

# Universal Motor Controller UMC22-FBP

Excellent motor protection  
and control

**NEW:**  
- PTC input  
- Earth-Fault-Monitoring

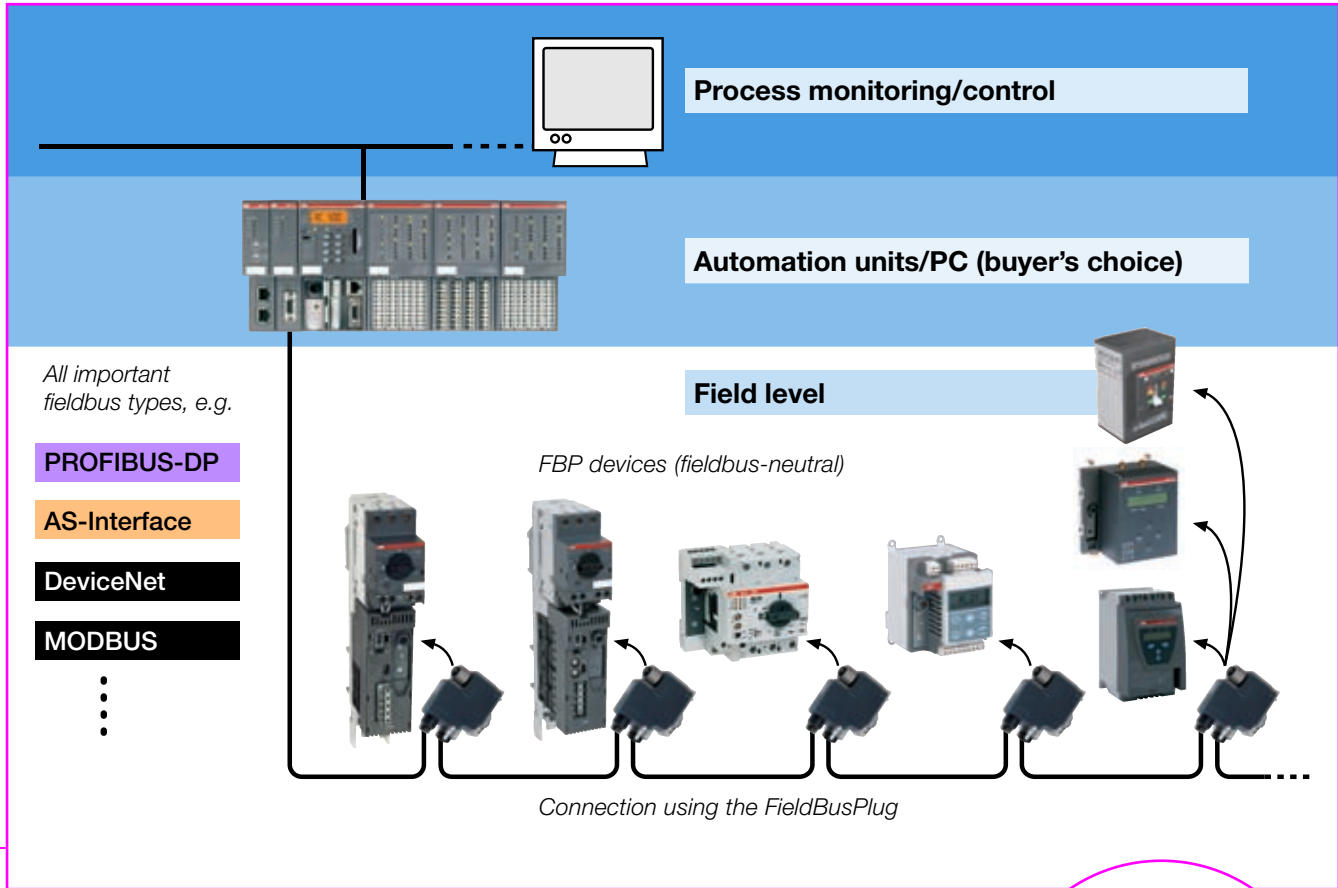
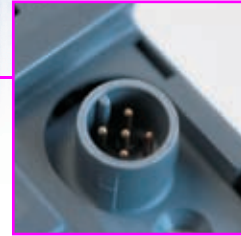


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**ABB**

# FieldBusPlug: the concept

ABB's new communications product family comprises a range of switching and automation components can be easily combined with all common standard fieldbus systems.



