

MINI MCR-SL-PT100-LP-NC - Temperature measuring transducer



2810308

<https://www.phoenixcontact.com/us/products/2810308>

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Configurable loop-powered temperature transducer for Pt 100 temperature sensors, configured via DIP switches, with screw connection, not preconfigured

Your advantages

- 2-, 3-, 4-conductor Pt 100 sensors
- Highly-compact loop-powered temperature transducer for electrical isolation, conversion, amplification, and filtering of Pt 100 signals to create standard signals
- Does not require additional auxiliary voltage
- Error indication via diagnostic LED and analog signal
- 2-way isolation
- Input signals can be configured via DIP switches
- Supplied by an output loop
- Temperature measuring range of -150 °C ... 300 °C

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2810308 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C403 |
| Product key | DK1135 |
| GTIN | 4046356134668 |
| Weight per piece (including packing) | 95.8 g |
| Weight per piece (excluding packing) | 68.4 g |
| 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 |
| Configuration | DIP switches |

System properties

Functionality

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

Electrical properties

| | |
|---|---|
| Electrical isolation | 2-way isolation |
| Electrical isolation between input and output | yes |
| Linearity error | < 0.05 % (for full measuring range) |
| Maximum power dissipation for nominal condition | < 42 mW |
| Step response (0–99%) | < 200 ms |
| Maximum temperature coefficient | < 0.02 %/K |
| Transmission error in the set measuring range | $((90 \text{ K} / \text{set measuring range [K]} + 0.05)\%$ |
| Transmission error in the full measuring range | $\leq 0.25 \%$ |

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 | 30 V AC |
| | 50 V DC |
| Test voltage | 1.5 kV AC (50 Hz, 60 s) |
| Insulation | Basic insulation |

Supply

| | |
|--------------------------|-----------------------------------|
| Designation | Loop-powered |
| Supply voltage range | 12 V DC ... 30 V DC |
| Max. current consumption | < 4.5 mA (without signal current) |
| Power consumption | < 150 mW (without signal current) |

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Input data

Signal

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

Measurement

| | |
|---|--|
| Configurable/programmable | Yes, unconfigured |
| 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 ... 300 °C (configurable) |
| Sensor input current | 1 mA (constant) |
| Max. permissible overall conductor resistance | 10 Ω (Per cable) |
| Connection technology | 2-, 3-, 4-conductor |
| Error detection limit (short-circuit) | < 30 Ω |
| Error detection limit (underrange) | 30 Ω ≤ (start span - 2.5% span) |
| Error detection limit (overrange) | (end span + 2.5% span) ≤ approx. 254 Ω |
| Error detection limit (wire break) | > approx. 254 Ω |

Output data

Signal: Current

| | |
|---------------------------------|--|
| Number of outputs | 1 |
| Configurable/programmable | Yes, unconfigured |
| Current output signal | 4 mA ... 20 mA 20 mA ... 4 mA |
| Max. current output signal | 23 mA (output limit) |
| Load/output load current output | $(U_{\text{supply}} - 12 \text{ V}) / 22 \text{ mA}$ |
| Ripple | < 20 mV _{PP} (at 500 Ω) |

Connection data

| | |
|----------------------------------|---|
| Connection method | Screw connection |
| Stripping length | 12 mm |
| Screw thread | M3 |
| 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 | 26 ... 12 |

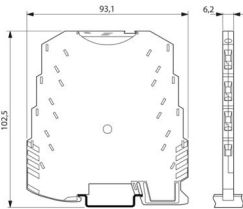
Dimensions

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

UKCA

| | |
|-------------|----------------|
| Certificate | UKCA-compliant |
|-------------|----------------|

UL, USA/Canada

| | |
|----------------|--|
| Identification | UL 508 Recognized Class I, Div. 2, Groups A, B, C, D T4 |
|----------------|--|

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 | 5 % |

Fast transients (burst)

| | |
|--|-------------------------|
| Designation | Fast transients (burst) |
| Standards/regulations | EN 61000-4-4 |
| Typical deviation from the measuring range final value | 5 % |

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 | 5 % |

Standards and regulations

| | |
|----------------------|-----------------|
| Electrical isolation | 2-way isolation |
|----------------------|-----------------|

Mounting

| | |
|-------------------|-------------------|
| Mounting type | DIN rail mounting |
| Mounting position | any |

