



**Weidmüller** 

## Fieldbus Components

### Section K

This section covers our full range of connection technology for Profibus DP and Profibus PA available in cabinet or field mount formats and for hazardous locations. We also supply a complete range of connectors and adaptors and through panel bushes to help you make the most reliable connections to your system. There are many more variations available, please contact your local reseller for details.

# Fieldbus Components

## Introduction to Profibus DP, Profibus PA and Foundation Fieldbus

### Basics

There are two variations of PROFIBUS in use today; the most commonly used PROFIBUS DP, and the application specific, PROFIBUS PA:

- PROFIBUS DP (Decentralised Peripherals) is used to operate sensors and actuators via a centralized controller in production (factory) automation applications.
- PROFIBUS PA (Process Automation) is used to monitor measuring equipment via a process control system in process automation applications. This variant is designed for use in explosion/hazardous areas (Ex-zone 0 and 1). The Physical Layer conforms to IEC 61158-2, which allows power to be delivered over the bus to field instruments, while limiting current flows so that explosive conditions are not created, even if a malfunction occurs. The number of devices attached to a PA segment is limited by this feature.

PA has a data transmission rate of 31.25 kbit/s. However, PA uses the same protocol as DP, and can be linked to a DP network using a coupler device. The much faster DP acts as a backbone network for transmitting process signals to the controller. This means that DP and PA can work tightly together, especially in hybrid applications where process and factory automation networks operate side by side.

Profibus PA and Fieldbus foundation use the same physical layer with different connector types on the stub connection.

### FBCon fieldbus distributors

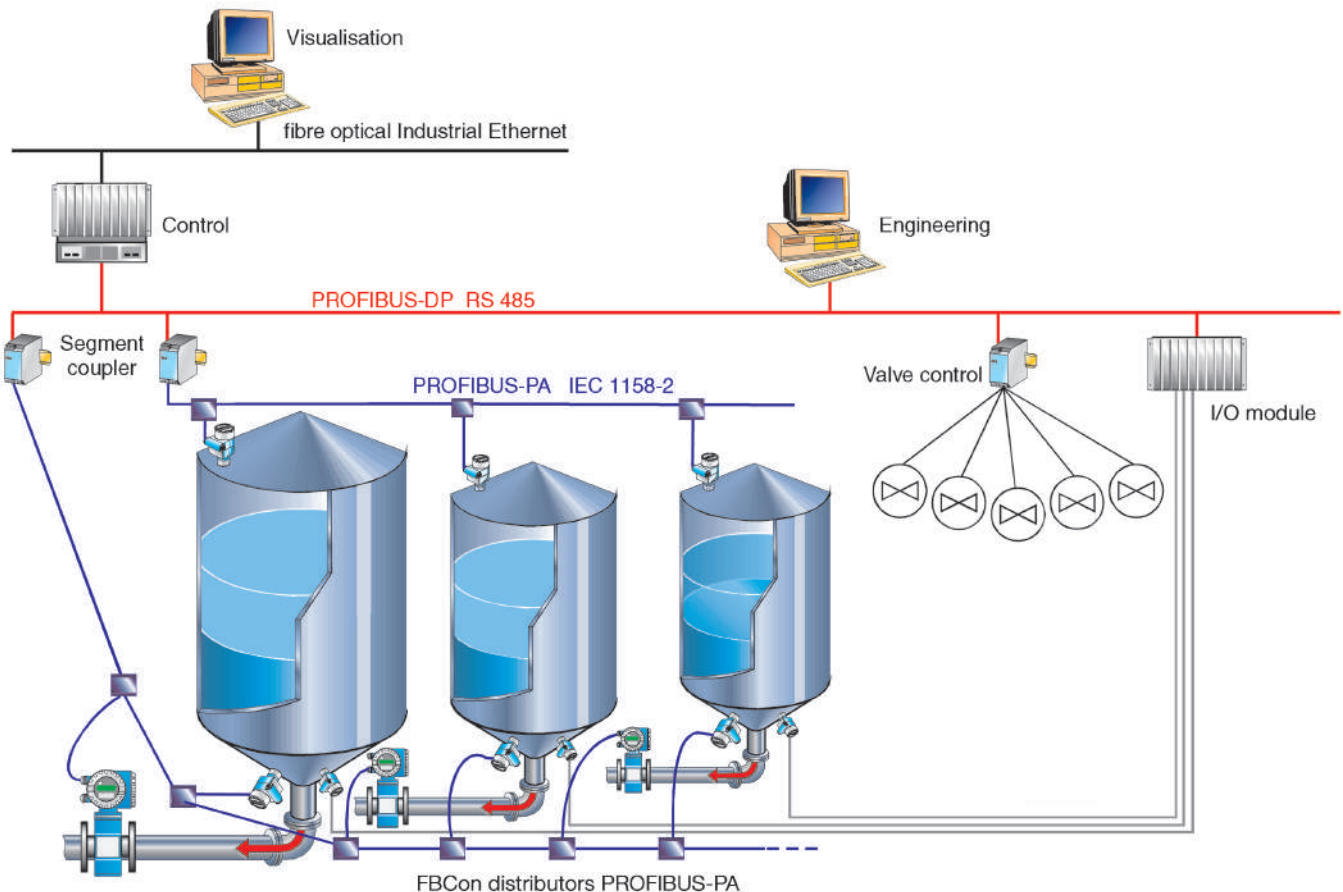
FBCon fieldbus distributors are available in industrial and EEx (ia) versions. They are used for coupling 1–8 field devices or sensors onto the backbone via stub cables. The stub cables are connected by an M12 (Profibus) or 7/8" (Foundation Fieldbus) plug-in connector or by wiring directly to internal tension clamp connectors via an EMC cable gland. The communication and device power is handled by a common 2-core wire.

