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

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Industrial SHDSL SERIAL permanent line modem for V.24 (RS-232)/RS-422/RS-485 point-to-point and linear structures. Serial data transmission of up to 2000 kbps on the plant's own cables, integrated diagnostic function, two configurable alarm outputs.

## Product Features

- ☑ 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 pc |
|---|---|
| Weight per Piece (excluding packing) | 360.0 GRM |
| 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 |
|---|---|

### Dimensions

| Width | 35 mm |
|---|---|
| Height | 99 mm |

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## Technical data

### Dimensions

| 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-422, RS-485 // DSL Port A // DSL Port B // FE) |
|---|---|
| Test voltage data interface/power supply | 1.5 kV$_{rms}$ (50 Hz, 1 min.) |
| Electromagnetic compatibility | Conformance with EMC Directive 2004/108/EC |
| Noise emission | EN 55011 |
| Net weight | 205 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 |
| Typical current consumption | < 180 mA (24 V DC) |
| Connection method | COMBICON plug-in screw terminal block |

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

## Technical data

### Serial interface

| Interface 1 | V.24 (RS-232) interface in acc. with ITU-T V.28, EIA/TIA-232, DIN 66259-1 |
|---|---|
| Interface | V.24 (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 mm² |
| Conductor cross section solid max. | 2.5 mm² |
| Conductor cross section stranded min. | 0.2 mm² |
| Conductor cross section stranded max. | 2.5 mm² |
| Conductor cross section AWG/kcmil min. | 24 |
| Conductor cross section AWG/kcmil 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 | max. 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 |
| 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 |

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

## Technical data

### Serial interface

| | |
|---|---|
| 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)<br>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 |

## 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 | 19060501 |

### ETIM

| | |
|---|---|
| ETIM 2.0 | EC000310 |
| ETIM 3.0 | EC000740 |
| ETIM 4.0 | EC000740 |
| ETIM 5.0 | EC000740 |

### UNSPSC

| | |
|---|---|
| UNSPSC 6.01 | 30211506 |

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## Classifications

### UNSPSC

| UNSPSC 7.0901 | 39121008 |
|---------------|----------|
| UNSPSC 11 | 39121008 |
| UNSPSC 12.01 | 39121008 |
| UNSPSC 13.2 | 43201553 |

## Approvals

### Approvals

Approvals

UL Listed / cUL Listed / UL Listed / cUL Listed / cULus Listed

Ex Approvals

ATEX / ATEX

Approvals submitted

### Approval details
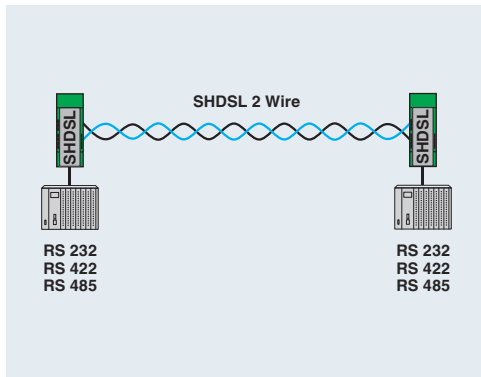
UL Listed

cUL Listed

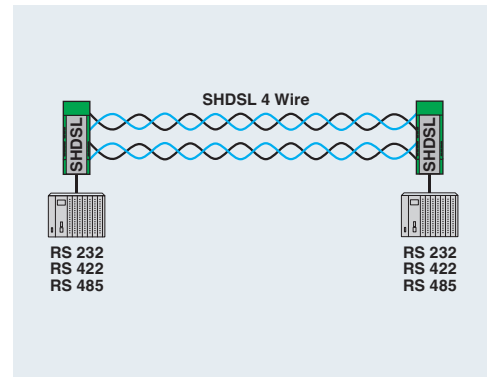UL Listed

cUL Listed

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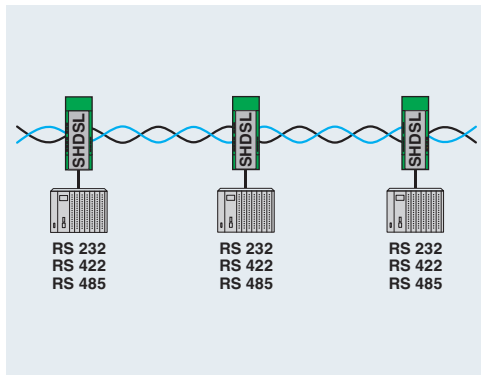
## Approvals

cULus Listed

## Drawings

Application drawing

SHDSL 2 Wire

RS 232
RS 422
RS 485

RS 232
RS 422
RS 485

Point-to-point connection (2-wire)

Application drawing

SHDSL 4 Wire

RS 232
RS 422
RS 485

RS 232
RS 422
RS 485

Point-to-point connection (4-wire)

Application drawing

RS 232
RS 422
RS 485

RS 232
RS 422
RS 485

RS 232
RS 422
RS 485

Linear structure (2-wire)

Application drawing

RS 232

RS 232
RS 422
RS 485

RS 232
RS 422
RS 485
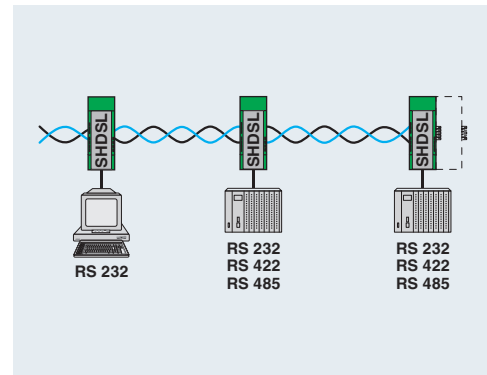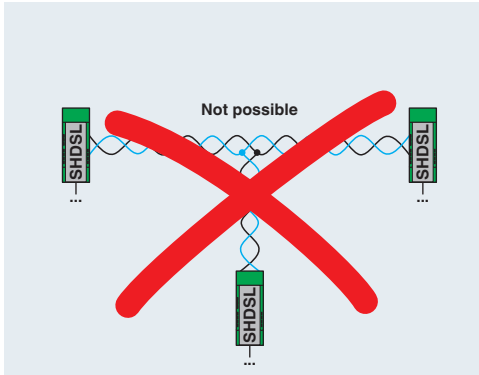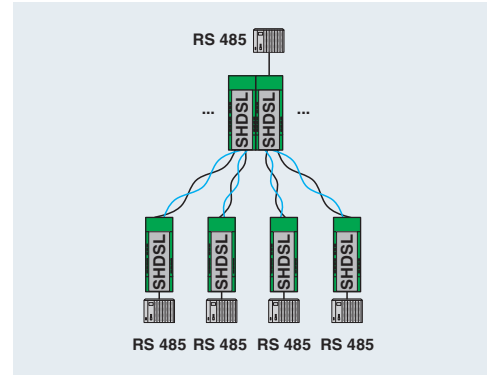
Linear structure (2-wire)

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Application drawing



Multipoint communication via SHDSL not supported

Application drawing



Star structure via DIN rail connector