

Industrial communication technology – Fieldbus communication

With so many applications out there, and the need to satisfy specific industry requirements, fieldbuses are up against some significant challenges. Influencing factors such as EMI, potential differences, large distances to cover, increasing numbers of devices, and rising data rates require a high-performance, flexible network. By choosing interface devices from Phoenix Contact, you will benefit from robust network installations in copper and FO versions.

Extenders and repeaters

- Higher level of performance, thanks to increased range and segmentation
- Flexible network extension, thanks to signal conditioning with repeaters
- Use any two-wire cables to increase the range with extenders

Converters and isolators

- Adapt, connect, disconnect, and protect interfaces

Installation technology

- Installation system adapted for devices in the control cabinet and for field devices with a high degree of protection

Modern process technologies

- HART, FOUNDATION Fieldbus, PROFIBUS PA, and I/O solutions for potentially explosive areas

Product overview	420
Copper transmission	
Repeater	422
Active PROFIBUS termination	424
RS-232 interface converters	425
Extenders	428
Media converters	
FO converters:	
- For PROFIBUS	430
- For DeviceNet™, and CANopen®	432
- For RS-485 2-wire bus systems	434
- For INTERBUS, RS-422, and RS-485 4-wire bus systems	436
- For RS-232	438
Fiber optic cables, tools, and measuring devices	440
Installation technology	
PROFIBUS cable, tool, RS-485 connection distributor	442
D-SUB fast connection, M12	444
D-SUB fast connection for PROFIBUS	446
D-SUB fast connection for CANopen® and SafetyBUS p	448
D-SUB fast connection for Modbus, INTERBUS, RS-232, RS-422, RS-485	450
PROFIBUS PA / FOUNDATION Fieldbus / HART	
Field junction boxes	452
Device couplers for the field	454
Field diagnostic modules	457
Power supply	458
PROFIBUS DP/PA coupler	460
PROFIBUS PA I/O multiplexer	461
Modbus and HART gateways	462
Ethernet HART multiplexer	463
Industrial Ethernet	285
Industrial Wireless	369
Remote communication	399

Product overview

Extenders and repeaters



Repeaters for electrical isolation and increasing the range

Page 422



Serial extender, PROFIBUS extender

Page 428

Converters and isolators



Termination resistor for active bus termination

Page 424



Interface converters

Page 426

Media converters



FO converters for PROFIBUS

Page 430



FO converters for DeviceNet™ and CANopen®

Page 432



FO converters for RS-485 2-wire bus systems

Page 434



FO converters for INTERBUS

Page 436

Media converters



FO converters for RS-232

Page 438



FO accessories – FO cables, connectors, and tools

Page 440

Industrial Ethernet



Universal media converters for conversion to fiber optics

Page 350



Media converters for real-time protocols and IEC 61850 environments

Page 352

Industrial Ethernet



Serial device servers and protocol converters, multiport, for conversion to Ethernet

Page 354



Serial device servers, 1 port, for conversion to Ethernet

Page 357



PoE injectors for the common transmission of power and data

Page 345



Patch panels for various connection technologies

Page 362

Installation technology



Type A Fast Connect PROFIBUS cable and quick stripping tool

Page 442



M12 D-SUB fast connection for PROFIBUS and CANopen®

Page 444



D-SUB fast connection for PROFIBUS and CANopen®

Page 446



D-SUB fast connection for Modbus, INTERBUS, RS-232, RS-422, RS-485

Page 450

PROFIBUS PA / FOUNDATION Fieldbus



Field connection boxes in stainless steel

Page 453



Device couplers for the field

Page 454



Device couplers for the field, Ex zone 1 and 2

Page 456



Field diagnostic modules for FOUNDATION Fieldbus

Page 457

PROFIBUS PA / FOUNDATION Fieldbus



PROFIBUS PA I/O multiplexer

Page 461



Modbus gateways for PROFIBUS DP/PA and FOUNDATION Fieldbus

Page 462



HART gateways for PROFIBUS DP/PA and FOUNDATION Fieldbus

Page 462

HART



Ethernet HART multiplexer

Page 463

Industrial Wireless



Radioline wireless modules, WirelessHART, and accessories

Page 369



Wireless multiplexer with antennas

Page 386



WirelessHART, gateway and adapter

Page 384

Remote communication



Alerts, remote maintenance, and remote control

Page 399

Repeaters

The performance and availability of bus systems can be significantly increased by using repeaters. In addition to electrical isolation, bus segmentation with repeaters makes it possible to multiply the permissible coverage of the network and to extend the number of devices.

The **PSI-REP-PROFIBUS/12MB** modular repeater has been specially developed for the requirements of PROFIBUS systems.

- Bit retiming for unrestricted cascading of devices
- Filtering of faulty telegrams based on start delimiter detection
- Routing of supply voltage and data signals through DIN rail connectors

As a modular repeater, the **PSI-REP-RS485W2** can be used in RS-485 2-wire bus systems.

- Bit retiming for unrestricted cascading of devices
- Routing of supply voltage and data signals through DIN rail connectors

The **PSM-ME-RS485/RS485-P** compact repeater is designed for universal use in RS-485 2-wire bus systems.

- Transmission speeds of up to 1.5 Mbps
- Space-saving slim 22.5 mm device
- Shipbuilding approval in accordance with DNV

The **PSI-REP-DNET CAN** modular repeater connects two CAN segments with the same data rate.



**Repeater for PROFIBUS,
4-way isolation,
supports modular expansion**



Supply	
Supply voltage	
Supply voltage range	
Nominal current consumption	
RS-485 interface	
Data format/encoding	
Data direction switching	
Termination resistor	
Transmission speed	
Transmission distance	
Connection method	
CAN interface	
Termination resistor	
Transmission speed	
Transmission distance	
Connection method	
General data	
Bit distortion, input	
Bit distortion, output	
Bit delay	
Alarm output	
Test voltage	
Ambient temperature range	
Electrical isolation	
Dimensions	W / H / D
EMC note	
Conformance/approvals	
ATEX	
UL, USA/Canada	

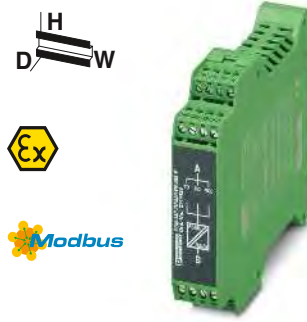
Technical data		
Supply	24 V DC (with UL approval)	
Supply voltage range	18 V DC ... 30 V DC (via COMBICON plug-in screw terminal block)	
Nominal current consumption	< 90 mA (24 V DC ...)	
RS-485 interface	PROFIBUS in acc. with IEC 61158, RS-485 2-wire	
Data format/encoding	UART (11 Bit, NRZ)	
Data direction switching	Automatic control, min. station response time 2 bits	
Termination resistor	external	
Transmission speed	9.6/19.2/45.45/93.75/187.5/500/1500/3000/6000/12000 kbps (can be set manually and automatically)	
Transmission distance	≤ 1200 m (depends on transmission speed and cable type)	
Connection method	D-SUB-9 female connector	
CAN interface	-	
Termination resistor	-	
Transmission speed	-	
Transmission distance	-	
Connection method	-	
General data		
Bit distortion, input	max. ± 35%	
Bit distortion, output	< 6.25%	
Bit delay	1 bit (Direct mode)	
Alarm output	30 V DC (1 A) / 65 V DC (0.46 A) / 150 V AC (0.46 A)	
Test voltage	1.5 kV _{rms} (50 Hz, 1 min.)	
Ambient temperature range	-20°C ... 60°C	
Electrical isolation	VCC // TBUS // PROFIBUS (A) // PROFIBUS (B)	
Dimensions	35 mm / 99 mm / 105 mm	
EMC note	Class A product, see page 527	
Conformance/approvals		
ATEX	Ex II 3 G Ex nA nC IIC T4 Gc X	
UL, USA/Canada	cULus listed UL 508	
	Class I, Zone 2, AEx nA nC IIC T6	
	Class I, Zone 2, Ex nA nC IIC T6 Gc X	
	Class I, Div. 2, Groups A, B, C, D	

Description	
Repeater, for electrical isolation and increased range	
DIN rail connector (optional), for routing through the supply voltage and data signal, two pieces are required per device	
System power supply, primary-switched	

Ordering data		
Type	Order No.	Pcs./Pkt.
PSI-REP-PROFIBUS/12MB	2708863	1
Accessories		
ME 17.5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1



**Repeater for RS-485 2-wire systems,
4-way isolation,
supports modular expansion**



**Basic repeater for RS-485 2-wire systems,
3-way isolation**



**Repeater
for DeviceNet™ and CANopen®**



Technical data	
24 V DC (with UL approval)	
18 V DC ... 30 V DC (via COMBICON plug-in screw terminal block)	
75 mA (24 V DC ...)	
RS-485 interface, in acc. with EIA/TIA-485, DIN 66259-4/RS-485 2-wire	
UART (11/10 bit switchable; NRZ)	
Automatic control, min. station response time 2 bits	
390 Ω (can be connected to port A and B) / 150 Ω / 390 Ω	
4.8/9.6/19.2/38.4/57.6/75/93.75/115.2/136/187.5/375/500 kbps (can be set manually)	
≤ 1200 m (depends on transmission speed, bus system, and cable type)	
Plug-in screw connection	
-	
-	
-	
max. ± 35%	
< 6.25%	
< 1 bit	
-	
1.5 kV _{rms} (50 Hz, 1 min.)	
-20°C ... 60°C	
VCC // TBUS // RS-485 (A) // RS-485 (B)	
35 mm / 99 mm / 105 mm	
Class A product, see page 527	
Ex II 3 G Ex nA IIC T4 Gc X	
508 recognized	
Class I, Zone 2, AEx nA IIC T6	
Class I, Zone 2, Ex nA IIC T6 Gc X	
Class I, Div. 2, Groups A, B, C, D	

Technical data	
24 V AC/DC	
18 V AC/DC ... 30 V AC/DC (via COMBICON plug-in screw terminal block)	
90 mA (24 V DC)	
RS-485 interface, in acc. with EIA/TIA-485, DIN 66259-4/RS-485 2-wire	
UART (11/10 bit switchable; NRZ)	
Automatic control, min. station response time 1 bits	
390 Ω / 180 Ω / 390 Ω (can be connected)	
1.2 / 2.4 / 4.8 / 9.6 / 19.2 / 38.4 / 57.6 / 75 / 93.75 / 115.2 / 136 / 187.5 / 375 / 500 / 1500 kbps	
≤ 1200 m (depends on transmission speed, bus system, and cable type)	
Plug-in screw connection	
-	
-	
-	
max. ± 35%	
< 3.6%	
< 200 ns	
-	
1.5 kV _{rms} (50 Hz, 1 min.)	
-40°C ... 70°C	
VCC // RS-485 (A) // RS-485 (B)	
22.5 mm / 99 mm / 114.5 mm	
Class A product, see page 527	
Ex II 3 G Ex nA IIC T4 Gc	
508 recognized	
Class I, Div. 2, Groups A, B, C, D	
Class I, Zone 2, AEx nA IIC T4	
Class I, Zone 2, Ex nA IIC T4 Gc X	

Technical data	
24 V DC	
10 V DC ... 30 V DC (via COMBICON plug-in screw terminal block)	
55 mA (24 V DC)	
-	
-	
-	
CAN interface, in accordance with ISO/IS 11898 for DeviceNet, CAN, CANopen	
124 Ω (integrated and ready to be switched)	
≤ 1 Mbps (configurable via DIP switches)	
≤ 5000 m (dependent on the data rate and the protocol used)	
COMBICON plug-in screw terminal block	
± 35%	
< 6.25%	
One telegram length (EXTENDED)	
10 V DC ... 30 V DC ; 500 mA	
1.5 kV _{rms} (50 Hz, 1 min.)	
-20°C ... 60°C	
VCC // TBUS // CAN A // CAN B	
35 mm / 111 mm / 121 mm	
Ex II 3 G Ex nA IIC T4 Gc X	
508 Listed	

Ordering data		
Type	Order No.	Pcs./Pkt.
PSI-REP-RS485W2	2313096	1
Accessories		
ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1

Ordering data		
Type	Order No.	Pcs./Pkt.
PSM-ME-RS485/RS485-P	2744429	1
Accessories		

Ordering data		
Type	Order No.	Pcs./Pkt.
PSI-REP-DNET CAN	2313423	1
Accessories		
ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1

Terminator

The **PSI-TERMINATOR-PB-TBUS** active termination resistor ensures interference-free communication in PROFIBUS and RS-485 networks.

- Permanently active termination of the bus line, particularly in applications involving alternating bus devices
- Diagnostic LEDs for voltage and data activity
- Fixed programming interface in the network
- Termination can be connected externally
- Electrical isolation of power supply and data interface
- Redundant power supply
- Installation as single device or in combination with other devices
- Supply voltage routed through a DIN rail connector for use in combination with other devices
- Extended temperature range (-40°C ... +70°C)

Supply	
Supply voltage	
Supply voltage range	
Nominal current consumption	
RS-485 interface	
Termination resistor	
Transmission speed	
Transmission distance	
Connection method	
General data	
Test voltage	
Ambient temperature range	
Housing material	
Electrical isolation	
Dimensions	W / H / D
EMC note	
Conformance/approvals	
UL, USA/Canada	

Description
Active termination resistor , bus termination can be activated, programming interface



Active bus termination for PROFIBUS and RS-485 2-wire systems



Technical data		
24 V DC (via COMBICON plug-in screw terminal block)		
18 V DC ... 30 V DC (via COMBICON plug-in screw terminal block)		
10 mA (24 V DC, no load on D-SUB)		
PROFIBUS in acc. with IEC 61158, RS-485 2-wire		
390 Ω / 220 Ω / 390 Ω (can be connected)		
≤ 12 Mbps		
≤ 1200 m (depends on transmission speed and cable type)		
D-SUB 9, COMBICON		
1.5 kV AC (50 Hz, 1 min.)		
-40°C ... 70°C		
PA 6.6-FR		
DIN EN 50178 (RS-485 // VCC)		
22.5 mm / 92 mm / 73 mm		
Class A product, see page 527		
508 Listed		
Ordering data		
Type	Order No.	Pcs./Pkt.
PSI-TERMINATOR-PB-TBUS	2702636	1

Interface converters

RS-232 (V.24) / RS-422 (V.11)

RS-232 (V.24) / RS-485

PSM-ME-RS232/RS485-P

The RS-422 standard can be used to set up rapid, interference-free point-to-point connections in industrial applications.

The RS-485 standard allows more than two devices to communicate with one another. Converting the RS-232 point-to-point interface into the bus-capable RS-485 standard makes it possible to network up to 32 devices via a 2- or 4-wire cable.

Features:

- RS-422 4-wire point-to-point mode
- RS-485 2-wire mode, half duplex
- RS-485 4-wire mode, full duplex
- Automatic RS-485 transmit/receive changeover
- Integrated data indicator for dynamic indication of send and receive data
- High-quality 3-way isolation for safe decoupling of potentials

Applications:

- Fast and interference-free point-to-point connection between two RS-232 interfaces via RS-422
- Increase in range or remote transmission up to 1200 m

PSM-EG-RS 232/RS 422-P/4K

The PSM-EG... control cabinet module also converts the RS-232 signals in full duplex mode with a data rate of up to 64 kbps to the powerful RS-422 standard. However, in addition to the Tx/D/RxD transmit and receive channels, the converter also provides two further channels for transmitting RTS and CTS control lines.

Features:

- RS-422 4-wire point-to-point mode
- High-quality 3-way isolation between the power supply, RS-232, and RS-422 for reliable electrical isolation of the potentials with 2.5 kV
- Integrated surge protection with transient discharge to the DIN rail

Applications:

- Fast and interference-free point-to-point connection between two RS-232 interfaces via RS-422
- Programming or parameterization connection between PC (RS-232) and, for example, PLC or variable frequency drive with RS-422 connection
- Increased range of up to 1200 m, incl. control cables



RS-232 converter for RS-485 and RS-422



Supply	
Supply voltage range	
Nominal current consumption	
RS-232 interface	
Transmission speed	
Connection method	
RS-422 interface	
Termination resistor	
Transmission speed	
Transmission distance	
Connection method	
RS-485 interface	
Data direction switching	
Termination resistor	
Transmission speed	
Transmission distance	
Connection method	
General data	
Bit delay	
Test voltage	
Ambient temperature range	
Transmission channels	
Electrical isolation	
Dimensions	
EMC note	
Conformance/approvals	
UL, USA/Canada	

Description
Interface converter
- for converting RS-232 (V.24) to RS-485
- for converting RS-232 (V.24) to RS-422 (V.11)

Technical data	
PSM-ME-RS232/RS485-P	PSM-EG-RS232/RS422-P/4K
18 V AC/DC ... 30 V AC/DC (via COMBICON plug-in screw terminal block)	19.2 V DC ... 28.8 V DC
85 mA (24 V DC)	130 mA (24 V DC)
RS-232 interface in acc. with ITU-T V.28, EIA/TIA-232, DIN 66259-1	
1.2; 2.4; 4.8; 7.2; 9.6; 19.2; 31.25; 38.4; 57.6; 75; 93.75; 115.2 kbps	64 kbps
D-SUB 9 plug	D-SUB 9 plug
RS-422 interface in acc. with ITU-T V.11, EIA/TIA-422, DIN 66348-1	
390 Ω / 150 Ω / 390 Ω (can be connected)	510 Ω / 150 Ω / 510 Ω (can be connected)
1.2; 2.4; 4.8; 9.6; 19.2; 38.4; 57.6; 75; 93.75; 115.2 kbps	64 kbps
1200 m (shielded twisted pair)	1200 m (twisted pair)
Plug-in screw connection	D-SUB-15 male connector
RS-485 interface in acc. with EIA/TIA-485, DIN 66259-1	
Automatic control or via RTS/CTS	
390 Ω / 150 Ω / 390 Ω (can be connected)	
1.2; 2.4; 4.8; 9.6; 19.2; 38.4; 57.6; 75; 93.75; 115.2 kbps	
1200 m (shielded twisted pair)	
Plug-in screw connection	
General data	
≤ 2.5 μs	≤ 3 μs
1.5 kV AC	2.5 kV
-40°C ... 70°C	0°C ... 50°C
2 (1/1), RxD, TxD, full duplex	4 (2/2), RxD, TxD, RTS, CTS; full duplex
VCC // RS-232 // RS-485	VCC // RS-232 // RS-422
22.5 mm / 99 mm / 114.5 mm	45 mm / 75 mm / 110 mm
Class A product, see page 527	
508 recognized	cUL 508 Recognized
Class I, Div. 2, Groups A, B, C, D	
Class I, Zone 2, AEx nA IIC T4	
Class I, Zone 2, Ex nA IIC T4 Gc X	

Ordering data		
Type	Order No.	Pcs./Pkt.
PSM-ME-RS232/RS485-P	2744416	1
PSM-EG-RS232/RS422-P/4K	2761266	1

Copper transmission

Interface isolator RS-232/RS-232

The RS-232 interface is an asymmetric voltage interface (common signal ground for all signals). As well as having a very low signal power, the signal ground is connected to ground potential. This results in very little immunity to interference and a maximum range of 15 m.

