

TC EXTENDER 2001 ETH-2S - Ethernet extender



2702409

<https://www.phoenixcontact.com/us/products/2702409>

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



Second generation: Unmanaged Ethernet extender for point-to-point connections, line and ring structures, data rates up to 30 Mbps, distances of up to 20 km on in-house copper cables, diagnostics via USB and LEDs, 2 SHDSL ports, 1 LAN port

Product description

The Ethernet extender makes broadband Ethernet applications on existing cables possible. It is the successor to the first generation PSI MODEM SHDSL/ETH, Item No. 2313643. The Ethernet extender can be used for in-house 2 and 4-wire cables, but not in the public telephone network. Point-to-point, line or ring structures can be established, with ranges of up to 20 km. You can use the Ethernet extender in a network with first generation devices (PSI-MODEM-SHDSL/ETH from firmware version 4.xx). The Ethernet extender can also be combined with managed Ethernet extenders: TC EXTENDER 6004 ETH-2S, Item No. 2702255 and TC EXTENDER 4001 ETH-1S, Item No. 2702253. This enables the central diagnosis of all users and lines via IP.

Your advantages

- Distances up to 20 km
- Up to 15.3 Mbps in 2-wire operation
- Up to 30 Mbps in 4-wire operation
- Robust modulation method (SHDSL)
- Automatic SHDSL data rate detection
- Transparent transmission of all standard Ethernet protocols, including EtherNet/IP™, Modbus/TCP, PROFINET, PROFI-safe, EtherCAT®, KNX, BACnet/IP
- Network transparent (no IP configuration required)
- Automatic detection of network cable type (auto MDI(X))
- Automatic network data rate detection (10/100 Mbps)
- Easy startup, plug and play
- Future proof (IPv4 and IPv6-compatible)
- 2 digital outputs for alerting external controllers



TC EXTENDER 2001 ETH-2S - Ethernet extender



2702409

<https://www.phoenixcontact.com/us/products/2702409>

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2702409 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN24 |
| Product key | DNC442 |
| GTIN | 4055626162560 |
| Weight per piece (including packing) | 267.6 g |
| Weight per piece (excluding packing) | 258.7 g |
| Customs tariff number | 85176200 |
| Country of origin | DE |

Technical data

Notes

Note on application

| | |
|---------------------|-------------------------|
| Note on application | Only for industrial use |
|---------------------|-------------------------|

Utilization restriction

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

Product properties

| | |
|--------------|---|
| Product type | Ethernet extender |
| MTTF | 711 Years (SN 29500 standard, temperature 25°C, operating cycle 21%) |
| | 308 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%) |
| | 125 Years (SN 29500 standard, temperature 40°C, operating cycle 100%) |

Functions

| | |
|----------------------|---|
| Diagnostic functions | Topological overview, event and path diagnostics |
| | Logbook |
| Basic functions | Ethernet extenders in accordance with ITU-T G.991.2 |
| Filter functions | VLAN |
| Management | Plug and Play, diagnostics via PSI-CONF software or web-based management (only with managed Ethernet extenders) |
| Redundancy | Proprietary SHDSL redundancy protocol (Managed and unmanaged Ethernet extenders) |

Security functions

| | |
|-----------------|---|
| Basic functions | Ethernet extenders in accordance with ITU-T G.991.2 |
|-----------------|---|

System properties

Functionality

| | |
|-----------------|---|
| Basic functions | Ethernet extenders in accordance with ITU-T G.991.2 |
|-----------------|---|

Electrical properties

| | |
|---|--|
| Electrical isolation | VCC // Ethernet // 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 AC (50 Hz, 1 min.) |

Supply

| | |
|------------------------|---|
| Supply voltage range | 18 V DC ... 30 V DC |
| Nominal supply voltage | 24 V DC $\pm 5\%$ (as an alternative or redundant, via backplane bus contact and system current supply) |

TC EXTENDER 2001 ETH-2S - Ethernet extender



2702409

<https://www.phoenixcontact.com/us/products/2702409>

| | |
|-----------------------------|--|
| | 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

| | |
|----------------------------------|---|
| Status and diagnostic indicators | LEDs: US (supply voltage), ACT/LINK (Ethernet data traffic), ERR (errors) 2x LINK / 2x 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) |
| Behavior of outputs | Deactivated for device supply via DIN rail connector |

