

TC EXTENDER 4001 ETH-1S - Ethernet extender



2702253

<https://www.phoenixcontact.com/us/products/2702253>

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Managed Ethernet extender, point-to-point connections, data rates up to 15.3 Mbps, distances of up to 20 km on in-house copper cables, replaceable surge protection, 1 SHDSL port, 1 LAN port, diagnostics via Ethernet

Your advantages

- Distances up to 20 km
- Up to 15.3 Mbps in 2-wire operation
- Robust modulation method (SHDSL)
- Automatic topology and data rate detection
- Transparent transmission of all standard Ethernet protocols, including EtherNet/IP™, Modbus/TCP, PROFINET, PROFIsafe, EtherCAT®, KNX, BACnet/IP
- Network transparent (no IP configuration required)
- Easy startup, plug and play
- Alarm and signal output
- Remote diagnostics via IP and automatic event messages via SNMP
- Integrated surge protection of the SHDSL interface
- Use in point-to-point connections with managed and unmanaged Ethernet extenders
- Virtually separate critical IP networks with VLAN
- Increase availability through RSTP redundancy

Commercial data

Item number	2702253
Packing unit	1 pc
Sales key	DN24
Product key	DNC442
GTIN	4055626055558
Weight per piece (including packing)	751.8 g
Weight per piece (excluding packing)	258.7 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.
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Product properties

Product type	Ethernet extender
MTTF	577 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	300 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	128 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)

Functions

Diagnostic functions	Web-based access to all managed and unmanaged Ethernet extenders of the segment unit
	SNMP traps
	Port mirroring
Basic functions	Ethernet extenders in accordance with ITU-T G.991.2
Filter functions	Extended Multicast Filtering
	VLAN
IP parameterization	Static IP address
	DHCP client
	BootP (Delivery state: alternately BootP / DHCP)
Management	Web-based management (Access to all managed and unmanaged Ethernet extenders of the segment unit, role-based user management)
	SNMPv2/v3
Redundancy	RSTP
	Proprietary SHDSL redundancy protocol (Managed and unmanaged Ethernet extenders)

Security functions

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

Functionality

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

Electrical isolation	VCC // Ethernet // DSL (A/B) // FE
Mains type	Permanent line
Test voltage data interface/power supply	500 V AC (In accordance with EN/IEC 60079-7, observe the limitations in the specific conditions of use.)

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	1.5 kV AC (50 Hz, 1 min.)
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Supply

Supply voltage range	10 V DC ... 60 V DC
Nominal supply voltage	24 V DC \pm 5 %
Typical current consumption	200 mA (24 V DC)
	80 mA (60 V DC)
	380 mA (10 V DC)

Function

Status and diagnostic indicators	LEDs for warning, status, and device information
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Output data

Signal

Output name	Digital output
Number of outputs	1
Voltage output signal	10 V DC ... 60 V DC (24 V DC, depending on the operating voltage)
Current output signal	\leq 500 mA (Short-circuit-proof)

Connection data

Supply

Connection method	Push-in spring connection
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Interfaces

Signal	Ethernet
Web server	yes
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	IPv4, IPv6, TCP/IP, HTTP, HTTPS
Auxiliary protocols	ARP, DHCP (Client), PING, SNMP

Data: SHDSL interface according to ITU-T G.991.2.bis

Serial transmission speed	2-wire operation: 32 kbps ... 15.3 Mbps
Connection method	Push-in spring connection
No. of channels	1 (2-wire operation)
Transmission length	< 20 km (Depending on data rate and cable cross section)
Single conductor/terminal point, rigid	0.2 mm ² ... 1.5 mm ²
Single-wire/terminal point, flexible	0.2 mm ² ... 2.5 mm ²

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Single-wire/terminal point, rigid AWG max.	16
Single-wire/terminal point, rigid AWG min.	24
Stripping length	10 mm

Dimensions

Width	60 mm
Height	130 mm
Depth	160 mm

Material specifications

Material (Housing)	Aluminum
	Sheet steel DC01

Mechanical tests

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

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 2500 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
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ATEX

Identification	Ⓔ II 3 G Ex ec IIC T4 Gc
Certificate	PxCIF16ATEX2702253X
Note	Please follow the special installation instructions in the documentation!

