PROFIBUS with FBP

Achieve everything with fewer components

NEW: PDQ22-FBP
The bus node with
four units

PROFI®
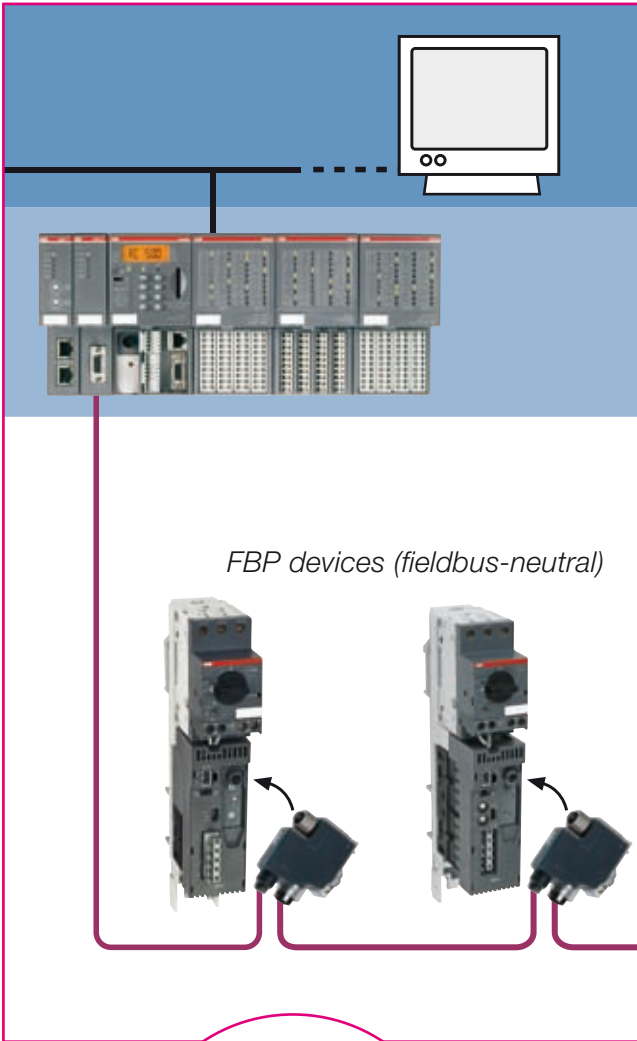PROCESS FIELD BUS
BUS

ABB

FieldBusPlug: the concept

ABB's communications product family comprises a range of switching and automation components that 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 product family's communications. These plugs link 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.

FBP devices (fieldbus-neutral)