Connection data

Supply

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

Interfaces

| | |
|-----------------|---|
| Signal | Ethernet |
| Basic functions | Ethernet extenders in accordance with ITU-T G.991.2 |

Data: Ethernet interface, 10/100Base-T(X) in accordance with IEEE 802.3

| | |
|---------------------------|---|
| Serial transmission speed | 10/100 Mbps, auto negotiation |
| Connection method | RJ45 jack, shielded 1 port 10/100Base-T(X), auto negotiation |
| No. of channels | 1 |
| Transmission length | < 100 m (shielded twisted pair) |
| Protocols supported | Protocol-transparent for TCP/IP, IPv4, and IPv6 |

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 |
| No. of channels | 2 (2-wire operation) |
| 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 mm ² ... 2.5 mm ² |
| Single-wire/terminal point, flexible | 0.2 mm ² ... 2.5 mm ² |
| Max. AWG conductor cross-section, flexible | 14 |

TC EXTENDER 2001 ETH-2S - Ethernet extender



2702409

<https://www.phoenixcontact.com/us/products/2702409>

| | |
|--|------|
| 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

| | |
|--------------------|-----------------|
| Color (Housing) | gray (RAL 7042) |
| Material (Housing) | PA 6.6-FR |

Mechanical tests

| | |
|--|---|
| Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6 | Operation: 5g, 10...150 Hz, 2.5 h, in XYZ direction |
| Shock in accordance with EN 60068-2-27/IEC 60068-2-27 | Operation: 15g |

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 |
|-------------|--------------|

ATEX

| | |
|----------------|--------------------------|
| Identification | ⊕ II 3 G Ex ec IIC T4 Gc |
| Certificate | PxCIF11ATEX2313643X |

TC EXTENDER 2001 ETH-2S - Ethernet extender



2702409

<https://www.phoenixcontact.com/us/products/2702409>

| | |
|------|---|
| Note | Please follow the special installation instructions in the documentation! |
|------|---|

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 |
|-------------------------------|---|

Electrostatic discharge

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-2 |
|-----------------------|--------------|

Electrostatic discharge

| | |
|--------------------|-------------|
| Contact discharge | ± 6 kV |
| Discharge in air | ± 8 kV |
| Indirect discharge | ± 6 kV |
| Comments | Criterion B |

Electromagnetic HF field

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-3 |
|-----------------------|--------------|

Electromagnetic HF field

| | |
|-----------------|------------------|
| Frequency range | 80 MHz ... 3 GHz |
| Field intensity | 10 V/m |
| Comments | Criterion A |

Fast transients (burst)

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-4 |
|-----------------------|--------------|

Fast transients (burst)

| | |
|----------|-------------|
| Input | ± 2 kV |
| Signal | ± 2 kV |
| Comments | Criterion B |

Surge current load (surge)

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-5 |
|-----------------------|--------------|

Surge current load (surge)

| | |
|----------|---|
| Input | ± 0.5 kV (sym./asym.) |
| Output | ± 1 kV (asymmetrical, unshielded) |
| Signal | ± 1 kV (asymmetrical, shielded Ethernet cable) ± 1 kV (asymmetrical: line to ground, unshielded SHDSL cable) |
| Comments | Criterion A |

Conducted interference

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-6 |
|-----------------------|--------------|

TC EXTENDER 2001 ETH-2S - Ethernet extender



2702409

<https://www.phoenixcontact.com/us/products/2702409>

Conducted interference

| | |
|-----------------|---------------------|
| Frequency range | 0.15 MHz ... 80 MHz |
| Comments | Criterion A |
| Voltage | 10 V |

Emitted interference

| | |
|-----------------------|----------------------------------|
| Standards/regulations | EN 55011 |
| Comments | Class A, industrial applications |

Criteria

| | |
|-------------|--|
| Criterion A | Normal operating behavior within the specified limits. |
| Criterion B | Temporary impairment to operational behavior that is corrected by the device itself. |

