# 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 |
| GTIN | 4046356509213 |
| Weight per piece (including packing) | 328 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 $kV_{rms}$ (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) |

Function

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|---|---|
| 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

| | |
|---|---|
| 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) |
| Single conductor/terminal point, rigid | 0.2 mm² ... 2.5 mm² |
| Single-wire/terminal point, flexible | 0.2 mm² ... 2.5 mm² |
| 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

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

## Material specifications

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|---|---|
| Color (Housing) | green (RAL 6021) |

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

## Mechanical tests

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|---|---|
| Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6 | Vibration (operation): 5g, 10...150 Hz, 2.5 h, in XYZ direction |
| Shock in accordance with EN 60068-2-27/IEC 60068-2-27 | Shock (operation): 15g, 11 ms period, half-sine shock pulse |

## 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

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

### ATEX

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

### UKEX

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

### UL, USA/Canada

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

### Corrosive gas test

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

## EMC data

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

## Standards and regulations

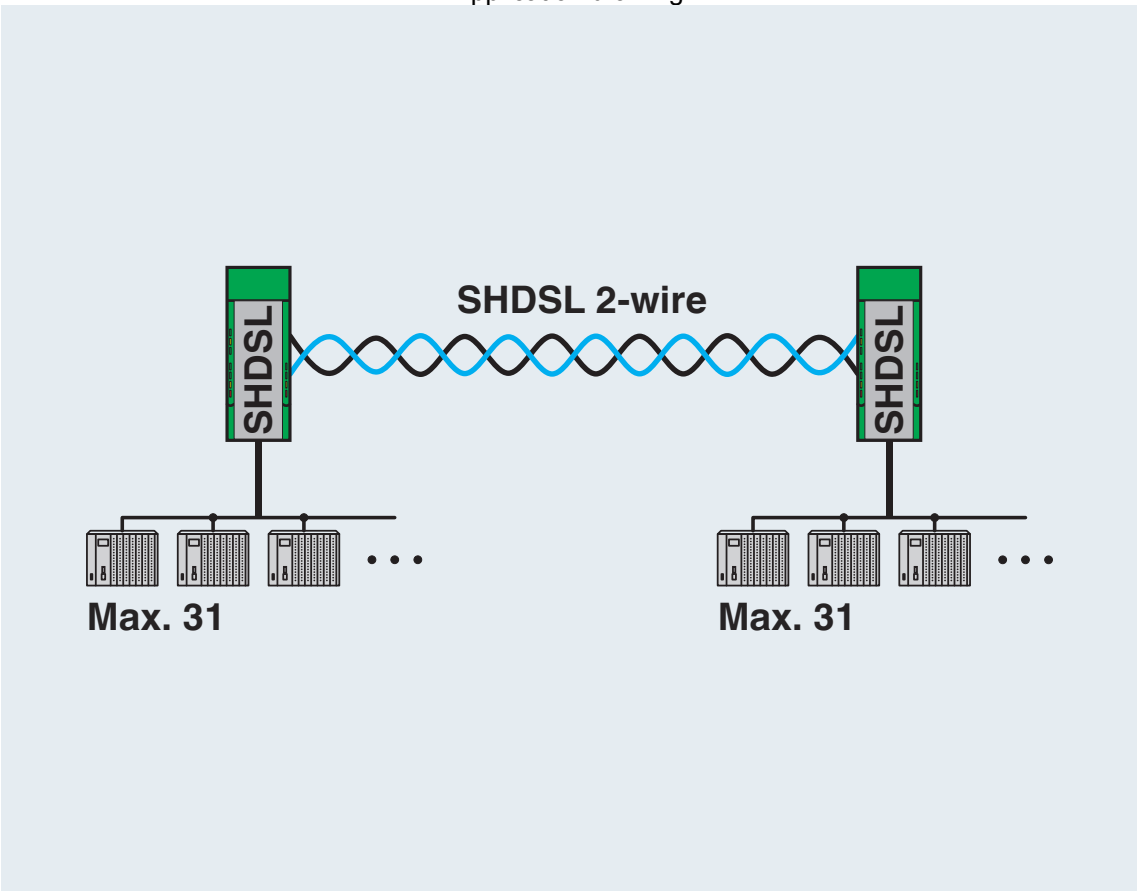
| | |
|---|---|
| Standards/regulations | EN 50121-4 |
| Standard designation | Railway applications - Electromagnetic compatibility, Part 4: Emission and immunity of the signaling and telecommunications apparatus |

