

# PSI-MODEM-SHDSL/PB - Modem



2313656

<https://www.phoenixcontact.com/us/products/2313656>

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Industrial PROFIBUS extender, for point-to-point connections, linear structures, and mixed operation with repeaters and fiber optic converters. Distances of up to 20 km, PROFIBUS data rates of up to 1.5 Mbps via simple copper wires, such as in-house phone lines.

## Your advantages

- Distances up to 20 km
- Robust modulation method (SHDSL)
- Mixed operation of copper cables and fiber optics
- The free software calculates the PROFIBUS data rate and the slot time
- Line structure up to 500 Kbps
- Point-to-point connection up to 1.5 Mbps
- For in-house cables

## Commercial Data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 2313656             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales Key                            | DN24                |
| Product Key                          | DNC443              |
| Catalog Page                         | Page 429 (C-6-2019) |
| GTIN                                 | 4046356509213       |
| Weight per Piece (including packing) | 335.6 g             |
| Weight per Piece (excluding packing) | 282.3 g             |
| Customs tariff number                | 85176200            |
| Country of origin                    | DE                  |

## Technical Data

### Notes

#### Utilization restriction

|            |   |
|------------|---|
| CCCex note | Use in potentially explosive areas is not permitted in China. |
|------------|---|

### Product properties

|              |  |
|--------------|--|
| Product type | Modem  |
| MTTF         | 800 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)                                     |
|              | 346 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)                                  |
|              | 140 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)                                    |
| MTBF         | 1004 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))    |
|              | 199 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day)) |

### Electrical properties

|   |  |
|---|--|
| Electrical isolation                            | VCC // PROFIBUS // DSL (A) // DSL (B) // FE  |
| Maximum power dissipation for nominal condition | 4.32 W                                       |
| Mains type                                      | Permanent line                               |
| Test voltage data interface/power supply        | 500 V AC (In accordance with EN/IEC 60079-7) |
|   | 1.5 kV <sub>rms</sub> (50 Hz, 1 min.)        |

### Supply

|                             |  |
|-----------------------------|--|
| Supply voltage range        | 18 V DC ... 30 V DC (via pluggable COMBICON screw terminal block)                                  |
| Nominal supply voltage      | 24 V DC ±5 % (as an alternative or redundant, via backplane bus contact and system current supply) |
|                             | 5 V DC (configuration only, via mini-USB type B)   |
| Typical current consumption | < 180 mA (24 V DC)   |
| Max. current consumption    | ≤ 2 A (For operation in a joining station, via the DIN rail connector)                             |
| Connection method           | COMBICON plug-in screw terminal block  |

### Function

|                                  |   |
|----------------------------------|---|
| Management                       | User-friendly software: Guided configuration, plausibility checks, diagnostic functions, log book   |
| Status and diagnostic indicators | LEDs: VCC (supply voltage), RD/TD (PROFIBUS data traffic), ERR (errors)<br>2 x LINK / 2 x STAT (DSL data traffic port A and port B), DIAG (diagnostic messages) |

### Output data

#### Signal

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|                       |  |
|-----------------------|--|
| Output name           | Digital output   |
| Number of outputs     | 2  |
| Voltage output signal | 18 V DC ... 30 V DC (depending on the operating voltage) |
| Current output signal | ≤ 150 mA (Short-circuit-proof)                           |

## Connection data

### Supply

|                   |                                       |
|-------------------|---------------------------------------|
| Connection method | COMBICON plug-in screw terminal block |
| Tightening torque | 0.56 Nm ... 0.79 Nm                   |

## Interfaces

|        |          |
|--------|----------|
| Signal | PROFIBUS |
|--------|----------|

Data: PROFIBUS acc. to IEC 61158, RS-485 2-wire, half duplex, automatic control

|                           |  |
|---------------------------|--|
| Serial transmission speed | 9.6/19.2/45.45/93.75/187.5/500/1500 kbps, set via configuration software         |
| Connection method         | D-SUB-9 female connector   |
| Transmission length       | max. 1200 m (depending on the data rate, with shielded, twisted pair data cable) |
| File format/coding        | UART (11 Bit, NRZ)   |
| Data direction switching  | Automatic control  |

Data: SHDSL interface according to ITU-T G.991.2.bis

|  |  |
|--|--|
| Serial transmission speed                  | 4-wire operation: 64 kbps ... 30 Mbps                    |
|  | 2-wire operation: 32 kbps ... 15.3 Mbps                  |
| Connection method                          | 2 x 2-pos. COMBICON plug-in screw terminal blocks        |
| Tightening torque                          | 0.56 Nm ... 0.79 Nm                                      |
| Transmission length                        | ≤ 20 km (Depending on data rate and cable cross section) |
| Conductor cross section flexible max.      | 2.5 mm <sup>2</sup>                                      |
| Conductor cross section flexible min.      | 0.2 mm <sup>2</sup>                                      |
| Conductor cross section, rigid max.        | 2.5 mm <sup>2</sup>                                      |
| Conductor cross section, rigid min.        | 0.2 mm <sup>2</sup>                                      |
| Max. AWG conductor cross section, flexible | 14   |
| Min. AWG conductor cross section, flexible | 24   |
| Single-wire/terminal point, rigid AWG max. | 14   |
| Single-wire/terminal point, rigid AWG min. | 24   |
| Stripping length                           | 7 mm   |