## One device for all fieldbuses

Each complete unit and each function module within the product family has a fieldbus-neutral interface. A specially pre-assembled connection cable acts as a communicative link to its bus-specific plug interface. Process flexibility, transparency and reliability are thereby easily attained. The connection, operating and diagnosis elements are fitted on the front of all units in the series, making for very convenient handling.

## The components

The FieldBusPlug lies at the heart of the new product family's communications. This plug links devices and combinations of devices with different functions and characteristics as well as connecting standard sensors to automation units. The product family also includes a wide range of switching and automation modules, available in power levels suited to real-life applications, e.g. devices for engine protection and control as well as standard sensors.

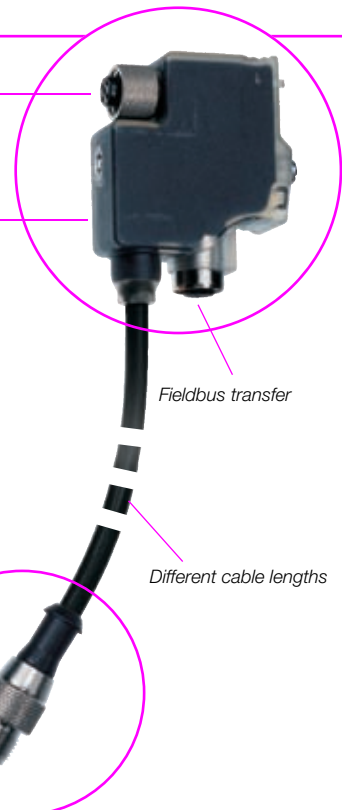
*Fieldbus-neutral Device connection*

*Bus-specific electronics*

*Fieldbus transfer*

*Different cable lengths*

*Fieldbus connection (M 12)*



# Overview



- ① Assembly with the aid of four screws (M4)
- ② Bushing type transformer
- ③ Connection terminals for the digital outputs
- ④ Operating panel (optional)
- ⑤ FieldBusPlug interface
- ⑥ Connection terminals for the digital inputs
- ⑦ Connection terminals for the external supply voltage
- ⑧ PTC input

## Motor protection and monitoring

- Electronic overload protection
- Tripping classes 5, 10, 20, 30
- Phase failure
- Motor blocking
- Motor temperature with PTC
- Earth connection via external sensor CEM11-FBP