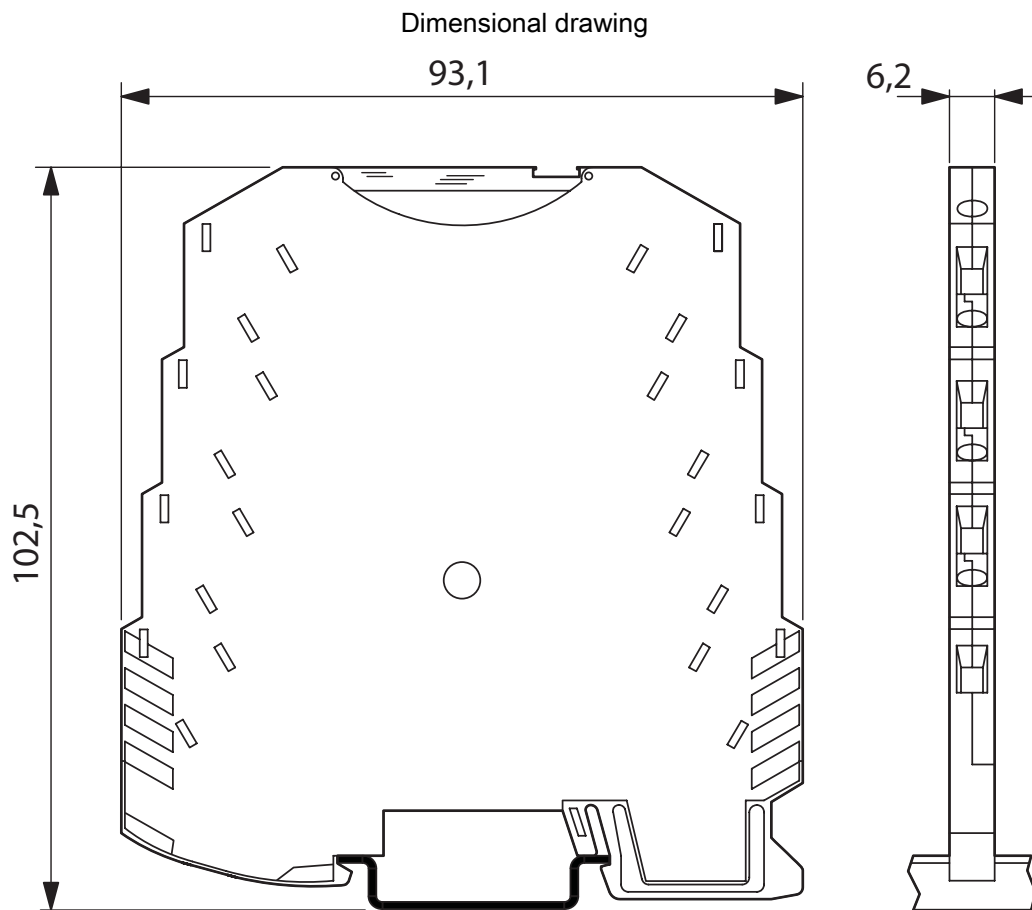
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Drawings



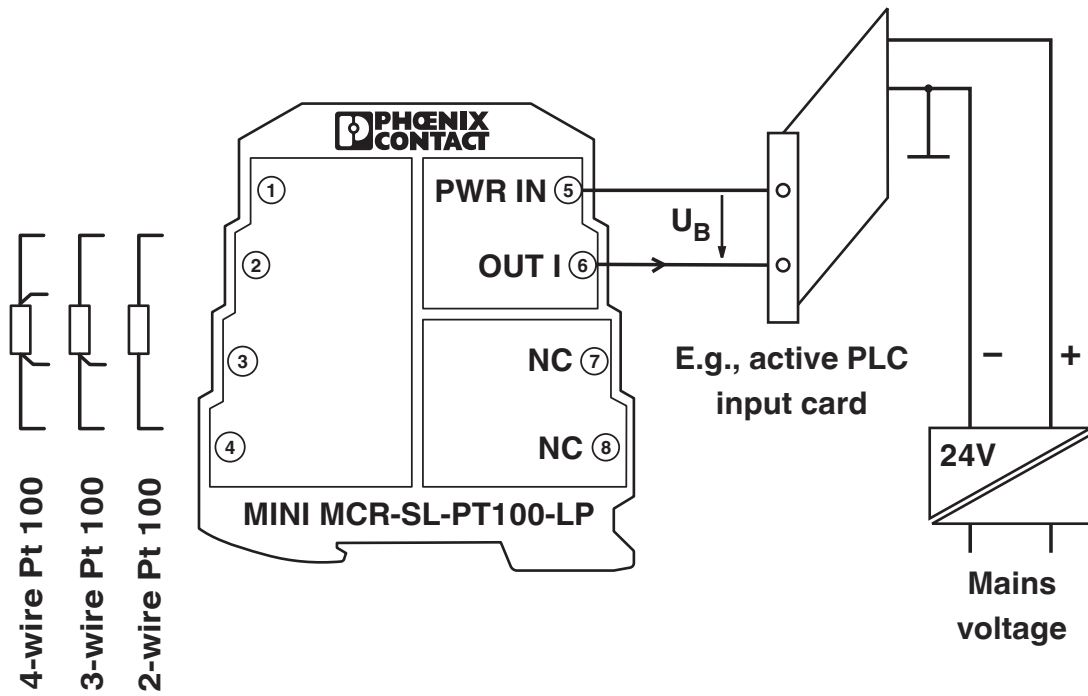
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Application drawing