### Colour coding

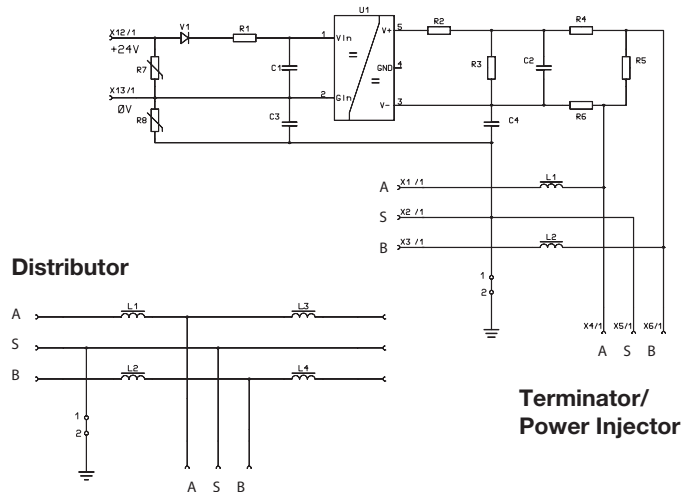
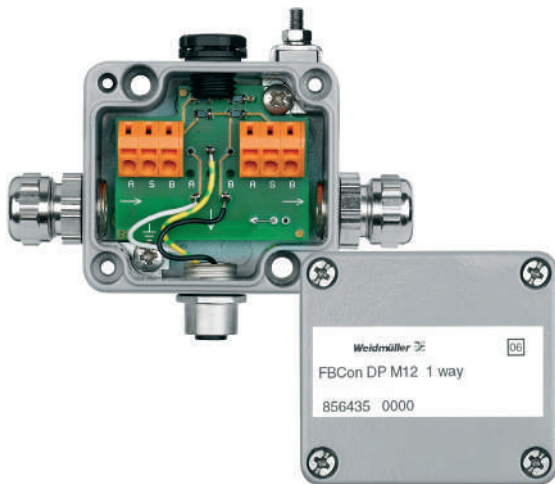
The standard distributors are finished in grey paint, the Ex-approved distributors are blue. Fieldbus Foundation distributors are black.

### Bus Termination

PROFIBUS-PA distributors are generally equipped with a switch-in terminating resistor. In potentially explosive areas, the terminating resistor is manufactured with a separate box and must be used instead of the right-hand cable gland. In the case of PROFIBUS-DP, an additional external 24Vdc power supply is required. This makes the terminator independent of the last station in the network.



