classification systems.



xSpider



MatSelect Database



Configurator for xEnergy

Safe yesterday. Standard today.
Pioneer in protective technologies of tomorrow.

Eaton's early-warning systems: More safety for your switchboard.

Machines and systems simply have to work. No matter whether it is in industrial or functional buildings – unscheduled standstills are always costly and annoying. The best thing to avoid undesirable down-times is to take appropriate precautions.

For reliable operation

Trust in proven technologies! A design-verified switchgear assembly ensures safe power distribution and a smooth workflow.

For the protection of people and systems

Wherever power is involved, safety is paramount.
Eaton has always been a pioneer in the protection of people and systems. Apart from our proven protective switchgear, there are additional innovations to still increase the high level of safety for staff while operating a system. Be it in the power supply for tunnels, paper mills or data centers – uninterrupted power supply through ARCON® is key for the protection of people and machinery.

This is because an arc-fault will be extinguished by Eaton's arc-fault protection system before it can deploy its destructive impact on the power supply system.
Eaton provides additional safety through internal compartment separation up to Form 4 and passive arc-fault protection.
The result:
Systems that ensure a maximum of operational availability and security and a minimum of down-times.

Power management for the future

Power is precious. It should be used in a resource-efficient and careful way. The new metering and communication modules are a valuable contribution to a responsible way of using energy resources.

Proven components in this field:

- **xEnergy removable and xEnergy withdrawable technology**
- **IZM Open-type circuit breakers**
- **NZM Compact circuit breakers**
- **ARCON® arc-fault protection system**



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xEnergy power distribution
System description



xEnergy product features

- Enclosures for side-by-side and stand-alone cabinets
- Degree of protection IP31 or IP55
- Main busbars up to 5000 A
- 2 Main busbar systems are possible in each section
- Clear separations into functional areas from form 1 to form 4 to provide even better protection for people and equipment
- Widths of 425, 600, 800, 850, 1000, 1100, 1200 and 1350 mm
- Height 2000 mm
- Color RAL 7035 (other colors upon request)
- Network types TN-C, TN-C-S, TN-S, TT, IT
- Type-tested switchgear assemblies in accordance with IEC/EN 61439
- Optimized for 3 and 4 pole switchgear from Eaton

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XP - Power sections

Incoming supplies, outgoers and couplings up to 5000 A

- cable connection from the top and bottom
- busbar positions rear-mounted - bottom/top mounted or running under the top panel
- section height 2000 mm / section depth 400/600/800/1000 (1000 = 800+200) mm
- internal separations up to Form 4







Air circuit breakers IZM 20 up to 63

- widths of 425/600/800/1000/1100/1200/1350 mm
- fixed or withdrawable
- 3 or 4 poles
- with a second busbar suitable as a coupling section
- 630 - 5000 A
- Form 4
- IP31, IP55 with IZM-XDT protective cover
- suitable for drill-free cable connection, can be installed at the top or bottom
- to be operated from outside
- suitable for switchgear with remote operation

Compact circuit breakers NZM3/4 in Form 4

- widths of 425/600/800 mm
- fixed or withdrawable
- 3 or 4 poles
- with a second busbar suitable as a coupling section
- 250 - 630 A (NZM3)
- 630 - 1600 A (NZM4)
- Form 4
- IP31/55
- suitable for drill-free cable connection, can be installed at the top or bottom
- to be operated from outside
- installation of two switching devices in one section is possible
- suitable for switchgear with remote operation



Compact circuit breakers NZM4 in Form 2

- widths of 425/600/800 mm
- fixed or withdrawable
- 3 or 4 poles
- with a second busbar suitable as a coupling section
- 630 - 1600 A
- Form 2
- IP31/55
- suitable for drill-free cable connection, can be installed at the top or bottom
- to be operated behind the door as high as the section
- suitable for switchgear with remote operation

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XF - Outgoing sections - Fixed design

- Outgoers with circuit breakers PKZ, NZM, FAZ, switch fuse units and fuse switch disconnectors up to 630 A
- for busbar positions at the rear - top/bottom or running under the top panel
- section height 2000 mm / section depth 600/800 mm



Outgoing sections for outgoers up to 630 A in Form 2

- widths of 800/1000/1200 mm
- module widths of 425 and 600 mm
- 3 or 4 poles
- Form 2
- IP31/55
- consistent mounting height of switchgear
- circuit breakers suitable for use with plug base
- single-wing section door up to 800/1000 mm, 2-wing door for 1200 mm
- suitable for switchgear with remote operation
- operation behind the door
- dropper bar to be selected from 800-1600 A
- separate set-up in 2 separate sections is possible, e.g. 600 mm/600 mm. Switchgear area/ cable connection area



Outgoing sections for fixed outgoers up to 630 A in Form 4

- widths of 800/1000/1200 mm
- module widths of 425 and 600 mm
- each module comes with its own front panel
- 3 or 4 poles
- Form 4
- IP31/55
- circuit breakers suitable for use with plug base - NZM3 with plug base ... in 800 mm deep sections
- suitable for switchgear with remote operation
- separate doors to switchgear area and connection area
- transparent doors (glass doors) are possible
- dropper bar to be selected from 800-1600 A
- separate set-up in 2 separate sections is possible, e.g. 600 mm/600 mm. Switchgear area/cable connection area



Outgoing sections for fuse strips up to 630 A (SL)

- widths of 600/800/1000 mm
- vertical position of fuse strips
- IP31/ IP55 with door in section height
- outgoers are possible downwards and upwards
- Form 2
- operation from outside or behind the door



Outgoing section for fuse strips up to 630A with section dropper bar up to 1600-3200 A (SL-I) across two sections

- widths of 600/800/1000 mm
- dropper bar to be selected from 1600-3200 A
- Form 2
- fuse strips in vertical position
- IP31/ IP55 with door as high as the section
- outgoers are possible downwards and upwards
- up to 40% Cu savings
- operation from outside or behind the door
- quick and easy mounting of fuse strips thanks to the double-bar system



Box solution

- widths of 600/1000/1200 mm
- module widths of 425/600 mm
- each module comes with its own door to the switchgear area
- 3 or 4 poles
- fixed or withdrawable
- suitable for switchgear with remote operation
- to be operated behind the door or with rotary door coupling handle
- dropper bar to be selected from 800-1600 A
- empty and module panels for the set-up of outgoers (RCD, FAZ ...)
- Form 4
- IP31/55

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XR - Outgoing sections - Removable design







Outgoing sections for switch fuse units (load disconnector units) up to 630 A (SSL)

- widths of 600/800/1000/1200 mm
- suitable for rear-mounted main busbar HSS
- horizontal and vertical position of fuse switch disconnector strips is possible
- can be installed while energized (fuse strips)
- IP31
- outgoers are possible downwards and upwards
- Form 4
- operation from outside
- dropper bar selectable from 800-1600 A

Plug-in module technology - outgoing sections in Form 2

- widths of 800/1000/1200 mm
- module width 600 mm
- Form 2
- 3 or 4 poles
- IP31/55
- consistently equal mounting height of the switchgear
- single-wing section door with 800/1000 mm, double-wing door with 1200 mm
- suitable for switchgear with remote operation
- to be operated behind the door
- empty plug-in module for the incorporation of RCD, FAZ ...
- dropper bar selectable from 800-1600 A
- separate set-up in 2 separate sections is possible, e.g. 600 mm/600 mm. Switchgear area/cable connection area

Plug-in module technology - outgoing sections in Form 4

- widths of 800/1000/1200 mm
- module width 600 mm
- Form 4
- 3 or 4 poles
- IP31/55
- each module comes with its own front panel
- separate doors to switchgear area and connection area
- transparent doors (glass doors) are possible
- empty plug-in module for the incorporation of RCD, FAZ ...
- to be operated behind the door
- dropper bar to be selected from 800-1600 A
- separate set-up in 2 separate sections is possible, e.g. 600 mm/600 mm. Switchgear area/cable connection area

XW - Outgoing sections - Withdrawable desing



Outgoing sections - withdrawable design

- widths of 1000/1200 mm
- section depths of 600/800/1000 mm
- 3 or 4 poles
- rated current of dropper bars In=1000 or 2000 A / 3 or 4 poles
- max. short-circuit current ICW=80 kA
- IP31/55
- shelf-boards can be mounted at individual heights, depending on the size of the modules
- max. height of dropper bar available to accommodate equipment = 1875 mm
- cable connection area, fully sealed off from the switchgear area, main busbar area and dropper bar area
- dropper bar at the front fully sealed off thanks to self-closing shutters
- drawers available:
  power outgoers up to 630 A
  direct starters from 0.06-132 kW
  reverse starters from 0.06-132 kW
  star-triangle starters from 5.5-110 kW
- outgoers from 132 to 250 kW are executed as fixed design solutions

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XG - Empty sections for General equipment





Empty sections for individual mounting units

- fitting systems for modular installation devices (IVS, EP, Profi+ ...)
- individual mounting units fixed on mounting plates
- control technology - suitable for installation of mounting plates as high as the section, or of split ones
- section height 2000 mm
- section depths of 400/600/800 mm
- section widths of 425/600/800/850/1000/1100/1200/1350 mm
- IP31/55

Technical Data

		Rear busbars up to 5000 A Top busbars up to 3200 A
Standards/regulations		IEC/EN 60439-1, IEC/EN 61439-2
Ambient temperature	°C	-5 up to +40, +35 (24h average value)
Relative humidity	%	50 at 40°C
Protective measure		Protection class I, protective conductor connection
Degree of protection [1)]		IP31, IP55 according to IEC/EN 60529 IK10
Rated insulation voltage U_i	V	1000
Rated voltage U_e	V	690
Insulation coordination		III/3
Insulation voltage U_{imp}	kV	8
Overvoltage category		IV
Degree of pollution		3
Rated frequency	Hz	40-60
Busbar rated current I_e	A	up to 5000
Busbar rated short-time withstand current I_{DW}	kA	up to 100 (1s)
Busbar rated peak withstand current I_{pk}	kA	up to 220
Sheet thickness	mm	Door and frame = 2, rear, side and top panels = 1.5
Metal surfaces		Electro-galvanized, powder-coated
Color		RAL 7035 light-grey
Lock mechanism		Espagnolette lock with 2 or 4 point locking and turn-lock 3 mm two-way key bit
On-site installation conditions		Indoor installation according to IEC/EN 60439
Dimensions	mm	Width: 425 – 1350 Height: 2000 (optional 100 or 200 mm with plinth) Depth: 400, 600, 800, 1000

[1)] The degree of protection of the fitted components - depending on the specifications given in the components catalogue - must be taken into account.

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Tender text

· Ready to connect, steel-encapsulated low-voltage switchgear system in multiple control panel design with type-tested installation systems to ICE/EN 61439-1 (VDE 0660 part 500), IEC/EN 61439-2 (VDE 0660 part 600-2).

· The following descriptions are calculation-related and contractual elements. They are to be considered with the descriptions of the individual systems and the equipment, even when they are not mentioned in detail.

· Cabinet systems consisting of individual add-on sections of the same type in torsion-resistant steel profile design, made of electrolytically galvanized 2 mm thick steel sections, with internal predrilled holes at 25 mm intervals to DIN 43660, structured powder spray paint RAL 7035 light grey.

· Removable external panelling, made of 1.5 mm electrolytically galvanized sheet steel, structured powder spray paint RAL 7035 light grey.

· All construction parts for internal setup are hot-galvanized and feature pre-drilled holes at 25 mm intervals to DIN 43660.

· Plinth 100/200 mm high, electrolytically galvanized, powder-coated in RAL 7035 light grey, with removable front, side and rear panels. The plinth must be suitable for direct transport with the respective tools.

· Switchboard cabinets accessible from the front through inlying doors with external hinges. 180° door opening angle. Door lock with espagnolette lock, 4 point locking and two-way key bit lock. To be actuated with a clip-down handle for half cylinder safety lock.

· Degree of protection:	IP31 to DIN EN 60529 IP55 with sealed door
· Protective measures:	with protective conductor, protection class I
· Rated insulation voltage:	690 V
· Overvoltage category:	III
· Degree of pollution:	3
· Rated operational voltage:	 V
· Frequency:	. . . . . Hz
· Control voltage AC/DC:	 V
· Busbar rated current:	. . . . . A
· Rated short-time withstand current I_{cw}	. . . . . kA/s
· Network system configuration	. . . . .
· Busbars (number), conductor labelling	. . . . .
· Max. dimensions allowed	
	Width . . . . .
	Height . . . . .
	Depth . . . . .
· Largest transport unit allowed	
	Width
	Height
	Depth

· All transport units feature removable lifting eyebolts.

· Equipment of the switchgear system with the following components, fixed installation method:

. . . . . .

. . . . . .

. . . . . .

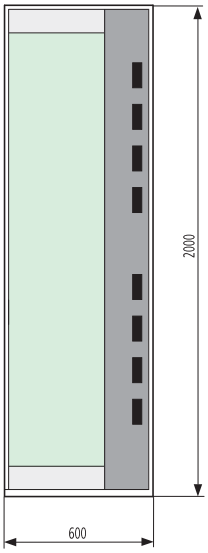
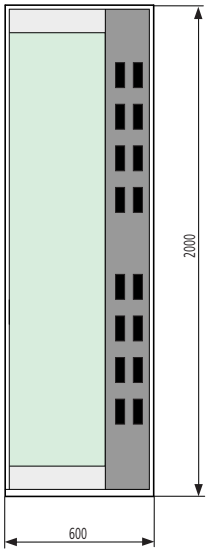
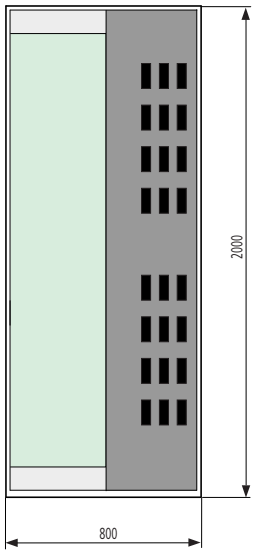
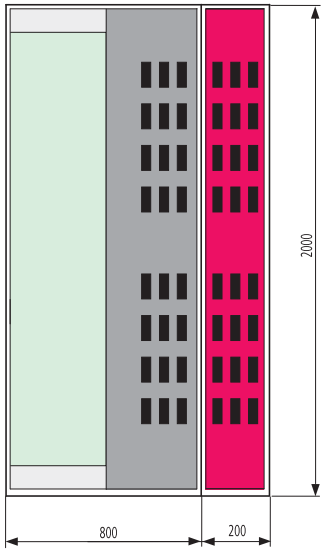
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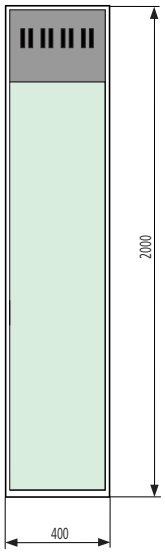
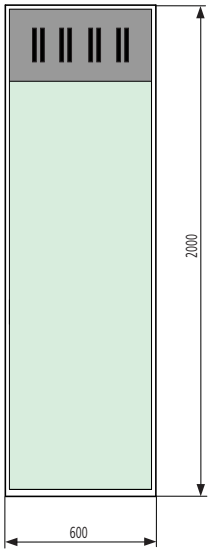
Fully assembled switchgear system described above, ready to connect and prewired, subject to 100% ex-factory test to IEC/EN 61439 part 1. The test protocol is part of the documentation.

· Manufactured by	Eaton
· Type	xEnergy

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System description - main busbars and section depths

Busbar Rated current Ie (Cu cross-sections)	800 A (1 x 40 x 10 mm²) 1250 A (1 x 60 x 10 mm²)	1600 A (2 x 40 x 10 mm²) 2000 A (2 x 60 x 10 mm²) 2500 A (2 x 80 x 10 mm²) 3200 A (3 x 80 x 10 mm²)	4000 A (3 x 80 x 10 mm²)	5000 A 2x(3 x 80 x 10 mm²)
Rear-mounted (side view)	 Kat_HSS_SB	 00155946_0	 00155956_0	 Kat_HSS_5000

Busbar Rated current Ie (Cu cross-sections)	800 A (2 x 20 x 10 mm²) 1250 A (2 x 40 x 10 mm²) 1600 A (2 x 60 x 10 mm²)	1250 A (2 x 40 x 10 mm²) 1600 A (2 x 60 x 10 mm²) 2000 A (2 x 80 x 10 mm²) 2500 A (2 x 100 x 10 mm²) 3200 A (2 x 120 x 10 mm²)
Top-mounted (side view)	 00155966_0	 00155976_0

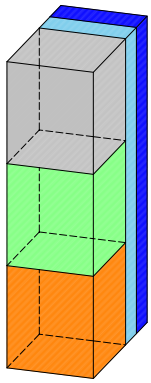
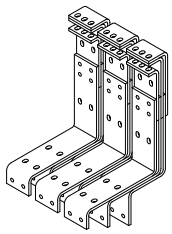
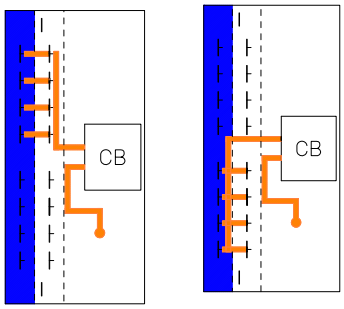
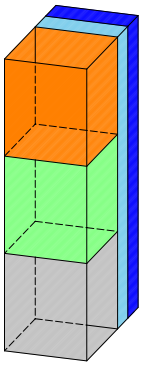
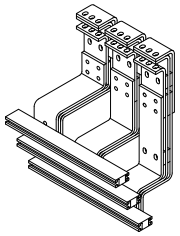
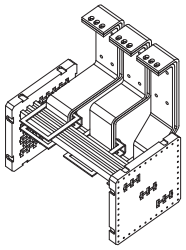
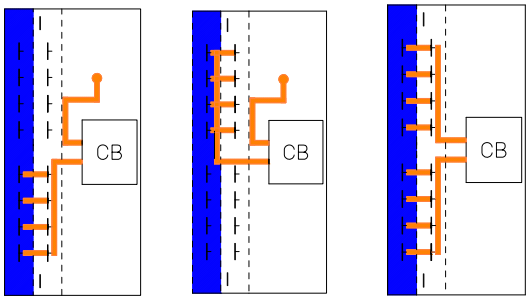
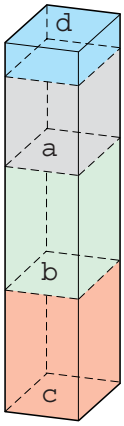
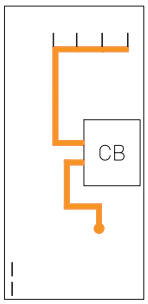
Busbar area

Switchgear area

additional busbar area for 5000 A

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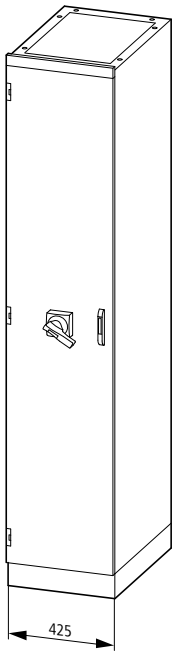
XP Power sections for circuit breakers up to 5000 A

	Functional areas	Connection area	Busbar systems	Switchgear area 2
Busbar at the rear				Mounting plates 
		  Central incoming supply up to 4000 A: Cable connection system: drill-free connection across the entire section width, contacting from the front by means of connection terminals (brace terminals)		
Busbar at the top				

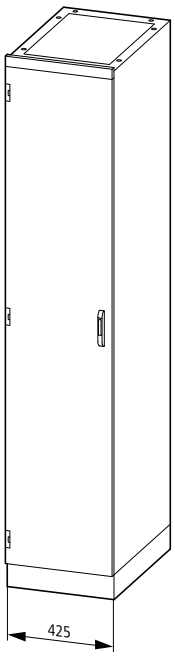
Switchgear area 1
Switchgear area 2
Connection area
Busbars
Additional busbar area where 5000A are used

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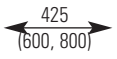
XP Power sections for circuit breakers up to 1600 A

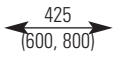


00160782_0



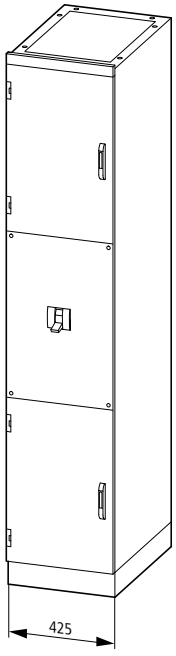
00160792_0



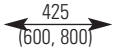


Section widths of 425 mm, 600 mm and 800 mm, internal separation up to Form 4.

With 4-pole breakers, the width of distribution sections will increase to 600 mm.



00160764_0



For compact circuit breakers NZM3/4:

- in withdrable or fixed design
- in 3-pole or 4-pole version
- as incoming, outgoing or coupling switchgear or - with the busbar at the top - as an outgoing or incoming switchgear only
- for measuring purposes you can mount current transformers bet- ween the connection and the switchgear
- 2 devices possible in 1 section in Form 4
- connection directly to cable connection flags, tunnel-type terminals, drill-free cable connection system

Dimensions

- Section widths of 425, 600 or 800 mm
- Section height 2000 mm, optional with plinth of 100 or 200 mm
- Section depth 600 or 800 mm; section depth 800 mm only with rear-mounted busbar

Connection area

- to cover up the connection copper you will need the connection area cover XKSA
- connection directly to a flag connector or to tunnel-type terminals

With internal separation of Form 1 up to Form 2:

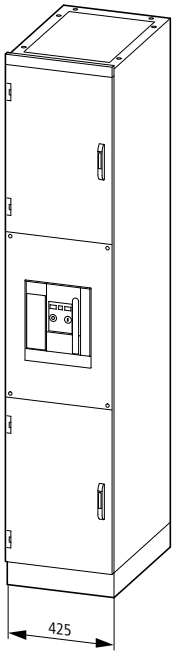
- with a front door as high as the cabinet
- doors ventilated, closed or transparent
- with doors right or left-hinged
- operation of the switch behind the door or with an extension shaft and the rotary door coupling handle from outside

With internal separation up to Form 4:

- 2 switchgear area doors, one above and one below the device, as well as a cover strip with quick-acting closures in the centre in front of the device
- switchgear to be operated from outside
- doors ventilated or closed
- with doors right or left-hinged
- areas not used for cable connection may be used for accommodating additional equipment, e.g. controlgear or surge protection devices

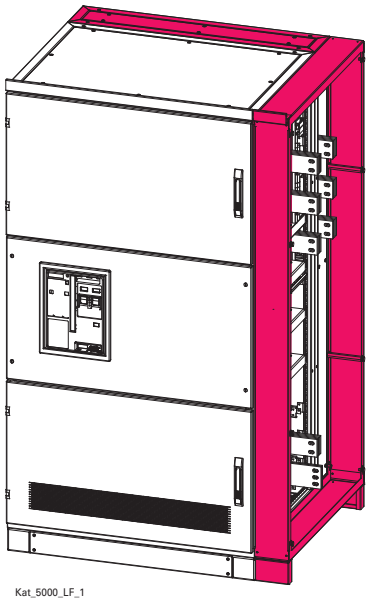
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XP Power sections for circuit breakers up to 5000 A



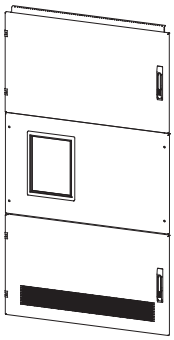
00160802_0

Section widths from 600 up to 1200 mm, internal separation up to Form 4



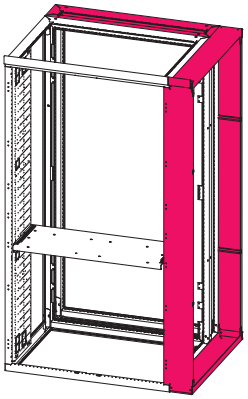
Kat_5000_LF_1

For 5000 A, the red-coloured parts are required in addition.

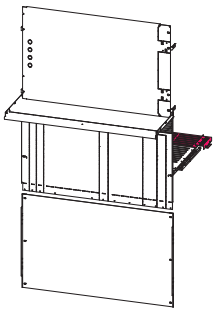


Kat_5000_LF_4

Base



For 5000 A, the red-coloured parts are required in addition.



Internal separation up to Form 4

For air circuit breakers IZM:

- in withdrawable or fixed design
- in 3-pole or 4-pole version
- as an incoming, outgoing or coupling switchgear or - with a top-mounted busbar - as an outgoing or incoming switchgear only
- for measuring purposes you can mount current transformers bet- ween the connection and the switchgear

For 5000 A

- for 5000 A, you need to use 2x(3x 80/10 Cu)
- as a general rule, for a 5000 A main busbar, you need to add an extra section of 200 mm depth to a section of 800 mm depth in order to create sufficient space for the second main busbar
- to be able to establish a section/section connection, it is compulsory to use an add-on frame of 175 mm width

Dimensions

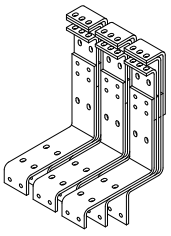
- section widths of 425, 600, 800, 1000, 1100, 1200 or 1350 mm
- section height of 2000 mm, optionally with a plinth of 100 or 200 mm
- section depths of 600 or 800 mm; section depth of 800 mm only with rear-mounted busbar
- rated current I_e 5000 A = section depths is 1000 (800 + 200) mm

Connection area

- incoming supply lines from the top or from below; with top-mounted busbars incoming supply lines only possible from below
- connection directly to cable connector flags
  or
- drill-free connection to cable connection system over the total width accessible from the front

Internal separation from Form 1 up to Form 4:

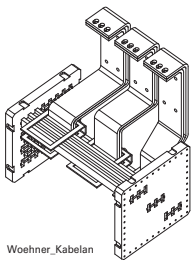
- partition panels ready-to-fit for section equipment up to Form 4
- 2 switchgear area doors one on top and one below the device, as well as a cover with quick-acting locks (or with hinges at the center in front of the device) with IZMX16 and IZM26
- switchgear to be operated from outside
- doors ventilated or closed
- doors right or left-hinged
- areas not used for cable connection can be used to accommodate additional equipment, eg. controlgear or surge protection devices



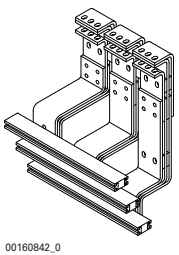
00160822_0

Direct cable connection

Central connection system up to 4000 A:
Cable connection system: drill-free connection over the total width of the section accessible from the front via feeder clip



Woehner_Kabelan



00160842_0

Cable connection system: drill-free connection over the total width of the section accessible from the front (typ: KCSIY)

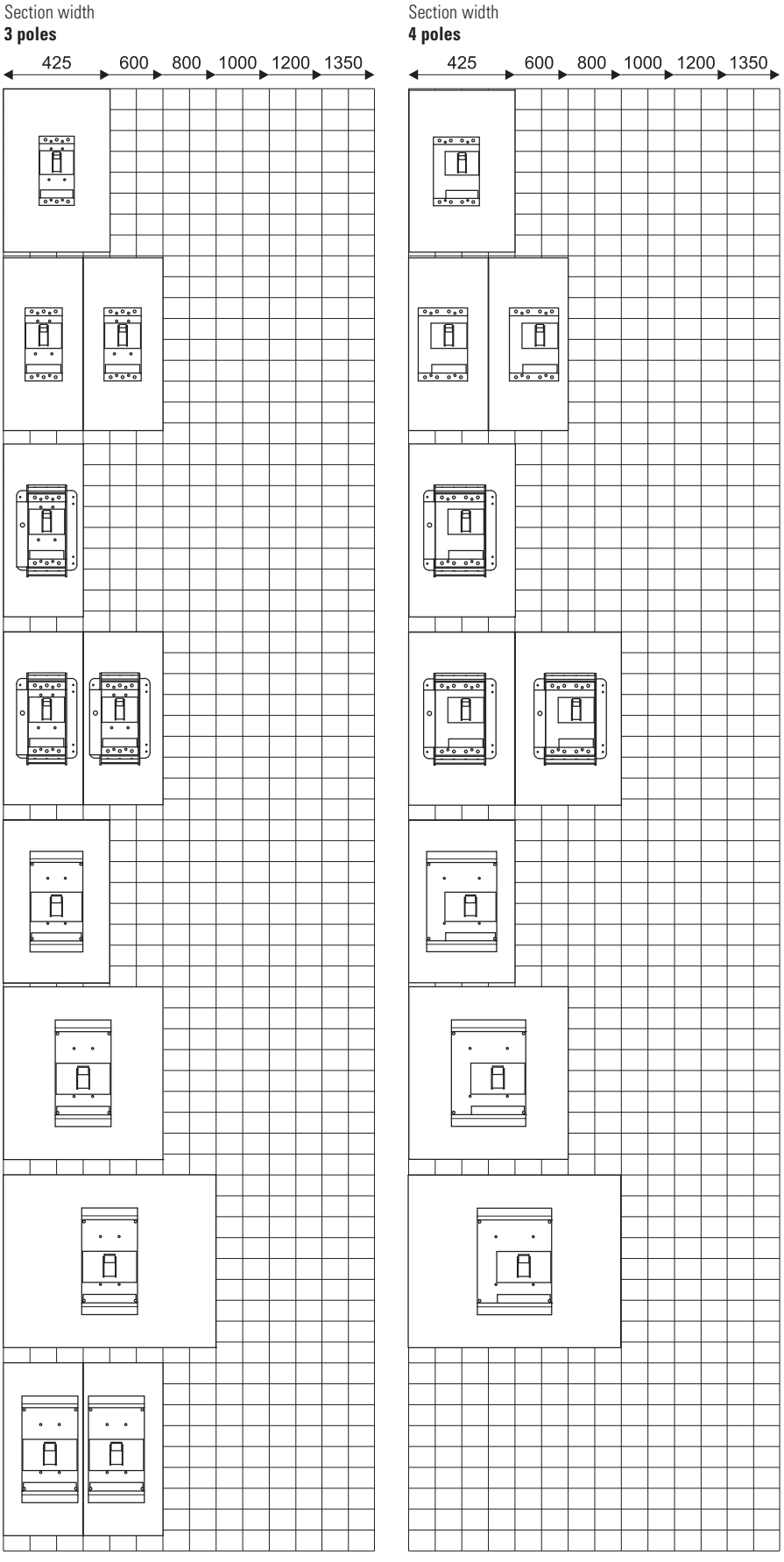
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XP Power sections - type of switchgear installation and section width for NZM

Compact circuit breaker
Type NZM3, fixed

Compact circuit breaker
Type NZM3, withdrawable

Compact circuit breaker
Type NZM4, fixed



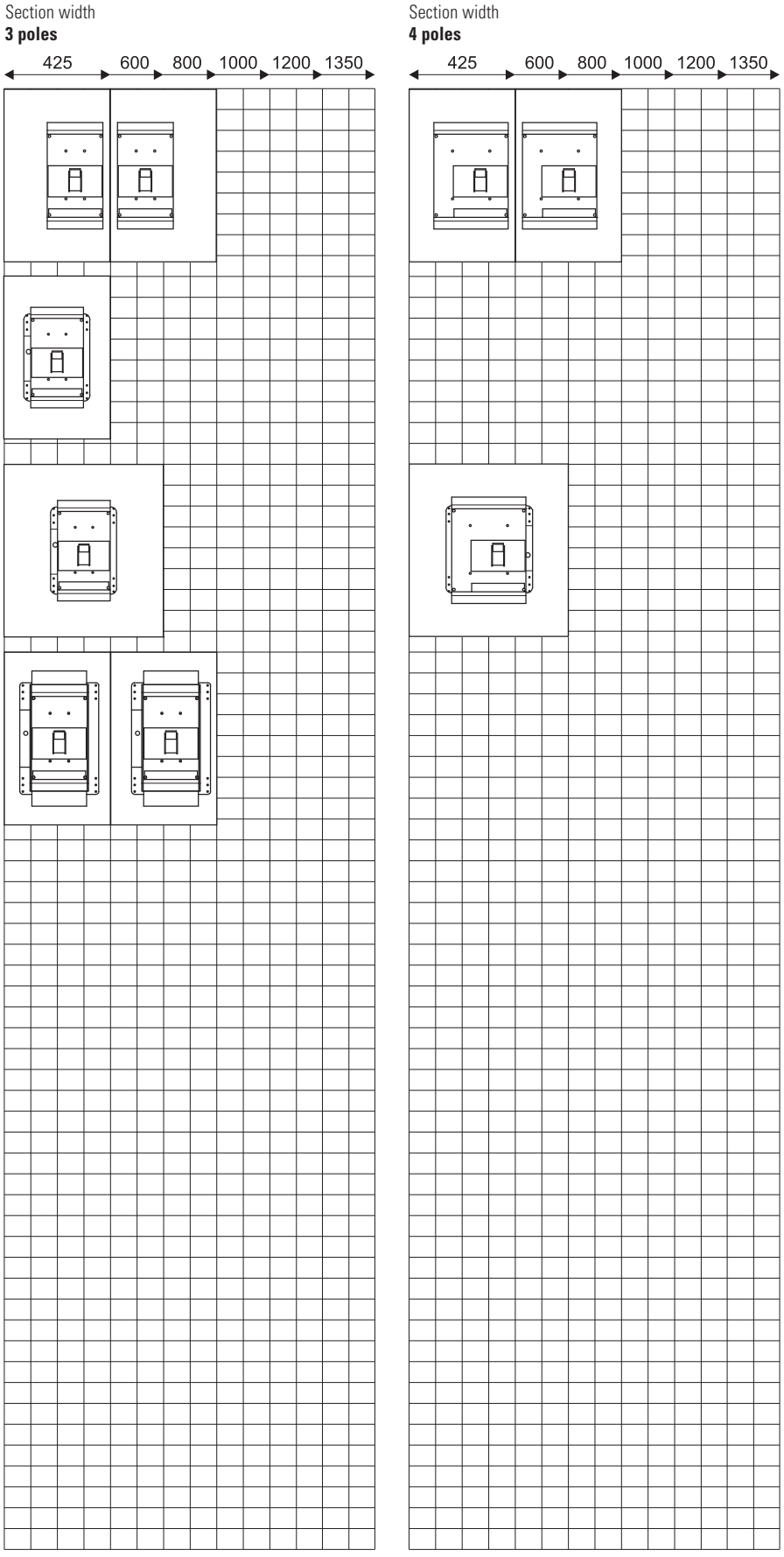
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XP Power sections - type of switchgear installation and section width for NZM

Compact circuit breaker
Type NZM4, fixed

Compact circuit breaker
Type NZM4, withdrawable



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XP Power sections - type of switchgear installation and section width for IZMX16/IZM20/32/40/63

