

MINI MCR-RTD-UI-SP-NC - Resistance thermometer measuring transducer



2902850

<https://www.phoenixcontact.com/us/products/2902850>

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Temperature transducer for the connection of 2, 3, and 4-conductor resistance thermometers and resistance-type sensors. Configurable via DIP switch or software. Spring-cage connection, standard configuration. Replacement part: 2902052 MINI MCR-2-RTD-UI-PT.

Product description

The configurable temperature transducer with 3-way isolation is suitable for the connection of resistance thermometers and remote resistance-type sensors with 2, 3, and 4-conductor connection technology.

The measured values are converted into a linear current or voltage signal.

You can configure the device using one of the free software solutions. Default settings can also be made directly on the device by simply using the DIP switches (see configuration table). The measuring transducer supports fault monitoring.

Commercial data

| | |
|--------------------------------------|--------------------------------|
| Item number | 2902850 |
| Packing unit | 1 pc |
| Note | Made to order (non-returnable) |
| Sales key | C403 |
| Product key | DK1135 |
| GTIN | 4046356689250 |
| Weight per piece (including packing) | 112.2 g |
| Weight per piece (excluding packing) | 90.9 g |
| Customs tariff number | 85437090 |
| Country of origin | DE |

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Technical data

Product properties

| | |
|----------------|-------------------------|
| Product type | Temperature transmitter |
| Product family | MINI Analog |

Insulation characteristics

| | |
|----------------------|----|
| Overvoltage category | II |
| Pollution degree | 2 |

Electrical properties

| | |
|---|--|
| Rated insulation voltage | 50 V AC/DC |
| Electrical isolation | 3-way isolation |
| Electrical isolation between input and output | yes |
| Test voltage, input/output/supply | 1.5 kV (50 Hz, 1 min.) |
| Protective circuit | Transient protection |
| Step response (0–99%) | 200 ms (2-conductor) |
| | 500 ms (3-conductor) |
| | 500 ms (4-conductor) |
| Maximum temperature coefficient | 0.01 %/K |
| Transmission error resistance-type sensor | 2 Ω |
| Transmission error resistance thermometer | 0.1 % * 350 K / set measuring range; 0.1 % > 350 K (Pt/Ni) |
| | 0.3 % * 200 K / set measuring range; 0.3 % > 200 K (Cu) |

Electrical isolation Input/output/power supply

| | |
|--------------------------|--|
| Rated insulation voltage | 50 V AC/DC |
| Test voltage | 1.5 kV AC (50 Hz, 60 s) |
| Insulation | Basic insulation in accordance with IEC/EN 61010 |

Supply

| | |
|-----------------------------|--|
| Supply voltage range | 9.6 V DC ... 30 V DC (The DIN rail connector (ME 6,2 TBUS-2 1,5/5-ST-3,81 GN, item no. 2869728) can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail in accordance with EN 60715) |
| Typical current consumption | < 27 mA (at 24 V DC) |
| Power consumption | ≤ 700 mW (at I _{OUT} = 20 mA, 9.6 V DC, load 500 Ω) |

Input data

Signal

| | |
|------------------|-------------|
| Number of inputs | 1 |
| Input signal | Temperature |
| | Resistor |

Measurement

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| | |
|---|--|
| Configurable/programmable | Yes |
| Sensor types (RTD) that can be used | Pt, Ni, Cu sensors: 2, 3, 4-wire |
| Temperature measuring range | -200 °C ... 850 °C (Range depends on sensor type, range can be set freely via software or in increments from -150°C to 850°C via DIP switches) |
| Temperature measuring range | min. 50 K |
| Sensor input current | approx. 200 µA |
| Max. permissible overall conductor resistance | ≤ 25 Ω (Per cable) |
| Linear resistance measuring range | 0 Ω ... 4000 Ω (Minimum measuring span: 10% of the selected measuring range) |
| Connection technology | 2-, 3-, 4-conductor |

Output data

Frequency:

| | |
|---------------------------|----|
| Configurable/programmable | no |
|---------------------------|----|

Signal

| | |
|---------------------------------|----------------------------------|
| Number of outputs | 1 |
| Configurable/programmable | Yes |
| Voltage output signal | 0 V ... 10 V |
| | 10 V ... 0 V |
| | 0 V ... 5 V |
| | 1 V ... 5 V |
| Max. voltage output signal | approx. 12.3 V |
| Current output signal | 0 mA ... 20 mA |
| | 4 mA ... 20 mA |
| | 20 mA ... 0 mA |
| | 20 mA ... 4 mA |
| Max. current output signal | 24.6 mA |
| Load/output load voltage output | 10 kΩ |
| Load/output load current output | 500 Ω (at 20 mA) |
| Ripple | < 20 mV _{PP} |
| | < 20 mV _{PP} (at 500 Ω) |