Standards and regulations

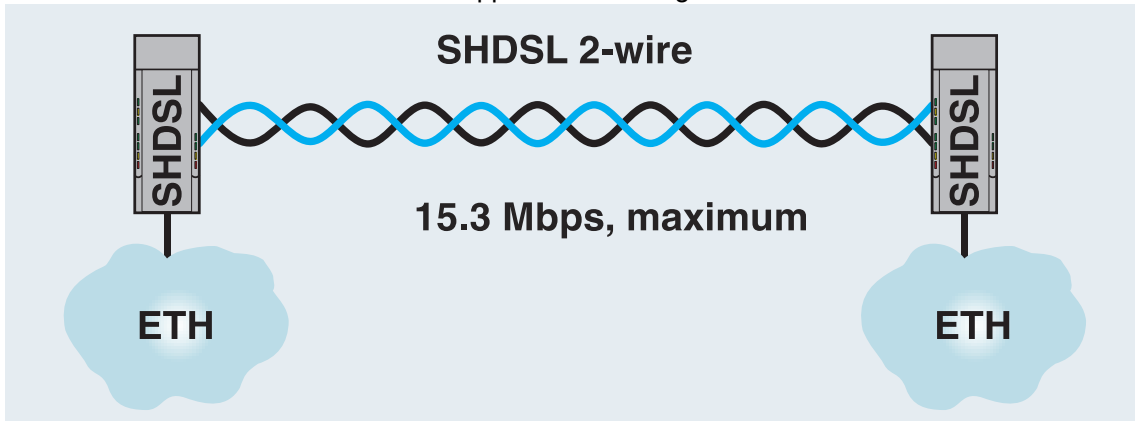
| | |
|-----------------------|----------------------|
| Standards/regulations | EN 50121-4 |
| Standard designation | Railway applications |

Mounting

| | |
|-----------------------|--|
| Mounting type | DIN rail mounting |
| Assembly note | The product can be snapped onto all 35 mm DIN rails in accordance with EN 60715. |
| Useable DIN rail type | DIN rail: 35 mm |

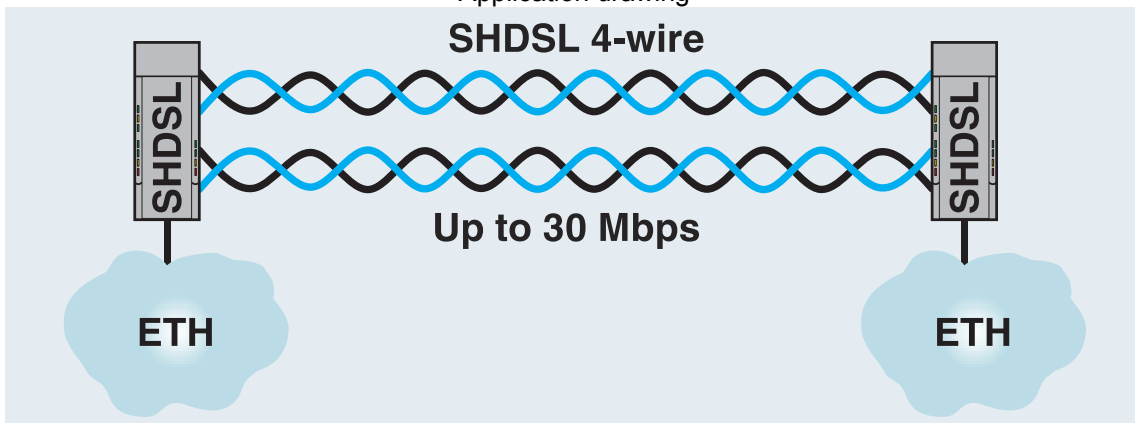
Drawings

Application drawing



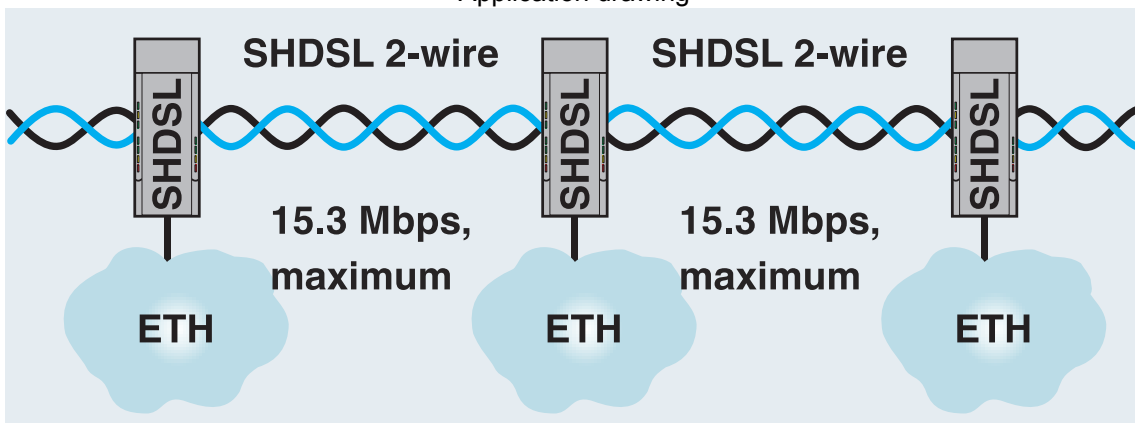
Point-to-point connection (2-wire)