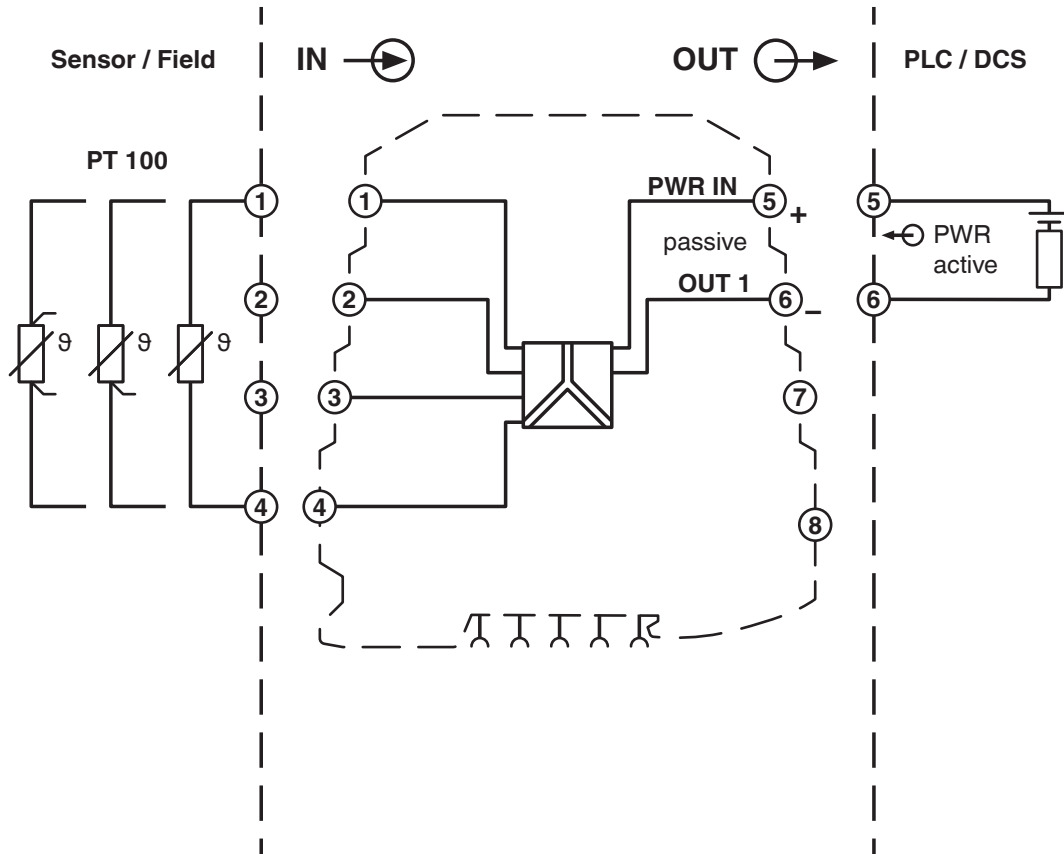
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Block diagram



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2810308>



cUL Recognized
Approval ID: E238705



UL Recognized
Approval ID: E238705



cUL Listed
Approval ID: E199827



UL Listed
Approval ID: E199827

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-13.0 | 27210129 |
| ECLASS-15.0 | 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 | e7ecc08a-a54a-4900-8c5b-00b097a60e41 |

EF3.1 Climate Change

| | |
|---------|---------------|
| CO2e kg | 5.937 kg CO2e |
|---------|---------------|

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