## Mounting

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

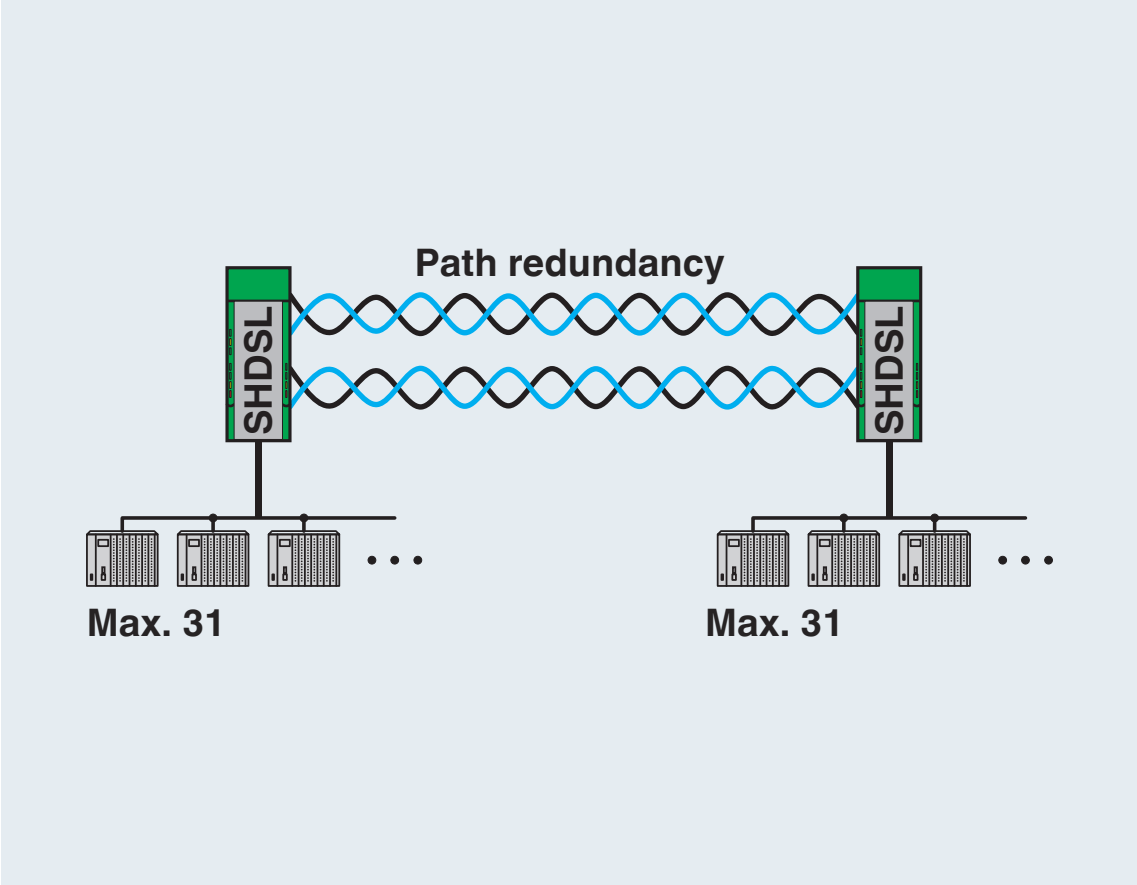
