



Smarter solutions

Smart Buildings portfolio -
control, analyse and optimise

Solutions for all types of buildings

Control, analyse and optimise

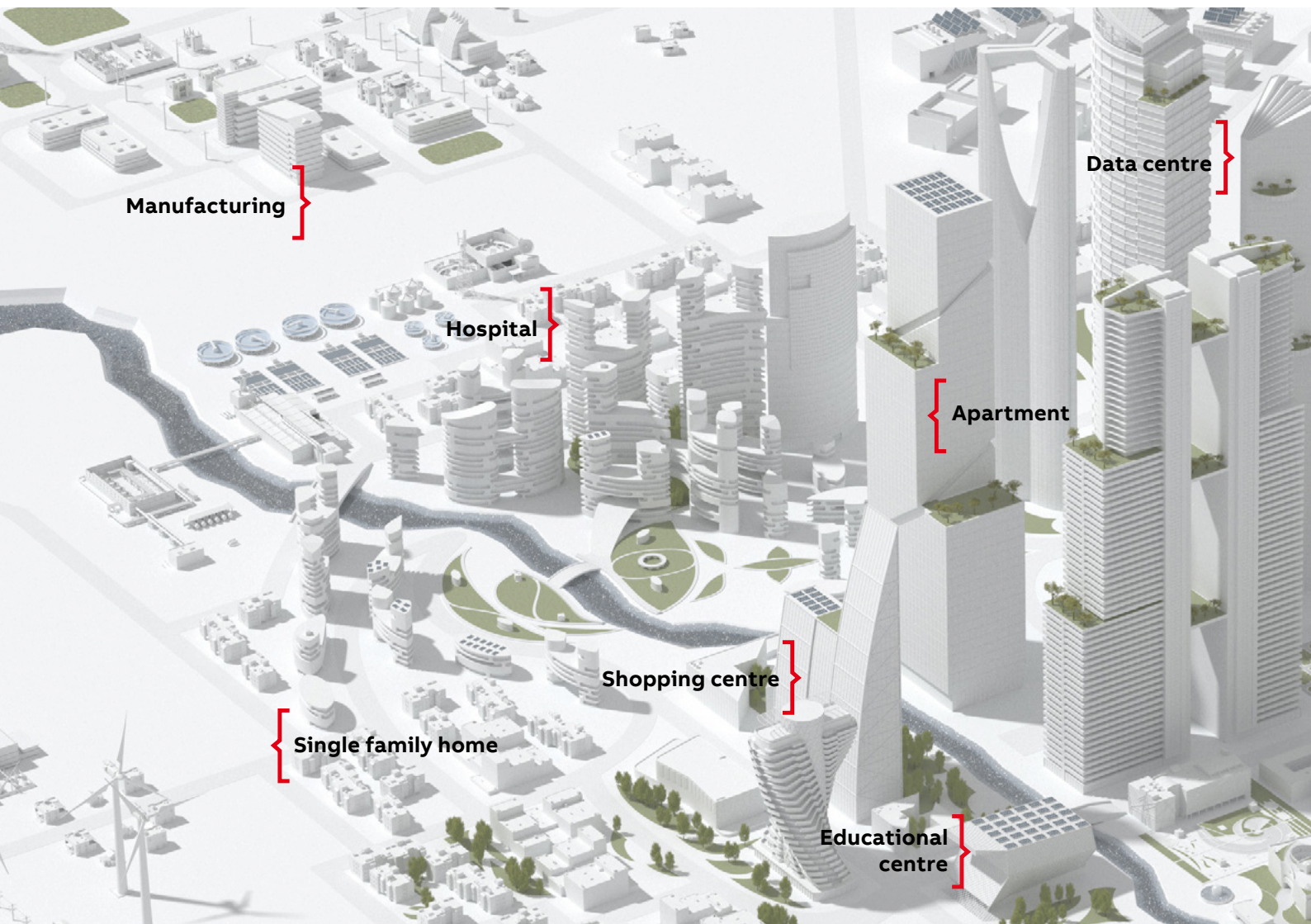


ABB is committed to providing engineered installation solutions that not only boost the efficiency of today's buildings but help create buildings that actively supports the global transition to low-carbon energy by using leading edge technology.



Smart building

Intelligent Building
Technologies



Residential



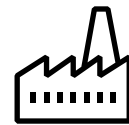
Commercial



Institutional



Infrastructure



Industrial

Our Smart Buildings Solution portfolio helps to achieve ABB's smartainable® Mission to Zero for everything from industry and buildings to infrastructure and transportation. The vision is to achieve a zero-emission reality not only for the future but also today.

About ABB

Writing the future
of safe, smart and
sustainable buildings

ABB is a technology leader in electrification and automation, enabling a more sustainable and resource-efficient future.

Why ABB?

Why is it safest to plan with ABB? No one can foresee the future. One thing, however, is certain: more and more is expected of building systems technology and its integration. Serving industries including commercial buildings, workplaces, hospitals, schools, campuses, stadiums, enterprises, and more.

Our holistic offering creates value for our customers and provides connected experiences to increase productivity, optimize processes, and ultimately provide higher tenant satisfaction. Smart Buildings Solution portfolio helps to achieve ABB's Mission to Zero for buildings, committed to writing the future of safe, smart, and sustainable electrification for everything from industry and buildings to infrastructure and transportation.

With ABB's smarter building solutions, you can take advantage of ABB's expertise and know-how of building automation in both the electrical and mechanical building systems. From the individual components through systems and a choice of communications protocol platforms, ABB can support a broad range of requirements.

**Our vision is to achieve a
zero-emission reality not only for
the future but also today.**



Smarter solutions for different building types

Every building has unique requirements, therefore, our innovative portfolio provides the flexibility in designing and implementing building solutions that adapt easily to individual needs. Moreover, your investment is secured for future modifications and extensions, especially when the building is to be used for a different purpose.

Green buildings certifications

The role that buildings play in climate change is under the microscope. The UN Environment Programme (UNEP) estimates that buildings consume 40 per cent of global energy and produce a third of greenhouse gas (GHG) emissions. Integrating smart technology into new builds and retrofitting on existing sites is therefore becoming a long-term strategic decision for companies. Clear regulations and robust certification programs are key to effect the urgent change and acceleration of measures needed to meet sustainability goals.

But what makes a building sustainable, and how do you prove it for the stakeholders who are increasingly looking to evidence their status? One way is to use a sustainability assessment method for buildings.

Building Research Establishment

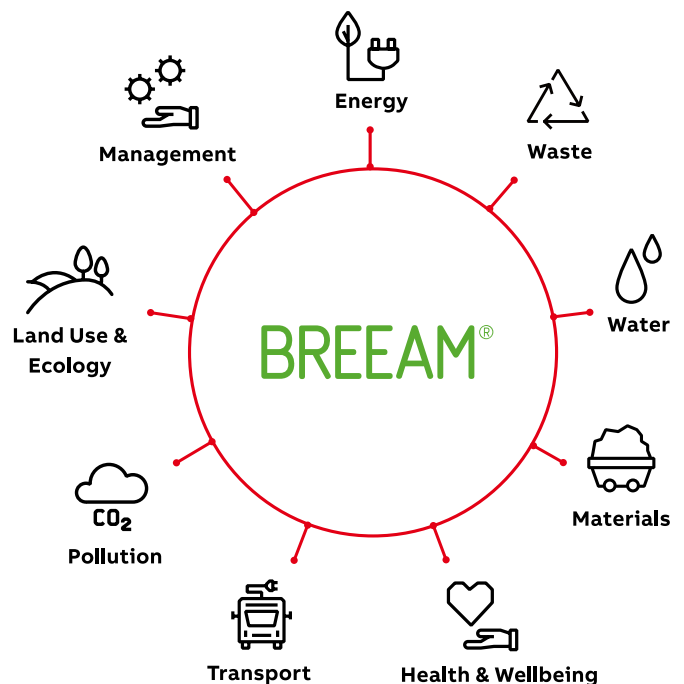
Environmental Assessment Method (BREEAM)

BREEAM is considered the world's leading method for assessing sustainability in the construction sector. The system assesses the environmental, social and economic sustainability performance of buildings, communities and infrastructure projects. As an internationally recognised mark of quality, the certification provides guidelines for companies seeking to reduce their environmental impact when refurbishing existing buildings or constructing new ones.

A trusted benchmark of sustainability around the world, BREEAM sets standards for buildings, communities and infrastructure in a very broad range of sustainability issues in nine categories.



BREEAM is flexible enough to apply to all building types: buildings, communities and infrastructure



Smart buildings

Portfolio overview

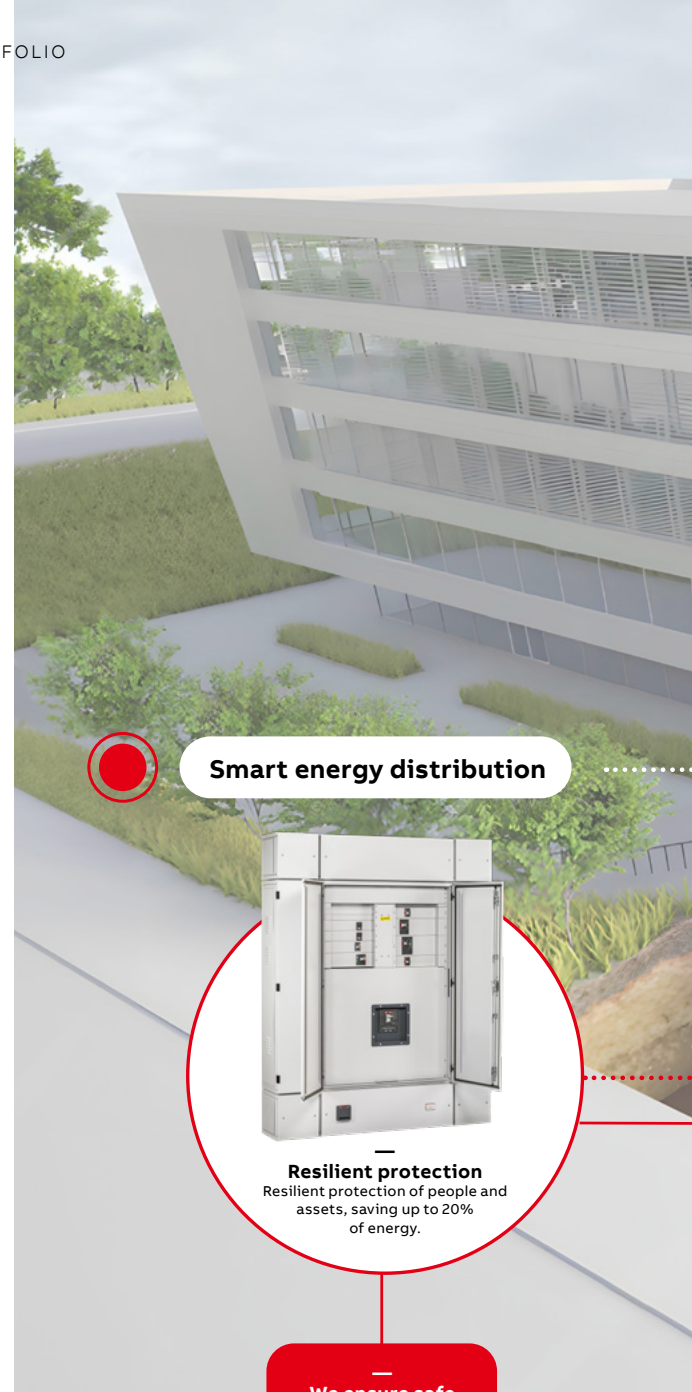
The best solution is, keeping all the factors in view

One of the key advantages of ABB Smart Buildings is its ability to provide a holistic one-stop-shop solution. Instead of sourcing components from different suppliers and trying to integrate them together, ABB offers a complete range of products that seamlessly work together. This saves time and effort for customers by eliminating the complexities associated with integrating products from multiple vendors.

