

# TC ROUTER 2002T-3G - Router



2702531

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Industrial 3G router, European version, fallback to 2G GPRS/EDGE, 2 Ethernet interfaces, firewall, NAT, SMA-F antenna socket, SMS and e-mail transmission, 2 digital inputs, 1 digital output

## Product description

The **TC ROUTER** for cellular communication implements high-performance data links of up to 150 Mbps via mobile 4G LTE networks. This enables you to establish a mobile broadband connection for highly flexible site networking even in places where a wired Internet connection is not available. These connections can be used to transmit sensitive data securely over mobile networks.

## Your advantages

- Industrial 3G mobile router (UMTS/HSPA)
- Fallback to 2G (GPRS/EDGE)
- Networking of Ethernet end devices via the cellular network
- Ethernet SMS gateway for easy alerting
- Stateful inspection firewall for dynamic filtering
- NAT table and port forwarding for direct remote access to an end device
- Two switching inputs and one switching output
- Configuration via web-based management or microSD card
- Two local Ethernet connections
- Switchable energy-saving mode
- Integrated logbook
- Connection monitoring
- Extended temperature range of -40 °C ... +70 °C

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2702531       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Product key                          | DNC422        |
| GTIN                                 | 4055626212838 |
| Weight per piece (including packing) | 352.1 g       |
| Weight per piece (excluding packing) | 232.8 g       |
| Country of origin                    | DE            |

## Technical data

### Product properties

|              |                                                                         |
|--------------|-------------------------------------------------------------------------|
| Product type | Cellular router                                                         |
| MTTF         | 383 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)    |
|              | 184 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%) |
|              | 78 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)    |

### Electrical properties

|                      |                               |
|----------------------|-------------------------------|
| Electrical isolation | VCC // UMTS // Ethernet // PE |
| Mains type           | Cellular communication        |

### Supply

|                             |                                                            |
|-----------------------------|------------------------------------------------------------|
| Supply voltage range        | 10 V DC ... 30 V DC (Via pluggable Push-in terminal block) |
| Typical current consumption | < 200 mA (24 V DC)                                         |
|                             | 65 mA (With activated energy-saving mode)                  |
| Max. current consumption    | 1.7 A                                                      |

### Function

|            |                            |
|------------|----------------------------|
| Management | Web-based management, SNMP |
|------------|----------------------------|

### Input data

#### Digital

|                            |                     |
|----------------------------|---------------------|
| Description of the input   | Digital input       |
| Number of inputs           | 2                   |
| Voltage input signal       | 10 V DC ... 30 V DC |
| Switching level "1" signal | 10 V DC ... 30 V DC |

### Output data

#### Signal

|                       |                                                          |
|-----------------------|----------------------------------------------------------|
| Output name           | Digital output                                           |
| Number of outputs     | 1                                                        |
| Voltage output signal | 10 V DC ... 30 V DC (depending on the operating voltage) |
| Current output signal | ≤ 50 mA (Not short-circuit proof)                        |

### Connection data

#### Supply

|                                                                       |                           |
|-----------------------------------------------------------------------|---------------------------|
| Connection method                                                     | Push-in spring connection |
| Conductor cross-section flexible, with ferrule without plastic sleeve | 0.25 mm² ... 1.5 mm²      |
| Conductor cross-section, flexible, with ferrule, with plastic sleeve  | 0.25 mm² ... 0.75 mm²     |

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|                                        |                                              |
|----------------------------------------|----------------------------------------------|
| Single conductor/terminal point, rigid | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Single-wire/terminal point, flexible   | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross-section AWG            | 26 ... 16                                    |
| Stripping length                       | 9.00 mm                                      |

## Interfaces

|            |          |
|------------|----------|
| Signal     | Ethernet |
| Web server | yes      |

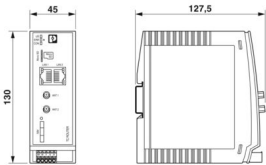
Data: Ethernet interface, 10/100Base-T(X) in accordance with IEEE 802.3

|                           |                                                                     |
|---------------------------|---------------------------------------------------------------------|
| Serial transmission speed | 10/100 Mbps, auto negotiation                                       |
| Connection method         | RJ45 jack, shielded                                                 |
| No. of channels           | 2                                                                   |
| Transmission length       | 100 m (shielded twisted pair)                                       |
| Protocols supported       | TCP/IP, UDP/IP, FTP, HTTP(S)                                        |
| Auxiliary protocols       | ARP, DHCP, PING (ICMP), SNMP V1/V2, SMTP(S), NTP, SSL/TLS, STARTTLS |

