

# Modem - TC EXTENDER 4001 ETH-1S - 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 SHDSL data rate detection
- Network transparent (no IP configuration required)
- Automatic network data rate detection (10/100 Mbps)
- Easy startup, plug and play
- Alarm and signal output
- Remote diagnostics via IP and automatic event messages via SNMP



## Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4055626055558

## Technical data

### Note

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

Width	60 mm
Height	130 mm
Depth	160 mm

### Ambient conditions

# Modem - TC EXTENDER 4001 ETH-1S - 2702253

## Technical data

### Ambient conditions

Ambient temperature (operation)	-25 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	10 % ... 95 % (non-condensing)
Altitude	≤ 2500 m (For restrictions, see the manufacturer's declaration for altitude operation)
Degree of protection	IP20

### General

Electrical isolation	VCC // Ethernet // DSL (A/B) // FE
Test voltage data interface/power supply	1.5 kV AC (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Net weight	258.7 g
Housing material	Aluminum / steel sheet DC01
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%)

### Power supply

Nominal supply voltage	24 V DC ±5 %
Supply voltage range	10 V DC ... 60 V DC
Typical current consumption	80 mA (60 V DC)
	200 mA (24 V DC)
	380 mA (10 V DC)
Connection method	Push-in spring connection

### Interfaces

Interface 1	Ethernet interface, 10/100Base-T(X) in accordance with IEEE 802.3
Interface	Ethernet
No. of ports	1
Connection method	RJ45 jack, shielded
	1 port 10/100Base-T(X), auto negotiation
Transmission length	< 100 m (shielded twisted pair)
Protocols supported	IPv4, IPv6, TCP/IP, HTTP, HTTPS
Auxiliary protocols	ARP, DHCP (Client), PING, SNMP
Serial transmission speed	10/100 Mbps, auto negotiation
Interface 2	SHDSL interface according to ITU-T G.991.2.bis
No. of ports	1 (2-wire operation)
Connection method	Push-in spring connection
Transmission length	< 20 km (Depending on data rate and cable cross section)
Conductor cross section solid min.	0.2 mm <sup>2</sup>

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## Technical data

### Interfaces

Conductor cross section solid max.	1.5 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.	16
Serial transmission speed	2-wire operation: 32 kbps ... 15.3 Mbps

### Function

Web-based management	yes
Management	Web-based management: Diagnostics, log book, customized configuration
Status and diagnostic indicators	LEDs for warning, status, and device information

### Digital outputs

Output name	Digital output
Number of outputs	1
Voltage output signal	depending on the operating voltage
Current output signal	≤ 500 mA (Short-circuit-proof)
Connection method	Push-in spring connection

### Conformance/approvals

Designation	CE
Identification	CE-compliant
Designation	ATEX
Identification	# II 3 G Ex nA IIC T4 Gc X
Additional text	Please follow the special installation instructions in the documentation!
Designation	UL, USA/Canada
Identification	508 Listed
Designation	Corrosive gas test
Identification	ISA-S71.04-1985 G3 Harsh Group A

### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Type of test	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6
Test result	5g, 10...150 Hz, 2.5 h, in XYZ direction
Type of test	Shock in acc. with EN 60068-2-27/IEC 60068-2-27
Test result	15g
Standards/regulations	EN 61000-4-2
Contact discharge	± 6 kV
Indirect discharge	± 6 kV
Standards/regulations	EN 61000-4-3
Frequency range	80 MHz ... 3 GHz
Standards/regulations	EN 61000-4-4

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## Technical data

### Standards and Regulations

Comments	Criterion B
Standards/regulations	EN 61000-4-5
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)
Standards/regulations	EN 55011
	EN 61000-4-6
Frequency range	0.15 MHz ... 80 MHz
Standards/regulations	EN 50121-4