With ABB Smart Buildings, customers have access to a wide array of technological advancements. -ABB's electrical panels are equipped with smart features like power monitoring, energy optimisation, and predictive maintenance capabilities. These panels ensure the efficient distribution of electrical power throughout the building, optimizing energy usage and reducing costs.

ABB provides building automation solutions not only allow manual control of lights and other electrical devices but also enable remote control through mobile applications. These switches can be integrated with other smart building systems such as HVAC, security, and access control, providing a centralized control solution.

Moreover, ABB's smart building components are designed with sustainability in mind. Energy-efficient features help reduce the carbon footprint of buildings while ensuring optimal comfort for occupants. The integration of renewable energy sources and intelligent energy management systems further enhance the sustainability aspect of ABB's solutions.



Smart energy distribution



Resilient protection

Resilient protection of people and assets, saving up to 20% of energy.

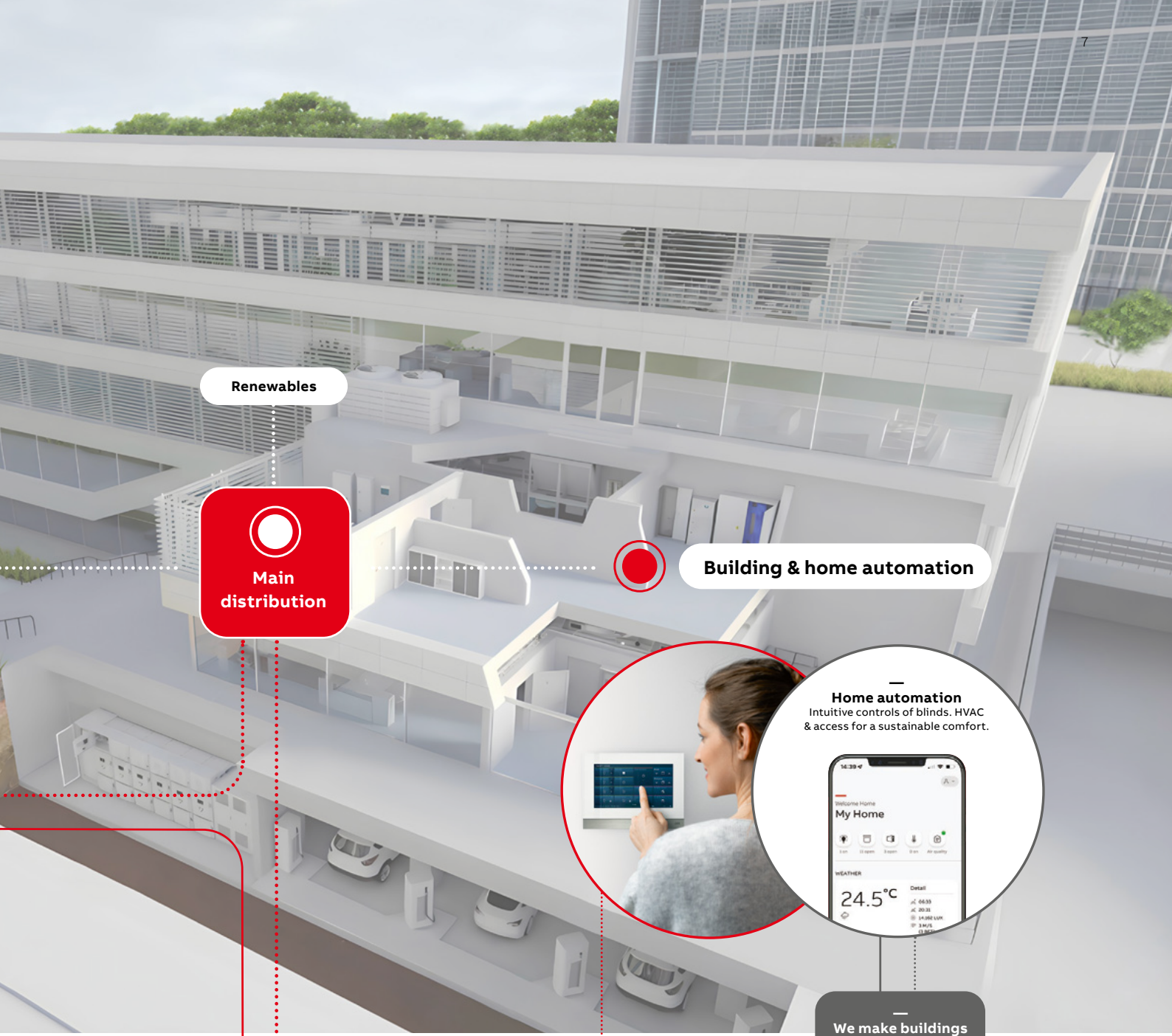
We ensure safe & reliable energy distribution



Electrical panels

Smart meters





Renewables

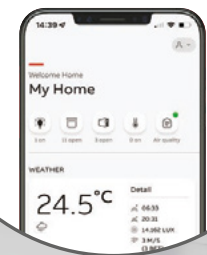


Main
distribution

Building & home automation



Home automation
Intuitive controls of blinds, HVAC
& access for a sustainable comfort.



We make buildings
and homes smart
& sustainable



Energy management
Configurable platforms with time-series
data from process monitoring, automation
and production planning systems.



**Commercial building
automation**
Managing key consumption
points like HVAC (>60%) &
lighting for a high-performance,
sustainable building.



**Wiring
accessories**



ABB i-bus® building solutions

Automation benefits

The right reaction comes automatically, in every situation

Being able to automatically control your building not only adds flexibility to building management, it has a positive effect on efficiency, security and productivity too.

With products and services such as movement detectors, harmonious lighting, door communication, automated heating, air-conditioning, ventilation and shutter management, ABB offers a range of possibilities to put building control firmly into your hands.



Well-Being

Transform the spaces and guarantee comfort and well-being for everyone.



Efficiency

Optimize resource use and lower energy consumption.



Cost Transparency

Obtain full transparency of operating and maintenance costs.



Productivity

Set the best conditions to increase productivity.



Flexibility

Adapt components to table current and future needs.



Sustainability

Integrate renewable to reduce carbon footprint.



Connectivity

Enable intelligent components to connect minimising risks.



Conventional system requirements

The need to have separate functions is removed and combined into a platform with far greater functionality...



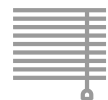
Lighting

Control switch



Heating

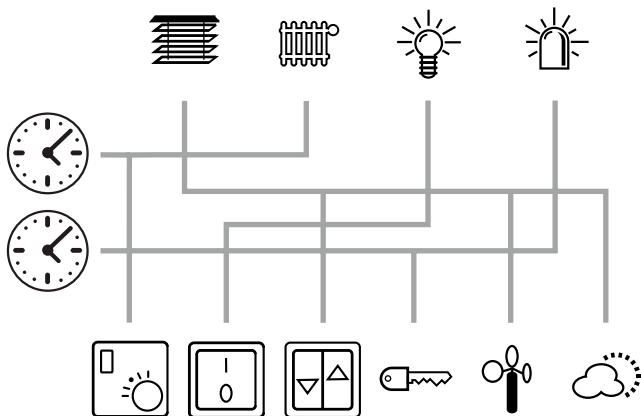
Control thermostat



Shutter

Control interiors

01



02

Actuators
(command recipients)

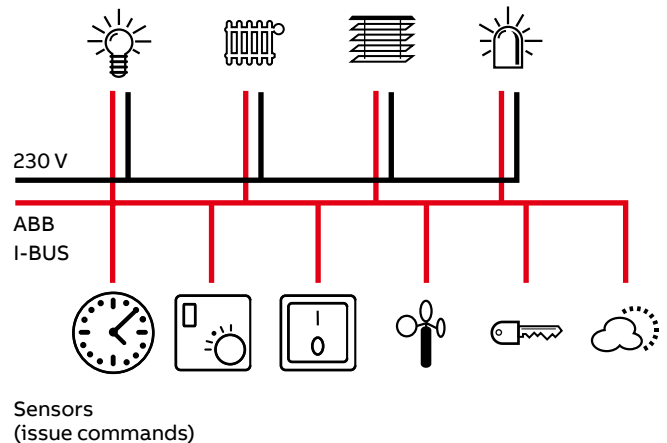


ABB i-bus®

01 The conventional solution: Many separate cables, separate functionality, little flexibility

02 The intelligent solution: ABB i-bus – a system, a standard, with many interoperable functions for maximum flexibility

The well-established ABB i-bus® KNX system is available today for the demands of tomorrow. ABB i-bus® system is the synonym for smart home and intelligent building control. In this innovative system, all devices communicate with one another via a single bus cable which is installed alongside the normal power lines.

The system interconnects all the components in the electrical installation to form a networked system and thus guarantees the transparency and utilization of information across the installation. In this system, all users "communicate" via a single bus cable. Thus, it is possible to integrate all the different functional subsystems within the building into a seamless solution.

With the ABB i-bus® system, the buildings we occupy are easier to manage and control, resulting in increased flexibility, security, economic efficiency and convenience.

The operational flexibility of an ABB i-bus® electrical installation allows the everyday working or living environment to be easily adapted to the individual's needs - now and in the future. The structure created is very flexible in its design due to the possible connection of the devices: linear, tree and star wiring configurations are allowed.

The topology is arranged in lines that can be interconnected via couplers depending on the size of the network. The devices in the respective lines (sensors and actuators) are supplied with energy by a power supply (30 V) whereby the entire bus system can be configured with more than 50,000 bus devices.

