# TC MGUARD ... 4G VZW/ATT VPN

## Industrial 4G mobile router (LTE) with integrated firewall and VPN

Data sheet
107858_en_02

## 1    Description

The **TC MGUARD ... 4G VZW/ATT VPN** is an industrial 4G mobile router (LTE) with an integrated firewall, VPN and alarm inputs and outputs.

With the help of predefined configuration on SD cards, the devices can be easily and quickly started up or replaced. The devices support precise time synchronization and positioning, specifically for mobile applications, via GPS and GLONASS.

For secure key generation and management, the devices are equipped with a trusted platform module (TPM).

**Features**

– High-speed mobile network interface
– Integrated 4-port switch (managed for TC MGUARD RS4000 4G VPN)
– Maximum security with IPsec protocol on Layer 3
– Web-based management, SNMP
– Replaceable configuration memory
– Comprehensive connection options
– RS-232 interface with COM server function for integrating serial devices
– Flexible routing
– Up to 10 parallel VPN tunnels (up to 250 possible with additional license as an option)
– Supports current certificates such as x509.v3
– Stateful inspection firewall for dynamic filtering
– Connection for VPN enable button and VPN status LED
– Extended temperature range

| | |
|---|---|
| ℹ | The devices are intended for use in the USA. Please also refer to 6 „Countries of use". |
| ℹ | Make sure you always use the latest documentation. It can be downloaded at: phoenixcontact.net/product/1010461 This document is valid for the products listed in 3 „Ordering data". |

PHŒNIX CONTACT

INSPIRING INNOVATIONS

## 2    **Table of contents**

# 3 Ordering data

| Description | Type | Order No. | Pcs./Pkt. |
| --- | --- | --- | --- |
| Security appliance, version for Verizon Wireless (US), WAN and 4G mobile network interface, SD card slot, 10 VPN tunnels, intelligent firewall with full scope of functions, router with NAT/1:1 NAT, optional CIFS Integrity Monitoring, 4 port Managed Switch | TC MGUARD RS4000 4G VZW VPN | 1010461 | 1 |
| Security appliance, version for AT&T (US), WAN and 4G mobile network interface, SD card slot, 10 VPN tunnels, intelligent firewall with full scope of functions, router with NAT/1:1 NAT, optional CIFS Integrity Monitoring, 4 port Managed Switch | TC MGUARD RS4000 4G ATT VPN | 1010463 | 1 |
| Security appliance, Version for Verizon Wireless (US), 4G mobile network interface, SD card slot, 2 VPN tunnels, firewall for easy configuration, router with NAT/1:1 NAT, 4 port switch | TC MGUARD RS2000 4G VZW VPN | 1010462 | 1 |
| Security appliance, Version for AT&T (US), 4G mobile network interface, SD card slot, 2 VPN tunnels, firewall for easy configuration, router with NAT/1:1 NAT, 4 port switch | TC MGUARD RS2000 4G ATT VPN | 1010464 | 1 |

| Accessories | Type | Order No. | Pcs./Pkt. |
| --- | --- | --- | --- |
| Patch cable, CAT5, assembled, 0.5 m | FL CAT5 PATCH 0,5 | 2832263 | 10 |
| Patch cable, CAT5, assembled, 2 m | FL CAT5 PATCH 2,0 | 2832289 | 10 |
| Patch cable, CAT5, assembled, 10 m | FL CAT5 PATCH 10,0 | 2832629 | 10 |
| Dust protection caps for RJ45 socket Dust protection, color: black | FL RJ45 PROTECT CAP | 2832991 | 10 |
| RJ45 connector, shielded, with bend protection sleeve, 2 pieces, gray for straight cables, for assembly on site. For connections that are not crossed, it is recommended that you use the connector set with gray bend protection sleeve. RJ45 connector, material: Polycarbonate, color: gray | FL PLUG RJ45 GR/2 | 2744856 | 1 |
| RJ45 connector, shielded, with bend protection sleeve, 2 pieces, green for crossed cables, for assembly on site. For connections that are crossed, it is recommended that the connector set with green bend protection sleeves is used. RJ45 connector, material: Polycarbonate, color: green | FL PLUG RJ45 GN/2 | 2744571 | 1 |
| Crimping pliers, for assembling the RJ45 plugs FL PLUG RJ45...,  for assembly on site | FL CRIMPTOOL | 2744869 | 1 |
| FO converter with SC duplex fiber optic connection (1300 nm), for converting 10/100Base-T(X) to multi-mode fiberglass (50/125 µm). Auto negotiation and auto MDI(X) function. Comprehensive link diagnostics. DIN-rail mountable, 18 ... 30 V DC supply. | FL MC EF 1300 MM SC | 2902853 | 1 |
| Program and configuration memory, plug-in, 512 Mbyte | SD FLASH 512MB | 2988146 | 1 |