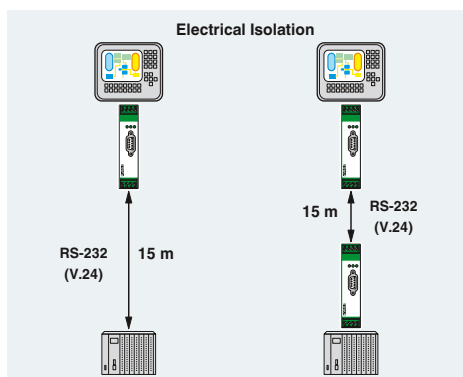
A considerably higher level of immunity to interference can be achieved in industrial applications by using RS-232 isolator modules. The high-quality 3-way isolation results in an electrically isolated and interference-proof RS-232 interface. This decoupling also protects the expensive end devices against damage.

Features:

- High-quality 3-way isolation up to 2 kV (VCC // RS-232 // RS-232)
- Max. transmission rate of up to 115.2 kbps
- 24 V DC or AC power supply suitable for control cabinet
- Mounting on standard EN DIN rails
- Integrated surge protection with transient discharge to the DIN rail
- In the case of variable cable lengths, the RS-232 connection on the field side can be established conveniently using plug-in screw terminal blocks
- Transmission of Tx/D/RxD data channels and RTS/CTS control lines
- Active data transmission indicated by separate data indicators for the transmit and receive channels

Application:

- Higher level of immunity to interference for industrial conditions
- Compensating currents avoided through electrical isolation
- Protection of expensive end devices through decoupling
- Optimum protection of both interface sides, thanks to two RS-232/RS-232 interface isolators



RS-232



RS-232 interface isolator



Supply	
Supply voltage	24 V AC/DC ±20%
Supply voltage range	19.2 V AC/DC ... 28.8 V AC/DC
Nominal current consumption	40 mA (24 V DC)
RS-232 interface	
Transmission speed	115.2 kbps
Transmission distance	15 m (shielded twisted pair)
Connection method	D-SUB 9 plug Plug-in screw connection
General data	
Bit distortion	< 5%
Bit delay	< 3 µs
Test voltage	2 kV _{rms} (50 Hz, 1 min.)
Ambient temperature range	0°C ... 55°C
Housing material	PA
Transmission channels	4 (2/2), Rx/D, Tx/D, RTS, CTS; full duplex
Electrical isolation	VCC // RS-232 (A) // RS-232 (B)
Dimensions	22.5 mm / 99 mm / 118.6 mm
EMC note	Class A product, see page 527
Conformance/approvals	
UL, USA/Canada	

Technical data		
Supply		
Supply voltage		
Supply voltage range		
Nominal current consumption		
RS-232 interface		
Transmission speed		
Transmission distance		
Connection method		
General data		
Bit distortion		
Bit delay		
Test voltage		
Ambient temperature range		
Housing material		
Transmission channels		
Electrical isolation		
Dimensions		
EMC note		
Conformance/approvals		
UL, USA/Canada		

Description
Interface isolator , for electrical isolation of RS-232 (V.24) interfaces, four channels, rail-mountable

Ordering data		
Type	Order No.	Pcs./Pkt.
PSM-ME-RS232/RS232-P	2744461	1

Interface converter RS-232/TTY

This converter converts an RS-232 interface into a 20 mA TTY current loop interface bidirectionally.

The interference immune TTY signal allows problem-free data transmission over distances of up to 1000 m using a twisted-pair and shielded 4-wire cable.

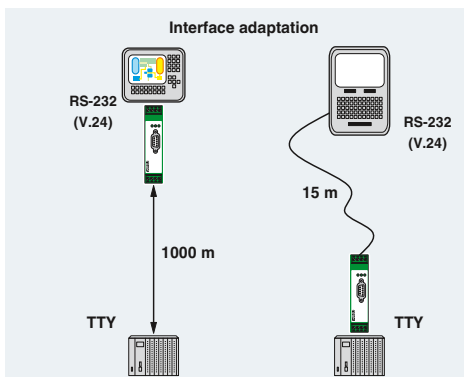
Features:

- Conversion of RS-232 Tx/D/Rx/D full duplex data signals into the TTY current loop standard
- Semi-active, active or passive TTY operating mode, depending on pin assignment
- Transmission speed of up to 19.2 kbps
- Transmission distances of up to 1000 m in active TTY mode
- 24 V DC or AC power supply suitable for control cabinet
- Active data transmission indicated by separate data indicators for the transmit and receive channels
- Convenient connection for variable cable lengths, enabling the TTY connection on the field side to be established via plug-in screw terminal blocks
- RS-232 connection via D-SUB 9 and standard RS-232 cable
- High-quality 3-way isolation up to 2 kV (VCC // RS-232 // TTY)
- Mounting on standard EN DIN rails
- Integrated surge protection with transient discharge to the DIN rail

Application:

The following tasks are generally performed with the converters (see illustration):

- Interface adaptation between RS-232 and TTY interfaces
- Increased range of up to 1000 m
- Programming connection between PC (RS-232) and, for example, S5 controllers with TTY programming interface for temporary coupling



Supply	
Supply voltage	
Nominal current consumption	
RS-232 interface	
Transmission speed	
Transmission distance	
Connection method	
TTY interface	
Transmission speed	
Transmission distance	
Connection method	
Operating mode	
Load	
General data	
Bit distortion	
Bit delay	
Test voltage	
Ambient temperature range	
Housing material	
Transmission channels	
Electrical isolation	
Dimensions	W / H / D
EMC note	
Conformance/approvals	
UL, USA/Canada	

Description
Interface converter , for conversion from RS-232 (V.24) to TTY, with electrical isolation, two channels, rail-mountable



TTY



TTY converter, 2 channels

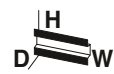


Technical data

24 V AC/DC ±20% (via COMBICON plug-in screw terminal block)
75 mA (24 V DC)
RS-232 interface in acc. with ITU-T V.28, EIA/TIA-232, DIN 66259-1
≤ 19.2 kbps
15 m (shielded twisted pair)
D-SUB 9 plug
TTY interface, CL2 in acc. with DIN 66348-1
≤ 19.2 kbps
1000 m (shielded twisted pair)
Plug-in screw connection
Active, semi active, passive
≤ 500 Ω
< 5%
< 3 μs
2 kV _{ms} (50 Hz, 1 min.)
0°C ... 55°C
PA
2 (1/1), Rx/D, Tx/D, full duplex
VCC // RS-232 // TTY
22.5 mm / 99 mm / 118.6 mm
Class A product, see page 527
508 recognized
Class I, Div. 2, Groups A, B, C, D
Class I, Zone 2, AEx nA IIC T4
Class I, Zone 2, Ex nA IIC T4 Gc X

Ordering data

Type	Order No.	Pcs./Pkt.
PSM-ME-RS232/TTY-P	2744458	1



RS-232



Serial extender



PROFIBUS extender



Technical data

18 V DC ... 30 V DC 24 V DC $\pm 5\%$ (as an alternative or redundant, via backplane bus contact and system power supply)
< 180 mA (24 V DC)
D-SUB 9 plug 0.11/0.3/1.2/2.4/4.8/9.6/19.2/38.4/57.6/115.2/230.4 kbps, NRZ
RS-422 interface in acc. with ITU-T V.11, EIA/TIA-422, DIN 66348-1
Plug-in/screw connection via COMBICON 1.2/2.4/4.8/7.0/9.6/19.2/38.4/57.6/75/93.75/115.2/136/187.5/375/500/1500/2000 kbps, NRZ
RS-485 interface, in acc. with EIA/TIA-485, DIN 66259-4/RS-485 2-wire Plug-in/screw connection via COMBICON 1.2/2.4/4.8/7.0/9.6/19.2/38.4/57.6/75/93.75/115.2/136/187.5/375/500/1500/2000 kbps, NRZ
SHDSL interface in accordance with ITU-T G.991.2.bis 2 x 2-pos. COMBICON plug-in screw terminal blocks 4-wire operation: 64 kbps ... 30 Mbps 2-wire operation: 32 kbps ... 15.3 Mbps up to 20 km (depending on data rate and cable cross section)
USB 2.0 Mini-USB type B, 5-pos.
User-friendly software: Guided configuration, plausibility checks, diagnostic functions, log book
2
35 mm / 99 mm / 114.5 mm -20°C ... 60°C (for derating, see technical documentation)
DIN EN 50178 (VCC, RS-232 // RS-422, RS-485 // DSL (A) // DSL (B) // FE) 1.5 kV _{ins} (50 Hz, 1 min.) Conformance with EMC Directive 2014/30/EU Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MODEM-SHDSL/SERIAL	2313669	1

Accessories

MINI-SYS-PS-100-240AC/24DC/1.5 ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2866983 2709561	1 10
DT-TELE-SHDSL	2801593	1

Technical data

18 V DC ... 30 V DC 24 V DC $\pm 5\%$ (as an alternative or redundant, via backplane bus contact and system power supply)
< 180 mA (24 V DC)
-
-
PROFIBUS in acc. with IEC 61158, RS-485 2-wire, half duplex, automatic control D-SUB-9 female connector 9.6/19.2/45.45/93.75/187.5/500/1500 kbps, set via configuration software
SHDSL interface in accordance with ITU-T G.991.2.bis 2 x 2-pos. COMBICON plug-in screw terminal blocks 4-wire operation: 64 kbps ... 30 Mbps 2-wire operation: 32 kbps ... 15.3 Mbps up to 20 km (depending on data rate and cable cross section)
USB 2.0 Mini-USB type B, 5-pos.
User-friendly software: Guided configuration, plausibility checks, diagnostic functions, log book
2
35 mm / 99 mm / 114.5 mm -20°C ... 60°C (for derating, see technical documentation)
DIN EN 50178 (VCC // PROFIBUS // DSL (A) // DSL (B) // FE) 1.5 kV _{ins} (50 Hz, 1 min.) Conformance with EMC Directive 2014/30/EU Class A product, see page 527

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MODEM-SHDSL/PB	2313656	1

Accessories

MINI-SYS-PS-100-240AC/24DC/1.5 ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2866983 2709561	1 10
DT-TELE-SHDSL	2801593	1

FO converters for PROFIBUS

The **PSI-MOS-PROFIB/FO...** devices convert copper-based PROFIBUS interfaces to fiber optics.

The integrated optical diagnostics allow permanent monitoring of the FO paths during installation and also during operation. The floating switch contact is activated when the signal output on the fiber optic paths drops to a critical level.

Depending on which wavelength is used in conjunction with the corresponding fibers, transmission distances of 70 m to 45 km can be achieved between two devices. Depending on the wavelength, devices can be used with polymer, PCF, and fiberglass.

- Automatic data rate detection or fixed data rate setting via DIP switches
- Suitable for all data rates of up to 12 Mbps
- Integrated optical diagnostics for continuous monitoring of fiber optic paths
- Floating switch contact for leading alarm generation in relation to critical fiber optic paths
- High-quality electrical isolation between all interfaces (PROFIBUS // fiber optic ports // power supply // DIN rail connector)
- Bit retiming for any cascading depth
- Routing of supply voltage and data signals through DIN rail connectors
- Redundant power supply supported in the form of optional system power supply
- Can be combined with the PSI copper repeater for PROFIBUS in a modular way using DIN rail connectors

The **PSI-MOS-PROFIB/FO...E** end devices convert a PROFIBUS interface to a **FO cable**. They are ideal for point-to-point connections.

The **PSI-MOS-PROFIB/FO...T** T-couplers allow the interface to be converted to two **FO cables**. They can be used to create linear structures and ring structures for increased system availability.



Supply
Supply voltage range
Nominal current consumption
RS-485 interface

Data format/encoding
Transmission speed
Transmission distance

Connection method
Optical interface
Connection
Wavelength
Transmission distance incl. 3 dB system reserve

General data
Bit delay
Alarm output
Ambient temperature range
Dimensions
EMC note
Conformance/approvals
ATEX

W / H / D

UL, USA/Canada

Description

FO converter, for converting data signals to fiber optics

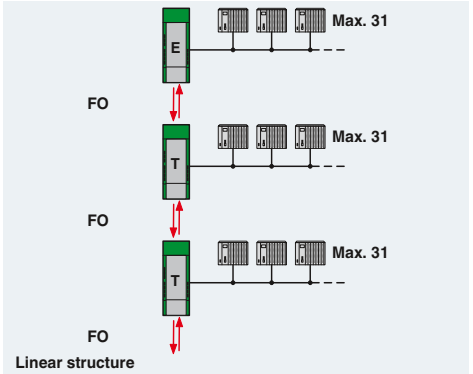
- End device with one FO interface

- T-coupler with two FO interfaces

DIN rail connector (optional), for routing through the supply voltage and data signal, two pieces are required per device

DIN rail connector (optional), for routing through the supply voltage, two pieces are required per device

System power supply, primary-switched





PROFIBUS
polymer and PCF fibers



PROFIBUS
PCF and fiberglass
(multimode)



PROFIBUS
fiberglass
(multimode and single mode)



Technical data

18 V DC ... 30 V DC
100 mA (24 V DC)
PROFIBUS in acc. with IEC 61158, RS-485 2-wire, half duplex, automatic control
UART (11 Bit, NRZ)
≤ 12 Mbps
≤ 1200 m (depending on the data rate, with shielded, twisted pair data cable)
D-SUB-9 female connector

F-SMA
660 nm
70 m (with F-P 980/1000 230 dB/km with quick mounting connector)
400 m (with F-K 200/230 10 dB/km with quick mounting connector)

< 1 bit
60 V DC / 42 V AC ; 0.46 A
-20°C ... 60°C
35 mm / 99 mm / 106 mm
Class A product, see page 527

Ex II 3 G Ex nA nC IIC T4 Gc X
Ex II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U)
Ex II (2) D [Ex op is Db] IIC (PTB 06 ATEX 2042 U)
Class I, Zone 2, AEx nc IIC T5
Class I, zone 2, Ex nC nL IIC T5 X
Class I, Div. 2, Groups A, B, C, D

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MOS-PROFIB/FO 660 E	2708290	1
PSI-MOS-PROFIB/FO 660 T	2708287	1

Accessories

ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
ME 17,5 TBUS 1,5/PP000-3,81 BK	2890014	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1

Technical data

18 V DC ... 30 V DC
120 mA (24 V DC)
PROFIBUS in acc. with IEC 61158, RS-485 2-wire, half duplex, automatic control
UART (11 Bit, NRZ)
≤ 12 Mbps
≤ 1200 m (depending on the data rate, with shielded, twisted pair data cable)
D-SUB-9 female connector

B-FOC (ST®)
850 nm
2600 m (with F-G 50/125 2.5 dB/km)
3300 m (with F-G 62.5/125 3.0 dB/km)
800 m (with F-K 200/230 10 dB/km with quick mounting connector)

< 1 bit
60 V DC / 42 V AC ; 0.46 A
-20°C ... 60°C
35 mm / 99 mm / 106 mm
Class A product, see page 527

Ex II 3 G Ex nA nC IIC T4 Gc X
Ex II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U)
Ex II (2) D [Ex op is Db] IIC (PTB 06 ATEX 2042 U)
Class I, Zone 2, AEx nc IIC T5
Class I, zone 2, Ex nC nL IIC T5 X
Class I, Div. 2, Groups A, B, C, D

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MOS-PROFIB/FO 850 E	2708274	1
PSI-MOS-PROFIB/FO 850 T	2708261	1

Accessories

ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
ME 17,5 TBUS 1,5/PP000-3,81 BK	2890014	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1

Technical data

18 V DC ... 32 V DC
55 mA (24 V DC)
PROFIBUS in acc. with IEC 61158, RS-485 2-wire, half duplex, automatic control
UART (11 Bit, NRZ)
≤ 12 Mbps
≤ 1200 m (depending on the data rate, with shielded, twisted pair data cable)
D-SUB-9 female connector

SC duplex
1300 nm
25 km (with F-G 50/125 0.7 dB/km at 1300 nm)
22 km (with F-G 62.5/125 0.8 dB/km at 1300 nm)
45 km (with F-E 9/125 0.4 dB/km at 1300 nm)

< 1 bit
60 V DC / 42 V AC ; 1 A
-20°C ... 60°C
35 mm / 105 mm / 106 mm
Class A product, see page 527

Ex II 3 G Ex nA nC IIC T4 Gc X

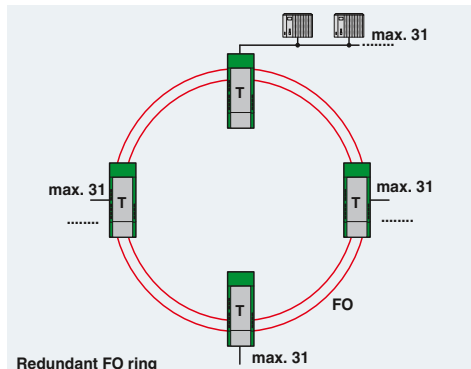
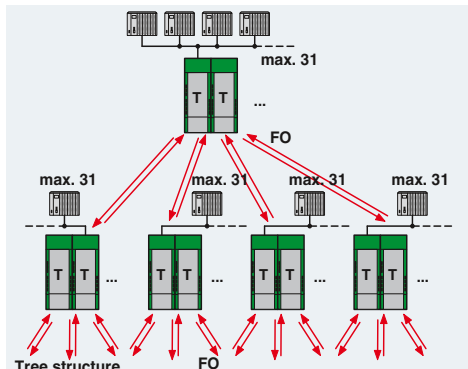
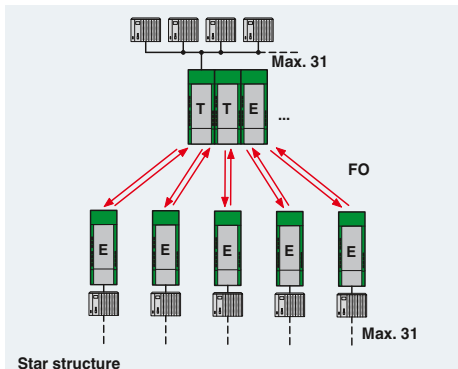
508 Listed
508 recognized

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MOS-PROFIB/FO1300 E	2708559	1
PSI-MOS-PROFIB/FO1300 T	2708892	1

Accessories

ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
ME 17,5 TBUS 1,5/PP000-3,81 BK	2890014	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1



FO converters for DeviceNet™ and CANopen®

The PSI-MOS-DNET... fiber optic transmission system enables DeviceNet™ and CANopen® users to benefit from simple and interference-free networking based on fiber optics. In addition, bus cable short circuits only affect the specific potential segment concerned. This increases overall availability, and improves flexibility when designing the bus topology. The use of fiber optic technology enables branch lines and star and tree structures to be created.