The ROI of Smart

More effective and efficient use of power can save money, quickly repaying initial technology expenditure. HVAC and lighting alone can account for about 50 percent of energy use in an average commercial building. By incorporating smart automation, managers may see decreased energy costs of 30 to 50 percent.

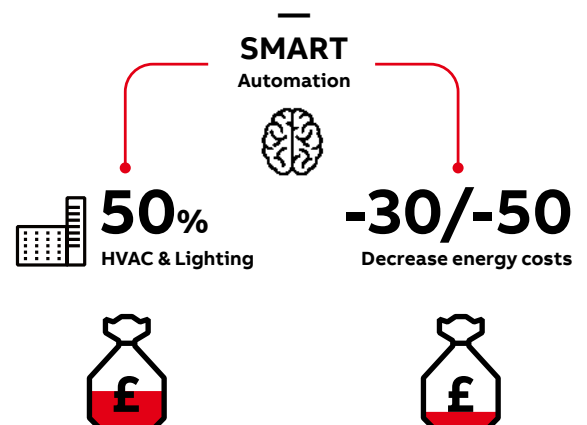
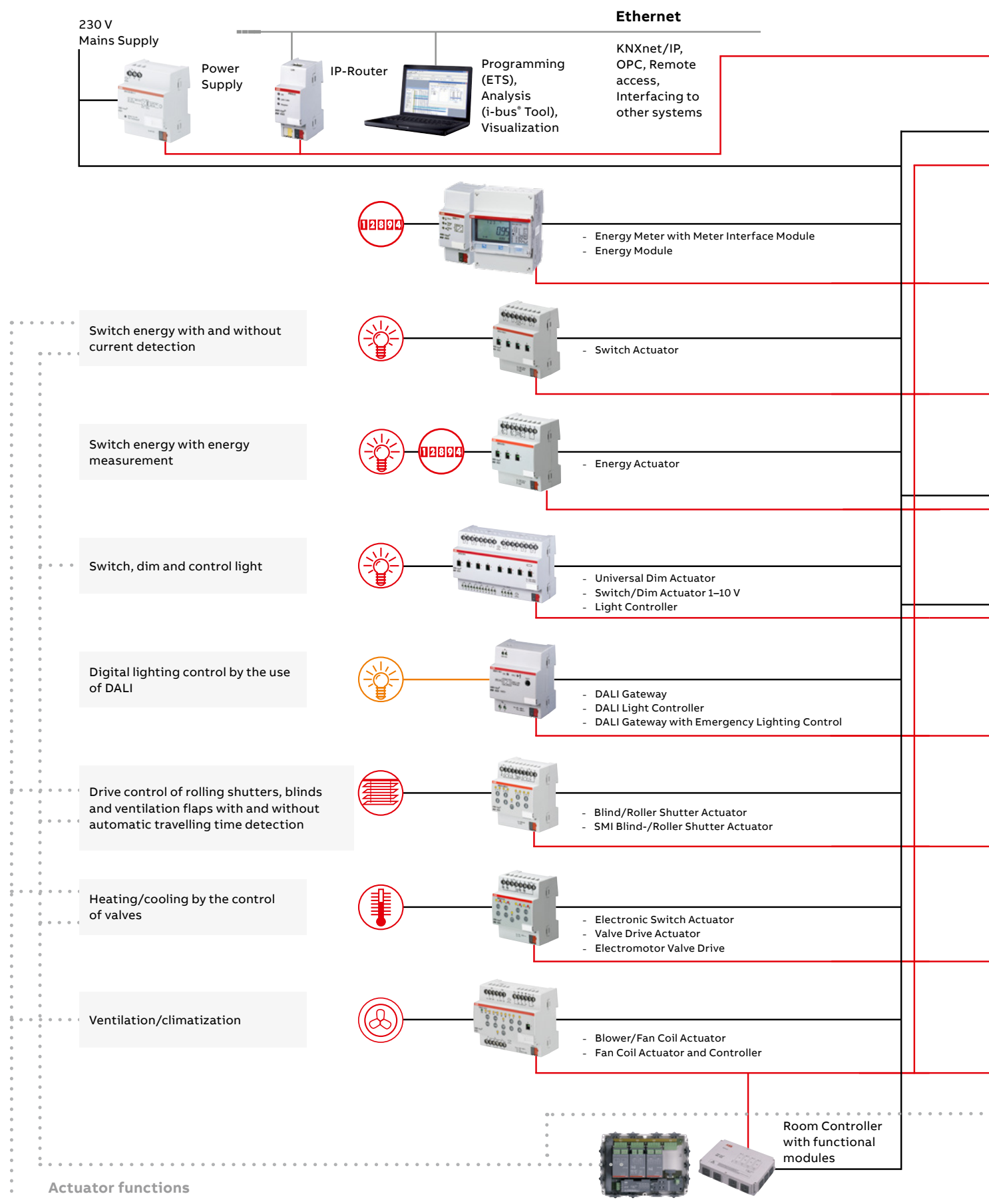


ABB i-bus® KNX

Overview





i-Bus-Main Line/TP

Line 1 2 3 4 ... 13 14 15

Power Supply



Line Coupler

- 64 devices/line
- 15 lines/area with superordinated main line
- max. 15 areas with superordinated area line

- Binary Input



Detect and evaluate switching commands

- Analogue Input



Capture, evaluate and monitor physical values

- Weather Station and Weather Sensor



Evaluate and monitor meteorological data (wind, temperature, rain, etc.)

Display operating conditions and control functions



- Presence Detector
- Movement Sensor
- Light Sensor

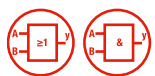


Detect presence and movement

Measure brightness level

Lighting Control

- Logic Module
- Application Unit Logic
- Application Unit Time
- Time Switch



Perform logical operations and trigger timer-controlled functions

- Room Thermostat
- Air Quality Sensor



Capture, evaluate, monitor and control room conditions, temperature, air quality, etc.

- Security Terminal
- Security Module
- KNX Security Panel
- Fault Monitoring Unit
- Monitoring Unit
- Data Logging Unit



Monitor operating conditions, signal technical faults, recognize hazards and trigger alarms

Security System

Room Master devices with different combinations of inputs and outputs and internal logical interconnection



Solutions for rooms with sensor and actuator functions

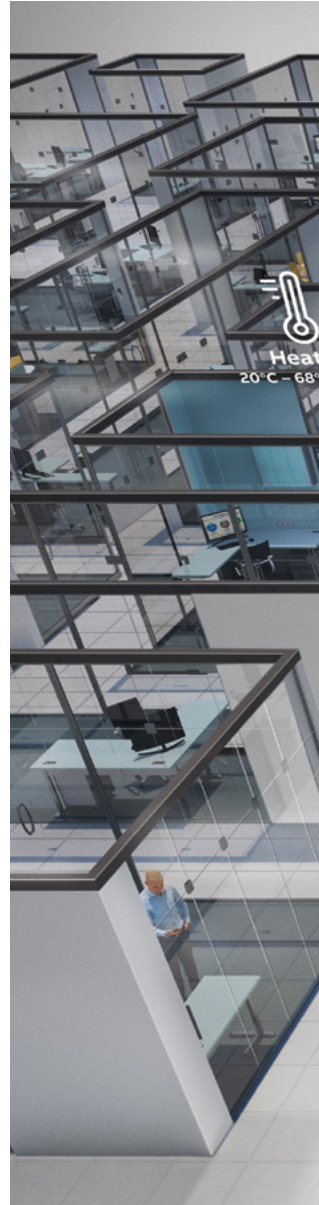
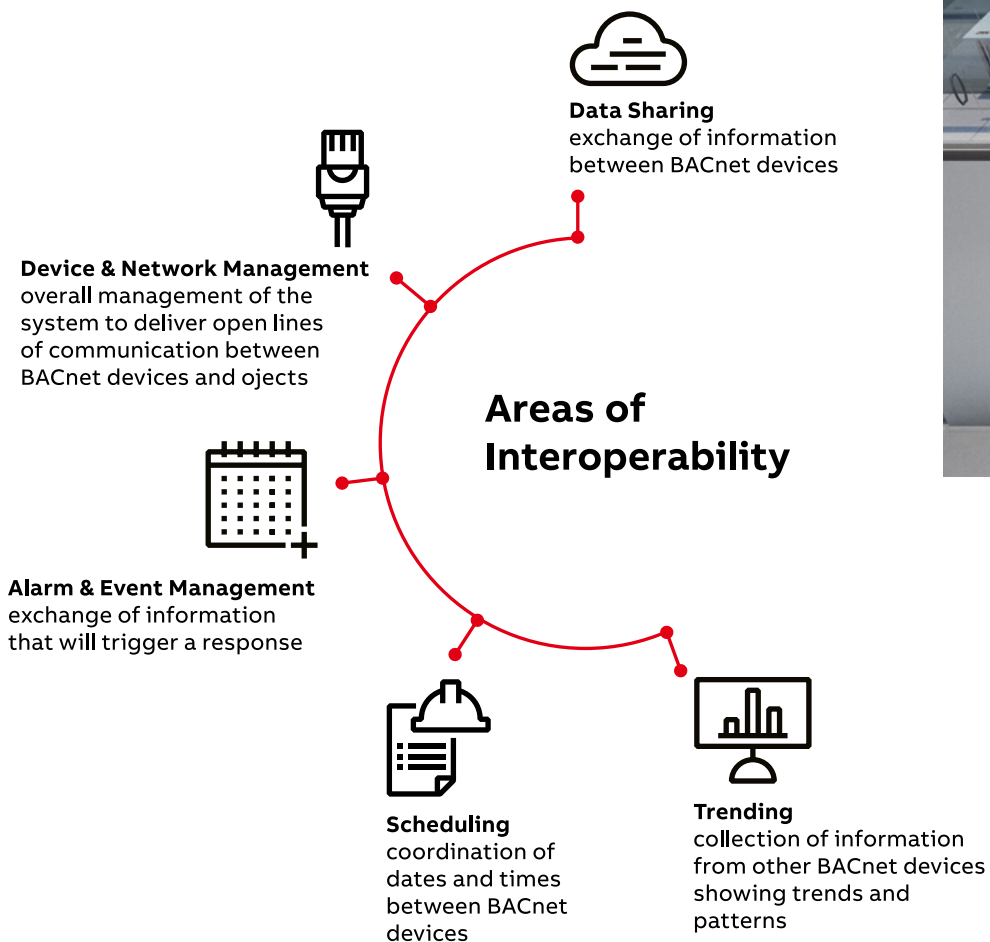
Sensor functions

Introducing ABB Cylon®

Building management system

ABB Cylon® Building Automation and Controls is a powerful and flexible system that provides comprehensive and efficient energy management solutions for commercial and industrial buildings.