# Field mount Profibus-DP Distributors



## PROFIBUS DP distributor

The PROFIBUS topology is a line structure. The branches (T-pieces) connect the individual field devices or remote I/Os to the bus cable. The length of the branch cable depends on the transmission rate and should be as short as possible. The total of all branch lengths for transmission rates up to 1.5 MBaud may not exceed max. 6.6 m.

The trunk cable passes through an EMC cable gland into an aluminium enclosure where it is connected to a tension clamp terminal.

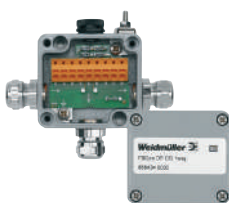
The enclosure has a pressure compensation element to counteract the effects of climatic cycles.

- PROFIBUS DP distributors offer the following features:
- Tension clamp connection technology
- EMC cable gland
- M12 plug-in connectors

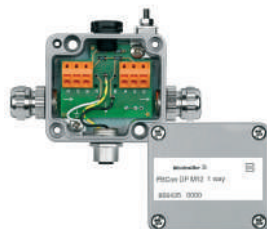
## Technical Data

Cable Gland Connections	
Type	Via M16 Cable Gland
Connections	Tension clamp terminals 0.5 - 1.5 mm <sup>2</sup>
Cable Gland Clamping Range	5.5 - 9.5mm <sup>2</sup>
Socket Connections	
Type	Coded 5-pin M12 Socket
Coding	B-coded
Contact surface	M12 plug/socket CuZnAu
Power supply	
Type	Bus Connection 24Vdc ±10%
Performance	
Baud Rate	1.5Mbs
Operating Temperature	-25°C to +55°C
Housing	
Material	High grade aluminium alloy (Al-Si 12)
Finish	Painted RAL 7001
Ingress protection class	IP66

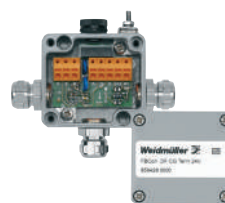
- External earth stud
- Pressure-equalising element
- IP66 Ingress Protection Class
- Stainless steel versions



FBCon DP CG 1-Way



FBCon DP M12 1-Way

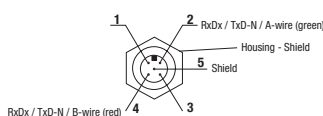


FBCon DP CG Term 24V



FBCon DP M12 Term 24V

### M12 Socket B-coded



Description	Housing		Stub Cable Connection	
	Al	SS	Cable Gland	M12 Socket
1 way Distributor box	•		8564340000	8564350000
		•	8714260000	8714270000
Active Bus Terminator (with 24Vdc Power Connection)	•		8564290000	8564330000
		•	8714240000	8714250000

# Profibus-DP IP20 T-Piece

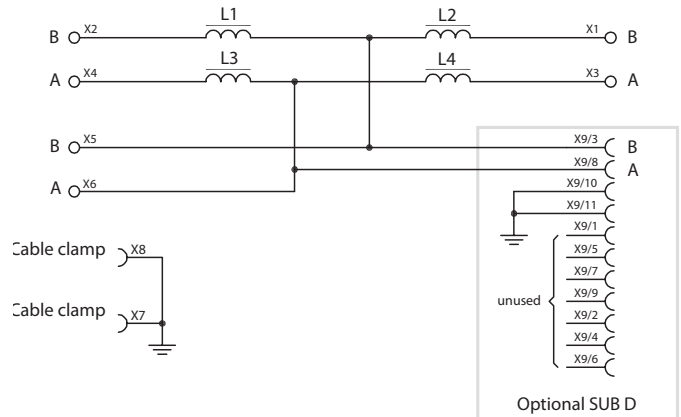
## PROFIBUS DP IP20 T-Piece

This interface unit for PROFIBUS-DP provides users with a convenient connection in the control cabinet. The modules can be mounted on TS 32/35 terminal rails and provide connections for standardised PROFIBUS-DP cables. Spur cables can also be connected. Please note that spur cables should be kept short as possible.