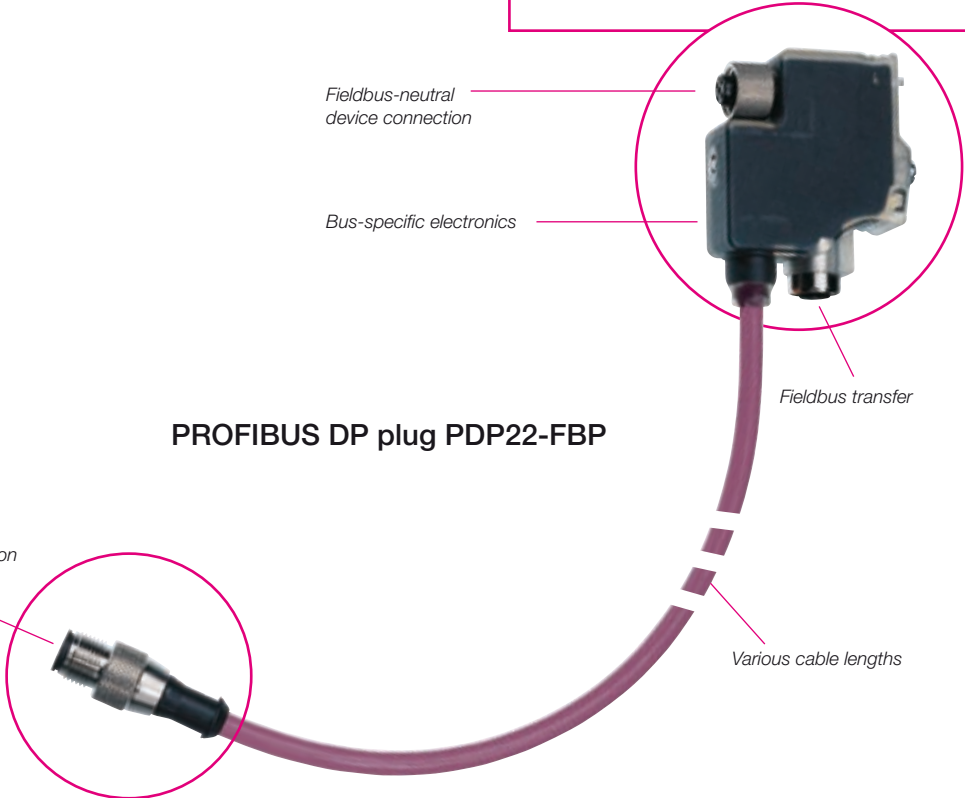*Fieldbus-neutral device connection*

Bus-specific electronics

Fieldbus transfer

PROFIBUS DP plug PDP22-FBP

Fieldbus connection (M 12)

Various cable lengths

Process monitoring/control

Automation units/PC (buyer's choice)

Field level

All important fieldbus types, e.g.

PROFIBUS-DP

AS-Interface

DeviceNet

MODBUS

Connection using the FieldBusPlug

The applications

As well as supporting numerous important fieldbus types, such as DeviceNet, AS-Interface and Modbus RTU, ABB's FieldBusPlug system also supports PROFIBUS DP, which is currently recognised and promoted around the world as the market leader amongst fieldbus systems. New FBP components offering even more scope for planning and implementation of central and decentralised applications have been developed especially for PROFIBUS DP. Material and processing costs are falling substantially as a result of consistent tuning to PROFIBUS DP circumstances.
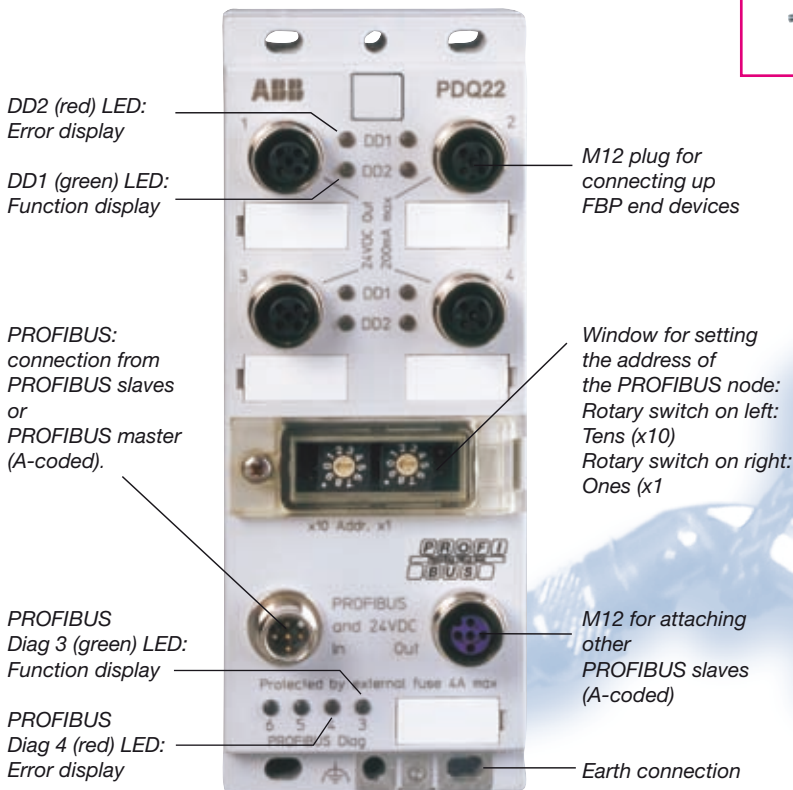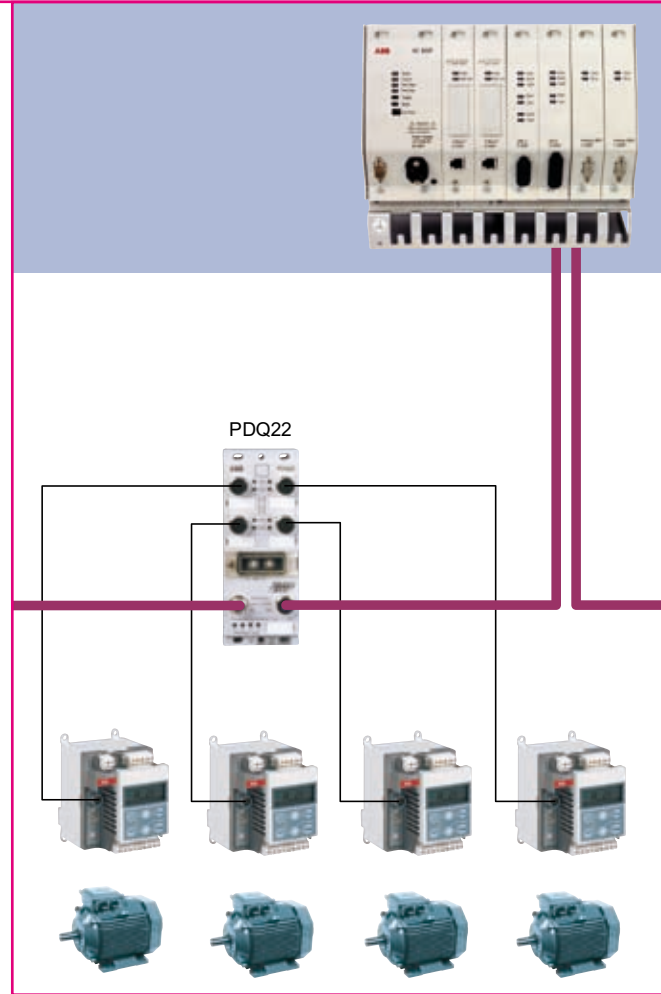
PROFIBUS DP plug
PDQ22-FBP
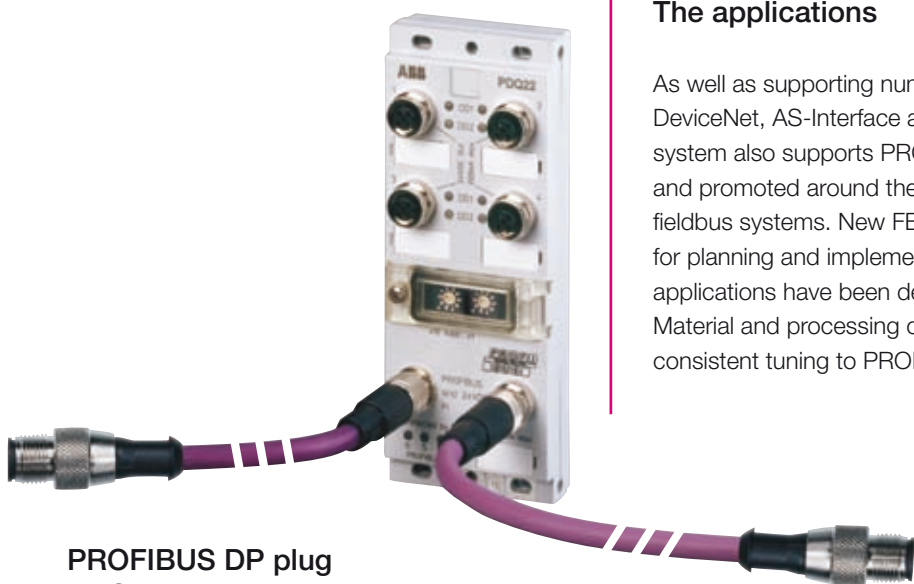
PDQ22-FBP: One bus node for four units