Application drawing



Point-to-point connection (4-wire)

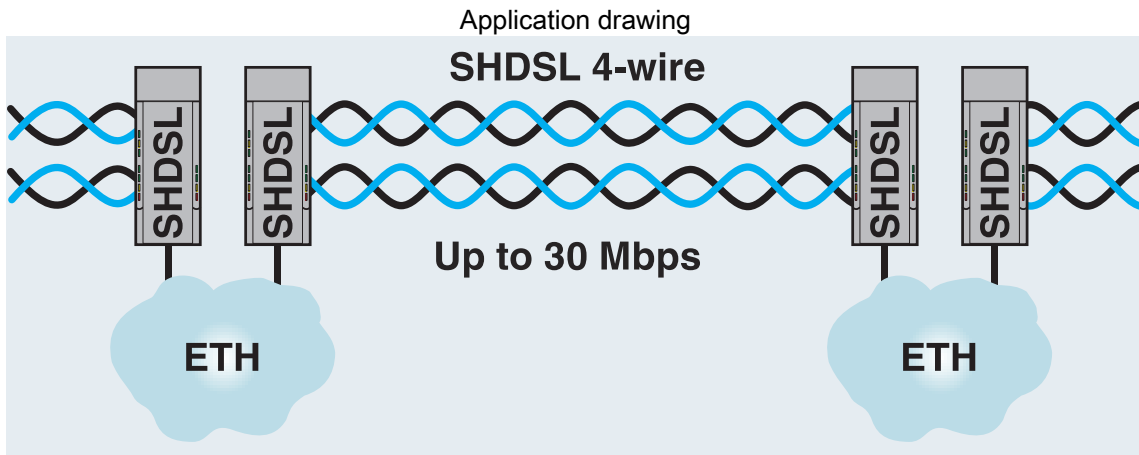
Application drawing



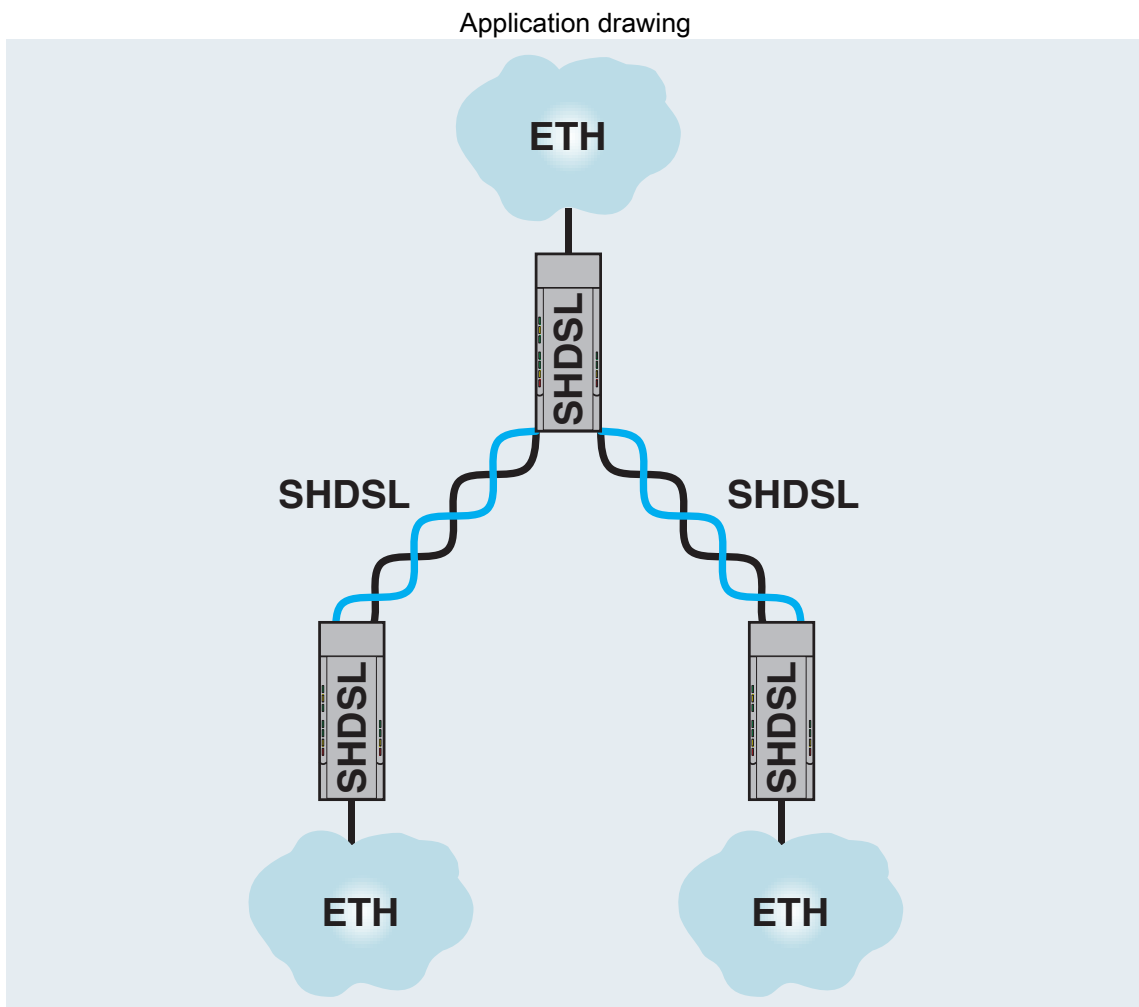
Linear structure (2-wire)