The system offers a range of features and benefits for system integrators, facility managers, and building owners. ABB Cylon® building automation and controls solutions provide an optimized environment that is safe, smart, and sustainable.





Each building is ready for the future, with the intelligent control of light, shading, room climate and safety.

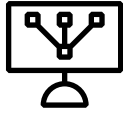


ABB Cylon® BACnet hardware and software products are natively designed to work with the BACnet protocol.

The BACnet protocol sets out a model for the interaction and communication between various devices in building control systems. This model creates an open system that facilitates the integration of BACnet systems within a building. It allows users to expand or upgrade using BACnet equipment or technology from different suppliers.

ABB Cylon® benefits

Flexibility for a smarter world



Intelligent IoT BEMS control | beyond automation

A well commissioned and programmed BMS will deliver on schedules, switching lightings on and off at set times/days and adjusting HVAC according to expected occupancy.

An intelligent IoT BMS goes beyond schedules and expectations and operates on actual sensor data to make adjustments, turn lights on and off, and adjust HVAC in meeting rooms depending on occupancy, no need to worry about lights being left on in empty meeting rooms all day.

And if it's a brighter warmer day than expect, external temperature sensors, weather data, room light, and temperature sensors feed information back to the BMS causing it to react and make intelligent adjustments to lighting, shading, and HVAC to ensure occupant well being is maintained at all times.



Flexibility for a smarter world

Scalable design and flexible building solutions that allow smart devices, systems, and people to connect more easily. Our range of IP controllers built on an open platform provides the interconnectivity and flexibility required to create smarter buildings.

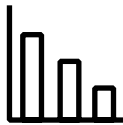
When you combine our highly robust, reliable, and flexible range of controls with our energy management expertise you get an advanced, top to bottom Energy Management Solution that really delivers on your energy-efficient commitments and goals.





Reduced operational costs with energy optimisation

ABB Building automation controls provide alerts via any web-enabled device in real-time allowing building managers to monitor equipment performance, track anomalies of operation outside of setpoints and scheduling, and react to resolve any issues quickly, reducing downtime and saving on operation costs and unnecessary energy consumption.



Reduce energy costs

Ensure your building systems are operational only when needed versus expectation with smart room control scheduling and the application of intelligent sensor feedback.



Occupant well being

External temperature sensors, weather data, occupancy levels, room light, air quality and temperature sensors feed information back to the BEMS causing it to react and make intelligent adjustments to lighting, shading, and HVAC to ensure occupant comfort is maintained at all times.



Put control in users' hands

ABB Smart building solutions provide the flexibility tenants require to control and optimize workspaces via user-friendly and intuitive room controls and displays while managing energy consumption and reducing costs.



Centralized Supervision

Centralized supervision simplifies the management of a single building or across an estate irrespective of geographical location.

Centralized supervision and control enhance operational efficiency proving 24/7 web-enabled access to your BEMS. Facility management can view and modify information including trends, setpoints, schedules, and more from any web-enabled device anywhere, any time keeping you in control.



Real time monitoring

The BEMS monitors system faults across all zones from a central point making maintenance faster and more responsive. Technical services managers can monitor all the integrated systems without having to visit the various plants or zones.



Assured safety

The system integrates safety functions with detectors for burglary, fire and smoke, technical alarms, panic and emergency-call functions, automatic illumination and a realistic presence simulation providing safety and assurance to occupants and protecting your assets.



Future proof essential plant and equipment

Our intuitive energy analysis and management tools provide on-going monitoring and historical alarms that may point to additional problems that require maintenance. Identifying faults and resolving issues early saves on more costly future replacement or repairs.



Protect your investment

Highly flexible, easily extendable, our range of BEMS controls built on an Open System allows for straightforward expansion or upgrades to the BEMS that may be required in years to come, future-proofing today's BEMS installations.

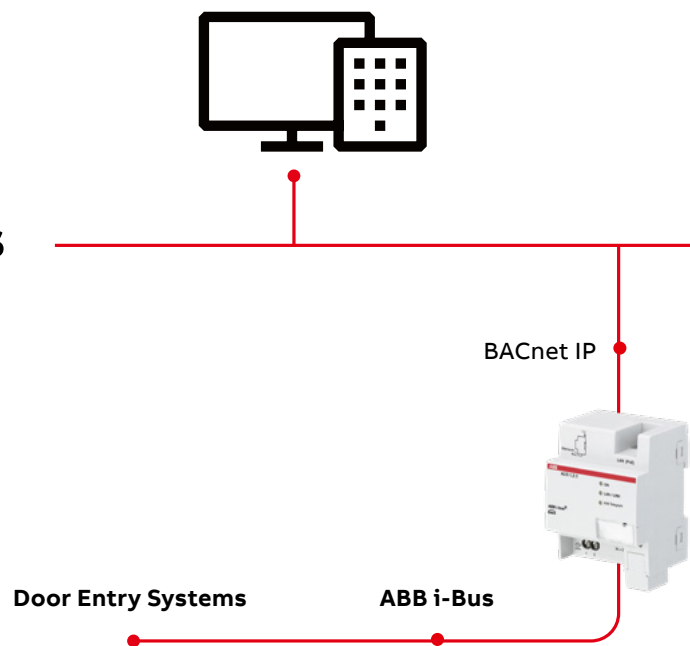
ABB Cylon® solutions

Smart building tasks

Solve your smart building tasks:

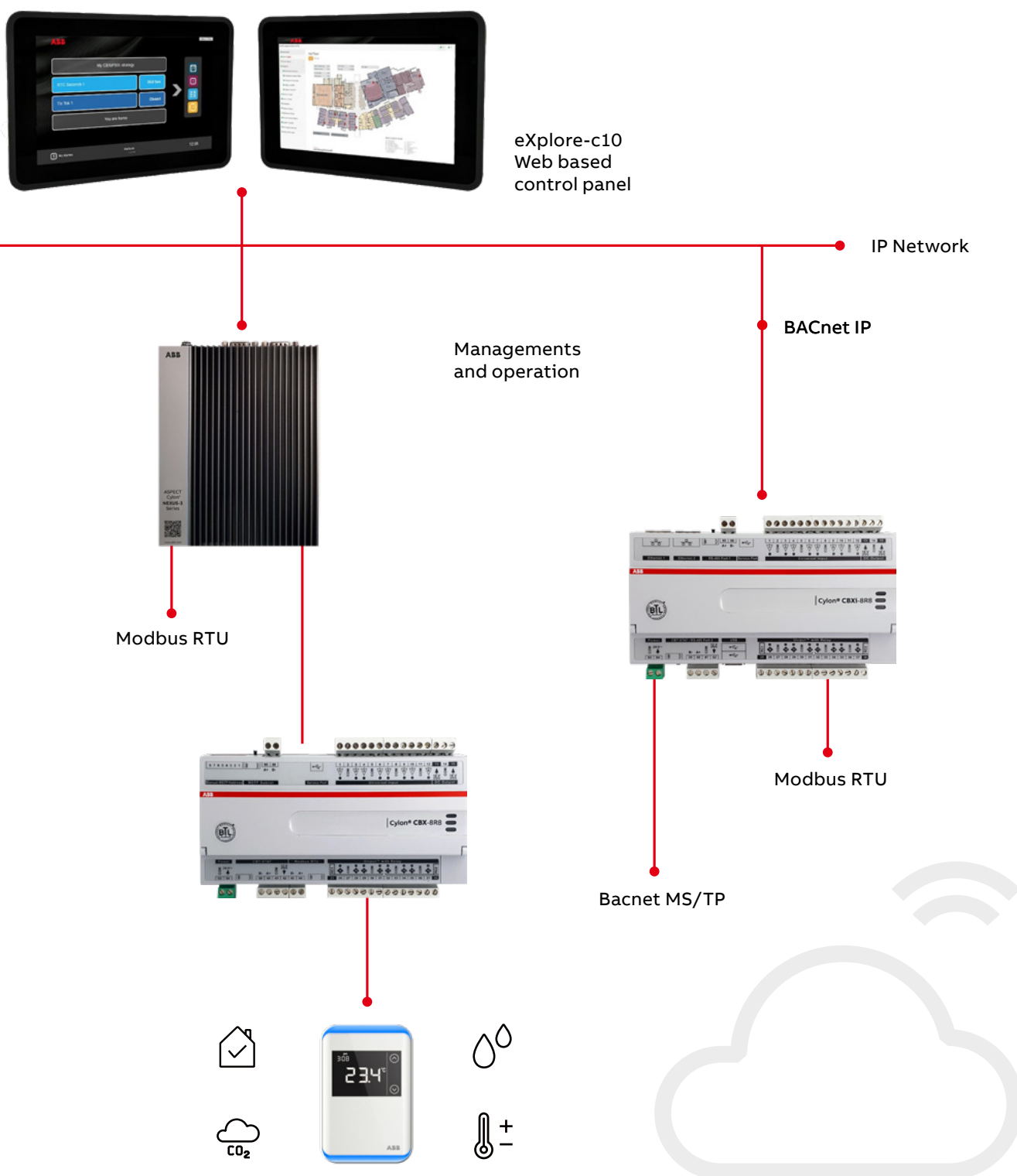
- Holistic building automation
- Scalable build management system
- IoT energy management