## Control functions and operation

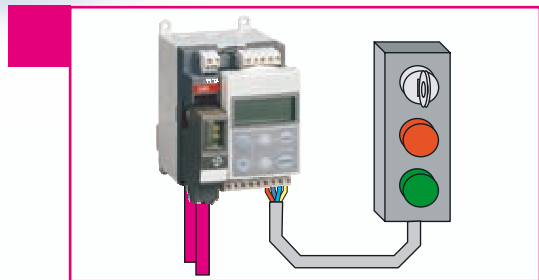
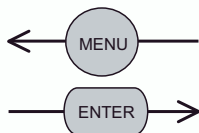
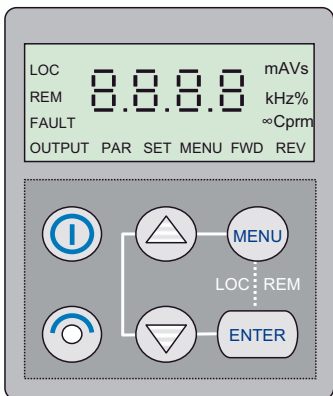
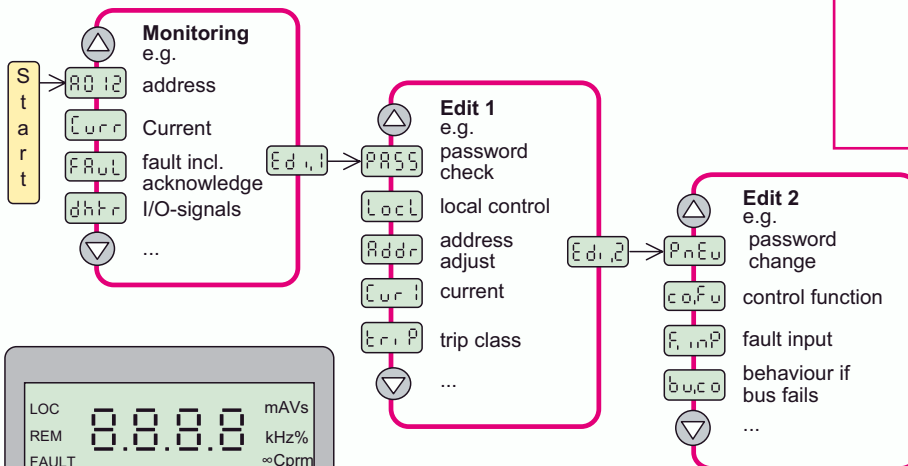
- Direct start, reversing start, star-triangle start-up, slide valve/valve control (open-closed), pin changeover drive, actuator drive
- Emergency start
- Device control via
  - the automation system and fieldbus
  - manual controls using the removable operating panel
  - manual controls using the digital inputs and switches/buttons

## General properties

- Current range of 0.24 to 63 A in one device
- Currents of up to 850 A via external transformer (accessories)
- 6 digital inputs, 3 relay outputs
- Connection for FieldBusPlug for communication via the fieldbus
- Operating panel (option) for display and parameter setting purposes
- Indication of motor current in A or as % of nominal current
- Operating hours counter, counts the protective switching cycles
- Error output with flashing option
- ATEX approval

## Operating panel (optional)

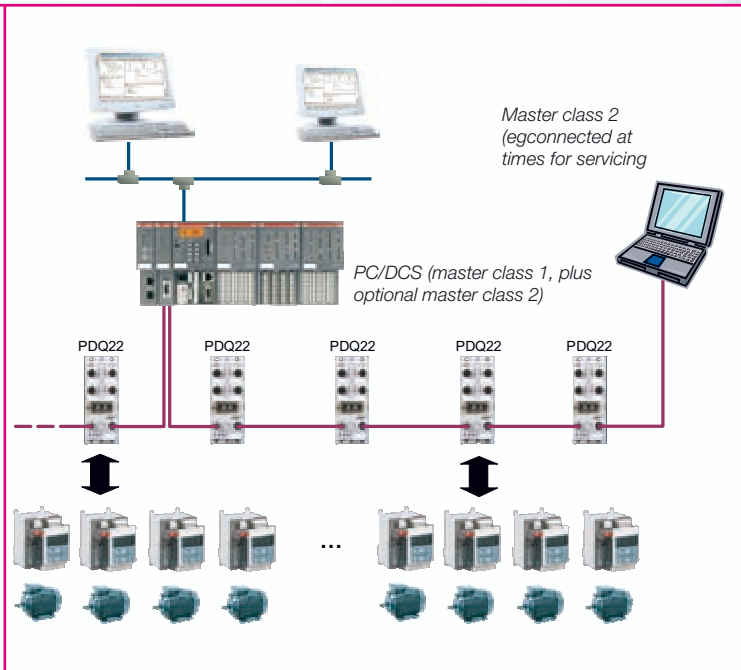
The functions (extracts thereof)



## Accessories (optional)

- Assembly set e.g. for plug-in modules, IP 65
- Cable between UMC22-FBP and operating panel

