

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

Utilization restriction

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

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

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

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

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

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 ² ... 1.5 mm ² |
| Single-wire/terminal point, flexible | 0.2 mm ² ... 2.5 mm ² |
| 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 |
|-------------|--------------|

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

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 (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 |
|-----------------------|--------------|

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 |

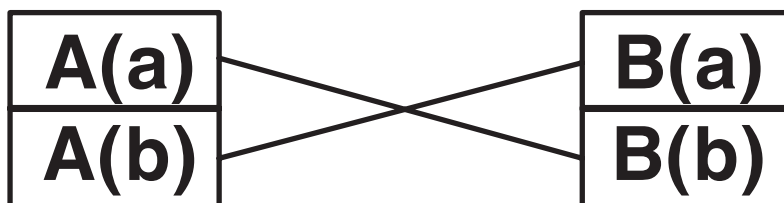
Drawings

Connection diagram

DSL A / Client DSL B / Server

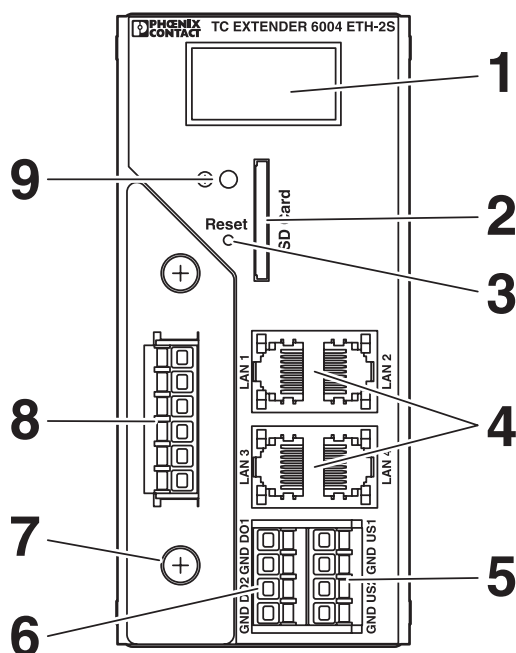


DSL A / Client DSL B / Server



DSL connection

Schematic diagram



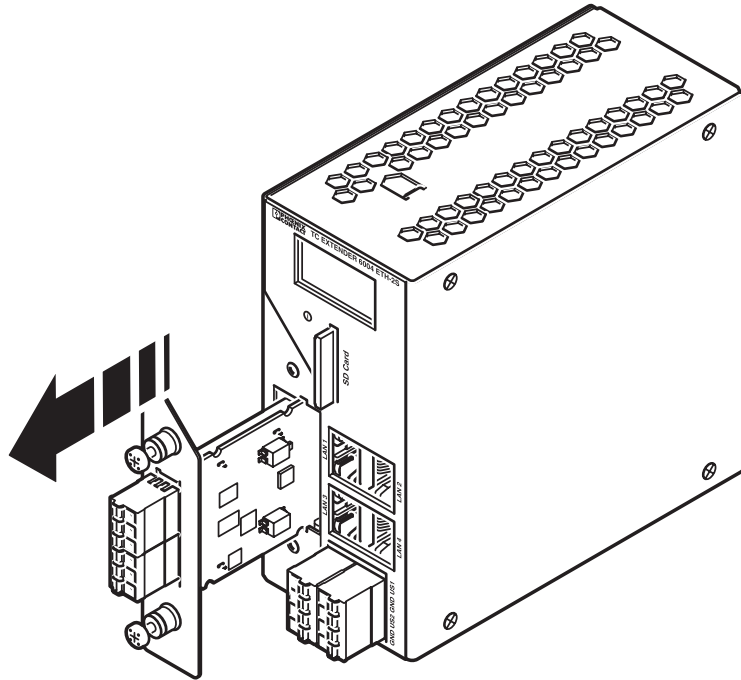
Front view

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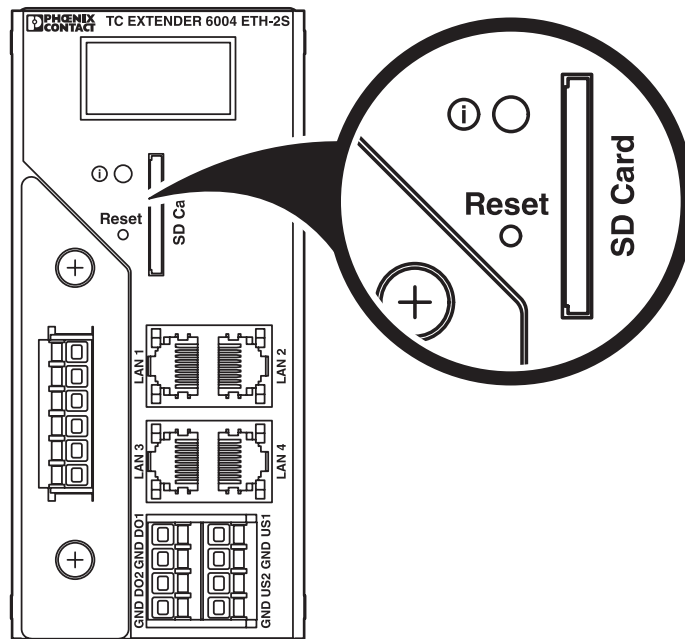
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Schematic diagram



Replacement of protection module

Schematic diagram



Reset button

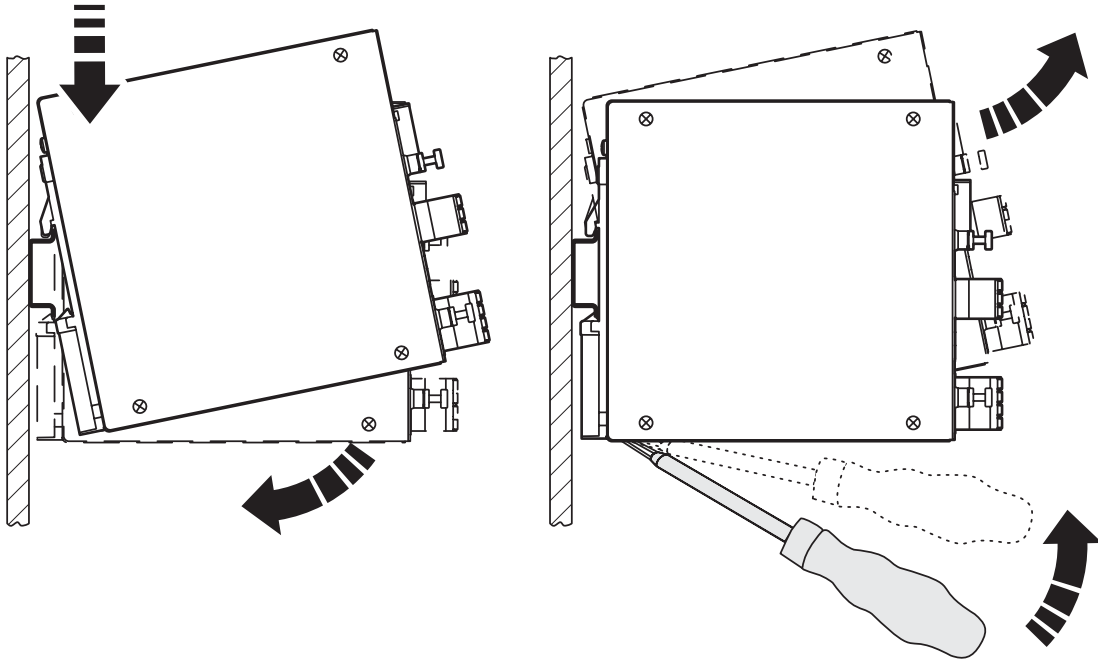
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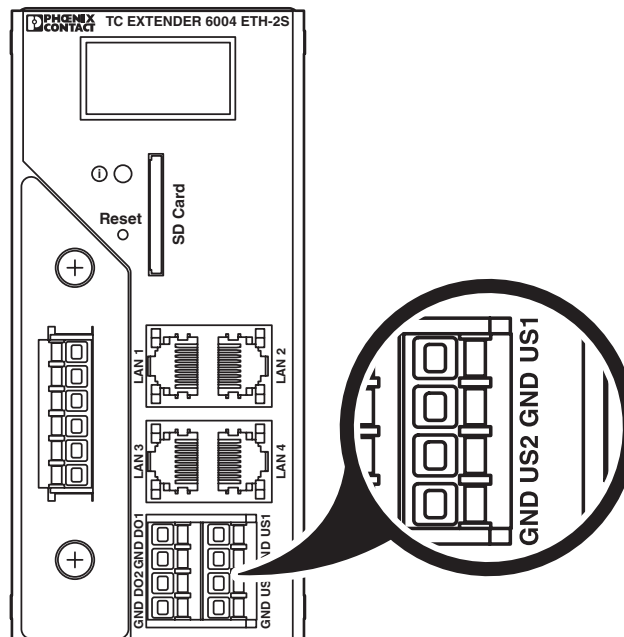
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Schematic diagram



