

# TC EXTENDER 6004 ETH-2S - Ethernet extender



2702255

<https://www.phoenixcontact.com/us/products/2702255>

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Managed Ethernet extender, point-to-point, line and ring structures, data rates up to 30 Mbps, distances of up to 20 km on in-house copper cables, replaceable surge protection, 2 SHDSL ports, 4-port switch, diagnostics via display and Ethernet

## 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 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)
- Automatic detection of network cable type (auto MDI(X))
- Easy startup, plug and play
- 2 digital outputs for alerting external controllers
- Remote diagnostics via IP and automatic event messages via SNMP
- Use in point-to-point, line, and ring topologies with managed and unmanaged Ethernet extenders
- Integrated surge protection of the SHDSL interface
- Virtually separate critical IP networks with VLAN
- Increase availability through RSTP redundancy



## Commercial data

Item number	2702255
Packing unit	1 pc
Minimum order quantity	1 pc

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Sales key	DN24
Product key	DNC442
GTIN	4055626055541
Weight per piece (including packing)	800 g
Weight per piece (excluding packing)	766 g
Customs tariff number	85176200
Country of origin	DE

## Technical data

### Notes

#### Note on application

Note on application	Only for industrial use
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#### 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	506 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	260 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	110 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) // DSL (B) // FE
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Maximum power dissipation for nominal condition	4.8 W
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.) 1.5 kV AC (50 Hz, 1 min.)

## 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) 90 mA (60 V DC) 450 mA (10 V DC)

## Function

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

### Signal

Output name	Digital output
Number of outputs	2
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 4 ports 10/100BaseT(X), auto negotiation and autocrossing
No. of channels	4
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	4-wire operation: 64 kbps ... 30 Mbps 2-wire operation: 32 kbps ... 15.3 Mbps
Connection method	Push-in spring connection

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No. of channels	2 (2-wire operation)
Transmission length	< 20 km (Depending on data rate and cable cross section)
Single conductor/terminal point, rigid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Single-wire/terminal point, flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
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

Color (Housing)	white aluminium (RAL 9006)
Material (Housing)	Aluminum Sheet steel DC01

## 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)	-25 °C ... 60 °C -25 °C ... 0 °C (Display inactivity can occur, image changes may take several seconds) 55 °C ... 60 °C (Display contrast can deteriorate)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 2500 m (For restrictions, see the manufacturer's declaration for altitude operation)
Max. permissible relative humidity (operation)	< 60 % (At an ambient operating temperature >70 °C)
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

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	documentation!
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## UL, USA/Canada

Identification	508 Listed
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## Corrosive gas test

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

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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