## Drawings

Application drawing



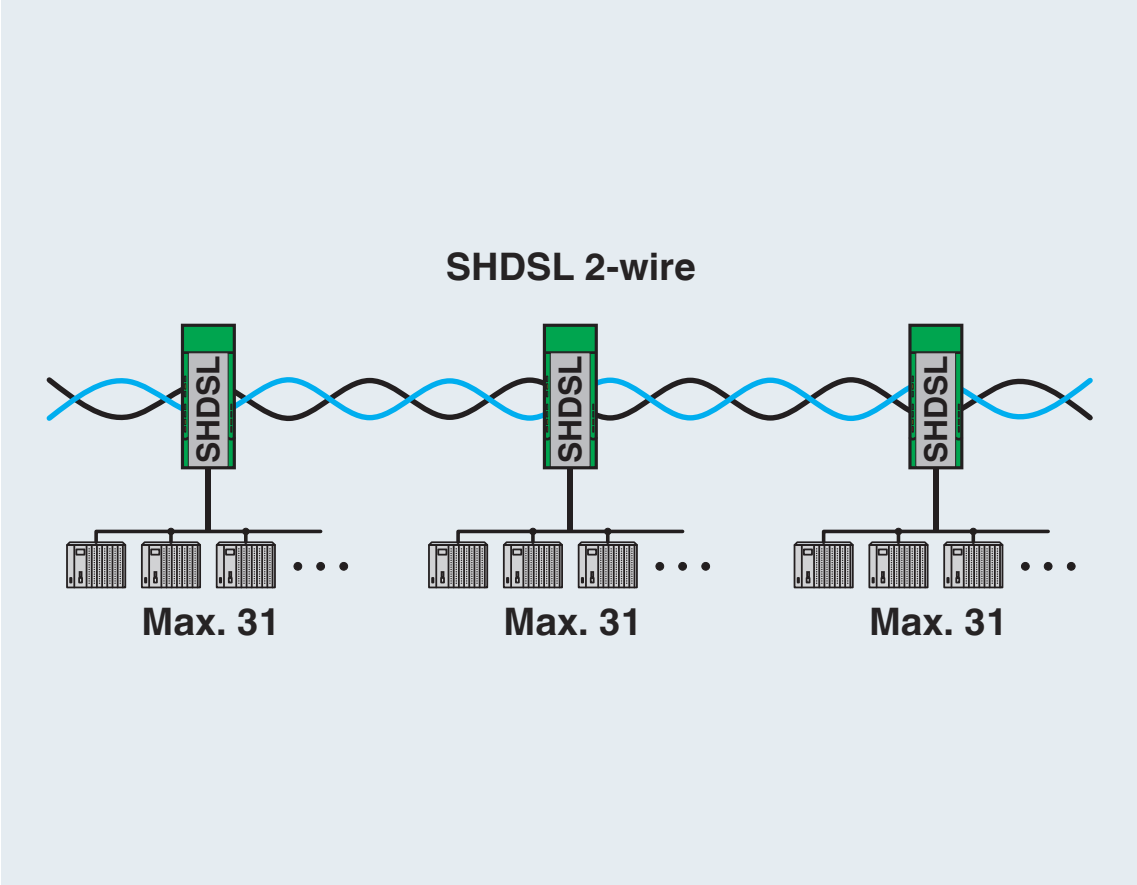

Point-to-point connection (2-wire)