2702409

<https://www.phoenixcontact.com/us/products/2702409>



Linear structure (4-wire)



Star structure

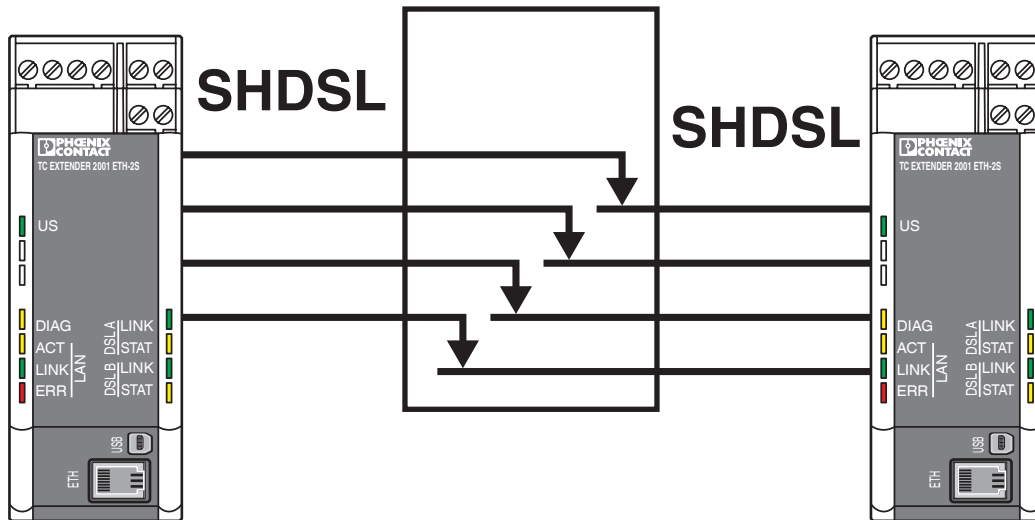
TC EXTENDER 2001 ETH-2S - Ethernet extender