The 22.5 mm space-saving devices from the **PSI-MOS-DNET CAN/FO...** series feature an internal backplane. The maximum network expansion that can be achieved (sum total of copper and fiber optic cables) essentially depends on the data rate used.

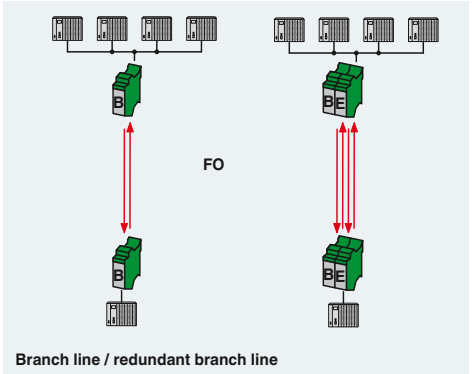
- Data rates of up to 800 kbps, set via DIP switches
- Integrated optical diagnostics for continuous monitoring of fiber optic paths
- Floating switch contact in basic module for leading alarm generation in relation to critical fiber optic paths
- High-quality electrical isolation between all interfaces (DeviceNet // fiber optic port // power supply // backplane)
- Integrated backplane for routing through the supply voltage and data signals

Thanks to extended functions, the modular devices in the **PSI-MOS-DNET/FO...** series support network expansion that is not dependent on the data rate.

- Automatic data rate detection or fixed data rate setting via DIP switches
- Data rates of up to 1000 kbps
- Integrated optical diagnostics for continuous monitoring of fiber optic paths
- Floating switch contact for leading alarm generation in relation to critical fiber optic paths
- High-quality electrical isolation between all interfaces (DeviceNet // fiber optic ports // power supply // DIN rail connector)
- Routing of supply voltage and data signals through DIN rail connectors
- Redundant power supply supported in the form of optional system power supply
- Can be combined with the PSI copper repeater in a modular way using DIN rail connectors

Supply
Supply voltage range
Nominal current consumption
CAN interface
Termination resistor
Transmission speed
Transmission distance
Connection method
Optical interface
Connection
Wavelength
Transmission distance incl. 3 dB system reserve
General data
Bit delay
Alarm output
Test voltage
Ambient temperature range
Dimensions
EMC note
Conformance/approvals
ATEX
UL, USA/Canada

Description
FO converter , for converting data signals to fiber optics
- Basic module with one FO interface
- Extension module with one FO interface
- End device with one FO interface
- T-coupler with two FO interfaces





DeviceNet™

CANopen™



**DeviceNet™ and CANopen®
Polymer and PCF fibers**



DeviceNet™

CANopen™



**DeviceNet™ and CANopen®
HCS and fiberglass
(multimode)**



DeviceNet™

CANopen™



**DeviceNet™ and CANopen®
PCF and fiberglass
(multimode) external backplane**



Technical data

10 V DC ... 30 V DC (via COMBICON plug-in screw terminal block)
100 mA (24 V DC)
CAN interface, in accordance with ISO/IS 11898 for DeviceNet, CAN, CANopen
120 Ω (can be connected)
≤ 800 kbps
≤ 5000 m (dependent on the data rate and the protocol used)

Plug-in screw connection

F-SMA
660 nm
100 m (with F-P 980/1000 230 dB/km with quick mounting connector)
800 m (with F-K 200/230 10 dB/km with quick mounting connector)

< 1 bit
60 V DC / 42 V AC ; 0.46 A
1.5 kV_{rms} (50 Hz, 1 min.)
-20°C ... 60°C
22.5 mm / 99 mm / 114.5 mm
Class A product, see page 527

Ex II 3 G Ex nA nC IIC T4 Gc X
Ex II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U)
Ex II (2) D [Ex op is Db] IIC (PTB 06 ATEX 2042 U)
Class I, Zone 2, AEx nc IIC T5
Class I, Div. 2, Groups A, B, C, D

Technical data

10 V DC ... 30 V DC (via COMBICON plug-in screw terminal block)
100 mA (24 V DC)
CAN interface, in accordance with ISO/IS 11898 for DeviceNet, CAN, CANopen
120 Ω (can be connected)
≤ 800 kbps
≤ 5000 m (dependent on the data rate and the protocol used)

Plug-in screw connection

B-FOC (ST®)
850 nm
2800 m (with F-K 200/230 8 dB/km with quick mounting connector)
4800 m (with F-G 50/125 2.5 dB/km)
4200 m (with F-G 62.5/125 3.0 dB/km)

< 1 bit
60 V DC / 42 V AC ; 0.46 A
1.5 kV_{rms} (50 Hz, 1 min.)
-20°C ... 60°C
22.5 mm / 99 mm / 114.5 mm
Class A product, see page 527
Ex II 3 G Ex nA nC IIC T4 Gc X
Ex II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U)
Ex II (2) D [Ex op is Db] IIC (PTB 06 ATEX 2042 U)
Class I, Zone 2, AEx nc IIC T5
Class I, Div. 2, Groups A, B, C, D

Technical data

11 V DC ... 30 V DC (via COMBICON plug-in screw terminal block)
130 mA (24 V DC)
CAN interface, in accordance with ISO/IS 11898 for DeviceNet, CAN, CANopen
124 Ω (integrated and ready to be switched)
≤ 1 Mbps (configurable via DIP switches)
≤ 5000 m (dependent on the data rate and the protocol used)

COMBICON plug-in screw terminal block

B-FOC (ST®)
850 nm
1800 m (with F-K 200/230 8 dB/km with quick mounting connector)
4600 m (with F-G 50/125 2.5 dB/km)
4200 m (with F-G 62.5/125 3.0 dB/km)

≤ 1 bit (configurable)
11 V DC ... 30 V DC ; 500 mA
1.5 kV_{rms} (50 Hz, 1 min.)
-20°C ... 60°C
35 mm / 102 mm / 119 mm
Class A product, see page 527

Ex II 3 G Ex nA IIC T4 Gc X

508 Listed

Ordering data

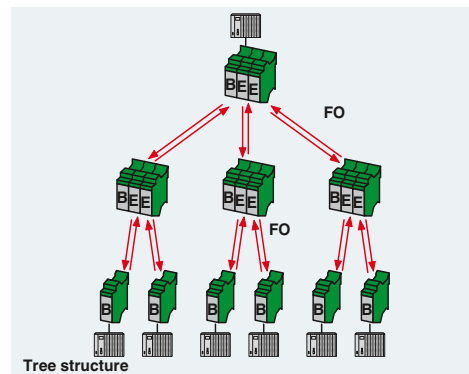
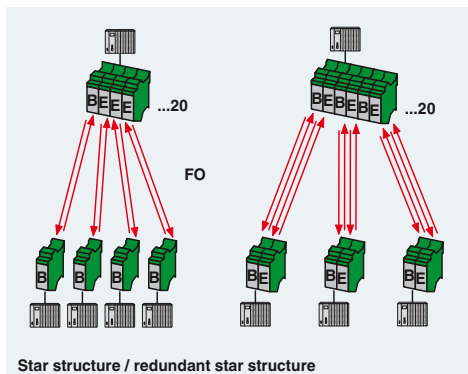
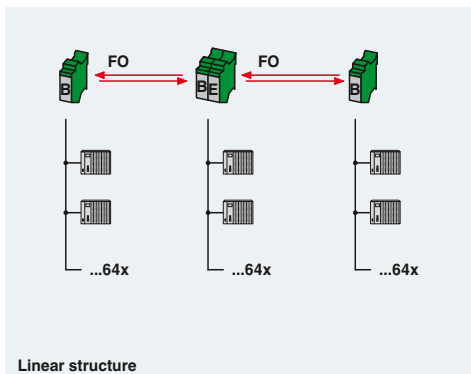
Type	Order No.	Pcs./Pkt.
PSI-MOS-DNET CAN/FO 660/BM	2708054	1
PSI-MOS-DNET CAN/FO 660/EM	2708067	1

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MOS-DNET CAN/FO 850/BM	2708083	1
PSI-MOS-DNET CAN/FO 850/EM	2708096	1

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MOS-DNET/FO 850 E	2313999	1
PSI-MOS-DNET/FO 850 T	2313986	1



Media converters

FO converters for RS-485 2-wire bus systems

The RS-485 2-wire interface is the most widely used interface in the field of automation technology. Well-known bus systems, such as SUCONET K, Modbus-ASCII, Modbus/RTU, S-BUS, and DH-485, are all based on this interface, as are many other company-specific bus systems.

The **PSI-MOS-RS485W2/FO... FO** converters convert the electrical data signal into an optical one by protocol transparent means.

The integrated optical diagnostics allow permanent monitoring of the FO paths during installation and also during operation. The floating switch contact is activated when the signal output on the fiber optic paths drops to a critical level.

Depending on which wavelength is used in combination with the corresponding fiber, distances of between 100 m and 45 km can be achieved between two devices.

- Automatic data rate detection or fixed data rate setting via DIP switches
- Suitable for data rates of up to 500 kbps
- Integrated optical diagnostics for continuous monitoring of fiber optic paths
- Floating switch contact for leading alarm generation in relation to critical fiber optic paths
- High-quality electrical isolation between all interfaces (RS-485 // fiber optic ports // power supply // DIN rail connector)
- Routing of supply voltage and data signals through DIN rail connectors
- Redundant power supply supported in the form of optional system power supply
- Can be combined with the PSI copper repeater in a modular way using DIN rail connectors

The **PSI-MOS-RS485W2/FO... E** end devices convert an RS-485 interface to a fiber optic cable. They are ideal for point-to-point connections.

The **PSI-MOS-RS485W2/FO... T** T-couplers allow the interface to be converted to **two FO cables**. They can be used to create linear structures and redundant structures for increased system availability.



Supply voltage range
Nominal current consumption
RS-485 interface
Data format/encoding
Termination resistor
Transmission speed
Transmission distance
Connection method
Optical interface
Connection
Wavelength
Transmission distance incl. 3 dB system reserve

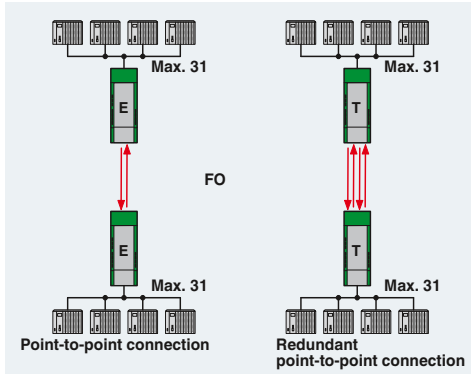
General data
Test voltage
Ambient temperature range
Dimensions
EMC note
Conformance/approvals
ATEX
UL, USA/Canada

Description
FO converter , for converting data signals to fiber optics
- End device with one FO interface
- T-coupler with two FO interfaces

DIN rail connector (optional), for routing through the supply voltage and data signal, two pieces are required per device
--

DIN rail connector , (optional), for routing through the supply voltage, two pieces are required per device
--

System power supply , primary-switched





**RS-485 2-wire
polymer and PCF fibers**



**RS-485 2-wire
PCF and fiberglass
(multimode)**



**RS-485 2-wire
fiberglass
(multimode and single mode)**



Technical data

18 V DC ... 30 V DC
100 mA (24 V DC)
RS-485 interface, 2-wire
UART (11/10 bit switchable; NRZ), slip-tolerant

390 Ω / 220 Ω / 390 Ω (can be connected)
4.8/9.6/19.2/38.4/57.6/75/93.75/115.2/136/187.5/375/500 kbps

≤ 1200 m (depending on the data rate, with shielded, twisted data cable)
Plug-in screw connection

F-SMA
660 nm
100 m (with F-P 980/1000 230 dB/km with quick mounting connector)
800 m (with F-K 200/230 10 dB/km with quick mounting connector)

1.5 kV_{rms} (50 Hz, 1 min.)
-20°C ... 60°C
35 mm / 99 mm / 105 mm
Class A product, see page 527

Ex II 3 G Ex nA nC IIC T4 Gc X
Ex II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U)
Ex II (2) D [Ex op is Db] IIC (PTB 06 ATEX 2042 U)
Class I, Zone 2, AEx nc IIC T5
Class I, zone 2, Ex nC nL IIC T5 X
Class I, Div. 2, Groups A, B, C, D

Technical data

18 V DC ... 30 V DC
120 mA (24 V DC)
RS-485 interface, 2-wire
UART (11/10 bit switchable; NRZ), slip-tolerant

390 Ω / 220 Ω / 390 Ω (can be connected)
4.8/9.6/19.2/38.4/57.6/75/93.75/115.2/136/187.5/375/500 kbps

≤ 1200 m (depending on the data rate, with shielded, twisted data cable)
Plug-in screw connection

B-FOC (ST®)
850 nm
2800 m (with F-K 200/230 8 dB/km with quick mounting connector)
4200 m (with F-G 50/125 2.5 dB/km)
3300 m (with F-G 62.5/125 3.0 dB/km)

1.5 kV_{rms} (50 Hz, 1 min.)
-20°C ... 60°C
35 mm / 99 mm / 105 mm
Class A product, see page 527

Ex II 3 G Ex nA nC IIC T4 Gc X
Ex II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U)
Ex II (2) D [Ex op is Db] IIC (PTB 06 ATEX 2042 U)
Class I, Zone 2, AEx nc IIC T5
Class I, zone 2, Ex nC nL IIC T5 X
Class I, Div. 2, Groups A, B, C, D

Technical data

18 V DC ... 32 V DC
55 mA (24 V DC)
RS-485 interface, 2-wire
UART (11/10 bit switchable; NRZ), slip-tolerant

390 Ω / 220 Ω / 390 Ω (can be connected)
4.8/9.6/19.2/38.4/57.6/75/93.75/115.2/136/187.5/375/500 kbps

≤ 1200 m (depending on the data rate, with shielded, twisted data cable)
Plug-in screw connection

SC duplex
1300 nm
25 km (with F-G 50/125 0.7 dB/km at 1300 nm)
22 km (with F-G 62.5/125 0.8 dB/km at 1300 nm)
45 km (with F-E 9/125 0.4 dB/km at 1300 nm)

1.5 kV_{rms} (50 Hz, 1 min.)
-20°C ... 60°C
35 mm / 99 mm / 105 mm
Class A product, see page 527

Ex II 3 G Ex nA nC IIC T4 Gc X

508 Listed
508 recognized

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MOS-RS485W2/FO 660 E	2708313	1
PSI-MOS-RS485W2/FO 660 T	2708300	1

Accessories

ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
ME 17,5 TBUS 1,5/PP000-3,81 BK	2890014	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MOS-RS485W2/FO 850 E	2708339	1
PSI-MOS-RS485W2/FO 850 T	2708326	1

Accessories

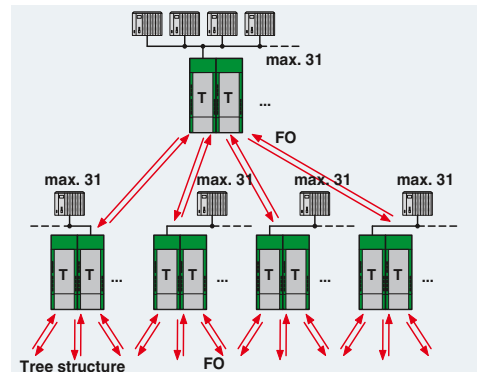
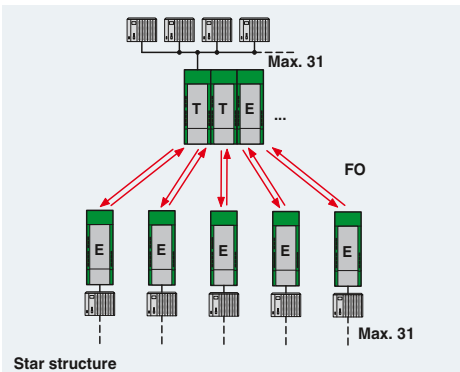
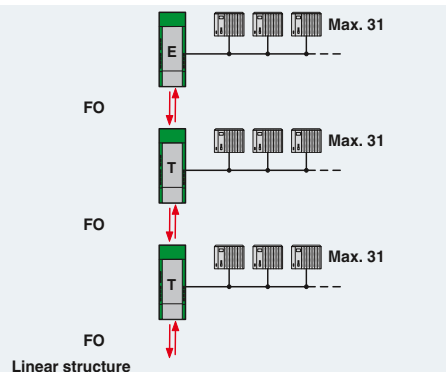
ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
ME 17,5 TBUS 1,5/PP000-3,81 BK	2890014	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MOS-RS485W2/FO1300 E	2708562	1

Accessories

ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
ME 17,5 TBUS 1,5/PP000-3,81 BK	2890014	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1



Media converters

FO converters for INTERBUS, RS-422, and RS-485 4-wire bus systems

The **PSI-MOS-RS422/FO...** devices are used for converting INTERBUS interfaces to fiber optics.