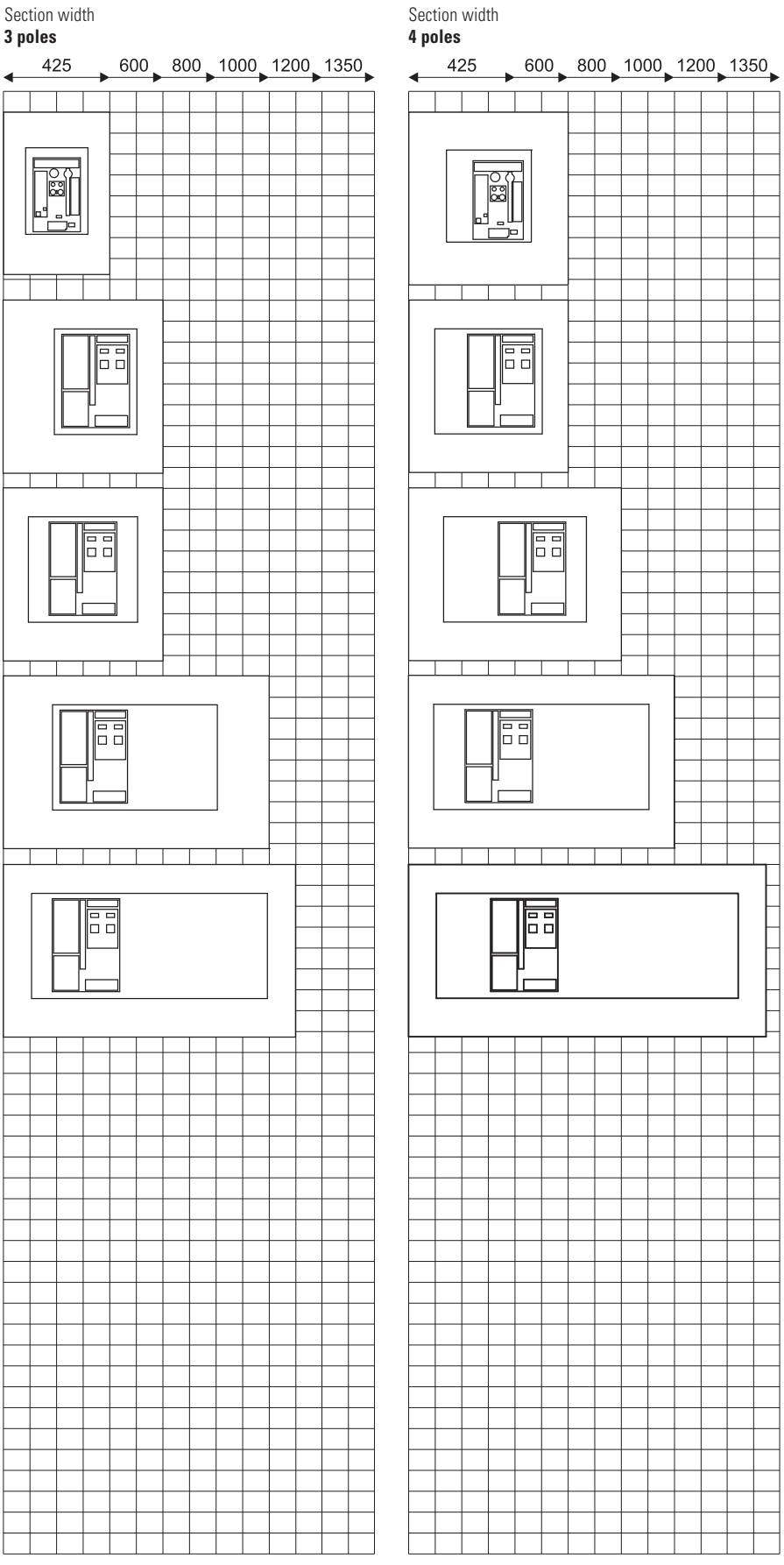
Air circuit breaker
Type IZMX16, fixed and withdrawable,
up to 1600 A

Air circuit breaker
Type IZM20, fixed and withdrawable,
up to 2000 A

Air circuit breaker
Type IZM32, fixed and withdrawable,
up to 3200 A

Air circuit breaker
Type IZM40, fixed and withdrawable,
up to 4000 A

Air circuit breaker
Type IZM63, fixed and withdrawable,
up to 6300 A

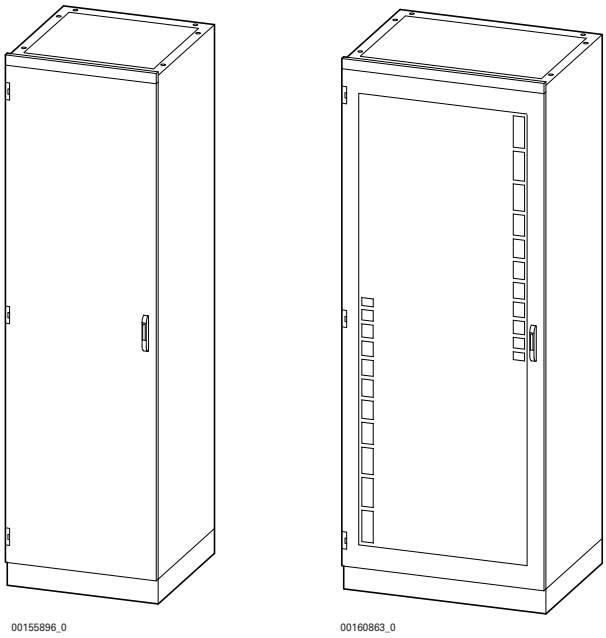


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XF Outgoing sections for fixed modules up to 630 A, Form 2

Form 2



Section widths of 600, 800 or 1000 mm, with door either closed or transparent

- for **circuit breakers**, motor starters, miniature circuit breakers and fuse switch disconnectors
- **in horizontal and vertical position**
- Installation of the switchgear **on one mounting level** on mounting plates in the widths of 425 or 600 mm
- internal separation up to Form 2
- connection on the incoming side is provided for through a vertically arranged dropper bar system, covered to be touch-proof (through mounting plates).
- cable connection is provided for on the side, in the right or left part of the distributor section
- with a front door as high as the cabinet, ventilated, closed or transparent, door right or left-hinged
- switchgear to be operated behind the door or with an extension shaft and a rotary door coupling handle from outside

Horizontally fixed

circuit breaker	**Module height (U/mm)**	
	3 poles	**4 poles**
25 A	2/50	-
40 A	4/100	4/100
63 A	4/100	-
160 A	4/100	6/150
300 A	6/150	8/200
630 A	8/200[1)]	10/250[1)]

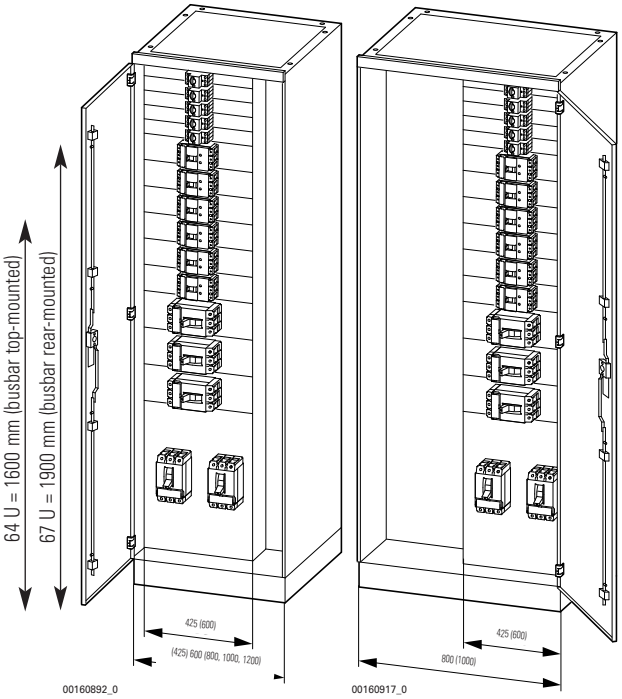
[1)] Horizontal installation of NZM3 (up to 630 A) only on modules of 600 mm width

Vertically fixed

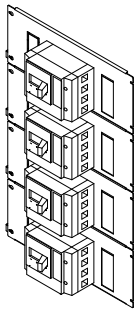
circuit breaker	**Module height**[1)] **(U/mm)**	**Number of circuit breakers per module**	
		425 mm	**600 mm**
160 A	12/300	2	3
300 A	16/400	2/1[2)]	3/2[2)]
630 A	24/600	1	2/1[2)]

[1)] Vertical installation of the switchgear preferably at the top/bottom of the section, depending on the cable insertion. In case of vertical installation it may be necessary to provide more height units for cable insertion.

[2)] 4 poles



Cable connection area in different installation positions for widths of 200 and 400 mm.

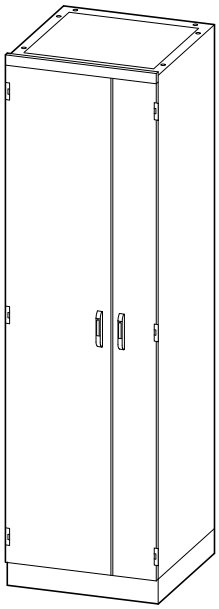


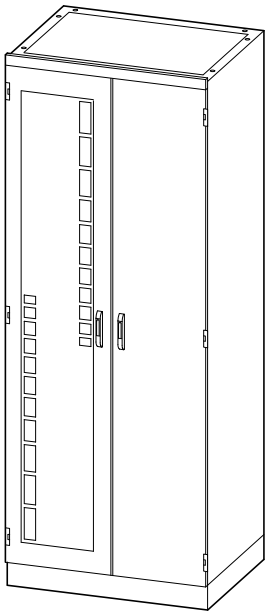
Installation of switchgear on pre-drilled mounting plates, with all fixing and connection openings prepared for installation.

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XF Outgoing sections for fixed modules up to 630 A, Form 4

Form 4

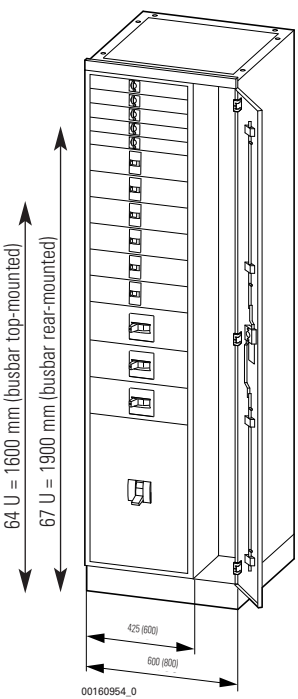


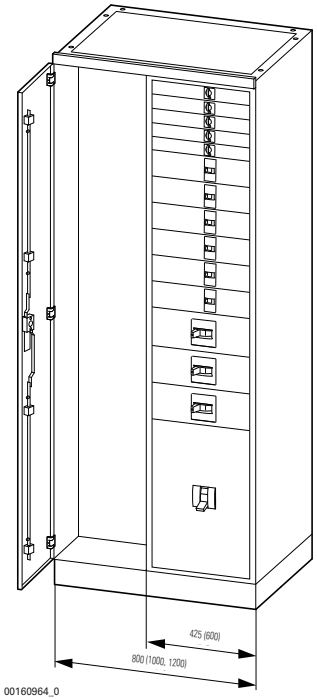


Section widths of 600, 800 or 1000 mm, with closed or transparent door

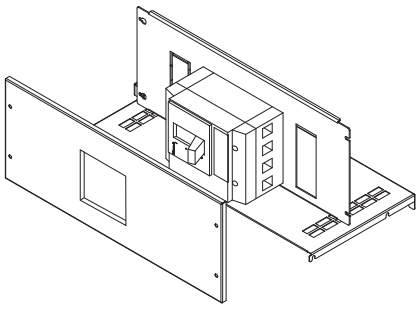
- for **circuit breakers**, motor starters, miniature circuit breakers and fuse switch disconnectors
- **in horizontal and vertical position**
- the switchgear will be installed **behind module covers** and are positioned **on one operating level**
- the module covers are provided with hinges; they can be turned which provides individual access to each module
- Mounting plates in the widths of 425 or 600 mm
- installation of internal separations up to Form 4[1)]
- connection on the incoming side is provided for on a vertically arranged dropper bar system, covered to be touch-proof
- cable connection is provided for on the side, in the right or left part of the distributor section
- the connection area can be accessed via a separate door to the cable connection area and can be separated from busbars and switchgear area
- switchgear to be operated from outside, via cut-outs in the module covers
- can optionally be equipped with a front door as high as the cabinet, ventilated, closed or transparent, with right or left door hinges

1) It may be necessary to provide for more terminals.





Cable connection area in different installation positions in the widths of 200 and 400 mm.

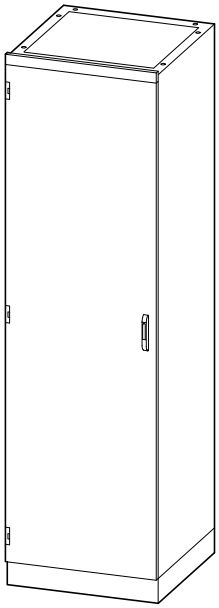


Installation of switchgear on pre-drilled mounting plates, with all fixing and connection openings prepared for installation. Swivel-mounted front cover comes with cut-out for operating the lever from outside.

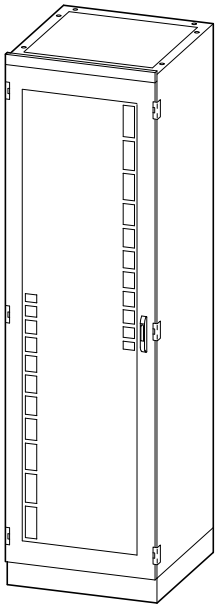
XF Outgoing sections for fixed modules up to 630 A, Form 4

Form 4

For cable connection at the rear



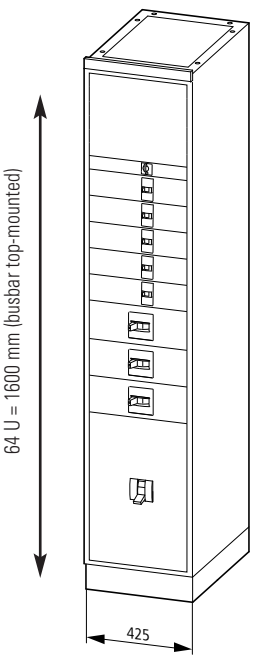
00155896_0



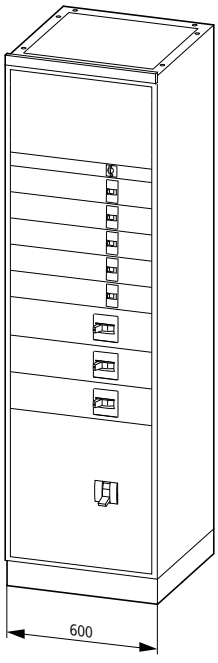
00155906_0

- for circuit breakers, motor starters and miniature circuit breakers
- **in horizontal and vertical position**
- the switchgear will be installed **behind module covers** and positioned **on one operating level**
- the module covers come with hinges; they can be turned which provides individual access to each module
- mounting plates in the widths of 425 or 600 mm
- connection on the incoming side is provided on a vertically arranged dropper bar system, covered so as to be touch-proof
- the cable connection area is at the left rear side, cable connection is done from the rear
- installation of internal separations up to Form 4
- switchgear to be operated from outside, via cut-outs in the module covers
- can optionally be equipped with a front door as high as the cabinet, ventilated, closed or transparent, with right or left door hinges
- only suitable for top-mounted busbars

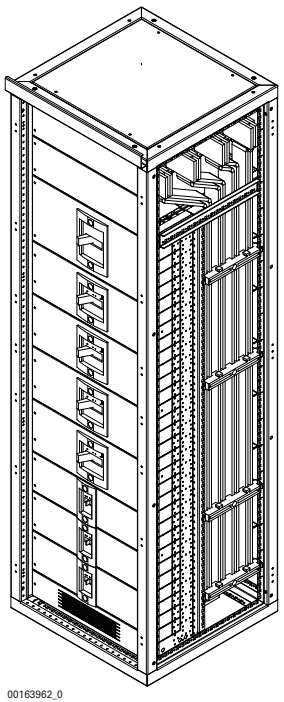
Section widths of 425 or 600 mm, with closed or transparent door



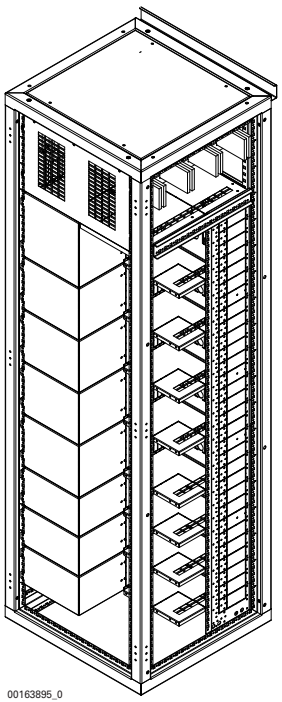
00155916_0



00155926_0



00163962_0

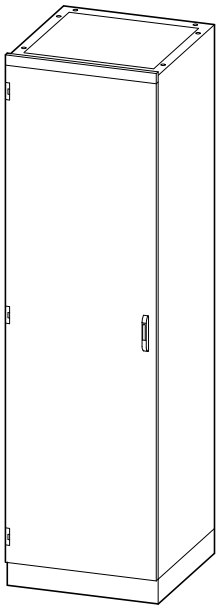


00163895_0

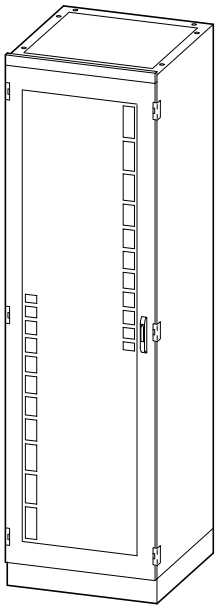
Cable connection from the rear reduces the section width.
Distributor must be accessible from the rear.

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XF Outgoing sections without dropper bar for fixed modules up to 630 A

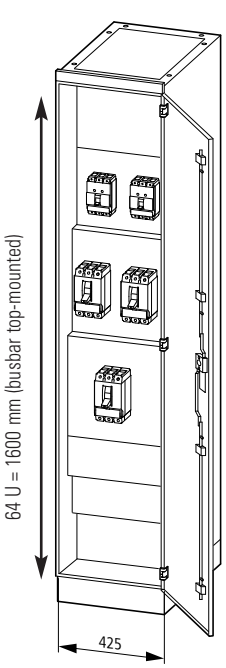


00155896_0

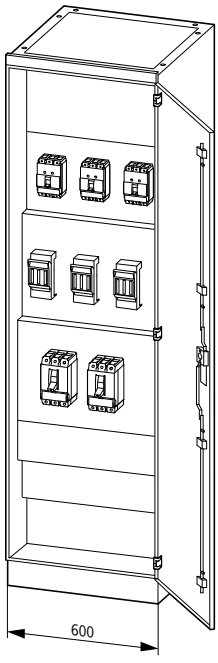


00155906_0

Section widths of 425, 600 mm, 800 and 1000 mm



00160974_0.



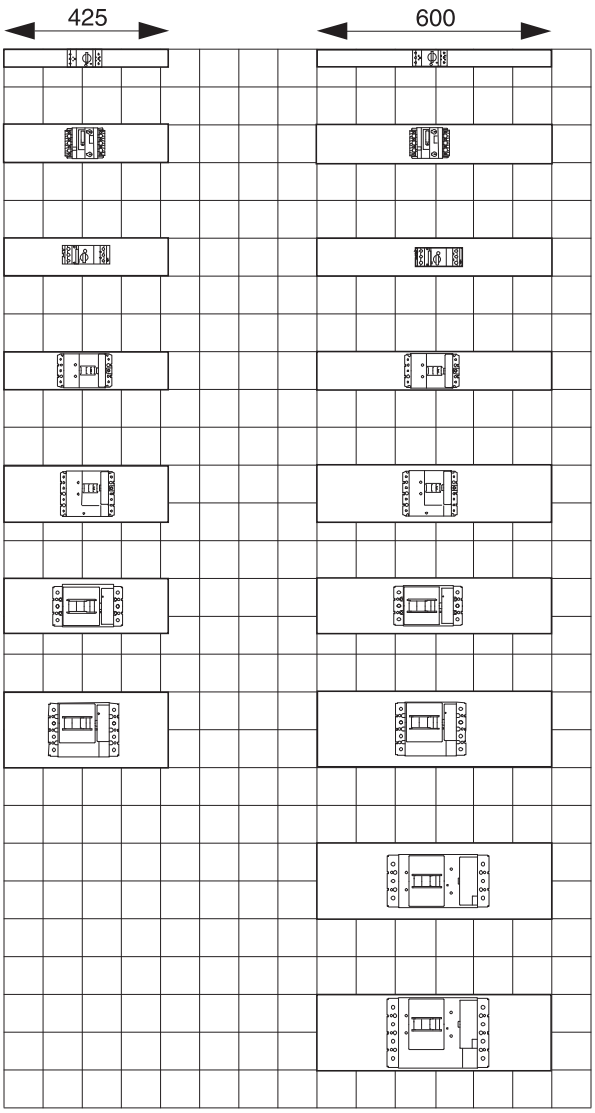
00160984_0

- for **circuit breakers** and miniature circuit breakers
- **in vertical position**
- the switchgear are vertically mounted on mounting plates and can be mounted with an offset at any depth
- mounting plates available in widths of 425, 600, 800 or 1000 mm
- connection on the incoming side is directly on the main busbar
- main busbars can be covered so as to be touch-proof
- cable connection is done from below, either directly with the switchgear or to terminals mounted in the lower part of the section
- with a front door as high as the cabinet, ventilated, closed or transparent, with door hinged at the right or left side
- switchgear operation behind the door or from outside with an extension shaft and a rotary door coupling handle
- fitting frames can be used for front panels
- can be completely closed with front panels

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XF Outgoing sections (fixed installation), module heights and components: Horizontal installation of switchgear

Module width



fk4810-1143d_13_13_1A4

Motor-protective circuit breakers up to **32 A**
Type PKZM0, 2 U = 50 mm

Motor-protective circuit breakers up to **40 A**
Type PKZ2, 4U = 100 mm

Motor-protective circuit breakers up to **63 A**
Type PKZM4, 4 U = 100 mm

Circuit breakers up to **160 A, 3 poles**
Type NZM1, 4 U = 100 mm

Circuit breakers up to **160 A, 4 poles**
Type NZM1, 6 U = 150 mm

Circuit breakers up to **300 A, 3 poles**
Type NZM2, 6 U = 150 mm

Circuit breakers up to **300 A, 4 poles**
Type NZM2, 8 U = 200 mm

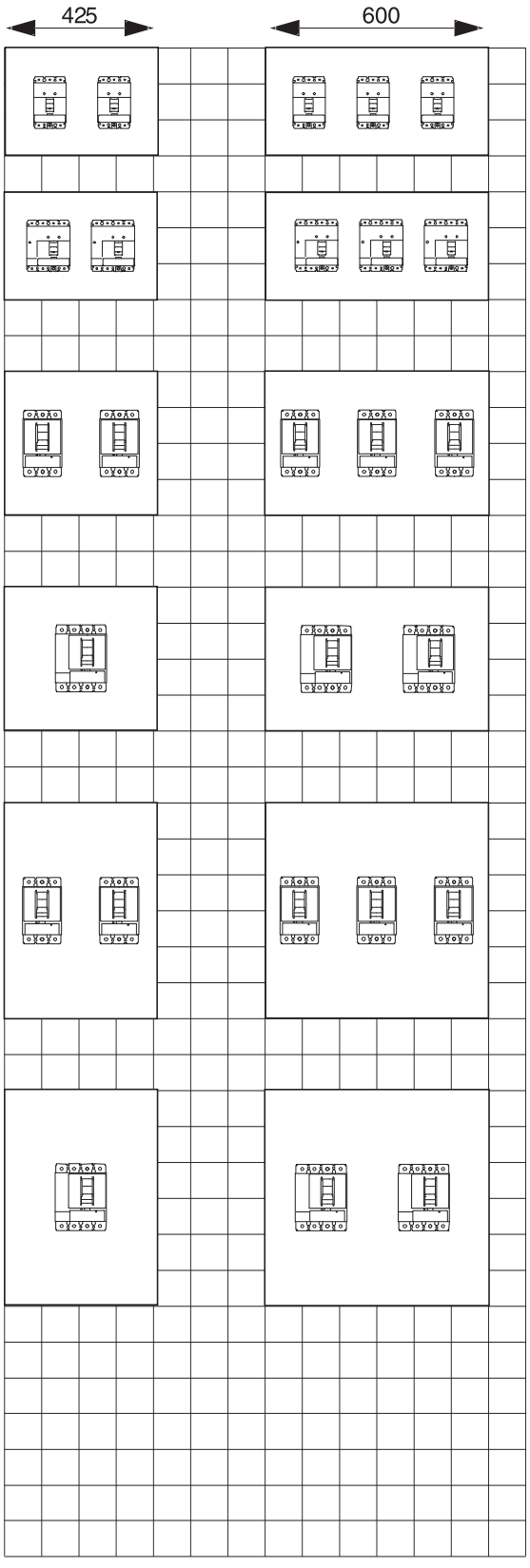
Circuit breakers up to **630 A, 3 poles**
Type NZM3, 8 U = 200 mm

Circuit breakers up to **630 A, 4 poles**
Type NZM3, 10 U = 250 mm

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XF Outgoing sections (fixed installation), module heights and components: Vertical installation of switchgear

Module width



fk4810-1143d_13_14A4

Circuit breakers up to **160 A, 3 poles**
Type NZM1, 12 U = 300 mm

Circuit breakers up to **160 A, 4 poles**
Type NZM1 with plug-in module, 12 U = 300 mm

Circuit breakers up to **300 A, 3 poles**
Type NZM2, 16 U = 400 mm

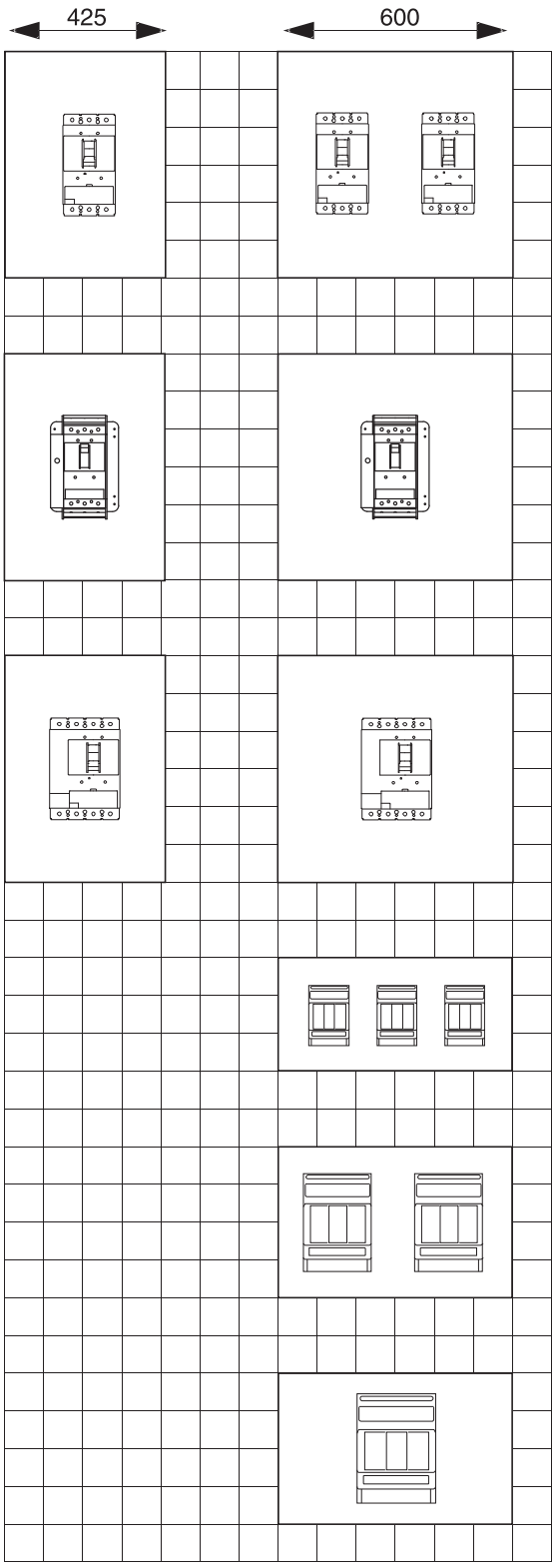
Circuit breakers up to **300 A, 4 poles**
Type NZM2, 16 U = 400 mm

Circuit breakers up to **300 A, with plug base, 3 poles**
Type NZM2, 24 U = 600 mm

Circuit breakers up to **300 A, with plug base, 4 poles**
Type NZM2, 24 U = 600 mm

XF Outgoing sections (fixed design), module heights and components: Vertical installation of switchgear

Module width



fk4810-1143d_13_15A4

Circuit breakers up to **630 A,**
fixed, 3 poles
Type NZM3, 24 U = 600 mm

Circuit breakers up to **630 A,**
with withdrawable unit, 3 poles
Type NZM3, 24 U = 600 mm

Circuit breakers up to **630 A,**
fixed or with withdrawable unit, 4 poles
Type NZM3, 24 U = 600 mm

Fuse base or fuse switch disconnectors up to **160 A, 3 poles**
Type GS1/GSTA1, 16 U = 400 mm

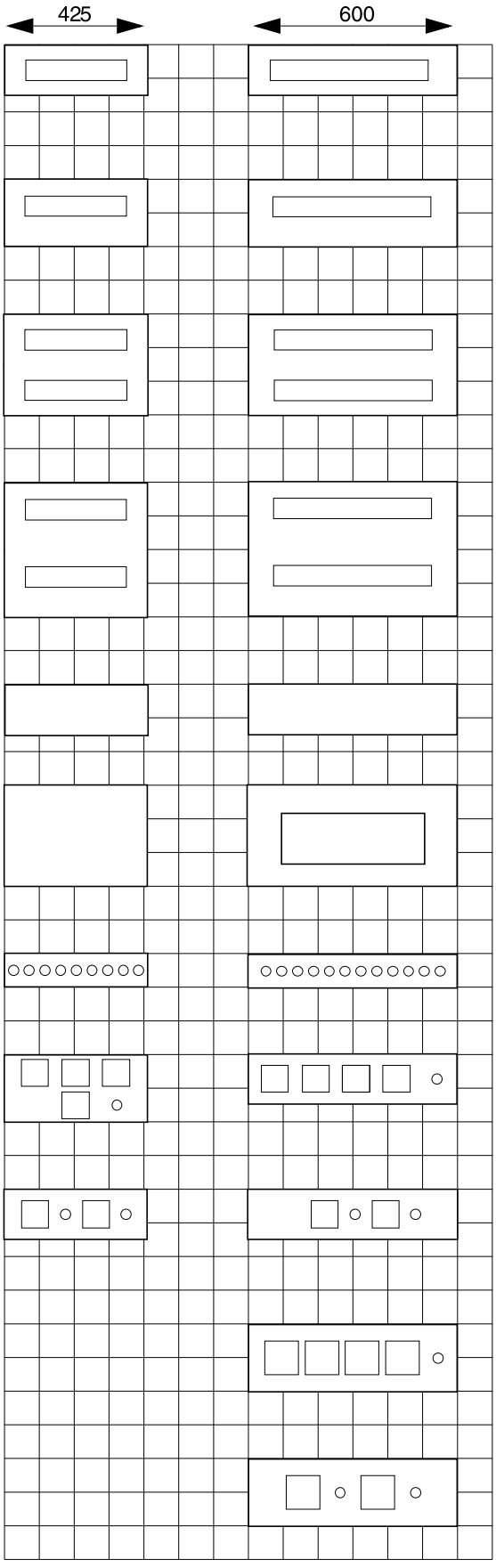
Fuse base or fuse switch disconnectors up to **250 A, 3 poles**
Type GS1/GSTA1, 16 U = 400 mm

Fuse base or fuse switch disconnectors up to **400 A, 3 poles**
Type GS1/GSTA1, 16 U = 400 mm

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XF Outgoing sections for fixed installation module heights and components: Module covers for modular installation devices, measuring and command devices

Module width



fk4810-1143d_13_16A4

Modular installation devices /PKZ…
1 x 12 PE/1 x 24 PE, 6 U = 150 mm

1 x 12 PE/1 x 24 PE, 8 U = 200

2 x 12 PE/2 x 24 PE, 12 U = 300 mm

2 x 12 PE/2 x 24 PE, 16 U = 400 mm

Modules **for terminals**
6 U = 150 mm

12 U = 300 mm

Front covers
for **command and signalling devices**
9 x RMQ-Titan/12 x RMQ-Titan, 4 U = 100 mm

for **installation of measuring devices**
4 x 72 x 72 mm + 1 changeover contact
8 HE = 200mm/6 U = 150 mm

2 x 72 x 72 mm + 2 changeover contacts
6 U = 150 mm

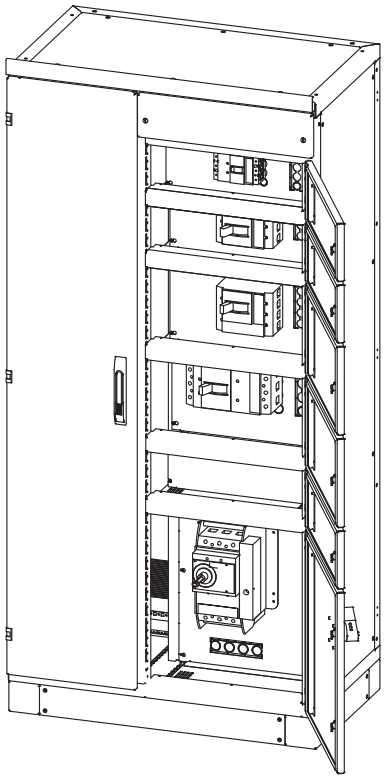
4 x 96 x 96 mm + 1 changeover contact
8 U = 200 mm

2 x 96 x 96 mm + 2 changeover contacts
8 U = 200 mm

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XF Outgoing sections fixed installation box solution up to 630 A, Form 4 (Motor Control Center in fixed construction)

Form 4



BS_3dansicht

- in the widths of 800, 1000 and 1200 mm
- module widths of 425/600 mm
- each module comes with its own door to the switchgear area
- 3 or 4 poles
- fixed or withdrawable
- suitable for switchgear with remote operation
- to be operated behind the door or with rotary door coupling handle
- dropper bars to be selected from 800-1600 A
- empty module plates for the setup of outgoers

Switchgear area:

· **operation** of switchgear **behind the door** or with **rotary door coupling handle**
· each module comes with its own door to the switchgear area
· mounting of the switchgear on pre-drilled mounting plates

Dropper bars:

· Center-to-center distance between phases 60 mm
· Rated current up to 1600 A
· Rated short-time withstand current I_{CW} up to 80 kA

Cable connection area:

· cable connection is implemented either from the top or from the bottom behind a separate door to the connection area
· connection of the individual modules is implemented directly on the switchgear
· side-mounted cable strain relief rails ensure a safe and neat guidance of cables
· vertical PE-, N or PEN rails are mounted in the cable connection area and can be equipped with connections for any outgoing cable

Box solution 4 - Heights and equipment

Module width 425 mm

Module width 600 mm

Circuit breakers NZM1
3/4 poles up to 160 A, H = 200 mm, 8U
Mounting position: horizontal, Installation type: fixed/withdrawable

Circuit breakers NZM2
3 poles up to 300 A, H = 200 mm, 8U
Mounting position: horizontal, Installation type: fixed/withdrawable

Circuit breakers NZM2
4 poles up to 300 A, H = 300 mm, 12U
Mounting position: horizontal, Installation type: fixed/withdrawable