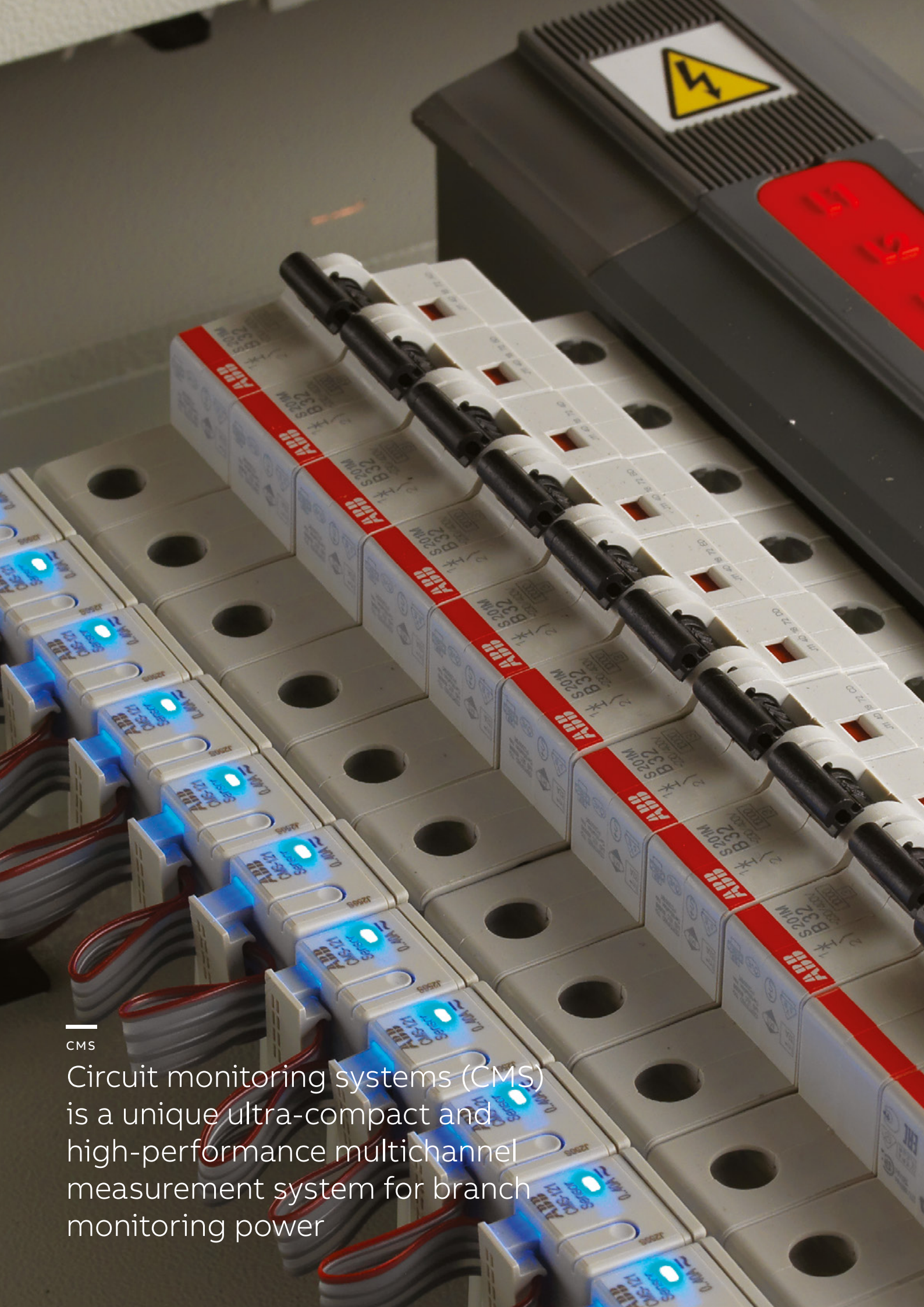
Cylon® solutions



The next generation ABB Cylon® eXplore graphical interface is an Internet of Things (IoT) touch-screen solution that is scalable and secure, able to control, monitor and manage future-ready smart buildings. The eXplore touchscreen display allows users to securely access, view and engage with operating parameters of the entire enterprise portfolio of buildings or a single controller.

- ASPECT® Control Engines
(NEXUS and MATRIX Series)
- INTEGRA™ Series
(INTEGRA-Supervisor)
- FBXi Series or Unitron UC32.net (Version 2)



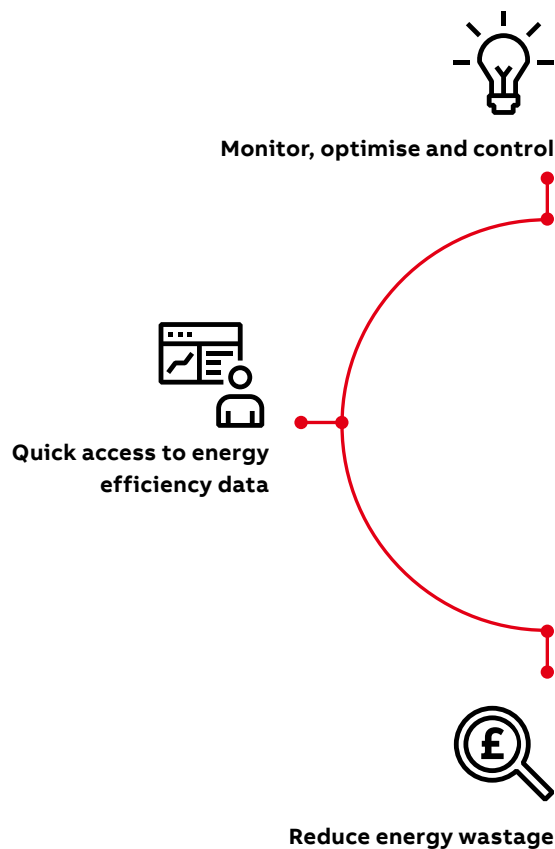


CMS

Circuit monitoring systems (CMS) is a unique ultra-compact and high-performance multichannel measurement system for branch monitoring power

Building energy management

Energy efficiency devices



Energy management is one of the biggest challenge in any business and application.

In the industrial sector and for manufacturing equipment, energy use has a huge impact on the cost of operations and facility managers are aware that energy measurement and power monitoring systems are important to reduce energy costs.

Meanwhile, an energy efficient commercial or residential building reduces maintenance and utility costs and decreases emissions of greenhouse gases and energy usage.

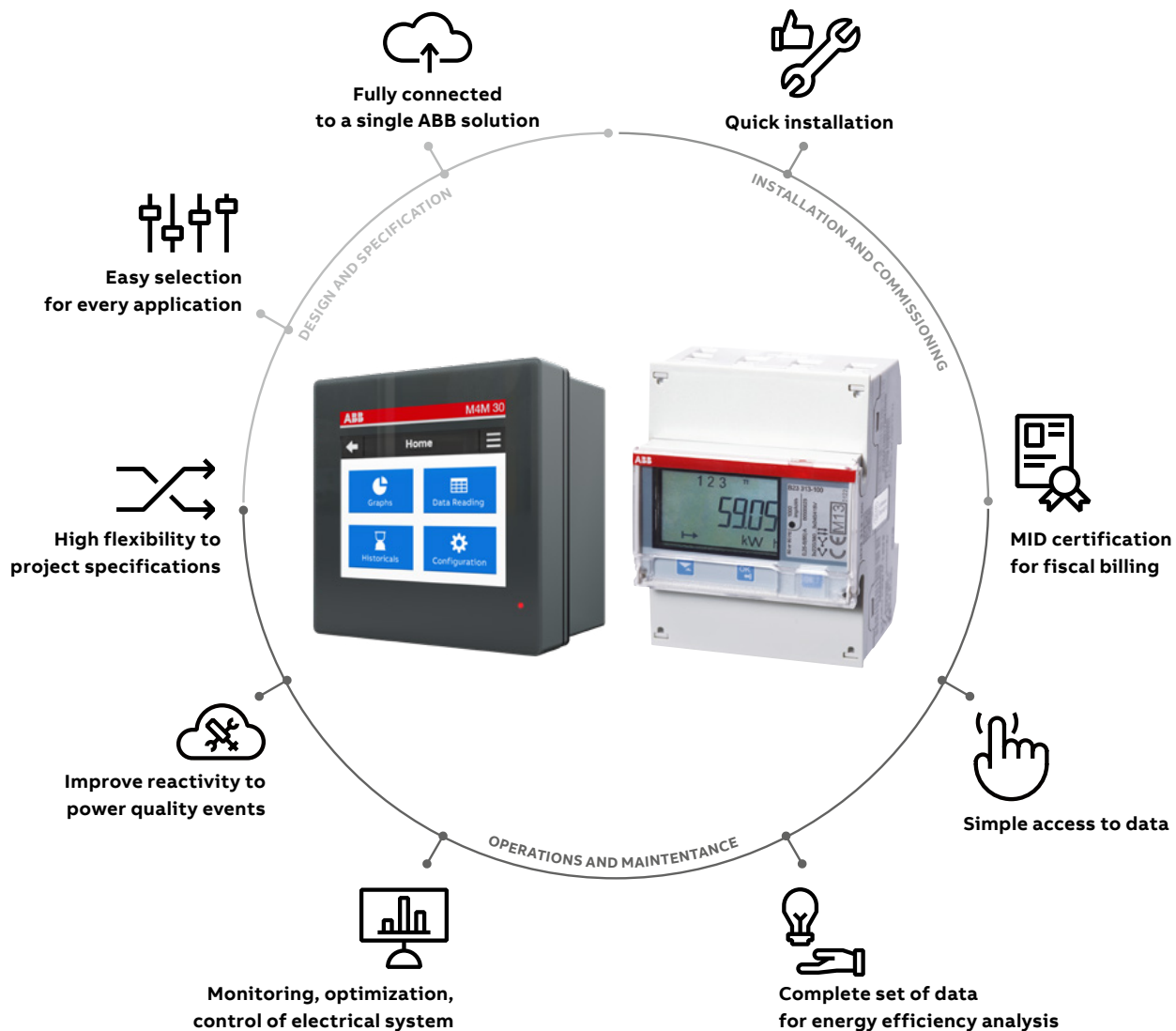
ABB offers a wide range of energy efficiency devices and advanced metering solutions which ensure the monitoring of electricity usage, from the incoming energy all the way down to the last branch, contributing to your energy management and a reduction in energy consumption.



Energy metres

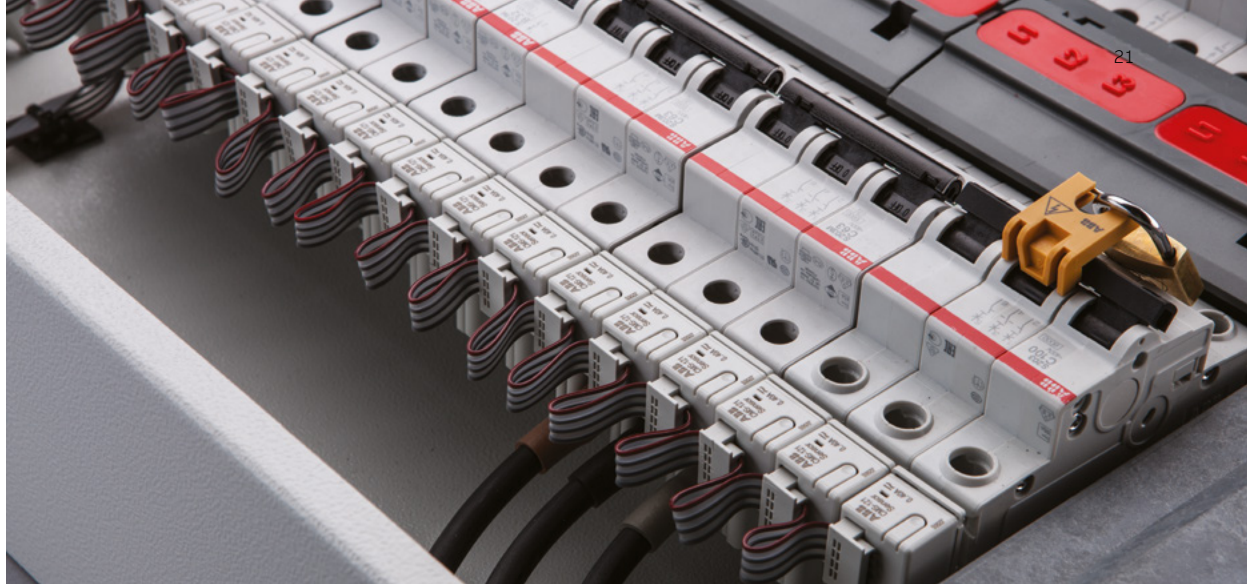
Reliable and accurate power monitoring

Simple in every aspect, M4M & EQ Series meters enables accurate energy efficiency evaluations and perfectly fits the ABB solution for monitoring, optimization and control of electrical system.