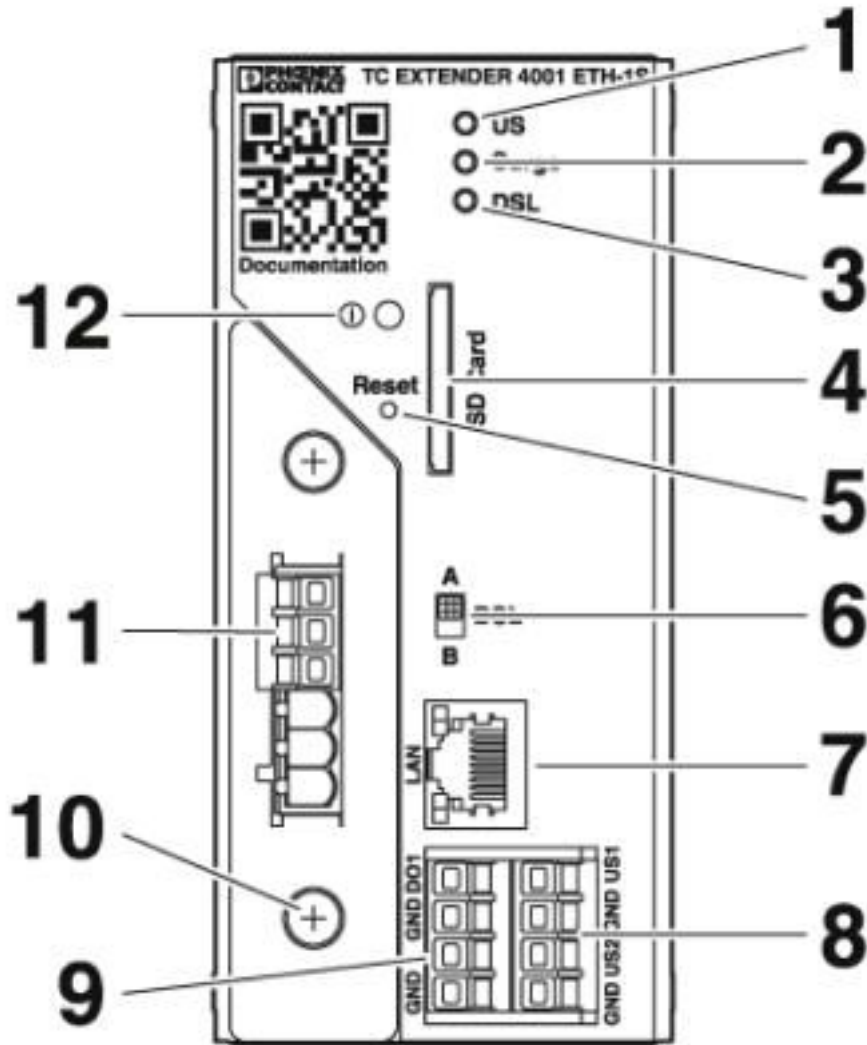
### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