| Accessories | Type | Order No. | Pcs./Pkt. |
|---|---|---|---|
| License for up to 250 additional VPN online connections | FL MGUARD LIC VPN-250 | 2700193 | 1 |
| License for up to 10 additional VPN online connections | FL MGUARD LIC VPN-10 | 2700194 | 1 |
| Multiband mobile communication antenna for wall mounting, 0.5 m antenna cable, with SMA circular connector, suitable for LTE/4G | TC ANT MOBILE WALL 0,5M | 2702274 | 1 |
| Mobile network antenna cable, 5 m in length, SMA (male) -> SMA (female), 50 ohm impedance | PSI-CAB-GSM/UMTS- 5M | 2900980 | 1 |
| Mobile network antenna cable, 10 m in length, SMA (male) -> SMA (female), 50 ohm impedance | PSI-CAB-GSM/UMTS-10M | 2900981 | 1 |
| Attachment plug with Lambda/4 technology as surge protection for coaxial signal interfaces Connection: Male/female SMA connectors. | CSMA-LAMBDA/4-2.0-BS-SET | 2800491 | 1 |
| License for mGuard Secure VPN Client v11.x | MGUARD SECURE VPN CLIENT LIC | 2702579 | 1 |

Operation of the wireless system is only permitted when using accessories available from Phoenix Contact. The use of any other components can lead to the withdrawal of the operating license.

You can find the approved accessories for this wireless system listed with the item at phoenixcontact.net/products.

# 4 Technical data

| Supply | |
|---|---|
| Supply voltage range | 11 V DC ... 36 V DC<br>(via pluggable COMBICON screw terminal block) |
| Typical current consumption | < 320 mA (24 V DC) |
| Max. current consumption | 1.8 A (at 11 V DC (incl. 3 x 125 mA for the outputs)) |
| Electrical isolation | VCC // PE |
| Test voltage data interface/power supply | 1 kV (50 Hz, 1 min., manufacturer's declaration) |
| Torque | 0.56 Nm ... 0.79 Nm |

⚠ Only use devices with limited output voltage (U ≤ 36 V DC) and limited output current (I ≤ 2 A) as the external voltage source.

Use copper wires rated 85 °C.

If the equipment is used in a manner not specified, the protection provided by the equipment may be impaired.

External circuit from SELV supplied

SELV - Limited energy according to UL/IEC/EN 61010-1 or NEC class II

| Functions | TC MGUARD RS4000... | TC MGUARD RS2000... |
|---|---|---|
| Management | Web-based management, SNMP | Web-based management, SNMP |
| Firewall rules | Configurable stateful inspection firewall with full scope of functions | Simplified 2-click stateful inspection firewall |
| Filtering | MAC and IP addresses, ports, protocols | Incoming or outgoing traffic |
| Routing | Standard routing, NAT, 1:1-NAT, port forwarding | Standard routing, NAT, 1:1-NAT, port forwarding |
| Number of VPN tunnels | 10 (up to 250 tunnels with additional license as an option) | 2 (fixed, Ipsec (IETF standard)) |
| 1:1 Network Address Translation (NAT) in the VPN | Supported | Supported |
| Encryption methods | DES, 3DES, AES-128, -192, -256 | DES, 3DES, AES-128, -192, -256 |
| Internet Protocol Security (IPsec) mode | ESP tunnel / ESP transport | ESP tunnel / ESP transport |
| Authentication | X.509v3 certificates with RSA or PSK | X.509v3 certificates with RSA or PSK |
| Data integrity | MD5, SHA-1 | MD5, SHA-1 |
| Dead peer detection (DPD) | RFC 3706 | RFC 3706 |

