

# MINI MCR-SL-PT100-UI-NC - Temperature measuring transducer



2864273

<https://www.phoenixcontact.com/us/products/2864273>

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MCR temperature transducer for Pt 100 temperature sensors, configured via DIP switches, with screw connection, not preconfigured

## Product description

The narrow, 6.2 mm wide MINI MCR-SL-PT100-UI... is a configurable, 3-way isolated temperature transducer. It is suitable for connecting Pt 100 resistance thermometers in accordance with IEC 60751 in 2-, 3-, and 4-conductor connection technology.

Electrically isolated 0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 0 ... 5 V, 1 ... 5 V, 10 ... 0 V, 20 ... 0 mA, or 20 ... 4 mA standard analog signals are available on the output side.

The DIP switches, which can be accessed on the side of the housing, are used to configure the following parameters:

- Connection technology
- Temperature range to be measured
- Output signal
- Type of error evaluation

Power (19.2 V DC to 30 V DC) can either be supplied via the connection terminal blocks of the modules or in conjunction with the DIN rail connector.

## Your advantages

- Power supply possible via the foot element (TBUS)
- For 2-, 3-, 4-conductor Pt 100 sensors in accordance with IEC 60751
- Error indication via diagnostic LED and analog signal
- Input and output signals can be configured via DIP switches
- Highly-compact temperature transducer for electrical isolation, conversion, amplification, and filtering of
- 3-way isolation
- Pt 100 signals to create standard signals
- Temperature measuring range of -150°C to +850°C

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2864273       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | C403          |
| Product key                          | DK1135        |
| GTIN                                 | 4017918956561 |
| Weight per piece (including packing) | 88.85 g       |
| Weight per piece (excluding packing) | 99.2 g        |

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|                       |          |
|-----------------------|----------|
| Customs tariff number | 85437090 |
| Country of origin     | DE       |

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## Technical data

### Notes

#### Utilization restriction

|          |                                                                           |
|----------|---------------------------------------------------------------------------|
| EMC note | EMC: class A product, see manufacturer's declaration in the download area |
|----------|---------------------------------------------------------------------------|

### Product properties

|                 |                         |
|-----------------|-------------------------|
| Product type    | Temperature transmitter |
| Product family  | MINI Analog             |
| No. of channels | 1                       |
| Configuration   | DIP switches            |

### System properties

#### Functionality

|               |              |
|---------------|--------------|
| Configuration | DIP switches |
|---------------|--------------|

### Electrical properties

|                                                 |                                                                |
|-------------------------------------------------|----------------------------------------------------------------|
| Electrical isolation                            | 3-way isolation                                                |
| Electrical isolation between input and output   | yes                                                            |
| Maximum power dissipation for nominal condition | 235.5 mW                                                       |
| Protective circuit                              | Transient protection                                           |
| Step response (0–99%)                           | < 160 ms                                                       |
| Maximum temperature coefficient                 | < 0.02 %/K                                                     |
| Transmission error in the set measuring range   | $((100 \text{ K} / \text{set measurement range [K]}) + 0.1)\%$ |
| Transmission error in the full measuring range  | $\leq 0,2 \%$                                                  |

#### Electrical isolation

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

#### Electrical isolation Input/output/power supply IEC/EN 61010

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

#### Supply

|                          |                                                                                                                                                                                                                 |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal supply voltage   | 24 V DC                                                                                                                                                                                                         |
| Supply voltage range     | 19.2 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) |
| Max. current consumption | < 21 mA (at 24 V DC)                                                                                                                                                                                            |

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|                   |          |
|-------------------|----------|
| Power consumption | < 500 mW |
|-------------------|----------|

## Input data

### Signal




|                  |   |
|------------------|---|
| Number of inputs | 1 |
|------------------|---|

### Measurement

|                                               |                                   |
|-----------------------------------------------|-----------------------------------|
| Configurable/programmable                     | Yes                               |
| Sensor types (RTD) that can be used           | Pt 100 (IEC 60751/EN 60751)       |
| Temperature measuring range                   | min. 50 K                         |
| Temperature measuring range: Pt 100           | -150 °C ... 850 °C (configurable) |
| Sensor input current                          | 1 mA (constant)                   |
| Max. permissible overall conductor resistance | 10 Ω (Per cable)                  |
| Connection technology                         | 2-, 3-, 4-conductor               |