## Wireless

|                           |                                   |
|---------------------------|-----------------------------------|
| Interface description     | GSM / GPRS / EDGE / UMTS / HSPA   |
| Frequency range           | 900 MHz (UMTS/HSPA B8)            |
|                           | 2100 MHz (UMTS/HSPA B1)           |
|                           | 850 MHz (2 W (EGSM))              |
|                           | 900 MHz (2 W (EGSM))              |
|                           | 1800 MHz (1 W (EGSM))             |
|                           | 1900 MHz (1 W (EGSM))             |
| Data rate                 | ≤ 21.6 Mbps (HSPA (DL))           |
|                           | ≤ 5.76 Mbps (HSPA (UL))           |
| Antenna                   | 50 Ω impedance SMA antenna socket |
| Antenna connection method | SMA (female)                      |
| SIM Interface             | 1.8 volt, 3 volt                  |
| GPRS                      | Class 12, Class B                 |
|                           | CS1 ... CS4                       |
| EDGE                      | Multislot Class 10                |
| UMTS                      | HSPA 3GPP R7                      |

## Dimensions

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Width               | 45 mm                                                                                |
| Height              | 130 mm                                                                               |
| Depth               | 127 mm                                                                               |

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## Material specifications

|                            |                       |
|----------------------------|-----------------------|
| Color (Upper housing part) | light gray (RAL 7035) |
| Material (Housing)         | Plastic               |

## 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)          | -40 °C ... 70 °C (Maximum transmission power 10 dBm)<br>-40 °C ... 60 °C (Maximum transmission power 23 dBm) |
| Ambient temperature (storage/transport)  | -40 °C ... 85 °C                                                                                             |
| Altitude                                 | ≤ 5000 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 |
|-------------|--------------|

### Corrosive gas test

|                |                                  |
|----------------|----------------------------------|
| Identification | ISA-S71.04-1985 G3 Harsh Group A |
|----------------|----------------------------------|

## EMC data

|                               |                                           |
|-------------------------------|-------------------------------------------|
| Electromagnetic compatibility | Conformance with RED Directive 2014/53/EU |
| Noise immunity                | EN 61000-6-2                              |

### Electrostatic discharge

|                       |              |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-2 |
|-----------------------|--------------|

### Electrostatic discharge

|                   |                       |
|-------------------|-----------------------|
| Contact discharge | ± 6 kV (Test Level 3) |
| Discharge in air  | ± 8 kV (Test Level 3) |
| Comments          | Criterion B           |

### Electromagnetic HF field

|                       |              |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-3 |
|-----------------------|--------------|

### Electromagnetic HF field

|                 |                                 |
|-----------------|---------------------------------|
| Frequency range | 80 MHz ... 3 GHz (Test Level 3) |
| Field intensity | 10 V/m                          |
| Comments        | Criterion A                     |

## Fast transients (burst)

|                       |              |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-4 |
|-----------------------|--------------|

## Fast transients (burst)

|          |                       |
|----------|-----------------------|
| Input    | ± 2 kV (Test Level 3) |
| Signal   | ± 2 kV (Ethernet)     |
| Comments | Criterion B           |

## Surge current load (surge)

|                       |              |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-5 |
|-----------------------|--------------|

## Surge current load (surge)

|          |                                                 |
|----------|-------------------------------------------------|
| Input    | ± 0.5 kV (symmetrical)<br>± 1 kV (asymmetrical) |
| Signal   | ± 1 kV (Data line, asymmetrical)                |
| Comments | Criterion B                                     |

## Conducted interference

|                       |              |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-6 |
|-----------------------|--------------|

## Conducted interference

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

## Emitted interference

|                                                  |                                                        |
|--------------------------------------------------|--------------------------------------------------------|
| Radio interference voltage in acc. with EN 55011 | Class B, area of application: Industry and residential |
| Emitted radio interference in acc. with EN 55011 | Class B, area of application: Industry and residential |