Part No. 8788580000 has a 9-pin sub-D socket for connecting analysis/programming devices.

### Features

- T-piece functions
- Good shield contact
- Ample space for connecting the bus cable
- TS 32/35 terminal rail mounting
- Standardised sub-D connection for PROFIBUS-DP
- Tension clamp connection technology



RS PB-DP T



RS PB-DP T SUB-D

### Technical Data

Connections	
Type	Via M16 Cable Gland (optional 9-way Sub-D type)
Connections	Tension clamp terminals 0.5 - 1.5 mm <sup>2</sup>
Cable Gland Clamping Range	4.5 - 8.0mm <sup>2</sup>
Performance	
Baud Rate	1.5M
Operating Temperature	0°C to +55°C
Housing	
Type	TS35/TS32 DIN Rail mount
Ingress protection class	IP20

### Ordering Data

Type	Description	Order No.
RS PB-DP T	DIN Rail Mount Profibus DP T-Piece	8800040000
RS PB-DP T SUB-D	DIN Rail Mount Profibus DP T-Piece with Sub-D Connector	8788580000

# Standard, Field mount, Profibus-PA Distributors

## Standard PROFIBUS PA distributors

The PROFIBUS-PA T-connectors are intended for direct coupling of measuring devices, sensors, actuators, etc. Standard Profibus PA distributors are 1, 2, 4 or 8 Way T-connectors available in three formats:

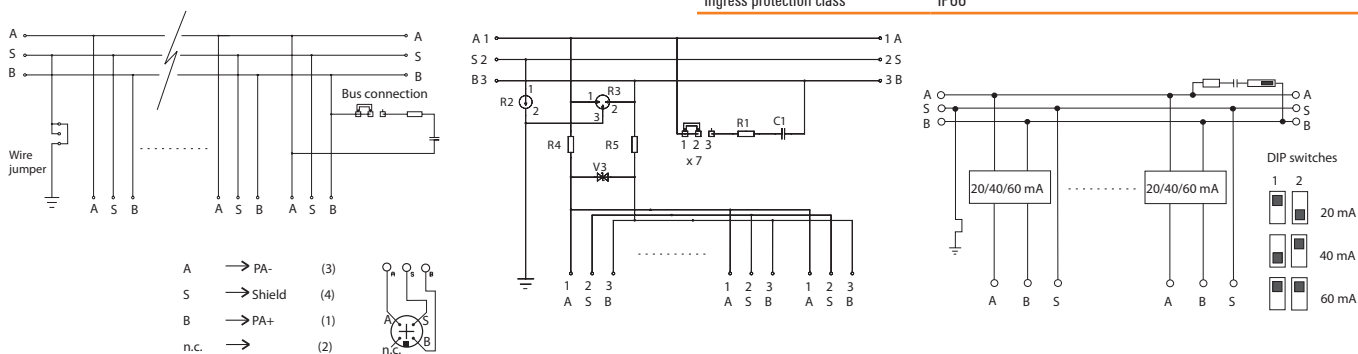
- Basic, which incorporate a jumper selectable termination resistor
- OVP, which have inbuilt surge protection
- Current Limiting, which have switch selectable 20/40/60mA current limiting on each stub connection. This protects the bus from devices which are short circuit or draw too much power from the bus.



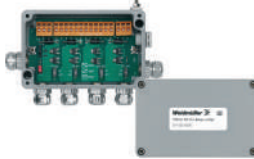
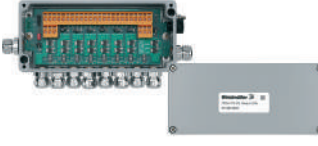
## Features

- IP 66 Ingress protection class
- Interruption-free bus operation for service situations
- External earth stud
- Pressure equalising element
- EMC cable gland