## 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

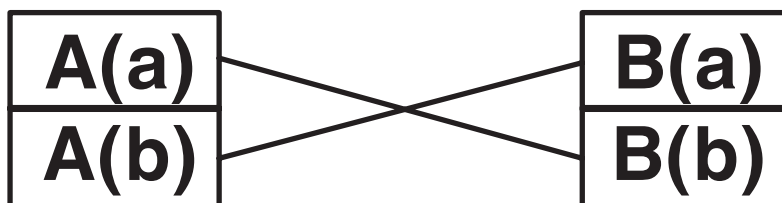
Drawings

Connection diagram

**DSL A / Client      DSL B / Server**

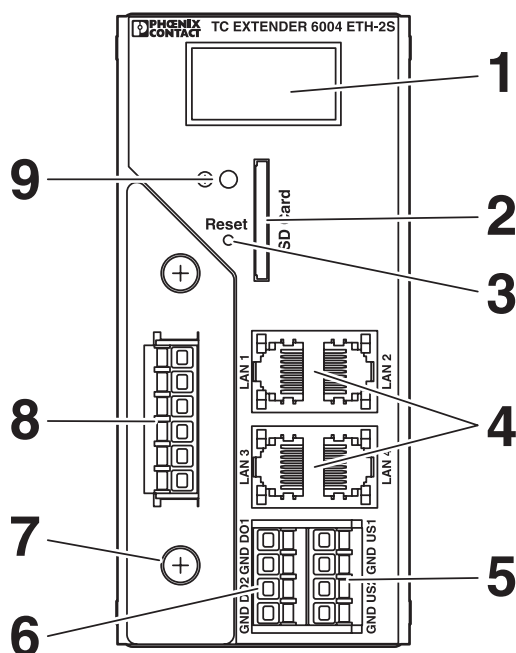


**DSL A / Client      DSL B / Server**



DSL connection

Schematic diagram



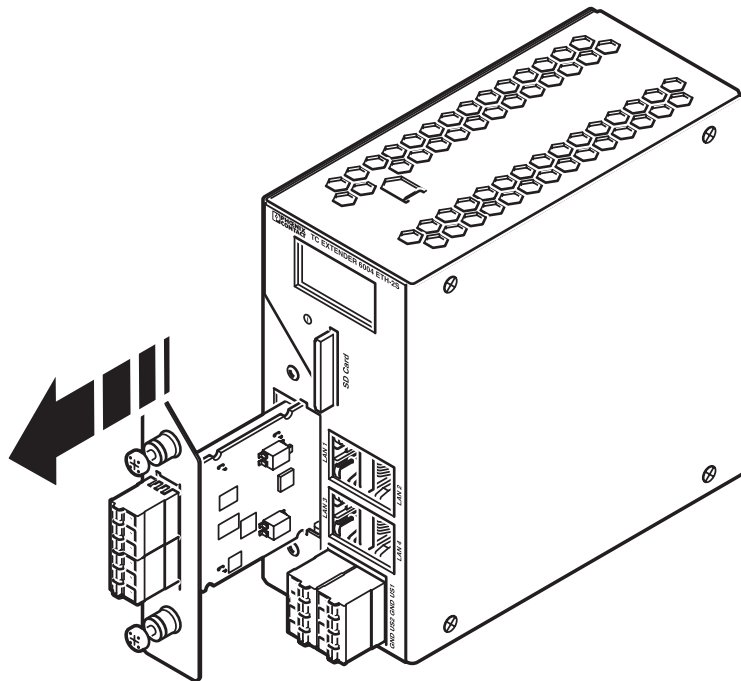
Front view

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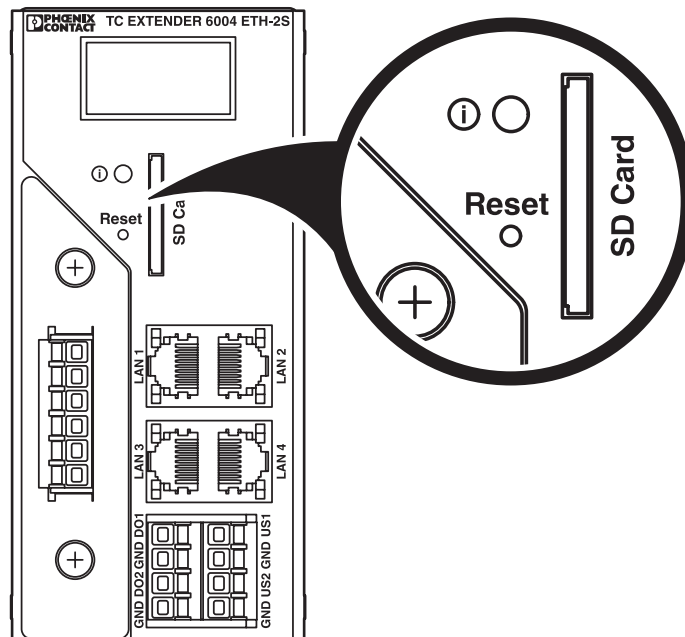
<https://www.phoenixcontact.com/us/products/2702255>

Schematic diagram



Replacement of protection module

Schematic diagram



Reset button

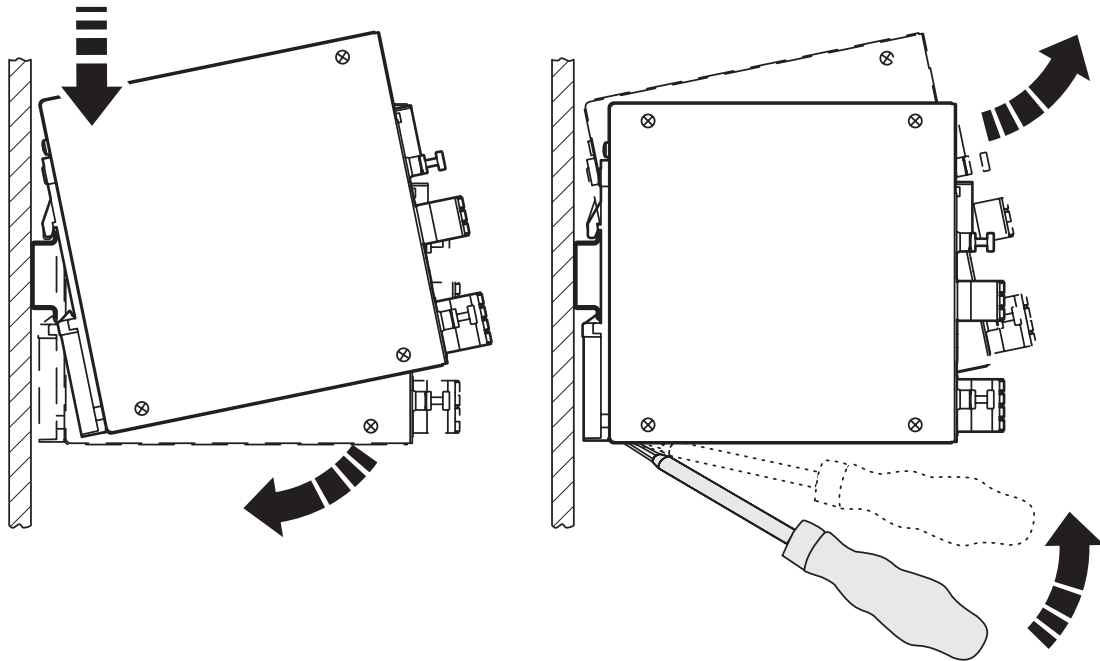
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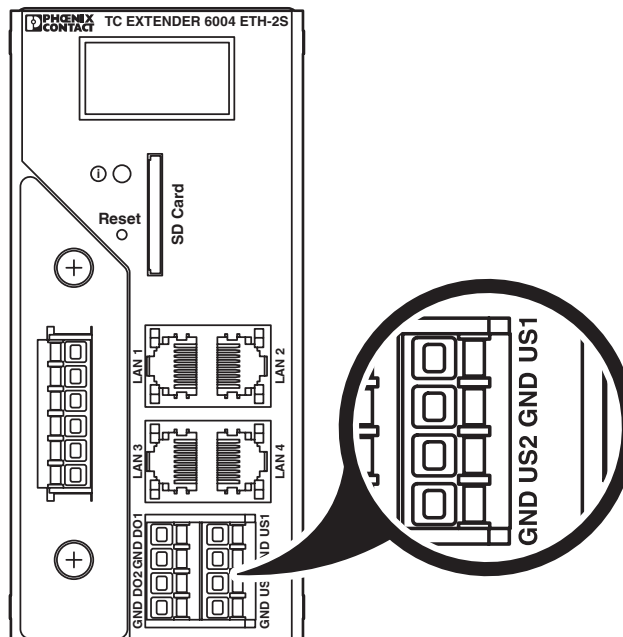
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Schematic diagram