Mounting and removing

Schematic diagram



Power supply

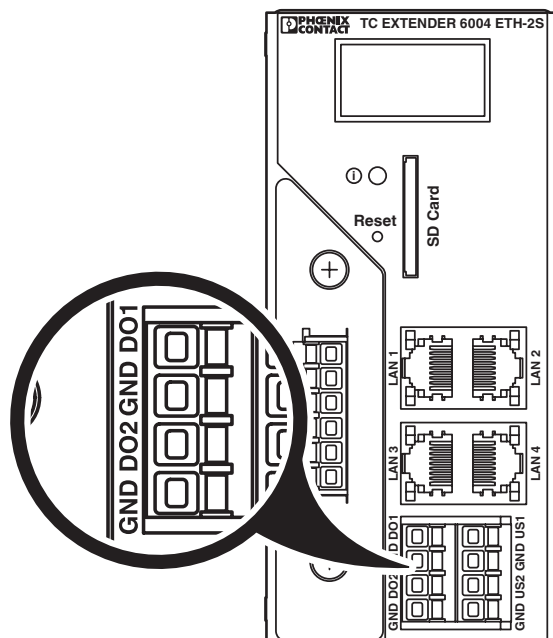
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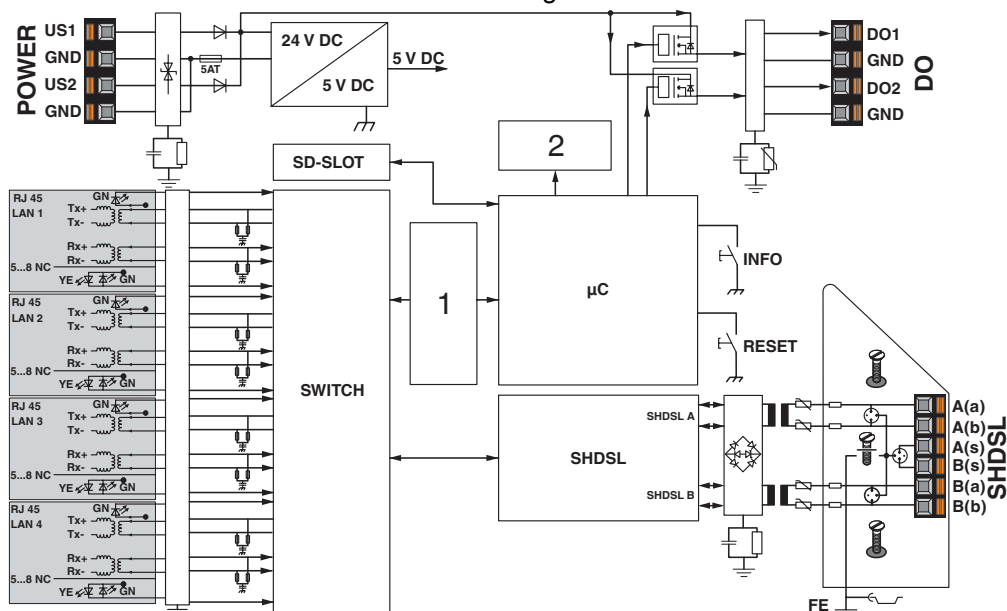
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Schematic diagram



Digital switching outputs

Circuit diagram



Basic circuit diagram

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Approvals

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cULus Listed

Approval ID: E238705

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Classifications

ECLASS

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

ETIM

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

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