Data: USB 2.0

|                     |  |
|---------------------|--|
| Connection method   | Mini-USB type B, 5-pos.                        |
| Transmission length | < 5 m (only for configuration and diagnostics) |

## Dimensions

|        |          |
|--------|----------|
| Width  | 35 mm    |
| Height | 99 mm    |
| Depth  | 114.5 mm |

## Material specifications

|  |           |
|--|-----------|
| Flammability rating according to UL 94 | V0        |
| Material (GRP)                         | PA 6.6-FR |

## Environmental and real-life conditions

### Ambient conditions

|  |  |
|--|--|
| Degree of protection                     | IP20   |
| Ambient temperature (operation)          | -20 °C ... 60 °C (Freestanding (40 mm spacing to the right and left), no supply of other modules via the device) |
|  | -20 °C ... 55 °C (Mounted in rows with zero spacing and low power dissipation of aligned modules)                |
|  | -20 °C ... 50 °C (Mounted in rows with zero spacing)   |
|  | -20 °C ... 45 °C (aligned without spacing and supply of other modules via the device, 1.5 A)                     |
| Ambient temperature (storage/transport)  | -40 °C ... 85 °C   |
| Altitude                                 | ≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation)                           |
| Permissible humidity (operation)         | 10 % ... 95 % (non-condensing)   |
| Permissible humidity (storage/transport) | 10 % ... 95 % (non-condensing)   |

## Approvals

### CE

|             |              |
|-------------|--------------|
| Certificate | CE-compliant |
|-------------|--------------|

### EAC

|                |     |
|----------------|-----|
| Identification | EAC |
|----------------|-----|

### ATEX

|                |   |
|----------------|---|
| Identification | Ⓜ II 3 G Ex ec IIC T4 Gc  |
| Certificate    | PxCIF11ATEX2313643X   |
| Note           | Please follow the special installation instructions in the documentation! |

### UKEX

|                |                          |
|----------------|--------------------------|
| Identification | Ⓜ II 3 G Ex ec IIC T4 Gc |
| Certificate    | PxCIMA22UKEX2313643X     |

### UL, USA/Canada

|                |            |
|----------------|------------|
| Identification | 508 Listed |
|----------------|------------|

### Corrosive gas test

|                |                                  |
|----------------|----------------------------------|
| Identification | ISA-S71.04-1985 G3 Harsh Group A |
|----------------|----------------------------------|

## EMC data

|                               |   |
|-------------------------------|---|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
|-------------------------------|---|

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## Standards and regulations

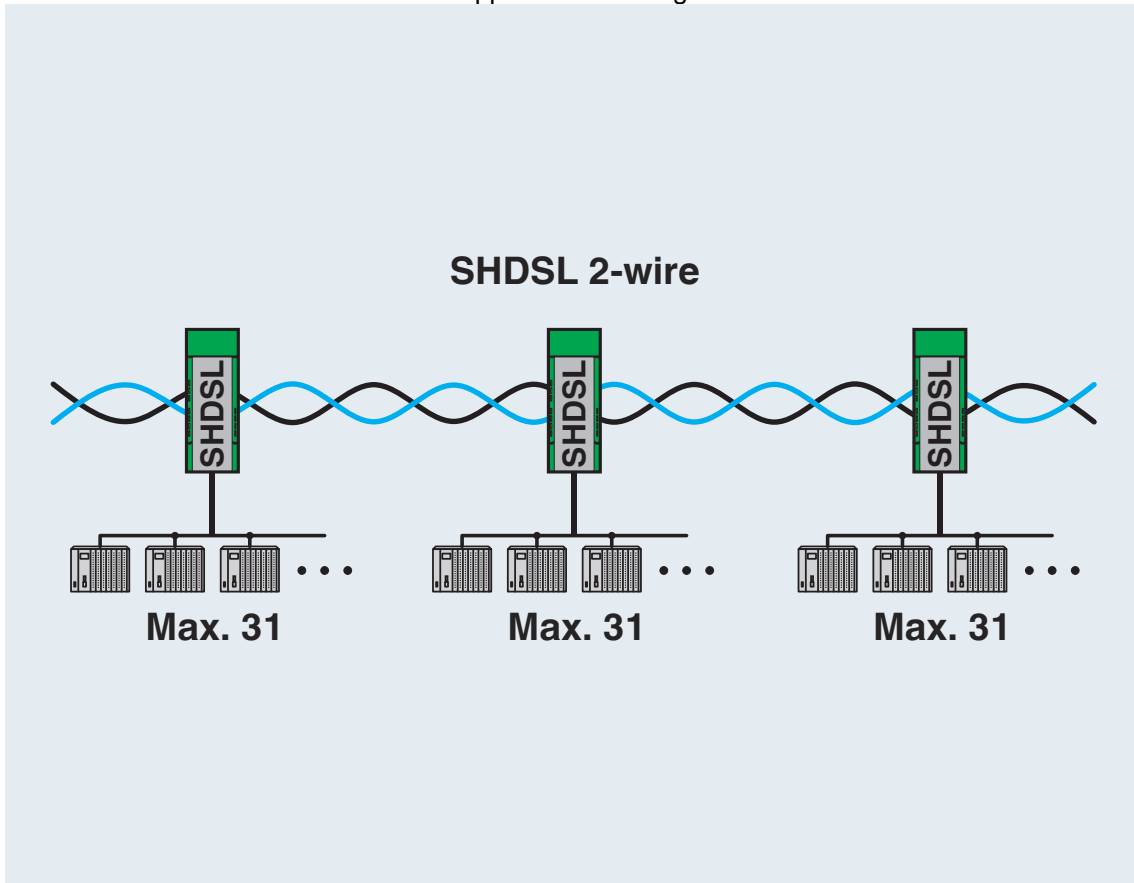
|                       |   |
|-----------------------|---|
| Standards/regulations | EN 50121-4  |
| Standard designation  | Railway applications - Electromagnetic compatibility, Part 4:<br>Emission and immunity of the signaling and telecommunications<br>apparatus |