UKEX

Identification	Ⓔ II 3 G Ex ec IIC T4 Gc
Certificate	PxCIMA22UKEX2702253X

UL, USA/Canada

Identification	508 Listed
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Corrosive gas test

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Identification	ISA-S71.04-1985 G3 Harsh Group A
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EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
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Electrostatic discharge

Standards/regulations	EN 61000-4-2
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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
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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
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Fast transients (burst)

Input	± 2 kV
Signal	± 2 kV
Comments	Criterion B

Surge current load (surge)

Standards/regulations	EN 61000-4-5
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Surge current load (surge)

Input	± 0.5 kV (Symmetrical, unshielded supply line)
	± 1 kV (Asymmetrical, unshielded supply line)
Output	± 1 kV (asymmetrical, unshielded)
Signal	± 1 kV (asymmetrical, shielded Ethernet cable)
	± 4 kV (asymmetrical: line to ground, unshielded SHDSL cable)
	± 2 kV (symmetrical: line to line, unshielded SHDSL cable)
Comments	Criterion B

Conducted interference

Standards/regulations	EN 61000-4-6
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Conducted interference

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

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

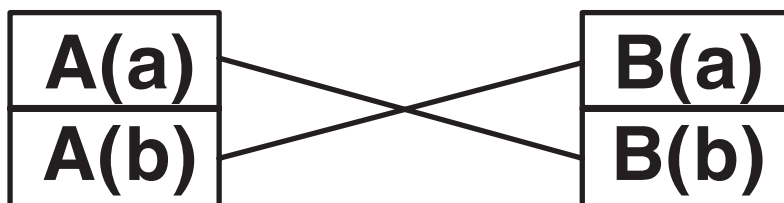
Drawings

Connection diagram

DSL A / Client DSL B / Server

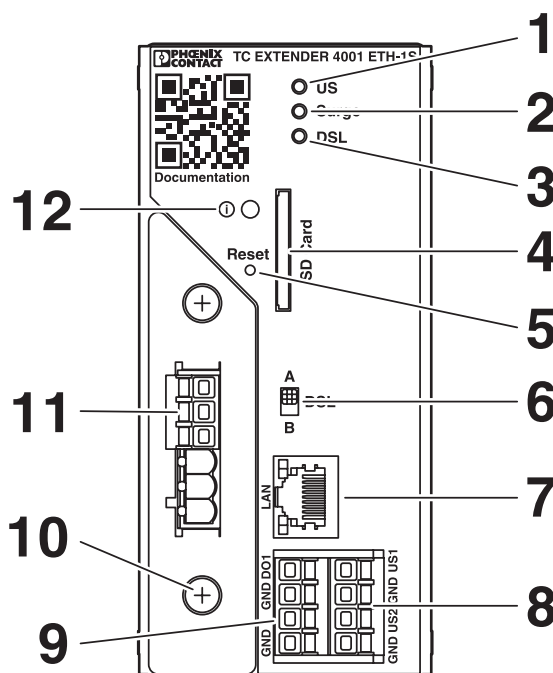


DSL A / Client DSL B / Server



DSL connection

Schematic diagram



Front view

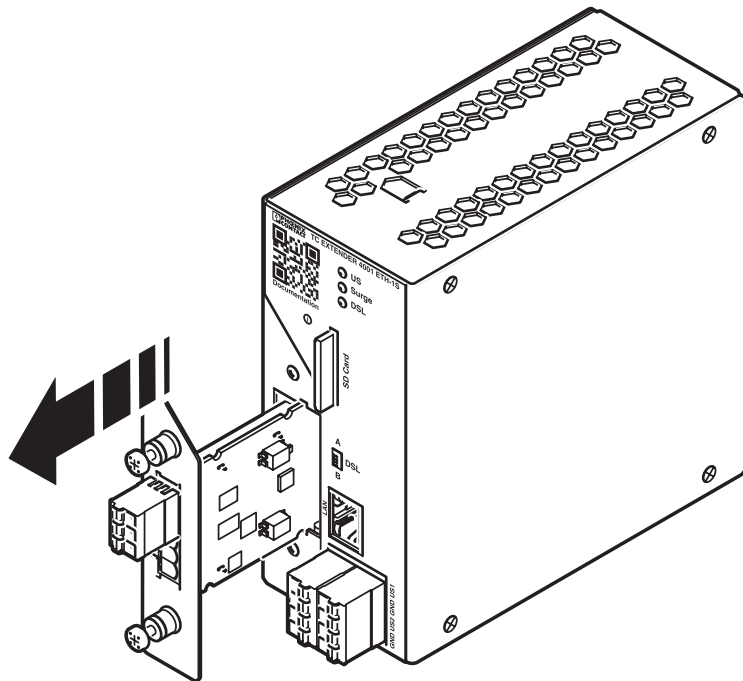
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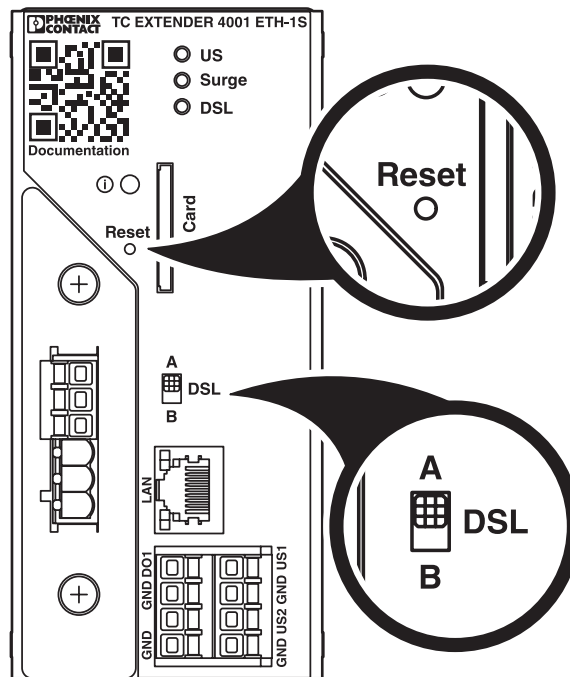
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Schematic diagram