INTERBUS lines are constructed with the **PSI-MOS-RS422...E end devices**. The **PSI-MOS-RS422...T T-couplers** also allow redundant **INTERBUS connections** via fiber optics.

If RS-422 end devices are used, only one end device can be connected to each PSI-MOS-RS422/FO... device. A suitable communication protocol (e.g., Modbus/RTU) is implemented by means of end device addressing.

- Automatic data rate detection for all data rates up to 2 Mbps
- Integrated optical diagnostics for continuous monitoring of fiber optic paths
- Floating switch contact for leading alarm generation in relation to critical fiber optic paths
- High-quality electrical isolation between all interfaces (copper // FO ports // supply // DIN rail connector)
- Connections can be plugged in using a COMBICON screw terminal block
- Redundant power supply supported in the form of optional system power supply
- Routing through of the supply voltage via the DIN rail connector
- Approved for use in zone 2
- Intrinsically safe FO interface (Ex op is) for direct connection to devices in zone 1 (all 660 and 850 nm versions)

Supply
Supply voltage range
Nominal current consumption
RS-422 interface
Transmission speed
Transmission distance
Connection method
Optical interface
Connection
Wavelength
Transmission distance incl. 3 dB system reserve

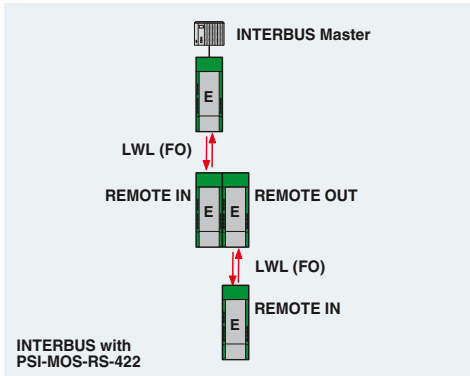
General data
Bit delay
Alarm output
Test voltage
Ambient temperature range
Dimensions
EMC note
Conformance/approvals
ATEX

W / H / D

UL, USA/Canada

Description
FO converter , for converting data signals to fiber optics
- End device with one FO interface
- T-coupler with two FO interfaces

DIN rail connector , (optional), for routing through the supply voltage, two pieces are required per device
System power supply , primary-switched





**INTERBUS / RS-422 / RS-485 4-wire
polymer and PCF fibers**



**INTERBUS / RS-422 / RS-485 4-wire
PCF and fiberglass
(multimode)**



**INTERBUS / RS-422 / RS-485 4-wire
fiberglass
(multimode and single mode)**



Technical data
18 V DC ... 30 V DC 100 mA (24 V DC) RS-422 interface in acc. with ITU-T V.11, EIA/TIA-422, DIN 66348-1
≤ 2 Mbps ≤ 1000 m (depending on the data rate, with shielded, twisted data cable) Plug-in screw connection
F-SMA 660 nm 100 m (with F-P 980/1000 230 dB/km with quick mounting connector) 800 m (with F-K 200/230 10 dB/km with quick mounting connector)
< 1 bit 60 V DC / 42 V AC ; 0.46 A 1.5 kV _{rms} (50 Hz, 1 min.) -20°C ... 60°C 35 mm / 99 mm / 103 mm Class A product, see page 527
Ex II 3 G Ex nA nC IIC T4 Gc X Ex II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U) Ex II (2) D [Ex op is Db] IIIC (PTB 06 ATEX 2042 U) Class I, Zone 2, AEx nc IIC T5 Class I, zone 2, Ex nC nL IIC T5 X Class I, Div. 2, Groups A, B, C, D

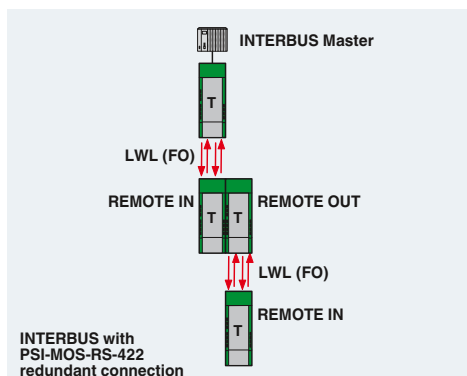
Technical data
18 V DC ... 30 V DC 120 mA (24 V DC) RS-422 interface in acc. with ITU-T V.11, EIA/TIA-422, DIN 66348-1
≤ 2 Mbps ≤ 1000 m (depending on the data rate, with shielded, twisted data cable) Plug-in screw connection
B-FOC (ST®) 850 nm 2800 m (with F-K 200/230 8 dB/km with quick mounting connector) 4200 m (with F-G 50/125 2.5 dB/km) 4800 m (with F-G 62.5/125 3.0 dB/km)
< 1 bit 60 V DC / 42 V AC ; 0.46 A 1.5 kV _{rms} (50 Hz, 1 min.) -20°C ... 60°C 35 mm / 99 mm / 103 mm Class A product, see page 527
Ex II 3 G Ex nA nC IIC T4 Gc X Ex II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U) Ex II (2) D [Ex op is Db] IIIC (PTB 06 ATEX 2042 U) Class I, Zone 2, AEx nc IIC T5 Class I, zone 2, Ex nC nL IIC T5 X Class I, Div. 2, Groups A, B, C, D

Technical data
18 V DC ... 32 V DC 110 mA (24 V DC) RS-422 interface in acc. with ITU-T V.11, EIA/TIA-422, DIN 66348-1
≤ 2 Mbps ≤ 1000 m (depending on the data rate, with shielded, twisted data cable) Plug-in screw connection
SC duplex 1300 nm 27 km (with F-G 50/125 0.7 dB/km at 1300 nm) 22 km (with F-G 62.5/125 0.8 dB/km at 1300 nm) 45 km (with F-E 9/125 0.4 dB/km at 1300 nm)
< 1 bit 60 V DC / 42 V AC ; 1 A 1.5 kV _{rms} (50 Hz, 1 min.) -20°C ... 60°C 35 mm / 105 mm / 103 mm Class A product, see page 527
Ex II 3 G Ex nA nC IIC T4 Gc X
508 Listed 508 recognized

Ordering data		
Type	Order No.	Pcs./Pkt.
PSI-MOS-RS422/FO 660 E	2708342	1
PSI-MOS-RS422/FO 660 T	2708384	1
Accessories		
ME 17,5 TBUS 1,5/PP000-3,81 BK	2890014	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1

Ordering data		
Type	Order No.	Pcs./Pkt.
PSI-MOS-RS422/FO 850 E	2708355	1
PSI-MOS-RS422/FO 850 T	2708397	1
Accessories		
ME 17,5 TBUS 1,5/PP000-3,81 BK	2890014	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1

Ordering data		
Type	Order No.	Pcs./Pkt.
PSI-MOS-RS422/FO1300 E	2708575	1
Accessories		
ME 17,5 TBUS 1,5/PP000-3,81 BK	2890014	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1



FO converters for RS-232 (V.24)

Due to its electrical properties, the RS-232 interface is very susceptible to electromagnetic interference and potential differences. For this reason, it can only be used for short distances of up to max. 15 m.

FO transmission technology is, therefore, the first choice for longer transmission distances and for eliminating electromagnetic interference.

The **PSI-MOS-RS232/FO...** devices convert the RS-232 interface for fiber optics. A transparent protocol is used for conversion. If addressable RS-232 devices and a suitable communication protocol are used, even multi-point networks can be constructed. These can be implemented as linear, star, and even redundant star structures.

- Automatic data rate detection for all data rates up to 115.2 kbps
- Integrated optical diagnostics for continuous monitoring of fiber optic paths
- Floating switch contact for leading alarm generation in relation to critical fiber optic paths
- High-quality electrical isolation between all interfaces RS-232 // fiber optic ports // power supply // DIN rail connector)
- Redundant power supply supported in the form of optional system power supply
- Connections can be plugged in using a COMBICON screw terminal block
- Routing of supply voltage and data signals through DIN rail connectors
- Approved for use in zone 2
- Intrinsically safe FO interface (Ex op is) for direct connection to devices in zone 1 (all 660 and 850 nm versions)

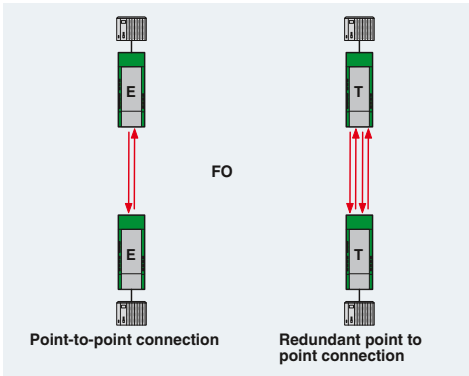
Supply
Supply voltage range
Nominal current consumption
RS-232 interface
Transmission speed
Transmission distance
Connection method
Optical interface
Connection
Wavelength
Transmission distance incl. 3 dB system reserve

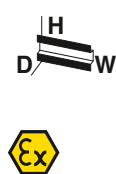
General data
Bit delay
Alarm output
Test voltage
Ambient temperature range
Dimensions
EMC note
Conformance/approvals
ATEX
UL, USA/Canada

Description
FO converter , for converting data signals to fiber optics
- End device with one FO interface
- T-coupler with two FO interfaces

DIN rail connector (optional), for routing through the supply voltage and data signal, two pieces are required per device
DIN rail connector , (optional), for routing through the supply voltage, two pieces are required per device

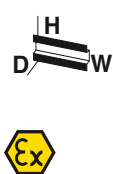
System power supply , primary-switched





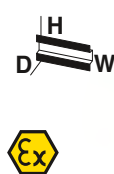
RS-232

RS-232
polymer and PCF fibers



RS-232

RS-232
PCF and fiberglass
(multimode)



RS-232

RS-232
fiberglass
(multimode and single mode)



Technical data

18 V DC ... 30 V DC
100 mA (24 V DC)
RS-232 interface in acc. with ITU-T V.28, EIA/TIA-232, DIN 66259-1
115.2 kbps (NRZ)
≤ 15 m
D-SUB 9 plug

F-SMA
660 nm
100 m (with F-P 980/1000 230 dB/km with quick mounting connector)
800 m (with F-K 200/230 10 dB/km with quick mounting connector)

< 1 bit
60 V DC / 42 V AC ; 0.46 A
1.5 kV_{rms} (50 Hz, 1 min.)
-20°C ... 60°C
35 mm / 99 mm / 105 mm
Class A product, see page 527

Ex II 3 G Ex nA nC IIC T4 Gc X
Ex II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U)
Ex II (2) D [Ex op is Db] IIC (PTB 06 ATEX 2042 U)
Class I, Zone 2, AEx nc IIC T5
Class I, zone 2, Ex nC nL IIC T5 X
Class I, Div. 2, Groups A, B, C, D

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MOS-RS232/FO 660 E	2708368	1
PSI-MOS-RS232/FO 660 T	2708410	1

Accessories

ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
ME 17,5 TBUS 1,5/PP000-3,81 BK	2890014	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1

Technical data

18 V DC ... 30 V DC
120 mA (24 V DC)
RS-232 interface in acc. with ITU-T V.28, EIA/TIA-232, DIN 66259-1
115.2 kbps (NRZ)
≤ 15 m
D-SUB 9 plug

B-FOC (ST®)
850 nm
2800 m (with F-K 200/230 8 dB/km with quick mounting connector)
4200 m (with F-G 50/125 2.5 dB/km)
4800 m (with F-G 62.5/125 3.0 dB/km)

< 1 bit
60 V DC / 42 V AC ; 0.46 A
1.5 kV_{rms} (50 Hz, 1 min.)
-20°C ... 60°C
35 mm / 99 mm / 105 mm
Class A product, see page 527

Ex II 3 G Ex nA nC IIC T4 Gc X
Ex II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U)
Ex II (2) D [Ex op is Db] IIC (PTB 06 ATEX 2042 U)
Class I, Zone 2, AEx nc IIC T5
Class I, zone 2, Ex nC nL IIC T5 X
Class I, Div. 2, Groups A, B, C, D

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MOS-RS232/FO 850 E	2708371	1
PSI-MOS-RS232/FO 850 T	2708423	1

Accessories

ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
ME 17,5 TBUS 1,5/PP000-3,81 BK	2890014	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1

Technical data

18 V DC ... 32 V DC
100 mA (24 V DC)
RS-232 interface in acc. with ITU-T V.28, EIA/TIA-232, DIN 66259-1
115.2 kbps (NRZ)
≤ 15 m
D-SUB 9 plug

SC duplex
1300 nm
27 km (with F-G 50/125 0.7 dB/km at 1300 nm)
22 km (with F-G 62.5/125 0.8 dB/km at 1300 nm)
45 km (with F-E 9/125 0.4 dB/km at 1300 nm)

< 1 bit
60 V DC / 42 V AC ; 1 A
1.5 kV_{rms} (50 Hz, 1 min.)
-20°C ... 60°C
35 mm / 99 mm / 105 mm
Class A product, see page 527

Ex II 3 G Ex nA nC IIC T4 Gc X

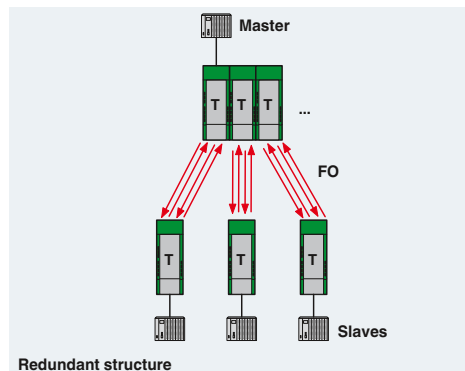
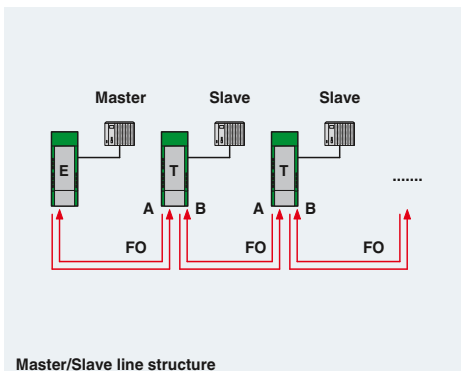
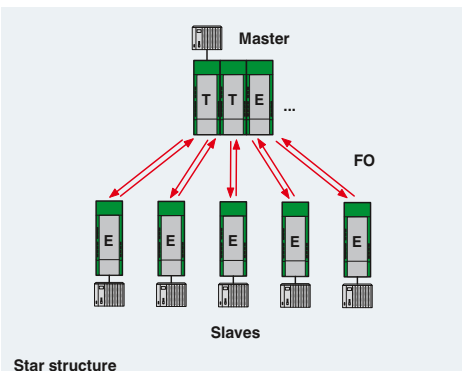
508 Listed
508 recognized

Ordering data

Type	Order No.	Pcs./Pkt.
PSI-MOS-RS232/FO1300 E	2708588	1

Accessories

ME 17,5 TBUS 1,5/ 5-ST-3,81 GN	2709561	10
ME 17,5 TBUS 1,5/PP000-3,81 BK	2890014	10
MINI-SYS-PS-100-240AC/24DC/1.5	2866983	1





Fiber optic data transmission in the industrial field has become increasingly important in recent years. In particularly critical applications with very high requirements regarding availability it has become standard. This is due to the many advantages that fiber optic data transmission has over traditional copper systems.

The main advantages are:

- Maximum resistance to interference, even when exposed to extreme electromagnetic influences
- High-quality electrical isolation between the devices
- Maximum transmission distances of several dozen kilometers with an extremely high data rate
- The maximum number of devices is not limited by the electrical properties of the communication interface used

This leads to a marked gain in performance and immunity to interference for the communication infrastructure in industrial applications, without having to allow for complex surge protection measures, shielding and equipotential bonding concepts.

Inexpensive end devices and polymer fiber cables are used for distances of up to 100 m. The cable can be self-assembled quickly using F-SMA fast connectors. The end devices transmit the light with a wavelength of 660 nm.

The optical components based on this wavelength can be produced cost-effectively. As a result, cost-effective end devices can be offered. In conjunction with cost-effective polymer fiber and the simple connection technology, this provides an attractive introduction to FO technology.

For distances of up to 800 m, the same 660 nm end devices can be used, but this time with PCF cable. This cable can also be self-assembled with fast connectors. All that is required is a special tool for stripping as well as cutting the optical fibers.

If you wish to cover distances of up to 2800 m with PCF cables and fast connection technology, you must use end devices with powerful optical components featuring 850 nm technology. End devices equipped with this technology can cover distances of up to 4800 m when using multimode fiberglass.

In many applications, such as tunnel construction or transportation technology, even these distances are not long enough. In this case, end devices with optical interfaces with 1300 nm technology, which are designed for maximum performance, come into play. With multimode fiberglass, these devices can cover distances of up to 25 km and, using single mode fiberglass (often referred to as monomode fiberglass), even distances of up to 45 km.



Cables – By the meter

Phoenix Contact cables and connection systems offer solutions for various fields of application.

- Polymer Optical Fiber (POF):
Up to a maximum of 100 Mbps
- Polymer-Cladded Fiber (PCF):
Up to a maximum of 1 Gbps
- Glass Optical Fiber (GOF) multimode:
Up to 10 Gbps
- Glass Optical Fiber (GOF) single mode:
Up to 40 Gbps

i Your web code: **#1516**



Cables – Assembled

Implement flexible, consistent data transmission solutions based on our comprehensive range of standardized FO connectors.

- Compact LC duplex connectors
- SC-RJ with push-pull technology for POF, PCF, and GOF
- Established F-SMA and ST connectors

i Your web code: **#0524**



Fixed patch cables

The patch cables have a robust design for industrial use. The strong outer sheath and connector transitions with bending protection sleeve mean that they can be safely used inside control cabinets.

- Pre-assembled patch cables for fast integration of fiber optic devices into existing fiber optic networks
- For the SC-RJ, SC duplex, LC, and B-FOC (ST®) connector formats
- Single and multimode fiberglass in lengths of one, two, and five meters

i Your web code: **#0526**



Assembly tools

Assemble fiber optic cables directly in the field. The assembly tools from Phoenix Contact enable reliable connection in next to no time.