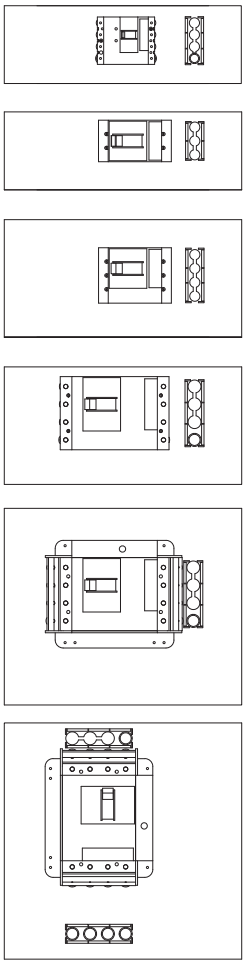
Circuit breakers NZM3
3/4 poles up to 630 A, H = 300 mm, 12U
Mounting position: horizontal, Installation type: fixed

Circuit breakers NZM3
3/4 poles up to 630 A, H = 500 mm, 20U
Mounting position: horizontal, Installation type: withdrawable

Circuit breakers NZM3
3/4 poles up to 630 A, H = 600 mm, 24U
Mounting position: horizontal, Installation type: fixed/withdrawable



BS_425_NZM

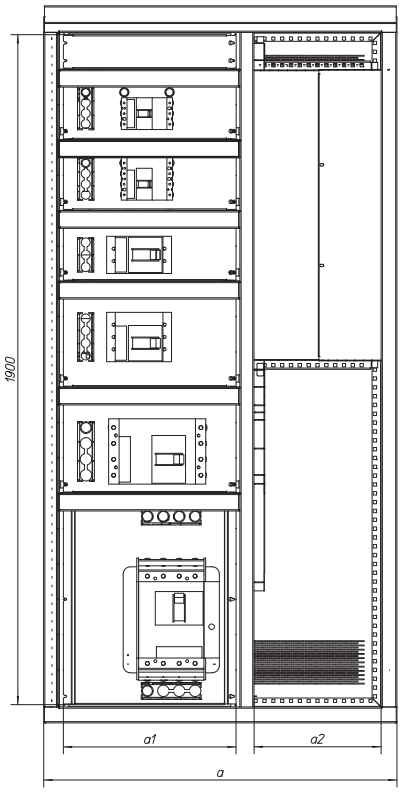


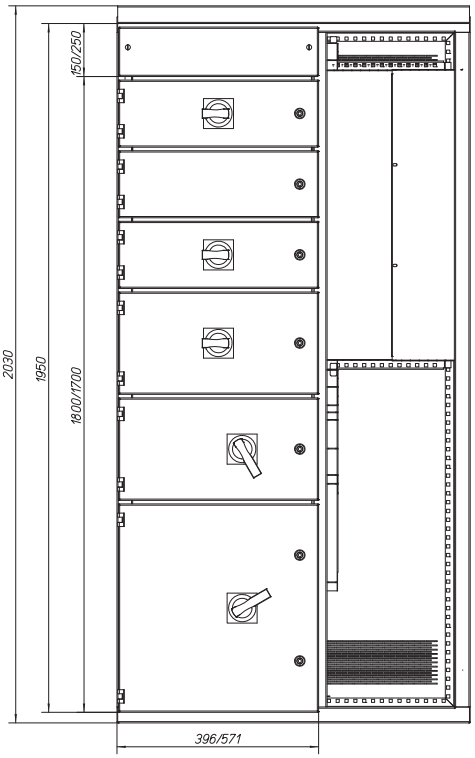
BS_600_NZM

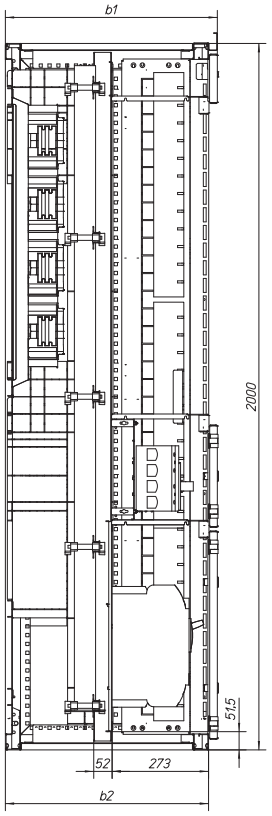
Powering Business Worldwide

XF Outgoing sections - fixed design - Dimensions

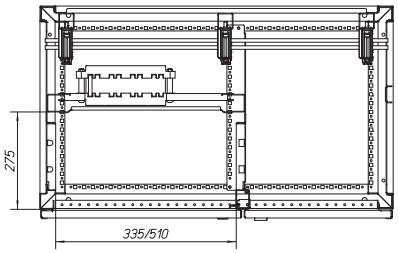
XF section box solution
Motor Control Center - fixed design







BS_abmessungen



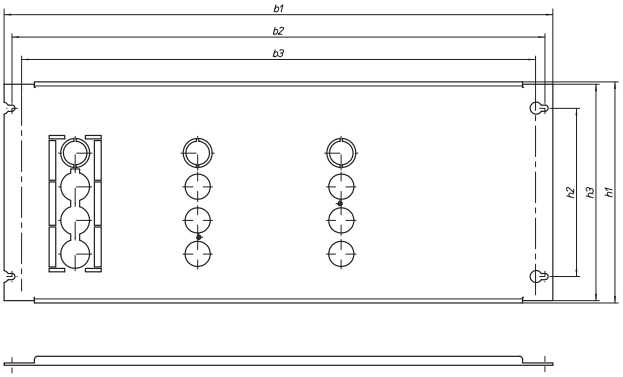
b1	b2
600	575
800	775

a	a1	a2
600	314	135
800	314	335
800	489	160
1000	489	360
1200	489	560

Powering Business Worldwide

XF Outgoing sections fixed installation - Dimensions

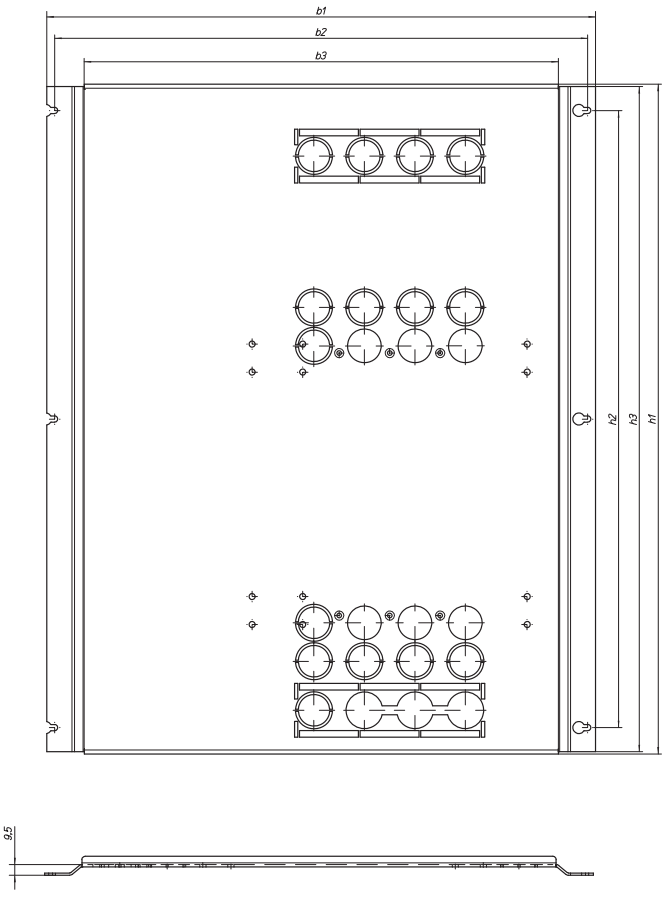
XF section, mounting plates box solution
XMN....M...-BS
Version I



BS_mounting plates_V1

Type	H1	B1	H2	B2	H3	B3
XMN130804M-BS	197	314	150	300	190	283
XMN230804M-BS	197	314	150	300	190	283
XMN241204M-BS	297	314	250	300	290	283
XMN130806M-BS	197	489	150	475	190	458
XMN230806M-BS	197	489	150	475	190	458
XMN241206M-BS	297	489	250	475	290	458
XMN341206M-F-BS	297	489	250	475	290	458

Version II

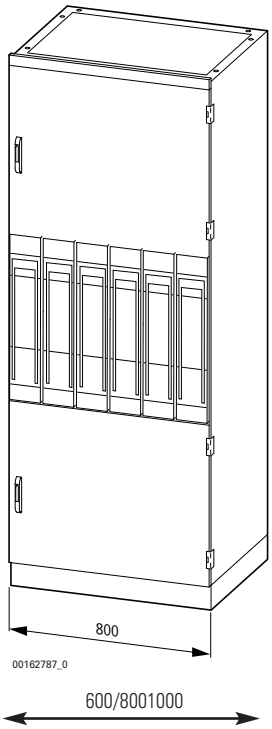


BS_mounting plates_V2

Type	H1	B1	H2	B2	H3	B3
XMN342404M-BS	597	314	550	300	590	247
XMN342006M-W-BS	497	489	450	475	490	422
XMN342406M-BS	597	489	550	475	590	422

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XF Outgoing sections - fixed design - for fuse switch disconnectors



Section widths of 600, 800 and 1000 mm,
internal separation Form 2

Fuse strips can only be used with rear-mounted busbars. Please respect the max. current carrying capacity of the fuse strips depending on the ambient temperature, the degree of protection and the number of fuse strips per section in accordance with the xEnergy technical data.

· for **fuse switch disconnectors SL, Jean Müller/Wöhner/M.Schneider/Pronotec**
· with single break feature
· in **vertical** mounting position

Switchgear area:
· **Operation** of the fuse strips **from outside** or **behind the door**
· Connection of fuse strips on the incoming side on a horizontally arranged dropper bar system
· Dropper bars are accessible from the front over the entire section width
· Thanks to a cover frame variable in depth, it is possible to use fuse strips from different manufacturers without having to change the dropper bar in depth, which ensures a neat closing between the cover frame and the fuse strips. The cover frame (**XSMLV-I-CH..**) is not part of the fitting kit and needs to be ordered separately according to the section width.

Dropper bars:
· Center-to-center distance between phases 185 mm
· Rated current up to 1600 A
· Rated short-time withstand current I_{CW} up to 65 kA

Cable connection area:
· Cable connection is implemented from the top or bottom
· Connections of fuse strips can be covered for protection against accidental contact
· Cable strain relief rails assure safe guidance of outgoing cables
· The connection area is accessible via a separate door to the cable connection area and can be sealed off from the busbar and switchgear area.
· Areas not used for cable insertion can be used to accommodate additional equipment, e.g. controlgear

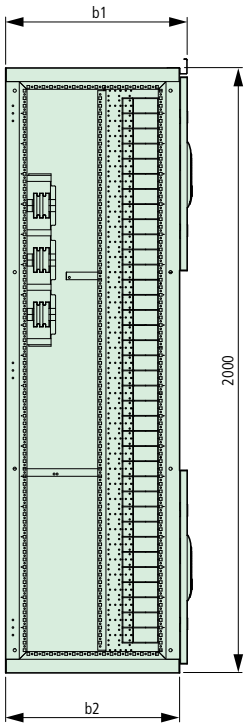
Type	I_e up to	Size	
	A	mm	
SL00	160	50	
SL1	250	100	
SL2	400	100	
SL3	630	100	

Section width	Max. installation space
mm	mm
600	500
800	700
1000	900

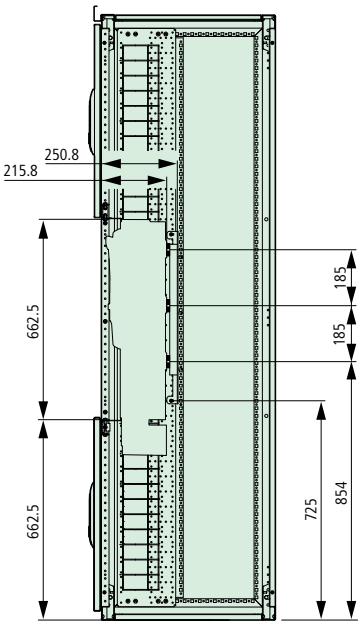
EATON
Powering Business Worldwide

XF Outgoing sections fixed installation for fuse switch disconnectors **- Dimensions**

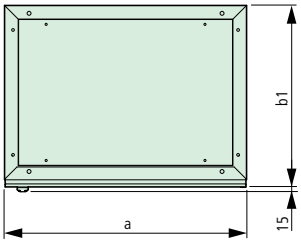
XF Outgoing sections fixed installation for fuse switch disconnectors SL, vertical
XSMLV



00162369_0



00162189_0



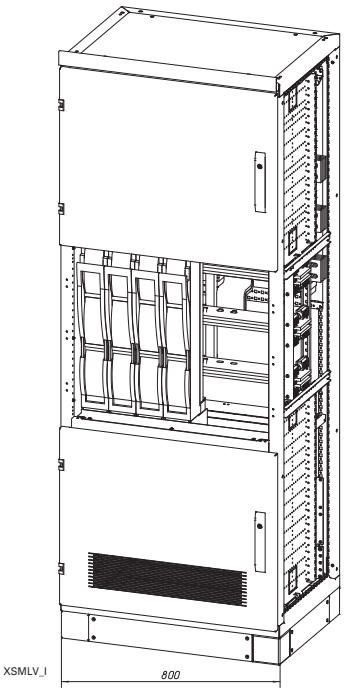
00162389_0

b1	b2
600	575
800	775

a
600
800
1000

EATON
Powering Business Worldwide

XF Outgoing sections - fixed design - for fuse switch disconnectors with section dropper bar across two sections



XSMLV_I

Fuse strips can only be used with rear-mounted busbars. Please respect the max. current carrying capacity of the fuse strips depending on the ambient temperature, the degree of protection and the number of fuse strips per section in accordance with the xEnergy technical data.

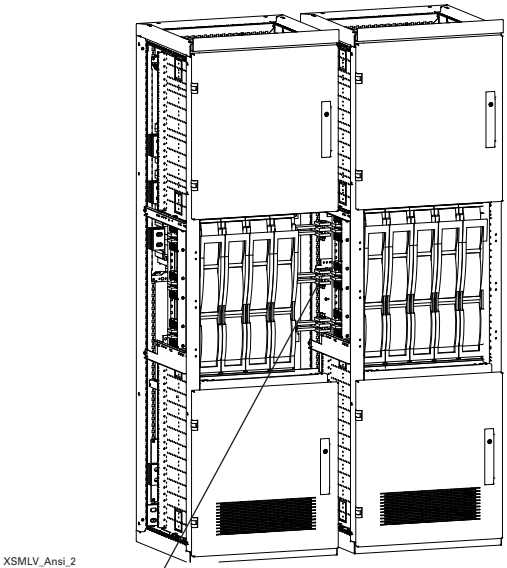
· for **fuse switch disconnectors (SL)** - Manufacturer: EATON
· with single break feature
· in **vertical** mounting position

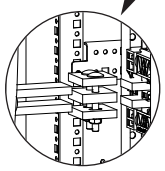
Switchgear area:
· **Operation** of the fuse strips **from outside** or **behind the door**
· connection of fuse strips to a horizontally positioned double busbar system with 12.5 mm distance between the busbar pairs
· dropper bars are accessible from the front, over the entire section width
· Thanks to a cover frame variable in depth, it is possible to use fuse strips from different manufacturers without having to change the dropper bar in depth, which ensures a neat closing between the cover frame and the fuse strips. As the front cover frame is level with the fuse strip, you can always use the same empty-space cover, even with different types of fuse strips. The cover frame (**XSMLV-I-CH..**) is not part of the fitting kit and needs to be ordered separately according to the section width.

Cable connection area:
· Cable connection is implemented from the top or bottom
· Connections of fuse strips can be covered for protection against accidental contact
· Cable strain relief rails assure safe guidance of outgoing cables
· The connection area is accessible via a separate door to the cable connection area and can be sealed off from the busbar and switchgear area.
· Areas not used for cable insertion can be used to accommodate additional equipment, e.g. controlgear

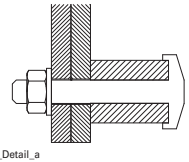
Type	I_e up to	Size
	A	mm
SL00	160	50
SL1	250	100
SL2	400	100
SL3	630	100

Section width	Max. installation space
mm	mm
600	500
800	700
1000	900


XSMLV_Ansi_2


Push CU flaps between and over the dropper bar(s) and tighten to the right torque (20Nm).

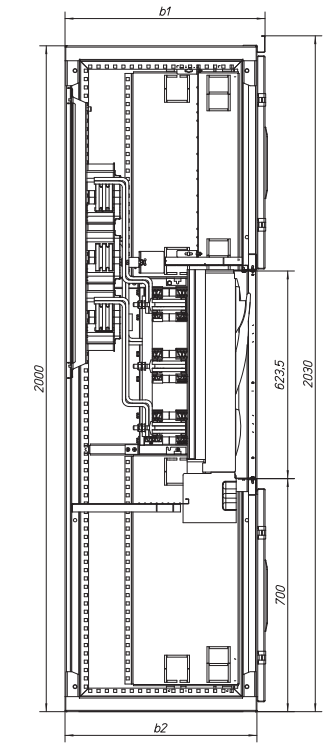
Dropper bar:
· Easy connecting of the dropper bars from section to section thanks to flat copper flaps in the respective dropper bar thickness used in each case. Following the mechanical connection of the switchboard cabinets, the flaps are pushed over the dropper bars of the busbars you wish to connect, and then tightened to the respective torque using a torque wrench. To make it easier to bring the flaps into the right position, you will need to remove two fuse strips from one of the two switchboard cabinets. Once the job on the electrical connections has been finished, the fuse strips can be fixed and secured again.
· up to 40% of the copper can be saved by not using a main busbar in SL-I cabinets.
· Center-to-center distance of 185 mm between the phases
· Rated current 1600–3200 A
· Rated short-time withstand current I_{CW} = 80kA


XSMLV_I_Detail_a

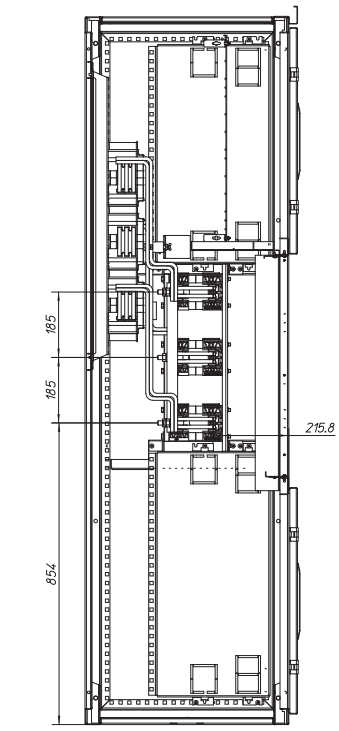
Individual holes punched into the dropper bar ensure that the space between the connections from the main busbar to the dropper bar can be used for accommodating fuse strips.

XF Outgoing sections - fixed design - for fuse switch disconnectors with section dropper bar across two sections - Dimensions

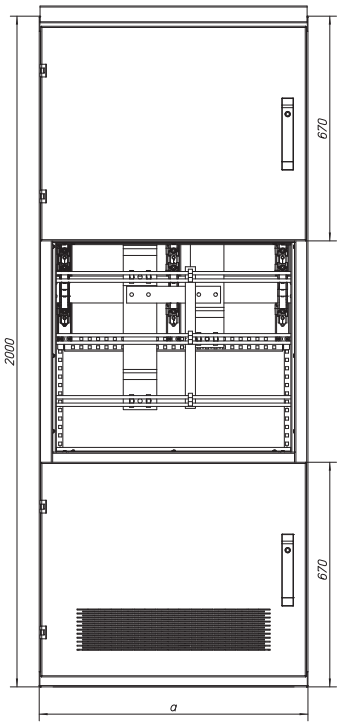
XF section with dropper bar across two sections and vertically installed SL fuse switch disconnectors
XSMLV-I



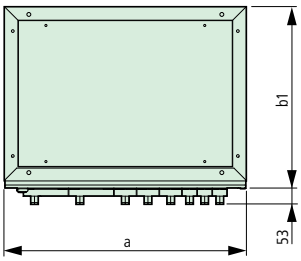
XSMLV-I_Page_1



XSMLV-I_Page_2



XSMLV-I_Front_2



00162379_0

b1	b2
600	575
800	775
1000	975

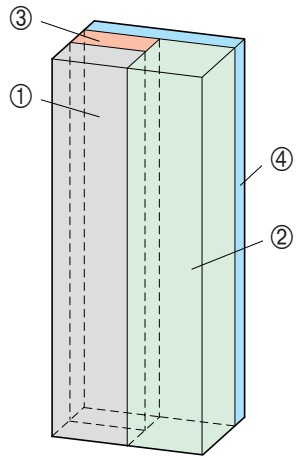
a	c
600	500
800	700
1000	900

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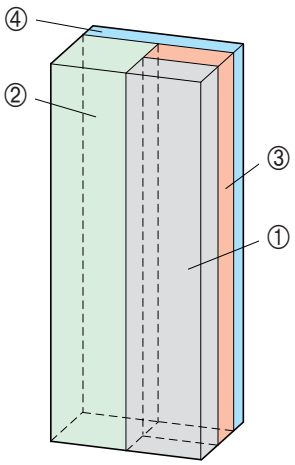
XR Outgoing sections for removable design and switch fuse units

Functional areas

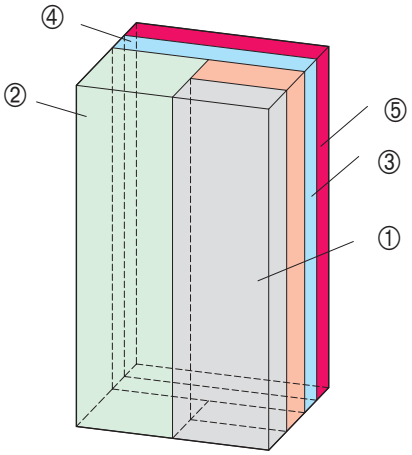
Busbar rear-mounted



00156267_0



00155856_0



Kat_5000_funkts_r

1 Switchgear area

2 Cable connection area

3 Dropper bars

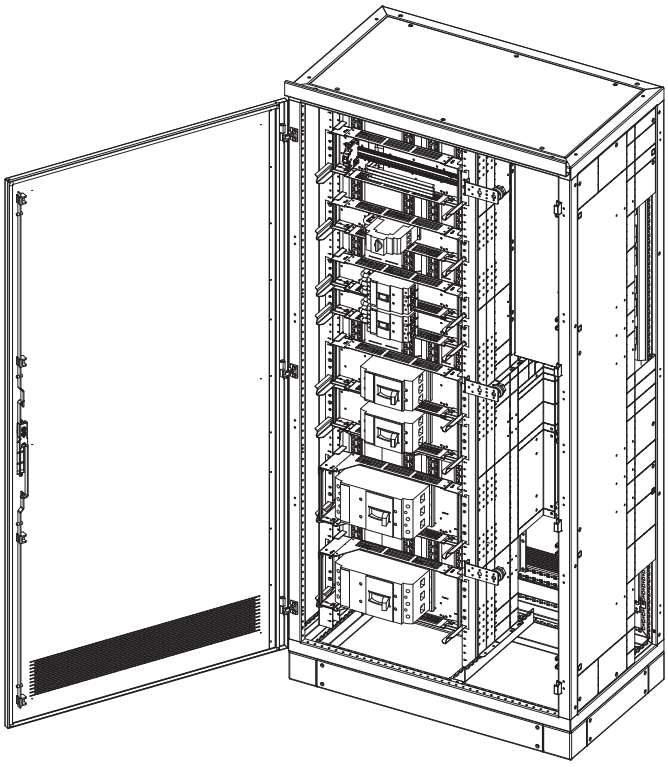
4 Main busbars

5 additional main busbar section for 5000 A

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XR Outgoing sections for removable plug-in module technology up to 630 A, Form 2

Form 2



XE-Katalog-PI-2b

- in the widths of 800, 1000 and 1200 mm
- 3 or 4 poles
- IP31/55
- consistent mounting height of switchgear
- single-wing section door with 800/1000 mm, double-wing with 1200 mm
- suitable for switchgear with remote operation
- operation behind the door
- dropper bar to be selected from 800-1600 A
- separate setup in 2 separate sections possible, e.g. 600/600 mm switchgear area/cable connection area
- plug-in module - empty module for RCD, FAZ, ...
- switchgear area and cable connection area can be used vice-versa
- max. height available (for placing equipment) 1900 mm

Switchgear area:

· **operation** of the switchgear **behind the door**
· Contacting of modules on the incoming side to a vertically arranged bar system
· dropper bars are accessible from the front over the entire height of the section

Dropper bars:

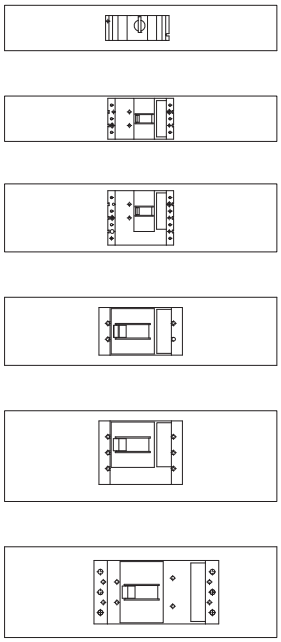
· Center-to-center distance of phases	185 mm
· Rated current	up to 1600 A
· Rated short-time withstand current I_{CW}	up to 80 kA

Busbar	Busbar cross-section	Max. center-to-center distance between busbar carrier in mm für I_{cw} (1s)					
I_e	L1, L2, L3, full N	35 kA	45 kA	50 kA	65 kA	80 kA	100 kA
A	mm^2	mm	mm	mm	mm	mm	mm
800	1 x 40 x 10	600	600	600	450	450	-
1000	1 x 60 x 10	600	600	600	450	450	-
1250	1 x 80 x 10	600	600	600	450	450	-
1600	1 x 100 x 10	600	600	600	450	450	-

Cable connection area:

· cable connection is implemented from the top or from the bottom
· plug-in modules are either directly connected to the switchgear or to terminals separately coming out of the module
· side-mounted cable strain relief rails assure a safe and neat cable guidance
· vertical PE, N or PEN rails are mounted in the cable connection area and can be equipped with terminals for any outgoing cable

Plug-in technology 2 - Heights and equipment



XE-Stecktechnik-Schalter-2b

Motor-protective circuit breakers
PKZM0 up to 32 A, PKZM2 up to 40 A, PKZM4 up to 63 A
H = 100 mm

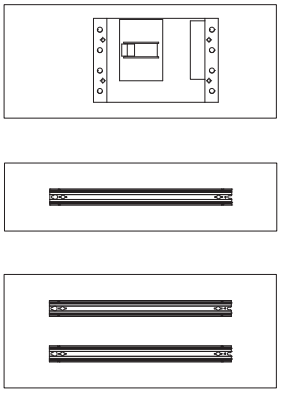
Circuit breakers
NZM1/3 poles up to 160 A
H = 100 mm

Circuit breakers
NZM1/4 poles up to 160 A
H = 150 mm

Circuit breakers
NZM2/4 poles up to 300 A
H = 150 mm

Circuit breakers
NZM2/4 poles up to 300 A
H = 200 mm

Circuit breakers
NZM3/3 poles up to 630 A
H = 250 mm



XE-Stecktechnik-Schalter-2b

Circuit breakers
NZM3/4 poles up to 630 A
H = 300 mm

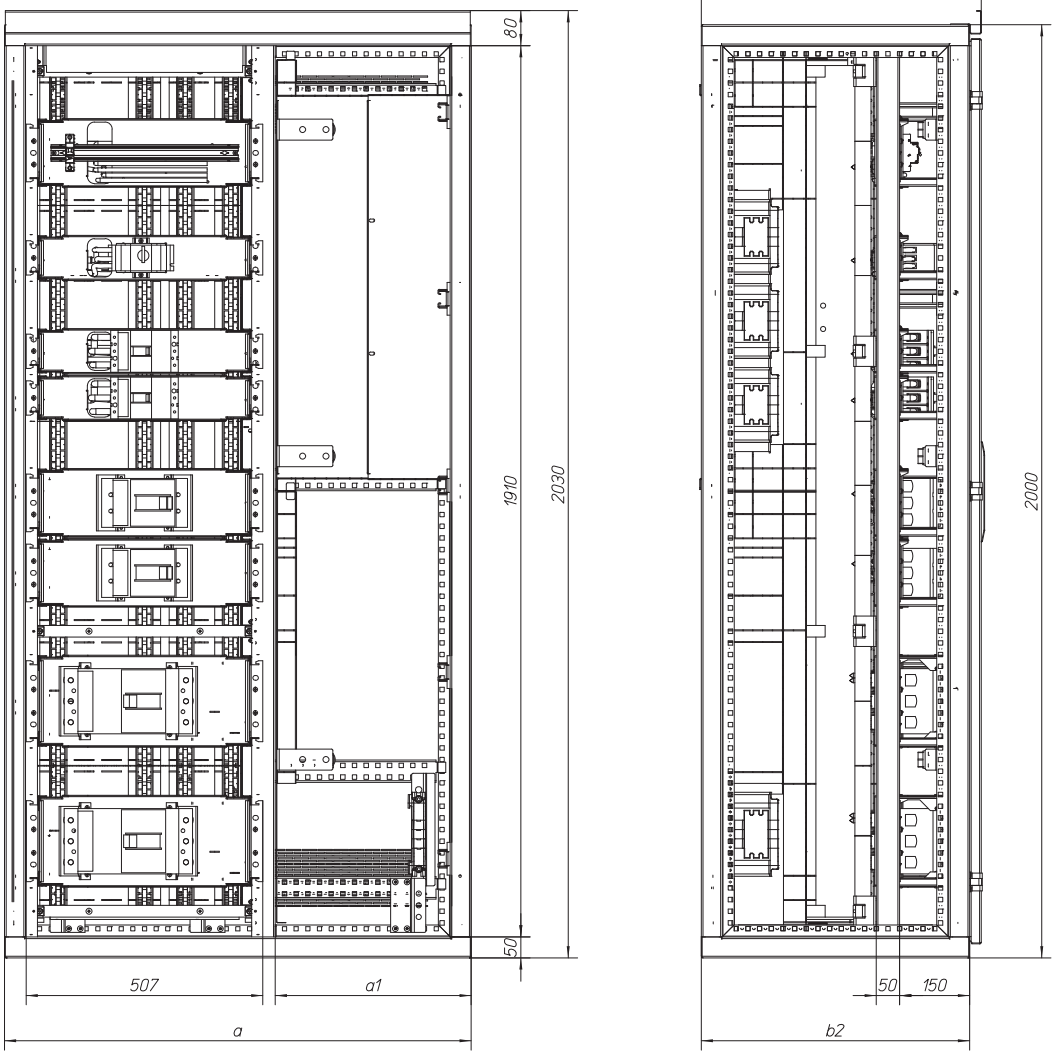
Drawer-unit module
with device carrying rail
H = 150 mm

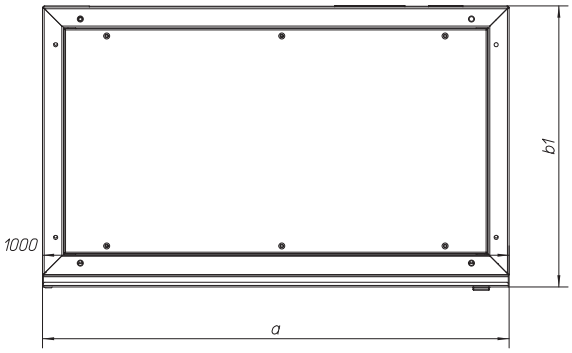
Drawer-unit module
with two device carrying rails
H = 250 mm

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XR Outgoing sections for plug-in module technology up to 630 A, Form 2 - **Dimensions**

XR section using plug-in module technology, Form 2





Ansicht_Kasten_2b

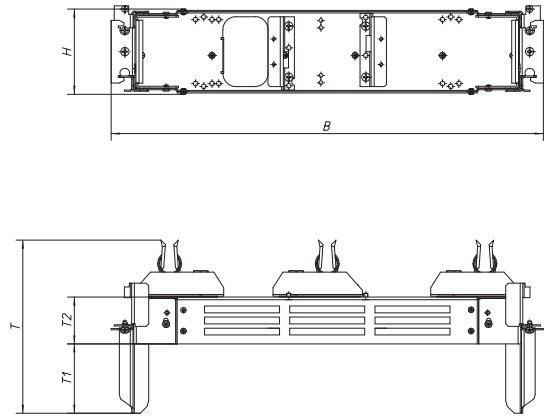
b1	b2
600	575
800	775

a	a1
800	220
1000	420
1200	620

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XR Outgoing sections for plug-in module technology up to 630 A, Form 2 - **Dimensions**

Main dimensions of plug-in modules in Form 2



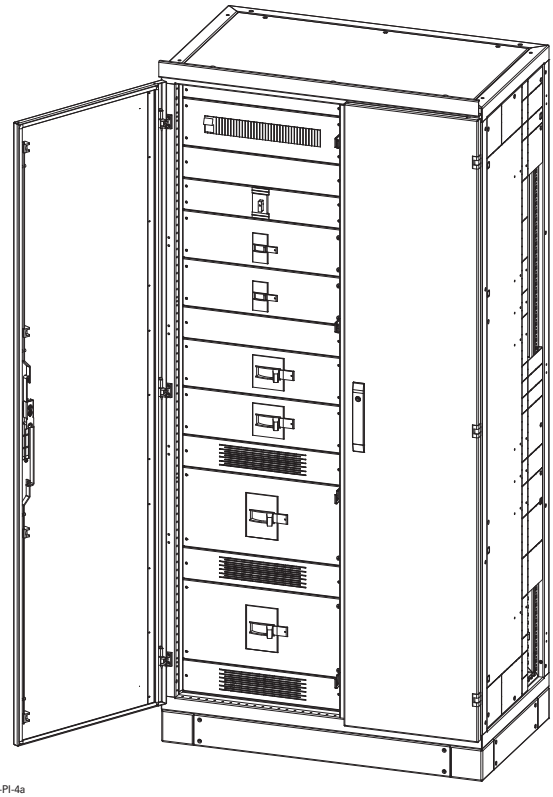
BS_Module_2b_Abmess

Type	B	H	T	T1	T2
NZM1 3p H100	507	100	203	81,5	55
NZM2 3p H150	507	150	202	81,5	55
NZM3 3p H200	507	200	206	8,5	125
Empty module H150	507	150	206	81,5	55
PKZ H100	507	100	203	81,5	55
NZM1 4p H150	507	150	203	81,5	55
NZM2 4p H200	507	200	203	81,5	55
NZM3 4p H250	507	250	206	8,5	125
Empty module H250	507	250	203	81,5	55

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XR Outgoing sections for plug-in module technology up to 630 A, Form 4

Form 4



XE-NZM-PI-4a

- in the widths of 800, 1000 and 1200 mm
- 3 or 4 poles
- IP31/55
- each module comes with its own front panel
- separate door to switchgear area and connection area
- transparent doors are available (glass door)
- empty plug-in module for mounting RCD, FAZ, ...
- to be operated behind the door
- dropper bar to be selected from 800-1600 A
- separate setup in 2 separate sections is possible, e.g. 600/600 mm switchgear area/cable connection area
- max. height available (for placing equipment) = 1900 mm

Switchgear area:

· **operation** of the switchgear **behind the separate door to switchg. area**
· each module is equipped with its own front panel
· contacting of modules on the incoming side to a vertically arranged bar system
· dropper bars are accessible from the front over the entire height of the section

Dropper bars:

· Center-to-center distance of phases	185 mm
· Rated current	up to 1600 A
· Rated short-time withstand current I_{CW}	up to 80 kA

Busbar	Busbar cross-section	Max. center-to-center distance between busbars carrier in mm for I_{cw} (1s)					
I_e		35 kA	45 kA	50 kA	65 kA	80 kA	100 kA
	L1, L2, L3, full N						
A	mm^2	mm	mm	mm	mm	mm	mm
800	1 x 40 x 10	600	600	600	450	450	-
1000	1 x 60 x 10	600	600	600	450	450	-
1250	1 x 80 x 10	600	600	600	450	450	-
1600	1 x 100 x 10	600	600	600	450	450	-

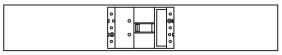
Cable connection area:

· cable connection is implemented from the top or from the bottom behind a separate door to the connection area
· plug-in modules are either directly connected to the switchgear or to terminals separately coming out of the module
· side-mounted cable strain relief rails assure a safe and neat cable guidance
· vertical PE, N or PEN rails are mounted in the cable connection area and can be equipped with terminals for any outgoing cable

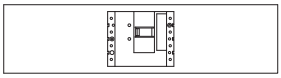
Plug-in module technology 4 - Heights and equipment, modules incl. front panel



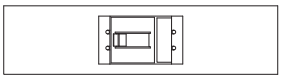
Motor-protective circuit breakers
PKZM0 up to 32 A, PKZM2 up to 40 A, PKZM4 up to 63 A
H = 100 mm



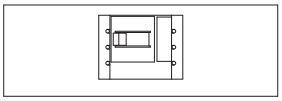
Circuit breakers
NZM1/3 poles up to 160 A
H = 100 mm



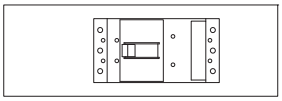
Circuit breakers
NZM1/4 poles up to 160 A
H = 150 mm



Circuit breakers
NZM2/4 poles up to 300 A
H = 150 mm

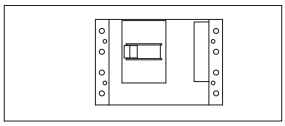


Circuit breakers
NZM2/4 poles up to 300 A
H = 200 mm

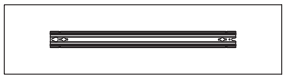


XE-Steck-Katalog-Schalter-4b

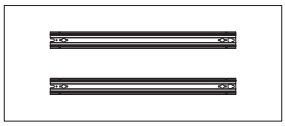
Circuit breakers
NZM3/3 poles up to 630 A
H = 200 mm



Circuit breakers
NZM3/4 poles up to 630 A
H = 250 mm



Drawer-unit module
with device carrying rail
H = 150 mm



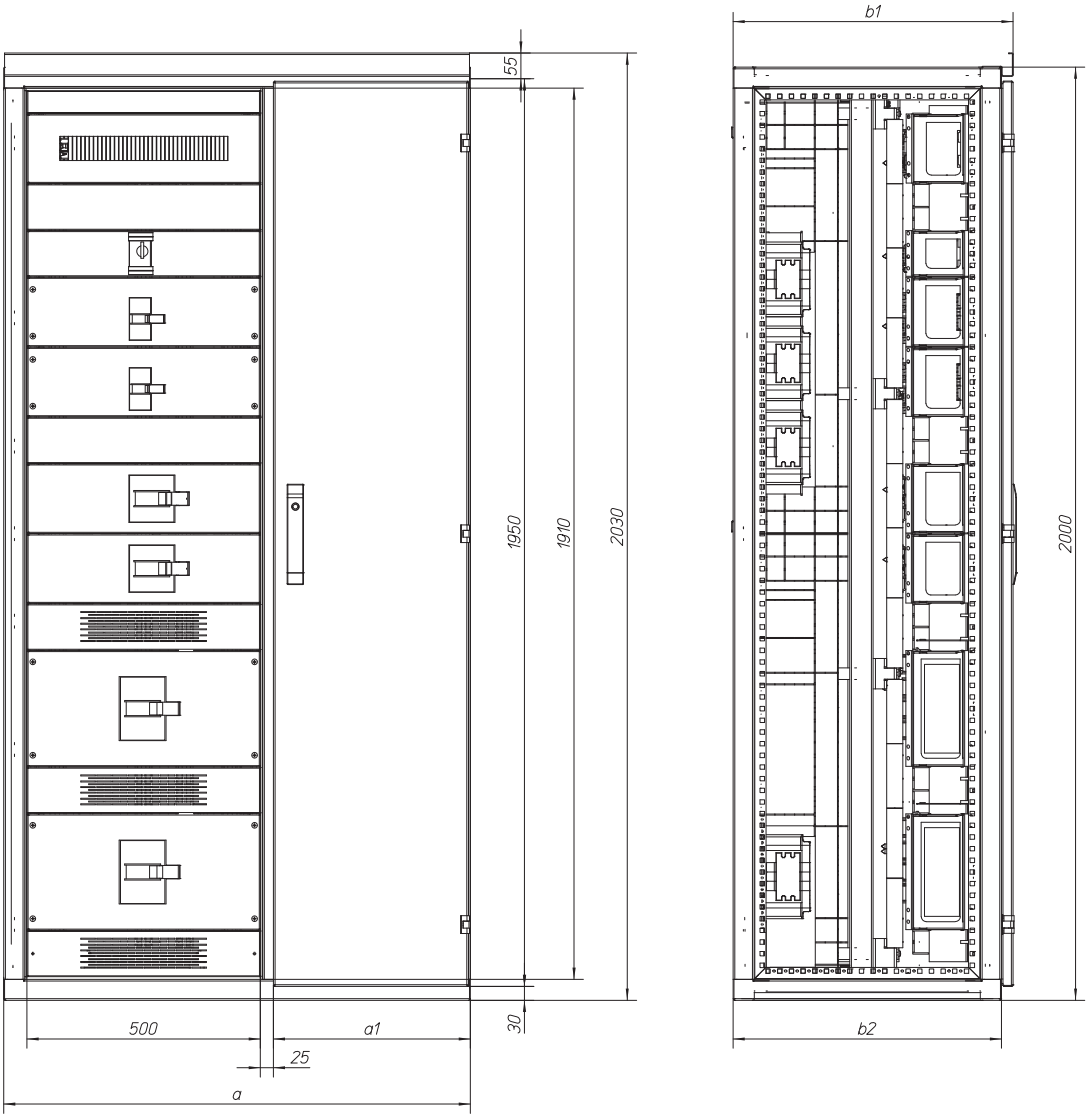
Drawer-unit module
with two device carrying rails
H = 250 mm

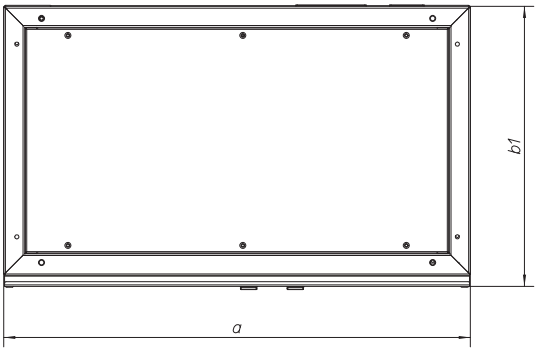
XE-Steck-Katalog-Schalter-4b

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XR Outgoing sections for plug-in module technology up to 630 A, Form 4 - **Dimensions**

XR section using plug-in module technology, Form 4





Ansicht_Kasten_4b

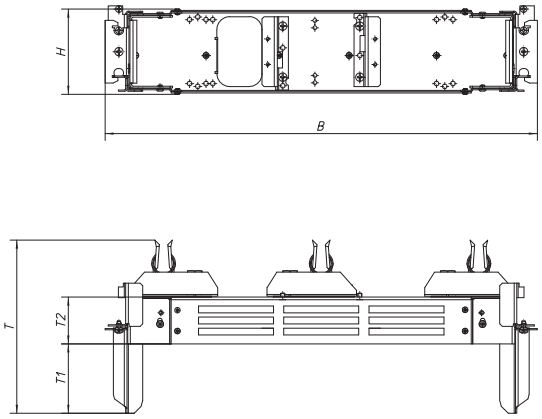
b1	b2
600	575
800	775

a	a1
800	225
1000	425
1200	625

Powering Business Worldwide

Dimensions

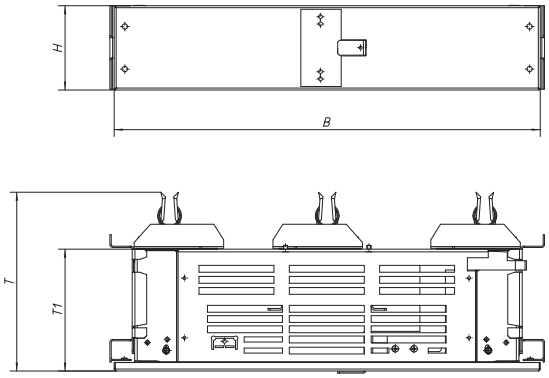
Main dimensions of plug-in modules in Form 2



BS_Module_2b_Abmess

Type	B	H	T	T1	T2
NZM1 3p H100	507	100	203	81,5	55
NZM2 3p H150	507	150	202	81,5	55
NZM3 3p H200	507	200	206	8,5	125
Empty module H150	507	150	206	81,5	55
PKZ H100	507	100	203	81,5	55
NZM1 4p H150	507	150	203	81,5	55
NZM2 4p H200	507	200	203	81,5	55
NZM3 4p H250	507	250	206	8,5	125
Empty module H250	507	250	203	81,5	55

Main dimensions of plug-in modules in Form 4

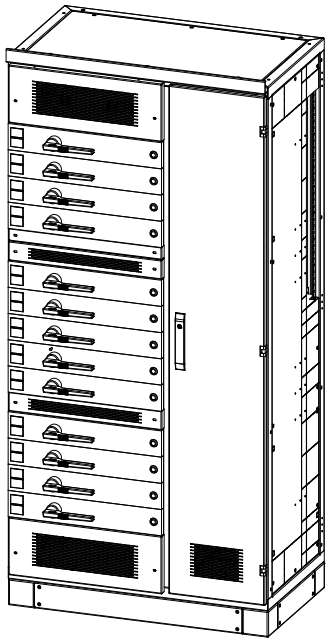


BS_Module_4b_Abmess

Type	B	H	T	T1
NZM1 3p H100	500	99	210	143
NZM2 3p H150	500	149	210	143
NZM3 3p H200	500	199	213	140
Empty module H150	500	149	210	142
PKZ H150	500	149	210	143
NZM1 4p H150	500	149	210	142
NZM2 4p H200	500	199	210	143
NZM3 4p H250	500	249	213	140
Empty module H250	500	249	210	143

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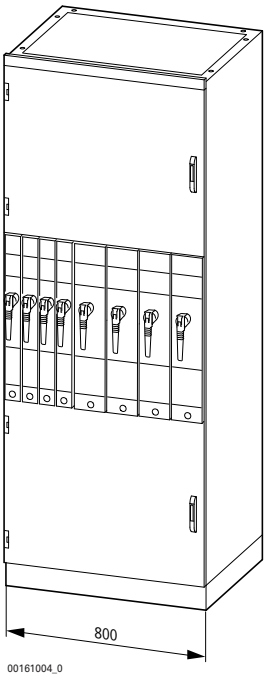
XR Outgoing sections for switch fuse units



XE_Kat_SASIL_13-17

1000/1200

Section widths of 1000 and 1200 mm, (horizontal installation)
Section widths of 600, 800 and 1000 mm, (vertical installation)
internal separation Form 4



600/8001000

Fuse strips can only be used with rear-mounted busbars. Please respect the max. current carrying capacity of the fuse strips depending on the ambient temperature, the degree of protection and the number of fuse strips per section in accordance with the xEnergy technical data.

Important rules for SASIL plus project planning

- Place switch fuse units evenly over the entire height of the cabinet
- Place large sizes at the bottom, small ones at the top! Thermal effect!
- Arrange sizes NH00-2 in blocks of 300mm, then leave at least 1 section of 75 mm for ventilation purposes!
- With size NH3 leave 1 section for ventilation purposes both above and below!
- No cross-partitioning in the switchgear area!
- Leave spare areas evenly placed over the entire cabinet height!
- Applying the full rated current is possible for a short while (15-30min). Please respect the rated diversity factors when under permanent load.
- If possible provide for ventilation of the top (max. IP31)!
- Arrangement of busbar supports
  - For size 00 above or below the fuse strips
  - For size 1 between the units
  - For sizes 2, 3 between the units or at the center behind the unit
- Center-to-center distance between busbar supports should be able to be divided by 150 mm (where necessary use another busbar support!)! Most important for smooth mounting of busbar covers!

· for **switch fuse units SASIL plus type, Jean Müller/ABB Slim-Line**
· with double break feature
· in **vertical** and **horizontal** mounting position (Jean Müller)

Switchgear area:
· **Operation** of the switchgear **from outside** or **behind the door**
· Connection of the switch fuse strips on the incoming side to a vertically arranged dropper bar system, optionally available with plug-in module technology and protected against accidental contact
· Dropper bars provide access from the front over the entire height

Dropper bars:
· Center-to-center distance betweem phases 185 mm
· Rated current up to 1600 A
· Rated short-time withstand current I_{CW}

Busbar	**Busbar cross-section**	**Max. center-to-center distance of busbars in mm for I_{cw} (1s)**		
I_e	**L1, L2, L3, full N**	**45 kA**	**50 kA**	**65 kA**
A	**mm²**	**mm**	**mm**	**mm**
800	1 x 40 x 10	600	600	-
1000	1 x 60 x 10	600	600	600
1250	1 x 80 x 10	750	750	600
1600	1 x 100 x 10	750	750	750

Cable connection area:
· Cable connection is implemented on the right side of the distributor section, outgoing cables can be introduced from above or below
· Connections of the fuse strips can optionally be covered with cable barriers for protection against accidental contact.
· Cable strain relief rails assure secure guidance for the outgoing cables
· The connection area is accessible via a separate door to the cable connection area and can be sealed off from the busbar and switchgear area.
· Vertical PE, N or PEN rails are installed in the cable connection area and can be equipped with terminations for every outgoing cable.

Type	I_e up to	Size	Number per section
	A	mm	
SASIL00	160	50	max. 24
SASIL1	250	75	max. 16
SASIL2	400	150	max. 8
SASIL3	630	150	max. 8

Vertical installation:
· Connection of the switch fuse strips on the incoming side to a vertically arranged dropper bar system
· Cable connection is implemented from the top or bottom
· The connection area is accessible via a separate door to the cable connection area
· Areas not used for cable insertion can be used for additional equipment, e.g. for controlgear
· **Operation** of the switchgear **from outside**

Type	I_e up to	Size
	A	mm
SASIL00	160	50
SASIL1	250	75
SASIL2	400	150
SASIL3	630	150

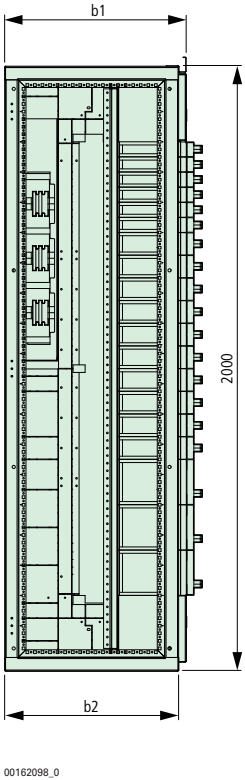
Section width	Max. installation space
mm	mm
600	500
800	700
1000	900

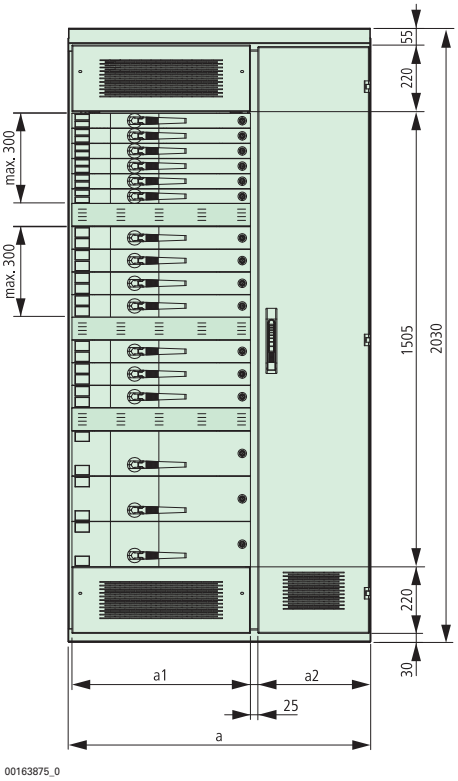
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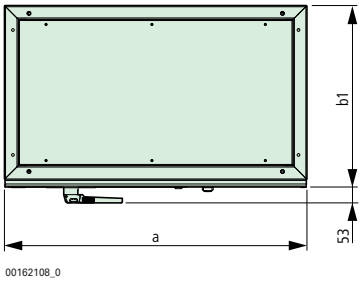
XR Outgoing sections for switch fuse units - **Dimensions**

XF section with incorporation of SASIL switch fuse units, horizontal

XSMSHD...





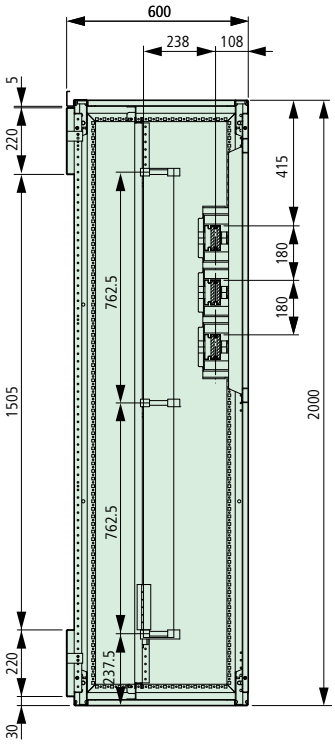


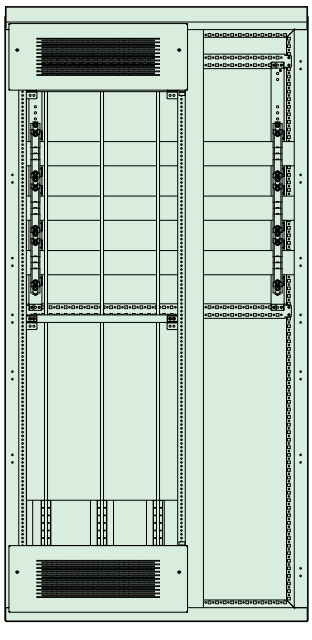
b1	b2
600	575
800	775

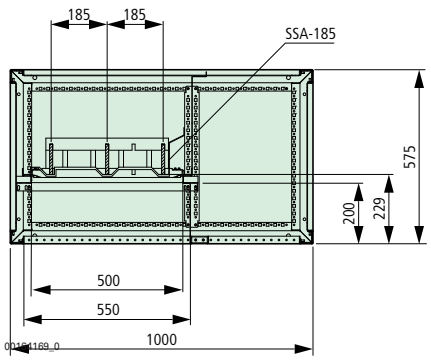
a	a1	a2
1000	590	369
1200	590	569

XF section with incorporation of dropper bars for SASIL switch fuse units, vertical

XDSSV...



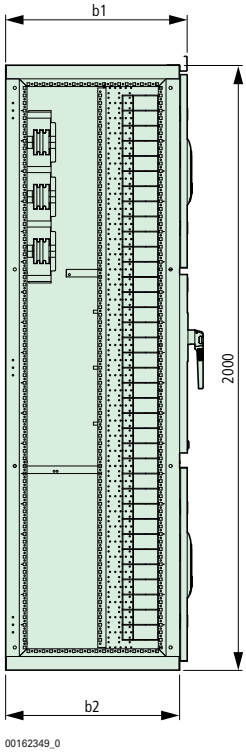




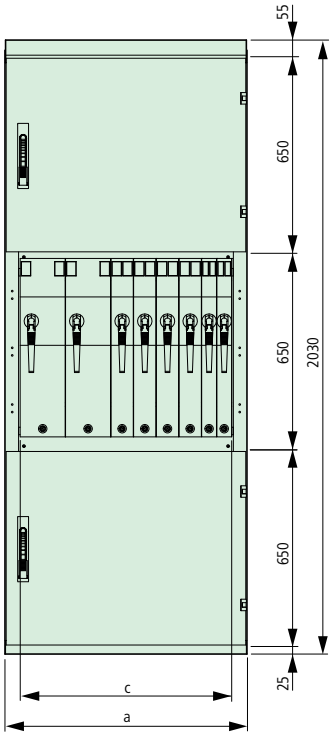
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XR Outgoing sections for switch fuse units - **Dimensions**

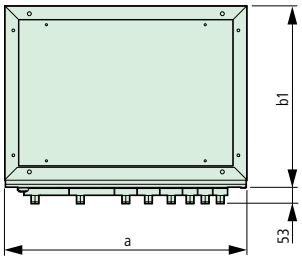
XF section with incorporation of SASIL switch fuse units, vertical
XSMSV...08



00162349_0



00162359_0



00162379_0

b1	b2
600	575
800	775

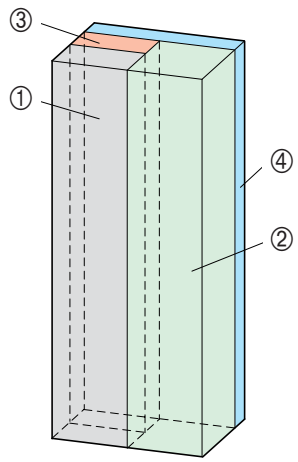
a	c
600	500
800	700
1000	900

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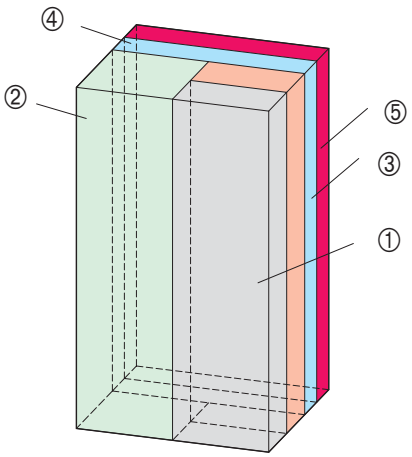
XW Outgoing sections in fully withdrawable design

Functional areas

Busbar rear-mounted



00156267_0



Kat_5000_funkts_r

1 Switchgear area

2 Cable connection area

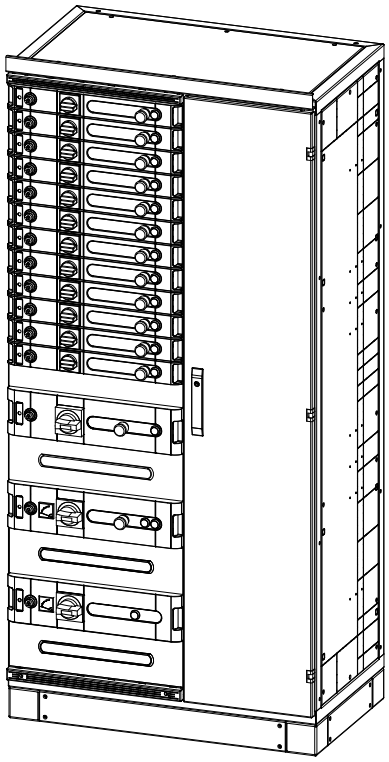
3 Dropper bars

4 Main busbars

5 additional main busbar section for 5000 A

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Outgoing sections for Motor Control Centers in withdrawable design



ANS-MCC-Katalog

- in the widths of 1000 and 1200 mm
- in section depths of 600, 800 and 1000 mm
- 3 or 4 poles
- rated current of dropper bars I_n=1000 or 2000 A / 3 or 4 poles
- max. short-circuit current I_{CW}=80 kA
- IP31/55
- shelf-boards can be individually mounted in height, depending on the size of the modules
- max. height of the dropper bar available for equipment = 1875 mm
- cable connection area is fully sealed off from the switchgear area, main busbar area and dropper bar area
- dropper bar is fully sealed off at the front thanks to self-closing shutters
- drawers available:
  power outgoers up to 630 A
  direct starters from 0.06-132 kW
  reverse starters from 0.06-132 kW
  star-triangle starters from 5.5-110 kW
- outgoers from 132 to 250 kW are executed as fixed design solutions

Switchgear area:

· max. height of switchgear area available for equipment = 1875 mm

· connection of modules (main/control circuit) both on the incoming and outgoing side is done on plug-type contact blocks. The outgoing plug-type contact block is mounted in the correct current rating on the shelf-board, which is then inserted into the switchgear area and fixed at the correct height.

Dropper bars:

· center-to-center distance between phases 60 mm

· rated current I_n 1000 and 2000 A

· rated short-time withstand current I_{CW} up to 80 kA

Cable connection area:

· cable connection has to be done on the right side of the distribution section, outgoing cables can be inserted either from the bottom or from the top

  · cable strain relief rails on the right side of the cabinet ensure a neat and safe guidance of outgoing cables

  · access to the cable connection area is provided through a separate door to the cable connection area which is fully sealed off from busbar areas and the switchgear area

  · vertical PE, N or PEN rails are mounted in the cable connection area and can be equipped with connections for any outgoing cable

Modules:

· Each module can be individually equipped, depending on whether you need a direct starter module or a reverse starter combination. Setup and dimensioning have to be done according to the enclosed instructions (AWA and BA).

· A detailed circuit / wiring plan provides information on the correct way of wiring the switchgear in the module

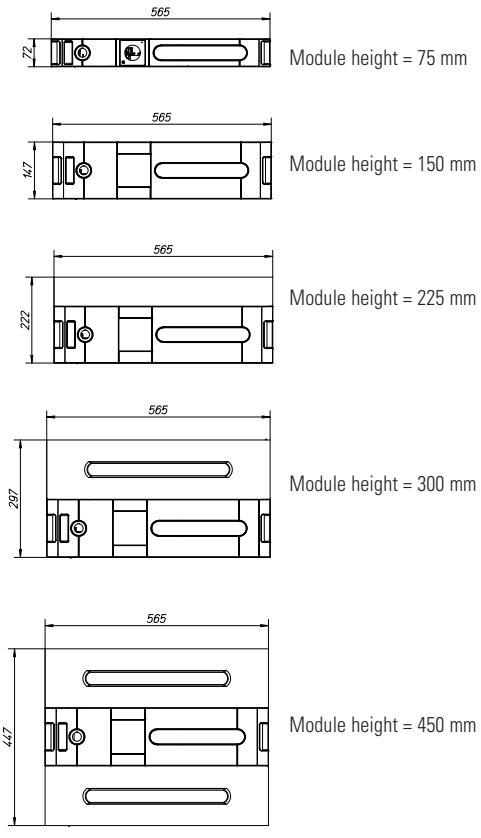
· The front covers of each module come with numerous punch holes and cut-outs so as to allow the individual integration options for all the required control units to be accommodated in each module

· Main-current contacting of the modules is done through plug-type contact terminals in line with the corresponding rating; these terminals are directly mounted on the shelf-board.

· Contacting the control lines is done via a plug-type terminal block which sticks out into the cable connection area. From there it is easy to do the control wiring in an extremely convenient way.

Heights and versions of the withdrawable design:

Configuration as power outgoer, direct starter, reverse starter, star-triangle starter



xE_MCC_2_

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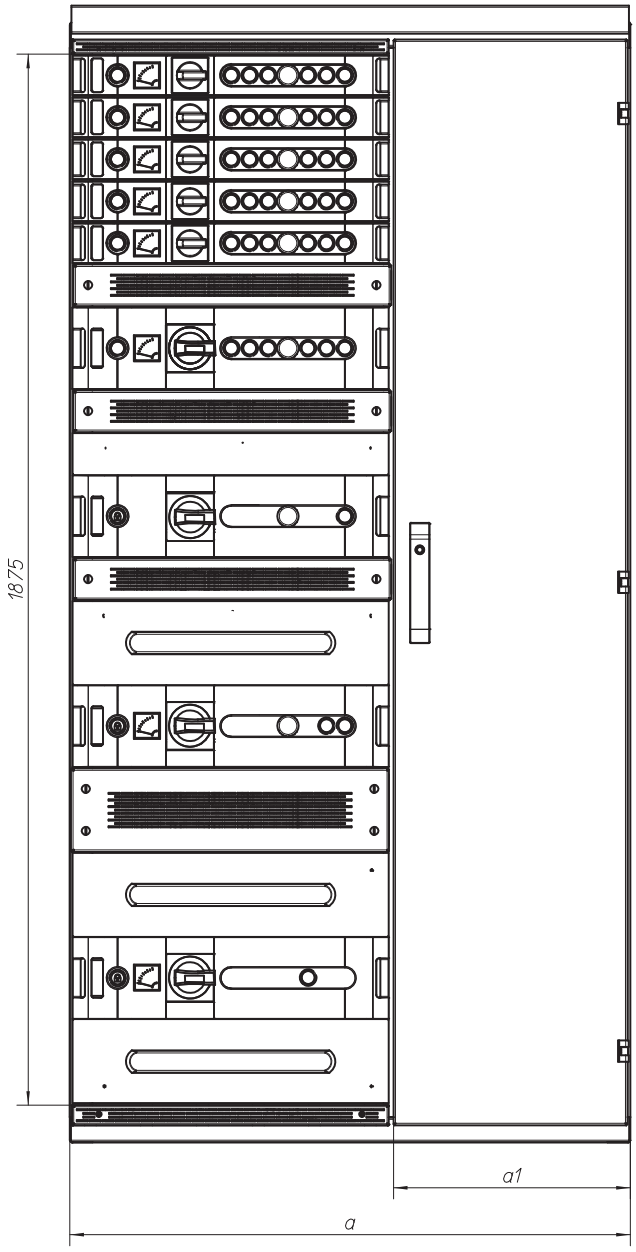
Outgoing sections for Motor Control Centers in withdrawable design

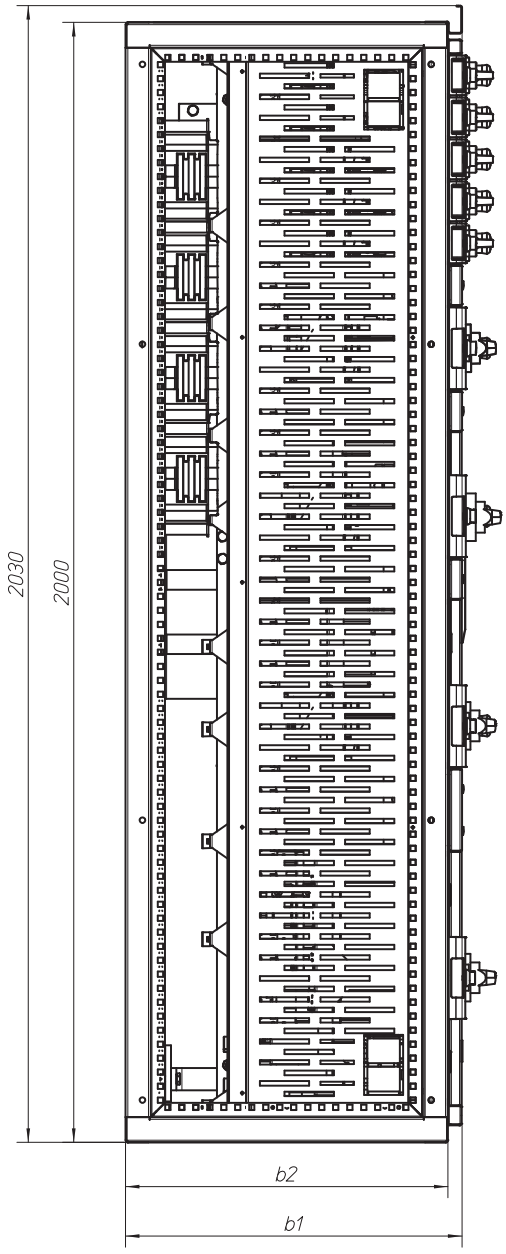
Overview of the different drawers listed according to module heights and performance (amperage)

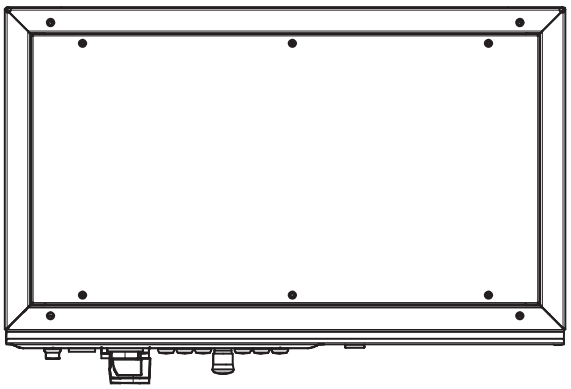
Module heights mm	Drawers	Performance or amperage
75	FE3P	16A – 32A
	DOL	0,06kW – 15kW
	FR	0,06kW – 15kW
150	FE3P	20A – 200A
	FC3P	20A – 160A
	DOL	18,5kW – 55kW
	FR	18,5kW – 30kW
	SD	5,5kW – 15kW
225	FE4P	20A – 200A
	FC4P	20A – 160A
	DOL	55kW – 75kW
	FR	37kW – 75kW
	SD	18,5kW – 30kW
300	FE3P	200A – 300A
	FC3P	160A – 250A
	DOL	90kW – 110kW
	FR	90kW - 110kW
	SD	37kW – 75kW
450	FE3P	300A – 400A
	FE4P	200A – 400A
	FC4P	160A – 400A
	DOL	132kW – 200kW
	FR	132kW – 200kW
As of a height of 600 mm, it is only possible to create a set-up with fixed modules		
600	FE3P	400A – 630A
	FE4P	400A – 630A
	FC3P	400A – 630A
	FC4P	400A – 630A
	DOL	- 250kW
	SD	90kW – 200kW
750	FR	- 250kW
	SD	-250kW

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Outgoing sections for Motor Control Centers in withdrawable design - **Dimensions**