Mounting and removing

Schematic diagram



Power supply

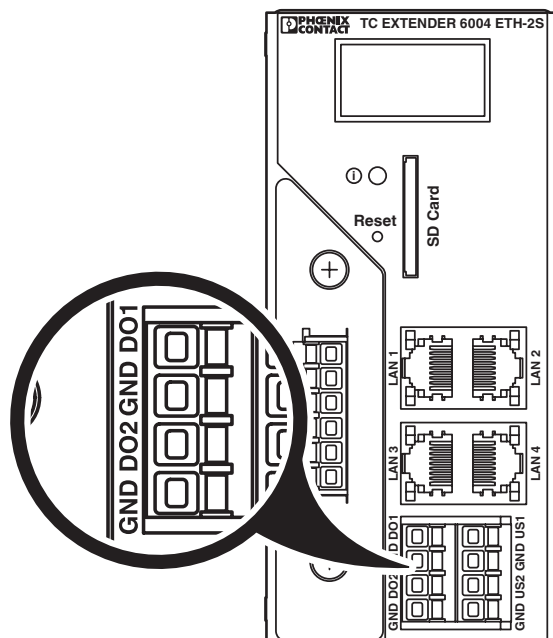
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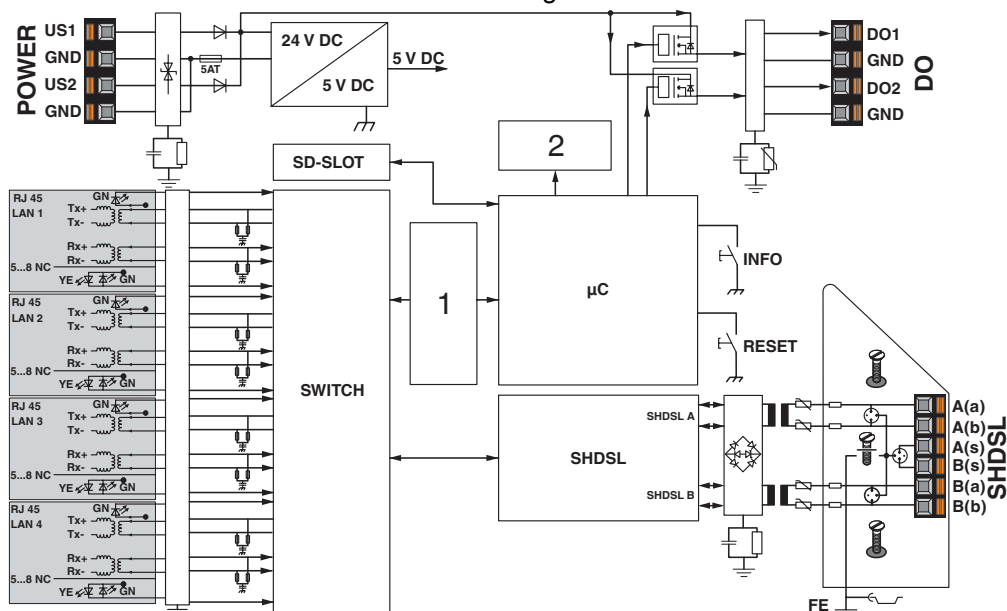
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Schematic diagram



Digital switching outputs

Circuit diagram



Basic circuit diagram

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2702255>



**cULus Listed**

Approval ID: E238705

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## Classifications

### ECLASS

ECLASS-13.0	19170407
ECLASS-15.0	19170407

### ETIM

ETIM 10.0	EC000309
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### UNSPSC

UNSPSC 21.0	43223100
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 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)
	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7)
SCIP	6d3f7619-f145-402c-80f9-7033bb3ff389

### EF3.1 Climate Change

CO2e kg	50.585 kg CO2e
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