- Tools for all fiber types
- No bonding or polishing, thanks to mechanical splice
- Tool sets with practical accessories

i Your web code: **#1515**



Connectors

These connectors are easy to assemble and allow fast and simple self-assembly on site. They correspond to the international F-SMA, B-FOC (ST®), SC-RJ, and SC duplex standards, though their quick mounting mechanism makes them stand out from the conventional connectors.

The tools required are available as a complete assembly case for polymer and HCS fibers.

i Your web code: **#0493**



Couplings

Couplings connect FO connectors with the same pin arrangement. Couplings are also used when a cable needs to be extended or when creating a non-permanent panel feed-through.

The sets include two F-SMA couplings or two B-FOC (ST®) couplings for connecting duplex cables.

The SC-RJ duplex, SC duplex, and LC couplings are supplied separately.

i Your web code: **#1514**

Installation technology

PROFIBUS cables and fast connection tool for SUBCON-PLUS-PROFIBUS

If the Fast Connect cable PSM-CABLE-PROFIB/FC is used, work is reduced to a minimum by using the quick stripping tool,

PSM-STRIP-FC/PROFIB:

- Strip cable and single wires
- Insert in the connector
- Close the housing cover



PROFIBUS cable, type Fast Connect



Quick stripping tool for SUBCON-PLUS-PROFIBUS connectors

ERC

General data

External cable diameter
Ambient temperature (operation)
Loop resistance
Cable capacity
Cable impedance
Conductor material
AWG signal line
Cable cross section
Outer sheath, material
Outer sheath, color
Flame resistance

Resistance to oil

Cable type

Technical data

8 mm ±0.4 mm
-40°C ... 60°C
≤ 110.00 Ω/km
approx. 28.5 nF/km (at 1 kHz)
150 Ω ±10% (3 ... 20 MHz)
Bare Cu wire
22
2x 0.34 mm²
PVC FR VI
Violet
in accordance with IEC 60332-3-24 (Cat. C)
in accordance with CMG FT4
Limited resistance to mineral oils and greases
in accordance with IEC 60811-2-1, 4 h at 70°C
PROFIBUS in acc. with IEC 61158, Type A

Technical data

-
-
-
-
-
-
-
-
-
-

Ordering data

Type	Order No.	Pcs./Pkt.
PSM-CABLE-PROFIB/FC	2744652	1

Accessories

QUICK WIREFOX 6	1204384	1
-----------------	---------	---

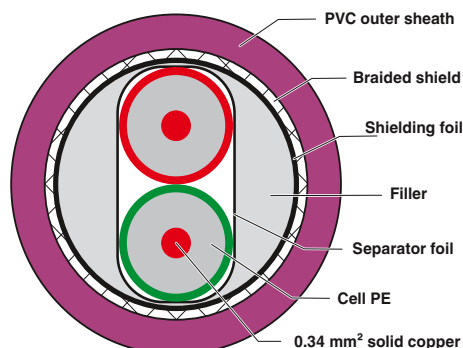
Ordering data

Type	Order No.	Pcs./Pkt.
PSM-STRIP-FC/PROFIB	2744623	1

Accessories

PSM-STRIP-KNIFEBLOCK	2744636	1
QUICK WIREFOX 6	1204384	1

Replacement knife block for quick stripping tool	blue
Stripping tool, for conductors and cables	black

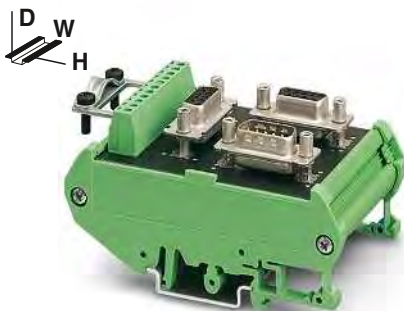


RS-485 connection distributor

If spur connections or a star distribution are to be made in a bus system, the RS-485 connection distributors come to your aid.

PSM-PTK, the DIN rail-mountable T-adaptor equipped with three 9-pin 1:1 connected D-SUB connections, makes for clear and tidy wiring with just one spur connection.

As many as four branch lines can be picked off from one bus line in the PSM-PTK 4 version. Here too, all six D-SUB connections (9-pos.) are connected through 1:1. Both versions are mounted by snapping them onto conventional EN DIN rails.

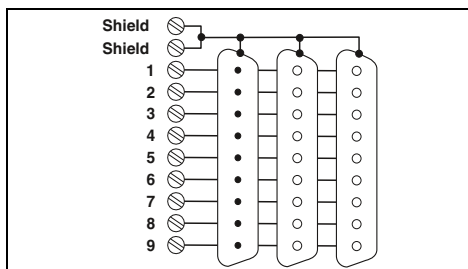


RS-485 T-distributor (4-way),
D-SUB and screw connection



RS-485 T-distributor (6-way),
D-SUB connection

UL ENEC



Technical data

General data	
Plug connection	Incoming Outgoing Branching
Nominal voltage U_N	
Nominal current I_N	
Test voltage	
Shield connection	
Connection cross section rigid / flexible / AWG	
Torque	
Ambient temperature (operation)	
Housing material	
Pin assignment	
Dimensions W/H/D	

D-SUB 9 male connector
D-SUB-9 female connector
D-SUB-9 female connector
COMBICON connector
60 V AC/DC
1 A
500 V AC (50 Hz, 1 min, rms)
D-SUB frame or shield clip
0.14 - 1.5 mm ² / 0.14 - 1.5 mm ² / 26 - 16
0.4 Nm
-25°C ... 70°C
PVC
all 1:1
56 mm / 89.6 mm / 48 mm

Ordering data

Description
Passive RS-485 T-distributor , fitted with a 9 pos. D-SUB male connector and two 9-pos. D-SUB female connectors, as well as a 9-pos. PCB terminal block with shield clip.
Passive RS-485 T-distributor , fitted with one 9-pos. D-SUB male connector and five 9-pos. D-SUB female connectors

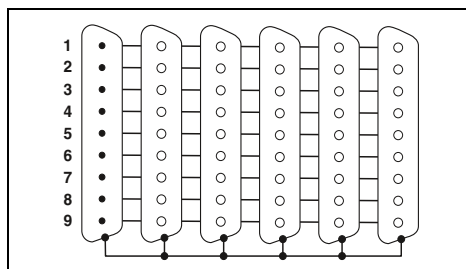
Type	Order No.	Pcs./Pkt.
PSM PTK	2760623	1

Accessories

Screwdriver

SZS 0,4X2,5 VDE	1205037	10
-----------------	---------	----

ENEC



Technical data

D-SUB 9 male connector
D-SUB-9 female connector
4 x D-SUB-9 female connector
-
60 V AC/DC
1 A
500 V AC (50 Hz, 1 min, rms)
D-SUB frame
-
-25°C ... 70°C
PVC
all 1:1
89.8 mm / 89.6 mm / 39 mm

Ordering data

Type	Order No.	Pcs./Pkt.
PSM PTK-4	2799364	1

Accessories

SZS 0,4X2,5 VDE	1205037	10
-----------------	---------	----

SUBCON-PLUS-M12 fast connection

The SUBCON-PLUS fast connectors with M12 connection ensure error-free installation of bus systems, thanks to the use of fully-tested components such as cables and connectors.

The innovative housing concept is lightweight yet offers optimum mechanical protection against environmental influences. This means that the fast connection plugs are ideal, even in applications subject to vibration.

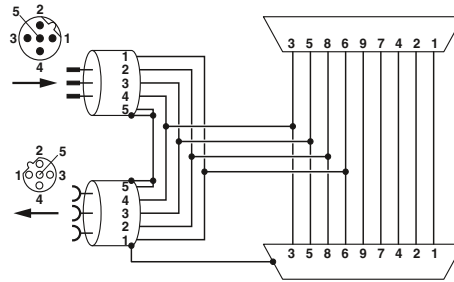
The unique SPEEDCON fast locking system on the M12 connections offers reliable connection with just half a turn.

Features:

- Easy startup, plug and play
- Lightweight
- Termination using M12 termination resistor
- Adapter between IP20 and IP67 environments
- For PROFIBUS and CANopen® systems

Advantages:

- Direct connection of M12 cables
- Complete range with versions for every application
- Problem-free installation, thanks to 100% tested individual components
- Fully molded housing
- M12-SPEEDCON locking, connected securely with just half a turn



SUBCON-PLUS-PROFIB/...M12 function block diagram

PROFIBUS

CANopen

SPEEDCON LOCKING



90° version, long, suitable for Siemens S7

UL

Technical data

90° (left)
-30°C ... 80°C
IP40
Polyamide
5
separately via M12 termination resistor
4-40 UNC 0.4 Nm
16 mm / 41 mm / 93 mm

Ordering data

Type	Order No.	Pcs./Pkt.
SUBCON-PLUS-PROFIB/90X/M12	2902729	1
SUBCON-PLUS-PROFIB/90X/PG/M12	2902728	1
SUBCON-PLUS-CAN/90X/M12	2902731	1
SUBCON-PLUS-CAN/90X/PG/M12	2902730	1

Accessories

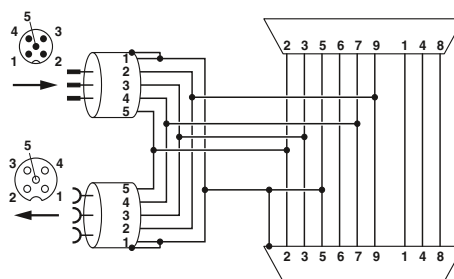
SAC-5P-M12MS PB TR	1507803	5
SAC-5P-M12FS PB TR	1403911	5
SAC-2P-MSB/ 1,0-910/FSB SCO	1518122	1
SAC-2P-MSB-FSB SCO/910/...	1538092	1
SAC-5P-M12MS CAN TR	1507816	5
SAC-5P-M12FS CAN TR	1529344	5
SAC-5P-MS/ 1,0-920/FS SCO	1518274	1
SAC-5P-MS-FS SCO/920/...	1538157	1

General data
Cable entry
Ambient temperature (operation)
Degree of protection
Housing material
Number of positions
Termination resistor
SUBCON fixing
Dimensions

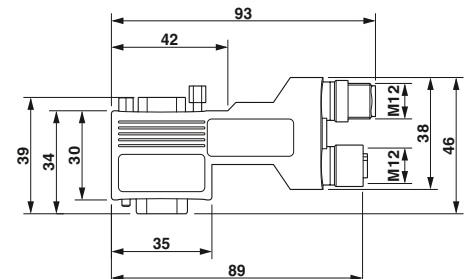
W / H / D

Description
Fast connection plugs , for PROFIBUS systems, Pin assignment 3, 5, 6, 8
- Standard version
- Pg version with programming connection
Fast connection plugs , for CAN-based systems, Pin assignment 2, 3, 5, 7, 9
- Standard version
- Pg version with programming connection

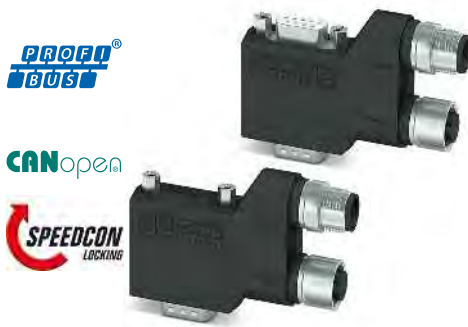
Termination resistor , M12 plug
- PROFIBUS
- M12 socket design
Bus cable PROFIBUS , straight socket, shielded, M12 B-coded, 2-pos., straight pin, shielded, M12 B-coded, 2-pos.
- Cable length 1 m
- Variable cable length
Termination resistor , M12 plug
- DeviceNet™/CANopen®
- M12 socket design
Bus cable DeviceNet™/CANopen , straight socket, shielded, M12 A-coded, 5-pos., straight pin, shielded, M12 A-coded, 5-pos.
- Cable length 1 m
- Variable cable length



SUBCON-PLUS-CAN/...M12 function block diagram



SUBCON-PLUS...90X...M12 dimensional drawing, long 90° version



90° version, short,
universal



35° version,
universal



Axial version,
universal



Technical data
90° (left)
-30°C ... 80°C
IP40
Polyamide
5
separately via M12 termination resistor
4-40 UNC 0.4 Nm
16 mm / 40 mm / 71 mm

Technical data
35° (left)
-30°C ... 80°C
IP40
Polyamide
5
separately via M12 termination resistor
4-40 UNC 0.4 Nm
16 mm / 46 mm / 79 mm

Technical data
180° (axial)
-30°C ... 80°C
IP40
Polyamide
5
separately via M12 termination resistor
4-40 UNC 0.4 Nm
16 mm / 75 mm / 38 mm

Ordering data		
Type	Order No.	Pcs./Pkt.
SUBCON-PLUS-PROFIB/90/M12	2902318	1
SUBCON-PLUS-PROFIB/90/PG/M12	2902317	1
SUBCON-PLUS-CAN/90/M12	2902323	1
SUBCON-PLUS-CAN/90/PG/M12	2902322	1

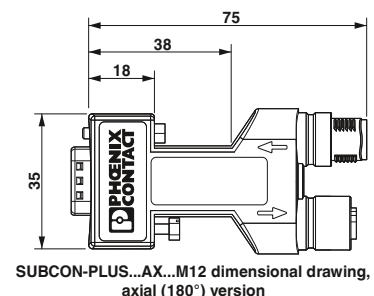
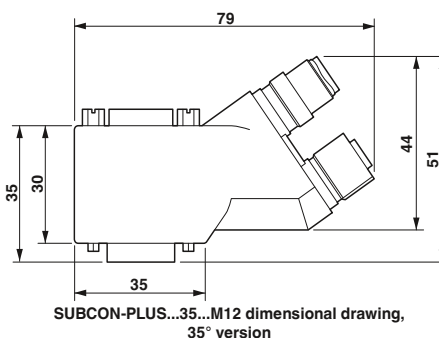
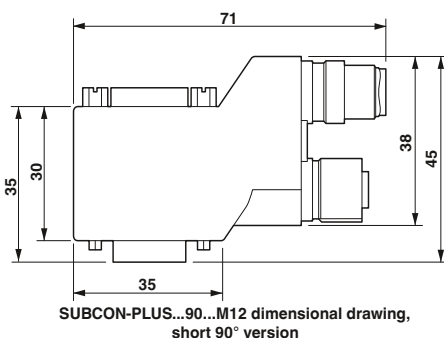
Ordering data		
Type	Order No.	Pcs./Pkt.
SUBCON-PLUS-PROFIB/35/M12	2902320	1
SUBCON-PLUS-PROFIB/35/PG/M12	2902319	1
SUBCON-PLUS-CAN/35/M12	2902325	1
SUBCON-PLUS-CAN/35/PG/M12	2902324	1

Ordering data		
Type	Order No.	Pcs./Pkt.
SUBCON-PLUS-PROFIB/AX/M12	2902321	1
SUBCON-PLUS-CAN/AX/M12	2902326	1

Accessories		
SAC-5P-M12MS PB TR	1507803	5
SAC-5P-M12FS PB TR	1403911	5
SAC-2P-MSB/ 1,0-910/FSB SCO	1518122	1
SAC-2P-MSB-FSB SCO/910/...	1538092	1
SAC-5P-M12MS CAN TR	1507816	5
SAC-5P-M12FS CAN TR	1529344	5
SAC-5P-MS/ 1,0-920/FS SCO	1518274	1
SAC-5P-MS-FS SCO/920/...	1538157	1

Accessories		
SAC-5P-M12MS PB TR	1507803	5
SAC-5P-M12FS PB TR	1403911	5
SAC-2P-MSB/ 1,0-910/FSB SCO	1518122	1
SAC-2P-MSB-FSB SCO/910/...	1538092	1
SAC-5P-M12MS CAN TR	1507816	5
SAC-5P-M12FS CAN TR	1529344	5
SAC-5P-MS/ 1,0-920/FS SCO	1518274	1
SAC-5P-MS-FS SCO/920/...	1538157	1

Accessories		
SAC-5P-M12MS PB TR	1507803	5
SAC-5P-M12FS PB TR	1403911	5
SAC-2P-MSB/ 1,0-910/FSB SCO	1518122	1
SAC-2P-MSB-FSB SCO/910/...	1538092	1
SAC-5P-M12MS CAN TR	1507816	5
SAC-5P-M12FS CAN TR	1529344	5
SAC-5P-MS/ 1,0-920/FS SCO	1518274	1
SAC-5P-MS-FS SCO/920/...	1538157	1



SUBCON-PLUS-PROFIBUS D-SUB fast connection

PROFIBUS connectors with fast connection

The D-SUB series, **SUBCON-PLUS-PROFIB/...** was specially designed for use in PROFIBUS systems up to 12 Mbps. Under field conditions, it allows convenient and fast connection of the incoming and outgoing bus cable.

The product range includes nine fast connectors – the perfect solution for every PROFIBUS application:

- 35° and 90° angled cable entry
- Axial cable entry
- With an additional programming interface
- Integrated surge protection

The connectors can be used for PROFIBUS cables with solid as well as flexible copper wires.

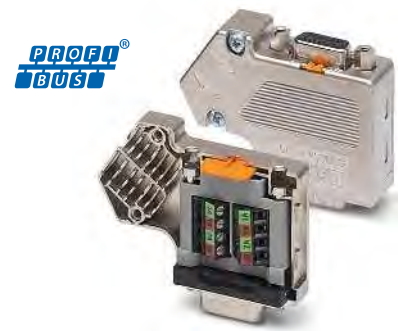
The termination resistor is already integrated in all versions. It can be connected externally by means of a slide switch. At the same time, the outgoing bus segment is switched off. This makes it easy to start up segment by segment while incorrect terminations are avoided.

In addition, the connector housing with high-quality shielding guarantees high immunity to interference even at maximum transmission speeds.

A special feature of the 35° angled connector is that the internal connection unit can be turned round. Whether the cable is to be inserted from the right or left can thus be decided on-site.

If it is not possible to use the angled version, the SUBCON-PLUS.../AX compact connector with axial cable entry can be used instead.