| Ethernet interface, 10/100Base-T(X) in acc. with IEEE 802.3u | TC MGUARD RS4000... | TC MGUARD RS2000... |
|---|---|---|
| Number of ports | 6 | 4 |
| Connection method | RJ45 | RJ45 |
| Transmission speed | 10/100 Mbps (auto negotiation) | 10/100 Mbps (auto negotiation) |
| Transmission length | 100 m (shielded twisted pair) | 100 m (shielded twisted pair) |
| Test voltage | 1 kV (50 Hz, 1 min., manufacturer's declaration) | 1 kV (50 Hz, 1 min., manufacturer's declaration) |
| Protocols supported | TCP/IP, UDP/IP, FTP, HTTP | TCP/IP, UDP/IP, FTP, HTTP |
| Auxiliary protocols | ARP, DHCP, PING (ICMP), SNMP V1, SMTP | ARP, DHCP, PING (ICMP), SNMP V1, SMTP |

| V.24 (RS-232) interface in acc. with ITU-T V.28, EIA/TIA-232, DIN 66259-1 | |
|---|---|
| Connection method | D-SUB 9 plug |
| Data format/encoding | UART/NRZ: 8 Data, 1/2 Stop, None/Even/Odd Parity |
| Serial transmission speed | 9.6; 19.2; 38.4; 57.6; 115.2 kbps |
| Transmission length | 15 m |
| Data flow control/protocols | Software handshake, Xon/Xoff or hardware handshake RTS/CTS |

| Wireless interface | TC MGUARD ... 4G VZW VPN | TC MGUARD ... 4G ATT VPN |
|---|---|---|
| Interface description | LTE (FDD) | LTE (FDD) / UMTS |
| Frequency | 700 MHz (LTE B13) 1700 MHz (LTE B4) | 850 MHz (UMTS/HSPA B5) 1900 MHz (UMTS/HSPA B2) 700 MHz (LTE B13 / B17) 850 MHz (LTE B5) 1700 MHz (LTE B4) 1900 MHz (LTE B2) |
| Data rate | ≤ 150 Mbps (LTE (DL)) ≤ 50 Mbps (LTE (UL)) | ≤ 150 Mbps (LTE (DL)) ≤ 50 Mbps (LTE (UL)) |
| Antenna | 50 Ω impedance SMA antenna socket | 50 Ω impedance SMA antenna socket |
| SIM Interface | 1.8 volt, 3 volt | 1.8 volt, 3 volt |
| UMTS | | HSPA 3GPP R9 |
| LTE | CAT4 | CAT4 |

## Digital input

| | |
|---|---|
| Number of inputs | 3 |
| Input signal, voltage | 10 V DC ... 30 V DC |
| Input signal, current | 5 mA |

## Digital output, resistive load

| | |
|---|---|
| Number of outputs | 3 |
| Output signal, voltage | 10 V DC ... 30 V DC (depending on the operating voltage) |
| Output signal, current | ≤ 125 mA (short-circuit-proof) |

## General data

| | |
|---|---|
| Basic functions | Router with intelligent firewall and VPN for 10 tunnels (up to 250 supported with optional additional license), CIFS Integrity Monitoring (as an option), metal housing, slot for SD memory card |
| Degree of protection | IP20 (manufacturer's declaration) |
| Degree of pollution | 2 |
| Dimensions (W/H/D) | 45 mm x 130 mm x 114 mm |
| Housing material | Metal silver |
| Free fall in acc. with IEC 60068-2-32 | 1 m |
| Vibration resistance in acc. with EN 60068-2-6/ IEC 60068-2-6 | 5g, 10...150 Hz, 2.5 h, in XYZ direction |
| Shock in acc. with EN 60068-2-27/IEC 60068-2-27 | Operation: 15g, 11 ms period, half-sine shock pulse |
| Shock in acc. with EN 60068-2-27/IEC 60068-2-27 | Storage: 30g, 11 ms period, half-sine shock pulse |
| MTTF (mean time to failure) SN 29500 standard, temperature 25 °C, operating cycle 21 % (5 days a week, 8 hours a day) | 532 Years |
| MTTF (mean time to failure) SN 29500 standard, temperature 40 °C, operating cycle 34.25 % (5 days a week, 12 hours a day) | 250 Years |
| MTTF (mean time to failure) SN 29500 standard, temperature 40 °C, operating cycle 100 % (7 days a week, 24 hours a day) | 104 Years |
| Electromagnetic compatibility | Conformance with RED Directive 2014/53/EU |

## Ambient conditions

| | |
|---|---|
| Ambient temperature (operation) | -40 °C ... 60 °C |
| Ambient temperature (storage/transport) | -40 °C ... 70 °C |
| Permissible humidity (operation) | 5 % ... 95 % (non-condensing) |
| Altitude | 5000 m (for restrictions see manufacturer's declaration) |