## Output data

### Signal: Voltage/current

|                                 |                                                                                          |
|---------------------------------|------------------------------------------------------------------------------------------|
| Number of outputs               | 1                                                                                        |
| Configurable/programmable       | Yes, unconfigured                                                                        |
| Voltage output signal           | 0 V ... 5 V<br>1 V ... 5 V<br>0 V ... 10 V<br>10 V ... 0 V                               |
| Max. voltage output signal      | ≈  V  |
| Open-circuit voltage            | ≈  V  |
| Current output signal           | 0 mA ... 20 mA<br>4 mA ... 20 mA<br>20 mA ... 0 mA<br>20 mA ... 4 mA                     |
| Max. current output signal      | 23 mA                                                                                    |
| Short-circuit current           | ≈  mA |
| Load/output load voltage output | ≥ 10 kΩ                                                                                  |
| Load/output load current output | < 500 Ω (at 20 mA)                                                                       |
| Ripple                          | < 20 mV <sub>PP</sub> (at 10 kΩ)<br>< 20 mV <sub>PP</sub> (at 500 Ω)                     |

## Connection data

|                                  |                                             |
|----------------------------------|---------------------------------------------|
| Connection method                | Screw connection                            |
| Stripping length                 | 12 mm                                       |
| Screw thread                     | M3                                          |
| Conductor cross-section rigid    | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross-section flexible | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |

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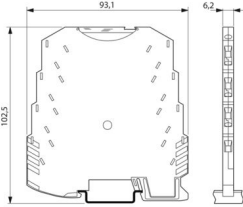


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|                             |           |
|-----------------------------|-----------|
| Conductor cross-section AWG | 26 ... 12 |
|-----------------------------|-----------|

## Dimensions

|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Width               | 6.2 mm                                                                             |
| Height              | 93.1 mm                                                                            |
| Depth               | 101.2 mm                                                                           |

## Material specifications

|                                                        |                  |
|--------------------------------------------------------|------------------|
| Color                                                  | green (RAL 6021) |
| Housing material                                       | PBT              |
| 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              |
| Altitude                                | ≤ 2000 m                      |
| Permissible humidity (operation)        | 5 % ... 95 % (non-condensing) |

## Approvals

### CE

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

### UL, USA/Canada

|                |                                       |
|----------------|---------------------------------------|
| Identification | UL 508 Recognized                     |
|                | Class I, Div. 2, Groups A, B, C, D T5 |

## 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

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|                       |              |
|-----------------------|--------------|
| 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 | 10 %                     |

## Fast transients (burst)

|                                                        |                         |
|--------------------------------------------------------|-------------------------|
| Designation                                            | Fast transients (burst) |
| Standards/regulations                                  | EN 61000-4-4            |
| Typical deviation from the measuring range final value | 10 %                    |

## Surge current load (surge)

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

## Surge current load (surge)

|          |             |
|----------|-------------|
| Comments | Criterion B |
|----------|-------------|

## Conducted interference

|                                                        |                         |
|--------------------------------------------------------|-------------------------|
| Designation                                            | Conducted interferences |
| Standards/regulations                                  | EN 61000-4-6            |
| Typical deviation from the measuring range final value | 10 %                    |

## 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                                                                                                                   |

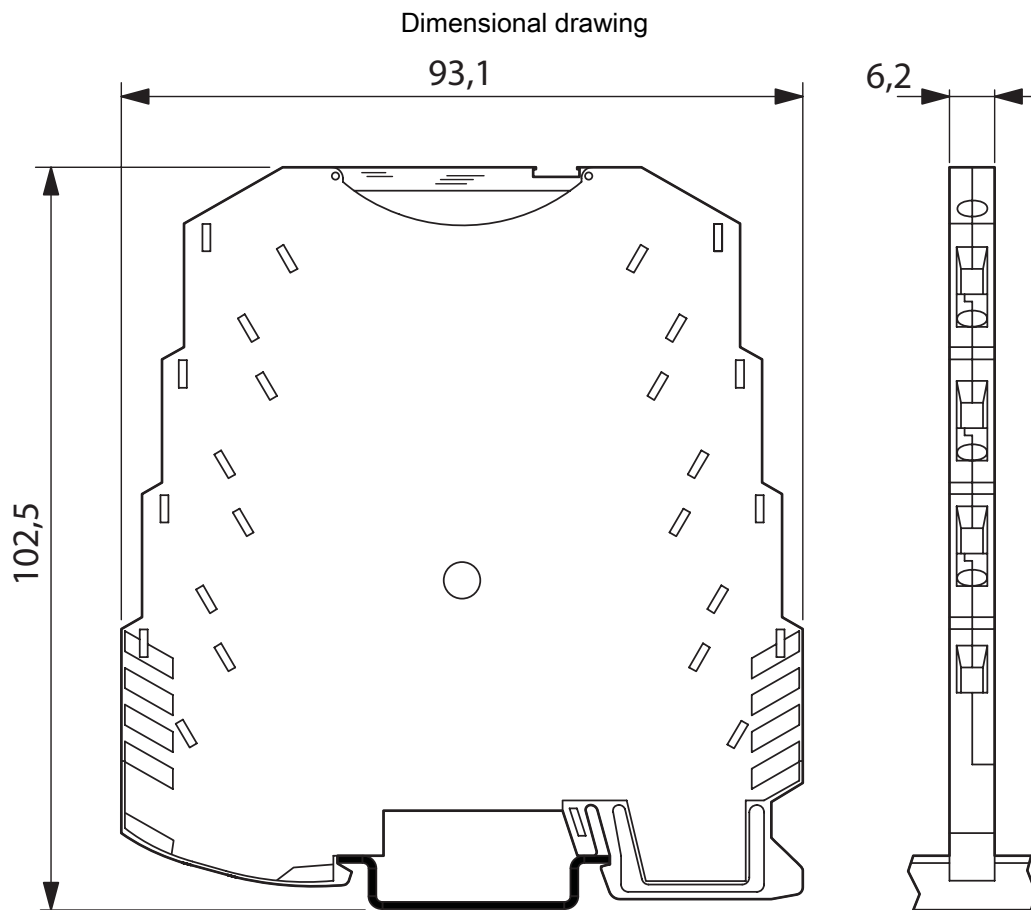
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## Drawings