## Technical Data

Cable Gland Connections	
Type	Via M16 Cable Gland
Connections	Tension clamp terminals 0.5 - 1.5 mm <sup>2</sup>
Cable Gland Clamping Range	5.5 - 9.5mm <sup>2</sup>
Socket Connections	
Type	Coded M12 Socket
Coding	A-coded female
Contact surface	M12 plug/socket CuZnAu
Power supply	
Type	Bus Connection 24Vdc ±10%
Performance	
Transmission Rate	31.25 kbit/s
Operating Temperature	-25°C to +55°C
Housing	
Material	High grade aluminium alloy (Al-Si 12)
Finish	Painted RAL 7001
Ingress protection class	IP66



Product	Description	Housing		Basic		Over Voltage Protecting (OVP)		20/40/60mA Current Limiting	
		Alum	S-Steel	Cable Gland	M12 Socket	Cable Gland	M12 Socket	Cable Gland	M12 Socket
	Profibus PA 1-way	•		8564090000	8564060000	8714120000	8714080000	8714200000	8714160000
			•	8703430000	8726020000	8715270000	-	8726110000	-
	Profibus PA 2-way	•		8564100000	8564070000	8714130000	8714090000	8714210000	8714170000
			•	-	-	-	-	-	-
	Profibus PA 4-way	•		8564110000	8564080000	8714140000	8714100000	8714220000	8714180000
			•	8703450000	8726040000	8726080000	-	8715260000	-
	Profibus PA 8-way	•		8564300000	8564310000	8714150000	8714110000	8714230000	8714190000
			•	8703470000	8726050000	8726090000	-	8726160000	-

# Profibus-PA ATEX EEx (ia)



## PROFIBUS PA distributors for hazardous areas

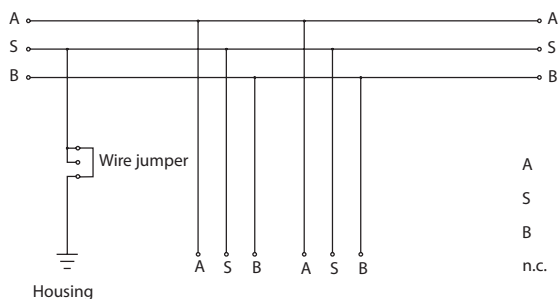
The PROFIBUS-PA T-connectors are intended for direct coupling of measuring devices, sensors, actuators, etc in hazardous areas. Profibus PA distributors are 1, 2, 4 or 8 Way T-connectors with a separate plug in bus terminator.

### Features

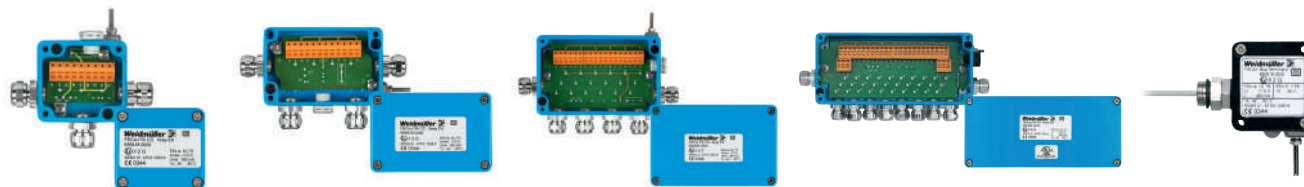
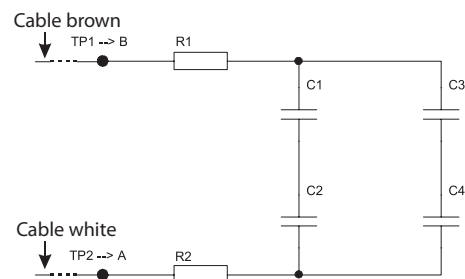
- ATEX approved intrinsic safety for use in hazardous areas
- IP 66 Ingress protection class
- Interruption-free bus operation for service situations
- External earth stud
- Pressure equalising element
- EMC cable gland