## Approvals / Certificates

| | |
|---|---|
| Free from substances that could impair the application of coating | according to P-VW 3.10.7 57 65 0 VW-AUDI-Seat central standard |
| UL, USA/Canada | Class I, Zone 2, AEx nA IIC T4 / Ex nA IIC T4 Gc Class I, Div. 2, Groups A, B, C, D T4 |
| Noxious gas test | ISA-S71.04-1985 G3 Harsh Group A |

**Conformance with RED Directive 2014/53/EU**

**Noise immunity according to EN 61000-6-2**

| | | |
|---|---|---|
| Electrostatic discharge | EN 61000-4-2 | |
| | Contact discharge | ± 6 kV (Test Level 3) |
| | Discharge in air | ± 8 kV (Test Level 3) |
| | Comments | Criterion B |
| Electromagnetic HF field | EN 61000-4-3 | |
| | Frequency range | 80 MHz ... 3 GHz (Test Level 3) |
| | Field intensity | 10 V/m |
| | Comments | Criterion A |
| Fast transients (burst) | EN 61000-4-4 | |
| | Input | ± 2.2 kV (Test Level 3) |
| | Signal | ± 2.2 kV (Test Level 3) |
| | Comments | Criterion B |
| Surge current loads (surge) | EN 61000-4-5 | |
| | Input | ± 0.5 kV (DC supply) |
| | Signal | ± 1 kV (Data line, asymmetrical) |
| | Comments | Criterion B |
| Conducted interference | EN 61000-4-6 | |
| | Frequency range | 0.15 MHz ... 80 MHz |
| | Voltage | 10 V |
| | Comments | Criterion A |

**Emitted interference in acc. with EN 61000-6-4**

| | |
|---|---|
| Radio interference voltage in acc. with EN 55011 | EN 55011 class A industrial area of application |
| Emitted radio interference in acc. with EN 55011 | EN 55011 class A industrial area of application |
| Interference emission | EN 61000-6-4 |

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

# 5 Safety and warning notes

### 5.1 Intended use

Installation is only permitted in countries that allow the operation of wireless devices in this frequency band and supply range.

The devices are only for export outside of the European Economic Area.

### 5.2 Safety notes

⚠ **CAUTION:**
Observe the following safety notes when using the device.

- Installation, operation, and maintenance may only be carried out by qualified electricians. Follow the installation instructions as described. When installing and operating the device, the applicable regulations and safety directives (including national safety directives), as well as generally approved technical regulations, must be observed. The safety data is provided in this package slip and on the certificates (conformity assessment, additional approvals where applicable).

- Installation should be carried out according to the instructions provided in the operating instructions. Access to circuits within the device is not permitted.

- The device does not require maintenance. Repairs may only be carried out by the manufacturer.

- The device is only intended for operation in the control cabinet and with SELV according to IEC 60950-1/ EN 60950-1/VDE 0805. The device may only be connected to devices, which meet the requirements of EN 60950-1.

- Operation of the device is permitted only where accessories available from Phoenix Contact are used. The use of any other accessory components may lead to withdrawal of the operating license.

(!) **NOTE: risk of material damage due to incorrect wiring**

Only connect the RJ45 Ethernet ports of the device to matching network installations. Some telecommunications connections also use RJ45 sockets. You may not connect these to the RJ45 ports of the device.

For connecting a modem or serial terminal you will need a null modem cable not exceeding 10 m in length.

(!) **NOTE: Risk of damage to equipment due to noise emissions**

This is a Class A item of equipment. This equipment can cause radio interference in residential areas, and the operator may be required to take appropriate measures.

### 5.3 UL warning instructions

⚠️ **WARNING: Explosion hazard when used in potentially explosive areas**

Please make sure that the following notes and instructions are observed.