## Mounting

|                       |   |
|-----------------------|---|
| Assembly instructions | The product can be snapped onto all 35 mm DIN rails in<br>accordance with EN 60715. |
|-----------------------|---|

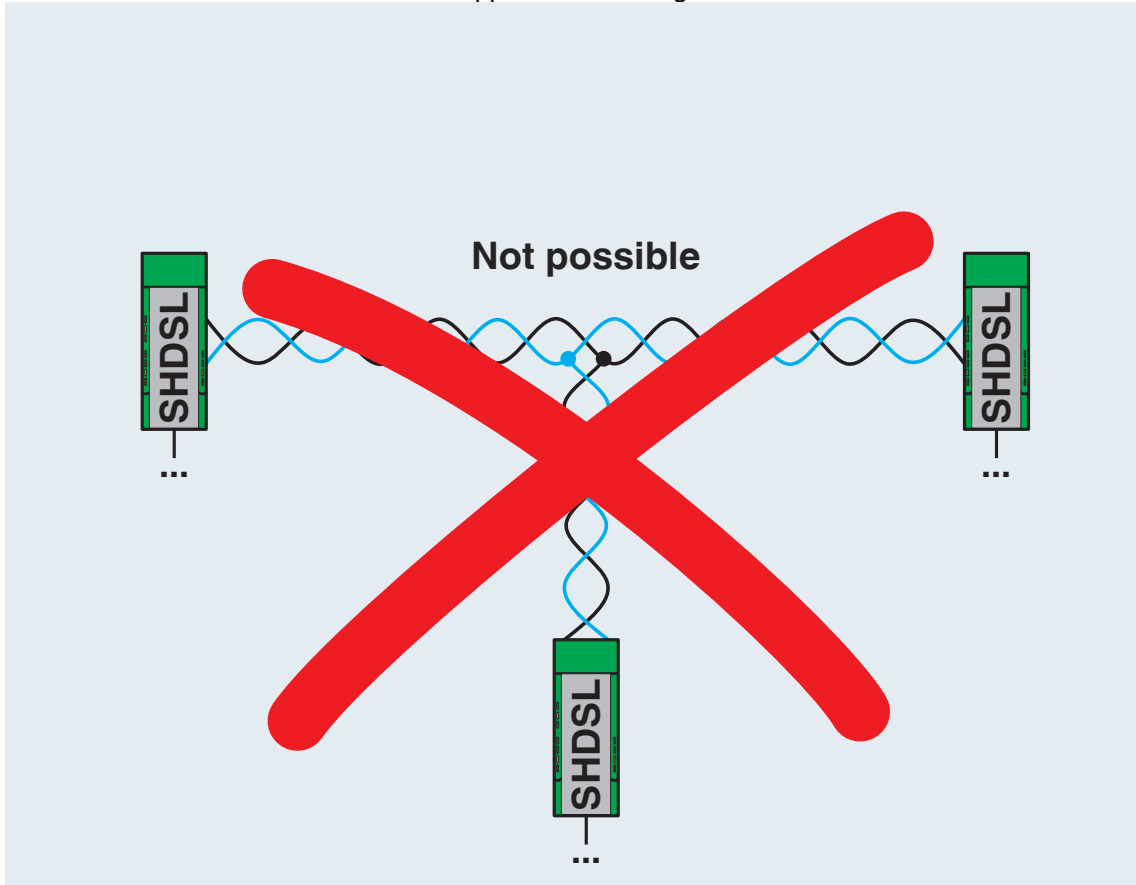
## Drawings

Application drawing



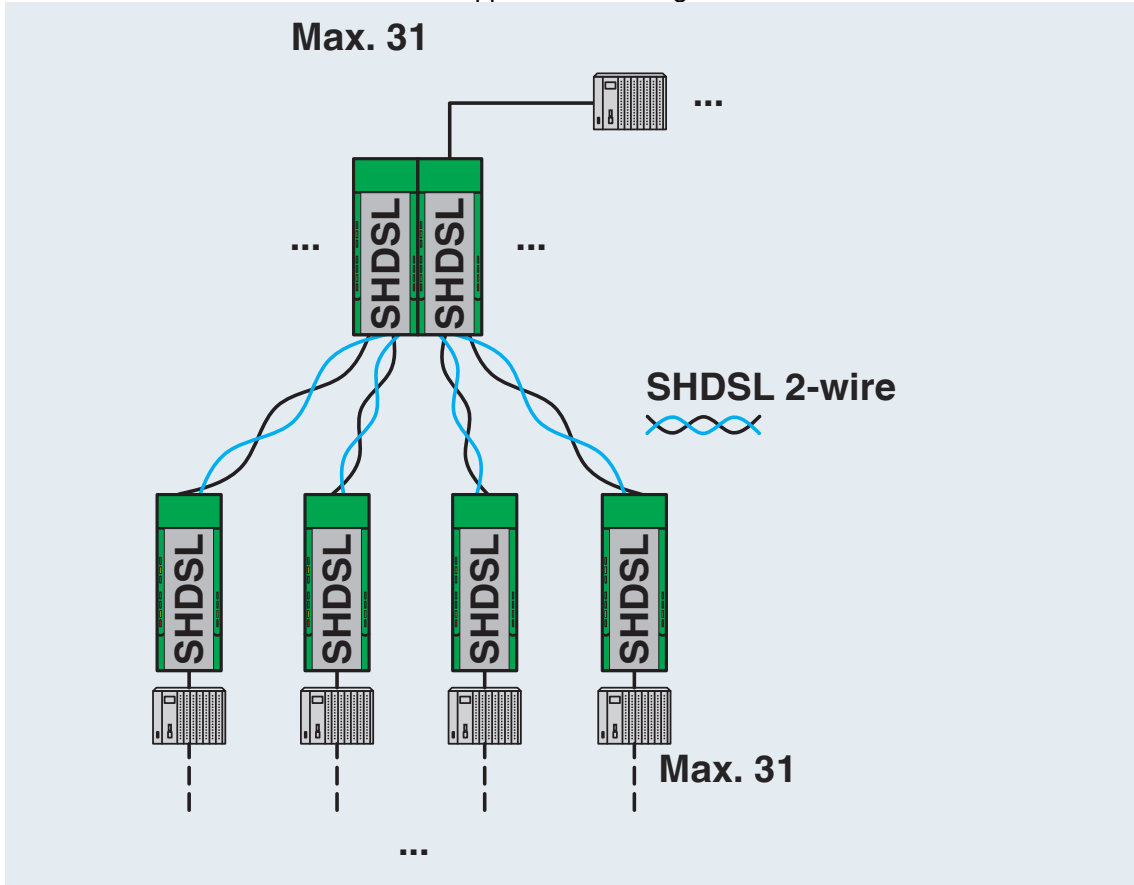
Linear structure (2-wire)