# Modem - TC EXTENDER 4001 ETH-1S - 2702253

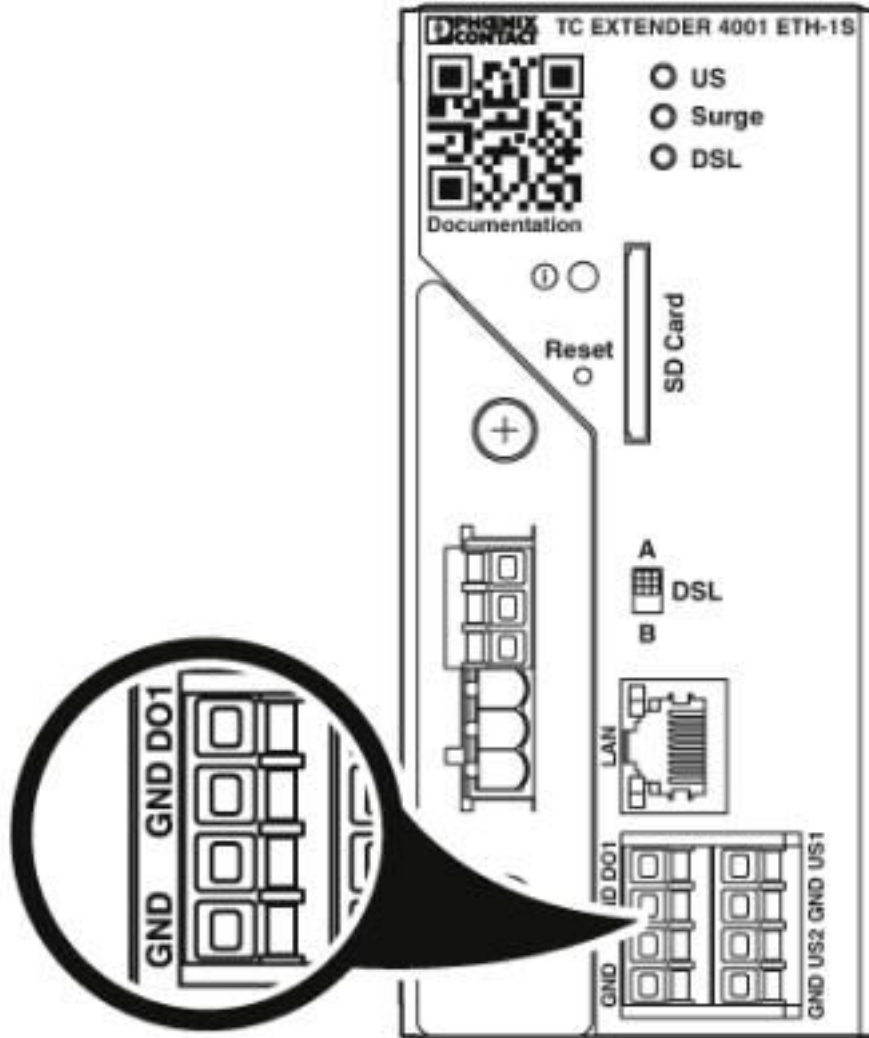
Schematic diagram



Front view

# Modem - TC EXTENDER 4001 ETH-1S - 2702253

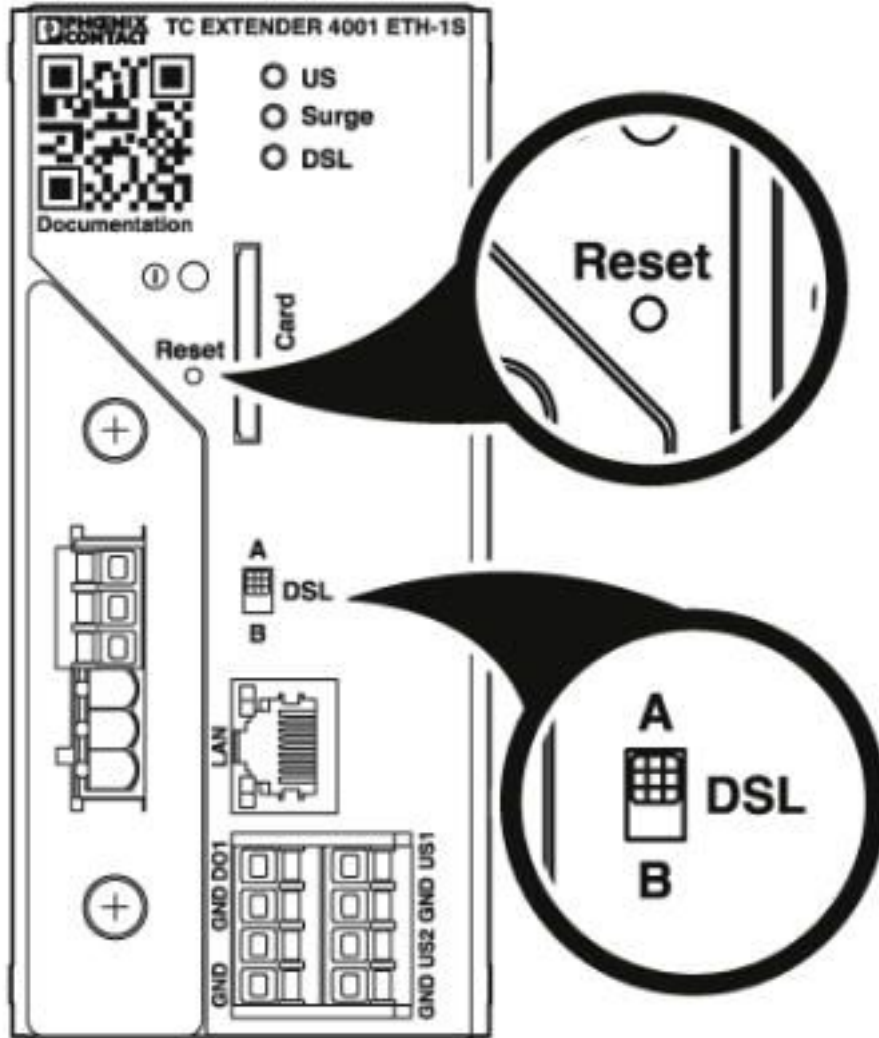
Schematic diagram



Digital switching output