Application drawing



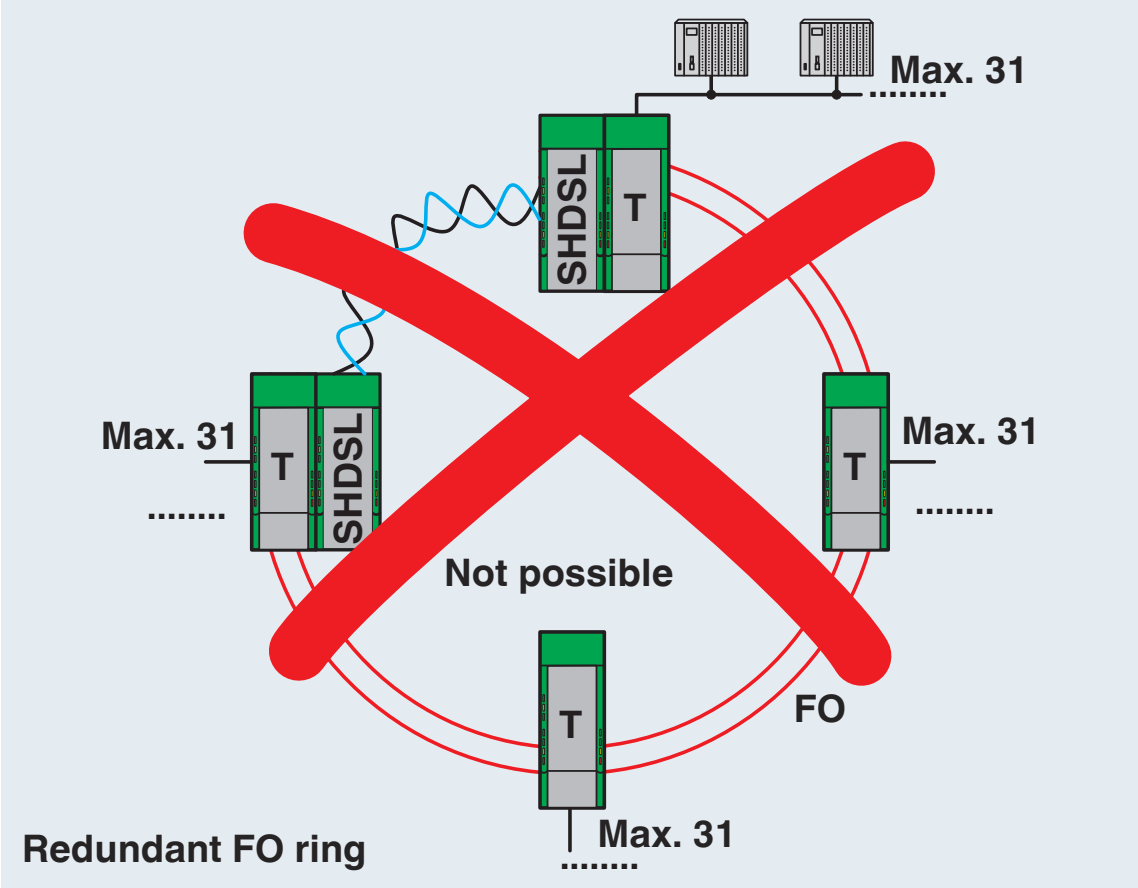

Point-to-point connection (4-wire)