As well as supporting the tried and tested PROFIBUS DP plug PDP22-FBP, ABB's new PDQ22-FBP allows up to four FBP units to be connected to the PROFIBUS DP. This makes the PDQ22-FBP a cost-effective solution, especially when using devices positioned close to one another.
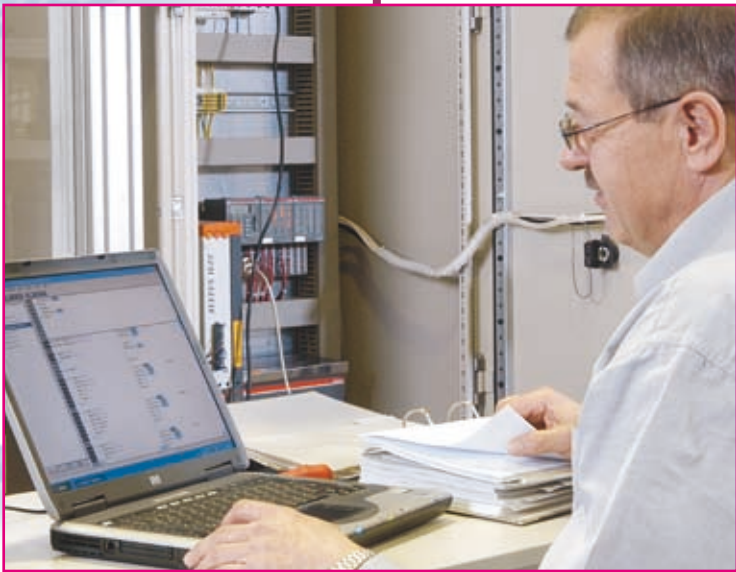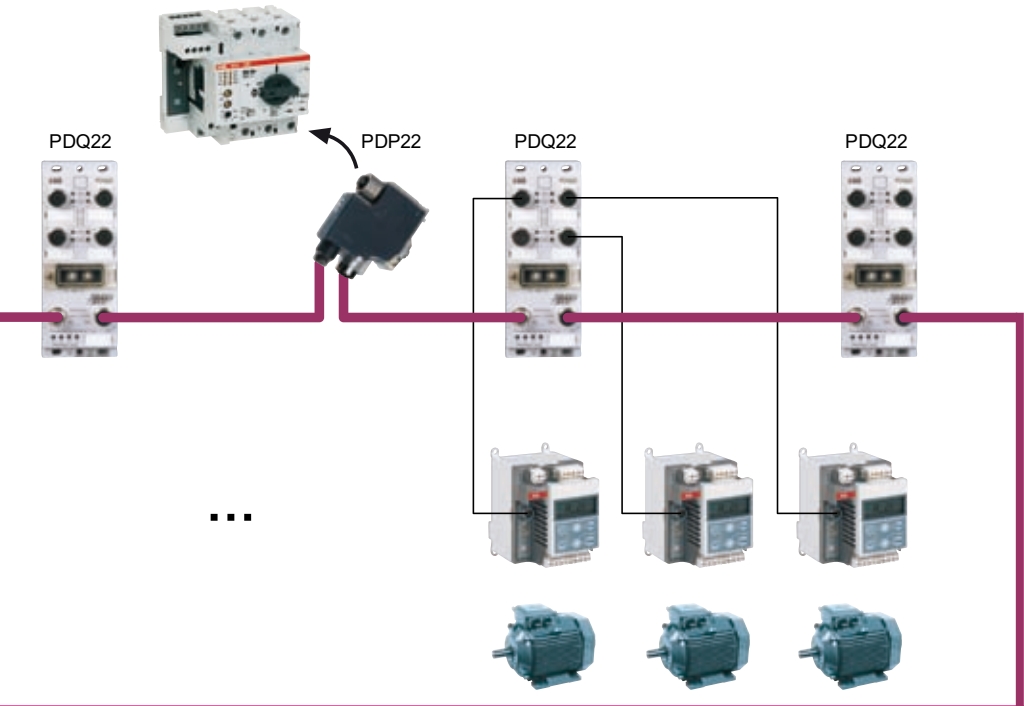
Standard connection cables are used to link the PDQ22-FBP and attached devices.