# Modem - TC EXTENDER 4001 ETH-1S - 2702253

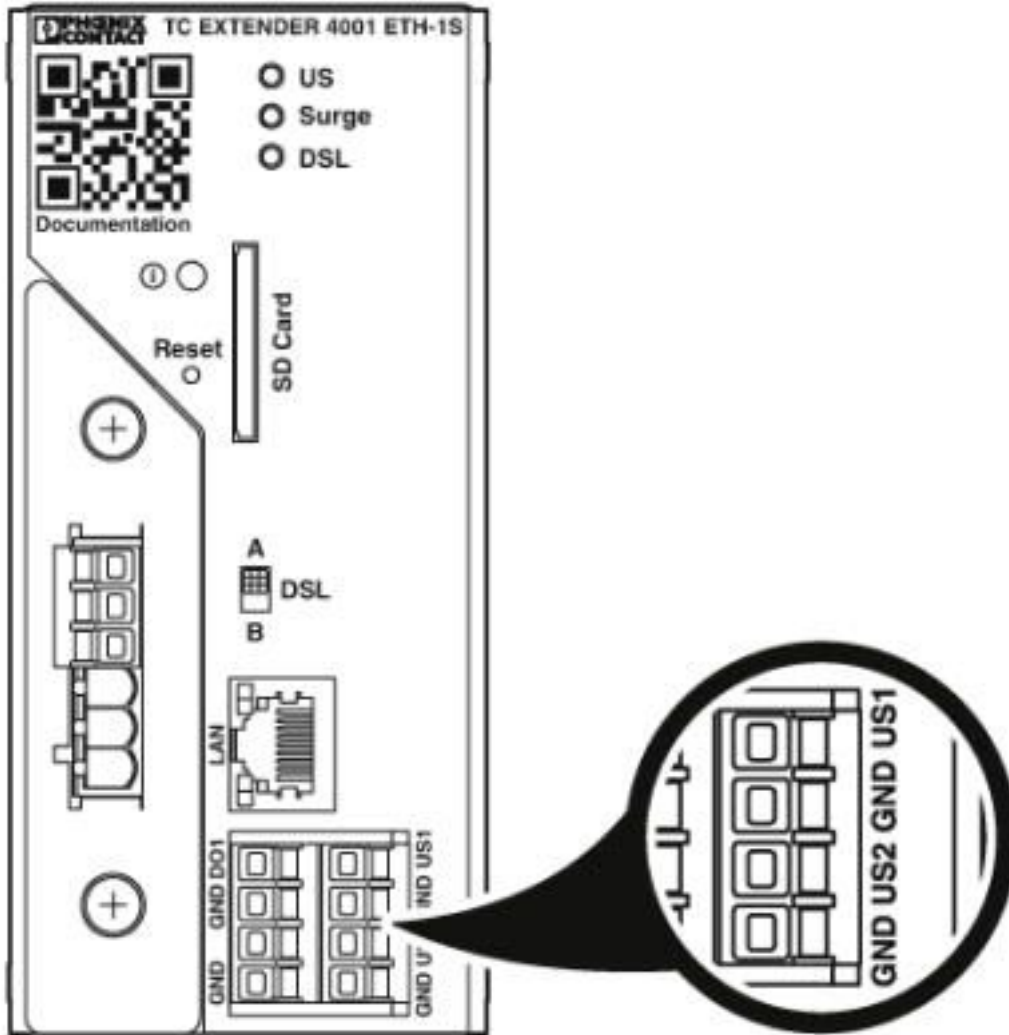
Schematic diagram



Reset button

# Modem - TC EXTENDER 4001 ETH-1S - 2702253

Schematic diagram



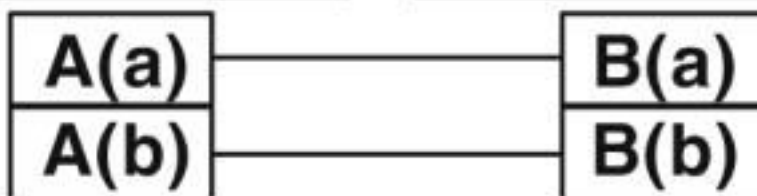
Power supply



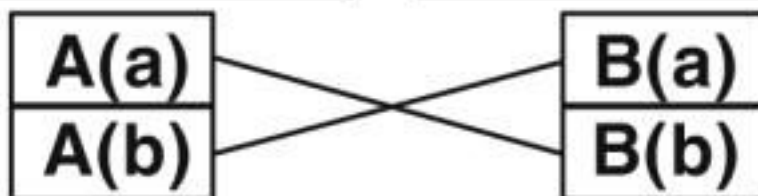
# Modem - TC EXTENDER 4001 ETH-1S - 2702253