## Criteria

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

## Mounting

|               |                   |
|---------------|-------------------|
| Mounting type | DIN rail mounting |
|---------------|-------------------|

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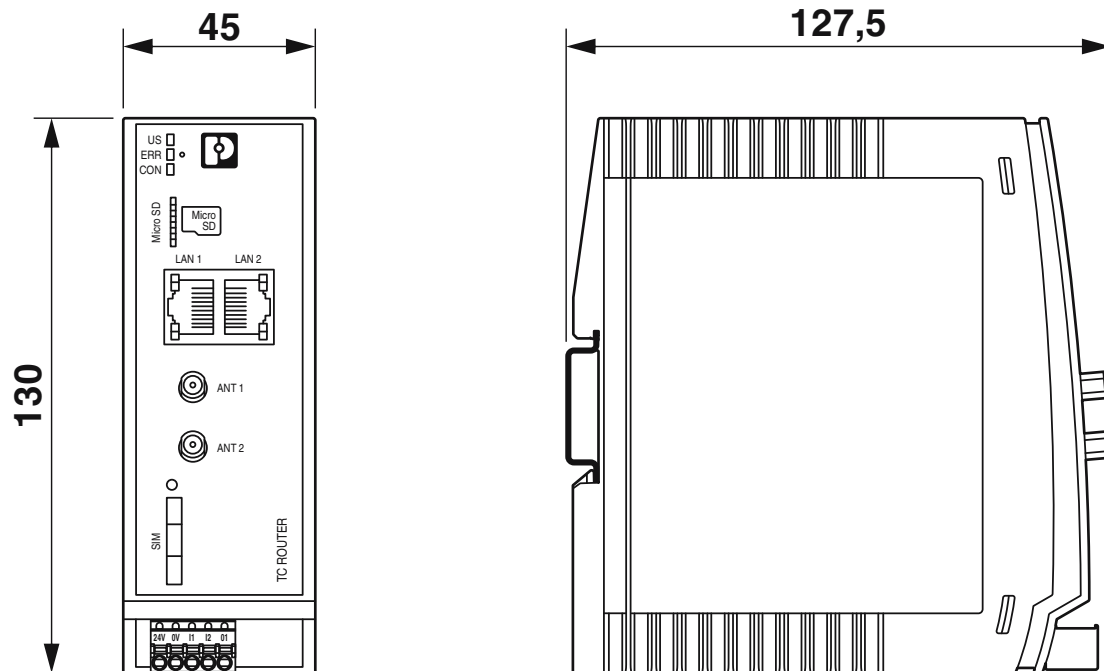
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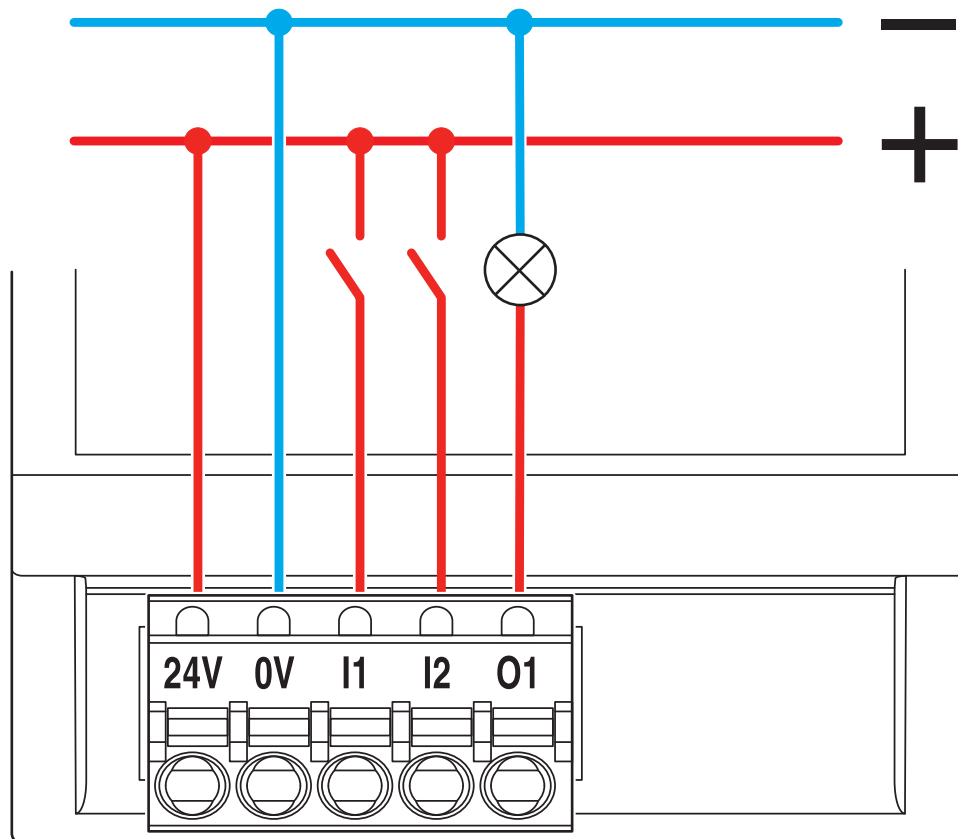