All devices connected to a node can be configured and maintained separately. Status LEDs provide information about the bus status and devices attached. The failure or removal of one device does not affect communication with the remaining devices.

The PDQ22-FBP makes possible efficient engineering and simple connection to control systems and ensures the level of safety needed for ongoing operations.

PDQ22

DD2 (red) LED:
Error display

DD1 (green) LED:
Function display

M12 plug for
connecting up
FBP end devices

PROFIBUS:
connection from
PROFIBUS slaves
or
PROFIBUS master
(A-coded).

Window for setting
the address of
the PROFIBUS node:
Rotary switch on left:
Tens (x10)
Rotary switch on right:
Ones (x1

PROFIBUS
Diag 3 (green) LED:
Function display

M12 for attaching
other
PROFIBUS slaves
(A-coded)

PROFIBUS
Diag 4 (red) LED:
Error display

Earth connection

PDQ22   PDP22   PDQ22   PDQ22

...

Controller
(Class 1 master and optionally C2 master)

Comprehensive diagnosis offers enhanced transparency
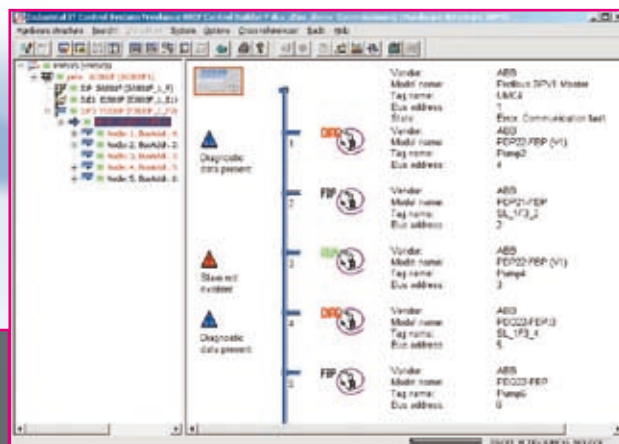
Just like all other FBP components, PDQ22-FBP and PDP22-FBP support a wide range of convenient diagnosis functions. PDQ22-FBP provides detailed diagnosis information about the status of attached units, its own status and that of the PROFIBUS connection. The diagnosis information is displayed both by the local diagnosis LEDs and by the standard PROFIBUS services.