Connection data

| | |
|----------------------------------|---|
| Connection method | Spring-cage connection |
| Stripping length | 8 mm |
| Conductor cross-section rigid | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section flexible | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section AWG | 24 ... 12 |

Interfaces

Data: IFS interface

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| | |
|-------------------|--------|
| Connection method | S-PORT |
|-------------------|--------|

Signaling

| | |
|----------------|-----------|
| Status display | LED (red) |
|----------------|-----------|

Dimensions

| | |
|---------------------|----------|
| Dimensional drawing | |
| Width | 6.2 mm |
| Height | 93.1 mm |
| Depth | 102.5 mm |

Material specifications

| | |
|--|------------------|
| Color | green (RAL 6021) |
| Fire protection for rail vehicles (DIN EN 45545-2) R22 | HL 1 - HL 2 |
| Fire protection for rail vehicles (DIN EN 45545-2) R23 | HL 1 - HL 2 |
| Fire protection for rail vehicles (DIN EN 45545-2) R24 | HL 1 - HL 2 |

Environmental and real-life conditions

Ambient conditions

| | |
|---|-------------------------------|
| Degree of protection | IP20 |
| Ambient temperature (operation) | -20 °C ... 65 °C |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Permissible humidity (operation) | 5 % ... 95 % (non-condensing) |

Approvals

CE

| | |
|-------------|--------------|
| Certificate | CE-compliant |
|-------------|--------------|

ATEX

| | |
|----------------|----------------------------|
| Identification | Ⓔ II 3 G Ex nA IIC T4 Gc X |
|----------------|----------------------------|

UL, USA/Canada

| | |
|----------------|---------------------------------------|
| Identification | UL 508 Listed |
| | Class I, Div. 2, Groups A, B, C, D T4 |
| | Class I, Zone 2, Group IIC |

Shipbuilding approval

| | |
|----------------|---------|
| Identification | D, EMC1 |
|----------------|---------|

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| | |
|-------------|-------------------|
| Certificate | DNV GL 14085-15HH |
|-------------|-------------------|

EMC data

| | |
|-------------------------------|--|
| Electromagnetic compatibility | Conformance with EMC directive |
| Noise immunity | EN 61000-6-2 |
| Note | When being exposed to interference, there may be minimal deviations. |

Noise emission

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

Electrostatic discharge

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

Electrostatic discharge

| | |
|----------|---|
| Comments | Safety measures must be taken to prevent electrostatic discharge. |
|----------|---|

Electromagnetic HF field

| | |
|--|--------------------------|
| Designation | Electromagnetic RF field |
| Standards/regulations | EN 61000-4-3 |
| Typical deviation from the measuring range final value | 0.04 % |

Fast transients (burst)

| | |
|--|-------------------------|
| Designation | Fast transients (burst) |
| Standards/regulations | EN 61000-4-4 |
| Typical deviation from the measuring range final value | 0.1 % |

Surge current load (surge)

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

Conducted interference

| | |
|--|-------------------------|
| Designation | Conducted interferences |
| Standards/regulations | EN 61000-4-6 |
| Typical deviation from the measuring range final value | 0.02 % |

Standards and regulations

| | |
|----------------------|-----------------|
| Electrical isolation | 3-way isolation |
|----------------------|-----------------|

Mounting

| | |
|-------------------|---|
| Mounting type | DIN rail mounting |
| Assembly note | The DIN rail connector can be used for bridging the supply voltage. It can be snapped onto a 35 mm EN 60715 DIN rail. |
| Mounting position | any |