The connectors are designed to be used for all standard PROFIBUS cables with 8 mm external diameter (types A and B).



**35° PROFIBUS connector,
screw connection,
reversible cable entry**



General data
Cable entry
Connection cross section rigid / flexible / AWG
Insertion/withdrawal cycles
Cable cross section (max./min.)
Ambient temperature (operation)
Degree of protection
Housing material
Termination resistor
SUBCON fixing

Description
PROFIBUS connector , up to 12 Mbps, integrated termination resistor which can be activated externally, 9-pos. male connector, pin assignment 3, 5, 6, 8
- Angled 35°, screw connection
- Angled 35°, screw connection with second D-SUB female connector
- Angled 35°, screw connection, with surge protection
- Angled 90°, screw connection
- Angled 90°, screw connection with second D-SUB female connector
- Angled 90°, IDC connection
- Angled 90°, IDC connection with second D-SUB female connector
- Axial cable entry, screw connection
- Axial cable entry, spring connection

PROFIBUS cable, Fast Connect type , up to 12 Mbps, for permanent connection (02YSY (ST)CY 1X2X22 AWG) (length in meters as per customer specifications)
Quick stripping tool for PROFIBUS cable, Fast Connect type

Technical data

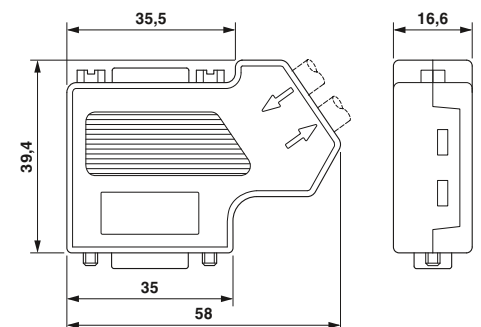
35° (right or left)
0.14 - 1.5 mm² / 0.14 - 1 mm² / 26 - 16
> 200
8.4 mm / 7.6 mm
-20°C ... 75°C
IP40
ABS, metal-plated
390 Ω / 220 Ω / 390 Ω (can be connected externally)
4-40 UNC 0.4 Nm

Ordering data

Type	Order No.	Pcs./Pkt.
SUBCON-PLUS-PROFIB/SC2	2708232	1
SUBCON-PLUS-PROFIB/PG/SC2	2708245	1
D-UFB-PB	2880642	1

Accessories

PSM-CABLE-PROFIB/FC	2744652	1
PSM-STRIP-FC/PROFIB	2744623	1



PROFI[®]
BUS



90° PROFIBUS connector,
screw connection

UL ENEC
Ex: Ex

PROFI[®]
BUS



90° PROFIBUS connector,
IDC insulation displacement
connection method

UL ENEC

PROFI[®]
BUS



Axial PROFIBUS connector,
screw or spring connection

UL ENEC

Technical data

90° (left)
0.14 - 1.5 mm² / 0.14 - 1 mm² / 26 - 16
> 200
8.4 mm / 7.6 mm
-20°C ... 75°C
IP40
ABS, metal-plated
390 Ω / 220 Ω / 390 Ω (can be connected externally)
4-40 UNC 0.4 Nm

Ordering data

Type	Order No.	Pcs./Pkt.
SUBCON-PLUS-PROFIB/90/SC	2313698	1
SUBCON-PLUS-PROFIB/90/PG/SC	2313708	1

Accessories

PSM-CABLE-PROFIB/FC	2744652	1
PSM-STRIP-FC/PROFIB	2744623	1

Technical data

90° (left)
0.32 - 1 mm² / 0.32 - 1 mm² / 22 - 18
> 200
8.4 mm / 7.6 mm
-20°C ... 75°C
IP40
ABS, metal-plated
390 Ω / 220 Ω / 390 Ω (can be connected externally)
4-40 UNC 0.4 Nm

Ordering data

Type	Order No.	Pcs./Pkt.
SUBCON-PLUS-PROFIB/90/IDC	2313672	1
SUBCON-PLUS-PROFIB/90/PG/IDC	2313685	1

Accessories

PSM-CABLE-PROFIB/FC	2744652	1
PSM-STRIP-FC/PROFIB	2744623	1

Technical data

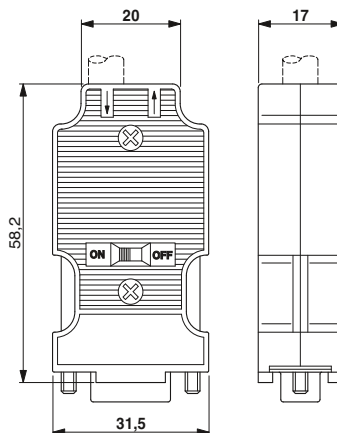
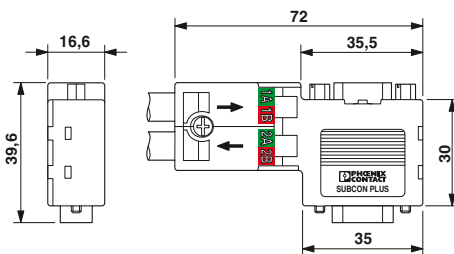
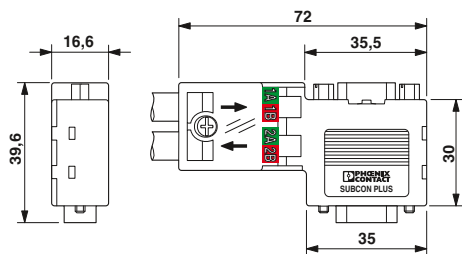
180° (axial)
0.14 - 1.5 mm² / 0.14 - 1 mm² / 26 - 16
> 200
8.4 mm / 7.6 mm
-20°C ... 75°C
IP30
ABS, metal-plated
390 Ω / 220 Ω / 390 Ω (can be connected externally)
4-40 UNC 0.4 Nm

Ordering data

Type	Order No.	Pcs./Pkt.
SUBCON-PLUS-PROFIB/AX/SC	2744380	1
SUBCON-PLUS-PROFIB/AX	2744377	1

Accessories

PSM-CABLE-PROFIB/FC	2744652	1
PSM-STRIP-FC/PROFIB	2744623	1



SUBCON-PLUS-CAN D-SUB fast connection

The **SUBCON-PLUS-CAN/...** D-SUB series is specifically designed for use in CAN systems. Under field conditions, it enables the quick and easy connection of the incoming and outgoing bus line.

The termination resistor is already integrated in all versions. It can be connected externally by means of a slide switch. At the same time, the outgoing bus segment is switched off. This makes it easy to start up segment by segment while incorrect terminations are avoided. In addition, the connector housing with high-quality shielding guarantees high immunity to interference even at maximum transmission speeds.

A special feature of the angled connector is that the internal connection unit can be turned round. Whether the cable is to be inserted from the right or left can thus be decided on site.

If the angled version cannot be used, the **SUBCON-PLUS-CAN/AX** compact connector with axial cable entry can be used instead.

Features:

- Assembly under field conditions
- Separate terminal blocks for bus cables
- Termination resistor can be connected
- Segment-by-segment startup
- High transmission speed
- High level of EMC
- Flexibility in terms of cable entry selection
- Suitable for bus cables in accordance with CiA Draft Recommendation 303-1 with an outside diameter of 8 mm
- A version with variable cable entry is available for special cables

Versions:

- Angled with programming interface
- Angled without programming interface
- Axial cable entry

General data
Cable entry
Pin assignment
Nominal voltage U_N
Nominal current I_N
Connection cross section rigid / flexible / AWG
Insertion/withdrawal cycles
Cable cross section (max./min.)
Ambient temperature (operation)
Degree of protection
Housing material
Termination resistor
SUBCON fixing

Description

CAN, CANopen, SafetyBUS p connector, integrated termination resistor that can be activated from the outside, with screw connection, 9-pos., socket

- Angled 35°
- Angled 35°, with second D-SUB connection
- Angled 35°, for variable cable diameters

CAN, CANopen, SafetyBUS p connector, integrated termination resistor that can be activated from the outside, with screw connection, 9-pos., socket

- Axial cable entry

Screwdriver

CANopen

SafetyBUS p



35° D-SUB connector (socket), screw connection, two cable entries

CE, RoHS, ENEC
Ex: Ex

Technical data

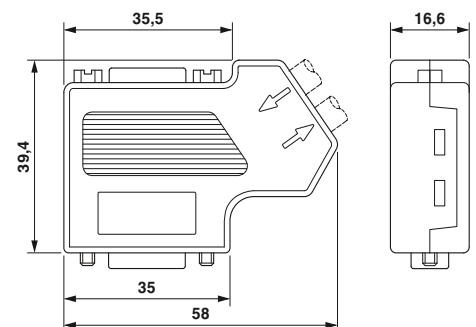
35° (right or left)
2, 3, 7, 9
5 V
100 mA
0.14 - 1.5 mm ² / 0.14 - 1 mm ² / 26 - 18
> 200
8.4 mm / 7.6 mm
-20°C ... 75°C
IP40
ABS, metal-plated
120 Ω (can be connected externally)
4-40 UNC 0.4 Nm

Ordering data

Type	Order No.	Pcs./Pkt.
SUBCON-PLUS-CAN/SC2	2708999	1
SUBCON-PLUS-CAN/PG	2708119	1

Accessories

SZS 0,4X2,5 VDE	1205037	10
-----------------	---------	----



CANopen

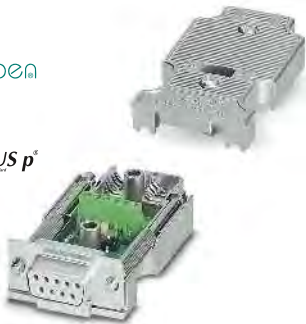
SafetyBUS p



35° D-SUB connector (socket),
variable cable diameter

CANopen

SafetyBUS p



Axial D-SUB connector (socket),
two cable entries

UL 494 ENEC
Ex: Ex

UL 494 ENEC

Technical data

35° (right or left)
2, 3, 7
5 V
100 mA
0.14 - 1.5 mm² / 0.14 - 1 mm² / 26 - 16
> 200
10 mm / 6 mm
-20°C ... 75°C
IP40
ABS, metal-plated
120 Ω (can be connected externally)
4-40 UNC 0.4 Nm

Ordering data

Type	Order No.	Pcs./Pkt.
SUBCON-PLUS-CAN	2744694	1

Accessories

SZS 0,4X2,5 VDE	1205037	10
-----------------	---------	----

Technical data

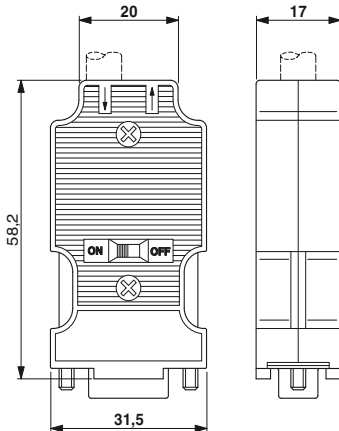
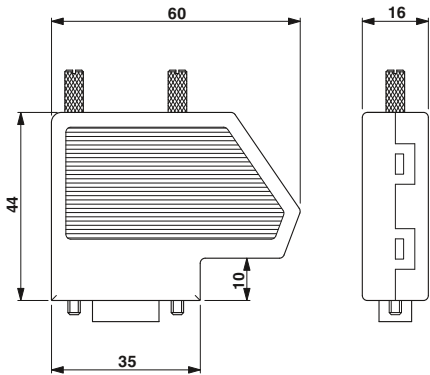
180° (axial)
2, 3, 7
5 V
100 mA
0.14 - 0.5 mm² / 0.14 - 0.5 mm² / 26 - 20
> 200
8.4 mm / 7.6 mm
-20°C ... 75°C
IP30
ABS, metal-plated
120 Ω (can be connected externally)
4-40 UNC 0.4 Nm

Ordering data

Type	Order No.	Pcs./Pkt.
SUBCON-PLUS-CAN/AX	2306566	1

Accessories

SZS 0,4X2,5 VDE	1205037	10
-----------------	---------	----



SUBCON-PLUS

D-SUB fast connection

Fieldbus connector with screw connection

Two cable entries are often required on the D-SUB connectors used in order to set up fieldbus systems with RS-485 interfaces. The SUBCON-PLUS connector range satisfies this requirement and routes the connection to screw terminal blocks – however, duplicated – for two cables. This means clarity during wiring and it simplifies every startup. These connectors are of course also shielded against electromagnetic interference by metal-plated housing. In addition, by placing the connection block in either the upper or lower shell, it is possible to select the cable entry on site from the right or left.

Features:

- For universal use
- Assembly under field conditions
- Separate terminal blocks for each cable
- High transmission speed
- High level of EMC
- Flexibility in terms of cable entry selection
- Straightforward assembly, thanks to knurled screws

Versions:

- Bus-specific types with matching partial assignment
- Universal type with full assignment
- Short mounting screw as an accessory for when space is at a premium

General data

Nominal voltage U_N
 Nominal current I_N
 Connection cross section rigid / flexible / AWG
 Insertion/withdrawal cycles
 Cable cross section (max./min.)
 Ambient temperature (operation)
 Degree of protection
 Housing material
 SUBCON fixing

Description

D-SUB connector, with two cable entries for MODBUS, MODBUS-PLUS, BITBUS, ARCNET, MULT/MININET (B&R), SYSTEM 2003 (B&R), P-NET, pin assignment 1,2,3,5,6,8

- Angled 35°, 9-pos., pin
- Angled 35°, 9-pos., socket

D-SUB connector, with two cable entries for SUCONET K1, K2 (EATON/Moeller), S-BUS (Saia), J-BUS (Merlin Gerin), pin assignment 2, 3, 4, 5, 7, 9

- Angled 35°, 9-pos., pin
- Angled 35°, 9-pos., socket

D-SUB plug, with two cable entries, **universal type**, pin assignment 1,2,3,4,5,6,7,8,9 on **every** screw terminal block

- Angled 35°, 9-pos., pin
- Angled 35°, 9-pos., socket
- Axial, 9-pos., pin
- Axial, 9-pos., socket

Optional mounting screw, short (without knurl)

Screwdriver

RS-485



With two cable entries,
35° angled and axial



Technical data

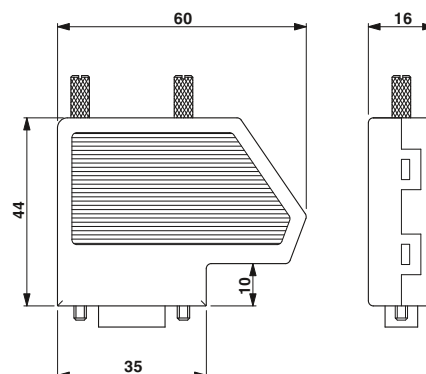
50 V
 100 mA
 0.14 - 1.5 mm² / 0.14 - 1 mm² / 26 - 16
 > 200
 10 mm / 6 mm
 -20°C ... 75°C
 IP20
 ABS, metal-plated
 4-40 UNC 0.4 Nm

Ordering data

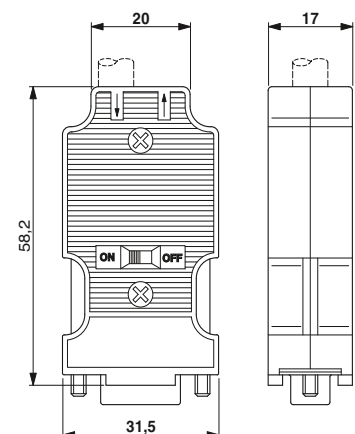
Type	Order No.	Pcs./Pkt.
SUBCON-PLUS M1	2761826	1
SUBCON-PLUS F1	2744267	1
SUBCON-PLUS M2	2761839	1
SUBCON-PLUS F2	2799490	1
SUBCON-PLUS 9/M	2744018	1
SUBCON-PLUS 9/F	2744241	1
SUBCON-PLUS-M/AX 9	2904467	1
SUBCON-PLUS-F/AX 9	2311797	1

Accessories

SUBCON-SHORT-SCREW	2799694	1
SZS 0,4X2,5 VDE	1205037	10



Dimensional drawing SUBCON-PLUS...



Dimensional drawing SUBCON-PLUS.../AX...

SUBCON

D-SUB fast connection

The 9-pos. version of the SUBCON-... connector range is not just suitable for INTERBUS, but is positively ideal. A whole host of further applications are opened up by having all the connections assigned to their own 1 mm² screw terminal block.

The range includes SUBCON connectors for point-to-point connections with cable entry in 9-, 15-, and 25-pos. pin or socket versions.

Installing the connection block either in the upper or lower shell makes it possible to introduce the cable at an angle of 0° to 90° from the right or the left. The fully metal-plated housing also ensures a high degree of shielding against electromagnetic interference.

The optional fastening screw SUBCON-SHORT-SCREW is available as an accessory for narrow installation conditions. The screw is completely integrated into the housing by not having a knurl.