## Drawings

Dimensional drawing



Connection diagram



Switching inputs

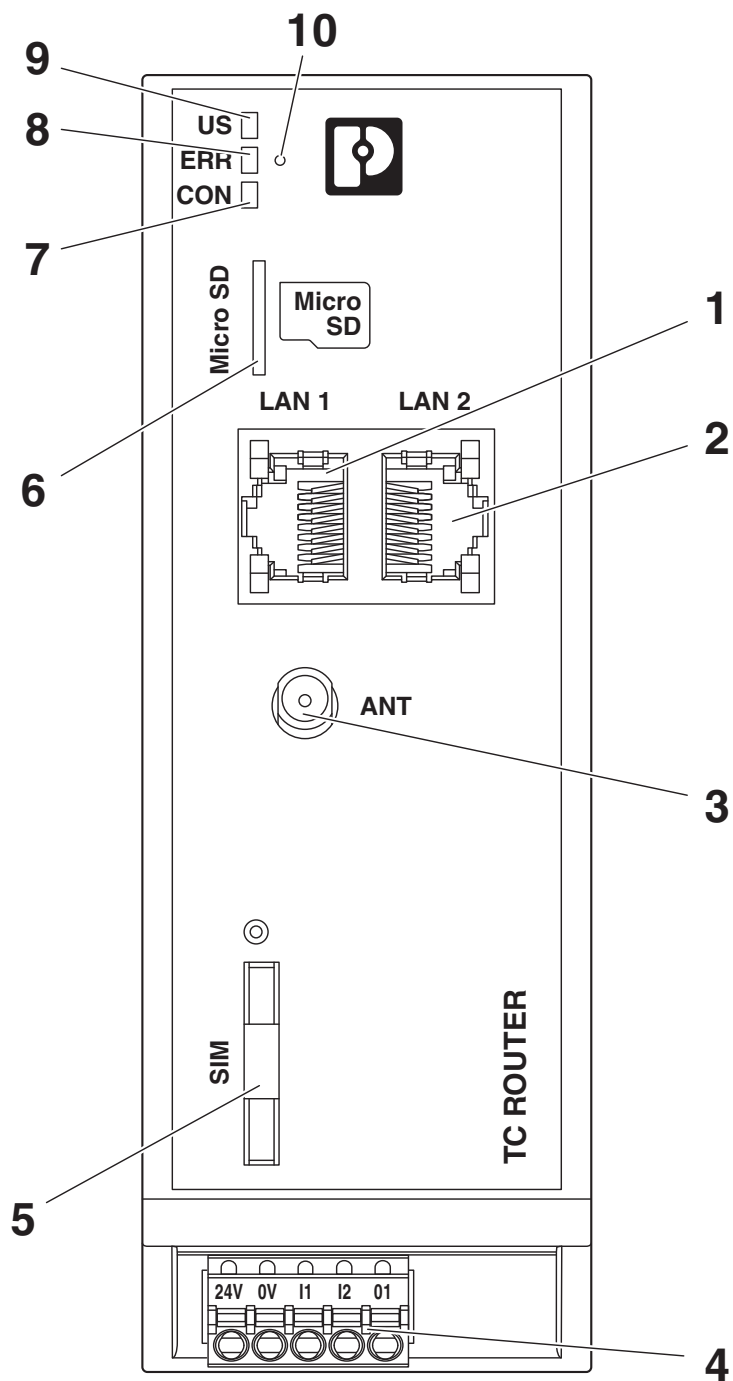
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Schematic diagram