Connection diagram

## DSL A / Client      DSL B / Server

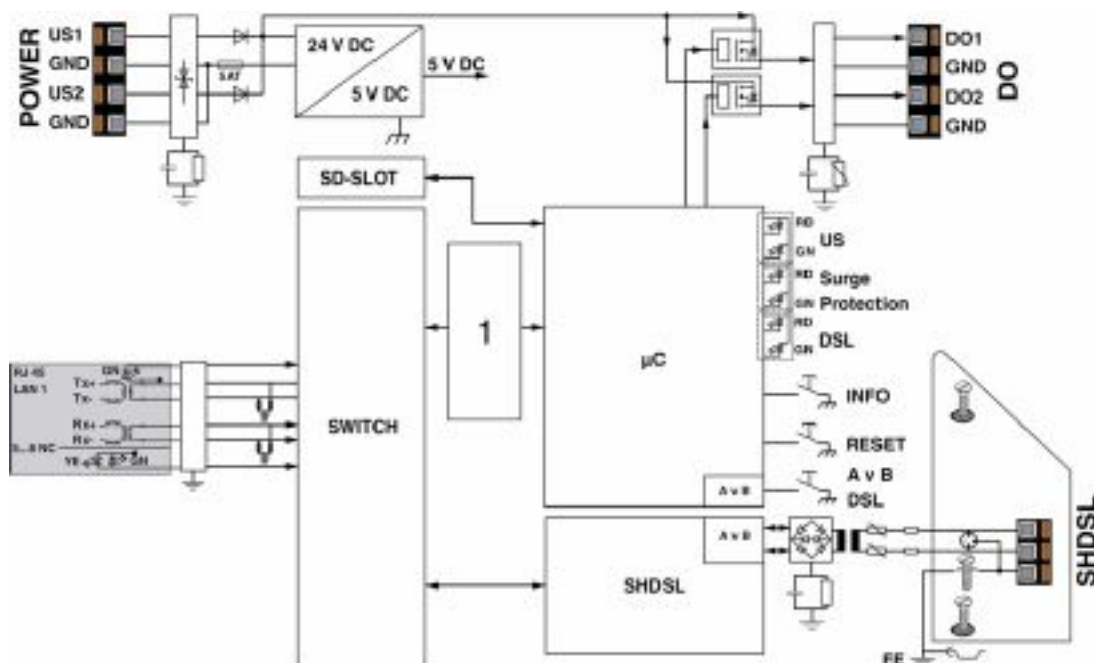


## DSL A / Client      DSL B / Server



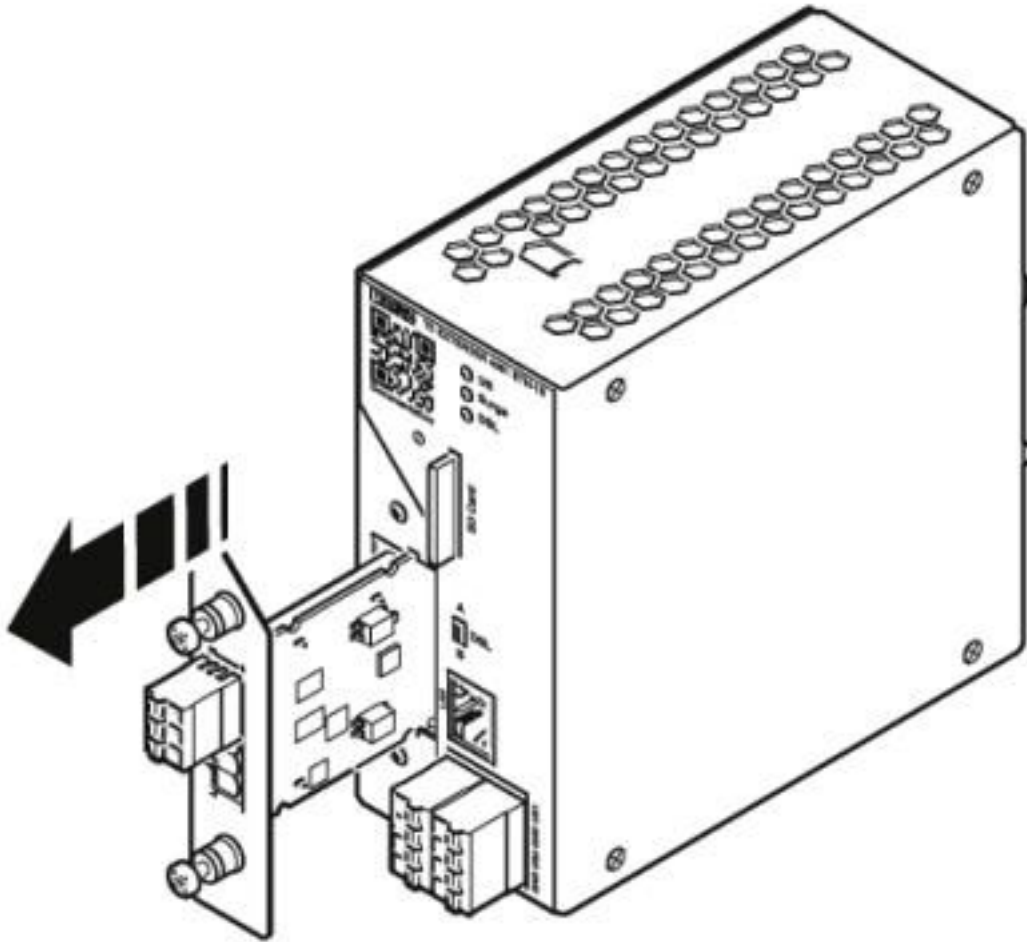
DSL connection

Circuit diagram



# Modem - TC EXTENDER 4001 ETH-1S - 2702253

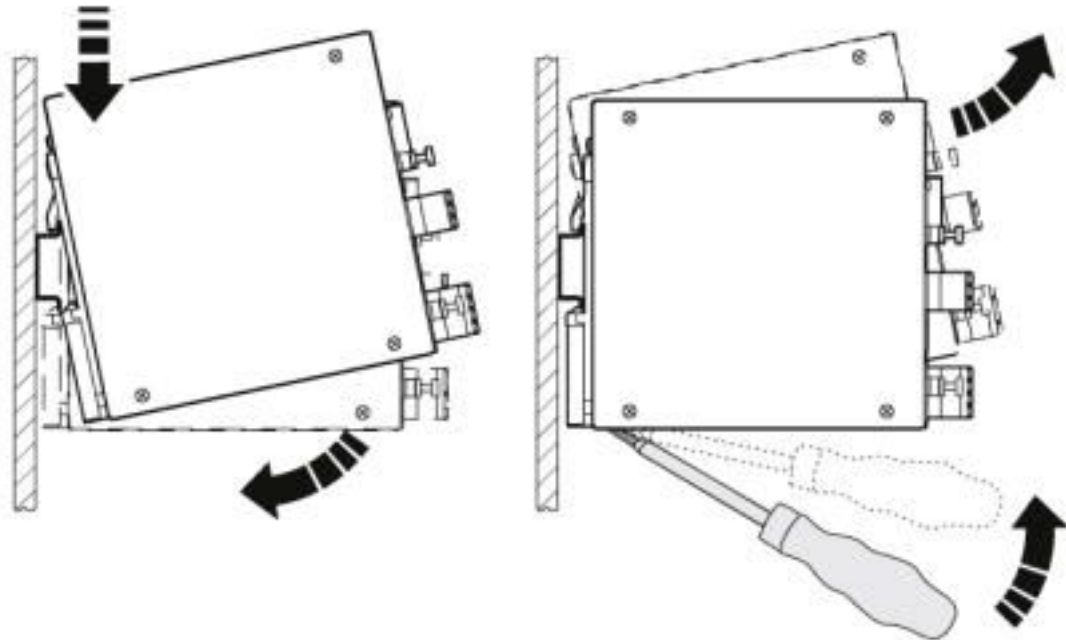
Schematic diagram



Replacement of protective module

# Modem - TC EXTENDER 4001 ETH-1S - 2702253

Schematic diagram



Mounting and removing

## Classifications

### eCl@ss

eCl@ss 10.0.1	19060590
eCl@ss 5.0	19030100
eCl@ss 5.1	19030100
eCl@ss 6.0	19060500
eCl@ss 7.0	19060590
eCl@ss 8.0	19060590
eCl@ss 9.0	19060590

### ETIM

ETIM 4.0	EC000740
ETIM 5.0	EC000740
ETIM 6.0	EC000740
ETIM 7.0	EC000740

### UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	43222628

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## Classifications

### UNSPSC

UNSPSC 18.0	43222628
UNSPSC 19.0	43222628
UNSPSC 20.0	43222628
UNSPSC 21.0	43222628

## Approvals

### Approvals

#### Approvals

UL Listed / cUL Listed / cULus Listed

#### Ex Approvals

ATEX

### 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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cULus Listed			
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## Accessories

### Accessories

Data cable preassembled