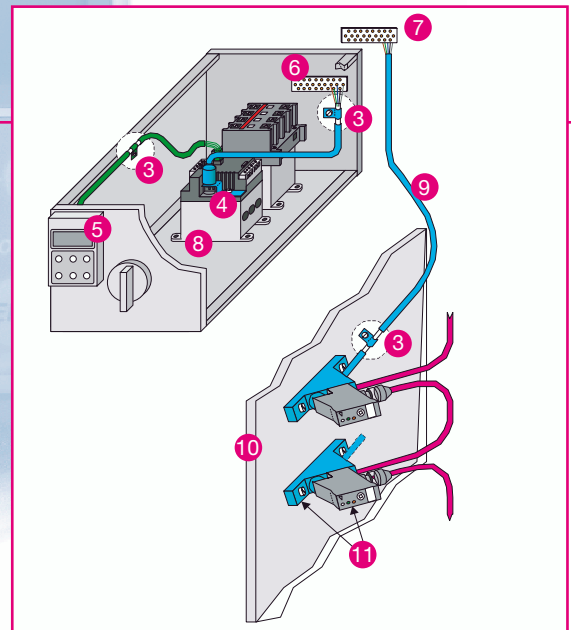
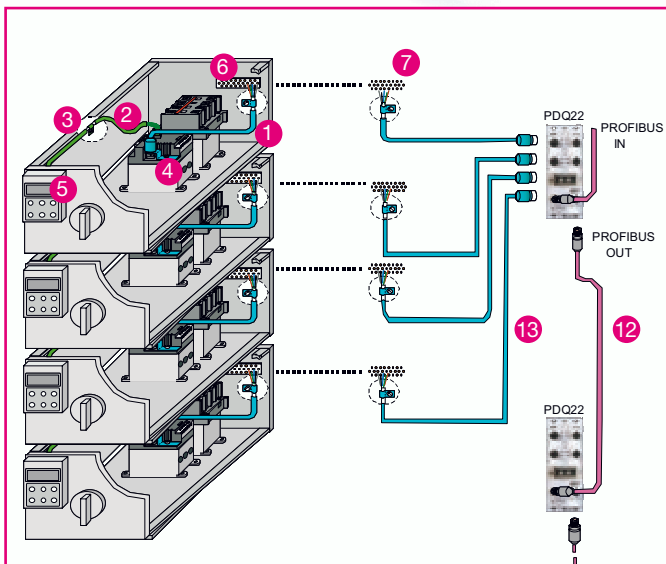
# PROFIBUS integration with PDQ22



- Up to four FBP devices at one bus node
- Reliable system concept
  - Detection of interchanged/incorrect devices
  - Indication of bus and device status
- Simple system integration:
  - Transparent access to parameter, service and diagnosis data of the attached devices
  - Integration in maintenance management

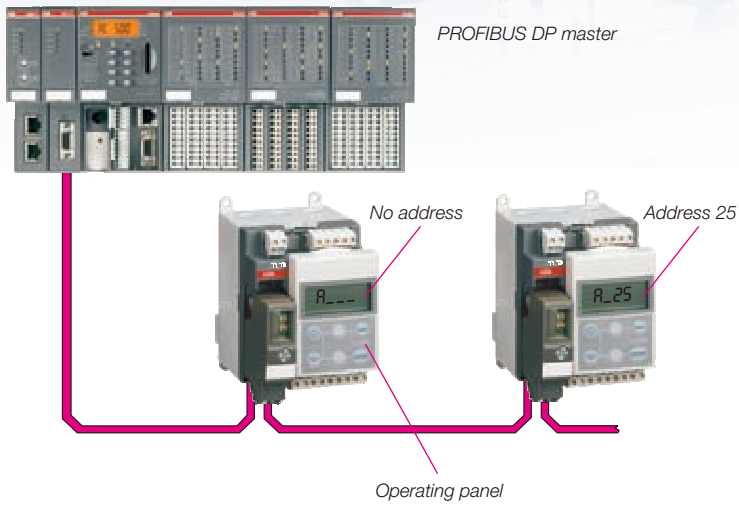
## Innovative solutions for your drawer system