Full integration

Natively integrated in sub-distribution management System pro M compact InSite and ABB Ability™ Buildings Analyser To allow monitoring, optimization and control of the complete electrical system. Wide integration in all main applications through embedded communication protocols (Modbus RTU, Modbus TCP/IP, BACnet/IP, Profibus DP V0).



InSite energy management system



The InSite energy management system allows you to collect data from field devices in electrical distribution, as well as control and automate them through the use of accessories. Specifically recommended for large commercial and industrial applications, the SCU100 control unit is capable of simultaneously gathering measurement data from up to 32 energy and power meters, as well as 96 current sensors and digital sensors and can be visualised on a free a customisable web user interface

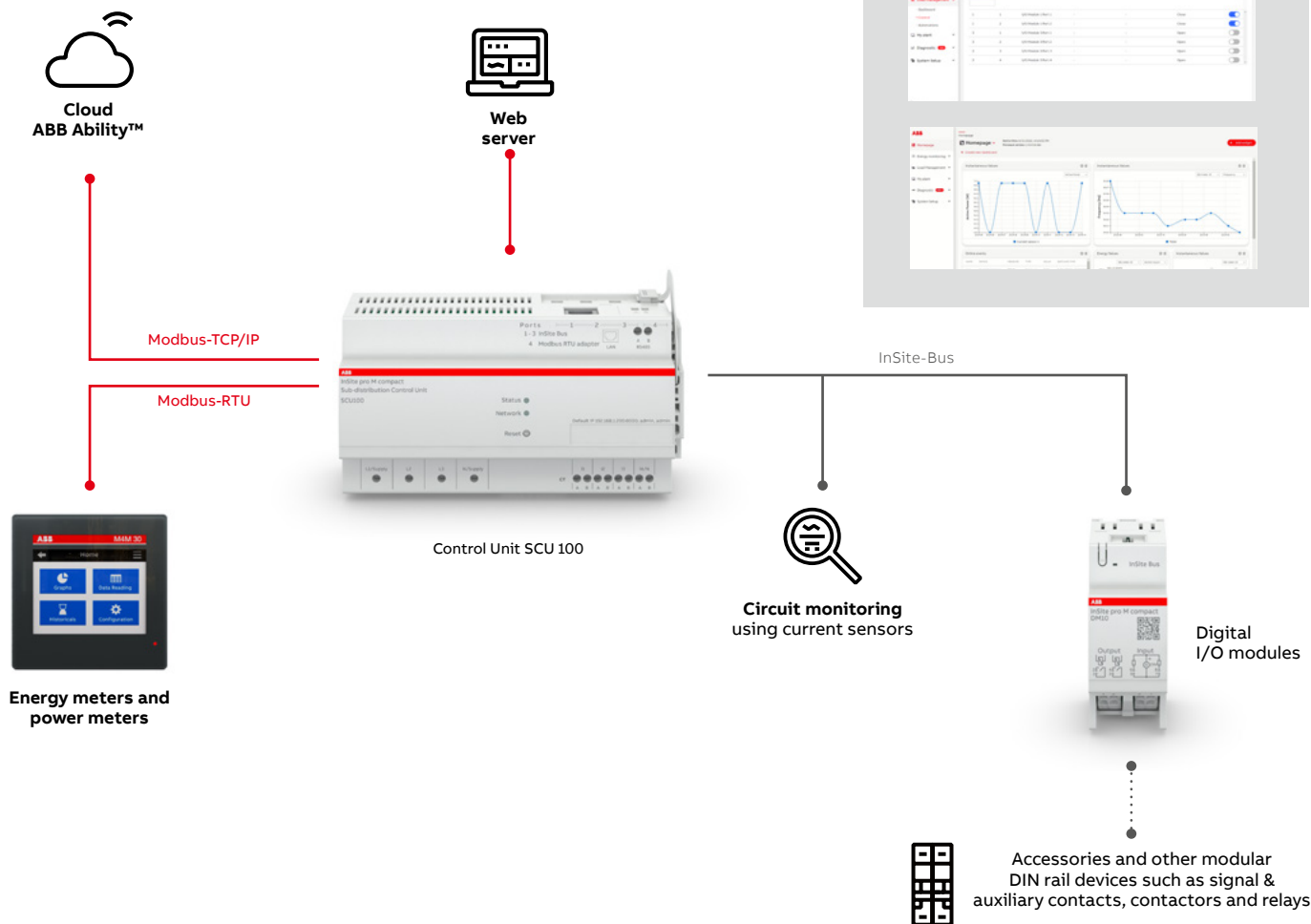
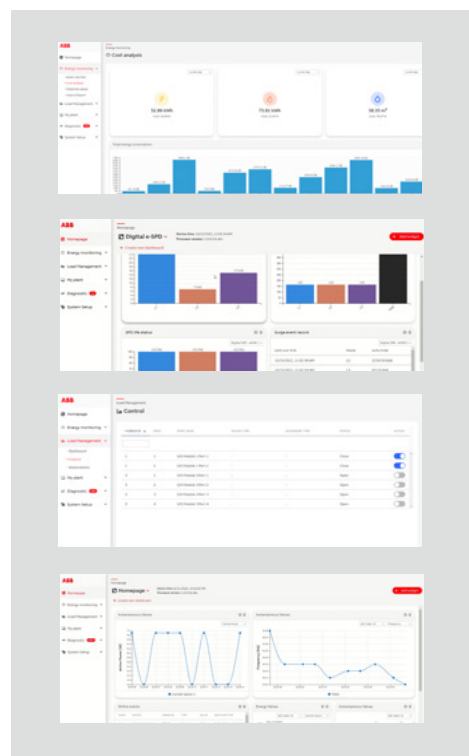


ABB Ability™ Building Analyser

Enables centralisation of all critical building information providing analysis that allows for potential improvement opportunities



ABB Ability™ Building Analyser is a digital solution that makes it possible for you to measure and identify utility usage (e.g. electricity, water, gas) and track buildings data (occupancy, equipment runtime hours, temperature, and costs) in real time.

Now you can make better decisions on how to proactively improve your buildings' energy usage, occupant awareness, reduce costs and emissions by analyzing their performance.

The solution could help reduce your buildings' energy consumption and emissions by up to 20% once improvement opportunities are all implemented.

At the same time, Building Analyser can help you meet your corporate sustainability goals. All the metrics needed to prove operational efficiency and obtain certification levels that comply with legislation and industry standards are already part of the solution.

The solution can be tailored to meet specific business operation and keep track of your Key Performance Indicators (KPIs). It helps you reduce maintenance costs and time spent on data reporting by up to 50%.



Identify opportunities

Continuous improvement process by monitoring planned versus actual usage and tracking progress.



Meet sustainability targets

Set sustainability targets & get alerts in real time to keep you on track.



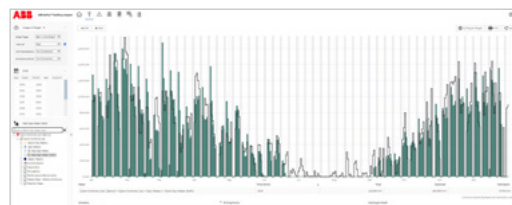
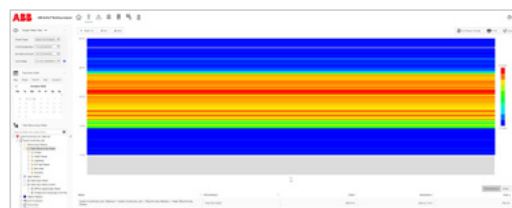
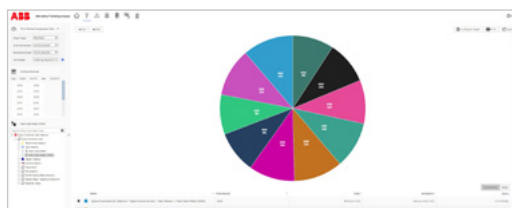
Improve ROI

Maximize the return on existing investment in Building Management System.



Manage the entire building portfolio

See all building data and manage the entire global building portfolio in one easy to use portal accessible from anywhere.





A cloud-based solution

Provides real-time collection of buildings and utilities data, deep analytics, and data visualisation in one intuitive and easy-to-use interface

Building Analyser's features allow you to:



Data Collection

- collect data from many standard sources such as BMS systems, data loggers, and online data sources (via API)
- collect time series data (building occupancy, weather, production)



Data Analysis and Normalization

- get automated analytics to identify issues as they happen
- see different ways to analyze consumption data
- benchmark buildings with normalized comparisons of energy consumption across a portfolio



Cloud-based SaaS

- have an unlimited number of data points
- connect across any geographical location



Data Granularity

- allocate energy costs to different users



Data Monitoring and Alarms

- set target consumption and receive alarms if limits are exceeded for continuous improvement