The following errors are recognised:
• Incorrect device address settings
• Device connected to incorrect port
• Incorrect device type
• Missing unit
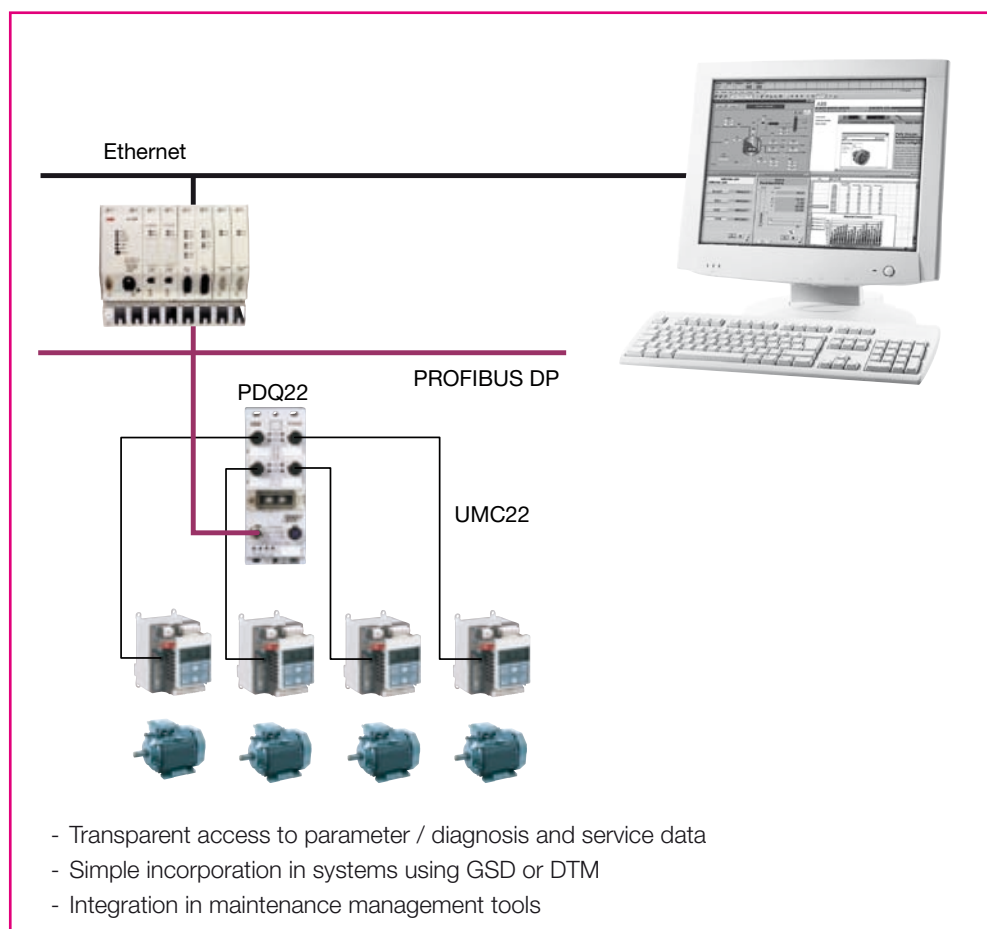• No PROFIBUS-communication
• Parameter error

The diagnosis information therefore makes it easier for the user to quickly detect and rectify damage. Time-consuming trouble-shooting is no longer needed and downtimes/maintenance times are kept to a minimum.

Effortless process connections

PDQ22-FBP and PDP22-FBP are certified PROFIBUS participants, which means that they enable simple and proven device integration in any control systems or control units. Both GSD- and DTM-based systems are supported and both PROFIBUS protocols, DP-V0 and DP-V1, are implemented.

All parameter, service and diagnosis data on the attached units can be accessed in a transparent manner, allowing the FBP devices to be integrated in cross-system maintenance management systems.