2702409

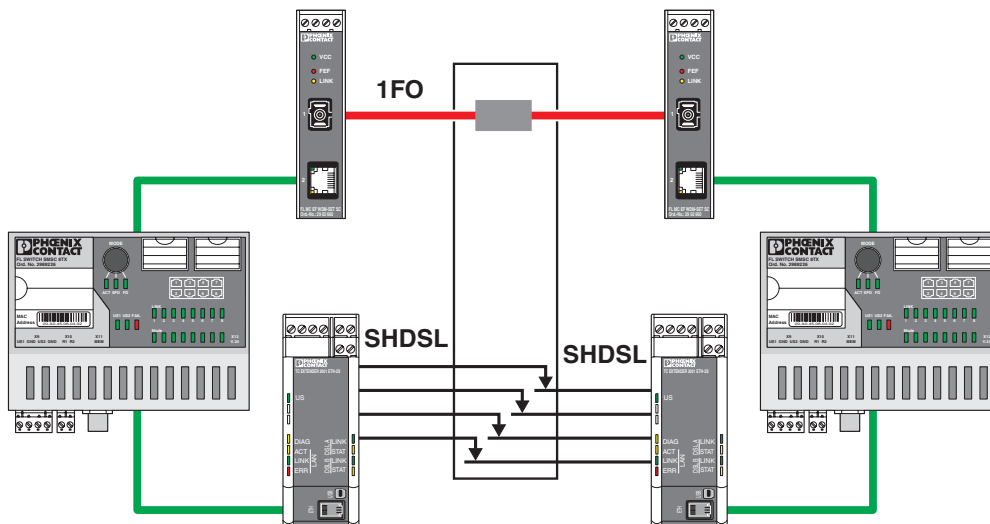
<https://www.phoenixcontact.com/us/products/2702409>

Application drawing



Slip ring communication

Application drawing



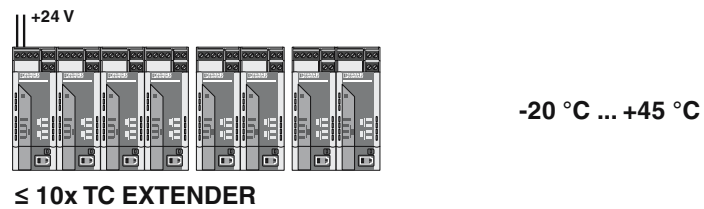
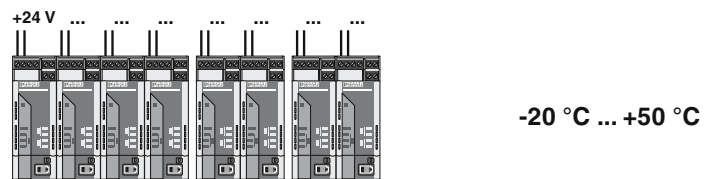
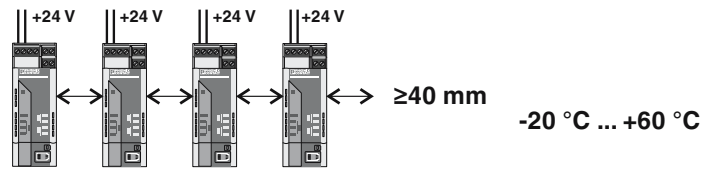
Redundant slip ring communication