Front view

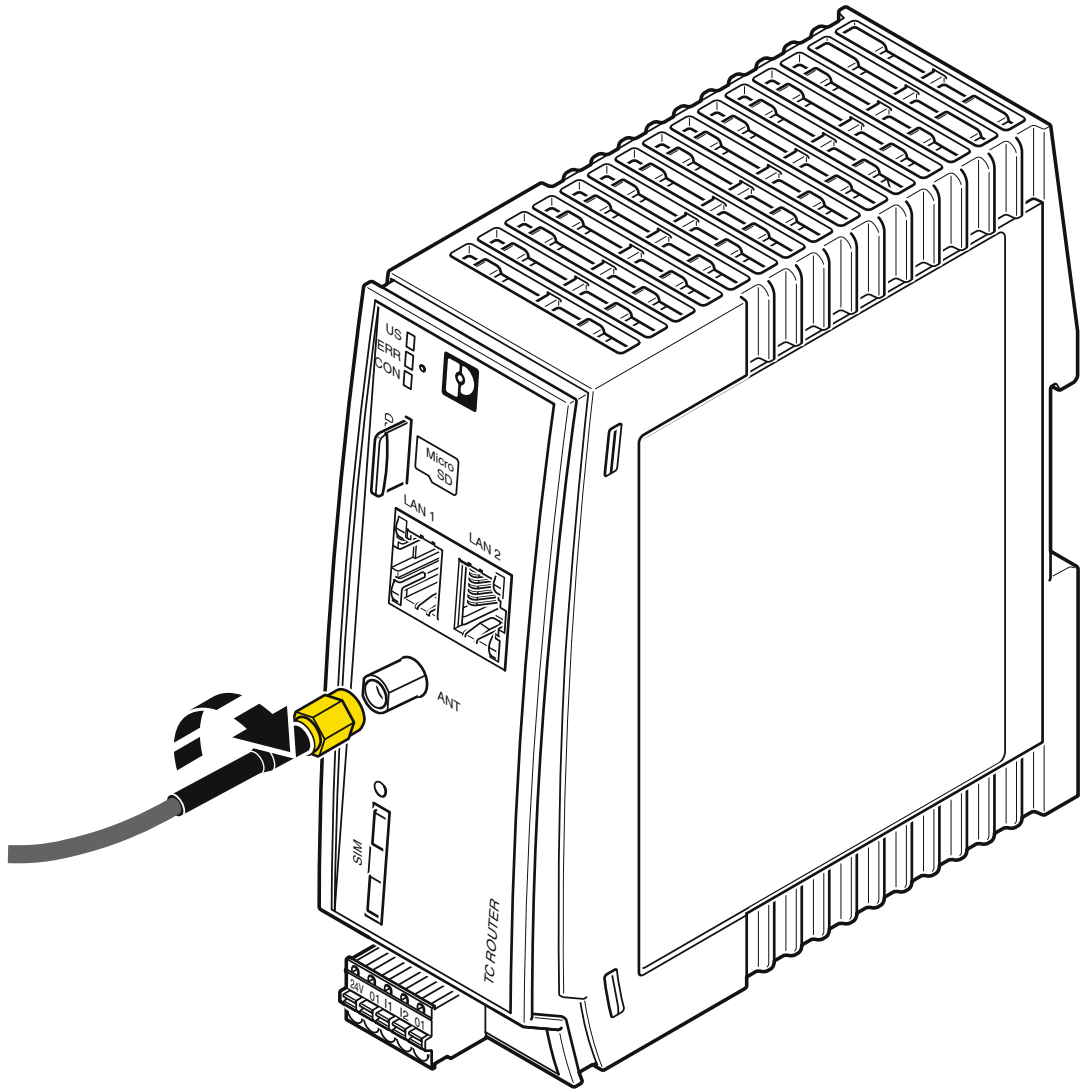