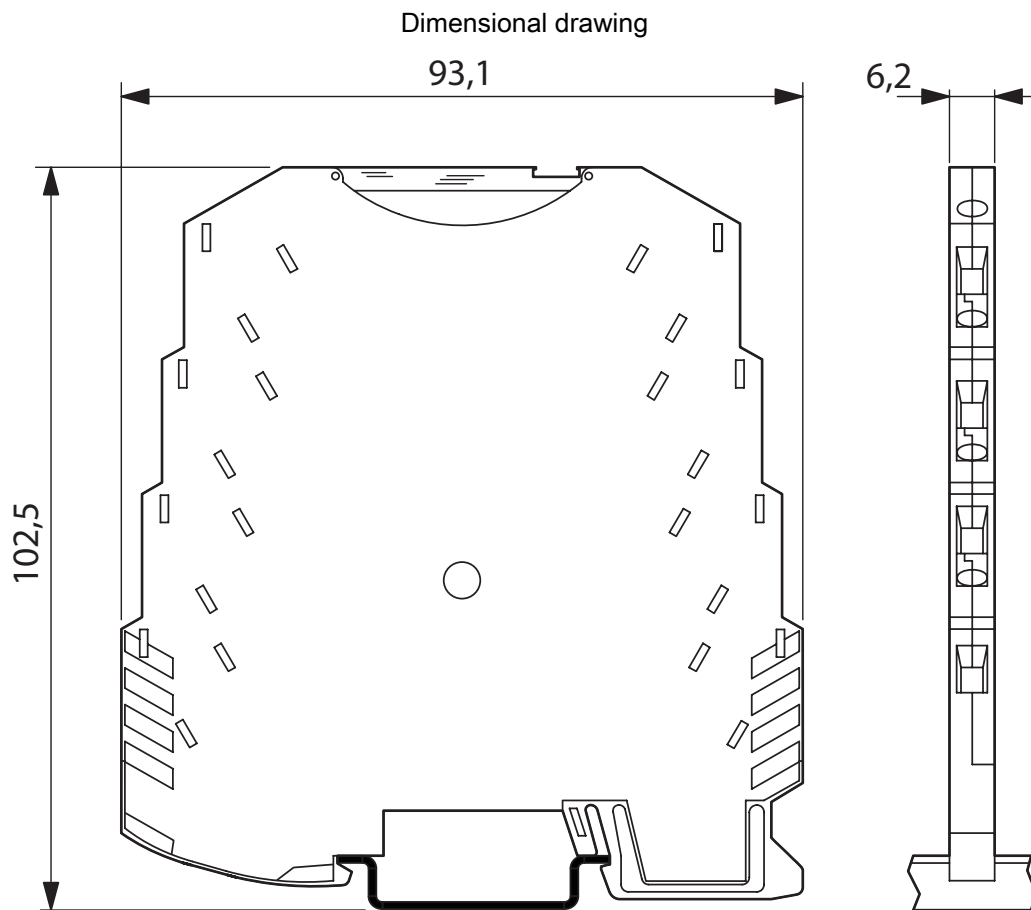
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Drawings



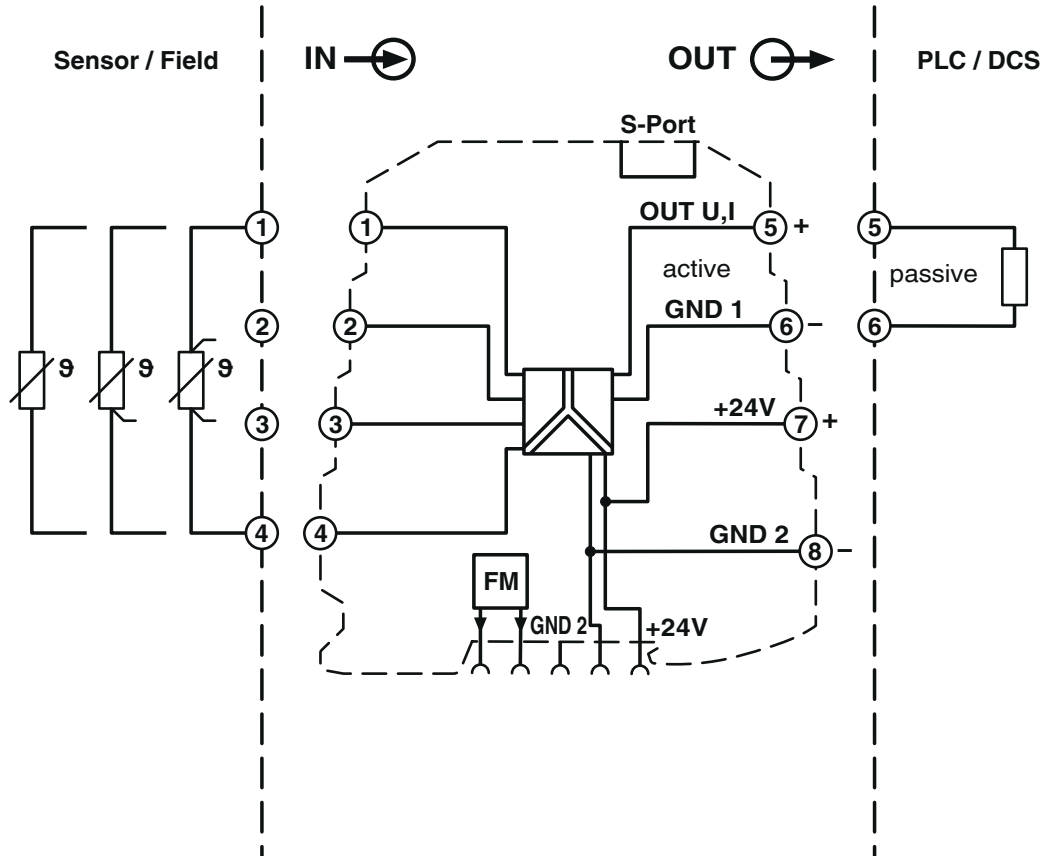
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Block diagram



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Environmental product compliance

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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