Replacement of protection module

Schematic diagram



Reset button

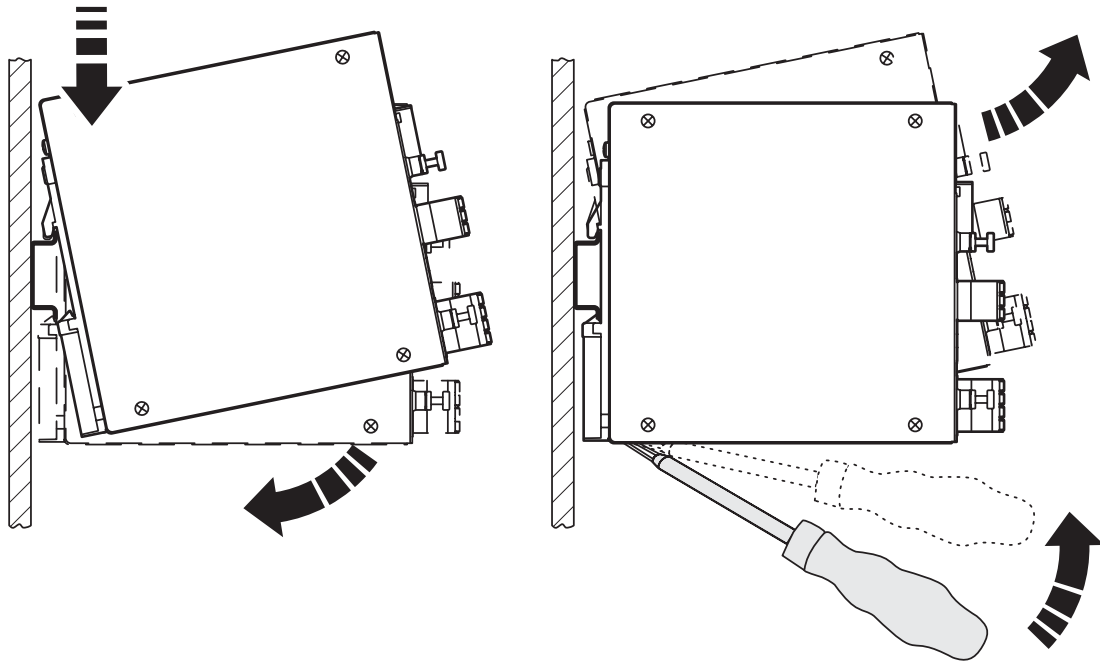
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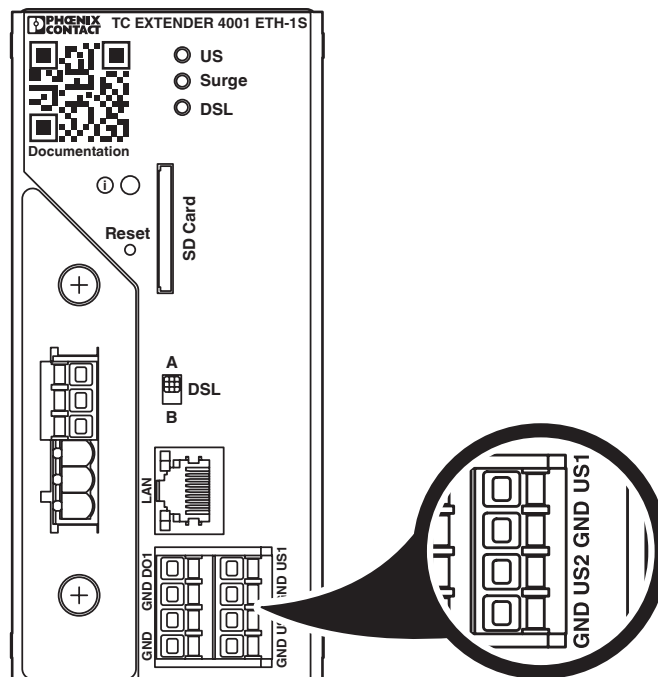
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Schematic diagram