Application drawing



Multipoint communication via SHDSL not supported

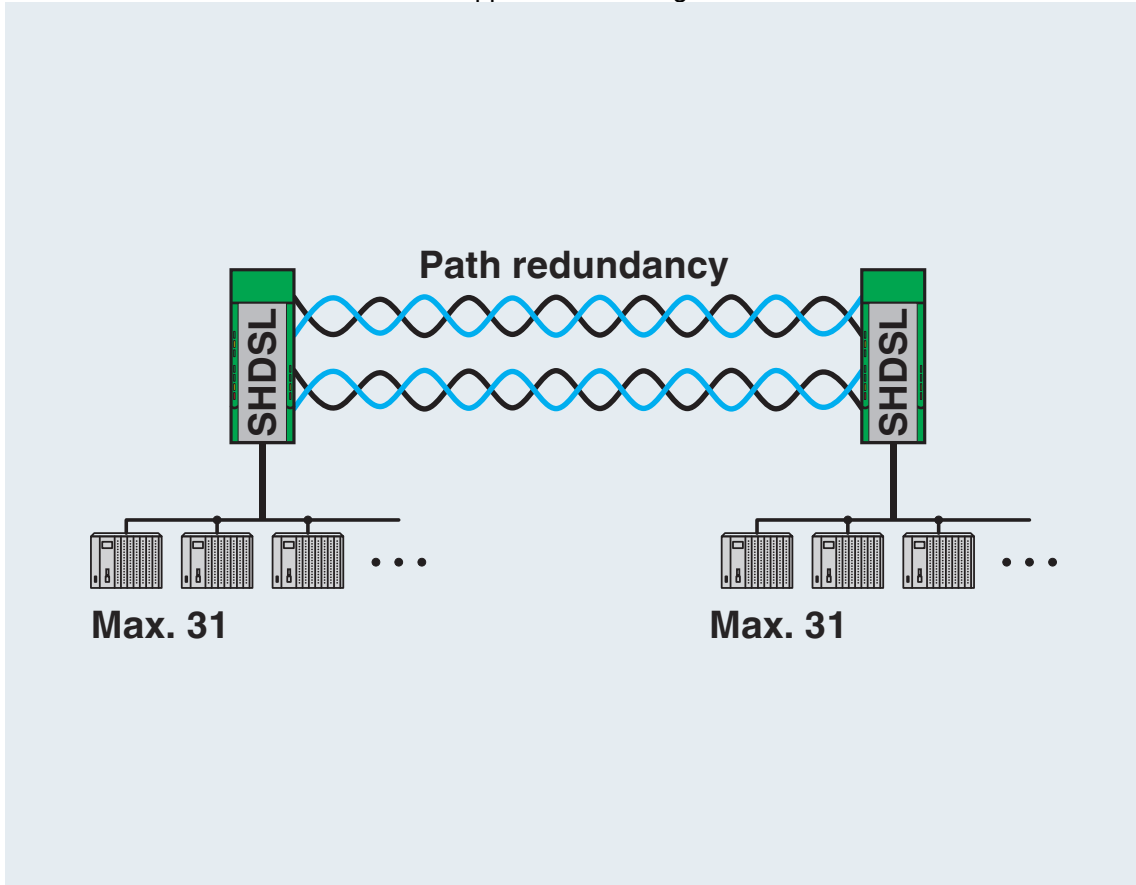
Application drawing



Star structure via DIN rail connector