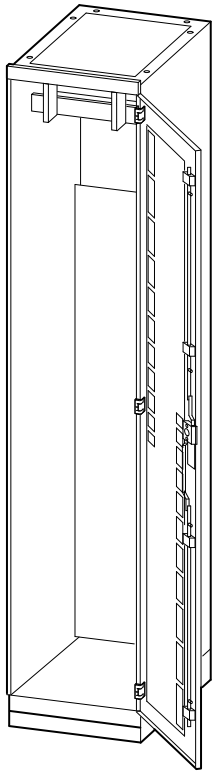
b1	b2
600	575
800	775

a1	a2
1000	425
1200	625

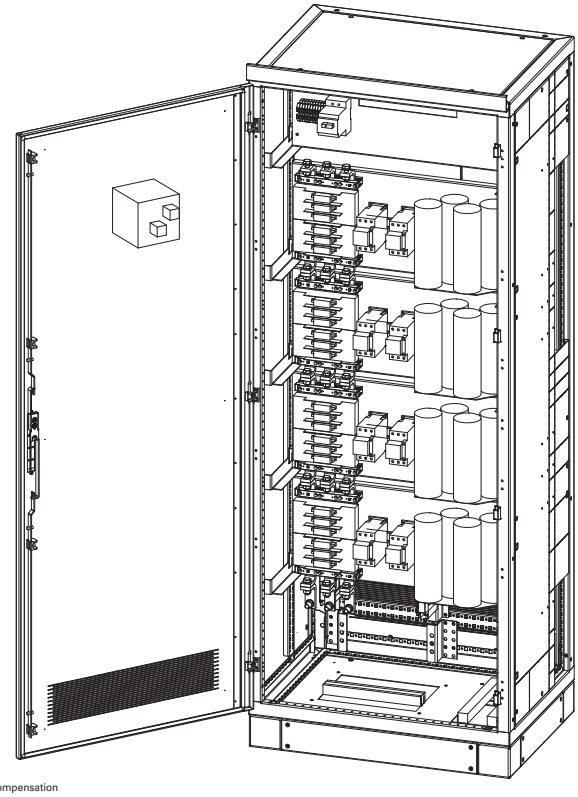
xE_ANS-MCC-Abmessungen

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General Sections



00163952_0



xE_Kompensation

- in the widths of 425,600,800,850,1000,1100,1200 and 1350 mm
- IP31/55
- with the main busbar at the top or rear, or without any main busbar as a control distribution unit
- with mounting plate(s) in one piece or split
- as a compensation distribution unit
- suitable for integrating xBoard Profi Plus, IVS, Profi Plus EP, SASY60i

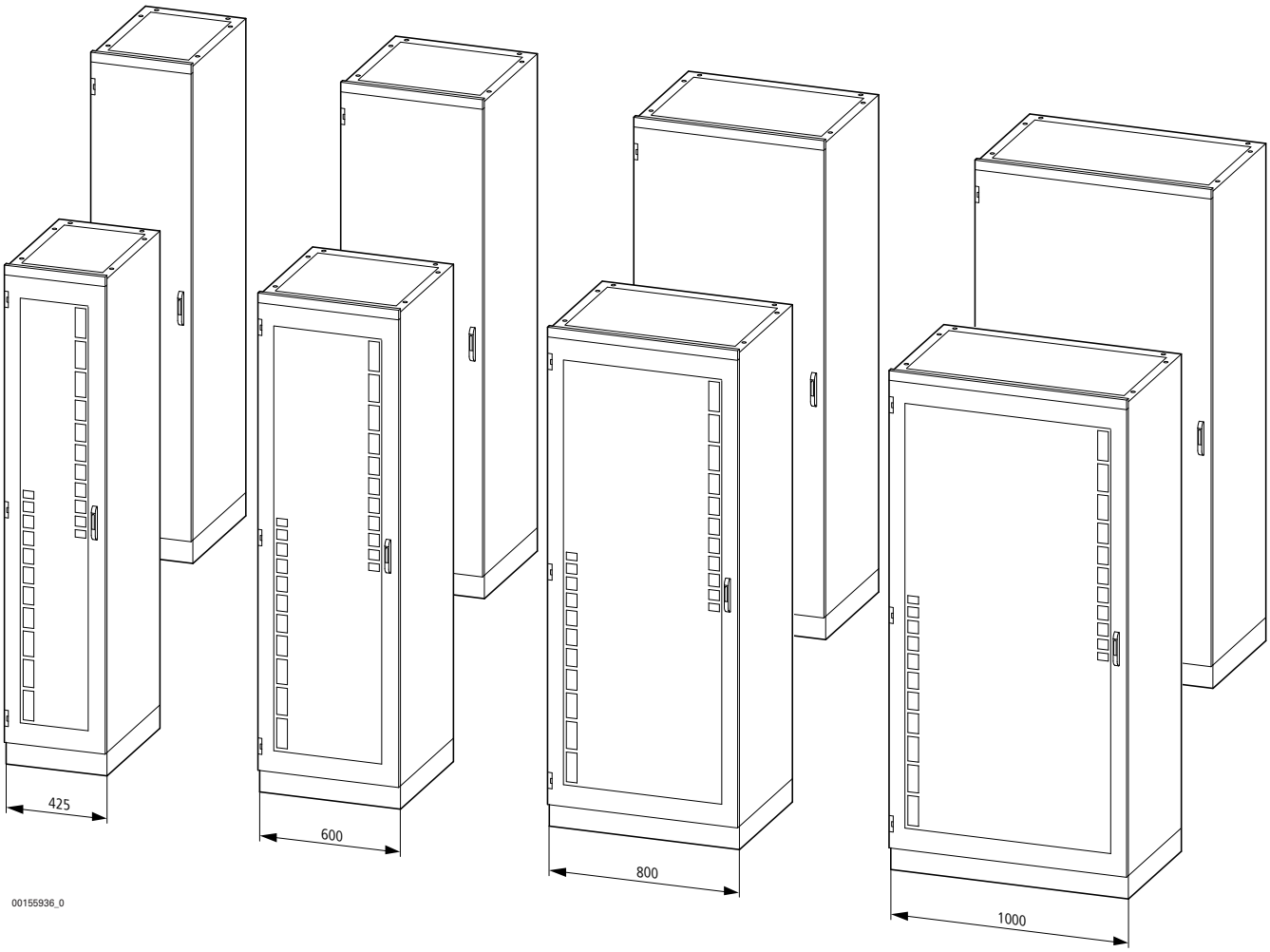
Switchgear area:

· the switchgear area can be set up individually, according to customer specifications

· whether you use a control distribution board with a mounting plate or a mounting plate in combination with SASY60i as a power or motor-distribution board, or one of the different fitting systems such as xBoard Profi Plus, IVS, Profi Plus EP - we have the right solution for every application

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Empty sections for universal applications



Universal empty sections for the following installation possibilities:

Installation distribution systems	e.g. with Eaton IVS	Product range catalogue IVS SK0207-1185 Power distribution systems or Electronic Catalogue
Switchgear adapter	e.g. with Eaton xStart	Main catalogue HPL0211, Industrial switchgear or Electronic Catalogue
Frequency converter	e.g. with Eaton DF51, DF6, DV51, DV6 and DV5/6	Main catalogue HPL0211, Automation systems and Drives or Electronic Catalogue
Soft starters	e.g. Eaton DS4, DM4 and DS6	Main catalogue HPL0211, Automation systems and Drives or Electronic Catalogue
Automation systems	e.g. with EatonPS4, PS416, XC100, XC200 ...	Main catalogue HPL0211, Automation systems and Drives or Electronic Catalogue
Large motor starters	e.g. with Eaton contactors up to 900 kW/400 V	Main catalogue HPL0211, Industrial switchgear or Electronic Catalogue
Power factor correction	e.g. with FRAKO, KBR	Chapter Power factor correction

With a front door as high as the cabinet, ventilated, closed or transparent, right or left-hinged

Powering Business Worldwide

Planning tools

The right tool for every stage of your project

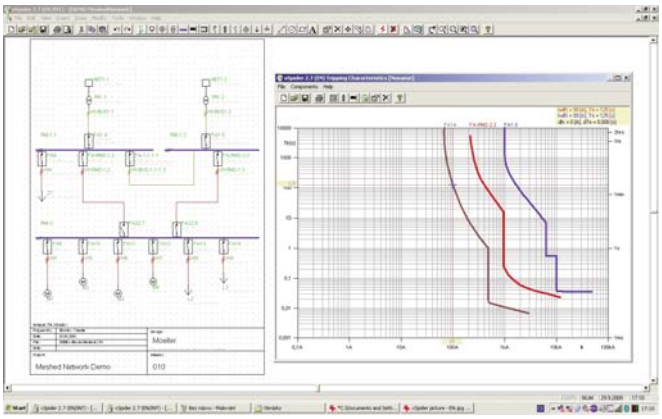
Eaton Engineering Tools support you in
- Network planning and calculation
- Preparing your offers
- Designing distribution systems
- Generating parts lists and odering

Eaton xSpider

Proven functions for network planning and calculation
- Load flow and short-circuit calculation
- Dimensioning of the devices
- Selectivity calculation and graphic comparison
- Conformity to IEC 909 and IEC 60364 standards
- Automatic verification of data completeness

Expertise and experience
- xSpider simplifies and speeds up your job by relieving you from time-consuming routing tasks
- xSpider protects against planning errors in low-voltage networks

Functional and flexible
- easy generation of network drawings
- clearly structured database
- xSpider is the right tool for every stage of a project and for testing the existing networks



With xSpider you can plan low-voltage networks (meshed systems and radial networks) safely and without problems.

Eaton Configurator

User-friendly for the selection of xEnergy
- Windows-based dialogue guidance
- functional, self-explanatory design structure
- short familiarization time thanks to Look and Feel

Wide range of applications
- project administration and system structure
- a functions-guided system selection will automatically generate the suitable distributor
- generation of a parts list for devices, fitting kits and distributors
- generation of a front view for offers, individual adjustments through Drag and Drop



Eaton Configurator is the fastest selection tool for xEnergy.

CurveSelect

Characteristics program for short-circuit and overload protective devices
- CurveSelect makes it easy to display, compare and document characteristics
- CurveSelect is free of charge and allows the setting-specific and simultaneous display of tripping characteristics of several protective devices based on the same time and current standards. An analysis of the interaction of NZM and IZM circuit breakers, PKZ motor protectors, ZB motor-protective relays and MCBs as well as NH fuses gets significantly easier this way.

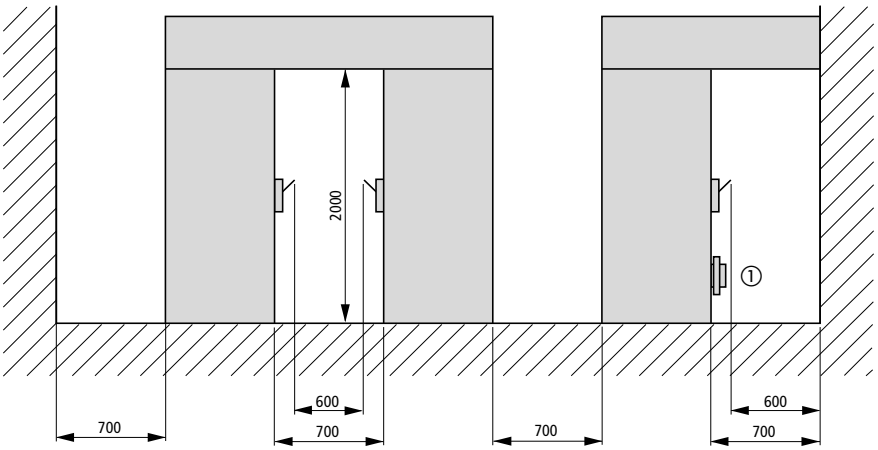
Use the following link to find the right Internet site:
www.moeller.net/de/products_solutions/power_distribution/power_communication/curve_program/index.jsp



Further information - Setup instructions for xEnergy

Operation and maintenance alleyways between switchgear assemblies

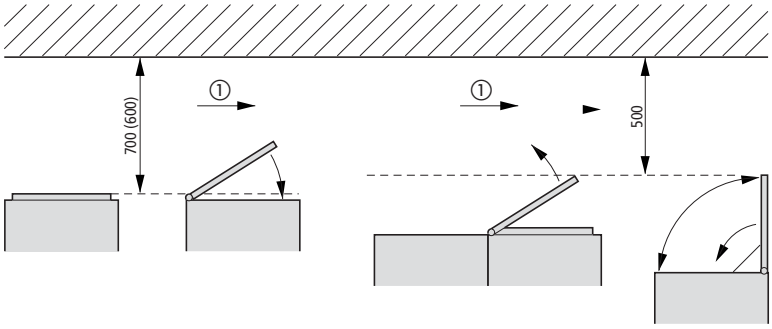
The minimum width for operation and maintenance gangways of switchgear assemblies is 700 mm, the minimum headroom under the panelling is 2000 mm. If a lift truck is used for exchanging circuit breakers, gangway dimensions must be taken into account during the design stage.



① drawer unit in disconnected position

For systems with a rated current of 5000 A at the main busbar (depth = 1000 mm), access from the rear is compulsory. There must be a minimum clearance of 700 mm to the next wall or to the next cabinet in order to be able to ensure an uncomplicated setup of the system and to allow for service jobs to be done in line with the regulations.

Doors of a switchgear assembly should be arranged in a way that they close in the direction of the emergency exit route. With a different arrangement, a free minimum clearance of 500 mm must be provided for. If switchgear combinations are set up opposite each other, it is not necessary to anticipate that the doors on both sides are open at the same time.

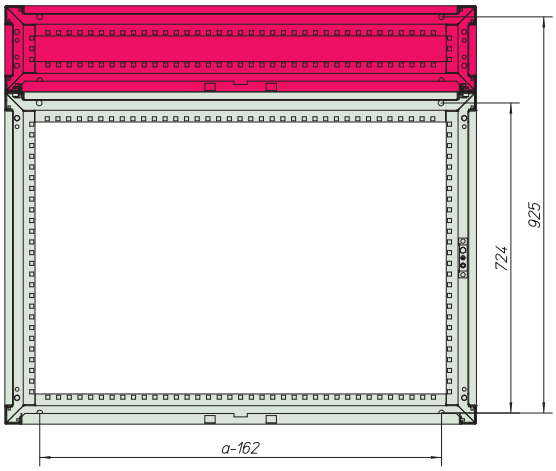


① Direction of the emergency exit route

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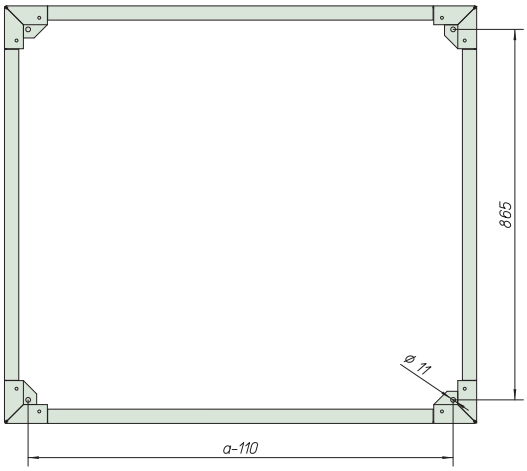
Further information - Setup instructions for xEnergy

Bottom view of distribution sections



For 5000 A, the red-coloured parts are required in addition.

Bottom view of plinth

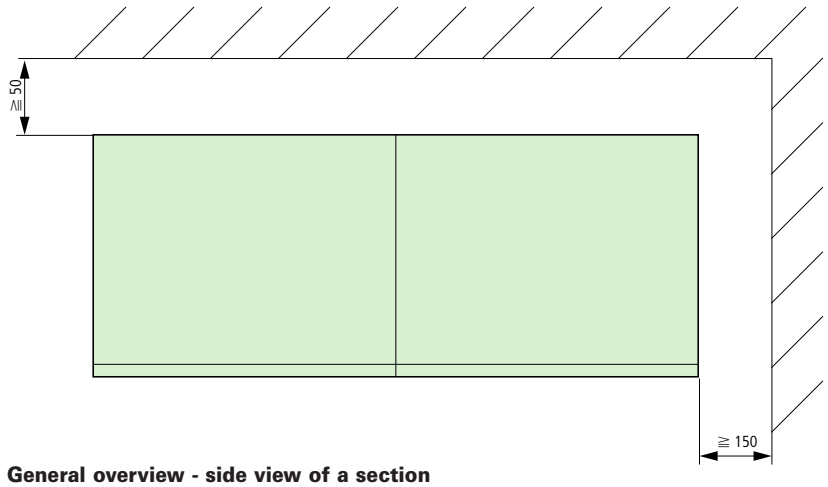


e.g.: a (section width) - 162 = distance between the holes in the plinth fixture

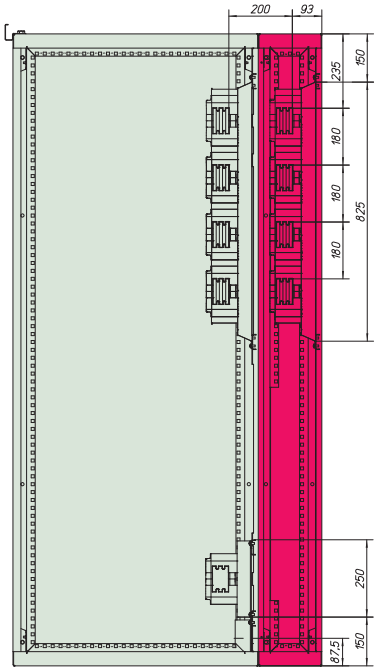
a = section width

Section width	425, 600, 800, 850, 1000, 1100, 1200 and 1350 mm
Section depth with section door	400, 600, 800 and 1000 (800 + 200) mm
Section depth without section door	375, 575, 775 and 975

Top view of setup (stand-alone)



General overview - side view of a section



For 5000 A, the red-coloured parts are required in addition.

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Further information - Passive Arc Fault Protection

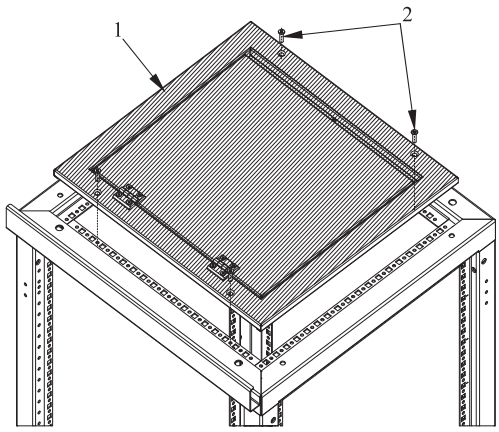
In order to achieve passive arc fault protection, the following requirements must be respected:

- **Fix an arc fault damper**
  Use a cover plate equipped with a damper that is fixed at the front through hinges and secured at the rear through PVC screws. The high pressure caused by an arc fault will destroy the PVC screws and release the damper so as to allow the hot gases to escape. Therefore, the hinges of the arc fault damper always need to be mounted at the front of the cabinet in order to ensure a maximum of protection against escaping gases for the people working there.
  It is also necessary to pay attention to sufficient room height or other building-related superstructures on top of the switchboard cabinet to make sure the damper can fully open.

- **Replace the standard catch-hooks of the doors**
  (Exception = doors to the cable connection area in the XF/XG/XW section, where a different type of catch-hooks is installed that you can continue to use
  without replacing them).

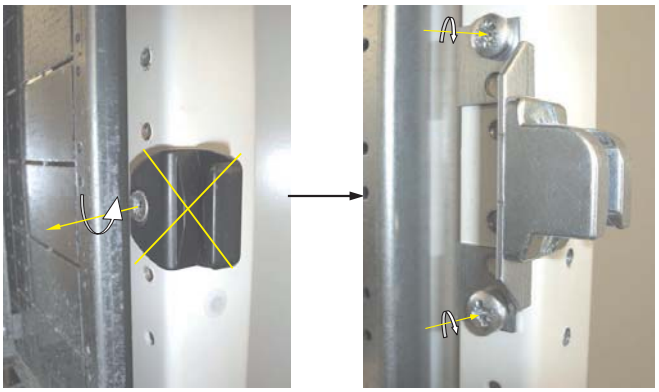
- **Do not use any doors, rear panels or front plates with ventilation slots**
  in order to make sure that all of the gases that may develop will escape at the top.

Fix an arc fault damper



xE_Stoerlichtbogenklappe

Replace the catch-hooks



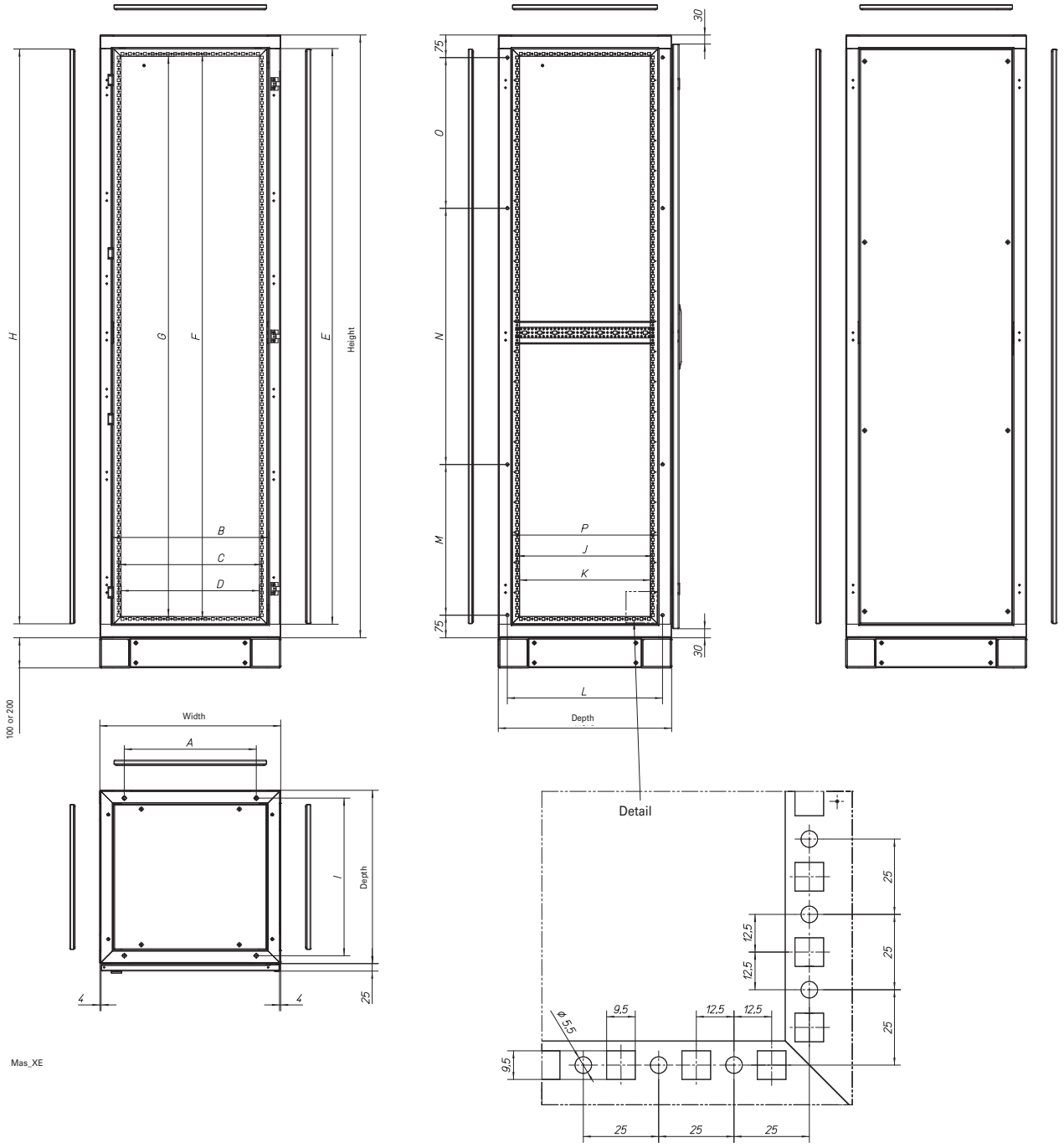
xE_Fanghaken

Rated voltage U_n (V)	Conditional short-circuit current I_{CC} (kA_{eff})	Time t (s)
440	65	0,3

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Dimensions

xEnergy Dimensions



Width	A	B	C	D
425	263	345	300	284
600	438	520	475	459
800	638	720	675	659
850	688	770	725	709
1000	838	920	875	859
1100	938	1020	975	959
1200	1038	1120	1075	1059
1350	1188	1270	1225	1209

Height	E	F	G	H
2000	1910	1875	1859	1907

Depth [1]	Depth [2]	I	J	K	L	P
400	375	323	250	234	315	182
600	575	523	450	434	515	482
800	775	723	650	634	715	682

Distance between the holes

Height	M	N	O
2000	500	850	500

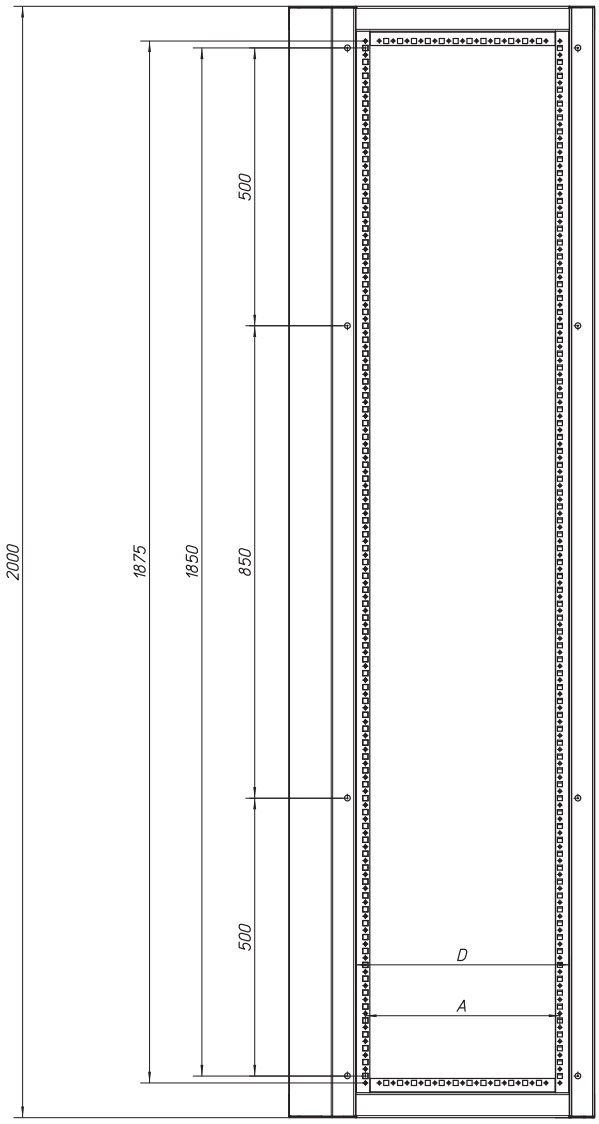
[1] Depth according Ordering Part
[2] Real Depth

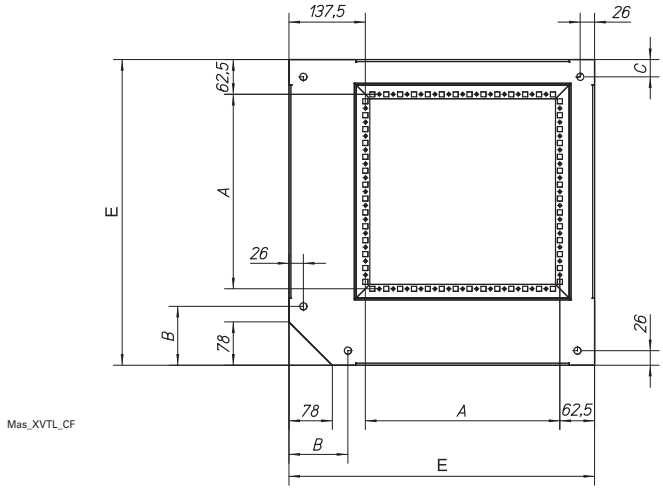
Double-wing doors are used as of width 1000.

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Dimensions

Corner Frame



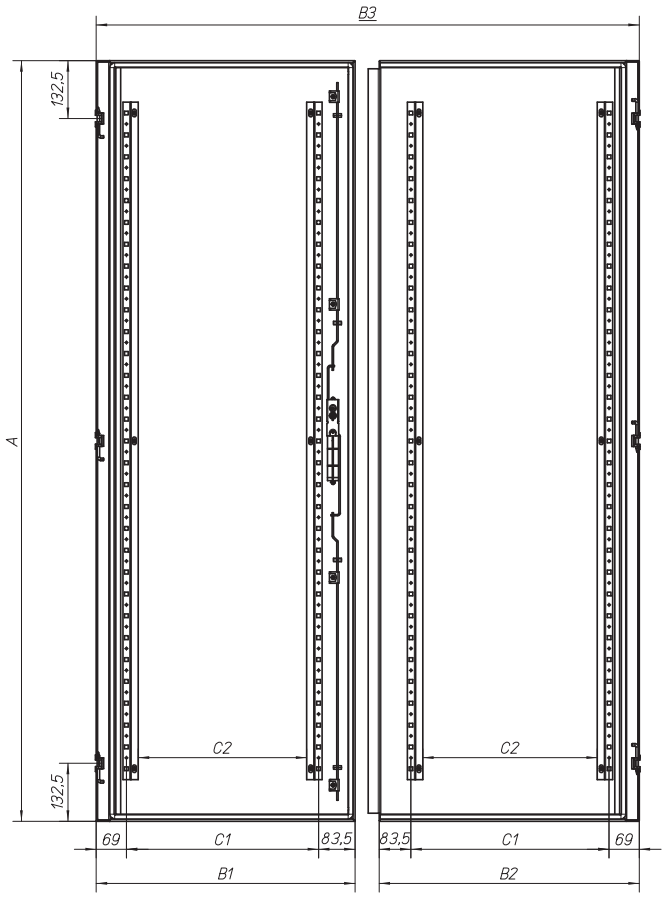


For Depth Side A	For Depth Side B	A	B	C	D	E
600	**600**	450	156	81	485	650
800	**800**	650	156	81	685	850

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Dimensions

Doors as high as the section

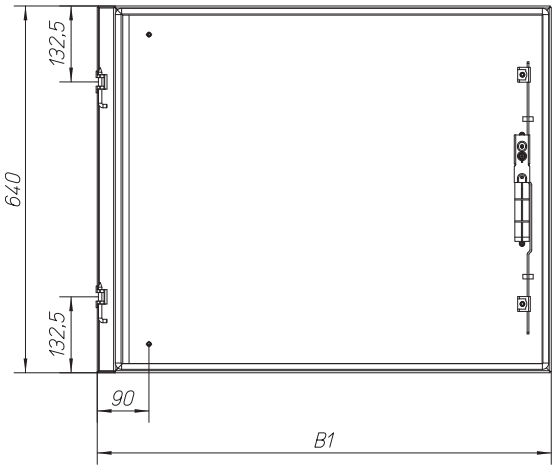


Mas_XSDMC

Width	B1	B2	B3	C1	C2
425	417	-	-	264,5	210,5
600	592	-	-	439,5	385,5
800	792	-	-	639,5	585,5
850	842	-	-	689,5	635,5
1000	992	-	-	839,5	785,5
1000	492	495	992	339,5	285,5
1100	542	545	1092	389,5	335,5
1200	592	595	1192	439,5	385,5
1350	667	670	1342	514,5	460,5

Height	A
2000	1940

Door to switchgear area - height 640 mm (1 third of the door)



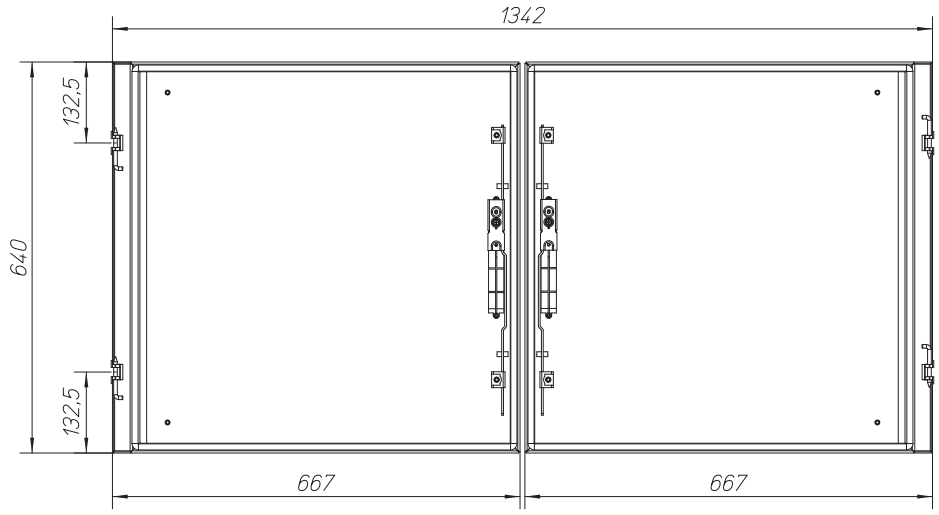
Mas_XE_Dritteltuer

Width	B1
425	425
600	600
800	800
1000	1000
1100	1100
1200	1200

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Dimensions

Door to switchgear area - split in the middle, for section width 1350 mm

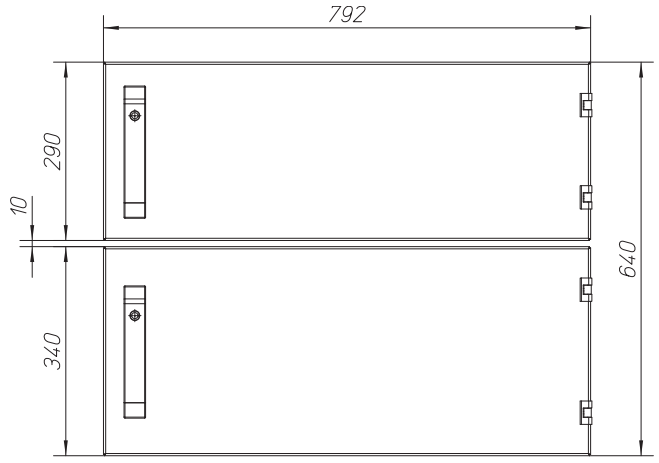


Mas_XE_Tuer_1350_geteilt

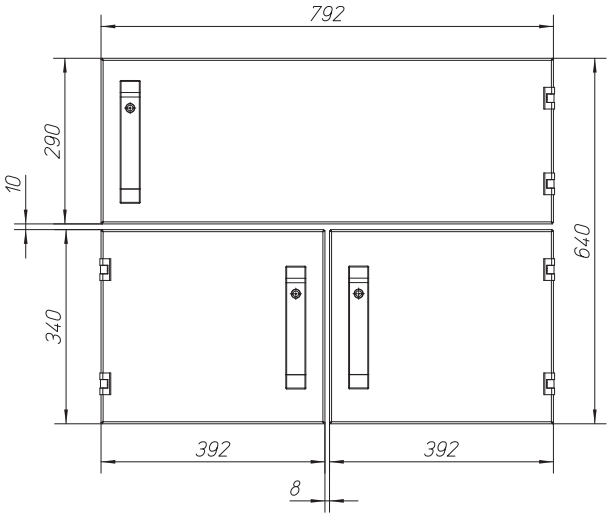
Door to switchgear area for main busbar area at the top

Only available in section width 800 mm

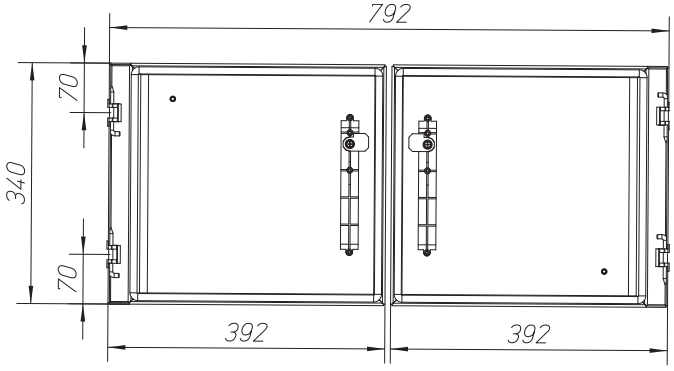
Possible solutions:
Two doors in one part, in section width
Door H-290mm = Main busbar area
Door H-340mm = Switchgear area



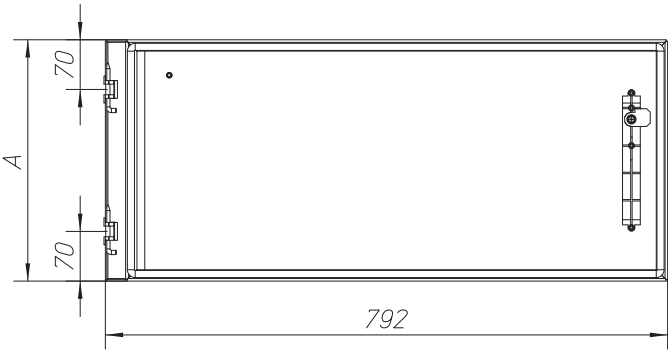
One door in one part, in section width
One pair of doors, both together in section width
Door H-290mm = Main busbar area
Door H-340mm = Switchgear area



Detail drawings of doors to the switchgear area



Mas_XE_Tuer_Detail_1



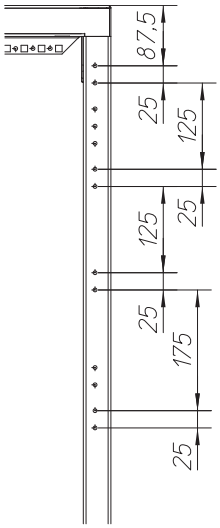
Mas_XE_Tuer_Detail_2

Height	A
	290
	340

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Dimensions

Template for holes to accommodate the hinges
at the frame post

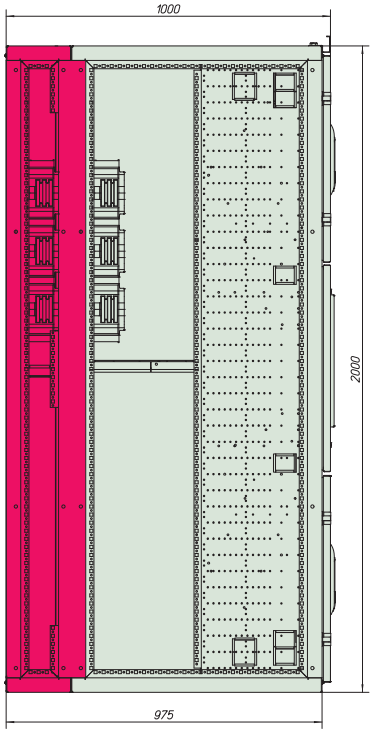


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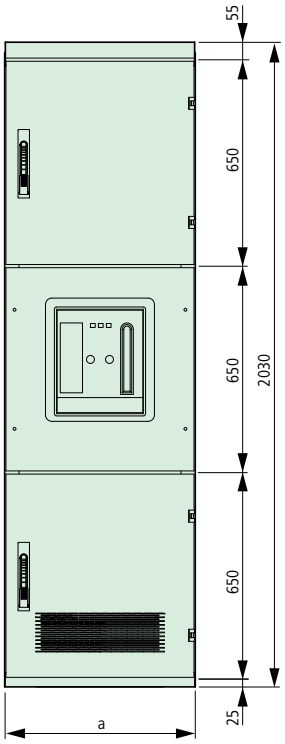
Dimensions

XP section with incorporation of IZM circuit breakers

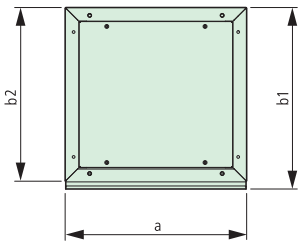
XSMIB20



00162399_0



00162118_0



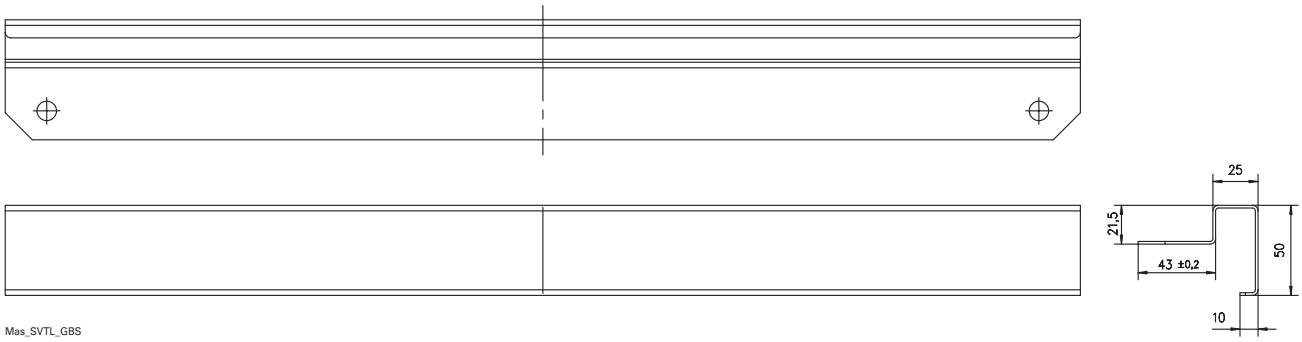
00162219_0

b1	b2
600	575
800	775
1000 (800+200)	975

a
425
600
800
850
1000
1100
1200
1350

For 5000 A, the red-coloured parts are required in addition.