- Use copper wires rated 85°C.
- If the equipment is used in a manner not specified, the protection provided by the equipment may be impaired.
- This device has to be built in an enclosure (control box).
- External circuit from SELV supplied
- SELV - Limited energy according to UL/IEC/EN 61010-1 or NEC class II
- This equipment must be mounted in an enclosure certified for use in Class I, Zone 2 minimum and rated IP54 minimum in accordance with IEC 60529 when used in Class I, Zone 2 environment.
- Device shall only be used in an area of not more than pollution degree 2.

c(UL)us
**LISTED**
IND.CONT.EQ.
FOR.HAZ.LOC.
E366272

Class I, Zone 2, AEx nA IIC T4 / Ex nA IIC T4 Gc
Class I, Division 2, Groups A, B, C and D T4
Input: 11 - 36 Vdc, max. 1.8 A ⎓
Amb. Temp. Range: -40°C < Tamb < 60°C

⚠️

# 6 Countries of use

### USA

The TC MGUARD ... 4G VZW/ATT VPN devices are intended for use in the US 4G mobile networks of Verizon or AT&T.

### Europe

The TC MGUARD ... 4G VZW/ATT VPN devices are only for export outside of the European Economic Area.

Use the following devices in Europe:

– TC MGUARD RS4000 4G VPN, 2903586
– TC MGUARD RS2000 4G VPN, 2903588

Only these devices have all the necessary approvals for use in Europe.

### Other countries

If the required general conditions are met, the US devices may be used in other countries.

ℹ️ For an initial idea of which frequency bands are available in your country of use, visit www.frequencycheck.com.

- Verify with your provider whether one of the following frequency bands is available:

TC MGUARD ... 4G VZW VPN
– LTE, CAT4, B4
– LTE, CAT4, B13

TC MGUARD ... 4G ATT VPN
– LTE, CAT4, B2
– LTE, CAT4, B4
– LTE, CAT4, B5
– LTE, CAT4, B13
– LTE, CAT4, B17
- Verify with your provider whether there is network coverage at the installation location.
- Verify with your provider whether the device is approved for operation at the installation location.

# 7 Product description

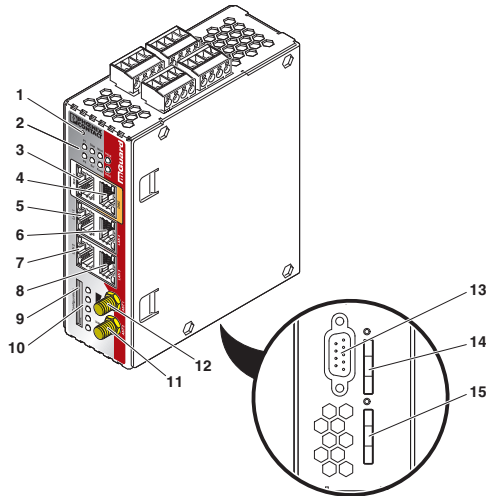| | The 4G devices have two antenna connections. To achieve optimum LTE reception, always connect two antennas for 4G devices. |



Figure 1    Operating elements

**1**    Reset button

**2**    **Diagnostics and status indicators**

| P1, P2 | Green | On | Supply voltage present |
|---|---|---|---|
| STAT | Green | Flashing | Heartbeat - the device is correctly connected and operating. |
| ERR | Red | Flashing | Software system error - please restart. |
| MOD | Green | On | Package data connection is established via mobile phone. |
| FAULT | Red | On | Fault: Signal output 01 open |
| INFO 1/2 | Green | On | The configured VPN connection has been established. |

**3**    WAN port (only MGUARD RS 4000)

**4**    DMZ port (only MGUARD RS 4000)

**5-8**    LAN ports (protected)

**9**    Slot for optional memory card

**10**    **Status LEDs**

Display of reception quality as bar graph

| | | |
|---|---|---|
| Yellow/ green/ green | On | Very good network reception |
| Yellow/ green | On | Good network reception |
| Yellow | On | Adequate network reception |
| | Off | Extremely poor or no network reception |
| SIM 1 | Green | On | SIM card 1 active |
| | | Flashing | No PIN entered |

**11**    SMA antenna connector 1, primary antenna (mobile network)

**12**    SMA antenna connector 2, secondary antenna (mobile network)

**13**    RS-232 interface

**14**    Slot for SIM card 1

**15**    Not used

# 8 Transport and unpacking

- Check the delivery for visible damage caused by transportation.
- Submit claims for any transport damage immediately. Inform Phoenix Contact or your supplier as well as the shipping company without delay.
- Read the complete packing slip carefully.
- Retain the packing slip.
- Keep the packaging for a possible later transport.

# 9 Mounting

**NOTE: electrostatic discharge!**

Observe the necessary safety precautions when handling components that are vulnerable to electrostatic discharge (EN 61340-5-1 and IEC 61340-5-1).