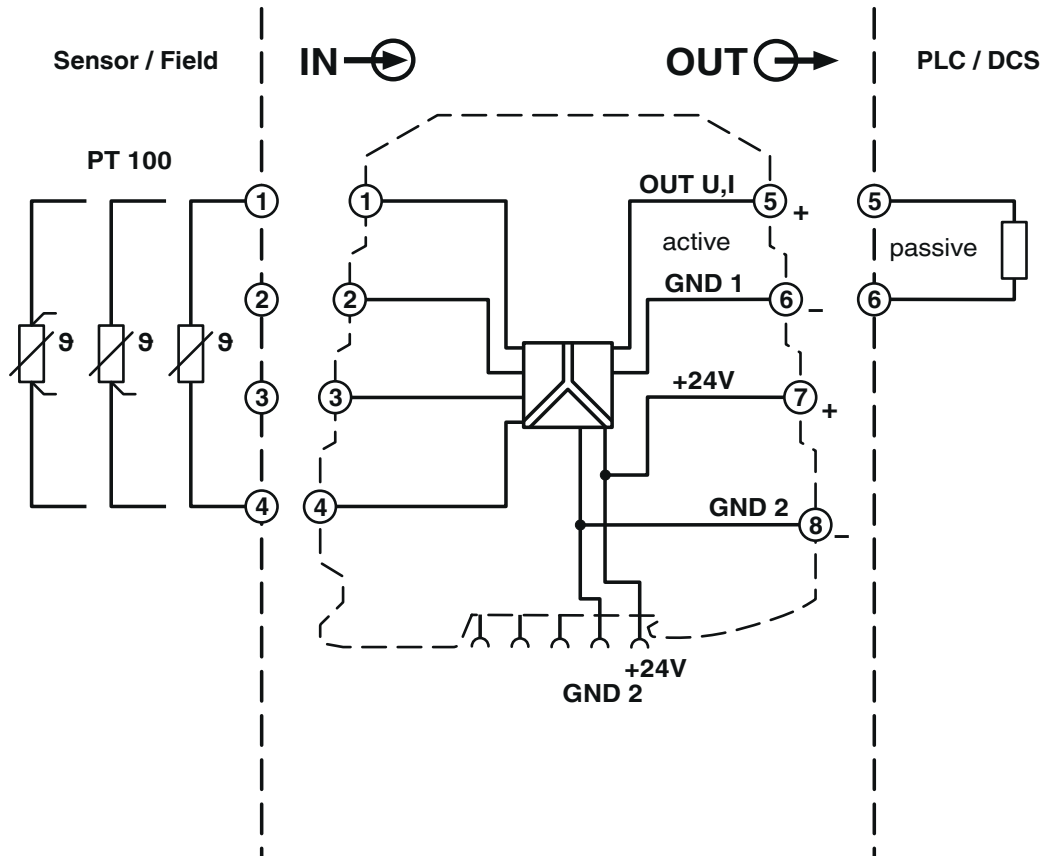


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Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2864273>



**cUL Recognized**  
Approval ID: E238705



**UL Recognized**  
Approval ID: E238705

**DNV**

Approval ID: TAA00002R0



**cUL Listed**  
Approval ID: E199827



**UL Listed**  
Approval ID: E199827

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-15.0 | 27210129 |
| ECLASS-13.0 | 27210129 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC002919 |
|-----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 41112100 |
|-------------|----------|

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## Environmental product compliance

### EU RoHS

|                                         |              |
|-----------------------------------------|--------------|
| Fulfills EU RoHS substance requirements | Yes          |
| Exemption                               | 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                                | 6a31acdc-1425-418f-9b19-c945668e11e5                           |

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 5.595 kg CO2e |
|---------|---------------|

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