Application drawing



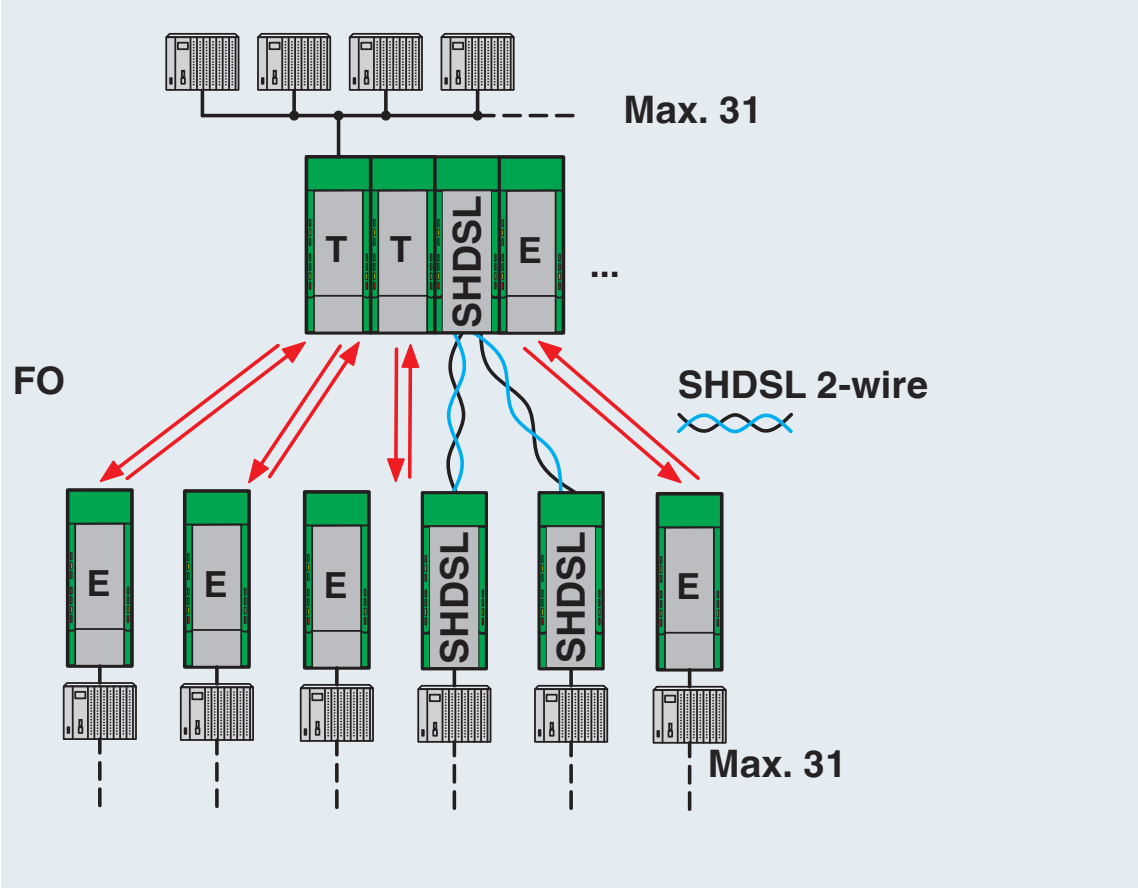

Linear structure (2-wire)