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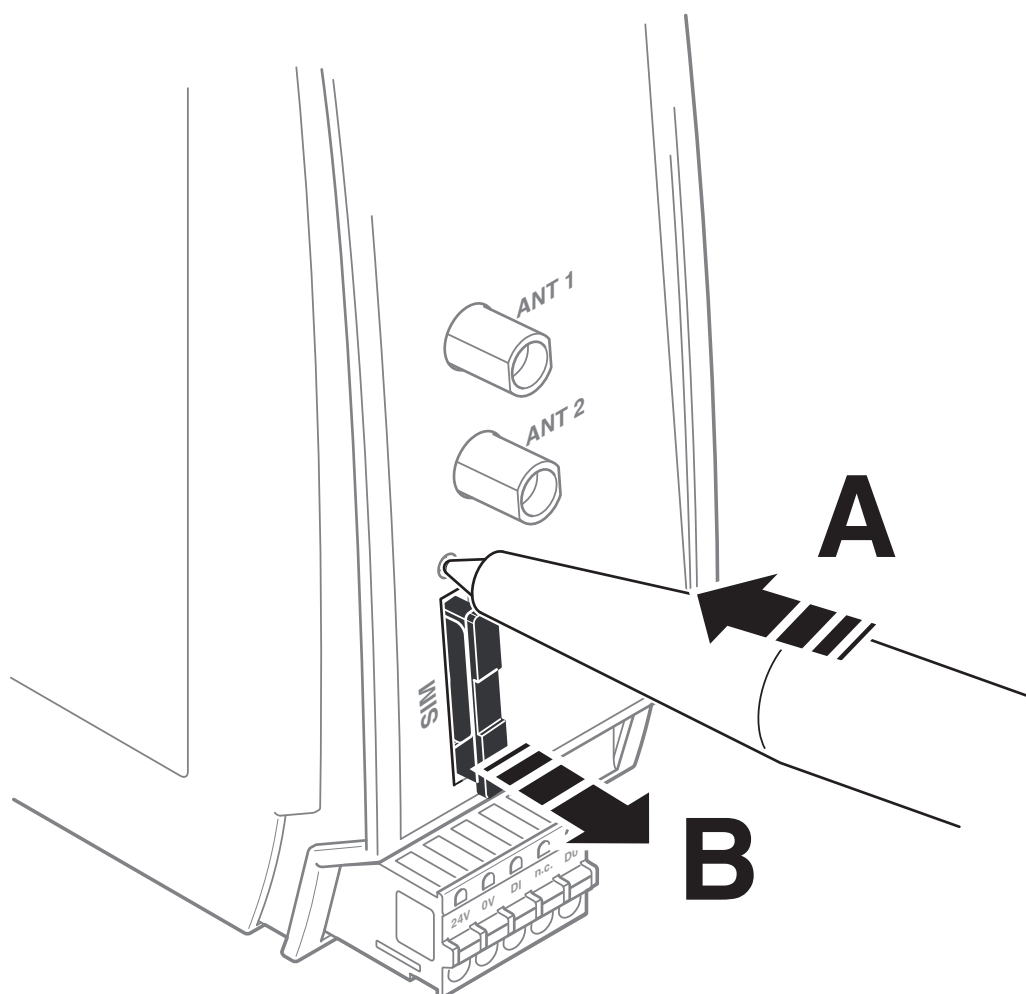