- ① CDP13-FBP: Passive cable for plug-in connection (internal)
- ② ACS100-CAB.070: extension cable for connecting up an ACS100-PAN operating device for UMC22-FBP
- ③ Shield earthing
- ④ CDP11-FBP: passive plug retaining bracket for connecting the CDP13-FBP to the UMC22-FBP
- ⑤ ACS100-PAN: operating device for UMC22-FBP
- ⑥ Plug on rear of plug-in module



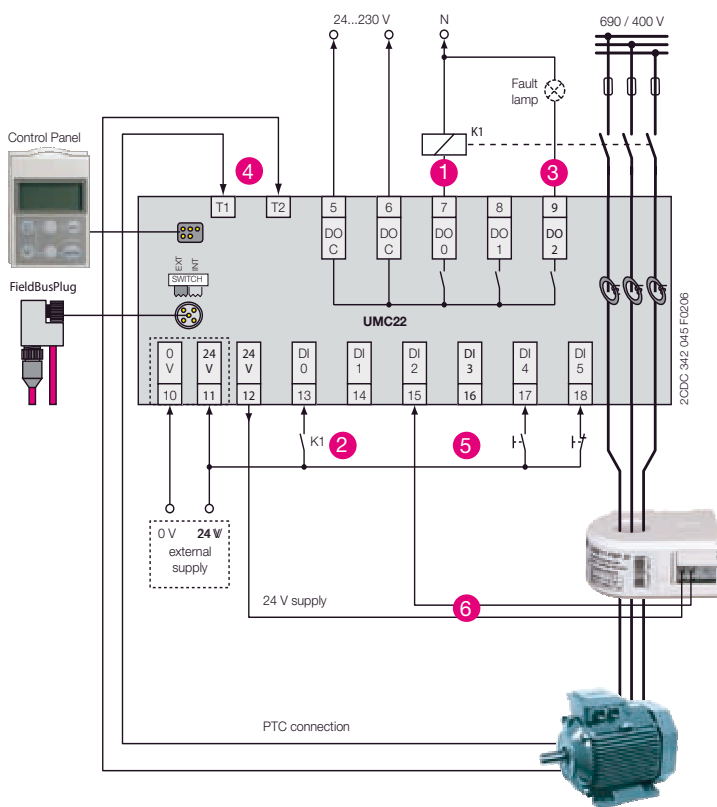
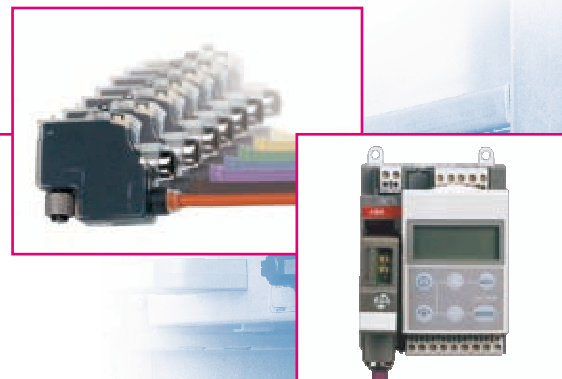
- ⑦ Plug in supply room
- ⑧ UMC22-FBP: Universal Motor Controller
- ⑨ CDP12-FBP passive cable for plug-in connection (external)
- ⑩ Partition to plug-in module area e.g. perforated plate
- ⑪ Thanks to the CDP12-FBP angle, the plug LEDs can also be observed in the terminal chamber
- ⑫ PDX11-FBP PROFIBUS extension cable
- ⑬ Passive cable for plug-in connection (external)

# Addressing



1. The address is displayed on the operating panel:
  - when switching on (with the operating panel plugged in)
  - when plugging in the operating panel
2. The address can be changed on the operating panel.
3. If the UMC22-FBP does not have an address, but the FieldBusPlug does, the FieldBusPlug's address applies.
4. The UMC22-FBP does not start if an address is not issued.
5. Different addresses in the UMC22-FBP and plug are signalled. In such cases, the address will have to be entered manually.