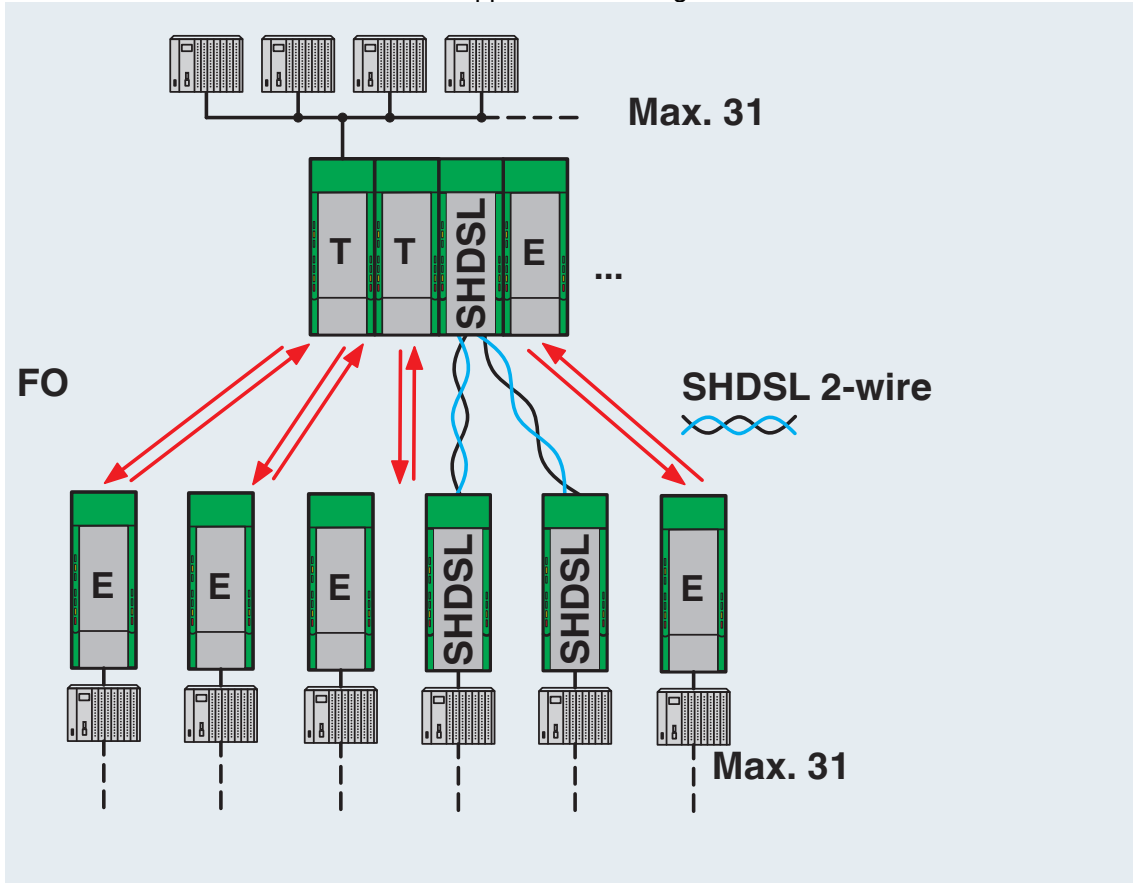


Application drawing

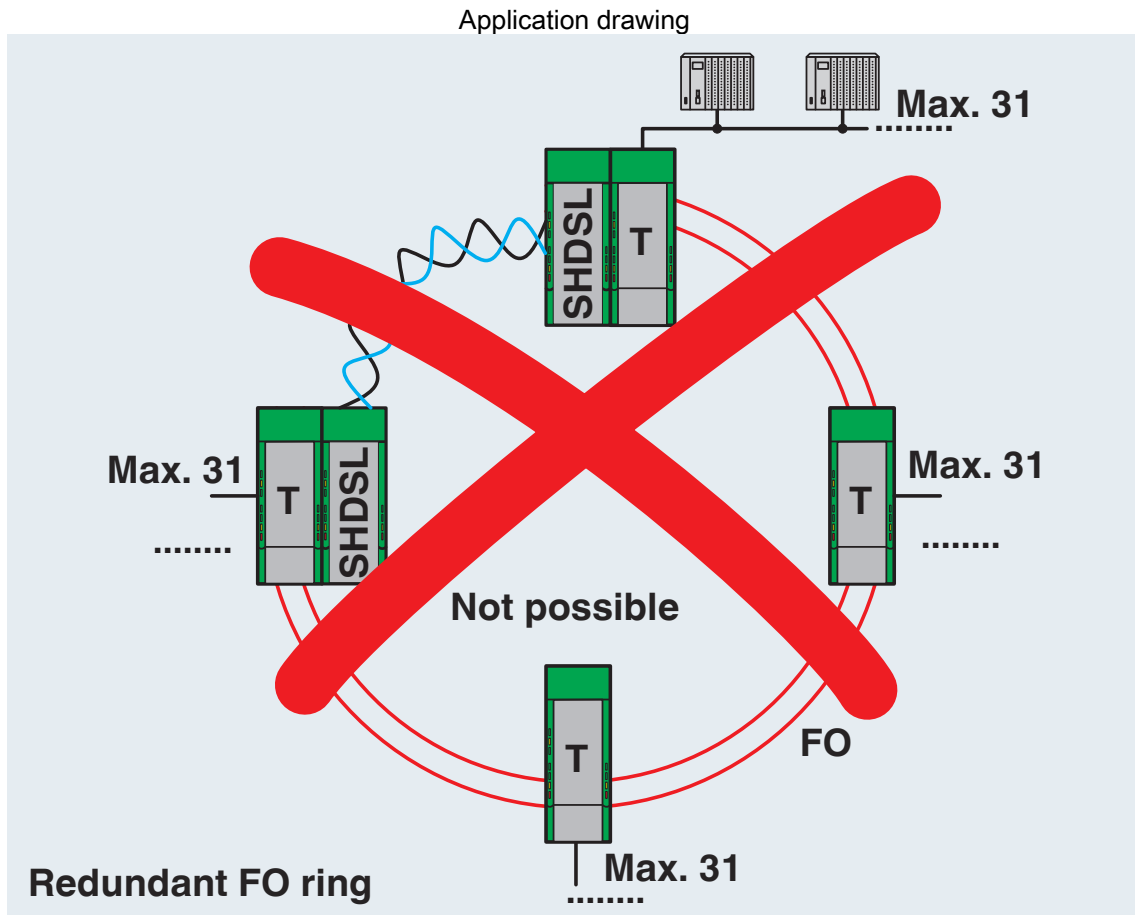


Point-to-point connection (4-wire)

