

## Modem - PSI-MODEM-SHDSL/PB - 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.

### Product Features

- 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
- For in-house cables
- Linear structure up to 500 kbps
- Point-to-point connection up to 1.5 Mbps



### Key Commercial Data

Packing unit	1 pc
Weight per Piece (excluding packing)	340.0 g
Custom tariff number	85176200
Country of origin	Germany

### Technical data

#### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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#### Dimensions

Width	35 mm
Height	99 mm
Depth	114.5 mm

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## Technical data

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C (for derating, see technical documentation)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	10 % ... 95 % (non-condensing)
Altitude	5000 m (For restrictions see manufacturer's declaration)
Degree of protection	IP20

### General

Electrical isolation	DIN EN 50178 (VCC // PROFIBUS // DSL (A) // DSL (B) // FE)
Test voltage data interface/power supply	1.5 kV <sub>rms</sub> (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC (valid until 19.04.2016) / 2014/30/EU (valid from 20.04.2016)
Net weight	282.3 g
Housing material	PA 6.6-FR
Color	green
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))
MTTF	800 Years (SN 29500 standard, temperature 25°C, operating cycle 21 % (5 days a week, 8 hours a day))
	346 Years (SN 29500 standard, temperature 40 °C, operating cycle 34.25 % (5 days a week, 12 hours a day))
	140 Years (SN 29500 standard, temperature 40°C, operating cycle 100 % (7 days a week, 24 hours a day))
Conformance	CE-compliant
ATEX	# II 3 G Ex nA IIC T4 Gc X (Please follow the special installation instructions in the documentation!)
UL, USA / Canada	cULus listed UL 508

### Power supply

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)
Supply voltage range	18 V DC ... 30 V DC
Typical current consumption	< 180 mA (24 V DC)
Connection method	COMBICON plug-in screw terminal block

### Serial interface

Interface 1	PROFIBUS acc. to IEC 61158, RS-485 2-wire, half duplex, automatic control
Operating mode	Semi-duplex

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## Technical data

### Serial interface

Connection method	D-SUB-9 female connector
File format/coding	UART (11 Bit, NRZ)
Data direction switching	Automatic control
Transmission length	max. 1200 m (depending on the data rate, with shielded, twisted pair data cable)
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	13
Serial transmission speed	9.6/19.2/45.45/93.75/187.5/500/1500 kbps, set via configuration software
Interface 2	SHDSL interface according to ITU-T G.991.2.bis
Connection method	2 x 2-pos. COMBICON plug-in screw terminal blocks
Transmission length	up to 20 km (Depending on data rate and cable cross section)
Serial transmission speed	4-wire operation: 64 kbps ... 30 Mbps
	2-wire operation: 32 kbps ... 15.3 Mbps
Interface 3	USB 2.0
Connection method	Mini-USB type B, 5-pos.
Transmission length	< 5 m (only for configuration and diagnostics)

### 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) 2 x LINK / 2 x STAT (DSL data traffic port A and port B), DIAG (diagnostic messages)

### Digital outputs

Output name	Digital output
Number of outputs	2
Voltage output signal	depending on the operating voltage
Current output signal	≤ 150 mA (Short-circuit-proof)
Behavior of the outputs	Deactivated for device supply via T-BUS

### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC (valid until 19.04.2016) / 2014/30/EU (valid from 20.04.2016)
Shock	15g in all directions in acc. with IEC 60068-2-27
Vibration (operation)	In acc. with IEC 60068-2-6: 5g, 150 Hz

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## Technical data

### Standards and Regulations

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## Classifications

### eCl@ss

eCl@ss 4.0	27240490
eCl@ss 4.1	27240490
eCl@ss 5.0	27242208
eCl@ss 5.1	27242208
eCl@ss 6.0	27242208
eCl@ss 7.0	27242208
eCl@ss 8.0	19060590
eCl@ss 9.0	19060590

### ETIM

ETIM 2.0	EC000310
ETIM 3.0	EC000740
ETIM 4.0	EC000740
ETIM 5.0	EC000740

### UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	43201553

## Approvals

### Approvals

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#### Approvals

UL Listed / cUL Listed / EAC / cULus Listed

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# Modem - PSI-MODEM-SHDSL/PB - 2313656

## Approvals

Ex Approvals

ATEX / ATEX

Approvals submitted

## Approval details

UL Listed

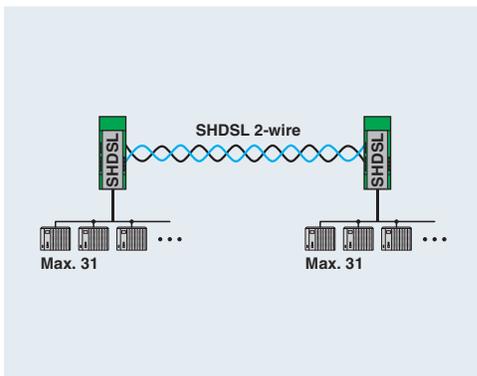
cUL Listed

EAC

cULus Listed

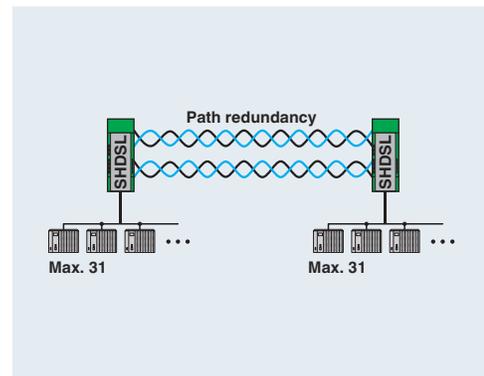
## Drawings

Application drawing



Point-to-point connection (2-wire)