Features:

- For universal use
- Assembly under field conditions
- High level of EMC
- Flexibility in terms of cable entry selection
- Straightforward assembly, thanks to knurled screws

Versions:

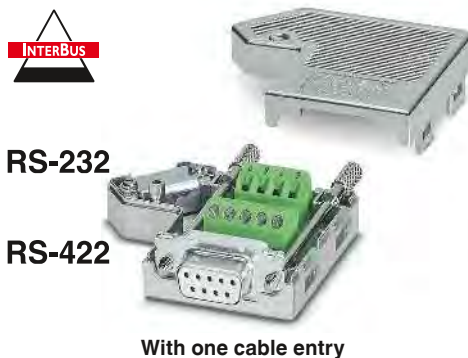
- 9-, 15-, and 25-pos. versions
- Short mounting screw as an accessory for when space is at a premium

General data
Cable entry
Pin assignment
Nominal voltage U_N
Nominal current I_N
Connection cross section rigid / flexible / AWG
Insertion/withdrawal cycles
Cable cross section (max./min.)
Ambient temperature (operation)
Degree of protection
Housing material
SUBCON fixing

Description
D-SUB connector , with screw connection
- 9-pos., socket
- 9-pos., pin
D-SUB connector , with screw connection
- 15-pos., socket
- 15-pos., pin
D-SUB connector , with screw connection
- 25-pos., socket
- 25-pos., pin

Optional mounting screw, short (without knurl)

Screwdriver



Technical data

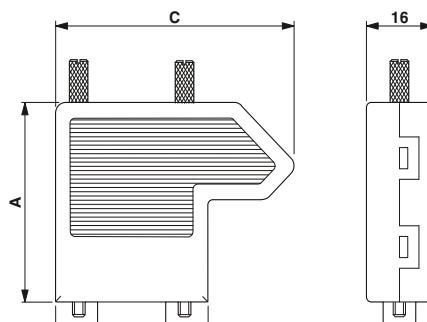
35° (right or left)
All connections are 1:1 on the screw terminal block
50 V
100 mA
0.14 - 1.5 mm ² / 0.14 - 1 mm ² / 26 - 16
> 200
10 mm / 4 mm
-20°C ... 75°C
IP20
ABS, metal-plated
4-40 UNC 0.4 Nm

Ordering data

Type	Order No.	Pcs./Pkt.
SUBCON 9/F-SH	2761499	1
SUBCON 9/M-SH	2761509	1
SUBCON 15/F-SH	2761596	1
SUBCON 15/M-SH	2761606	1
SUBCON 25/F-SH	2761619	1
SUBCON 25/M-SH	2761622	1

Accessories

SUBCON-SHORT-SCREW	2799694	1
SZS 0,4X2,5 VDE	1205037	10



Dimensional drawing SUBCON...-SH

Dimensions of the D-SUB connectors (SUBCON)

	A [mm]	B [mm]	C [mm]
9-pos.	44.5	36.0	56.4
15-pos.	44.5	44.3	64.7
25-pos.	49.5	58.0	78.7

Field junction boxes



The FB... product range was designed specifically to meet the tough requirements of the process environment. This includes various approvals for installation in Zone 2 or Division 2 hazardous locations.

The FB... range of modular fieldbus components offers connectivity from the process controller to the field devices. Together with redundant power supply, surge protection, and cable sets, a complete connection architecture is provided.

The product range includes device couplers for use with both FOUNDATION Fieldbus and PROFIBUS PA. These couplers provide short-circuit protection to ensure that a fault on a spur does not disrupt the entire segment. They also offer energy limited outputs, intrinsic safety and galvanic isolation.

Based on the T-bus connection system, the field components are hot-swappable and allow easy system expansion. Single-loop-integrity can be achieved by connection of a single module to a single instrument. With the limited width on the rail, the size and weight of the associated field enclosure is minimized.

Also available are redundant and simplex power supplies. Each galvanically isolated supply provides power while allowing digital communications to one segment.

All components include built-in status LEDs. Integrated termination resistors in the power supplies, together with a connector-mounted version in the field, reduce the opportunity for segment termination error.

Field junction boxes

- Designed specifically for field device coupler systems
- Bus bar and shield clamps
- Entries for trunk in, trunk out and breather connections
- Each enclosure is equipped with M20 ports and can be configured as desired
- Cable glands, plugs and breather ordered separately



10" x 10"



14" x 12"

Ex:

Ex:

General data
Housing material
Dimensions
Weight
Degree of protection
Ambient temperature (operation)
Conformance/approvals
ATEX

W / H / D

IECEX

UL, USA/Canada

Technical data

Stainless steel
254 mm / 254 mm / 127 mm
4640 g
IP66
-40°C ... 70°C

DEMKO 16ATEX1704X II 3 G D
Ex nA [ic] IIC T4 Gc, Ex nA nC [ic] IIC T4 Gc
Ex ic IIC T4 Gc, FISCO ic spurs
Ex tc IIIC T135 Dc IP66

IECEX UL 16.0079X
Ex nA [ic] IIC T4 Gc, Ex nA nC [ic] IIC T4 Gc
Ex ic IIC T4 Gc, FISCO ic spurs
Ex tc IIIC T135 Dc IP66

Class I, Zone 2, AEx nA [ic] IIC T4 Gc,
AEx nA nC [ic] IIC T4 Gc Entity/FISCO spurs
Class I, Div. 2, Groups A, B, C, D, T4
Class I, Zone 22, AEx tc IIIC T135 Dc IP66

Technical data

Stainless steel
355.6 mm / 304.8 mm / 127 mm
6540 g
IP66
-40°C ... 70°C

DEMKO 16ATEX1704X II 3 G D
Ex nA [ic] IIC T4 Gc, Ex nA nC [ic] IIC T4 Gc
Ex ic IIC T4 Gc, FISCO ic spurs
Ex tc IIIC T135 Dc IP66

IECEX UL 16.0079X
Ex nA [ic] IIC T4 Gc, Ex nA nC [ic] IIC T4 Gc
Ex ic IIC T4 Gc, FISCO ic spurs
Ex tc IIIC T135 Dc IP66

Class I, Zone 2, AEx nA [ic] IIC T4 Gc,
AEx nA nC [ic] IIC T4 Gc Entity/FISCO spurs
Class I, Div. 2, Groups A, B, C, D, T4
Class I, Zone 22, AEx tc IIIC T135 Dc IP66

Ordering data

Description

Enclosure, stainless steel, with ten ports for use in hazardous locations, includes six-spur block device coupler (FB-6SP)

- includes three terminal blocks for trunk cable connection (+, -, S)

- includes PLUGTRAB surge base (PT 4+F-BE) for trunk cable connection (+, -, S)

Enclosure, stainless steel, with 16 ports for use in hazardous locations, includes 12-spur block device coupler (FB-12SP)

- includes three terminal blocks for trunk cable connection (+, -, S)

- includes PLUGTRAB surge base (PT 4+F-BE) for trunk cable connection (+, -, S)

Type	Order No.	Pcs./Pkt.
FB1-S1-6SP-T-0-10-00-0-0	2316420	1
FB1-S1-6SP-S-0-10-00-0-0	2316446	1

Accessories

Cable gland , M20, includes nut
Stopping plug , M20, includes nut
Breather plug , M20, includes nut

FB-M-KV-M20-EX	2900197	1
FB-M-BS-M20-EX	2900209	10
FB-M-BD-M20-EX	2901859	1

Ordering data

Type	Order No.	Pcs./Pkt.
FB2-S1-12SP-T-0-16-00-0-0	2316417	1
FB2-S1-12SP-S-0-16-00-0-0	2316433	1

Accessories

FB-M-KV-M20-EX	2900197	1
FB-M-BS-M20-EX	2900209	10
FB-M-BD-M20-EX	2901859	1

Device couplers for the field

The fieldbus device couplers are suitable for FOUNDATION Fieldbus and PROFIBUS PA. They provide an interface between the fieldbus trunk line and field devices. The compact width on the DIN rail reduces the required dimensions and weight of the field housing.

FB-ET/E

- Connects to the trunk and provides voltage limiting
- Includes a pre-installed external termination resistor, ensuring termination is always available
- Diagnostic LEDs include DC OK, low voltage warning, and communication on the segment

FB-2SP/E and FB-ISO

- Hot-swappable and scalable
- Single-sided connector configuration simplifies wiring in field housing
- Diagnostic LEDs indicate DC OK and errors at the spur connection

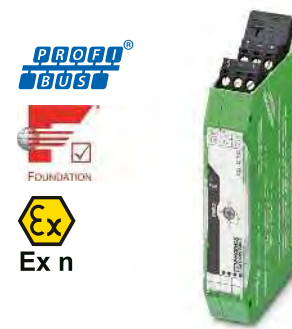
For FB-ISO device only

- Comprehensive channel-to-channel galvanic isolation
- Provides an intrinsically safe, FISCO connection

FB-2SP/24DC

- Isolator with terminal blocks for two spur connections to each device coupler
- Short-circuit protection to the fieldbus trunk with an additional voltage-limitation circuit
- Allows the connection of spurs and end devices in an Ex nA ic hazardous location

All modules are supplied with the ME 17,5 TBUS... DIN rail connector. If you wish to maintain a distance of 50 mm between intrinsically safe and non-intrinsically safe modules, you will require an insulation plate and a 22.5 mm bus connector.



Device coupler with TBUS for trunk line connection and termination

Ex:

Technical data		
Supply		
Supply voltage range		10.5 V DC ... 32 V DC (input on trunk line side)
Typical current consumption		-
Max. current consumption		2 mA (with termination resistor)
Fieldbus interface		
Rated voltage		-
Termination resistor		100 Ω, external removable plug included
Surge protection		Active if voltage exceeds 39 V (typ.) or 41 V (max.)
General data		
Screw connection rigid / flexible / AWG		0.2 - 2.5 mm ² / 0.2 - 2.5 mm ² / 24 - 12
Dimensions	W / H / D	17.5 mm / 99.1 mm / 70.4 mm
Degree of protection		IP20
Ambient temperature (operation)		-40°C ... 85°C
Max. permissible relative humidity (operation)		< 95% (non-condensing)
Conformance/approvals		
Conformance		CE-compliant, additionally EN 61326
NE		NAMUR NE 21
ATEX		Sira 14ATEX4017X; II 3G; Ex nA IIC T4 Gc; Ex ic IIC T4, FISCO ic
IECEX		IECEX SIR 14.0010X; Ex nA IIC T4 Gc; Ex ic IIC T4 Gc, FISCO ic
CSA, USA/Canada		Class I, Div. 2, Groups A, B, C, D Ex nA IIC T4 Gc, Ex nL IIC T4, FNICO, Ex ic IIC T4 Gc, FISCO ic Class I, Zone 2 AEx nA IIC T4 Gc, AEx nL IIC T4, FNICO, AEx ic IIC T4 Gc, FISCO ic
FOUNDATION Fieldbus		FF-846
EMC note		Class A product, see page 527

Ordering data		
Type	Order No.	Pcs./Pkt.
FB-ET/E	2316050	1
Accessories		
FB-MODULAR-PP	2316061	1
ME 22,5 TBUS 1,5/ 5-ST-3,81 GN	2707437	50



Device coupler with TBUS for 2 spurs



Device coupler with TBUS for
1 electrically isolated spur connection



Isolator for Zone 2 installation using the
intrinsically safe [ic] protection method

Ex:

Ex:

Technical data
10.5 V DC ... 32 V DC (via FB-ET/E)
-
3.5 mA (no-load)
≤ 32 V (per spur)
-
0.2 - 2.5 mm ² / 0.2 - 2.5 mm ² / 24 - 12
17.5 mm / 89.7 mm / 70.4 mm
IP20
-40°C ... 85°C (depending on set rated current)
< 95% (non-condensing)
-
NAMUR NE 21
Sira 14ATEX4018X; II 3(3)G
Ex nA [ic] IIC T4 Gc;
Ex nA [ic] IIC T4 Gc, FISCO ic spurs
IECEX SIR 14.0011X;
Ex nA [ic] IIC T4 Gc;
Ex nA [ic] IIC T4 Gc, FISCO ic spurs
Class I, Div. 2, Groups A, B, C, D
Ex nL IIC T4 FNICO, Ex ic IIC T4 FISCO ic
Ex nA [nL] IIC T4, Ex nA [ic] IIC T4
Ex nA [nL] IIC T4 FNICO spurs, Ex nA [ic] IIC T4 FISCO ic spurs
Class I, Zone 2
AEx nL IIC T4 FNICO, AEx ic IIC T4 FISCO ic
AEx nA [nL] IIC T4, AEx nA [ic] IIC T4
AEx nA [nL] IIC T4 FNICO spurs, AEx nA [ic] IIC T4 FISCO ic spurs
FF-846
Class A product, see page 527

Technical data
17 V DC ... 32 V DC (input on trunk line side)
10 mA
-
≥ 10 V (per spur)
-
0.2 - 2.5 mm ² / 0.2 - 2.5 mm ² / 24 - 12
17.5 mm / 89.7 mm / 70.4 mm
IP20
-40°C ... 60°C
< 95% (non-condensing)
CE-compliant, additionally EN 61326
NAMUR NE 21
II 3(3) G Ex nA [nL Gc] IIC T4 Gc, FNICO power supply (spur)
II 3(1) GD Ex nA [ia Ga Da] IIC T4 Gc, FISCO power supply (spur)
Ex nA [nL Gc] IIC T4 Gc, FNICO power supply (spur)
Ex nA [ia Ga Da] IIC T4 Gc, FISCO power supply (spur)
Ex nA [ia] IIC T4
-
Class A product, see page 527

Technical data
9 V DC ... 30 V DC
-
≤ 32 V (per spur)
-
0.2 - 2.5 mm ² / 0.2 - 2.5 mm ² / 24 - 12
17.5 mm / 89.7 mm / 70.4 mm
IP20
-40°C ... 85°C
-
-
NAMUR NE 21
Sira 13ATEX4016;
II 3(3)G Ex nA [ic] IIC T4 Gc
IECEX SIR 13.0001X;
Ex nA [ic] IIC T4 Gc
Class I, Div. 2, Groups A, B, C, D; Ex nA [ic] IIC T4 Gc
Class I, Zone 2; AEx nA [ic] IIC T4 Gc
FF-846
Class A product, see page 527

Ordering data		
Type	Order No.	Pcs./Pkt.
FB-2SP/E	2316052	1
Accessories		
FB-MODULAR-PP	2316061	1
ME 22,5 TBUS 1,5/ 5-ST-3,81 GN	2707437	50

Ordering data		
Type	Order No.	Pcs./Pkt.
FB-ISO	2316064	1
Accessories		
FB-MODULAR-PP	2316061	1
ME 22,5 TBUS 1,5/ 5-ST-3,81 GN	2707437	50

Ordering data		
Type	Order No.	Pcs./Pkt.
FB-2SP/24DC	2316352	1
Accessories		
FB-MODULAR-PP	2316061	1
ME 22,5 TBUS 1,5/ 5-ST-3,81 GN	2707437	50

Device couplers for field devices

- Couple field devices and provide short-circuit current limiting
- Provide non-sparking and FISCO ic spur connections
- Single-sided connection configuration simplifies wiring in field housing
- Diagnostic LEDs indicate DC OK and errors at the spur connection
- Satisfies the requirements of EN 60079-0:2012, EN 60079-11:2012, EN 60079-15:2005 and EN 60079-15:2010.



For installation in Ex zone 1



For installation in Ex zone 2

Ex:

Technical data

FB-8SP ISO	FB-12SP ISO
16 V DC ... 32 V DC (input on trunk line side)	
35 mA (trunk, no load)	50 mA (trunk, no load)
350 mA (maximum trunk current)	550 mA (maximum trunk current)

Technical data

FB-6SP	FB-12SP
10.5 V DC ... 32 V DC (input on trunk line side)	
4.8 mA	6.5 mA

Fieldbus interface

Rated voltage
Rated current
Termination resistor

≤ 14 V (per spur)
35 mA (per spur)
Integrated termination,
activated with bridge located in correct terminals

≤ 32 V (per spur)
38 mA
100 Ω, external removable plug included

General data

Screw connection rigid / flexible / AWG
Dimensions
Degree of protection
Ambient temperature (operation)
Max. permissible relative humidity (operation)

W / H / D

0.2 - 2.5 mm² / 0.2 - 2.5 mm² / 24 - 12
279 mm / 142 mm / 66 mm
IP20
-40°C ... 80°C
< 95% (non-condensing)

0.2 - 2.5 mm² / 0.2 - 2.5 mm² / 24 - 12
148.2 mm / 112.5 mm / 83.5 mm 254.1 mm / 112.5 mm / 83.5 mm
IP20
-50°C ... 90°C
< 95% (non-condensing)

Conformance/approvals

NE
ATEX

NE21
DEMKO 16ATEX 1689X
II 2(1) G Ex eb ib mb [ia Ga] IIC T4 Gb
II (1D) [Ex ia Da] IIC
FISCO power supply (spur)
IECEX UL 16.0114X
Ex eb ib mb [ia Ga] IIC T4 Gb
[Ex ia Da] IIC
FISCO power supply (spur)

NE21
Sira 13ATEX4247X; II 3(3)G
Ex nA [ic] IIC T4 Gc, Entity/FISCO ic spurs
Ex nA [nL] IIC T4 Gc; II 3G Ex ic IIC T4 Gc, FISCO ic

IECEX

IECEX SIR 13.0089X; Ex nA [ic] IIC T4 Gc, Entity/FISCO ic spurs;
Ex nA [nL] IIC T4 Gc; Ex ic IIC T4 Gc, FISCO ic

CSA, USA/Canada

Class I, Div. 2, Groups A, B, C, D;
Ex nA [nL] IIC T4; Class I, Zone 2, AEx nA [nC] IIC T4
FF-846

FOUNDATION Fieldbus EMC note

FF-846

Class A product, see page 527

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Fieldbus barrier , for FOUNDATION Fieldbus and PROFIBUS PA	FB-8SP ISO	2316311	1
	FB-12SP ISO	2316312	1
Device coupler , for FOUNDATION Fieldbus and PROFIBUS PA	FB-6SP	2316307	1
	FB-12SP	2316310	1

Ordering data

Type	Order No.	Pcs./Pkt.
FB-6SP	2316307	1
FB-12SP	2316310	1

Field diagnostic modules for FOUNDATION Fieldbus

- Reads physical layer diagnostics in the field
- Segment voltage, noise and signal can be monitored
- Easy control system integration with DD and EDDL
- Adjustable alarm condition thresholds allow for precision monitoring and trending
- Diagnostic data for up to 24 field devices
- Two module types for easy integration across all system platforms



With terminal block for FF power supply
and/or block coupler applications



For modular device couplers
mounted on TBUS

Ex:

Supply	
Supply voltage range	9 V DC ... 32 V DC
Typical current consumption	27 mA
Max. current consumption	29 mA
Fieldbus interface	
Rated voltage	-
Rated current	-
General data	
Screw connection rigid / flexible / AWG	0.2 - 2.5 mm ² / 0.2 - 2.5 mm ² / 24 - 12
Dimensions	W / H / D 17.7 mm / 93.9 mm / 70.4 mm
Degree of protection	IP20
Ambient temperature (operation)	-40°C ... 85°C
Max. permissible relative humidity (operation)	95% (non-condensing)
Conformance/approvals	
FOUNDATION Fieldbus	FF-830
EMC note	Class A product, see page 527

Technical data

9 V DC ... 32 V DC
27 mA
29 mA
-
-
0.2 - 2.5 mm ² / 0.2 - 2.5 mm ² / 24 - 12
17.7 mm / 93.9 mm / 70.4 mm
IP20
-40°C ... 85°C
95% (non-condensing)

Ordering data

Description
Field diagnostic module, for FOUNDATION Fieldbus

Type	Order No.	Pcs./Pkt.
FB-DIAG/FF/LI	2316284	1

Ex:

Technical data

9 V DC ... 32 V DC
27 mA
29 mA
≤ 32 V
29 mA
-
17.7 mm / 85 mm / 70.4 mm
IP20
-40°C ... 85°C
95% (non-condensing)

Ordering data

Type	Order No.	Pcs./Pkt.
FB-DIAG/FF/NC	2316297	1

Power supply



Each DIN rail-mounted fieldbus power supply provides high-integrity power for one H1 segment. Built-in termination resistors enable digital communication and DC power to co-exist on a pair of wires.