Ethernet

PROFIBUS DP

PDQ22

UMC22

- Transparent access to parameter / diagnosis and service data
- Simple incorporation in systems using GSD or DTM
- Integration in maintenance management tools

Use in motor control centres

The FieldBusPlug system is a real winner in terms of installation cost, e.g. if the intelligent UMC22-FBP motor controller is used for drawer or fixed panel systems. The PDQ22-FBP is an optimum solution in this respect too, as it has been designed with separate bus node and devices in mind. The PROFIBUS node can remain in the cable room, while the UMC22-FBP for example is installed in the drawer.

A simple serial connection cable ensures stable communication between the PDQ22-FBP and the UMC22-FBP. Replacing a drawer does not impact on the function of any remaining drawers. Pre-assembled accessories are available for rapid assembly.
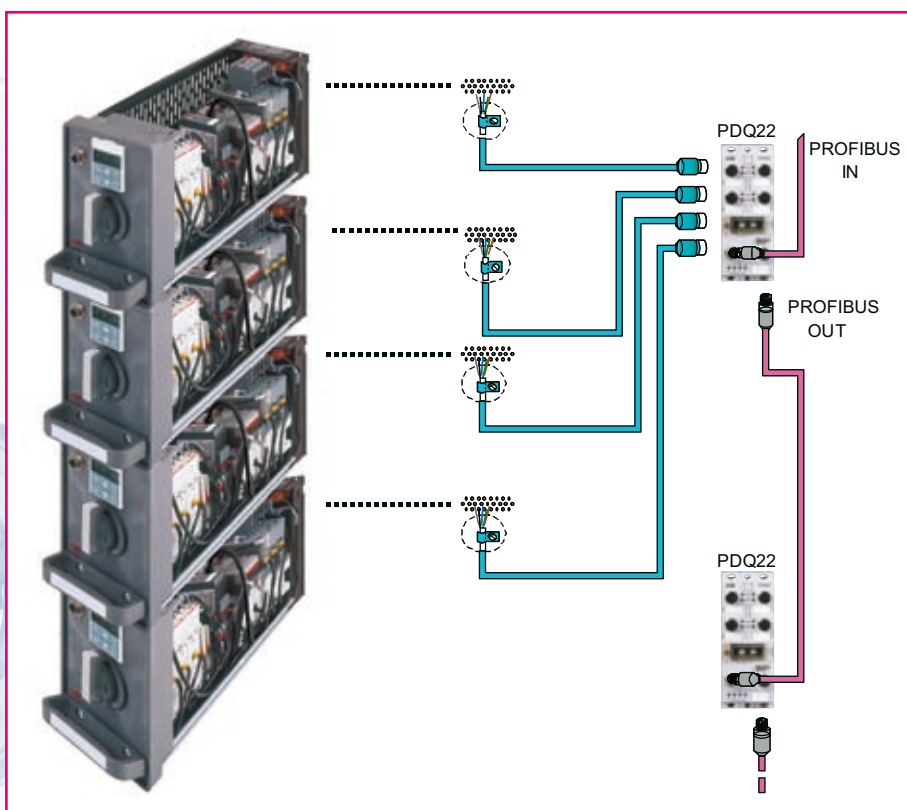
Example of a drawer system