Application drawing

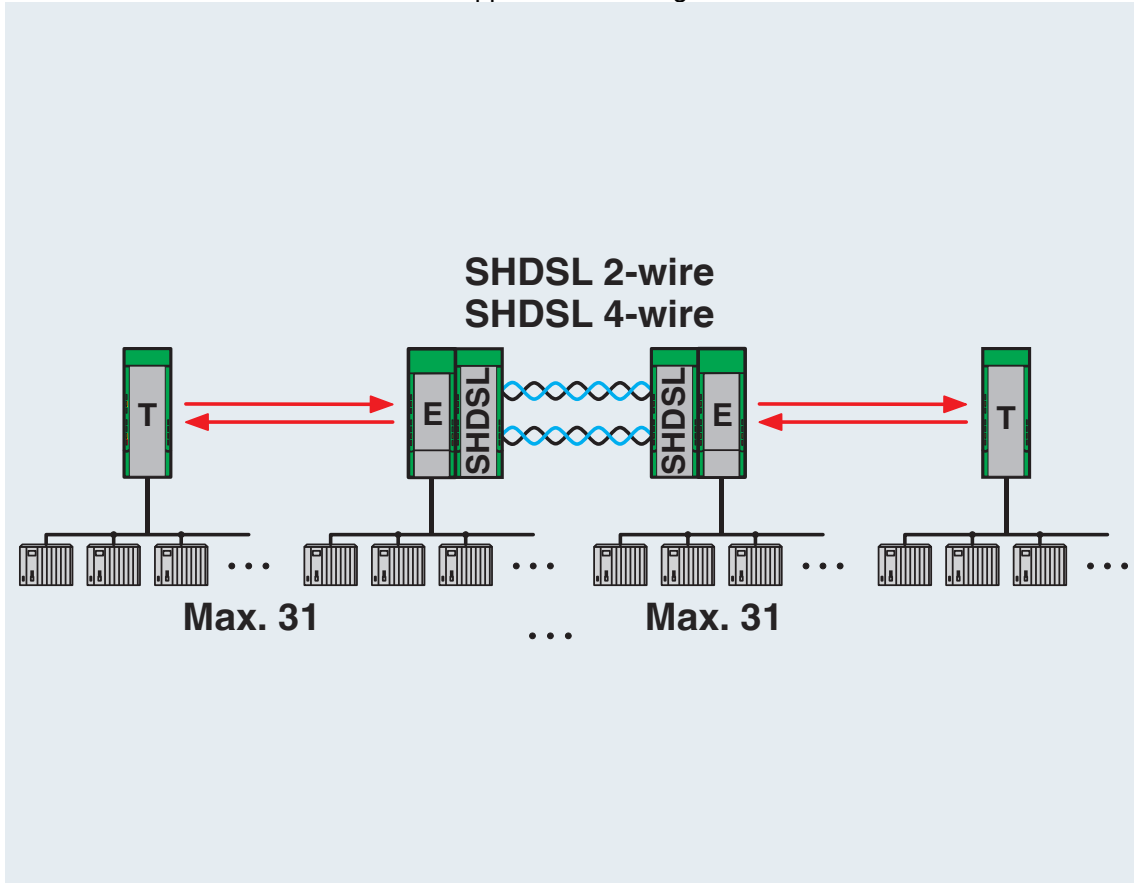


Star structure: mixed operation with repeaters and FO converters



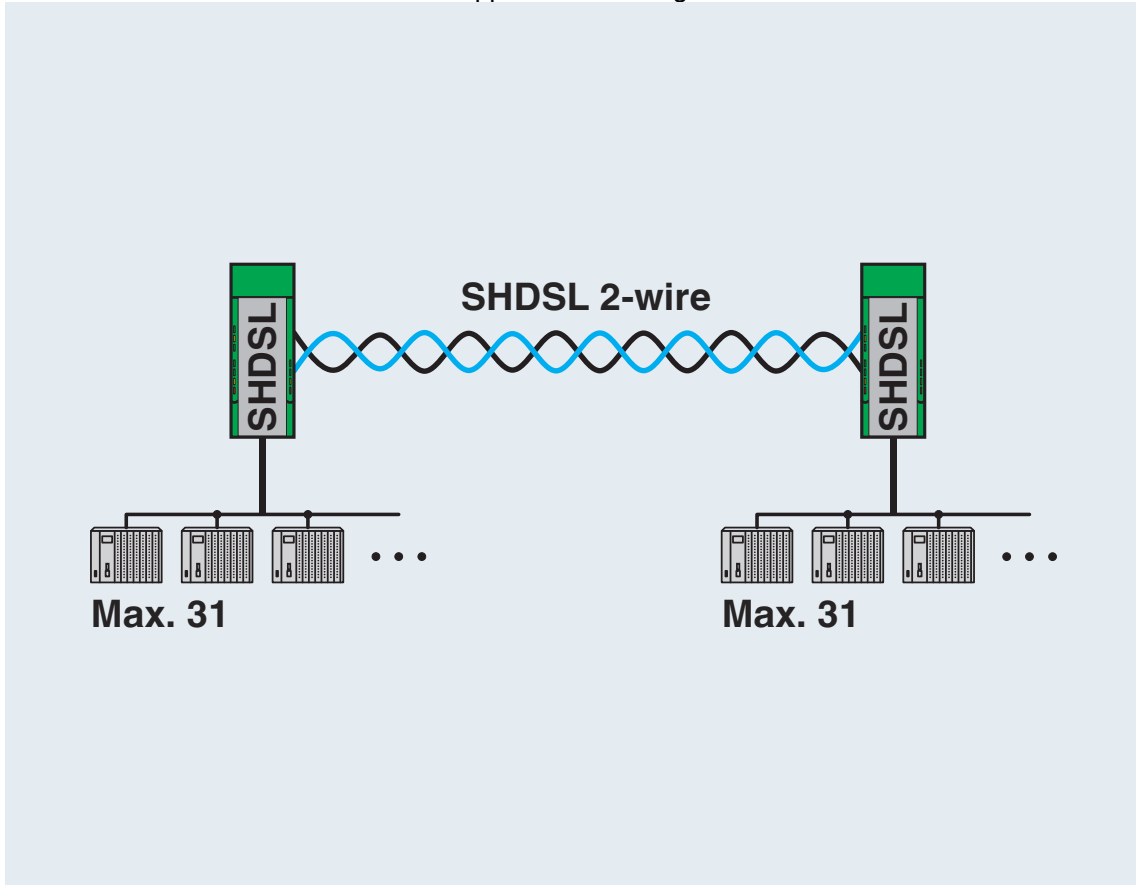
SHDSL subsection in fiber optic ring not supported

Application drawing



Linear structure: mixed operation with repeaters and FO converters

Application drawing



Point-to-point connection (2-wire)

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2313656>



**EAC**

Approval ID: RU \*-DE.A\*30.B.01735



**UL Listed**

Approval ID: FILE E 238705



**cUL Listed**

Approval ID: FILE E 238705



**EAC-RoHS**

Approval ID: RU D-DE.HB35.B.00388



**ATEX**

Approval ID: PxCIF11ATEX2313643X

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 19170407 |
| ECLASS-12.0 | 19170407 |
| ECLASS-13.0 | 19170407 |

### ETIM

|          |          |
|----------|----------|
| ETIM 8.0 | EC000309 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 43223100 |
|-------------|----------|

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## Environmental Product Compliance

|            |  |
|------------|--|
| REACH SVHC | Lead 7439-92-1   |
| China RoHS | Environmentally Friendly Use Period = 50 years   |
|            | For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |



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## Accessories

### QUINT4-SYS-PS/1AC/24DC/2.5/SC - Power supply unit

2904614

<https://www.phoenixcontact.com/us/products/2904614>



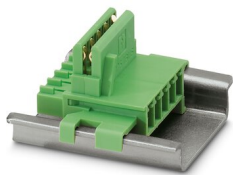
Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A

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### ME 17,5 TBUS 1,5/ 5-ST-3,81 GN - DIN rail bus connectors

2709561

<https://www.phoenixcontact.com/us/products/2709561>



DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.