Network cable - FL CAT5 HEAVY CONF/ - 2744827



CAT5-SF/UTP cable (J-02YS(ST)C HP 2 x 2 x 24 AWG), heavy-duty installation cable, 2 x 2 x 0.22 mm<sup>2</sup>, solid conductor, shielded, outer sheath: 7.8 mm diameter, inner sheath: 5.75 mm ± 0.15 mm diameter, preassembled on both sides with RJ45 plug, crossover or line

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### Accessories

#### Data plug

RJ45 connector - VS-08-RJ45-5-Q/IP20 - 1656725



RJ45 connector, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: PA, connection method: IDC fast connection, connection cross section: AWG 26- 23, cable outlet: straight, color: traffic grey A RAL 7042

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### Modem

Modem - TC EXTENDER 2001 ETH-2S - 2702409



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

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### Parameterization memory

Memory - SD FLASH 512MB - 2988146



Program and configuration memory, plug-in, 512 Mbyte.

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### Patch cable

Patch cable - FL CAT5 PATCH 0,5 - 2832263



Patch cable, CAT5, assembled, 0.5 m

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Patch cable - FL CAT5 PATCH 5,0 - 2832580



Patch cable, CAT5, assembled, 5 m

## Modem - TC EXTENDER 4001 ETH-1S - 2702253

### Accessories

#### Power supply

Power supply unit - MINI-SYS-PS-100-240AC/24DC/1.5 - 2866983



Primary-switched MINI POWER supply for DIN rail mounting, input: 1-phase, output: 24 V DC/1.5 A

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Power supply unit - MINI-PS-100-240AC/24DC/1.5/EX - 2866653



Primary-switched power supply MINI POWER for DIN rail mounting, input: 1-phase, output: 24 V DC/1,5 A, for the potentially explosive area

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#### Replacement plug

Surge protection plug - TC EXTENDER PT-IQ-1S - 2702257



Replaceable surge protection module, only for Ethernet extender TC EXTENDER 4001 ETH-1S (2702253), 1 SHDSL port, two-wire protection for floating SHDSL cables, two-level protective circuit

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#### Surge protection for information technology

Surge protection device - DT-LAN-CAT.6+ - 2881007



Surge protection in accordance with Class E<sub>A</sub> (CAT6<sub>A</sub>), for Gigabit Ethernet (up to 10 Gbps), token ring, FDDI/ CDDI, ISDN, and DS1. Suitable for Power over Ethernet (PoE+) "Mode A" and "Mode B". RJ45 attachment plug with separate grounding cable and ground connection snap-on foot for NS 35 DIN rails.

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