XSFDR Green/Blue Design Strip



Mas_SVTL_GBS

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Eaton Partner program

The key to your success with xEnergy switchboard systems is the Eaton Partner program. Joining the program is well worth it: Not only will you receive a wealth of insider information, you will also be the first to get informed about facts and innovations regarding xEnergy.

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EATON xEnergy Licensed Partner

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- **Continuously up-dated product information**
- **Software downloads**
- **Installation instructions**
- **Information material for your customers, such as catalogues and flyers**
- **Certificates of conformity and guidelines regarding IEC standards**

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Published by: Eaton GmbH
Scheydgasse 42
1215 Vienna

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Subject to technical modifications. No responsibility is taken for misprints or errata.
Printed in Austria (06/11)
Graphic design: SRA, Werbeweber, Schrems
Print: Druckerei Rabl, Schrems
PU01416001Z-EN
Article No. 158487

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xEffect

RCDs for machines and equipment with electrical drives



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Enhanced reliability in drive applications



Challanges for machine builder

The use of an RCD is an effective instrument for protection against electrical shock and fire prevention. Innovative electrical drive systems offer specific application solutions and improfing the energy efficiency.
In modern electrical equipment's and machineries both components are used together in more and more cases.

Thereby it is mandatory to consider the compliance with all standards and regulations.
Especial attention must be paid here on the usual technical compatibility problems between RCDs and electrical drive systems.
Unwanted trips of the RCDs can happen during the normal operation because of high system cause earth leackage currents which are generated in applications with frequency controlled drives. Increasing the level of the personal and equipment protection means very often a reduced system up time.

Optimized interaction of Eaton Drives and RCDs

Eaton takes up this problem and offers a complete solution from one hand. The interaction between Eaton drives and RCDs are harmonized. Unwanted trips because of system caused earth leakage currents will be avoided and a safe power disconnection in case of dangerous fault currents is guaranteed.

It is clearly recommended and in many cases already mandatory to use RCDs Type F and Bfq are for such application.
They gives the possibility to offer a safe and reliable operation of the machine with a high system uptime.

To learn how a harmonized RCDs and drives solution can provide increased energy efficiency with maximum productivity and machine uptime download the whitepaper here www.eaton.eu/en/cp/rcd






Residual Current Devices Type F



Benefits:

- Reliable protection for machines with 1-phase frequency converters
- Increased protection due to
  - detection of mixed frequencies
  - higher load rating with DC residual currents up to 10mA
- Reduction of nuisance tripping thanks to
  - time delayed tripping
  - high current withstand capability

Definition

The Type F RCD is defined according IEC/EN 62423. It provides safe and reliable protection against sinusoidal residual currents and pulsating DC fault currents (like Type A devices). It is also capable of handling residual currents with mixed frequencies of up to 1 kHz (10, 50, 1000 Hz) in accordance with the IEC 62423 standard.

Type F RCDs can accept smooth DC residual currents of up to 10 mA without affecting their standard functionality, have a time delayed tripping and distinguish themselves from other devices thanks to their high resistance to power surges: this ensures minimal false tripping and a high degree of safety.

They are available in 2-pole or 4-pole versions for nominal currents of 16 to 100 A. With three versions for different residual currents (30 mA, 100 mA and 300 mA), Type F RCDs are voltage independent and can be used for fault and additional protection. As a result, the recommendations for installations including variable frequency drives have been modified.

Field of Application

Type F residual-current circuit breaker are designed specifically for use in applications with single phase frequency converters, such as pumps, welding units, vibrators or hammer drills. In this type of application, residual currents with mixed frequencies can arise which residual-current circuit breakers Type AC and A are unable to cope with. The detection of mixed frequencies and the higher load rating with DC residual currents up to 10 mA the RCD Type F provides excellent protection for humans and the system in all applications which contains appliances and motors with single phase frequency converters.

The time delayed tripping and the high current withstands capability supports in addition to avoid nuisance tripping. Overall the RCD Type F enables machine builders and plant manufacturers to develop equipment that is extremely reliable while ensuring high safety levels for the operator and maintenance staff.



Residual Current Devices Type B, Bfq and B+



Benefits:

- Reliable protection for machines with 3phase frequency converters
- Safe power disconnection at smooth DC and AC residual Currents
- Detection of high frequency residual currents
- Highest system availability by digital technology and pre-warnings

Definition

The RCCB Type B detects (acc. to IEC 62423) beside AC and pulsating DC residual currents also smooth DC residual currents. With the extended sensitivity of the RCCB Type B electrical installers and machinery builders can increase the safety considerably in power distribution and machineries.

The special adapted tripping curve (non-sensitive against system caused earth leakage currents at high frequencies) of the RCCB Typ Bfq complies to the specifications of the RCCB Type B and avoid in addition unwanted tripping in industrial applications which contains frequency converter controls.

The RCCB Typ B+ is sensitive to all residual currents and is additionally equipped with a tripping curve that limits the tripping current to max. 420 mA for frequencies up to 20 kHz.
This complies additionally to the specifications for superior fire protection according to the German standard VDE 066-440 (formerly VVDEV 0664-110).

Field of Application

Smooth DC residual currents can occur in industrial, commercial and residential applications which contain photovoltaic systems, frequency converters or electronic consumers. In this kind of applications only RCCBs Type B, Bfq or B+ can guarantee a safe protection for persons and equipment.

They are also equipped with a time delayed tripping and a high current withstand capability to offer high reliability for the system.

RCCBs Type Bfq with their special adapted tripping curve are the perfect choice for industrial applications with 3phase frequency converters.

RCCBs Type B+ are perfectly suitable for installers and machinery builders to increase the safety in fire risk applications as petrol station, agriculture, paint shops, depots, warehouses and many more.



Selection help RCDs Type F / Type B

Applications with:

- Appliances and motors with 1phase frequency converters (supply: phase/neutral)

Applications with:

- Appliances and motors with 1 phase frequency converters with PFC (Power Factor Compensation) or
- 1 phase frequency converters supplied between phase/phase or
- 3 phase frequency converters
- DC systems (photovoltaic systems, ups units...)

- Washing machines, dishwashers
- Heat pumps
- Motor applications
- Ventilation, cooling and air condition systems
- Welding equipment
- ...

- PV Systems
- Battery banks
- UPS Units
- EV charging
- Medical devices
- ...

Industrial applications which contains high-power frequency converter controls as:

- 3 phase motor applications
- Speed regulated machine tools

Fire risk applications as:

- Petrol station
- Agriculture
- Paint shop
- Warehouses
- Biogas plants ...
- VDE 0664-400

RCCB **Type F**
(acc. IEC 62423)
Standard type, multi-frequency residual currents up to 1 kHz



RCCB **Type B**
(acc. IEC 62423)
Standard type, sensitive to all residual currents according up to 1 kHz



RCCB **Type Bfq**
(acc. IEC62423)
Non-sensitive against system caused earth leakage currents at high frequencies up to 50 kHz

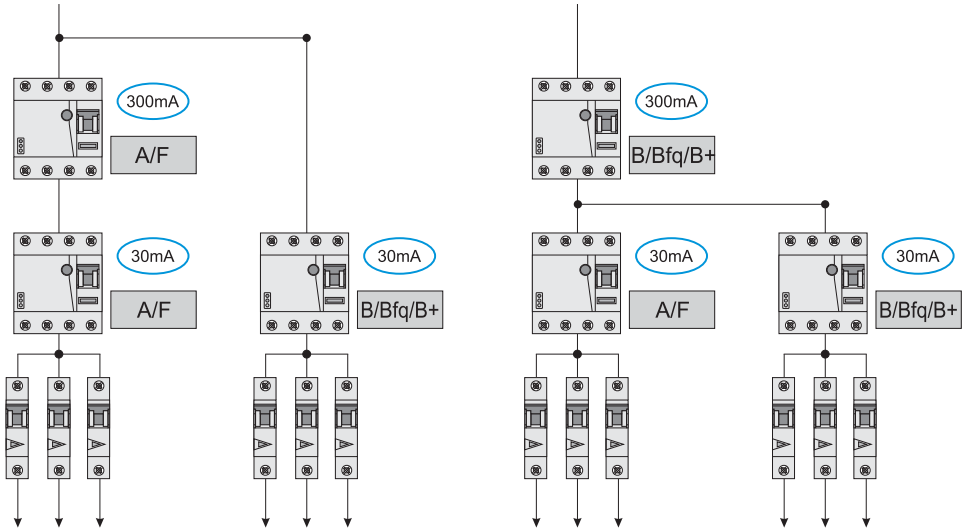


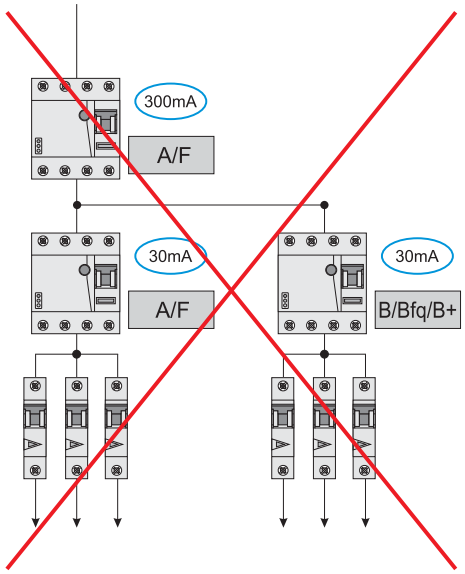
RCCB **Type B+**
(acc. VDE 0664-400)
For superior fire protection (max. tripping current of 420 mA for frequencies up to 20 kHz)



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Correct installation





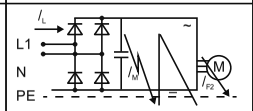
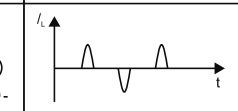
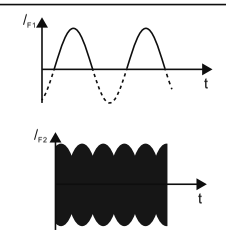
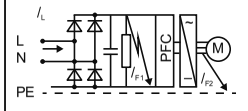
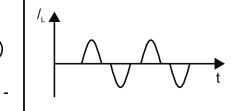
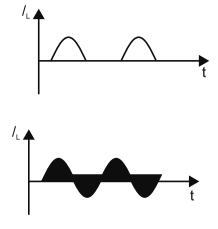
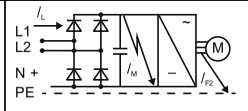
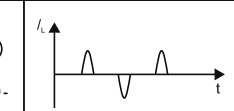
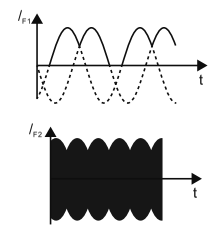
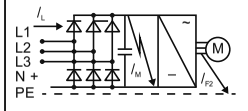
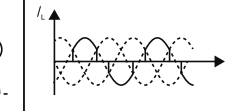
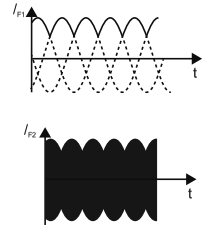
In general RCDs Type F are designed for applications with 1 phase frequency converters. But there are also 1 phase FC designs which require RCD Type B protection.

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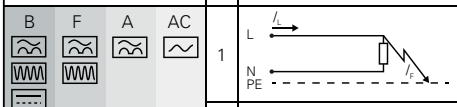
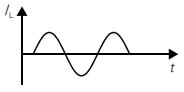
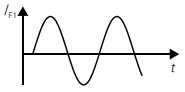
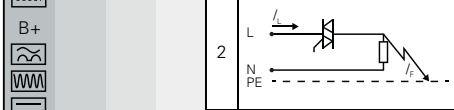
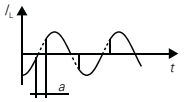
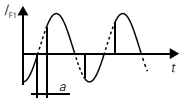
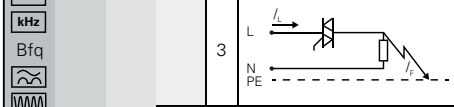
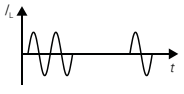
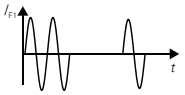
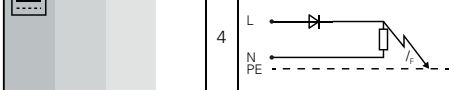
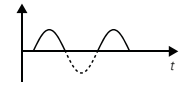
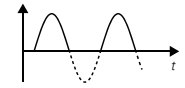
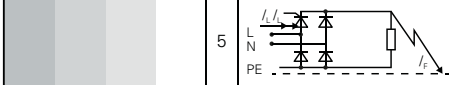
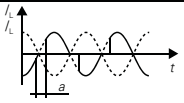
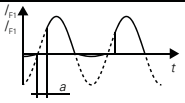
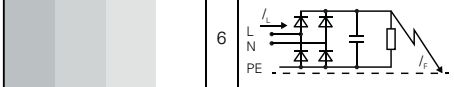
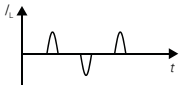
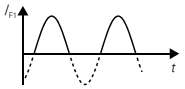
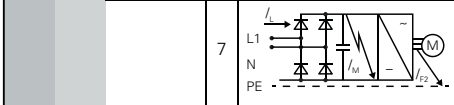
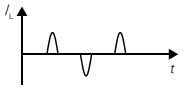
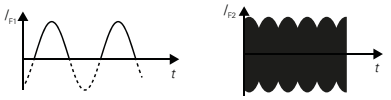
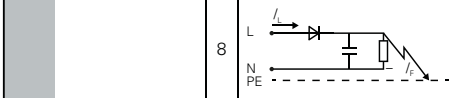
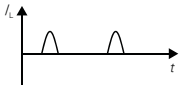
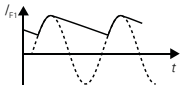
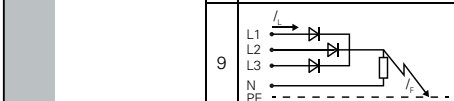
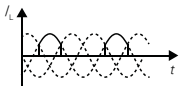
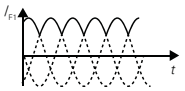
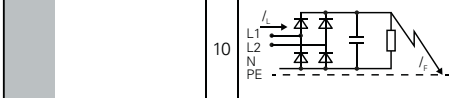
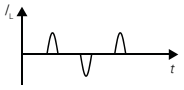
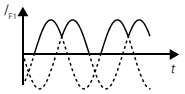
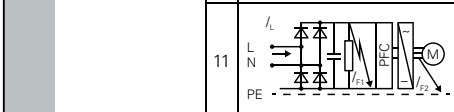
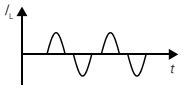
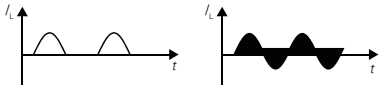
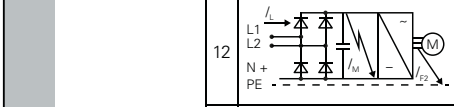
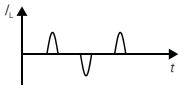
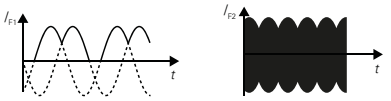
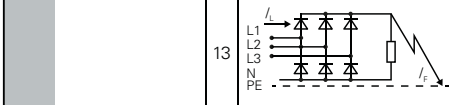
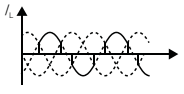
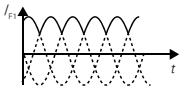
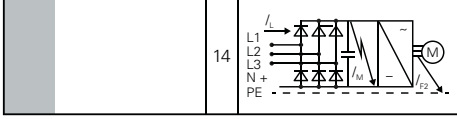
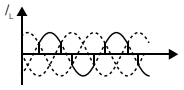
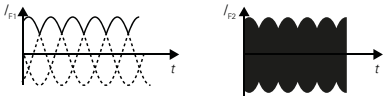
Electrical loads that can generate smooth DC residual currents in the event of a fault must be assigned to their own circuit with a universal current-sensitive residual current protective device (type B, type Bfq or type B+).

Possible residual current waveforms of applications with frequency converters and suitable RDCs

Suitable RCCB Type		Circuit	Load Current	Residual Current
B, F, B+, kHz, Bfq	1			
	2			
	3			
	4			

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Possible residual current waveforms and suitable RCDs

Suitable RCCB – Type		Circuit	Load Current	Residual Current
B, F, A, AC	1			
B+	2			
kHz, Bfq	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			

The table shows the possible residual current wave forms and the suitable RCDs.

In general RCDs Type F are designed for applications with 1 phase frequency converters. But there are also 1 phase FC (frequency converters) designs which require RCD Type B protection.

RCDs Type F are not suitable for applications that can generate smooth DC residual currents e.g. 1 phase FC with PFC or 1 phase FC supplied between phase/phase (see Table, Possible residual current waveforms and suitable RCDs, circuits 8 to 13).

They are not suitable for installation in networks with frequencies that deviate from the rated frequency 50/60 Hz (not at the outgoing terminal of a frequency converter).

Electrical loads that can generate smooth DC residual currents in the event of a fault must be assigned to their own circuit with a universal current-sensitive residual current protective device (type B, type Bfq or type B+).

For more details see Eaton Whitepaper „RCDs&Drives".

Residual Current Devices FRCmM Type F

sg01516



sg01616



Type G/F

Surge current-proof 3 kA, sensitive to residual pulsating DC, Type G/F (ÖVE E 8601)

2-poles

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
16/0.03	FRCMM-16/2/003-G/F	187365	1/60
16/0.1	FRCMM-16/2/01-G/F	187371	1/60
16/0.3	FRCMM-16/2/03-G/F	187377	1/60
25/0.03	FRCMM-25/2/003-G/F	187366	1/60
25/0.1	FRCMM-25/2/01-G/F	187372	1/60
25/0.3	FRCMM-25/2/03-G/F	187378	1/60
40/0.03	FRCMM-40/2/003-G/F	187367	1/60
40/0.1	FRCMM-40/2/01-G/F	187373	1/60
40/0.3	FRCMM-40/2/03-G/F	187379	1/60
63/0.03	FRCMM-63/2/003-G/F	187368	1/60
63/0.1	FRCMM-63/2/01-G/F	187374	1/60
63/0.3	FRCMM-63/2/03-G/F	187380	1/60
80/0.03	FRCMM-80/2/003-G/F	187369	1/60
80/0.1	FRCMM-80/2/01-G/F	187375	1/60
80/0.3	FRCMM-80/2/03-G/F	187381	1/60
100/0.03	FRCMM-100/2/003-G/F	187370	1/60
100/0.1	FRCMM-100/2/01-G/F	187376	1/60
100/0.3	FRCMM-100/2/03-G/F	187382	1/60

4-poles

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
16/0.03	FRCMM-16/4/003-G/F	187407	1/30
16/0.1	FRCMM-16/4/01-G/F	187413	1/30
16/0.3	FRCMM-16/4/03-G/F	187419	1/30
25/0.03	FRCMM-25/4/003-G/F	187408	1/30
25/0.1	FRCMM-25/4/01-G/F	187414	1/30
25/0.3	FRCMM-25/4/03-G/F	187420	1/30
40/0.03	FRCMM-40/4/003-G/F	187409	1/30
40/0.1	FRCMM-40/4/01-G/F	187415	1/30
40/0.3	FRCMM-40/4/03-G/F	187421	1/30
63/0.03	FRCMM-63/4/003-G/F	187410	1/30
63/0.1	FRCMM-63/4/01-G/F	187416	1/30
63/0.3	FRCMM-63/4/03-G/F	187422	1/30
80/0.03	FRCMM-80/4/003-G/F	187411	1/30
80/0.1	FRCMM-80/4/01-G/F	187417	1/30
80/0.3	FRCMM-80/4/03-G/F	187423	1/30
100/0.03	FRCMM-100/4/003-G/F	187412	1/30
100/0.1	FRCMM-100/4/01-G/F	187418	1/30
100/0.3	FRCMM-100/4/03-G/F	187424	1/30

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package

Type S/F

Selective + surge current-proof 5 kA, sensitive to residual pulsating DC, Type S/F

sg01516



2-poles

16/0.1	FRCMM-16/2/01-S/F	187389	1/60
16/0.3	FRCMM-16/2/03-S/F	187395	1/60
25/0.1	FRCMM-25/2/01-S/F	187390	1/60
25/0.3	FRCMM-25/2/03-S/F	187396	1/60
40/0.1	FRCMM-40/2/01-S/F	187391	1/60
40/0.3	FRCMM-40/2/03-S/F	187397	1/60
63/0.1	FRCMM-63/2/01-S/F	187392	1/60
63/0.3	FRCMM-63/2/03-S/F	187398	1/60
80/0.1	FRCMM-80/2/01-S/F	187393	1/60
80/0.3	FRCMM-80/2/03-S/F	187399	1/60
100/0.1	FRCMM-100/2/01-S/F	187394	1/60
100/0.3	FRCMM-100/2/03-S/F	187400	1/60

sg01616



4-poles

16/0.1	FRCMM-16/4/01-S/F	187431	1/30
16/0.3	FRCMM-16/4/03-S/F	187437	1/30
25/0.1	FRCMM-25/4/01-S/F	187432	1/30
25/0.3	FRCMM-25/4/03-S/F	187438	1/30
40/0.1	FRCMM-40/4/01-S/F	187433	1/30
40/0.3	FRCMM-40/4/03-S/F	187439	1/30
63/0.1	FRCMM-63/4/01-S/F	187434	1/30
63/0.3	FRCMM-63/4/03-S/F	187440	1/30
80/0.1	FRCMM-80/4/01-S/F	187435	1/30
80/0.3	FRCMM-80/4/03-S/F	187441	1/30
100/0.1	FRCMM-100/4/01-S/F	187436	1/30
100/0.3	FRCMM-100/4/03-S/F	187442	1/30

Residual Current Devices FRCdM

$I_n/I_{\Delta n}$ (A)	Operating frequency (Hz)	Type Designation	Article No.	Units per package

Type G/B

Surge current-proof 3 kA, AC-DC sensitive, Type G/B (ÖVE E 8601)

SG49812



4-poles

25/0.03	50	FRCdM-25/4/003-G/B	167892	1/30
25/0.3	50/60	FRCdM-25/4/03-G/B	167896	1/30
40/0.03	50	FRCdM-40/4/003-G/B	167893	1/30
40/0.3	50/60	FRCdM-40/4/03-G/B	167897	1/30
63/0.03	50	FRCdM-63/4/003-G/B	167894	1/30
63/0.3	50/60	FRCdM-63/4/03-G/B	167898	1/30

Type S/B

Selective + surge current-proof 5 kA, Type S/B

SG49812



4-poles

25/0.3	50	FRCdM-25/4/03-S/B	167900	1/30
40/0.3	50	FRCdM-40/4/03-S/B	167901	1/30
63/0.3	50	FRCdM-63/4/03-S/B	167902	1/30

Type G/Bfq

Surge current-proof 3 kA, AC-DC sensitive, Type G/Bfq (ÖVE E 8601)

SG49812



4-poles

25/0.03	50	FRCdM-25/4/003-G/Bfq	179530	1/30
25/0.3	50/60	FRCdM-25/4/03-G/Bfq	167904	1/30
40/0.03	50	FRCdM-40/4/003-G/Bfq	179531	1/30
40/0.3	50/60	FRCdM-40/4/03-G/Bfq	167905	1/30
63/0.03	50	FRCdM-63/4/003-G/Bfq	179532	1/30
63/0.3	50/60	FRCdM-63/4/03-G/Bfq	167906	1/30

Type S/Bfq

Selective + surge current-proof 5 kA, Type S/Bfq

SG49812



4-poles

25/0.3	50	FRCdM-25/4/03-S/Bfq	167908	1/30
40/0.3	50	FRCdM-40/4/03-S/Bfq	167909	1/30
63/0.3	50	FRCdM-63/4/03-S/Bfq	167910	1/30

SG49812



SG49812

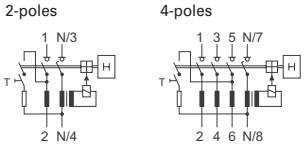


$I_n/I_{\Delta n}$ (A)	Operating frequency (Hz)	Type Designation	Article No.	Units per package
Type G/B+				
Surge current-proof 3 kA, Type G/B+ (ÖVE E 8601)				
4-poles				
25/0.03	50	FRCdM-25/4/003-G/B+	167880	1/30
25/0.3	50/60	FRCdM-25/4/03-G/B+	167884	1/30
40/0.03	50	FRCdM-40/4/003-G/B+	167881	1/30
40/0.3	50/60	FRCdM-40/4/03-G/B+	167885	1/30
63/0.03	50	FRCdM-63/4/003-G/B+	167882	1/30
63/0.3	50/60	FRCdM-63/4/03-G/B+	167886	1/30
Type S/B+				
Selective + surge current-proof 5 kA, Type S/B+				
4-poles				
25/0.3	50	FRCdM-25/4/03-S/B+	167888	1/30
40/0.3	50	FRCdM-40/4/03-S/B+	167889	1/30
63/0.3	50	FRCdM-63/4/03-S/B+	167890	1/30

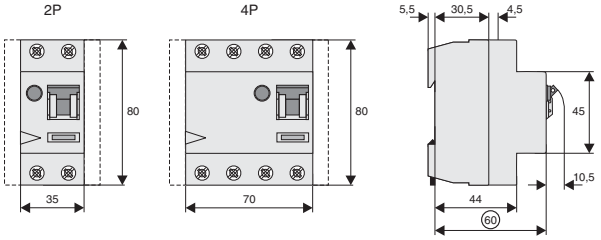
Technical Data

		FRCmM, Type F
Electrical		
Design according to		IEC/EN 62423 Type G acc. to ÖVE E 8601
Current test marks as printed onto the device		
Tripping		
Type G		10 ms delay
Type S		40 ms delay - with selective disconnecting function
Rated voltage	U_n	240/415V AC, 50/60Hz
Limits operation voltage test circuit		
2-poles		196 - 264 V~
4-poles 30 mA		196 - 264 V~
4-poles 100, 300 mA		196 - 456 V~
Rated tripping current	$I_{\Delta n}$	30, 100, 300 mA
Sensitivity		AC and pulsating DC
Rated insulation voltage	U_i	440 V
Rated impulse withstand voltage	U_{imp}	4 kV (1.2/50µs)
Rated short circuit capacity	I_{cn}	10 kA with back-up fuse
Peak withstand current		
Type G/F		3 kA (8/20 µs) surge current-proof, 10 ms delay
Type S/F		5 kA (8/20 µs) surge current-proof, 40 ms delay
Rated breaking capacitiy	I_m	
or rated fault breaking capacity	$I_{\Delta m}$	
I_n = 16-40 A		500 A
I_n = 63 A		630 A
I_n = 80 A		800 A
I_n = 100 A		1,000 A
Endurance		
electrical components		≥ 4,000 operating cycles
mechanical components		≥ 20,000 operating cycles
Mechanical		
Frame size		45 mm
Device height		80 mm
Device width		35 mm (2MU), 70 mm (4MU)
Mounting		quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715
Degree of protection, built-in		IP40
Degree of predection in moisture-proof enclosure		IP54
Upper and lower terminals		open mouthed/lift terminals
Terminal protection		finger and hand touch safe, DGUV VS3, EN 50274
Terminal capacity		1.5 - 35 mm² single wire 2 x 16 mm² multi wire
Terminal screw		M5 (with slotted screw acc. to EN ISO 4757-Z2, Pozidriv PZ2)
Terminal torque		2 - 2.4 Nm
Busbar thickness		0.8 - 2 mm
Operation temperature		-25°C to +40°C (for higher values see table on ambient temperature)
Storage- and transport temperature		-35°C to +60°C
Resistance to climatic conditions		acc. to IEC/EN 62423
Contact position indicator		red / green
Tripping indicator		white / blue

Connection diagram



Dimensions (mm)



Technical Data

		FRCdM Type B, Bfq and B+
Electrical		
Design according to		Types B and Bfq acc. to IEC/EN 61008, IEC/EN 62423 Types B+ acc. to VDE 0664-400, formerly known as VDE V 0664-110 Type G/B, G/Bfq and G/B+ additional acc. to ÖVE E 8601
Current test marks as printed onto the device		
Tripping		
Type G		10 ms delay @ 50 Hz
Type S		40 ms delay @ 50 Hz - with selective disconnecting function
Rated voltage	U_n	240/415 V AC 50 Hz and/or 60 Hz – see individual article for operating frequency
Limits operation voltage electronic		50 – 456V AC
Limits operation voltage test circuit		
30 mA		196 - 264V AC
300 mA		196 - 456V AC
Rated tripping current	$I_{\Delta n}$	30, 300 mA
Sensitivity		All types of current
Rated insulation voltage	U_i	440 V
Rated impulse withstand voltage	U_{imp}	4 kV (1.2/50µs)
Rated short circuit capacity	I_{cn}	10 kA with back-up fuse
Peak withstand current		
Type G/B, G/B+ and G/Bfq		3 kA (8/20 µs) surge current-proof
Type S/B, S/B+ and S/Bfq		typ. 5 kA (8/20 µs) selective + surge current-proof
Rated breaking capacitiy	I_m	
or rated fault breaking capacity	$I_{\Delta m}$	
I_n = 25-40 A		500 A
I_n = 63 A		630 A
Endurance		
electrical components		≥ 4,000 operating cycles
mechanical components		≥ 20,000 operating cycles
Mechanical		
Frame size		45 mm
Device height		80 mm
Device width		70 mm (4MU)
Mounting		quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715
Degree of protection, built-in		IP40
Degree of predection in moisture-proof enclosure		IP54
Upper and lower terminals		open mouthed/lift terminals
Terminal protection		finger and hand touch safe, DGUV VS3, EN 50274
Terminal capacity		1.5 - 35 mm^2 single wire 2 x 16 mm^2 multi wire
Terminal screw		M5 (with slotted screw acc. to EN ISO 4757-Z2, Pozidriv PZ2)
Terminal torque		2 - 2.4 Nm
Busbar thickness		0.8 - 2 mm
Operation temperature		-25°C to +40°C (for higher values see table on ambient temperature)
Storage- and transport temperature		-35°C to +60°C
Resistance to climatic conditions		25-55°C/90-95% relative humidity acc. to IEC 60068-2
Contact position indicator		red / green
Tripping indicator		white / blue
Alarm contact (potential-free)		
Rated breaking capacitiy @ 30 V DC (resistive load)		2 A
Rated breaking capacitiy @ 240 V AC (resistive load)		0.25 A
Maximum switching power (resistive load)		60 W
Maximum switching voltage DC		220 V
Maximum switching voltage AC		240 V
Maximum switching current		2 A
Minimum switching capacity (reference value)		10 µA, 10 mV DC
Endurance		
Electrical (at 20 cpm) 2 A 30 V DC resistive load)		$>10^5$
Electrical (at 20 cpm) 1 A 30 V DC resistive load)		$>5 \times 10^5$
Terminal capacity		0.25 - 1.5 mm^2

Eaton is a power management company with 2017 sales of $20.4 billion. We provide energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. Eaton is dedicated to improving the quality of life and the environment through the use of power management technologies and services. Eaton has approximately 96,000 employees and sells products to customers in more than 175 countries.