### Schematic diagram



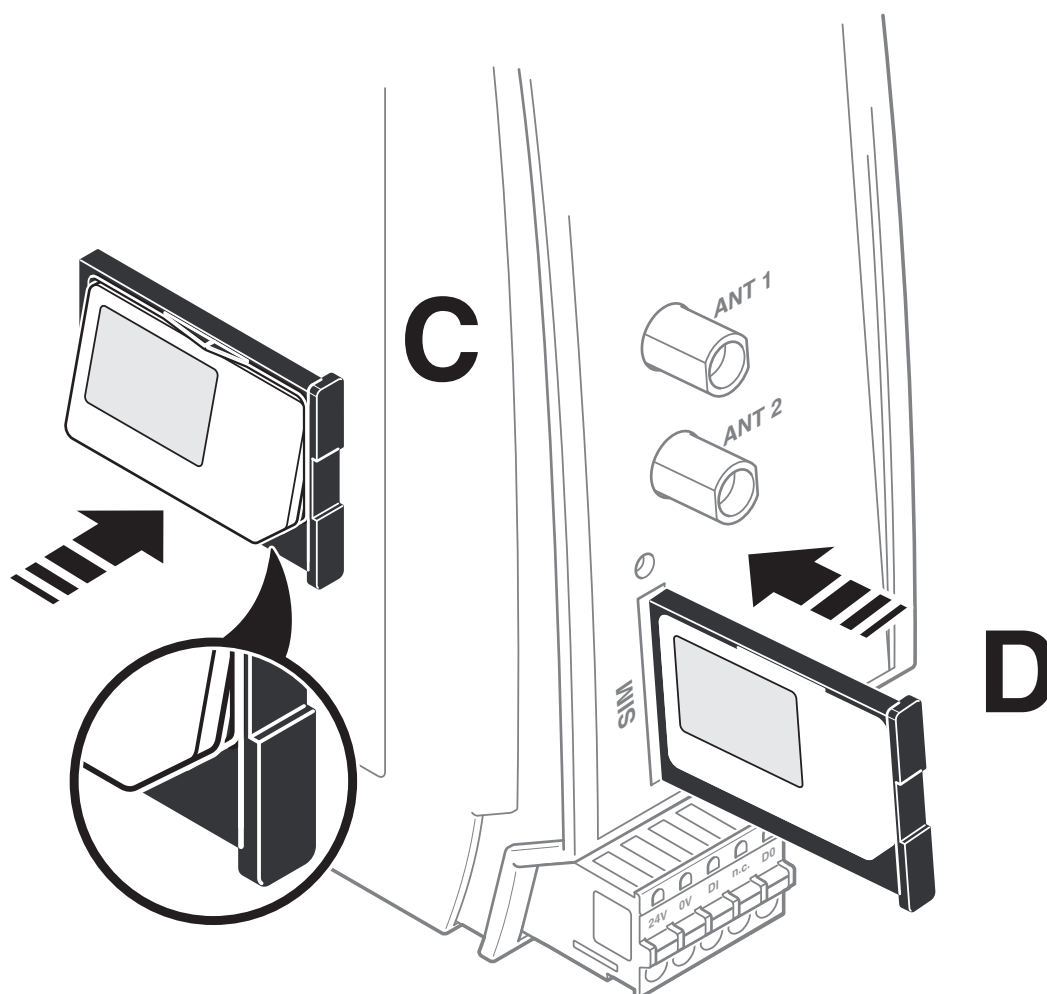
## Connect the antenna

Schematic diagram



Remove SIM card holder

Schematic diagram



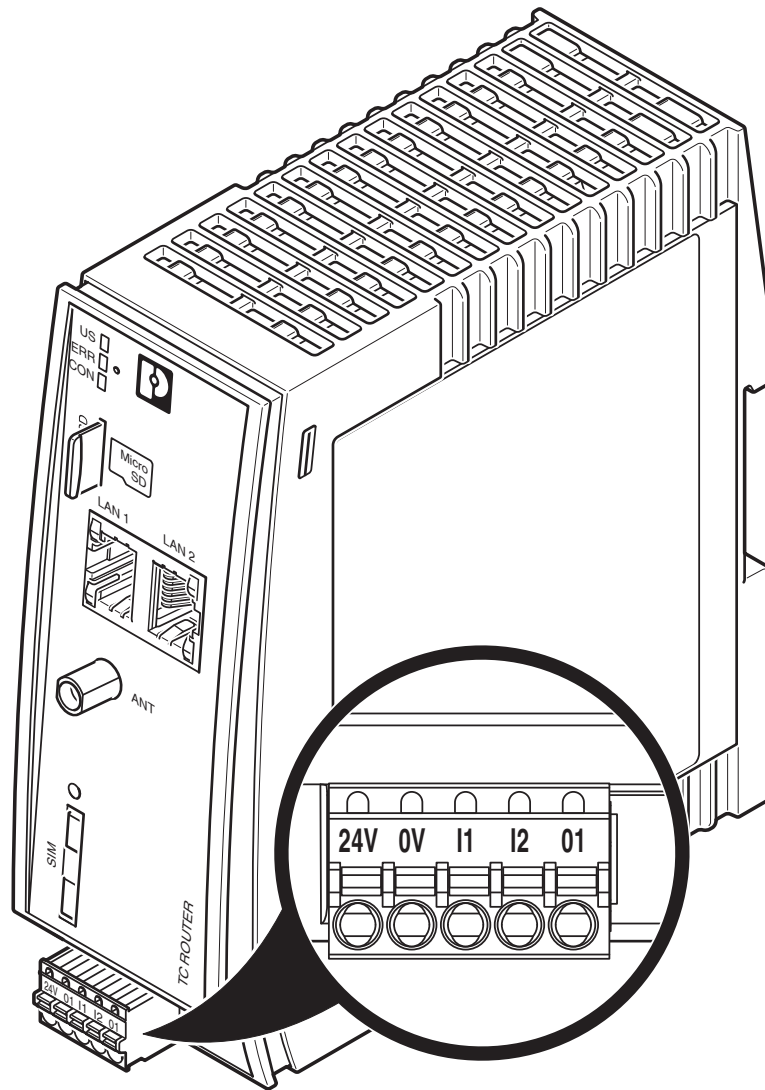
Insert the SIM card

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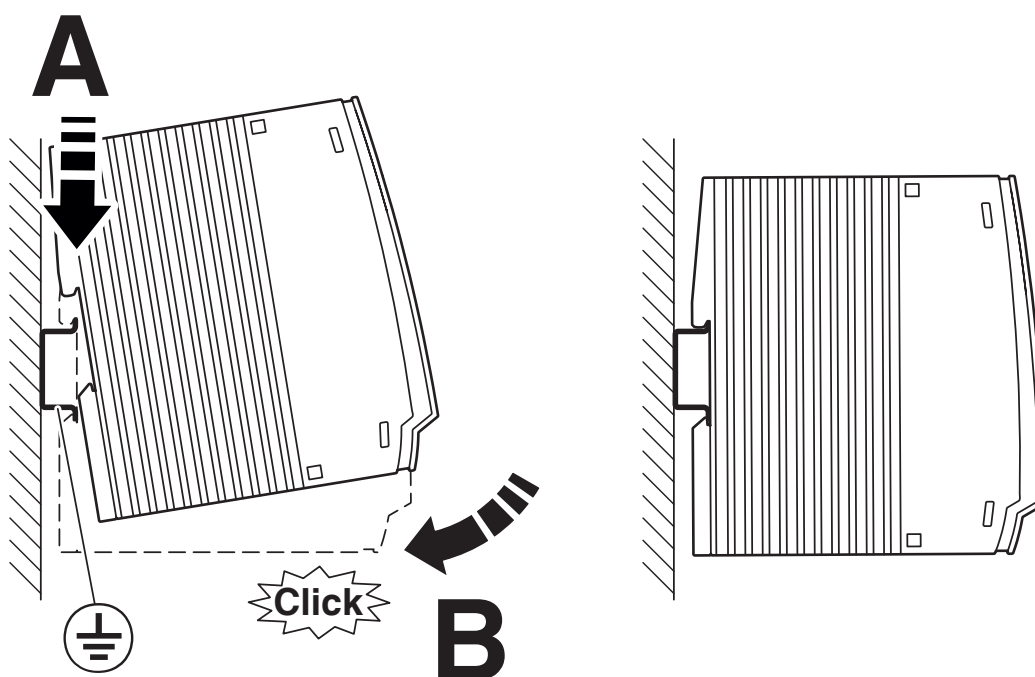
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Schematic diagram



Device connections

Schematic diagram



Mounting

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 19170502 |
|-------------|----------|

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC001478 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 43222600 |
|-------------|----------|

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## Environmental product compliance

### EU RoHS

|                                         |                    |
|-----------------------------------------|--------------------|
| Fulfills EU RoHS substance requirements | Yes, No exemptions |
|-----------------------------------------|--------------------|

### 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.) | No substance above 0.1 wt% |
|-------------------------------------|----------------------------|

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