**NOTE: device damage**

Only mount and remove devices when the power supply is disconnected.

This device has to be built in an enclosure (control box).
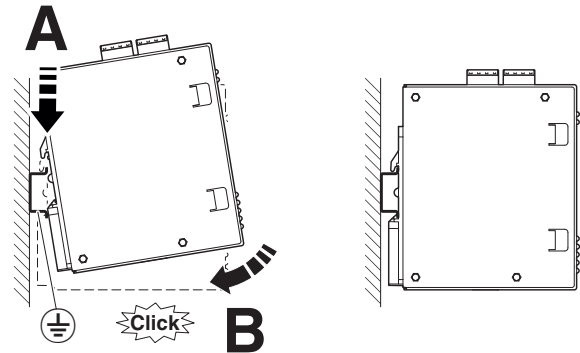
## 9.1 Mounting on a DIN rail



Figure 2    Mounting

The device is intended for installation in a control cabinet.

- To avoid contact resistance, only use clean, corrosion-free 35 mm DIN rails according to DIN EN 60715.
- Place the device onto the DIN rail from above. Push the module from the front toward the mounting surface until it audibly engages.
- Connect the DIN rail to the protective earth ground.
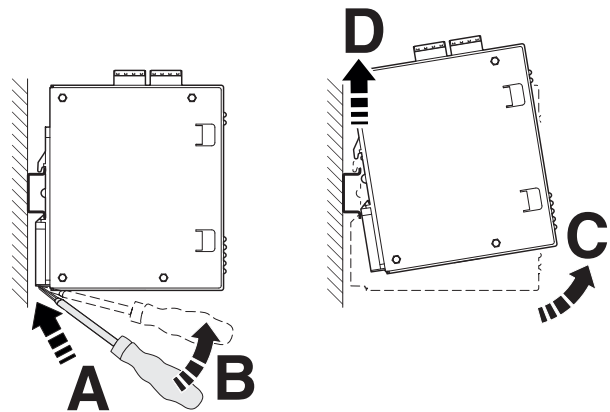
## 9.2 Removal



Figure 3    Removal

- Push down the locking tab with a screwdriver, needle-nose pliers or similar.
- Slightly pull the bottom edge of the device away from the mounting surface.
- Pull the device away from the DIN rail.

# 10 Connecting the cables

## 10.1 Power supply

> ⚠ **CAUTION: Electric shock**
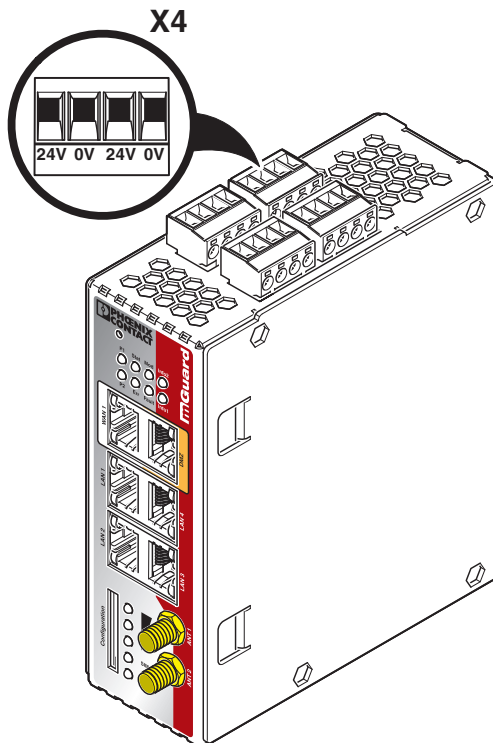> The device is only intended for operation with SELV according to IEC 60950/EN 60950/ VDE 0805.



Figure 4     Power supply

– Only use devices with limited output voltage (U ≤ 36 V DC) and limited output current (I ≤ 2 A) as the external voltage source.

• Connect the supply voltage to the plug-in screw terminal (X4) to 24 V and 0 V. Ensure the correct polarity.

• The device is ready for operation as soon as the power LED lights up.