## Examples of correct settings



Main circuit diagram

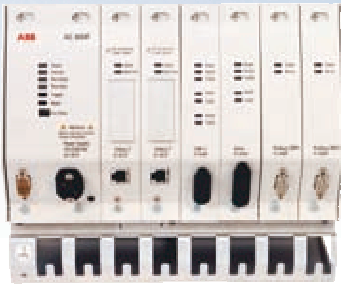
### Direct starter with all functions

Control functions:

- 1 Control function
- 2 Feedback via auxiliary contact
- 3 Error output, e.g. to a lamp
- 4 PTC input
- 5 On-site control via inputs
- 6 Earth connection monitor connection

# Monitoring signals, commands and diagnosis signals

Automation unit/PC  
(buyer's choice)



1 Commands

2 Monitoring signals

3 Diagnosis

## ① Commands

- Forwards operations
- Off
- Reverse operations
- Auto operations
- Error reset

## ② Monitoring signals

- Forwards operations
- Off
- Reverse operations
- On-site control
- Error
- Warning
- Limitation time for change in direction

## ③ Diagnosis

- Self-test
- External error
- Overload error
- Motor blocked\*\*
- Communication error
- Parameter outside permissible range
- Current feedback error\*\*
- Relay for 1-3 feedback errors\*\*
- Motor current of maximum/minimum limit value\*\*
- Cooling time\*\* running
- Reversed limitation time running\*\*
- Parameter number
- Earth connector monitor activated
- PTC activated
- PTC wire failure
- PTC short circuit

## ④ UMC outputs

- Digital output DO0\*
- Digital output DO1\*
- Digital output DO2\*

## ⑤ UMC inputs

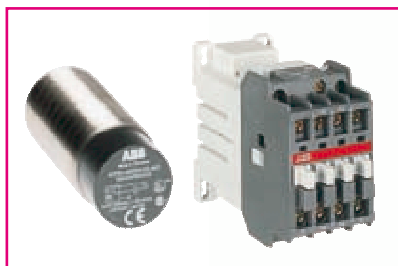
- Digital input DI0\* – multifunctional
- Digital input DI1\* – multifunctional
- Digital input DI2\* – multifunctional
- Digital input DI3\*
- Digital input DI4\*
- Digital input DI5\*
- NEW** ■ PTC input



4 UMC outputs

5 UMC inputs

I/O module



\* is used with the corresponding control function

\* if activated by the corresponding control function

# Technical data and dimensions

## Mains power supply

Voltage (three-phase)	max. 690 V AC, 50 Hz
conductor holes through the transformer	max. 25 mm <sup>2</sup> (incl. 11 mm insulation)
Set current range for overload protection	0.24 ... 63 A
Tripping classes	5, 10, 20, 30
Short circuit protection	separate fuses on mains side

## Control unit

Type of voltage supply	via FieldBusPlug or external
Supply voltage	19,2 ... 31.2 V DC incl. ripple
Supply current	max. 130 mA (at 18 ... 30 V DC)
Total power dissipation	max. 3.1 W (at 24 V DC)
Reverse polarity protection	yes
Number of PTC inputs	1
Number of digital inputs	6
Number relay outputs	3
Number of bus interfaces	1, for ABB FieldBusPlug or connection to PDQ22-FBP
Number of interfaces for operating panel	1, for ACS100-PAN
Parameter setting	via fieldbus and/or operating panel
Bus address setting	e.g. with operating panel
LEDs at front	LED 1 green device ready for use
	LED 2 yellow motor current > 33% of IS
	LED 3 red Error (trip,...)