Application drawing



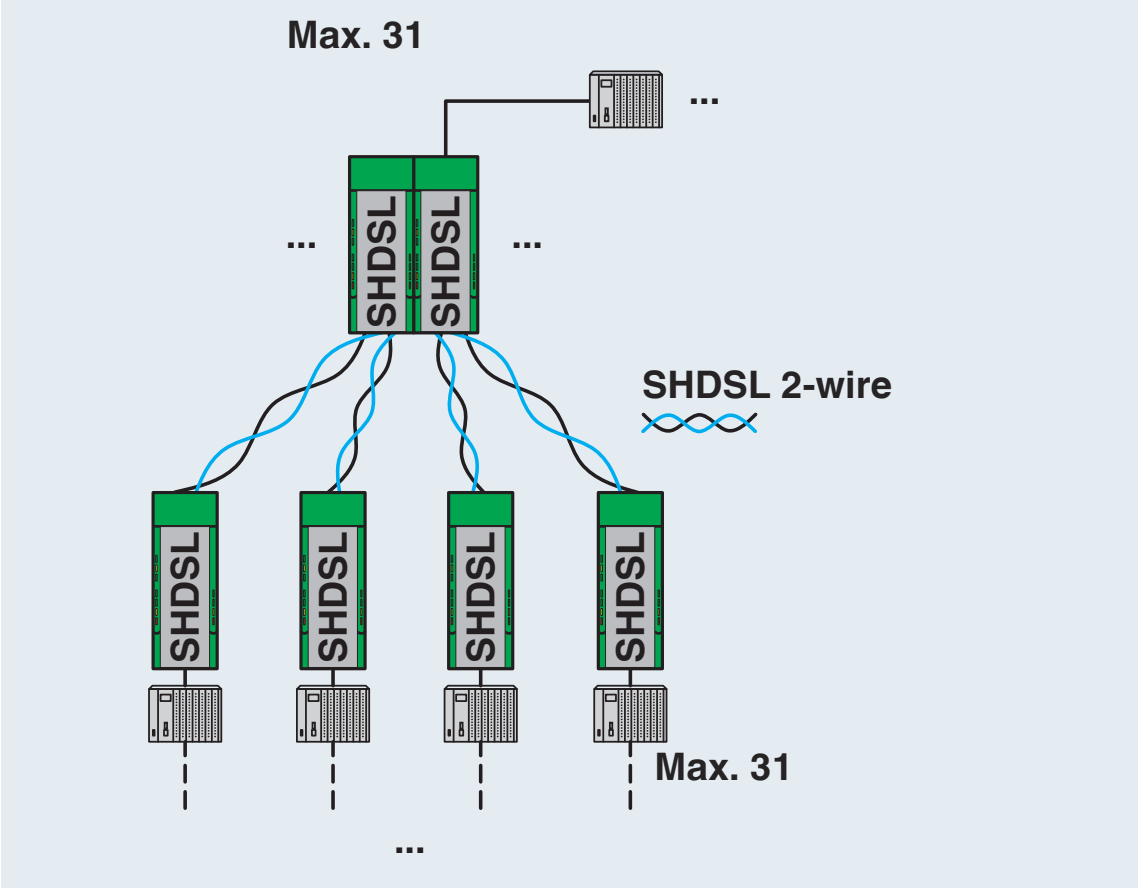

SHDSL subsection in fiber optic ring not supported

Application drawing



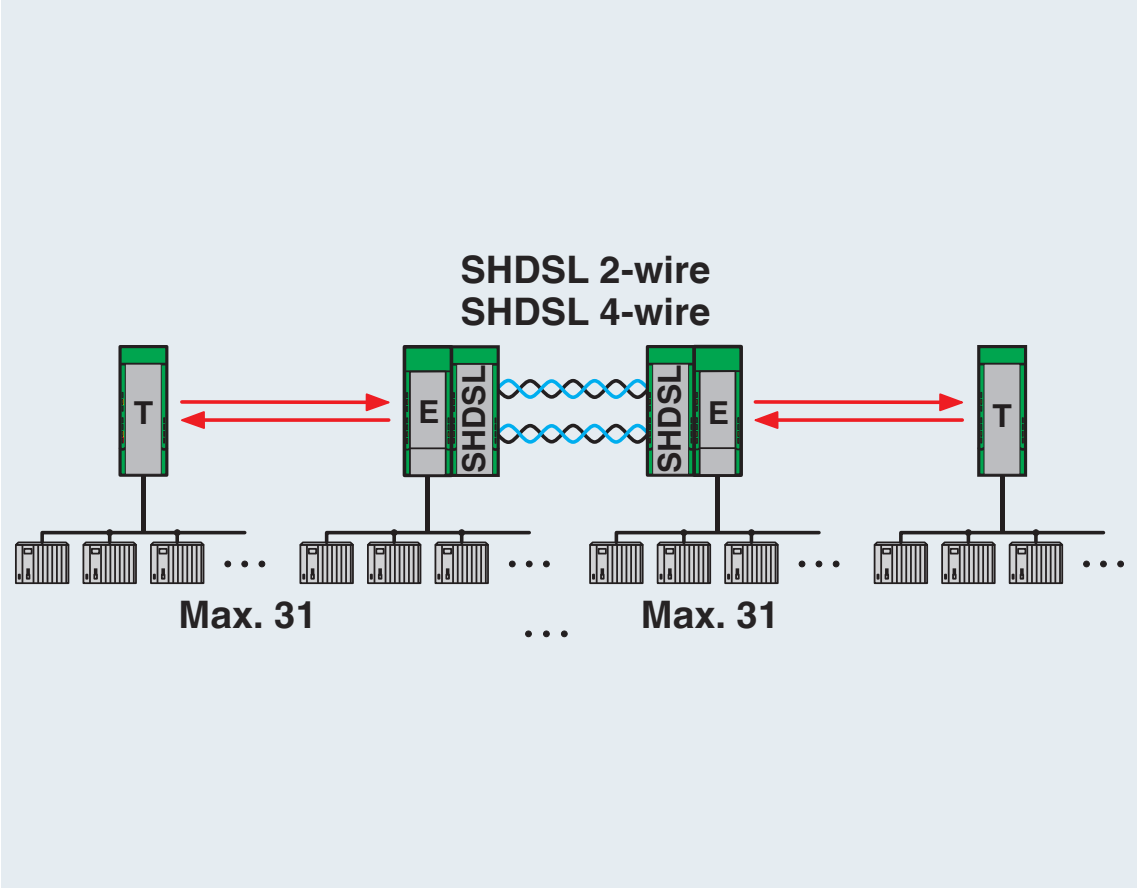

Star structure: mixed operation with repeaters and FO converters

Application drawing



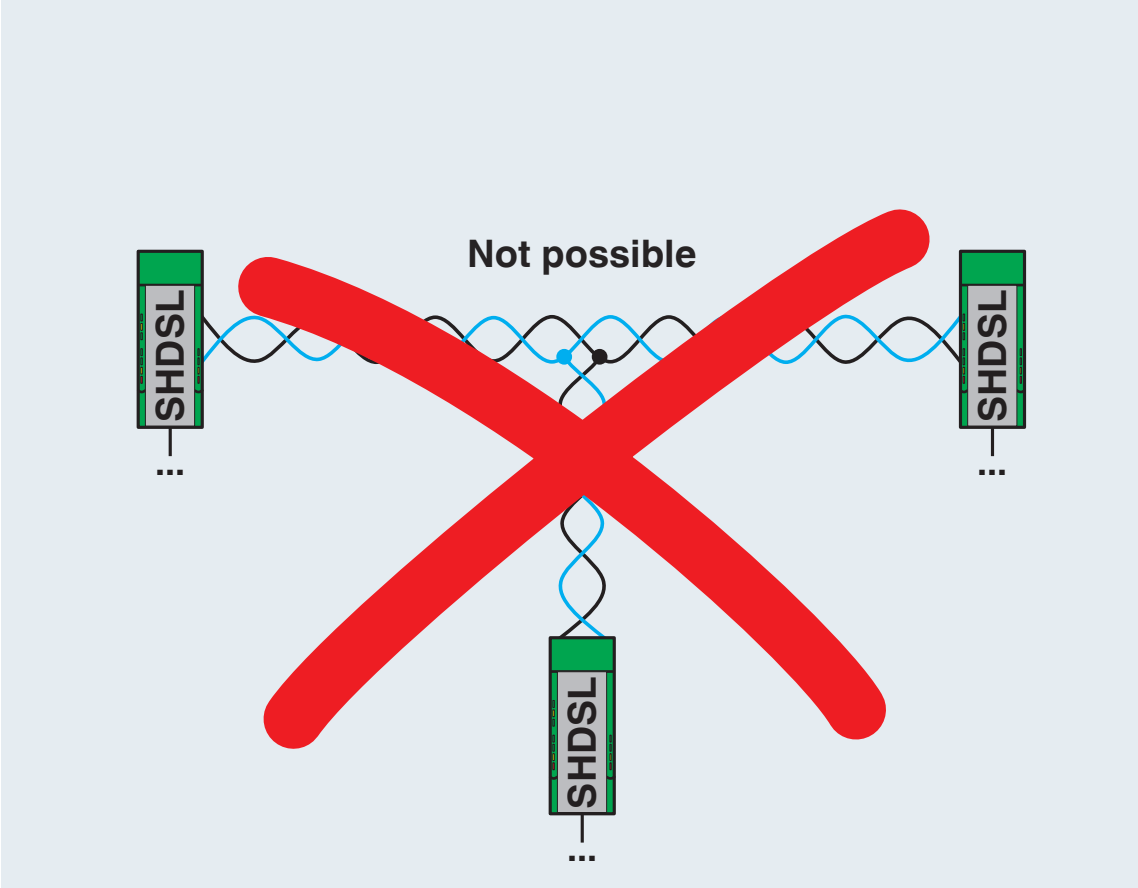

Star structure via DIN rail connector

Application drawing




Linear structure: mixed operation with repeaters and FO converters

Application drawing




Multipoint communication via SHDSL not supported

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-13.0 | 19170407 |

### ETIM

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|---|---|
| ETIM 9.0 | EC000309 |

### UNSPSC

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

## Environmental product compliance

EU RoHS

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|---|---|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 6(c), 7(a), 7(c)-I |

China RoHS

| | |
|---|---|
| Environment friendly use period (EFUP) | EFUP-50 |
| | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

EU REACH SVHC

| | |
|---|---|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1) |
| SCIP | b8de402e-f56a-4ea7-8bc6-c6da0b24c92e |

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