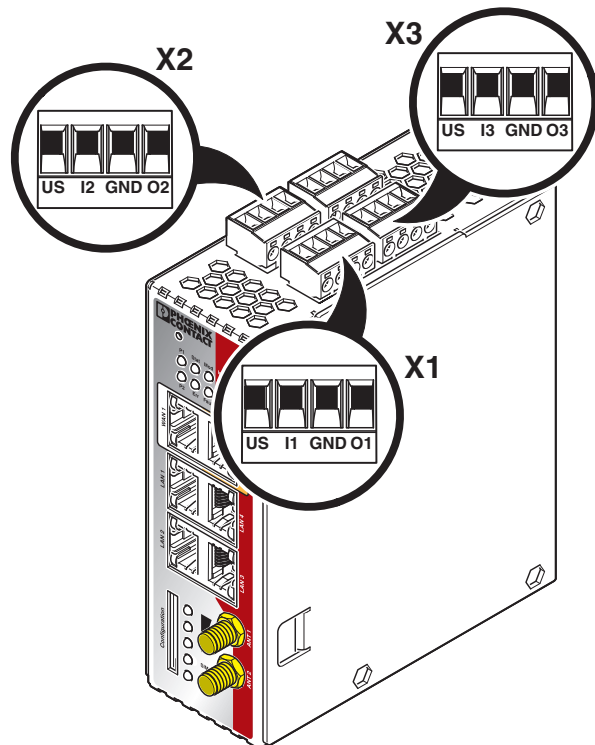## 10.2 Connection of service and signal contacts



Figure 5     Service and signal contacts

Do not connect service and signal contacts to an external voltage source.

**Only for TC MGUARD  RS4000**: If you do not connect the supply voltage redundantly, an error message is displayed. You can turn off this message in the user interface.

In the case of redundant supply, the load is not distributed. The power supply unit with the higher voltage will supply the device on its own.

• Connect the required service contacts (X1 - X3):

– External control switch CMD (Service plug X1: US, I1)

– Signal output (digital) ACK, (Service plug X1: GND, O1)

• You can connect 11 - 36 V DC to the potential-free switching inputs (I1- I3).

• The short-circuit-proof switching outputs (O1 ... O3) are designed for a maximum of 50 mA at 11... 36 V DC.

# 11   Function

The **TC MGUARD RS4000 4G VPN** supports high-availability high-end security. It creates a remote maintenance infrastructure for the secure connection of machines and systems. For maximum availability, an additional external network is supported redundantly alongside the internal network (LAN) and the external network (WAN) in the form of the mobile phone interface. The integrated 4-port switch offers management functions and supports EtherNet/IP™.

– Firmware with extended scope of functions
– Meets the security requirements for remote access applications with parallel integration of machines and systems into higher-level networks
– Managed 4-port switch
– Two parallel interfaces for external networks: mobile phone and Ethernet (WAN)
– DMZ port
– Up to 10 parallel VPN tunnels (up to 250 possible with additional license as an option)
– CIFS Integrity Monitoring (optional)

The **TC MGUARD RS2000 4G VPN** is designed for applications with fewer complex requirements. The device acts as an industrial remote service router with a simplified configuration. The integrated 4-port switch saves space on the DIN rail.

– Basic security router with reduced complexity
– 4-port switch
– RS-232 interface with COM server function for integrating serial devices
– Simplified 2-click stateful inspection firewall
– Two VPN connections (cannot be extended)

Both versions have all the necessary standard functions for operating a flexible and robust Ethernet network.

**Serial device server**

The integrated COM server function is used to integrate RS-232 interfaces into Ethernet networks. This provides an easy way of implementing functions such as cable replacement or network integration.

– Cable replacement: two devices in combination tunnel serial connections via Ethernet.
– Network integration: you can integrate automation devices such as controllers or frequency inverters into a network using corresponding programming and diagnostics software.

**Device Manager**

The Device Manager simplifies the management of mGuard security appliances. The tool features a template mechanism that enables the user to configure and manage all mGuard devices centrally – from a few hundred devices to several thousand.

## 12 Application example

Secure remote maintenance concepts from
Phoenix Contact offer the following advantages:

– Availability regardless of location

– Reduced travel costs and downtimes

– Greater customer loyalty, thanks to a high level of service quality

– Less expense linked to warranties

– Fewer devices, as remote maintenance, routing, and firewall are combined in a single device

– Operator network protected against unauthorized access

– No security problems associated with the theft of equipment

– Same level of administration required, even if the number of machines increases

– The user alone enables remote maintenance

– Easy machine integration in customer networks

– Fast resolution of IP address conflicts

– Machines are protected from the operator network and vice versa

– No adaptation of machines and systems, no software required

## 13 Disposal

Dispose of the device separately from other waste, i.e., via an appropriate collection site.