Quick start-up
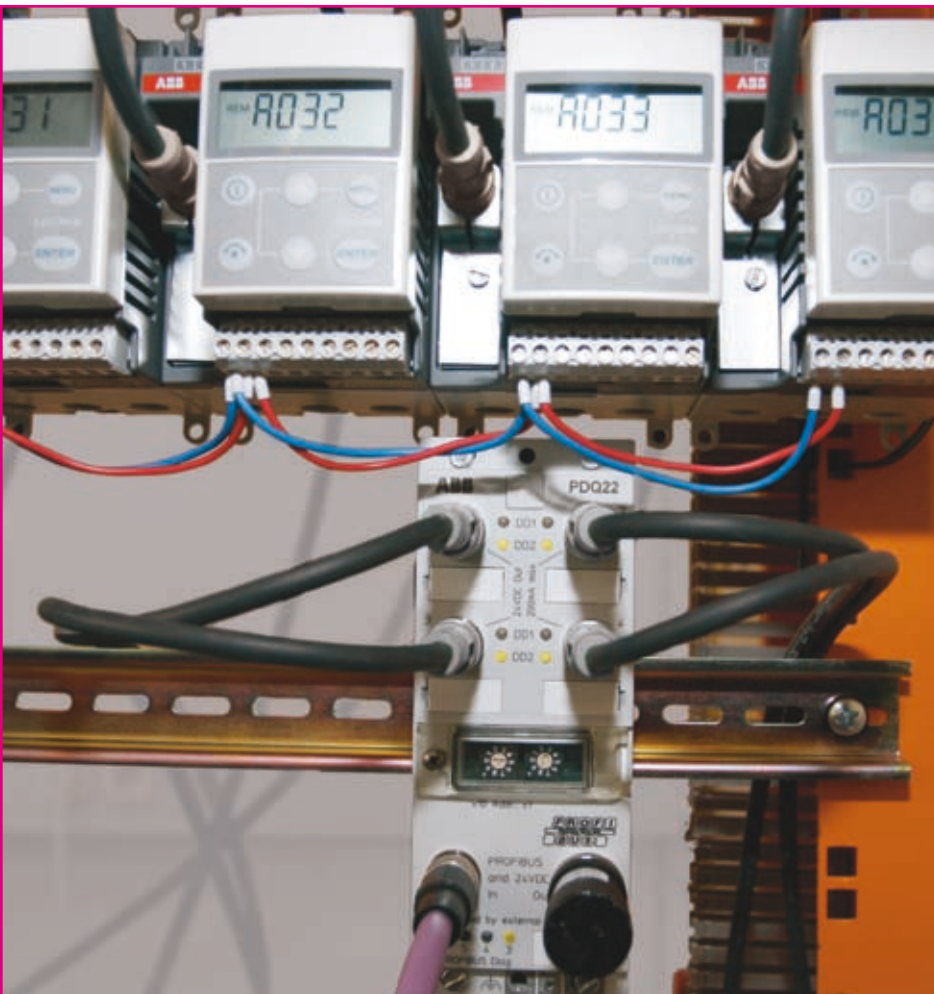
By using FBP components, you can save both time and money. Not only do these components offer simple engineering and rapid configuration but assembly costs also fall considerably. The new installation concept of the FBP system opens up a whole host of options for applications in central and decentralised applications. Simple incorporation in the process is just one of the system's smart features.
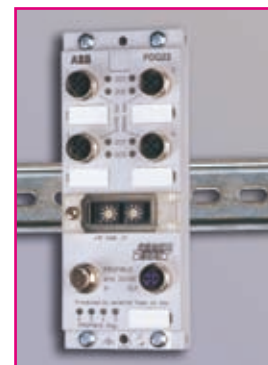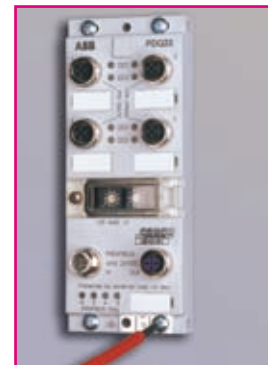
Flexible assembly options.

At top: Screw fastening

Below: With assembly plate on DIN bar

PDP22-FBP

Technical Data PDP22-FBP

Power supply

Supply voltage mode via FieldBusPlug cable

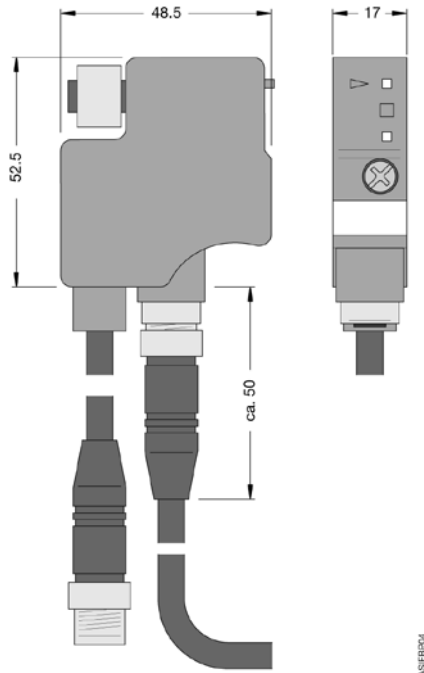|		
Supply voltage		24 V DC
Voltage range		19,2 ... 31,2 V DC
Current consumption	at 19,2 V	46 mA
	at 24,0 V	37 mA
	at 31,2 V	31 mA
Bridging time		min. 10 ms power line failure bridging time,to be performed by the power supply unit
Power dissipation		max. 0,9 W
Load capacity of cable		max. 4 A