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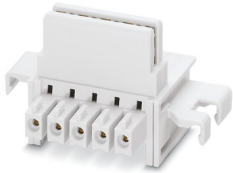
<https://www.phoenixcontact.com/us/products/2313656>



## ME 17,5 TBUS 1,5/ 5-ST-3,81 KMGY - DIN rail bus connectors

2713645

<https://www.phoenixcontact.com/us/products/2713645>



DIN rail connector, color: light grey, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, number of positions: 5, pitch: 3.81 mm, mounting: DIN rail mounting, locking: without, mounting: without, type of packaging: packed in cardboard, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts

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## DT-TELE-SHDSL - Surge protection device

2801593

<https://www.phoenixcontact.com/us/products/2801593>



Attachment plug with surge protection for two SHDSL telecommunications interfaces (ports). Connection: RJ45 (RJ12/RJ11) and plug-in screw terminal block (COMBICON). Alternatively, can be snapped onto a DIN rail.

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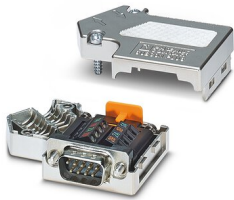
<https://www.phoenixcontact.com/us/products/2313656>



## SUBCON-PLUS-PROFIB/SC2 - D-SUB bus connector

2708232

<https://www.phoenixcontact.com/us/products/2708232>



D-SUB connector, 9-pos., male connector, 35° cable entry, bus system: PROFIBUS DP up to 12 Mbps, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

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## SUBCON-PLUS-PROFIB/PG/SC2 - D-SUB bus connector

2708245

<https://www.phoenixcontact.com/us/products/2708245>



D-SUB connector, 9-pos., male connector, 35° cable entry, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

# PSI-MODEM-SHDSL/PB - Modem

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## SUBCON-PLUS-PROFIB/90/IDC - D-SUB bus connector

2313672

<https://www.phoenixcontact.com/us/products/2313672>



D-SUB connector, 9-pos., male connector, 90° cable entry, bus system: PROFIBUS DP up to 12 Mbps, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; IDC terminal block connection

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## SUBCON-PLUS-PROFIB/90/PG/IDC - D-SUB bus connector

2313685

<https://www.phoenixcontact.com/us/products/2313685>



D-SUB connector, 9-pos., male connector, 90° cable entry, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; IDC terminal block connection

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## SUBCON-PLUS-PROFIB/90/SC - D-SUB bus connector

2313698

<https://www.phoenixcontact.com/us/products/2313698>



D-SUB connector, 9-pos., male connector, 90° cable entry, bus system: PROFIBUS DP up to 12 Mbps, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

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## SUBCON-PLUS-PROFIB/90/PG/SC - D-SUB bus connector

2313708

<https://www.phoenixcontact.com/us/products/2313708>



D-SUB connector, 9-pos., male connector, 90° cable entry, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

# PSI-MODEM-SHDSL/PB - Modem

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## SUBCON-PLUS-PROFIB/AX/SC - D-SUB bus connector

2744380

<https://www.phoenixcontact.com/us/products/2744380>



D-SUB connector, 9-pos., male connector, axial version with two cable entries, bus system: PROFIBUS DP up to 12 Mbps, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

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## PSM-CABLE-PROFIB/FC - Bus system cable

2744652

<https://www.phoenixcontact.com/us/products/2744652>



By the meter, Bus system cable, PROFIBUS (12 Mbps), shielded, PVC FR VI/PVC, violet, 2-wire (1X2XAWG22/1), color single wire: red, green, cable length: Free entry (1.0 ... 1000.0 m)

## PSI-MODEM-SHDSL/PB - Modem

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## PSI-TERMINATOR-PB-TBUS - Termination resistor

2702636

<https://www.phoenixcontact.com/us/products/2702636>



Active termination resistor for PROFIBUS and RS-485 bus systems, redundant power supply, routing of the supply voltage via DIN rail connector, electrical isolation, switchable termination, integrated programming interface

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## CABLE-USB/MINI-USB-3,0M - USB cable

2986135

<https://www.phoenixcontact.com/us/products/2986135>



USB connecting cable: USB plug type A to USB plug type Mini-B; length: 3 m

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## PSI-MOS-PROFIB/FO 850 T - FO converters

2708261

<https://www.phoenixcontact.com/us/products/2708261>



FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, T-coupler with two FO interfaces (BFOC), 850 nm, for PCF/fiberglass cable (multimode)

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## PSI-MOS-PROFIB/FO 660 T - FO converters

2708287

<https://www.phoenixcontact.com/us/products/2708287>



FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, T-coupler with two FO interfaces (FSMA), 660 nm, for polymer/PCF fiber cable



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## PSI-MOS-PROFIB/FO1300 E - FO converters

2708559

<https://www.phoenixcontact.com/us/products/2708559>



Fiber optic converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, termination device with one fiber optic interface (SC-Duplex), 1300 nm, for fiberglass cable

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## PSI-REP-PROFIBUS/12MB - Repeater

2708863

<https://www.phoenixcontact.com/us/products/2708863>



Modular repeater for electrical isolation and range increase for PROFIBUS up to 12 Mbps, 4-way isolation, rail-mountable, supply 24 V DC

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## SCC 10-NS35 - Shield connection clamp

1019440

<https://www.phoenixcontact.com/us/products/1019440>



Shield connection clamp, number of positions: 1, connection method: Spring-cage connection, mounting type: NS 35/7,5, NS 35/15, color: black

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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)