TC EXTENDER 2001 ETH-2S - Ethernet extender

2702409

<https://www.phoenixcontact.com/us/products/2702409>

Application drawing



Restrictions for combined assembly

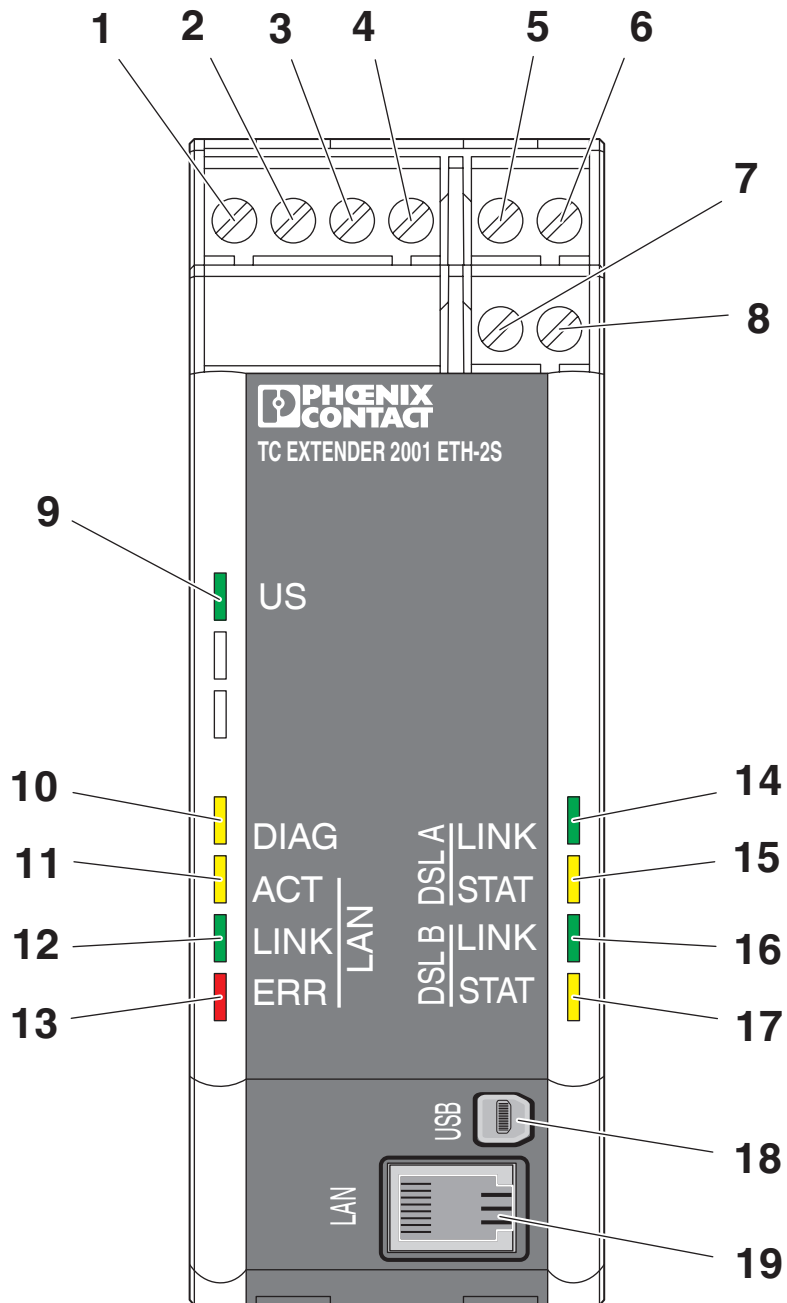
TC EXTENDER 2001 ETH-2S - Ethernet extender



2702409

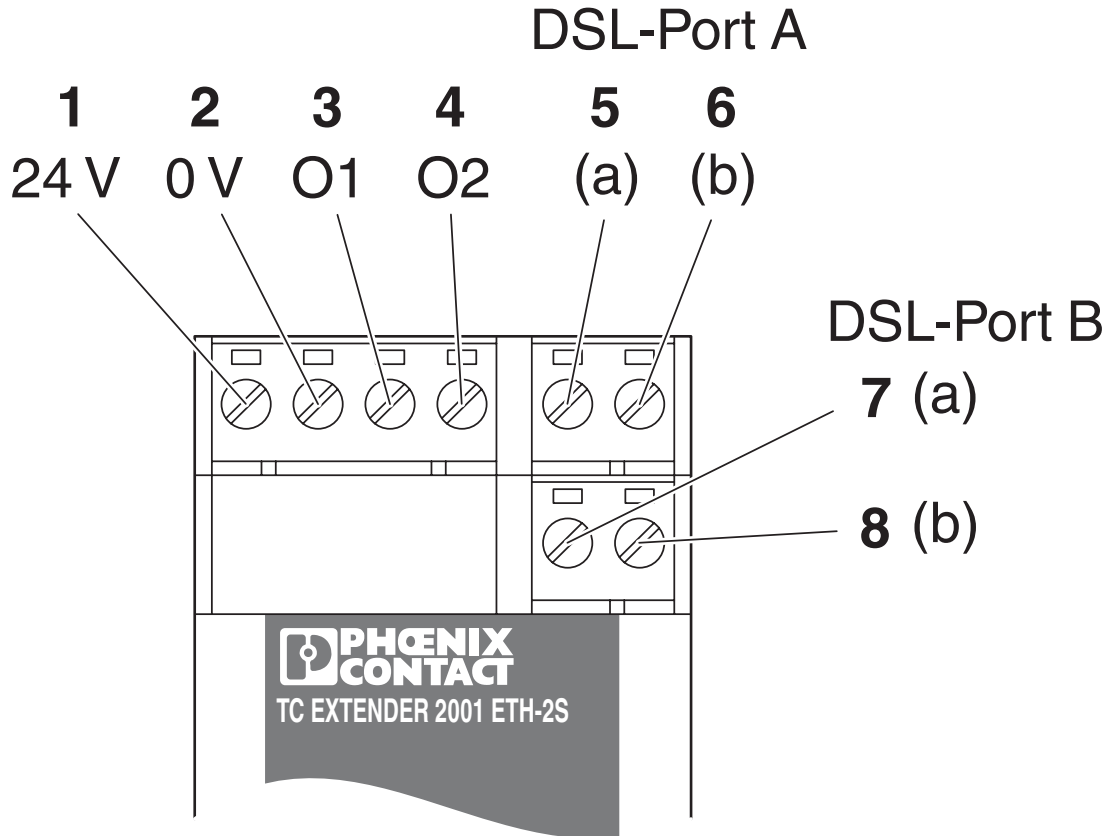
<https://www.phoenixcontact.com/us/products/2702409>