- Galvanically isolated
- Integrated termination resistor

FB-PS... modular redundant power supply

- Modular base, one per segment, eliminates unused capacity
- Swappable bases for increased plant integrity
- Compact width optimizes critical enclosure space
- Redundant power modules, with common conditioning in the base, provides greatest system performance and reliability
- Auto Current Balance technology enhances product life by closely sharing power between modules
- High efficiency including MOSFET outputs

4-channel redundant power supplies

- No additional monitoring of remote signaling required, as it is already integrated in the redundant configuration
- Double the service life, thanks to even load distribution by means of ACB (auto current balancing) technology
- Local diagnostics via LEDs on the device as well as remote diagnostics via remote indication contact

Input data	
Nominal input voltage range	
Nominal current range	
Output data	
Output voltage range	
Output current	
Can be connected in parallel/series	
Max. power dissipation	
Signaling	
Signaling DC OK	
Signaling alarm	
Redundancy indication OK	
General data	
Dimensions	W / H / D
Degree of protection	
Ambient temperature (operation)	
Ambient temperature (storage/transport)	
Max. permissible relative humidity (operation)	
Conformance/approvals	
ATEX	
IECEx	
CSA, USA/Canada	
NE	
EN	
FOUNDATION Fieldbus	

Description
Power supply, modular redundant
- Plug, 28 V DC, 500 mA
- Base
Redundant fieldbus power supply base
- Connection: D-SUB 25 base plug
- Connection: Invensys® D-SUB 25 cable
- Connection: two 20-pos. Yokogawa AKB336 cables

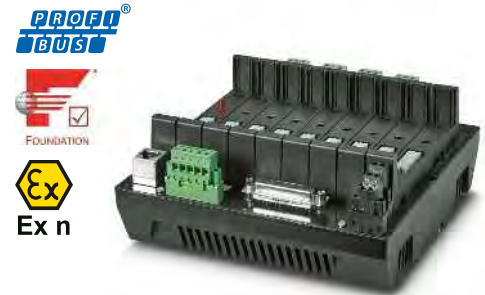
PCB connector, 5.0 mm pitch, color: black
PCB connector, 3.5 mm pitch, color: green
End cap



Power supply plug



Power supply base



Redundant fieldbus power supply base

Technical data
18.5 V DC ... 30.5 V DC 700 mA ... 1.1 A
28 V DC ... 30 V DC (on the trunk) 500 mA Yes / No 4 W (typical)
Green LED Yellow LED Green LED
17.5 / 117.6 / 115 mm IP20 -40°C ... 70°C -40°C ... 85°C 95% (non-condensing)
Sira 11ATEX4216X; II 3 G Ex nA nC IIC T4 Gc IECEx SIR 11.0097X; Ex nA nC IIC T4 Gc Class I, Div. 2, Groups A, B, C, D; Ex nA nC IIC T4 Class I, Zone 2, AEx nA nC IIC T4 NAMUR NE 21 EN 61326 FF-831

Ordering data		
Type	Order No.	Pcs./Pkt.
FB-PS-PLUG-24DC/28DC/0.5/EX	2316132	1

Accessories	

Technical data
-
-
-
- / -
-
-
-
36 / 202.5 / 61.5 mm - -40°C ... 70°C -40°C ... 85°C 95% (non-condensing)
Sira 11ATEX4216X; II 3 G Ex nA nC IIC T4 Gc IECEx SIR 11.0097X; Ex nA nC IIC T4 Gc Class I, Div. 2, Groups A, B, C, D; Ex nA nC IIC T4 Class I, Zone 2, AEx nA nC IIC T4 NAMUR NE 21 EN 61326 FF-831

Ordering data		
Type	Order No.	Pcs./Pkg.
FB-PS-BASE/EX	2316145	1

Accessories		
ZEC 1,5/ 4-LPV-5,0 C2,4 BK	1793260	50
ZEC 1,0/ 6-LPV-3,5 C1	1915699	50
D-FB-PS	2316226	1

Technical data
-
-
-
- / -
-
-
-
180 / 77 / 180 mm IP20 -40°C ... 70°C -40°C ... 85°C 95% (non-condensing)
Sira 11ATEX4216X; II 3 G Ex nA nC IIC T4 Gc IECEx SIR 11.0097X; Ex nA nC IIC T4 Gc Class I, Div. 2, Groups A, B, C, D; Ex nA nC IIC T4 Class I, Zone 2, AEx nA nC IIC T4 NAMUR NE 21 EN 61326 FF-831

Ordering data		
Type	Order No.	Pcs./Pkt.
FB-PS-MB-25DSUB/EX	2316146	1
FB-PS-MB-I/EX	2316149	1
FB-PS-MB-Y/EX	2316148	1

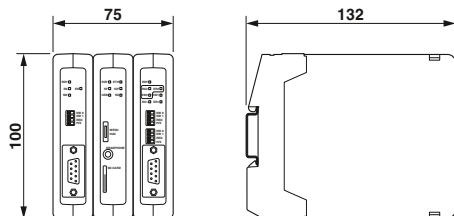
Accessories		

PROFIBUS DP/PA coupler

The PROFIBUS DP/PA coupler provides a powerful and reliable interface to connect PROFIBUS DP to the PROFIBUS PA process fieldbus network.

- Integrated PA termination resistor
- 500 mA PA current
- Expandable to 9 PA modules
- Transparent data transfer
- Integrated web server for configuration and diagnostics
- Integrated oscilloscope functionality

6 A power supply is recommended for applications where 2.5 A backplane current is exceeded.



Supply	
Supply voltage range	10.8 V DC ... 26.4 V DC
Ethernet interface	
Description	10/100 Mbps Ethernet
Connection method	RJ45
General data	
Screw connection rigid / flexible / AWG	0.2 - 2.5 mm ² / 0.2 - 2.5 mm ² / 24 - 12
Dimensions	75 mm / 100 mm / 132 mm
Degree of protection	IP20
Ambient temperature (operation)	-20°C ... 60°C
Conformance/approvals	
UL, USA/Canada	UL 508 Listed

Description
Coupler , with oscilloscope function for PROFIBUS PA
Coupler , with oscilloscope function for PROFIBUS PA and PROFIBUS DP
Head station , with a PROFIBUS DP repeater, provides network diagnostics and an oscilloscope function

Repeater , for PROFIBUS DP
Repeater , for PROFIBUS DP, with oscilloscope
PROFIBUS PA interface module , with oscilloscope
6 A power supply
Head station , for monitoring up to four PROFIBUS networks
Head station , for basic system functionality, no monitoring of PROFIBUS networks

Technical data		
Supply		
Supply voltage range		10.8 V DC ... 26.4 V DC
Ethernet interface		
Description		10/100 Mbps Ethernet
Connection method		RJ45
General data		
Screw connection rigid / flexible / AWG		0.2 - 2.5 mm ² / 0.2 - 2.5 mm ² / 24 - 12
Dimensions	W / H / D	75 mm / 100 mm / 132 mm
Degree of protection		IP20
Ambient temperature (operation)		-20°C ... 60°C
Conformance/approvals		
UL, USA/Canada		UL 508 Listed

Ordering data		
Type	Order No.	Pcs./Pkt.
FB-HSB-DP/PA	2316370	1
FB-HSB-DP-SC/PA	2316381	1
FB-HSB-DP-SC	2316382	1

Accessories		
FB-DP-RPTR	2316373	1
FB-DP-RPTR/SC	2316374	1
FB-PA/SC	2316375	1
FB-HSP-PLUG/24DC/6A	2316383	1
FB-HSC	2316371	1
FB-HSA	2316372	1

PROFIBUS PA I/O multiplexer

Analog and digital I/Os are integrated within a PROFIBUS PA system via a PA head station, Radioline I/O modules, and the four-channel NAMUR digital input module. Thanks to the preconfigured head station, five application variants are available:

- Valve controller
- 24-channel digital inputs with NAMUR sensors
- Combination of digital and analog I/Os
- Temperature inputs and/or analog inputs and outputs
- Temperature inputs and/or analog inputs

Each head station is addressed as a PROFIBUS PA device and is integrated by the host system with an EDD or GSD file. The four-channel and eight-channel I/O modules enable flexible configuration. They are extended as required, depending on the PROFIBUS PA telegram length.

i Your web code: #1792

Notes:

For further information on Radioline I/O extension modules, see from page 380

PROFIBUS®



Ex:

Supply	
Supply voltage range	19.2 V DC ... 30.5 V DC
General data	
Dimensions	W / H / D
Degree of protection	IP20
Ambient temperature (operation)	-40°C ... 70°C
EMC note	Class A product, see page 527

Technical data

19.2 V DC ... 30.5 V DC
17.5 mm / 114.5 mm / 99 mm
IP20
-40°C ... 70°C
Class A product, see page 527

Ordering data

Description	Type	Order No.	Pcs./Pkt.
Head station for valve controller, for combination with a maximum of three RAD-NAM4-IFS digital NAMUR input modules and two RAD-DOR4-IFS digital relay output modules	FB-MUX/HS/DIO-NAM/PA	2316270	1
Head station, for combination with a maximum of six RAD-DI4-IFS digital input modules, six RAD-NAM4-IFS digital NAMUR input modules, three RAD-DI8-IFS digital input modules or any combination for a maximum of 24 input channels	FB-MUX/HS/DI24/PA	1005332	1
Head station, for combination with a maximum of three RAD-DAIO6-IFS analog/digital I/O modules	FB-MUX/HS/DAIO/PA	1005329	1
Head station, for combination with a maximum of three RAD-AI4-IFS analog input modules or RAD-PT100-4-IFS temperature input modules and two RAD-AO4-IFS analog output modules	FB-MUX/HS/AIOTEMP/PA	1005330	1
Head station, for combination with a maximum of five RAD-AI4-IFS analog input modules or RAD-PT100-4-IFS temperature input modules or any combination for a maximum of 20 input channels	FB-MUX/HS/AI/PA	1005331	1

Accessories

Digital input module for NAMUR proximity sensors, 4-channel
Digital relay output module
Analog/digital I/O module
Digital input module
Digital/pulse input module
Analog input module
Temperature input module
Analog output module

RAD-NAM4-IFS	2316275	1
RAD-DOR4-IFS	2901536	1
RAD-DAIO6-IFS	2901533	1
RAD-DI4-IFS	2901535	1
RAD-DI8-IFS	2901539	1
RAD-AI4-IFS	2901537	1
RAD-PT100-4-IFS	2904035	1
RAD-AO4-IFS	2901538	1

Modbus and HART gateways for PROFIBUS DP/PA and FOUNDATION Fieldbus

Use the Modbus and HART gateways to connect Modbus/RTU or HART devices to the FOUNDATION Fieldbus, PROFIBUS DP, and PROFIBUS PA process fieldbuses.



Modbus gateways



HART gateways

Features:

- Up to four Modbus/RTU or HART devices supported with just one gateway
- Space savings with just 6 mm required per channel

Ex:

Ex:

	Technical data	
	GW PL FF/MODBUS	GW PL DP/MODBUS
Supply	18 V DC ... 30 V DC	
Supply voltage range		
Max. current consumption	34 mA	60 mA
Serial port		
Data rate	31.25 kbps	9.6 kbps (min.)
Number of connections	1	2
Connection method	COMBICON	D-SUB 9, COMBICON
Serial port		
Designation	Modbus/RTU	
Data rate	115.2 kbps (max.)	
Number of connections	2	
Connection method	COMBICON	
General data		
Dimensions	22.5 mm / 99 mm / 114.5 mm	
Degree of protection	IP20	
Ambient temperature (operation)	-40°C ... 85°C	
Conformance/approvals		
ATEX	PRESAFE 16ATEX7686X, II 3G, Ex nA IIC T4 Gc	
IECEX	IECEX PRE 16.0001X, Ex nA IIC T4 Gc	
UL, USA/Canada	Class I, Div. 2, Groups A, B, C, D Class I, Zone 2, AEx nA IIC T4, Ex nA IIC T4 GcX	
EMC note	Class A product, see page 527	

	Technical data	
	GW PL FF/HART	GW PL DP/HART
Supply	18.5 V DC ... 30 V DC	
Supply voltage range		
Max. current consumption	70 mA	75 mA
Serial port		
Data rate	31.25 kbps	9.6 kbps (min.)
Number of connections	1	2
Connection method	COMBICON	D-SUB 9, COMBICON
Serial port		
Designation	HART FSK	
Data rate	-	
Number of connections	3	
Connection method	COMBICON	
General data		
Dimensions	22.5 mm / 99 mm / 114.5 mm	
Degree of protection	IP20	
Ambient temperature (operation)	-40°C ... 85°C	
Conformance/approvals		
ATEX	PRESAFE 16ATEX7686X, II 3G, Ex nA IIC T4 Gc	
IECEX	IECEX PRE 16.0001X, Ex nA IIC T4 Gc	
UL, USA/Canada	Class I, Div. 2, Groups A, B, C, D Class I, Zone 2, AEx nA IIC T4, Ex nA IIC T4 GcX	
EMC note	Class A product, see page 527	

	Ordering data		
	Type	Order No.	Pcs./Pkt.
Protocol converter - Modbus/RTU to FOUNDATION Fieldbus - Modbus/RTU to PROFIBUS PA - Modbus/RTU to PROFIBUS DP	GW PL FF/MODBUS	2316363	1
	GW PL PA/MODBUS	2316364	1
	GW PL DP/MODBUS	2316365	1
Protocol converter - HART to FOUNDATION Fieldbus - HART to PROFIBUS PA - HART to PROFIBUS DP			
Accessories			
Adapter cable, 1 m long, with USB connection, for HART parameterization			

	Ordering data		
	Type	Order No.	Pcs./Pkt.
Protocol converter - Modbus/RTU to FOUNDATION Fieldbus - Modbus/RTU to PROFIBUS PA - Modbus/RTU to PROFIBUS DP	GW PL FF/HART	2316360	1
	GW PL PA/HART	2316361	1
	GW PL DP/HART	2316362	1
Protocol converter - HART to FOUNDATION Fieldbus - HART to PROFIBUS PA - HART to PROFIBUS DP			
Accessories			
GW HART USB MODEM		1003824	1

Ethernet HART multiplexer

Transmit critical HART process data over Ethernet networks with the multiplexer. In addition to the high Ethernet speed, benefit from the additional transmission of secondary process data.

The universal version also supports PROFINET in addition to Modbus/TCP and HART IP.

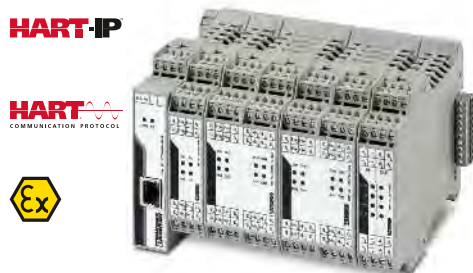
Features:

- Modular system enables scalable station configuration with up to five extension modules
- Connection of up to 40 HART devices per station
- In Modbus/TCP operation, the digital extension module enables additional digital I/Os to be acquired
- Monitoring and targeted response to active and passive process data with the aid of the digital inputs and outputs
- Parameterization via integrated web server
- Use of familiar software tools, thanks to HART IP protocol

Supply	
Supply voltage range	
Nominal current consumption	
Max. current consumption	
Ethernet interface	
Interface	
Connection method	
Supported protocols	
General data	
Dimensions	W / H / D
Degree of protection	
Ambient temperature (operation)	
Electromagnetic compatibility	
Conformance/approvals	
ATEX	
IECEx	
UL, USA/Canada	
Noxious gas test	

Description
Ethernet head station , for modular gateway, supports five extension modules
- with Modbus/TCP, HART IP, PROFINET
- with Modbus/TCP, HART IP
Extension module
- HART, passive, 4x AI or AO
- HART, passive, 8x AI or AO
- HART, active, 8x AI
- Modbus/TCP, active, 4x DI and 4x DO

Adapter cable , 1 m long, with USB connection, for HART parameterization



Technical data	
GW PL ETH/UNI-BUS	GW PL ETH/BASIC-BUS
19.2 V DC ... 30 V DC	
46 mA (at 24 V DC)	45 mA (at 24 V DC)
63 mA (at 24 V DC)	62 mA (at 24 V DC)
Ethernet 10/100Base T	
RJ45 socket, auto negotiation and auto crossing	
Modbus/TCP, HART IP, PROFINET	TCP/IP, HART IP, Modbus/TCP
22.5 mm / 99 mm / 114.5 mm	
IP20	
-40°C ... 70°C	
Conformance with EMC Directive 2004/108/EC	
Ex II 3 G Ex nA IIC T4 Gc	-
DEMKO 17 ATEX 1749X	
IECEx ULD 17.0020X Ex nA IIC T4 Gc	-
Class I, Div. 2, Groups A, B, C, D	
ISA-S71.04-1985 G3 Harsh Group A	

Ordering data		
Type	Order No.	Pcs./Pkt.
GW PL ETH/UNI-BUS	2702233	1
GW PL ETH/BASIC-BUS	2702321	1
GW PL HART4-BUS	2702234	1
GW PL HART8-BUS	2702235	1
GW PL HART8+AI-BUS	2702236	1
GW PL DIO4-BUS	2702237	1

Accessories		
GW HART USB MODEM	1003824	1