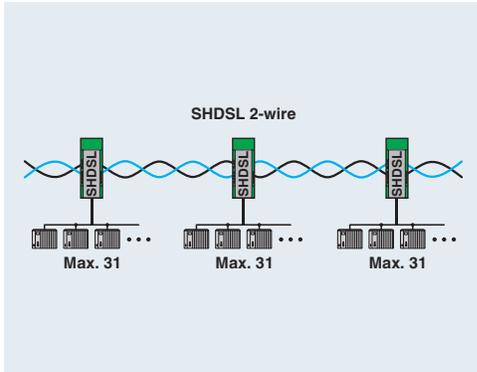
Application drawing



Point-to-point connection (4-wire)

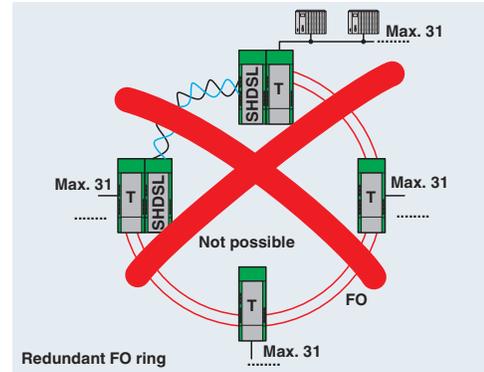
# Modem - PSI-MODEM-SHDSL/PB - 2313656

Application drawing



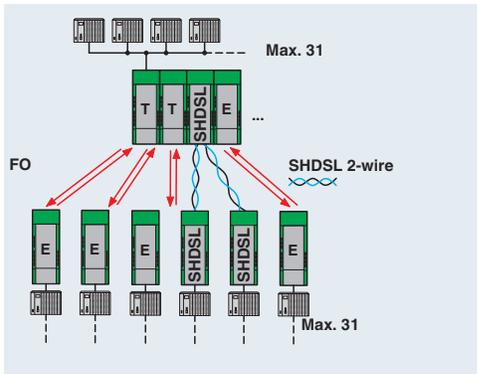
Linear structure (2-wire)

Application drawing



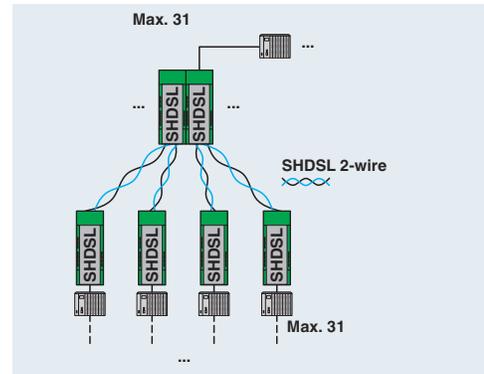
SHDSL subsection in fiber optic ring not supported

Application drawing



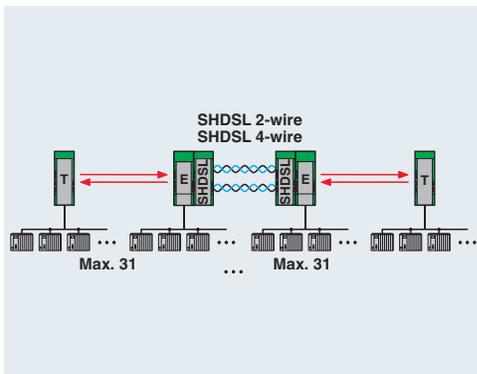
Star structure: mixed operation with repeaters and FO converters

Application drawing



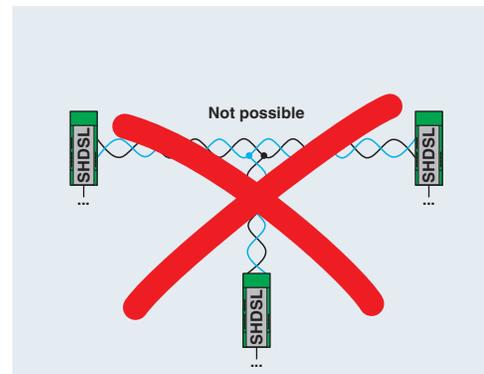
Star structure via DIN rail connector

Application drawing



Linear structure: mixed operation with repeaters and FO converters

Application drawing



Multipoint communication via SHDSL not supported