Data Reporting

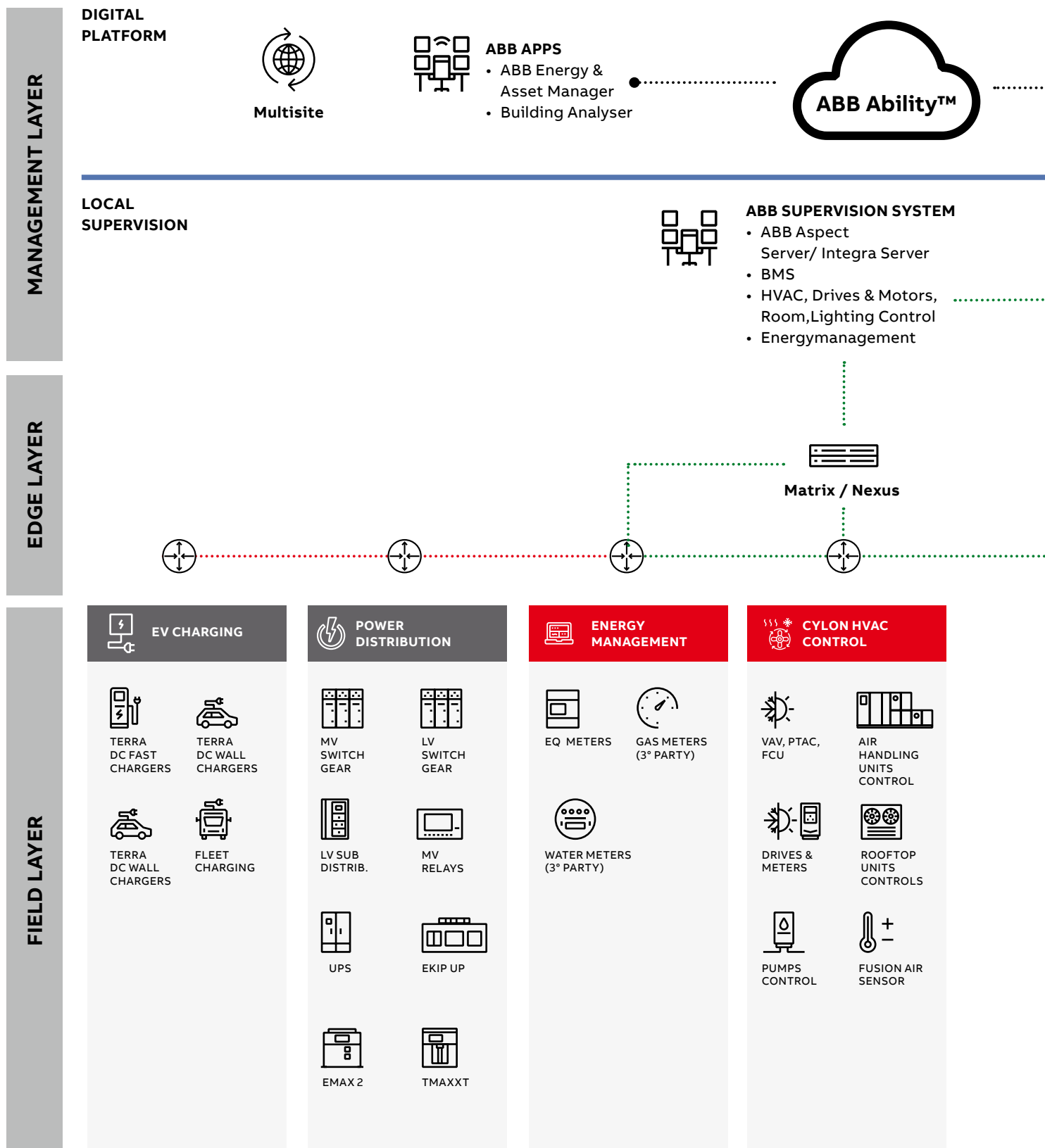
- analyze usage and emission levels to identify efficiencies and improvement opportunities
- generate instant or scheduled reports

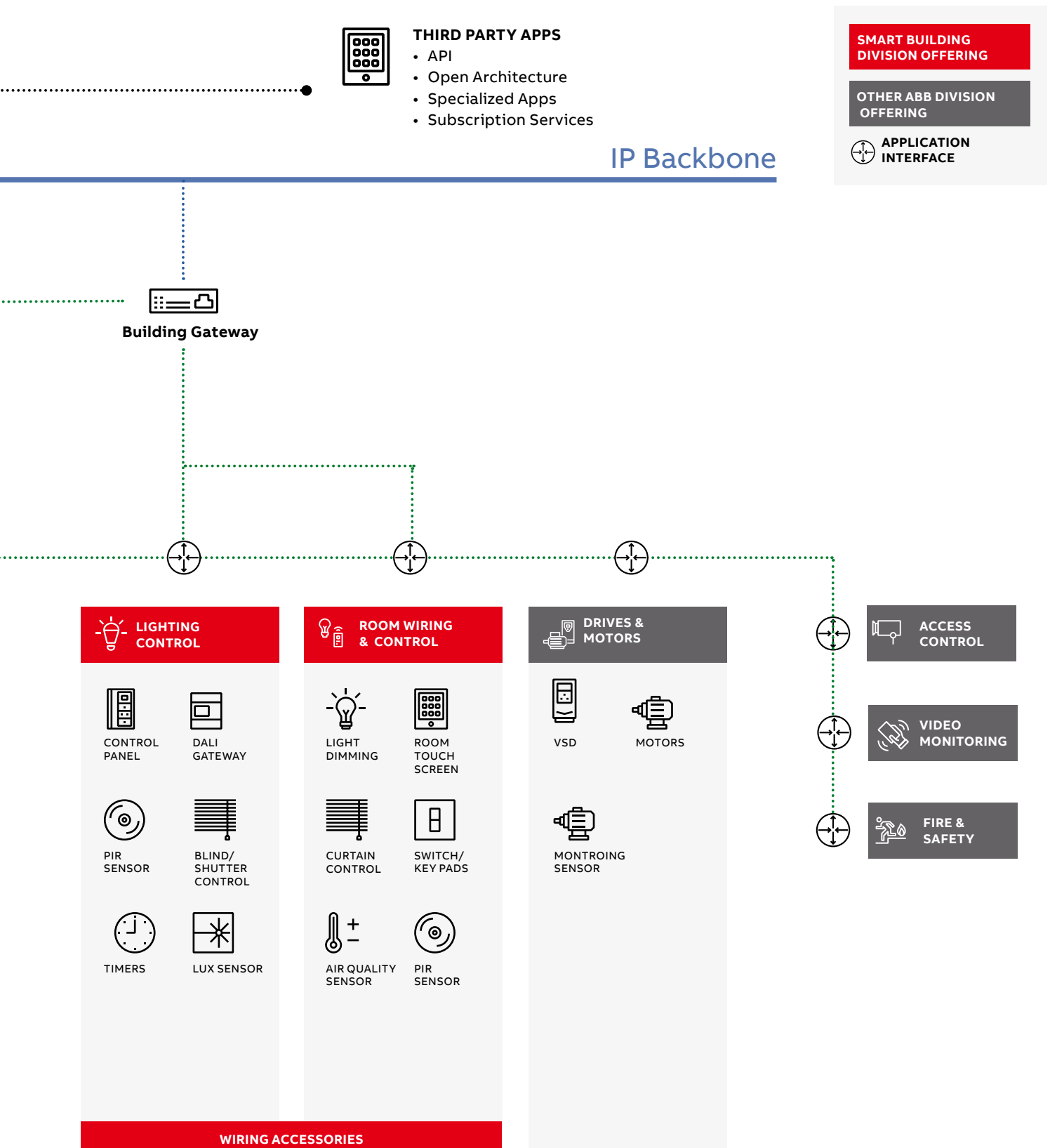


Easy Configuration and Commissioning

- easily configure and commission with our Building Editor, saving time and costs

Reference architecture







Open for new ideas

With ABB-free@home® everyone can determine for themselves how they want to use the smart living technologies. Both individual functions, such as heating or control of blinds, or a combination of different functions can be implemented. Over the course of time the system can also be flexibly extended, if one so desires. Freedom of choice at all times.



Blinds

Whether blind, roller blind, awning or roller door – with ABB-free@home®, sun protection and energy-saving could not be easier. Opening and closing, as well as adjustment of slats can be automated and controlled. In addition, a weather station for protection during a storm, a timer or astro function can be used. It automatically adjusts the blind according to sunrise and sunset. The relevant data are combined in the System Access Point and are precisely implemented.



Light control

Life begins with light. With ABB-free@home® it can be optimally used, whether for illuminating individual rooms or the entire house. For example, with striking light scenes – for different moods and to suit the occasion. A pleasant side effect here is the cost-saving and environmentally friendly use of energy.



Heating and air-conditioning

Comfortable and energy-saving. The optimum room temperature can be adjusted according to the actual requirement. The heating can be automatically shut off when the windows are open. This reduces energy consumption. The ideal temperature is never the same. Depending on the time of the day, the room temperature controller provides your personal feel good temperature. The heating valves are controlled wirelessly – with radio controlled thermal actuating drives. The room temperature controllers can be integrated into the switch combination. And the window contacts are networked wirelessly.



Door communication

The ABB-Welcome door communication system can be integrated into ABB-free@home®. The door communication and home automation can be used together with ABB-free@home-Touch 7". For example, the light switches on when the doorbell rings to see visitors more clearly. And for reasons of safety, the video camera records pictures of visitors at the door when no one is home.



Integration of home appliances

The smooth integration of modern household appliances into ABB-free@home® offers a variety of options for convenient use. All networked devices with their icons are displayed in the ABB-free@home® app and the ABB-free@home® panel and can be controlled from there. All functions can also be directly controlled via the wall-mounted pushbuttons, which is possible only with ABB-free@home®.

Building and Home Automation Solutions

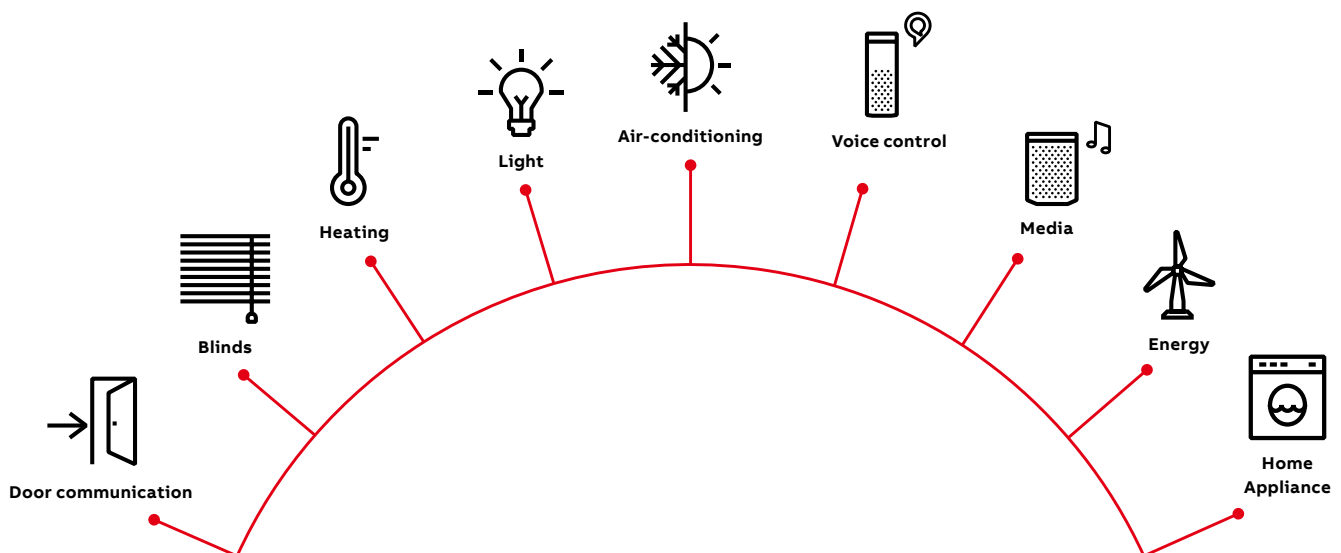
Simply Smart. ABB free@home® transforms your home or workplace into an intelligent space.