Mounting and removing

Schematic diagram



Power supply

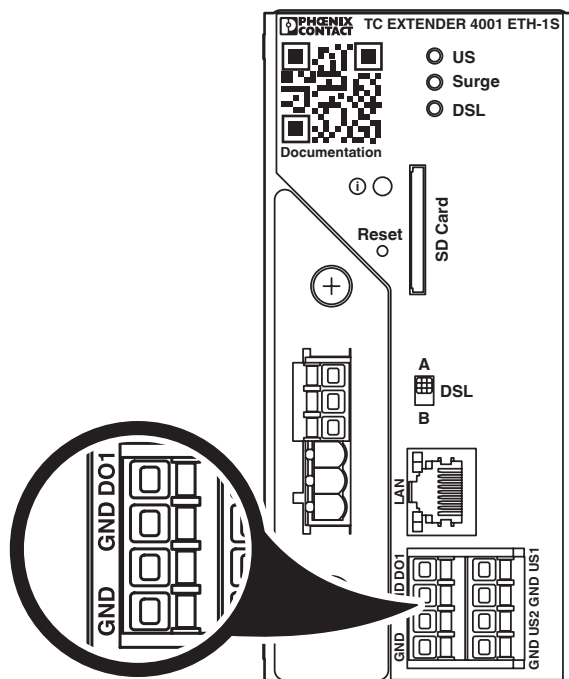
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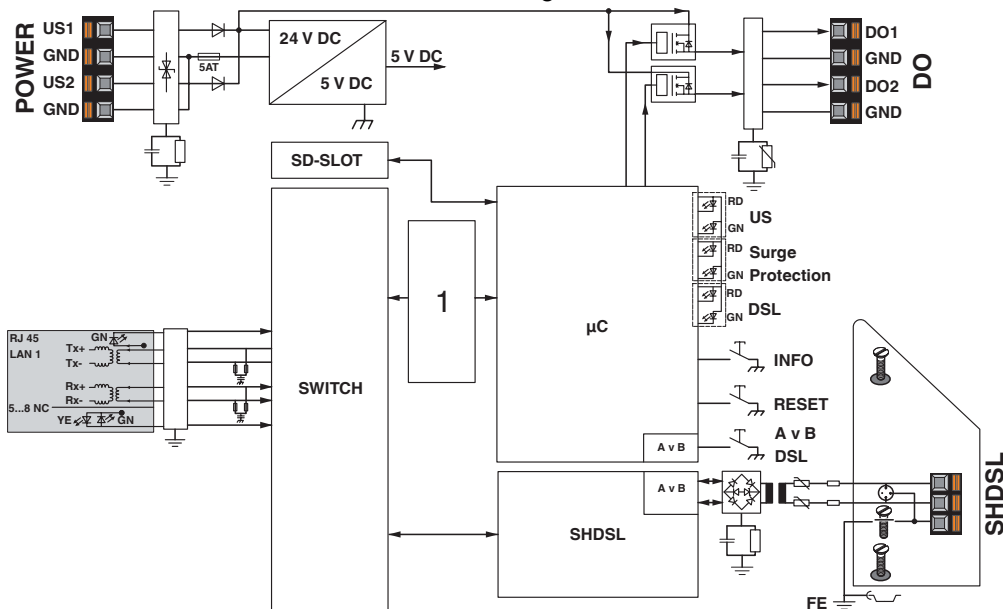
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Schematic diagram



Digital switching output

Circuit diagram



Basic circuit diagram

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Classifications

UNSPSC

UNSPSC 21.0	43223100
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Environmental product compliance

EU RoHS

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

China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

EU REACH SVHC

REACH candidate substance (CAS No.)	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™)(CAS: n/a)
	Lead(CAS: 7439-92-1)
SCIP	456b64d9-73ca-4939-8227-e1136d4ed3b6

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