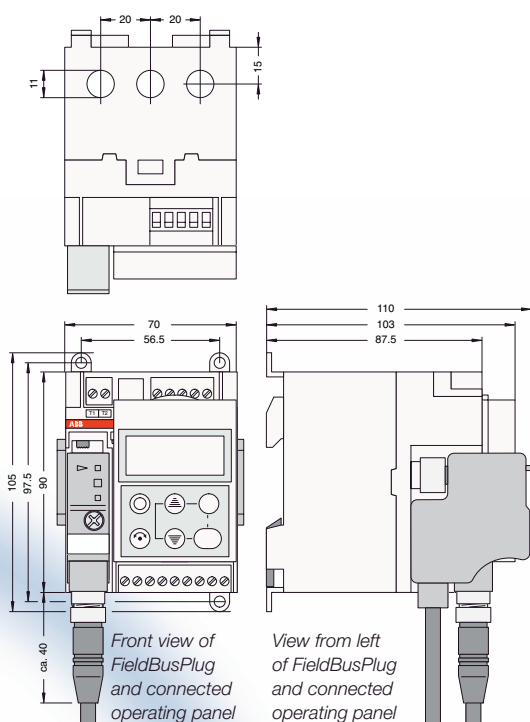
## FieldBusPlug connection

Assembly	plug connection, screw fastening
FieldBusPlugs	PDP22-FBP PROFIBUS DP (V0/V1)
	DNP21-FBP DeviceNet
	MRP21-FBP Modbus

**NEW**

## Connection to PDQ22-FBP

Connection	Standard sensor cable
fieldbus	PROFIBUS DP (V0/V1)
Quantity	1 to 4 UMC22-FBP can be connected to a PDQ22-FBP



## Digital inputs

Quantity	6
Supply	internal or external
output current for inputs	max. 70 mA
Insulation	none
Bounce suppression	4 ms
1-signal	+13 ... 31.2 V
0-signal	-31,2 ... 5 V
Input current	typ. 6 mA (24 V DC)
Input resistance	3.9 k $\Omega$
Line length	shielded max. 1000 m
	unshielded max. 600 m

**NEW**

PTC thermistor motor protection	
Activation resistance	3.4- 3.8 k $\Omega$
Drop resistance	1.5 – 1.8 k $\Omega$
Detection of wire failure	> 5 k $\Omega$
Short circuit trip resistance	< 15 – 27 $\Omega$ incl. connection cable
Cold resistance of sensor chain	< 1.5 k $\Omega$
Activation time	800 mS
Line length	2.5 mm <sup>2</sup> 2 x 250 m
	1.5 mm <sup>2</sup> 2 x 150 m
	0.5 mm <sup>2</sup> 2 x 50 m
Insulation	no

## Digital outputs

Quantity	3
Type	Relays
Grouping of contacts	3 contacts with common root
Voltage range of contacts	12 ... 250 V AC/DC (see Manual)
Total current of all contacts	max. 4 A (thermal limit)
Lowest switching power for correct signals	1 W or 1 VA

## Environmental and mechanical data

Mounting	on DIN rail (EN50022-35) or with 4 M4 screws
Dimensions (W x H x D)	70 x 105 x 110 mm (incl. FieldBusPlug and operating panel)
Weight	0.39 kg
Connection cross-section	max. 2.5 mm <sup>2</sup> or 2 x 1.5 mm <sup>2</sup>
Approvals	CE, UL, CSA, LRS, RMRS

## Ordering data

Universal Motor Controller	
UMC22-FBP.0	1SAJ 510 000 R0400
UMC22-FBP.0 ATEX	1SAJ 510 000 R0200

Operating panel ACS100-PAN	1SAJ 510 001 R0001
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PDQ22-FBP	1SAJ 240 200 R0050
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**NEW**

Earth connector monitor	
CEM11-FBP.20	1SAJ 929 200 R0020
Ø 20 mm, 80, 275, 500, 700, 1000, 1200, 1500, 1700 mA	
CEM11-FBP.35	1SAJ 929 200 R0035
Ø 35 mm, 100, 500, 1000, 1400, 2000, 2400, 3000, 3400 mA	
CEM11-FBP.60	1SAJ 929 200 R0060
Ø 60 mm, 120, 1000, 2000, 2800, 4000, 4800, 6000, 6800 mA	

FBP system CD	2CDC 190 008 E0403
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# Universal Motor Controller UMC22-FBP



Excellent motor protection and control



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