Communication

Protocol		PROFIBUS DP complying with EN50170 PDP21-FBP DP-V0 PDP22-FBP DP-V0/V1
Certification		yes, Z01095
Baudrate		max. 12 Mbit/s
Electrical Isolation		yes, to the terminal device
Address range		1 to 126, recommended 3 to 125
Address setting		depending from the terminal device:
		- address switches on the terminal device
		- addressing set CAS21-FBP
		- operating panel
Bus termination		active bus termination 150 Ω acc. PROFIBUS standard required PDR11-FBP required if PDP22-FBP is last device on the bus
Construction of the FieldBusPlug cable		round cable, magenta
		supply voltage 2 x 0,34 mm²
		data 2 x 0,25 mm²
LEDs on the front	LED1 green	status PROFIBUS
	LED2 red	status PROFIBUS
	LED3 green	status terminal unit
	LED4 red	status terminal unit

Environmental and mechanical data

Mounting		on terminal device, fixed with a screw (provided on delivery)
Dimensions		see following
Weight		plug with cable 0.25 m 0.09 kg
		plug with cable 0.50 m 0.10 kg
		plug with cable 1.00 m 0.13 kg
		plug with cable 2.00 m 0.19 kg
		plug with cable 5.00 m 0.35 kg
Temperature range		storage -20 ... +70 °C
		operation 0 ... +55 °C
Degree of protection		IP67

PDQ22-FBP
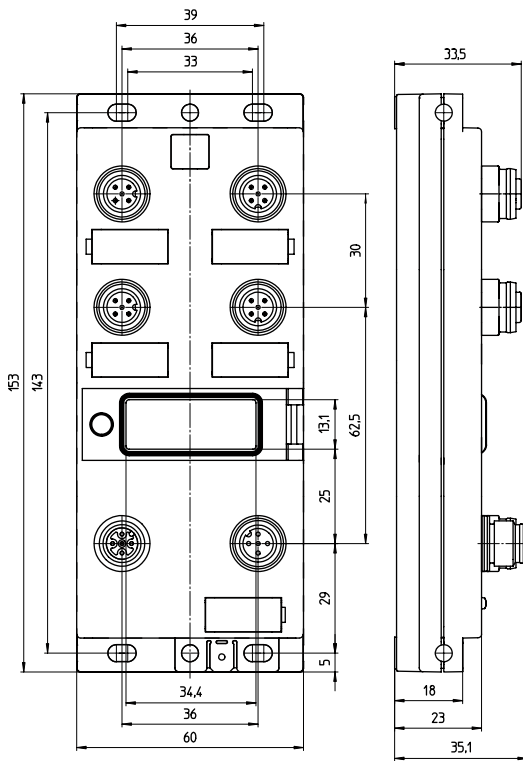
Technical Data PDQ22-FBP

Power supply

Supply voltage mode		via FieldBusPlug cable
Supply voltage		24 V DC
Voltage range		19,2 ... 31,2 V DC
Current consumption	at 19,2 V	39 mA
	at 24,0 V	31 mA
	at 31,2 V	24 mA
Bridging time		min. 10 ms power line failure bridging time to be performed by the powersupply unit
Power dissipation		max. 0,75 W
Load capacity of PROFIBUS cable		max. 4 A

Communication

Protocol		PROFIBUS DP-VO/V1 complying with EN50170
Certification		yes
Baudrate		max. 12 Mbit/s
Electrical isolation		yes, to the connected terminal devices
Address range		1 to 99
Address setting		rotary switches
Bus termination		active bus termination 150 Ω acc. PROFIBUS standard required PDR11-FBP required if PDQ22-FBP is last device on the bus
Cable to the FieldBusPlug system		round cable, magenta supply voltage 2 x 0,34 mm² data 2 x 0,25 mm²
Type		PDX11-FBP
Cable to the terminal devices		standard sensor cable, 5-poles, shielded
Length		max. 2 m

LEDs on the front

terminal device	LED DD1	red	fault of terminal device
	LED DD2	green	terminal device ok
PROFIBUS	LED 3	green	communication ok
	LED 4	red	communication error

Environmental and mechanical data

Mounting		with screws or with adaptoon DIN-rail (accessories)
Dimensions		see following
Weight		0,2 kg
Temperature range		storage -20 ... +70 °C
		Operation 0 ... +55 °C
Degree of protection		IP67

Ordering data

PDQ22-FBP.0	1SAJ 240 200 R0050
Adaptor for DIN-rail mounting	
CDA11-FBP.0	1SAJ 923 300 R0001

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