

## Modem - PSI-MODEM-SHDSL/SERIAL - 2313669

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Industrial SHDSL extender for serial RS-232/422/485 interfaces, point-to-point and line structures, serial data transmission up to 2000 kbps on in-house cables, diagnostics via USB and LEDs, two configurable alarm outputs

### Why buy this product

- ✓ Distances up to 20 km
- ✓ RS-232, up to 230.4 kbps
- ✓ RS-422, up to 2000 kbps
- ✓ RS-485, up to 2000 kbps
- ✓ Robust modulation method (SHDSL)
- ✓ Two digital outputs for alerting external controllers
- ✓ Easy configuration
- ✓ For in-house cables



### Key Commercial Data

Packing unit	1 STK
GTIN	 4 046356 509220
GTIN	4046356509220
Weight per Piece (excluding packing)	360.000 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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## Technical data

### Dimensions

Width	35 mm
Height	99 mm
Depth	114.5 mm

### 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
Noise immunity	EN 61000-6-2

### General

Electrical isolation	DIN EN 50178 (VCC, RS-232 // RS-422, RS-485 // 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 2014/30/EU
Noise emission	EN 55011
Net weight	339.4 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	693 Years (SN 29500 standard, temperature 25°C, operating cycle 21 % (5 days a week, 8 hours a day))
	301 Years (SN 29500 standard, temperature 40 °C, operating cycle 34.25 % (5 days a week, 12 hours a day))
	121 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 nC 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

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## Technical data

### Power supply

Typical current consumption	< 180 mA (24 V DC)
Connection method	COMBICON plug-in screw terminal block

### Serial interface

Interface 1	V.24 (RS-232) interface in acc. with ITU-T V.28, EIA/TIA-232, DIN 66259-1
Interface	RS-232
Connection method	D-SUB 9 plug
Transmission length	max. 15 m
Termination resistor	390 Ω - 180 Ω - 390 Ω (can be connected)
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
Data flow control/protocols	Software handshake, Xon/Xoff, hardware handshake (RTS/CTS), 3964R-compatible, Modbus (RTU/ASCII), transparent protocol - additional protocols supported
Serial transmission speed	0.11/0.3/1.2/2.4/4.8/9.6/19.2/38.4/57.6/115.2/230.4 kbps, NRZ
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)
Interface 4	RS-422 interface in acc. with ITU-T V.11, EIA/TIA-422, DIN 66348-1
Interface	RS-422
Connection method	Plug-in/screw connection via COMBICON
File format/coding	Serial asynchronous UART/NRZ, 7/8 data bits, 1/2 stop bits, 1 parity bit (even, odd, mark, space, none), 9/10/11-bit character length
Transmission length	≤ 1200 m
Termination resistor	390 Ω - 180 Ω - 390 Ω (can be connected)
Data flow control/protocols	Automatic control // Modbus RTU/ASCII
Serial transmission speed	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
Interface 5	RS-485 interface, in acc. with EIA/TIA-485, DIN 66259-4/RS-485 2-wire
Interface	RS-485

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## Technical data

### Serial interface

Connection method	Plug-in/screw connection via COMBICON
File format/coding	Serial asynchronous UART/NRZ, 7/8 data, 1/2 stop, 1 parity, 10/11-bit character length
Transmission length	up to 1200 m
Termination resistor	390 Ω - 180 Ω - 390 Ω (can be connected)
Protocols supported	Transparent, including 3964R protocol
Data flow control/protocols	Automatic control // Modbus RTU/ASCII
Serial transmission speed	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

### Function

Management	User-friendly software: Guided configuration, plausibility checks, diagnostic functions, log book
Status and diagnostic indicators	LEDs: VCC (supply voltage), RD/TD (serial data traffic), ERR (errors), TERM (termination resistor active), RS-232 (RS-232 active) 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 DIN rail connector

### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Shock	15g in all directions in acc. with IEC 60068-2-27
Noise emission	EN 55011
Noise immunity	EN 61000-6-2
Vibration (operation)	In acc. with IEC 60068-2-6: 5g, 150 Hz
Conformance	CE-compliant
ATEX	# II 3 G Ex nA nC IIC T4 Gc X
UL, USA/Canada	cULus listed UL 508

### Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

# Modem - PSI-MODEM-SHDSL/SERIAL - 2313669

## Approvals

### Approvals

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#### Approvals

UL Listed / cUL Listed / EAC / ATEX / cULus Listed

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#### Ex Approvals

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### Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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EAC			RU *- DE.A*30.B.01735
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ATEX			PxCIF11ATEX2313643X
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