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Printed in Austria
Publication No. BR019004EN
Article number 189841-MK
August 2018
Grafics: SRA, Schrems

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LOOK AROUND

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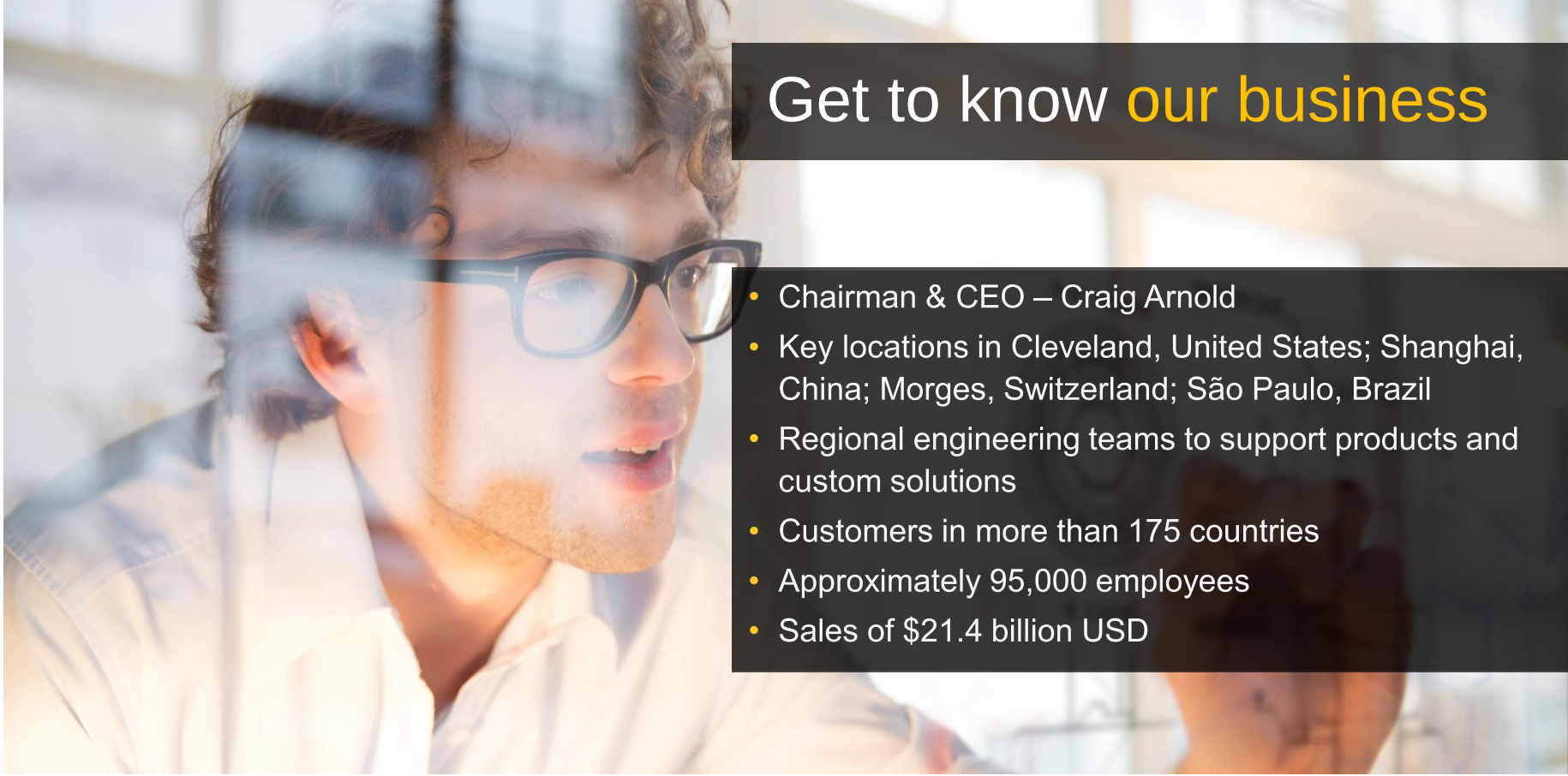
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Providing power management technologies that are more reliable, efficient and safe

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- Regional engineering teams to support products and custom solutions
- Customers in more than 175 countries
- Approximately 95,000 employees
- Sales of $21.4 billion USD

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Committed to doing business right



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- Ranked among world's top sustainability performers in NASDAQ Global Sustainability 100 Index
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- Named to FORTUNE's 2020 World's Most Admired Companies list (3rd year in a row)
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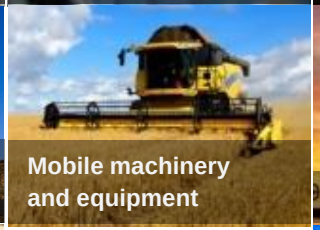




























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A portfolio designed to meet your power management needs.

ELECTRICAL



Power distribution and circuit protection



Backup power protection



Lighting and security



Control and automation



Structural solutions and wiring devices



Solutions for harsh and hazardous environments



Engineering services

INDUSTRIAL



Aerospace – Hydraulic and fuel systems



Automotive – Engine air mgmt., traction control and fluid products



Truck – Commercial vehicle clutches and transmissions



Filtration – Liquid filtration solutions

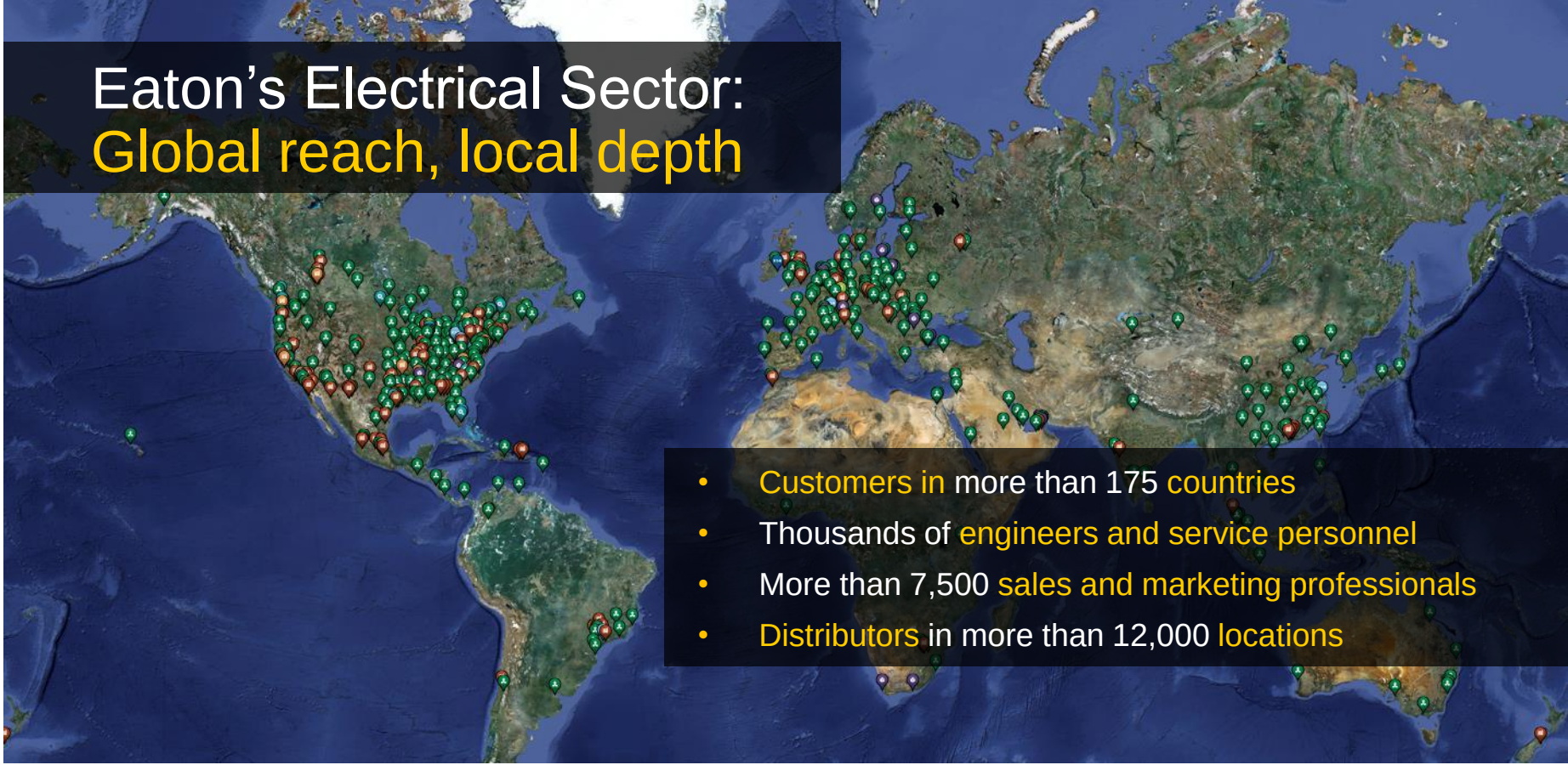


Hydraulics – Fluid conveyance and power and motion control products

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Eaton's Electrical Sector: Global reach, local depth



- Customers in more than 175 countries
- Thousands of engineers and service personnel
- More than 7,500 sales and marketing professionals
- Distributors in more than 12,000 locations

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A heritage of innovation and expertise

- Broad electrical solutions for utility, data centers, oil & gas, buildings and industry – 36kV switchgear to final circuit protection
- Technology leader in SF_6-free innovation – it is in our DNA
- Leader in electrical safety, including arc flash prevention solutions

- Holec
- Bussmann
- Cooper Power Systems
- Moeller
- Cutler-Hammer
- Ulusoy Electric

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- Protect people, assets and reputation for business continuity
- Design and build for resiliency and sustainability
- Lower risk with on-time project execution and expertise

Keeping projects on-time and on-budget is a big task – from design to build and installation. And doing so while maximizing the functional use of the space, increasing energy efficiency and keeping people safe adds to the pressure. You need expert support to manage risk and increase operational effectiveness.

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- Products specially designed to protect people

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Lower risk with on-time project execution and expertise

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- Energy efficient products to lower operating costs
- Support carbon footprint reduction
- Expertise to enable innovative designs and implementation for current and future needs and regulations
- Design for maximum functionality and use of space
- Products engineered for service ability

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Design and build for resiliency and sustainability

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Lower risk with on-time project execution and expertise



Experienced, dedicated sales, project management and customer service teams are focused on getting you accurate and timely information, helping you stay on-schedule and on-budget.

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- Expertise to support compliance with relevant codes and standards
- Products designed for labor-savings installation and reduced maintenance
- Systems compatibility and integration
- Broad channel network with local product availability
- Pre- and post-sales service and trained personnel for project support

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Lower risk with on-time project execution and expertise

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Eaton IEC **MV** Systems:





Transformers



36kV Primary Switchgear



Fixed & Withdrawable Primary Switchgear 11 – 24kV



Secondary Switchgear 11-36kV



Ring Main Units 11-36kV

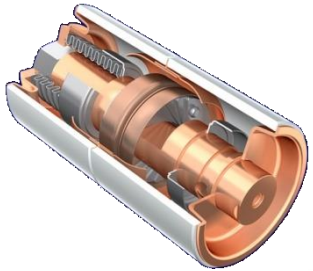
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Core technologies that meet your challenges

Protect people, assets and reputation for business continuity | **Design and build for resiliency and sustainability** | Lower risk with on-time project execution and expertise

Vacuum Interrupters, Solid insulation and Electrical field control

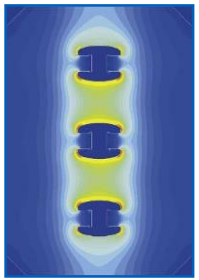


Vacuum Interrupters

- Reliably switch high currents
- Long life, low maintenance, saves space and reduces costs
- Up to 30.000 switching cycles

Electrical field control

- Enables reliable construction
- Ensures compact panels





Solid insulation (cast resin)

- Solid insulation increases external dielectric performance
- Enables robust construction
- Sealed for life conductors (single phase insulation) Enables cooling purposes
- Environmentally-friendly with no emission of greenhouse gases (SF_6)

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Eaton IEC **LV** Systems:





Low Voltage Switchgear for
Power Distribution and Motor Control up to 6300A



Distribution Boards
Rated 1600A



Sub-Distribution
up to 630A



Safety Technology

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Safety technologies that meet your challenges

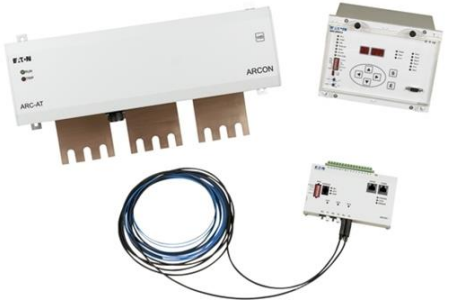
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Safety Above the Standards



Diagnose System

- 24/7 temperature monitoring for low-voltage switchgear assemblies including data and event recording
- Early detection, pre-warnings and alarms
- Predictive Maintenance – enabling corrective measures to avoid switchboard shutdown



ARMS™ ARC Reduction Maintenance System

- Protecting maintenance staff with reduced energy levels in an arc flash event
- Faster signal processing and interruption times



ARCON® Arc Fault Protection System

- Detects, evaluates, and extinguishes an arc immediately after it is created, and before any damaging effect occurs
- System arc-fault quenching time ≤ 2 ms
- Open door safety

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Eaton **Services** capabilities:

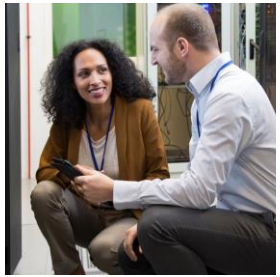




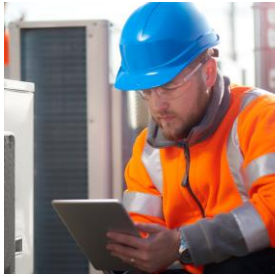
Advanced



Supply



Support



Maintenance



Optimization



Improvement

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Products that meet your challenges

Protect people, assets and reputation for business continuity	Design and build for resiliency and sustainability	Lower risk with on-time project execution and expertise

Product spotlight – Magnefix



- Fully epoxy resin insulated Ring Main Unit for 12-15 kV distribution networks
- IEC 62271-201 certified
- Extensively tested and certified by KEMA
- 400A (MD4 type) or 630A (MF type) normal current
- Extremely compact (91 mm per switch panel)
- Over 200,000 Magnefix installations deployed
- Safe and reliable
- Flexible design, high level of modularity
- User and environmentally friendly (SF_6-free)
- Cost effective

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Products that meet your challenges

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Product spotlight – MMS



- Double busbar system
- SF_6-free environmentally friendly technology
- Air insulated with vacuum switching technology
- Maintenance free compact design
- Extension under service possible
- Designed for automation
- Compact footprint

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Products that meet your challenges

Protect people, assets and reputation for business continuity	Design and build for resiliency and sustainability	Lower risk with on-time project execution and expertise

Product spotlight – Ulusoy HMH



- Medium voltage metal enclosed modular switchgear
- Rating up to 1250A, 36 kV
- Safe design: Certified arc-resistant classification AFL
- Flexibility of both SF6 / Vacuum Air Circuit Breaker
- Very quick turnaround of customer order engineering
- Isolating and breaking processes are carried out in SF6 gas environment and the busbar compartment in air leading to minimal dimensions
- Easy and safe to use with package type transformer stations
- All functional units which may be required in a switching and distribution center can be easily installed side by side

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Products that meet your challenges

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Product spotlight – Ulusoy URING



- For usage in advanced MV secondary distribution systems
- SF6 insulated busbars
- Modular and compact version available
- Suitable for use in SCADA systems
- IP 3X protection degree
- Tested to IEC 62271-200 standards
- Offering the option of single volume mounting of multiple modular units, as well as the option of expanding to connect with modular RMUs according to the structure.

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Products that meet your challenges

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Product spotlight – Ulusoy UMC 36



- Produced in accordance with IEC standards for use in primary distribution systems, industrial plants and infrastructure installations up to 36kV.
- MV Metal Clad switchgears are notable for their high current power, short circuit withstanding, breaking capacities and withdrawable VCB design.
- Metal Clad switchgears are opted for both national and international markets due to design flexibility compatible with different specifications.

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Products that meet your challenges

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Product spotlight – Ulusoy Oil Immersed Type Transformer



- 25kVA-10MVA power range, 36kV maximum voltage
- Manufactured according to IEC 60076 standards and the national and international standards TS EN, IEEE, CENELEX EN.
- Offering a wide variety of product types: distribution transformer, solar transformer, wind turbine transformer, earthing, transformer, dual voltage transformer, rectifier transformer, start-up transformer, auto transformer, shunt reactor, serial reactors limiting the short circuit current, multi winding transformer
- The distribution transformers can work safely under difficult conditions such as high altitude and marine environment due to the compliance with E2, C2, F1 class with special and international standards

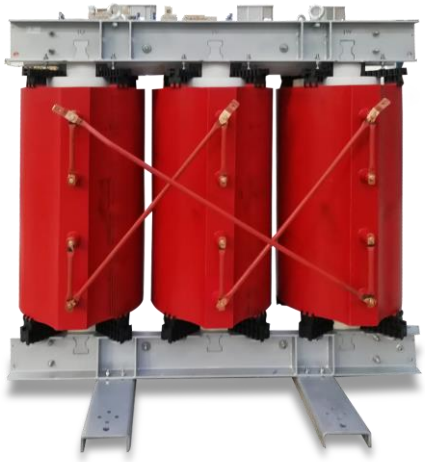
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Products that meet your challenges

Protect people, assets and reputation for business continuity	Design and build for resiliency and sustainability	Lower risk with on-time project execution and expertise

Product spotlight – Ulusoy Dry Type Transformer



- Up to 36kV, up to 3150kVA
- Manufactured according to IEC 60076 standards and national and international standards TS EN, IEEE, CENELEX EN.
- Non-flammable, self-extinguishing, free of toxic gas, low noise level.
- No cause for environmental pollution since the insulation materials do not include halogen and nitrogen and there is no risk of leakage.
- Maintenance only needed once a year and possible to do on site.
- A wide range of usage: distribution networks, co-generation systems, rectifier and traction applications.

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Products that meet your challenges

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Product spotlight – Ulusoy Compact Concrete Transformer Substation



- Rated power up to 10000kVA, up to 36kV MV winding
- The Tank-Foundation Section is suitable for the smallest bending radius of the 36kV single -core 240 mm² cable – no need to build a tank and basic section at the site
- Each section (high voltage switching units section, medium voltage distribution transformer section, low voltage distribution board section) has its own independently configurable access doors and ventilation shades – adaptable for every request and climatic requirement.
- Build in accordance with IEC 60529

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Products that meet your challenges

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Product spotlight – Ulusoy Metallic Substations



- Offer a wide variety of customization such as different isolations, natural fans, illumination, color or air condition.
- Manufacture in a modular structure makes addition or replacement easy
- Dimensions up to 40 meters width and 5 meters depth are possible
- Easy transport due to its light structure

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Products that meet your challenges

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Product spotlight – Ulusoy Cable Accessories



- Offering a wide variety of MV & LV cable accessories:
  - MV straight type, joint type and screened type cable terminators
  - LV & MV bushing covers
  - Cable connector interfaces
  - LV multi cores heat shrinkable cable terminations
  - LV heat shrinkable cable joints
  - 12-36 kV cold shrink cable joints (optional with heat shrink isolation)
  - Indoor & outdoor terminations up to 36 kV

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Products that meet your challenges

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Product spotlight – Power Xpert FMX



- IEC medium voltage switchgear up to 24 kV.
- Using Air and Solid insulation (SF_6-free)
- Complete switchboard range up to 25 kA - 3s, 2000 A
- PM and LSC2B for high service continuity
- Fixed (Plug-in type) breaker concept
- Compact solution – wall standing arrangement
- Internal Arc Classification (IAC): AFL 25 kA – 1s
- Maintenance-free electromagnetic drive for 30.000 operations
- Logical interlocks to prevent for unsafe operation.
- Full remote control and flexibility for secondary equipment
- Ensuring low TCO for design live of at least 30 years

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Products that meet your challenges

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Product spotlight – Power Xpert UX



- Withdrawable switchgear up to 24 kV
- Safe, reliable and user friendly operation
- Internal arc rating up to 50 kA during 1s
- 3rd party type tested according to IEC62271-200
- SF_6-free design – no SF_6 disposal at end of life
- Maximize service continuity through separate metal compartments LSC2B/PM
- Fully insulated and isolated design to extend product life
- Broad range of configurations and options including vacuum circuit breakers and contactors for maximum flexibility
- Low total cost of ownership

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Products that meet your challenges

Protect people, assets and reputation for business continuity	Design and build for resiliency and sustainability	Lower risk with on-time project execution and expertise

Product spotlight – Power Xpert UX 36



- Designed and 3rd party tested to IEC 62271-200, maximize service continuity through separate metal compartments LSC2B/PM
- Insulated bus bar system and insulation-encapsulated circuit breaker pole units to extend product life
- Robust enclosure: Seismic compliance with IEC60068 & IEEE693
- Internal arc classified (IAC) AFLR up to 31.5kA – 1 sec
- Maintenance is limited to simple, routine operating checks, inspection and cleaning on the annual basis
- Low end of life disposal costs, through the use of recyclable/reusable materials
- Lower total cost of ownership as no SF_6 inspections, recording, re-filling and disposal costs at end of life

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Products that meet your challenges

Protect people, assets and reputation for business continuity

Design and build for resiliency and sustainability

Lower risk with on-time project execution and expertise

Product spotlight – Power Xpert XGIS



- Rating up to 2000A, 31.5kA Isc, 38kV
- Designed and 3rd party tested to IEC 62271 family standard and witnessed by UL
- Safe design: Certified arc-resistant classification AFLR (31.5kA-1s)
- Maximum service continuity through separate metal compartments LSC2B, and Tank seals are factory tested and assembled, no on-site gas handling required
- Compact design allows installation with minimal floor space
- Enhanced safety, small footprint and virtually maintenance-free design helps to lower ownership cost and optimize ROI.
- Synergy with Eaton's complete project solutions streamlines your project from planning and procurement through to completion

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Products that meet your challenges

Protect people, assets and reputation for business continuity	Design and build for resiliency and sustainability	Lower risk with on-time project execution and expertise

Product spotlight – Relays for protection and control



- Range of safety and control relays suitable for Eaton low and medium voltage systems
- Protection (MR-range) and Control (MC-range)
- Extensive range including directional feeders, generator differential protection, motor protection and transformer protection
- IEC 61850 compliant
- All current and ground current inputs designed for 1 A and 5 A
- Software for easy parameter setting
- Multiple communication protocols including Modbus, Profibus, DNP3.0, IEC 61850 and IEC 60870-5-103

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Products that meet your challenges

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Product spotlight – W-VAC*i* Vacuum Circuit Breaker



- 3rd party type tested according to IEC62271-100
- Complete rating:
  - 12/17.5 kV up to 4000 A 50 kA - 3 s
  - 24 kV up to 2500 A 31.5 kA – 3 s
- Maximum flexibility: withdrawable and fixed design
- Reliable switching in vacuum with Eaton Vacuum Interrupters
- Safe and user friendly operation
- Full range of accessories and auxiliary control voltages
- Virtually maintenance free
- SF_6-free design
- Long service life
- Optional remote racking capability

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Products that meet your challenges

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Product spotlight – W-SLC Vacuum Contactor



- Up to 12 kV
- Up to 400 A 50 kA (limited by HV fuse)
- Maximum flexibility: withdrawable and fixed design
- Safe and user friendly operation
- Full range of accessories and auxiliary control voltages
- Virtually maintenance free
- SF_6-free design
- Long service life

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Products that meet your challenges

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Product spotlight – M2L



Integrated power distribution for Medium to Low voltage

- Turnkey solution
- Reduced investment
- Savings on construction costs for the technical room
- Minimize usage of expensive low voltage cables
- Limiting power losses due to increase in medium voltage cables

Get faster to market

- Predesigned and integrated solution reducing time for design, planning, installation and commissioning

On schedule, on budget

- Reduce project risks by simplifying sourcing process, on site installation and commissioning

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Products that meet your challenges

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Product spotlight – Eaton Connected



Eaton Connected

- Functional, electrical and mechanical integration of Eaton UPS's and Eaton low voltage switchgear

Multiple functions in an integrated UPS solution

- Incoming feeders, outgoing feeders and maintenance bypass
- Ensuring selectivity, overcurrent and short circuit protection
- IEC 61439-2 tested in conjunction with 93PM and 9395P UPS series.

Get faster to market

- Predesigned and integrated solution reducing time for design, planning, installation and commissioning

On schedule, on budget

- Reduce project risks by simplifying sourcing process, on site installation and commissioning

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Safety technologies that meet your challenges

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Product spotlight – ARCON® Arc Fault Protection System



- Low Voltage switchgear and control gear assembly xEnergy Main with integrated ARCON® meets Criteria 1-7 acc.to IEC/TR 61641:2014 Ed.3
- System arc-fault quenching time ≤ 2 ms
- Detects, evaluates, and extinguishes an arc immediately after it is created, and before any damaging effect occurs
- Integrated self-monitoring function of the entire system to prevent any unexpected downtime
- Minimized downtime costs in case of an arc flash event
- Full personnel protection even with open doors e.g. during maintenance activities

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Safety technologies that meet your challenges

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Product spotlight – Diagnose Temperature Monitoring System



- 24/7 temperature monitoring for low-voltage switchgear assemblies incl. data records and list of events and actions
- Early detection and warning messages
- Predictive Maintenance - taking corrective measures to avoid any massive/irreparable damages
- Optimized service intervals / annual maintenance contract fee
- Reduction of infrared scans and mechanical stress
- Wireless communication and transfer of measured values / no wiring required (plug&play)
- High-quality components dedicated for industrial use / easy to install / snap-on fixing

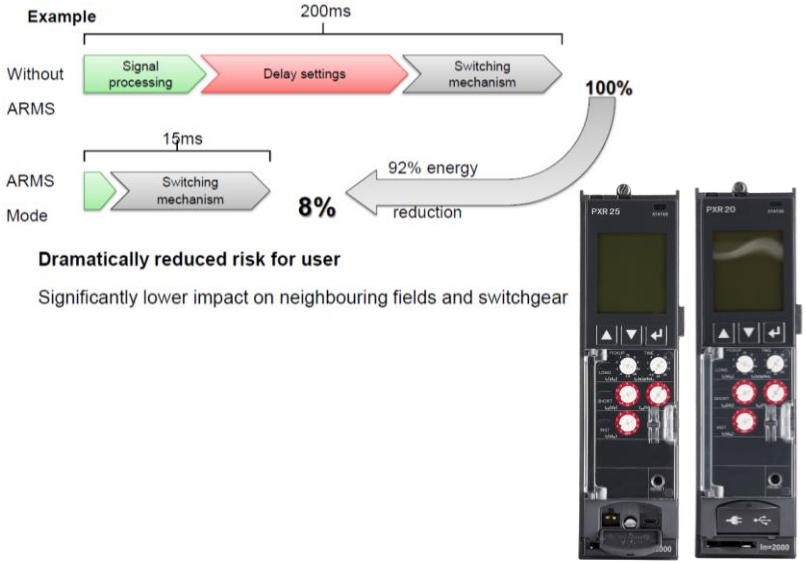
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Safety technologies that meet your challenges

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Product spotlight – Safety Feature ARMS®



- A maintenance mode designed to offer maintenance/user personnel with maximum protection in the event of an arc flash
- The maintenance mode is enabled only when needed and runs separate of the trip unit protection & coordination set points
- When activated a separate integral analog circuit to provides a fast acting instantaneous trip to reduce arc flash incident energy
- Local and remote enabling and indication capabilities are provided as well as consideration for Lock-out/Tag-out procedures

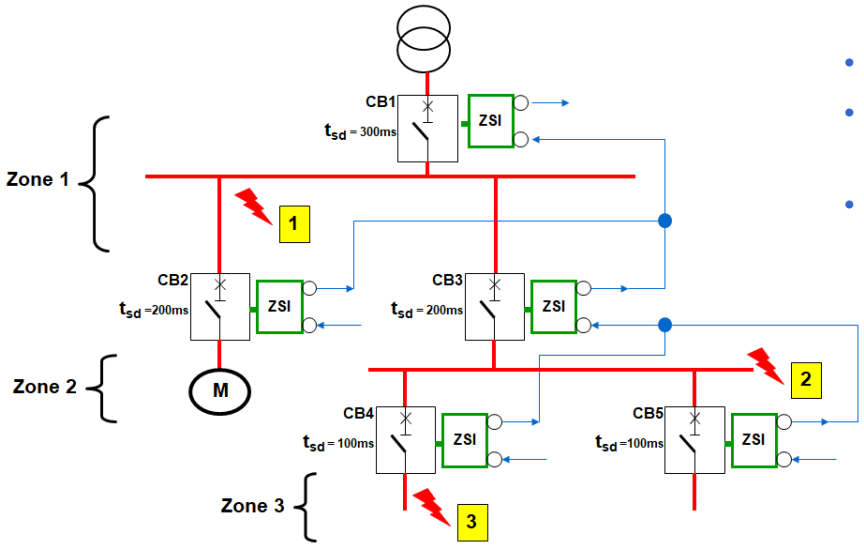
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Products that meet your challenges

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Product spotlight – ZSI (Zone Selective Interlocking)



- Reduction of short circuit energy levels
- Prevents unneeded shut down of total installation in case of short circuit
- ZSI is the controlling of circuit breakers to provide selectivity with very short interruption times for the breaker closest to the fault.

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Products that meet your challenges

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Product spotlight – xEnergy® Main



- Design verified IEC low voltage switchgear up to 7100A
- Fixed, removable and withdrawable feeders and motor starters
- Stacked ACBs
- Back and top busbar arrangement for both front and rear access applications
- Safety features ARMS, diagnose and ARCON® integrated

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Products that meet your challenges

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Product spotlight – Modan S



- Verified and tested to IEC 61439-2
- Internal arc tested to IEC TR 61641 criteria 1 to 7
- Seismic tested according IEC 60068-3-3, AG2 – AG5
- IP4X arc free distribution busbars
- Withdrawable motor starters and feeders
  - Intelligent motor management relays
  - Changing drawer position behind closed doors
  - 1000^{+} operations

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Products that meet your challenges

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Product spotlight – xEnergy® Light



- Safe, compact, modular busbar system for effective energy distribution
- IP31, 42, 55 options available
- Main Bus Bar possible in back or top, free in positioning
- Current rated to 1600A (power modules >630A and feeder modules <630A)
- Form of separation up to form 4b/type 7
- Testing according to IEC 61439
- Available at heights of 1400 to 2000mm, widths of …

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Products that meet your challenges

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Product spotlight – xEnergy® Basic



- Low-voltage sub-distribution boards for residential and functional buildings up to 630A
- In accordance with international standards like IEC 61439-1/3 / IEC 62208 operated by skilled as well as ordinary persons
- Contains a wide range of flush- and surface-mounted wall enclosures as well as floor-standing cabinets made of sheet-steel with different ways of assembling the interior fitting
- This mix of distribution boards, frames and installation modules / mounting kits allows for an unlimited variety of installations for almost all ranges of application
- Provided documentation/software like data sheets, instruction leaflets, design verifications, etc. completes the overall offer

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Products that meet your challenges

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Product spotlight – Xiria Product Family



- Factory assembled and IEC tested switchgear for medium voltage applications up to 24kV
- Rated normal current: 630A
- Block type, Extendible type and Metering panels available
- Extensive list of optional features
- Environmentally friendly by design:
  - SF_6-free
  - 100% recyclable without treatment or toxic residue at end-of-life
- Optimized TCO due to maintenance-free and durable design
- Enhanced safety
- Longevity by design

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Products that meet your challenges

Protect people, assets and reputation for business continuity

Design and build for resiliency and sustainability

Lower risk with on-time project execution and expertise

Product spotlight – Xiria Block type



- Available as: 2-, 3-, 4-, and 5-panel Block type
- IAC: AFLR 20kA – 1s
- Reliable switching in vacuum with Eaton Vacuum Interrupters
- Sealed for life compartment with conditioned (dry) air.
- Suitable for manual and automated operated networks
- Easy integration with smart grid and SCADA applications
- Visible safety: Viewing windows confirm physical state of switchgear.
- Highly flexible and compact
- Intuitive operation
- Logical interlocks to prevent from unsafe operation.