## Technical Data

Cable Gland Connections	
Type	Via M16 Cable Gland
Connections	Tension clamp terminals 0.5 - 1.5 mm <sup>2</sup>
Cable Gland Clamping Range	5.5 - 9.5mm <sup>2</sup>
Socket Connections	
Type	Coded M12 Socket
Coding	B-coded
Contact surface	M12 plug/socket CuZnAu
Power supply	
Type	Bus Connection 24Vdc ±10%
Performance	
Transmission Rate	31.25 kbit/s
Operating Temperature	-25°C to +55°C
Housing	
Material	High grade aluminium alloy (Al-Si 12)
Finish	Painted RAL 7001
Ingress protection class	IP66



- A → PA- (3)
- S → Shield (4)
- B → PA+ (1)
- n.c. → (2)



## Ordering Data






Product	Stub Cable Connection	
	Cable Gland	M12 Socket
FBCon EEx ia T-connector 1-Way	8564180000	8564150000
FBCon EEx ia T-connector 2-Way	8564190000	8564160000
FBCon EEx ia T-connector 4-Way	8564200000	8564170000
FBCon EEx ia T-connector 8-Way	8564240000	8564250000
FBCon EEx ia Terminator with Earth Connection	8606180000	
FBCon EEx ia Terminator no Earth Connection	8556460000	

# Profibus PA Accessories

## Profibus PA Accessories

Weidmüller provides a complete selection of cables, connectors and through panel bushes to help you make the most reliable connections to your system. There are many more options available, contact your local reseller for details.

### Ordering Data

	Type	Description	Order No.
	FBCon M12 4P M EMC	M12 Standard Plug, 4-Pole, PG 9, Metal Shielded, A-Coded, Screw Connection	9455640000
	FBCon M12 4P FM EMC	M12 Standard Socket, 4-Pole, PG 9, Metal Shielded, A-Coded, Screw Connection	8426220000
	SAISW-M-4/8 M12	M12 Right-Angle Plug, 4-Pole, PG 9, Metal Shielded, A-Coded, Screw Connection	1803930000
	SAISW-FM-4/8 M12	M12 Right-Angle Socket, 4-Pole, PG 9, Metal Shielded, A-Coded, Screw Connection	1803910000
	FBC PA M12 M 1M	1m long cable with M12 Male Plug on one end only	1785120100
	FBC PA M12 M 2M	2m long cable with M12 Male Plug on one end only	17851200200
	FBC PA M12 M 5M	5m long cable with M12 Male Plug on one end only	1785120500
	FBC PA M12 M 10M	10m long cable with M12 Male Plug on one end only	1785121000
	FBC PA M12 FM 1M	1m long cable with M12 Female Plug on one end only	1785110100
	FBC PA M12 FM 2M	2m long cable with M12 Female Plug on one end only	1785110200
	FBC PA M12 FM 5M	5m long cable with M12 Female Plug on one end only	1785110500
	FBC PA M12 FM 10M	10m long cable with M12 Female Plug on one end only	1785111000
	FBC PA M12 M-FM 1M	1m long connecting cable (M12 Female Plug to M12 Male plug)	1785100100
	FBC PA M12 M-FM 2M	2m long connecting cable (M12 Female Plug to M12 Male plug)	1785100200
	FBC PA M12 M-FM 5M	5m long connecting cable (M12 Female Plug to M12 Male plug)	1785100500
	FBC PA M12 M-FM 10M	10m long connecting cable (M12 Female Plug to M12 Male plug)	1785101000
	SAI-WDF-5P M12 60mm	M12 Thru panel bushing	1819450000
	SAIE-M12S-4-0.5U-AEH-VA	Screw-in M12 Plug connector PG9 thread (500mm leads)	1861220001
	SAIE-EW-M20/PG9-SW24-VA	Adaptor PG9 internal to M20 external Thread	1950270000
	POS-4P M12 PG13.5 150mm	Screw-in M12 Plug connector PG13.5 (150mm leads)	9455650000
	POS-4P M12 PG13.5 300mm	Screw-in M12 Plug connector PG13.5 (300mm leads)	8425910000
	POS-4P M12 M20 150mm	Screw-in M12 Plug connector PG20 (150mm leads)	8425930000
	POS-4P M12 M20 300mm	Screw-in M12 Plug connector PG20 (300mm leads)	8425940000