Schematic diagram



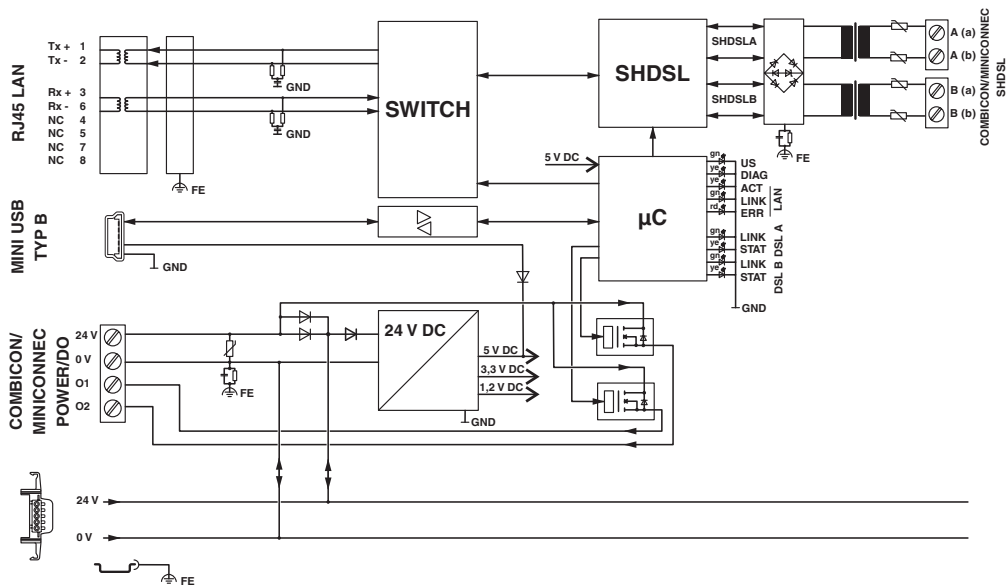
Front view

Schematic diagram



Device connections

Circuit diagram



Basic circuit diagram

TC EXTENDER 2001 ETH-2S - Ethernet extender



2702409

<https://www.phoenixcontact.com/us/products/2702409>

Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2702409>



cULus Listed

Approval ID: E238705

TC EXTENDER 2001 ETH-2S - Ethernet extender



2702409

<https://www.phoenixcontact.com/us/products/2702409>

Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-13.0 | 19170407 |
| ECLASS-15.0 | 19170407 |

ETIM

| | |
|-----------|----------|
| ETIM 10.0 | EC000309 |
|-----------|----------|

UNSPSC

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

TC EXTENDER 2001 ETH-2S - Ethernet extender



2702409

<https://www.phoenixcontact.com/us/products/2702409>

Environmental product compliance

EU RoHS

| | |
|---|--------------|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 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 | dba34674-8cbd-46b5-9b49-69846dee180d |

EF3.1 Climate Change

| | |
|---------|---------------|
| CO2e kg | 15.96 kg CO2e |
|---------|---------------|

Phoenix Contact 2026 © - all rights reserved
<https://www.phoenixcontact.com>

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