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Products that meet your challenges

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Product spotlight – Xiria Extendable type



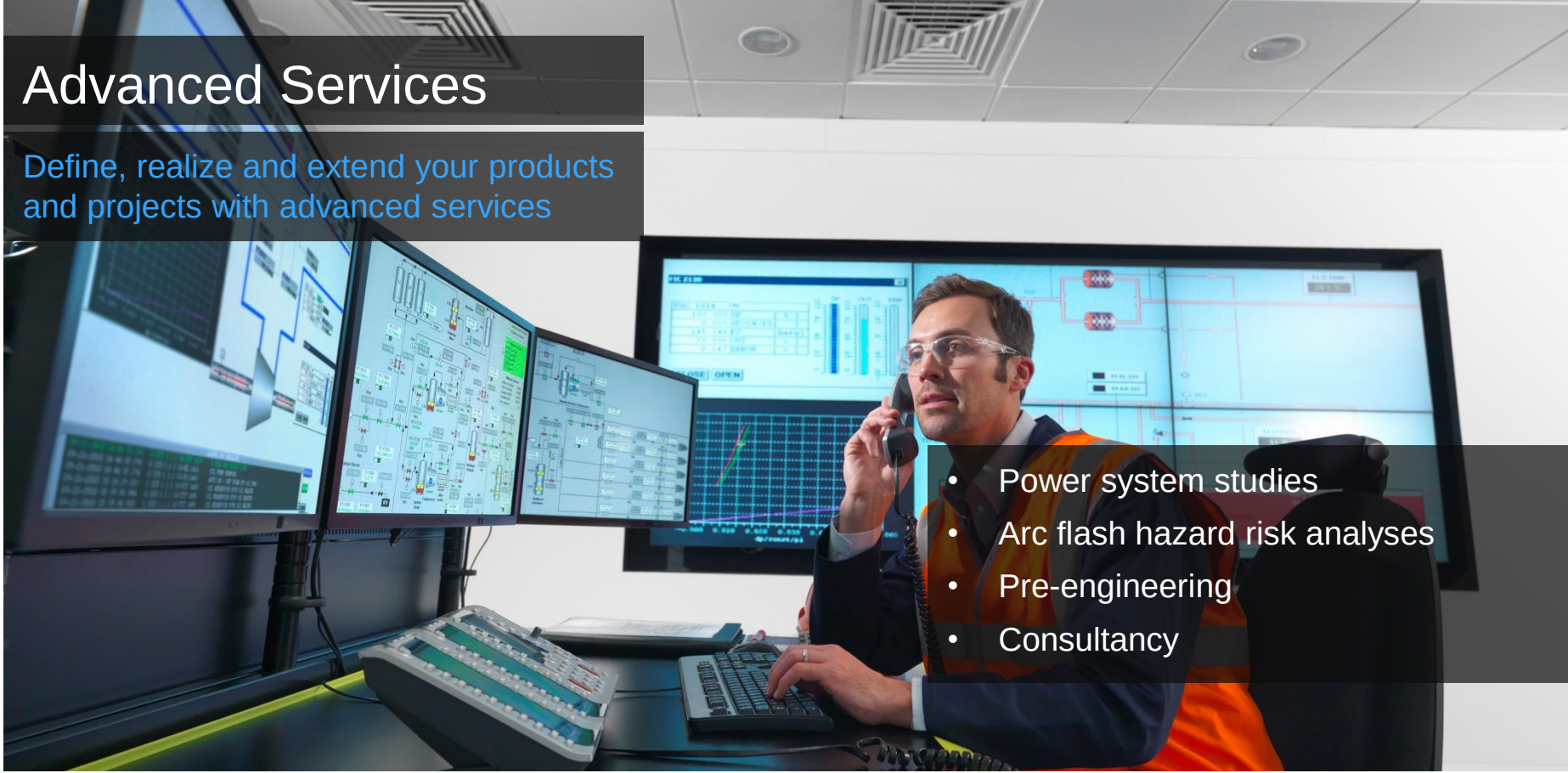
- Available as: 1-, 2-, 3-, 4-, and 5-panel Extendible type
- IAC: AFLR 20kA – 1s
- Reliable switching in vacuum with Eaton Vacuum Interrupters
- Sealed for life compartment with conditioned (dry) air.
- Suitable for manual and automated operated networks
- Easy integration with smart grid and SCADA applications
- Visible safety: Viewing windows confirm physical state of switchgear.
- Highly flexible and compact
- Intuitive operation
- Logical interlocks to prevent from unsafe operation.
- Arc absorbers available for venting an internal arc in the same room.
- Up to 10,000 switching operations

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Advanced Services

Define, realize and extend your products and projects with advanced services



- Power system studies
- Arc flash hazard risk analyses
- Pre-engineering
- Consultancy

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Supply Services

Realize, maintain and extend your products' life with supply services



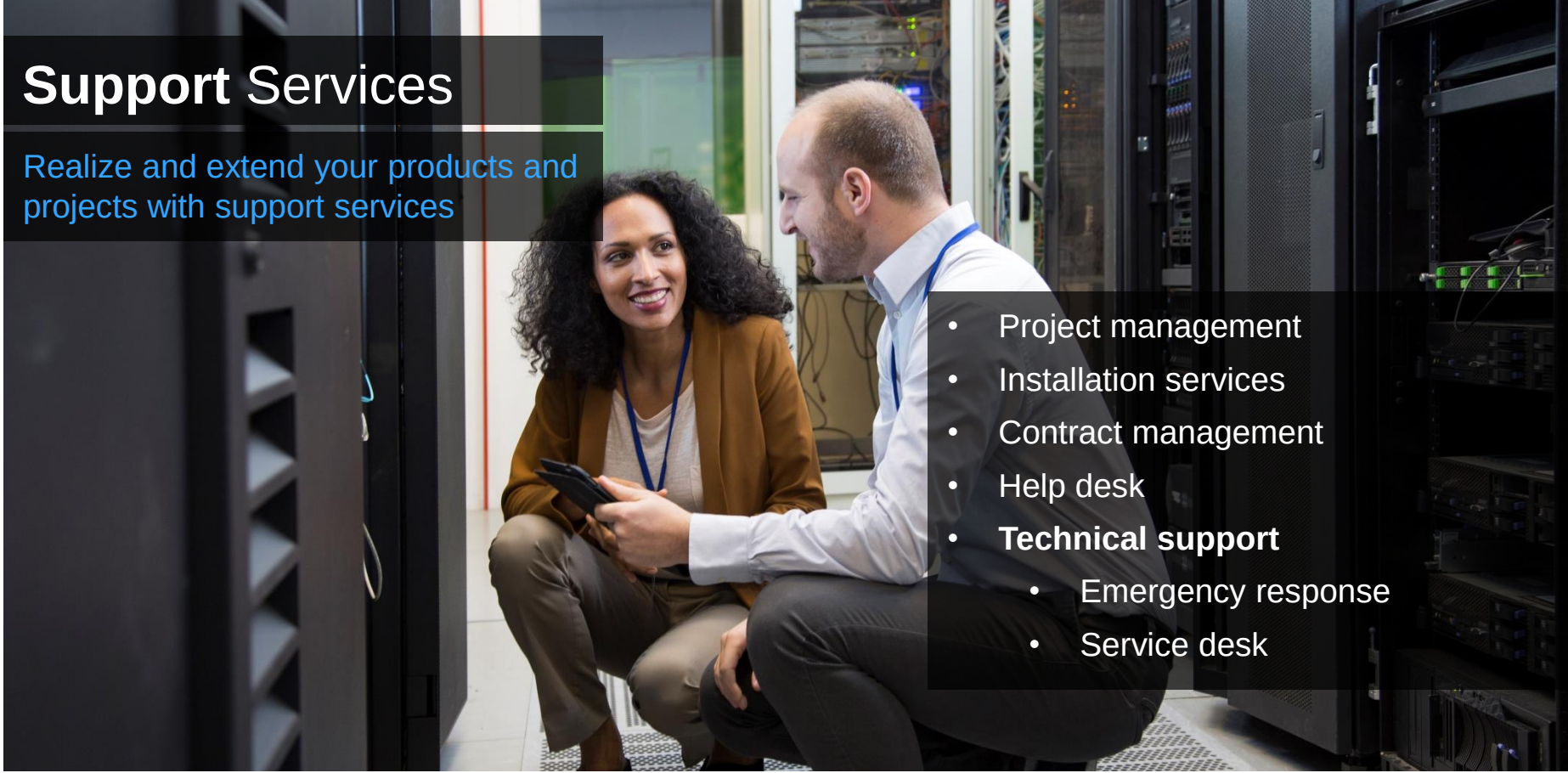
- Initial supply
- Standard supply
- Direct replacement
- Preventative maintenance supply
- Extensions

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Support Services

Realize and extend your products and projects with support services



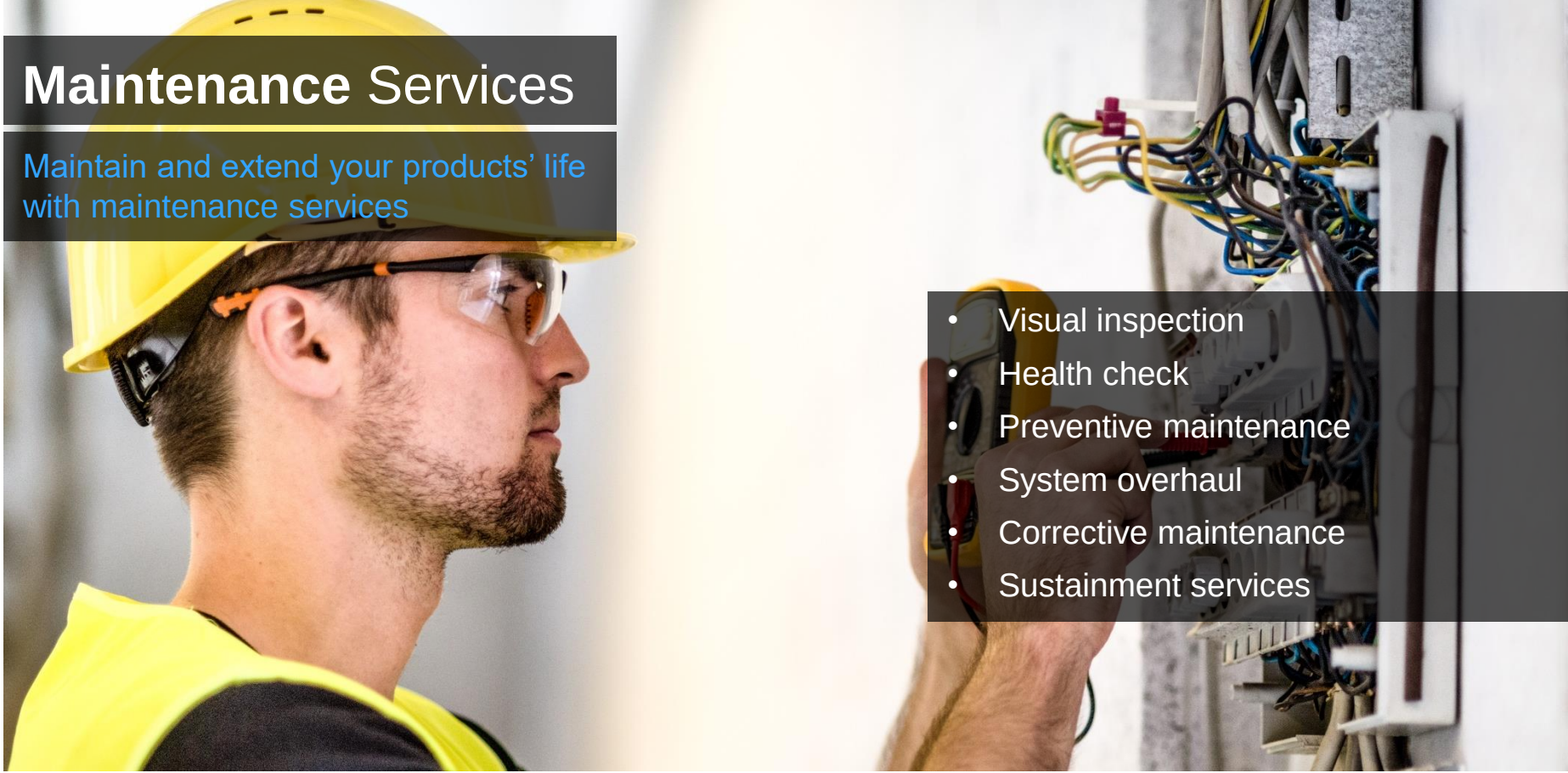
- Project management
- Installation services
- Contract management
- Help desk
- **Technical support**
  - Emergency response
  - Service desk

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Maintenance Services

Maintain and extend your products' life with maintenance services



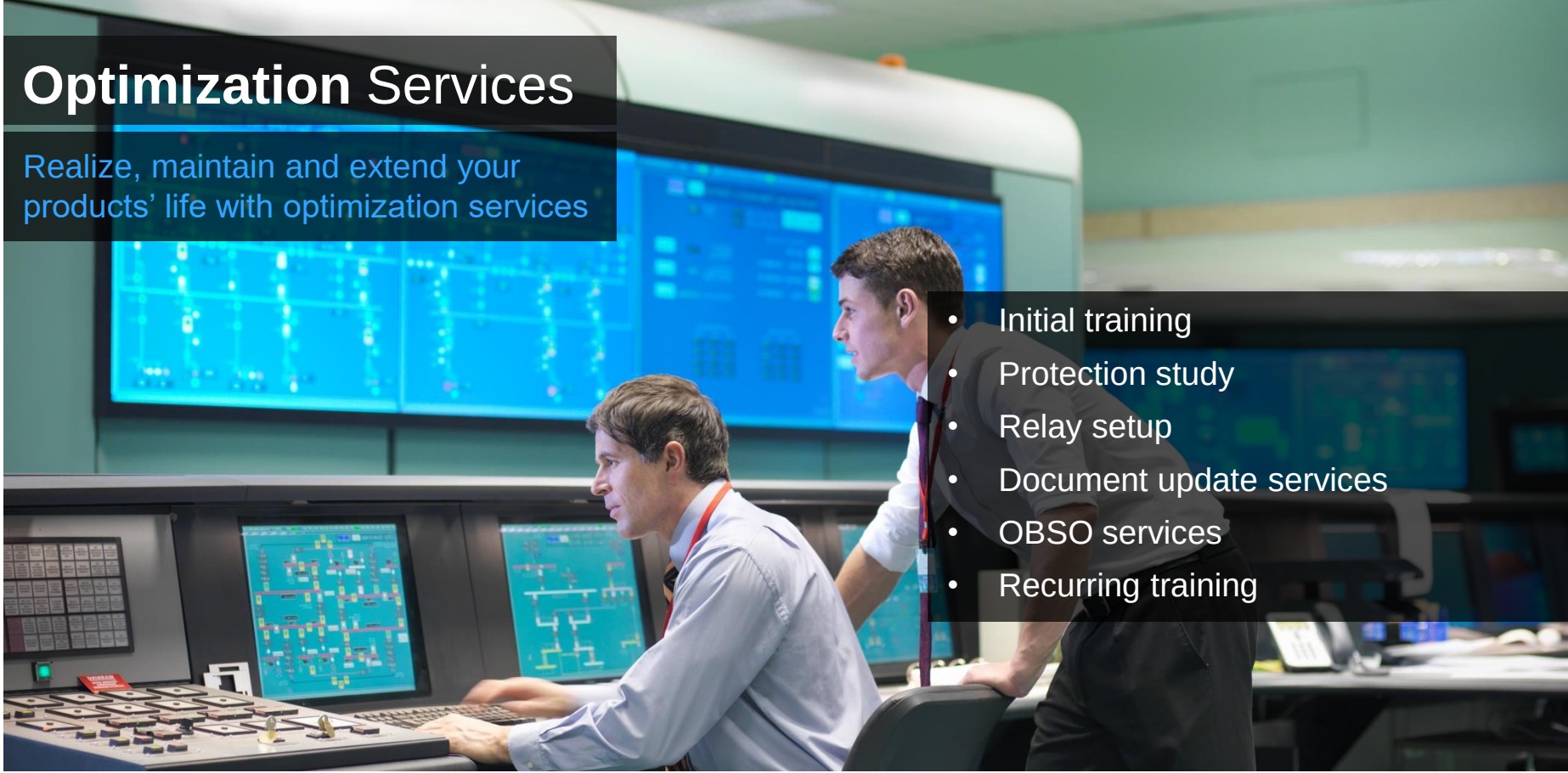
- Visual inspection
- Health check
- Preventive maintenance
- System overhaul
- Corrective maintenance
- Sustainment services

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Optimization Services

Realize, maintain and extend your products' life with optimization services



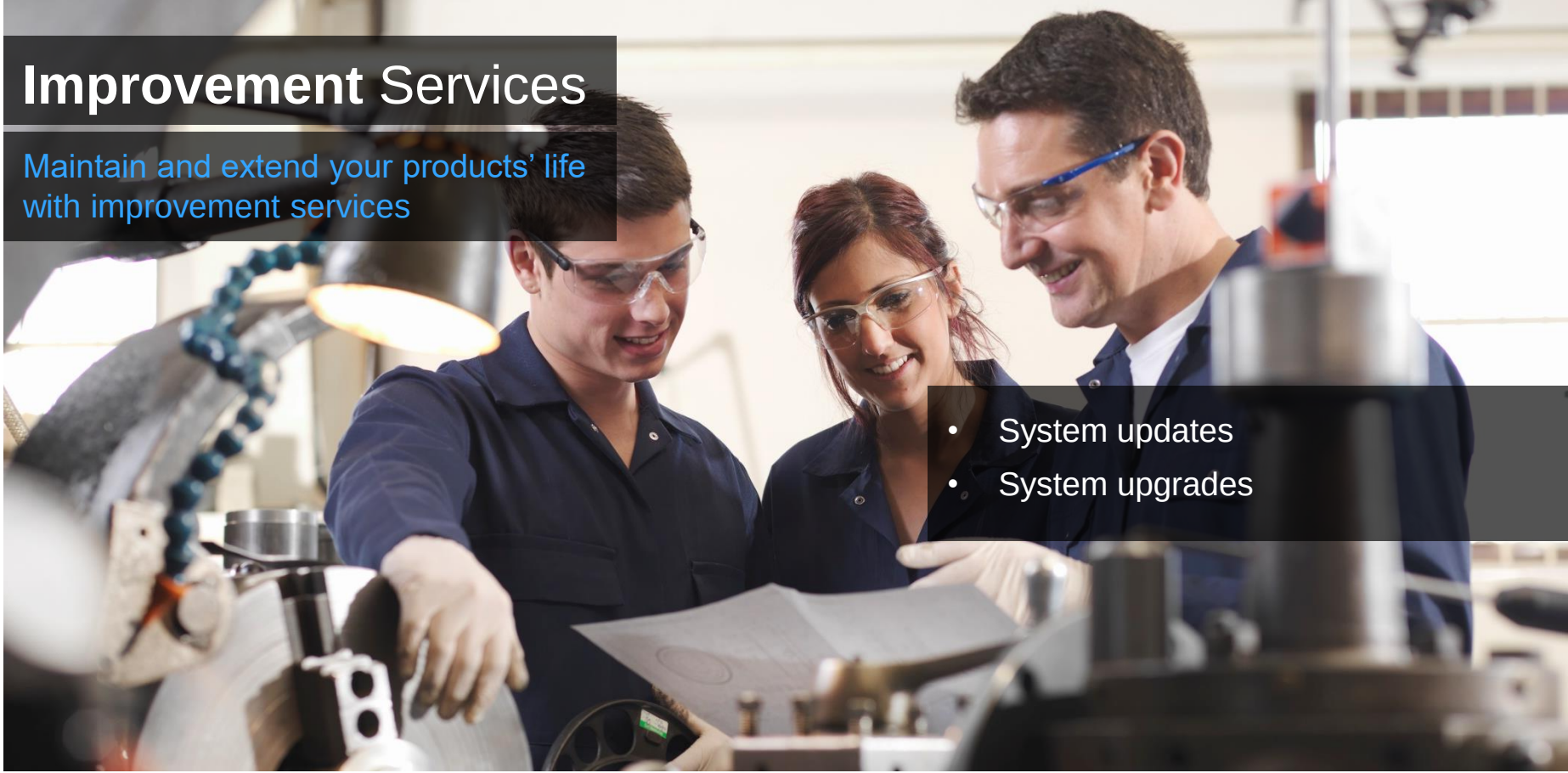
- Initial training
- Protection study
- Relay setup
- Document update services
- OBSO services
- Recurring training

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Improvement Services

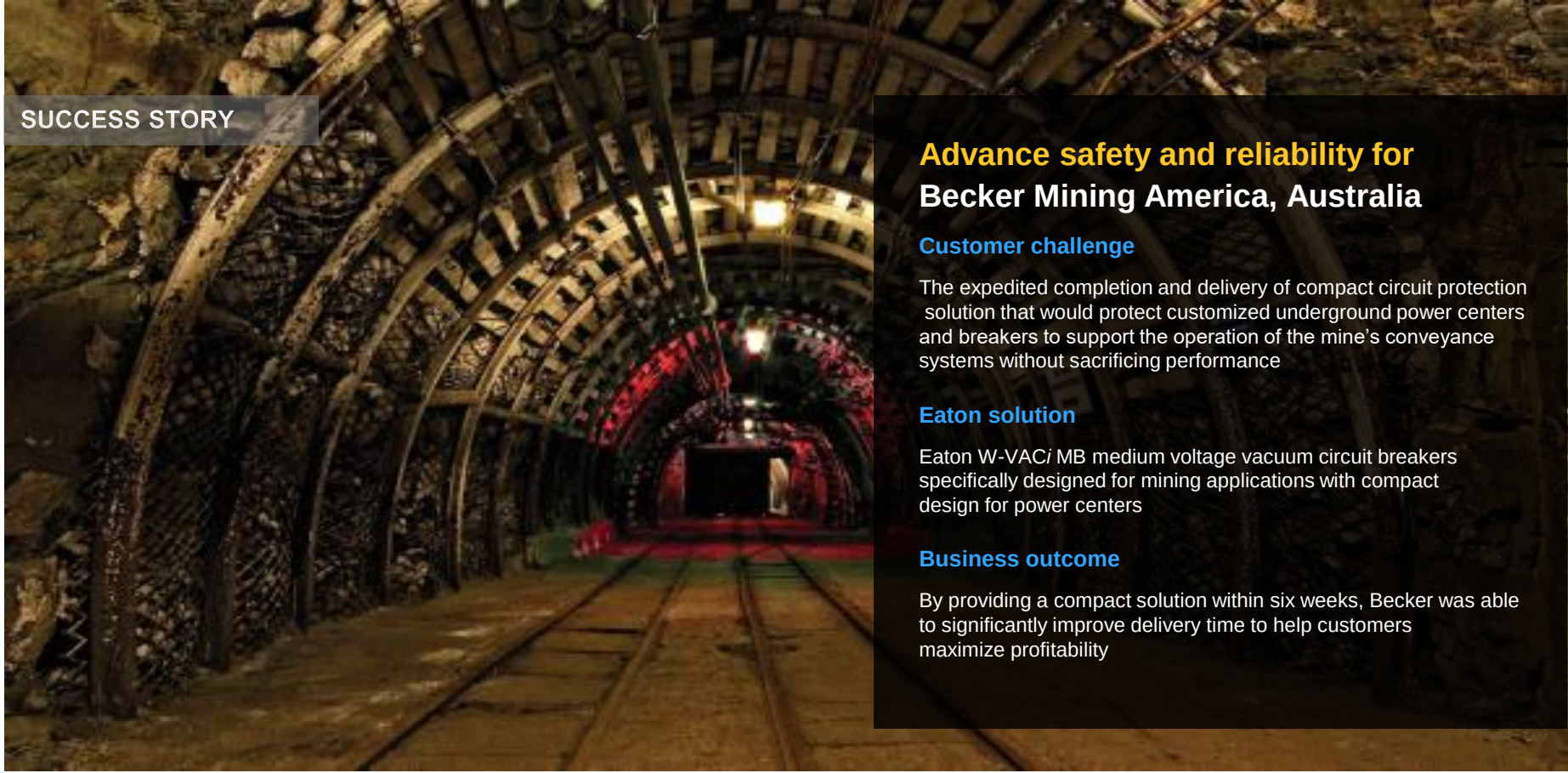
Maintain and extend your products' life with improvement services



- System updates
- System upgrades

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SUCCESS STORY

Advance safety and reliability for Becker Mining America, Australia

Customer challenge

The expedited completion and delivery of compact circuit protection solution that would protect customized underground power centers and breakers to support the operation of the mine's conveyance systems without sacrificing performance

Eaton solution

Eaton W-VAC*i* MB medium voltage vacuum circuit breakers specifically designed for mining applications with compact design for power centers

Business outcome

By providing a compact solution within six weeks, Becker was able to significantly improve delivery time to help customers maximize profitability

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SUCCESS STORY

Managing and distributing continuous power safely for RWE, Germany

Customer challenge

Develop systems and concepts that provide the greatest possible security in the wake of increased deployment of localized generation and demands on quality.

Maintain the quality of energy supply at an internationally exemplary level with low outage times, and minimize the risk to people and switchgear of arc flash accidents

Eaton solution

Installed Eaton's low voltage substations, including the Arcon arc fault protection system and Modan power distribution system

Business outcome

Offered RWE a means to manage and distribute power safely at currents of up to 6300A and enabled fast and secure communication with automation and control systems over standard field buses

Eaton's Modan modules allowed live swapping and replacement, eliminating interruptions in power supply and ensuring a continuous supply of power to all customers

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SUCCESS STORY

Optimizing system availability Airbus, Germany

Customer challenge

Modernization of an existing low voltage main distribution unit for increased system availability and safety.

Eaton solution

Eaton developed a complete solution, including switchgear monitoring and continuous temperature monitoring at critical points to an arc fault protection system.

Business outcome

Good-as-new system equipped with extensive monitoring functionality connected to the control system enabling data examination even for individual circuit breakers, unexpected temperature spikes at critical points are reported early and switch-off is quick and reliable in the event of an arc fault.

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SUCCESS STORY

MV switchgears installation at 1,600m above sea level
Municipal utility in Beckenried, Switzerland

Customer challenge

The utility company had to replace medium voltage switchgear that was difficult to access at 1,600 m above sea level. For a large part, it generates its electricity through hydroelectric power and environmental aspects that are core to the utility.

Eaton solution

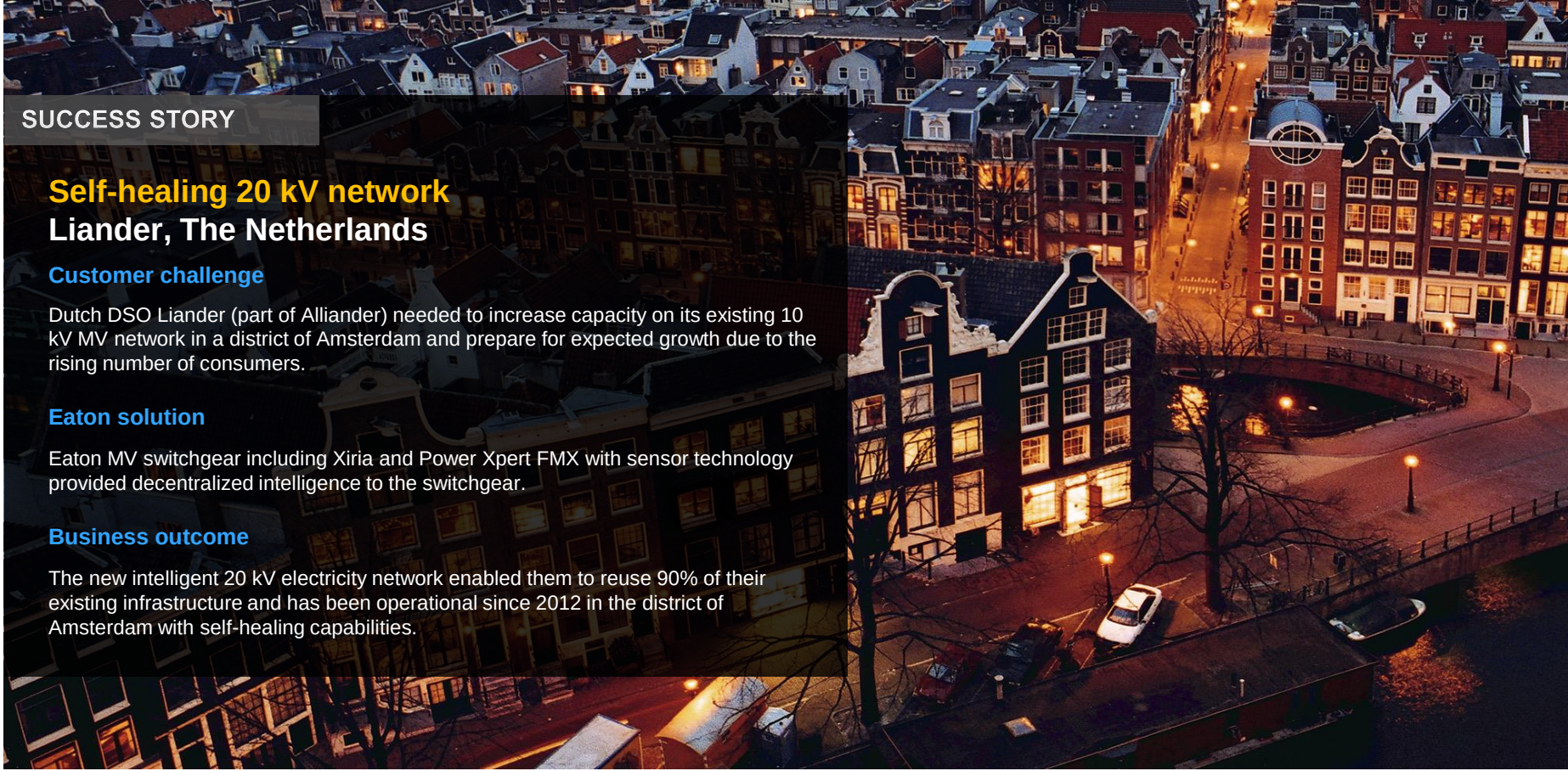
Compact design and flexibility of the SF6-free switchgear were the most important criteria when selecting the system. The solution included five panels of the extendable Xiria E switchgear (two load switches, three circuit-breakers). A compact, reliable, maintenance-free medium voltage power distribution solution in the hard-to-access hiking and skiing region.

Business outcome

Thanks to the modular design, installation could be done in one day. And, it meets the utility's requirements for easy future expansion. This solution also met the utility's environmental concern given the SF6 -free design.

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SUCCESS STORY

Self-healing 20 kV network
Liander, The Netherlands

Customer challenge

Dutch DSO Liander (part of Alliander) needed to increase capacity on its existing 10 kV MV network in a district of Amsterdam and prepare for expected growth due to the rising number of consumers.

Eaton solution

Eaton MV switchgear including Xiria and Power Xpert FMX with sensor technology provided decentralized intelligence to the switchgear.

Business outcome

The new intelligent 20 kV electricity network enabled them to reuse 90% of their existing infrastructure and has been operational since 2012 in the district of Amsterdam with self-healing capabilities.

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SUCCESS STORY

Complete electrical supply system
Stedin Utility, The Netherlands

Customer challenge

Dutch regional network operator Stedin was faced with a 50-year old infrastructure:

- 2,200 bays of switchgear based on minimum-oil circuit breakers in its HV substations
- 3,200 similarly equipped bays in distribution cabinets.

Eaton solution

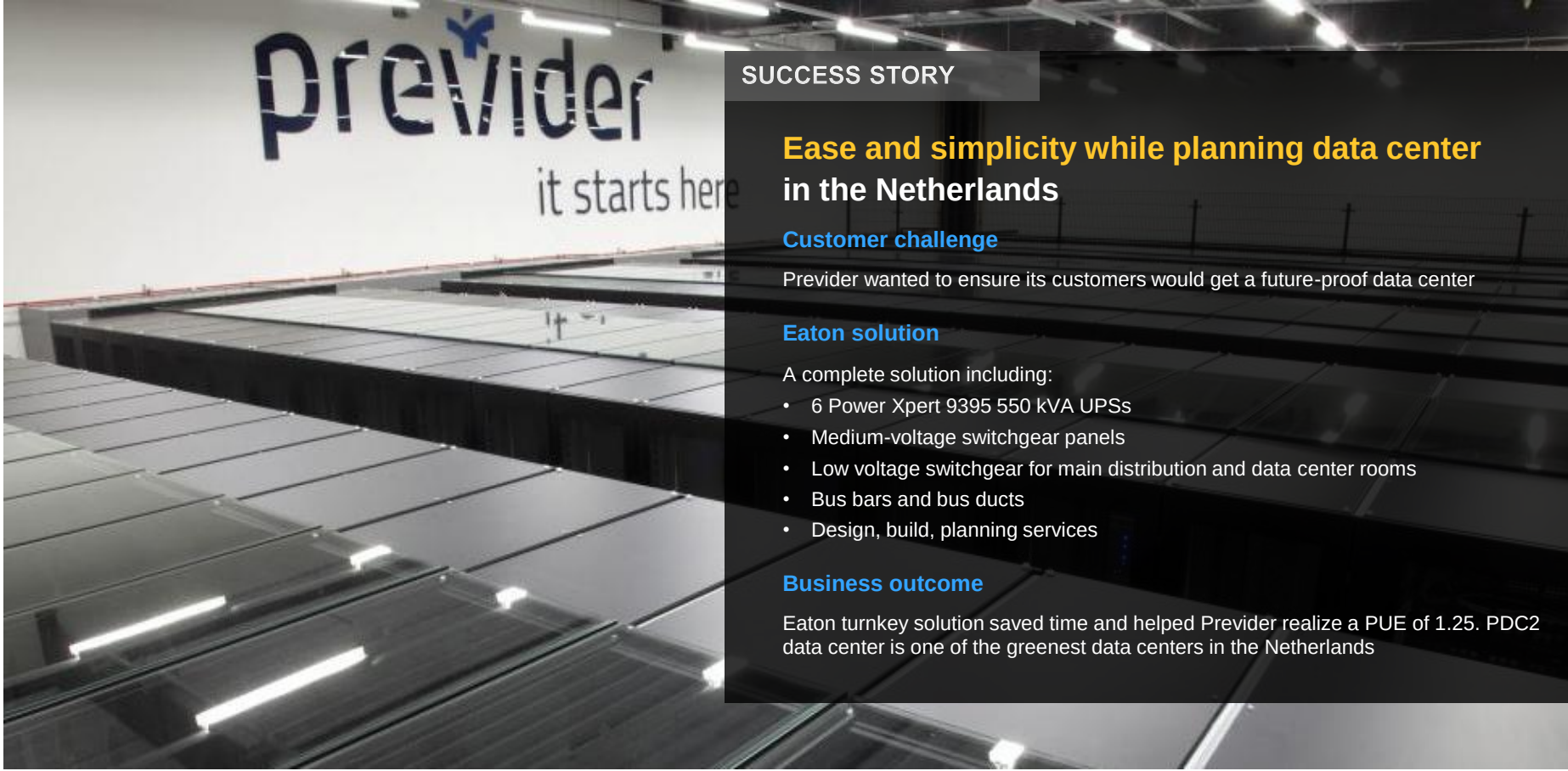
Stedin and Eaton devised a two-fold approach to minimize risk and impact on the company's core business. The switchgear would all be replaced within 20 years. Throughout this period Eaton and Stedin would work together to conserve the old equipment prior to replacement.

Business outcome

Both Stedin and Eaton are confident that the safety and security of the substations and distribution cabinets that use obsolete breakers can be maintained until the replacement program is completed in 2032.

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SUCCESS STORY

Ease and simplicity while planning data center in the Netherlands

Customer challenge

Previder wanted to ensure its customers would get a future-proof data center

Eaton solution

A complete solution including:

- 6 Power Xpert 9395 550 kVA UPSs
- Medium-voltage switchgear panels
- Low voltage switchgear for main distribution and data center rooms
- Bus bars and bus ducts
- Design, build, planning services

Business outcome

Eaton turnkey solution saved time and helped Previder realize a PUE of 1.25. PDC2 data center is one of the greenest data centers in the Netherlands

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SUCCESS STORY

Power containers for Recycling Center, Sweden

Customer challenge

While wanting to expend its site, a recent fire in an existing Power containers for several waste processing machines brought urgent need for a new framed solution.

Eaton solution

A complete solution consisting of project management and overall engineering. Eaton put together a Power container including Cast Resin transformer in Power Xpert CX, Arc protection system ARCON built up with Master unit, two slave units, five arc sensors and one Quenching device, as well as sub-distribution boards, Fire detection, Split type air conditioning unit and LV cable works.

Business outcome

An extended site with minimal downtime and reliable power.

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SUCCESS STORY

Minimum downtime for switchgear replacement, NL

Customer challenge

A Utility customer had multiple existing switchgear that needed to be replaced. Downtime had to be kept to a bare minimum.

Eaton solution

A solution consisting of a an enclosure that could be placed on the pavements in front of the switch room was placed on legs that allowed for simple cable pull back and re-connection to the temporary solution. This provided the ability to disconnect and remove the old installation, place the new installation and reconnect the cables.

The temporary container solution needed to be placed in public areas and therefore needed to be safe, including the company cooler.

Business outcome

The temporary container solution was used on multiple locations and allowed for minimum interruption for consumers and provided a safe way to replace an existing switchgear.



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