The pleasure of simplicity

Easy to remote control via a switch on the wall, with the laptop or with the smartphone. Very convenient. Extremely comfortable. Very energy efficient.

Especially attractive: Only minimal costs are involved when compared with conventional electrical installations.

ABB-free@home® makes daily life easier. You can manage blinds, lights, heating, air-conditioning and door communication using just one system. The smartphone becomes the remote control in the house. It allows you to raise the blinds and switch on the radio in the kitchen with the touch of a button while you are still in bed – or to deactivate all lights and devices via a switch when leaving the house. The setting of these scenes is as easy as can be – to suit the mood or situation.



Open for new ideas

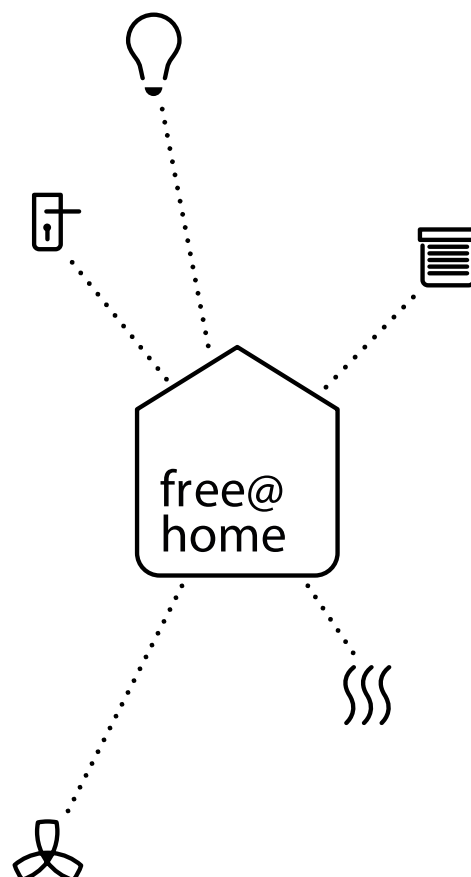
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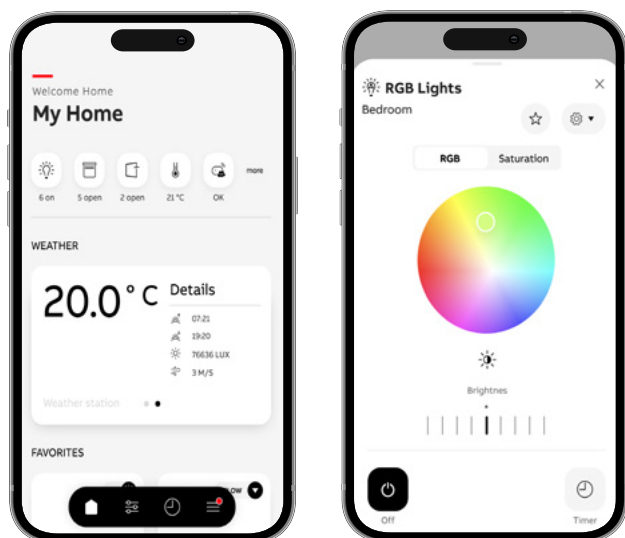


ABB-free@home® The Smart Home

Now easier than ever. Only a few components are needed to install ABB-free@home® for direct activation of lights, HVAC, blind control and more. The entire system only requires a bus cable, the sensor/actuator unit, a power supply and a System Access Point for programming.



One smart Home one app



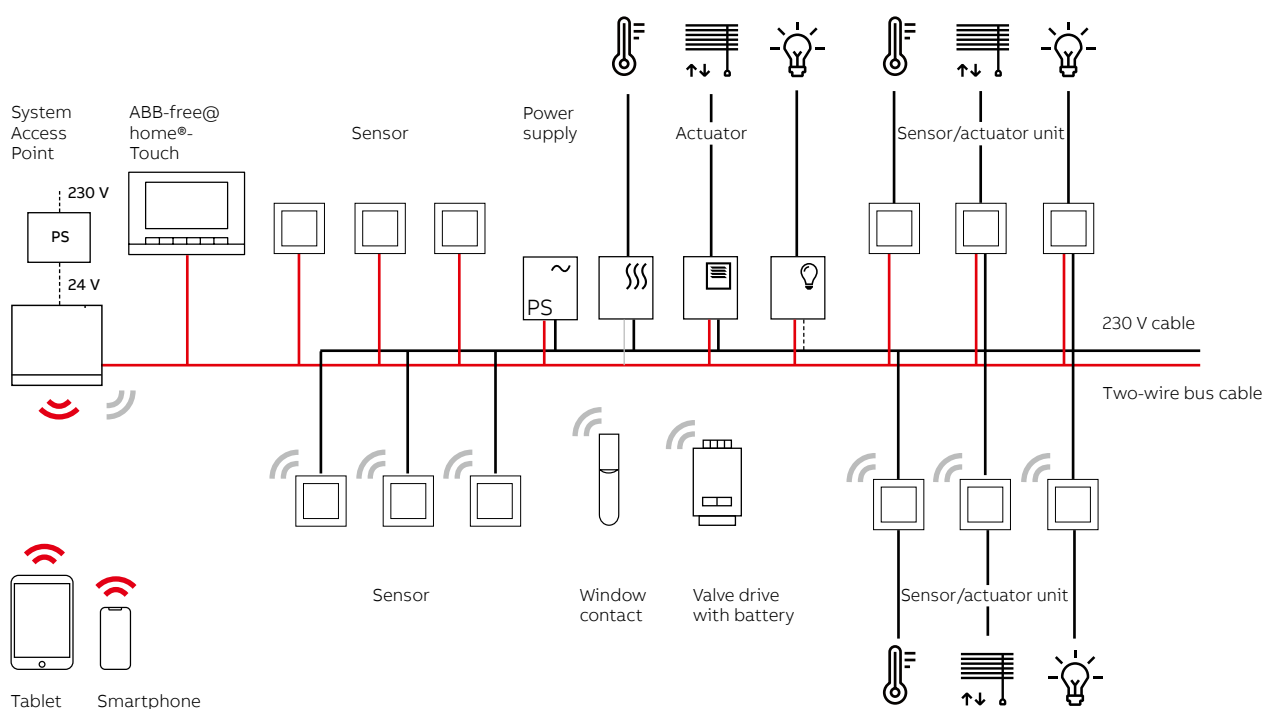
Central distribution board with rail-mounting actuator

The installation of central rail-mounting actuators in the consumer unit makes the installation of the sensors even easier – as only the bus line is located in the flush-mounted box. With this method, the costs for each channel can be reduced.

Sensor/actuator unit for decentralised control

All in one. With the sensor/actuator unit, both the sensor and actuator are located in a single device to save space. The basic function of the unit is pre-configured, which makes programming the basic function unnecessary – but possible if required. The 230-volt line is wired as usual.

Wired communication

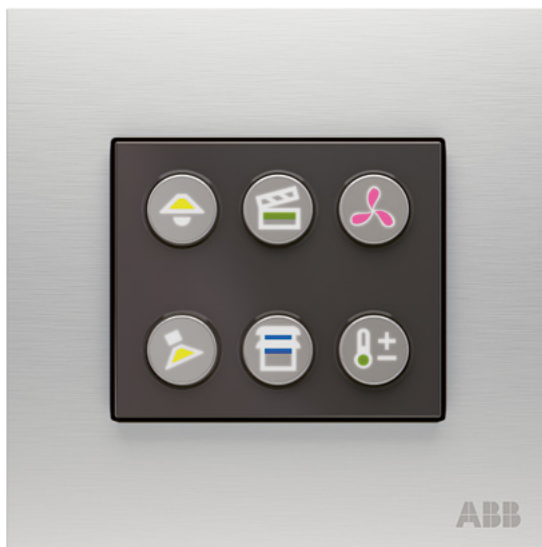


Wireless communication

Light switches and socket outlets

A piece of design in your interior

Discover the wide range of designs, colours, finishes and functions and find the best solutions with innovative technology. Let modern light switches highlight the individual design of your living space.



Millenium

British Standard

We touch them every day. Light switches and sockets are an integral part of our living space and are used to control various devices in any type of building. ABB wiring accessories are offered in numerous design series, in a variety of shapes, designs, colour combinations and materials to meet not only functional but also aesthetic requirements and individual preferences.

All you need to do is to choose and make your building even more beautiful and comfortable.



Mounting Plate

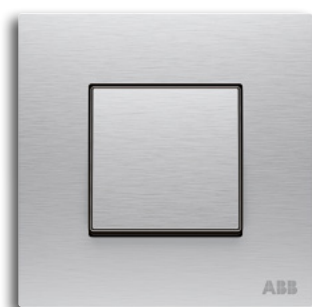


Premium rocker switch



Frame

The Millenium series offers control, functionality and convenience that will always fit the desired look and feel of the building.



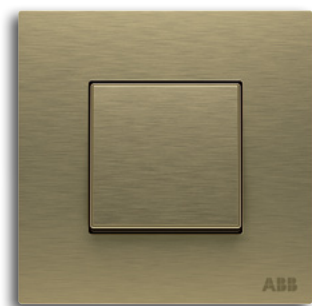
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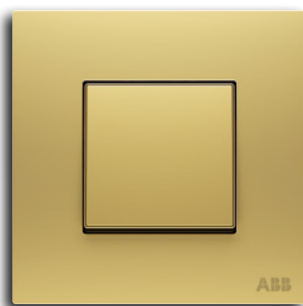
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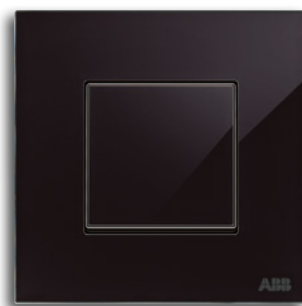
05



03



04



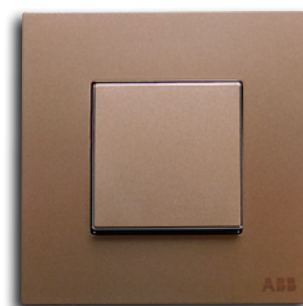
06

Millenium

The touch of style



07



08

- 01 Stainless Steel
- 02 Silk Black *
- 03 Antique Gold
- 04 Matt Gold
- 05 White Glass
- 06 Black Glass
- 07 Dune Sand
- 08 Mocha Brown

* SB Not suitable for outdoor installations



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