

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



2810298

<https://www.phoenixcontact.com/us/products/2810298>

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Loop-powered temperature transducer for Pt 100 temperature sensors, configured via DIP switches, with screw connection, preconfigured (please observe the order key). Replacement part: 2810308 MINI MCR-SL-PT100-LP-NC.

## Product description

The narrow 6.2 mm MINI MCR-SL-PT100-LP... is a configurable loop-powered temperature transducer. It is suitable for connecting Pt 100 resistance temperature detectors in accordance with IEC 60751 in 2-, 3-, and 4-conductor connection technology. On the output side, the module is operated in a 4 ... 20 mA current loop, which simultaneously supplies the power required for signal conversion. The DIP switches, which can be accessed on the side of the housing, can be used to configure the following parameters:

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

## 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
- Supplied by an output loop
- Input signals can be configured via DIP switches
- Temperature measuring range of -150 °C ... 300 °C
- 2-way isolation

## Commercial data

Item number	2810298
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	C403
Product key	DK1135
GTIN	4046356151986
Weight per piece (including packing)	115 g
Weight per piece (excluding packing)	67.6 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	30 V AC
	50 V DC
Electrical isolation	Basic insulation in accordance with EN 61010
Linearity error	< 0.05 % (for full measuring range)
Test voltage, input/output/supply	1.5 kV AC (50 Hz, 60 s)
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	$\leq 0.25 \%$

### Supply

Designation	Loop-powered
Supply voltage range	12 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	< 4.5 mA (without signal current)
Power consumption	< 150 mW (without signal current)

### Input data

#### Signal

Number of inputs	1
Input signal	Temperature

#### Measurement

Number of inputs	1
Configurable/programmable	Yes, preconfigured
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

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Error detection limit (underrange)	$30 \Omega \leq (\text{start span} - 2.5\% \text{ span})$
Error detection limit (overrange)	$(\text{end span} + 2.5\% \text{ span}) \leq \text{approx. } 254 \Omega$
Error detection limit (wire break)	$> \text{approx. } 254 \Omega$

## Output data

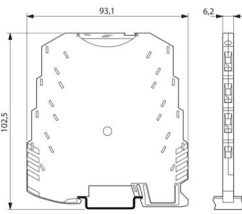
### Signal

Number of outputs	1
Configurable/programmable	Yes, preconfigured
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	$< 20 \text{ mV}_{\text{PP}}$ (at 500 $\Omega$ )
Behavior in the event of a sensor error	configurable

## 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>
Conductor cross-section AWG	26 ... 12

## Dimensions

Dimensional drawing	
Width	6.2 mm
Height	93.1 mm
Depth	102.5 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

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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
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### ATEX

Identification	⊕ II 3 G Ex nA IIC T4 Gc X
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### 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

Standards/regulations	EN 61000-6-4
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### Electrostatic discharge

Standards/regulations	EN 61000-4-2
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### Electrostatic discharge

Comments	Safety measures must be taken to prevent electrostatic discharge.
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### 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
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### Surge current load (surge)

Comments	Criterion B
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## 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	Basic insulation in accordance with EN 61010
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## Mounting

Mounting type	DIN rail mounting
Mounting position	any

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## Drawings

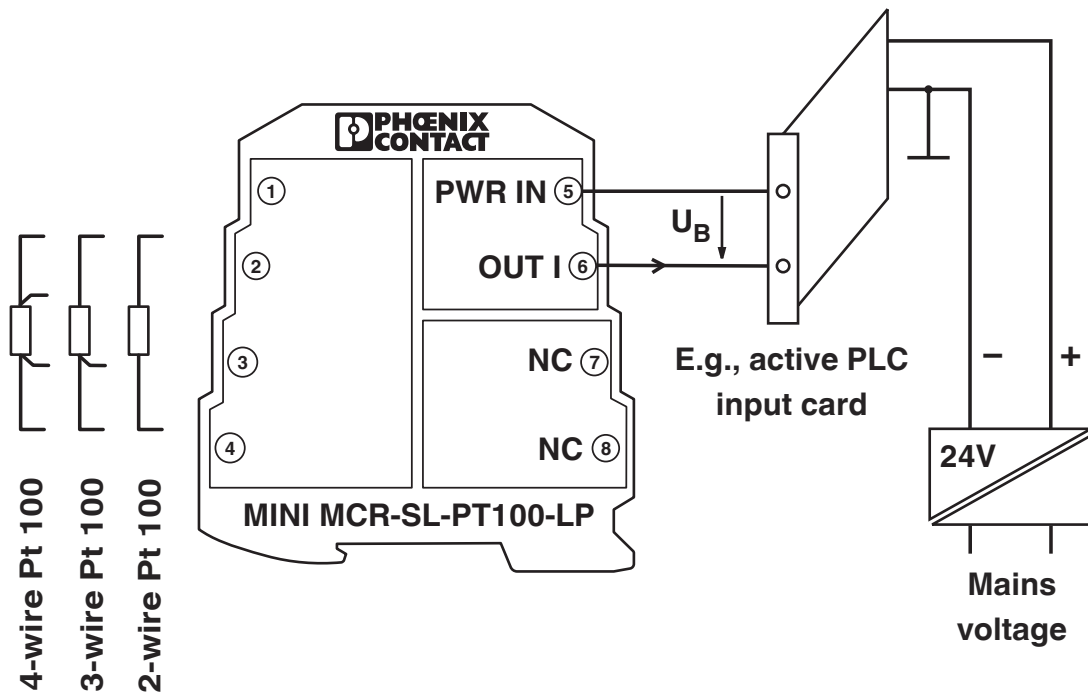


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Application drawing



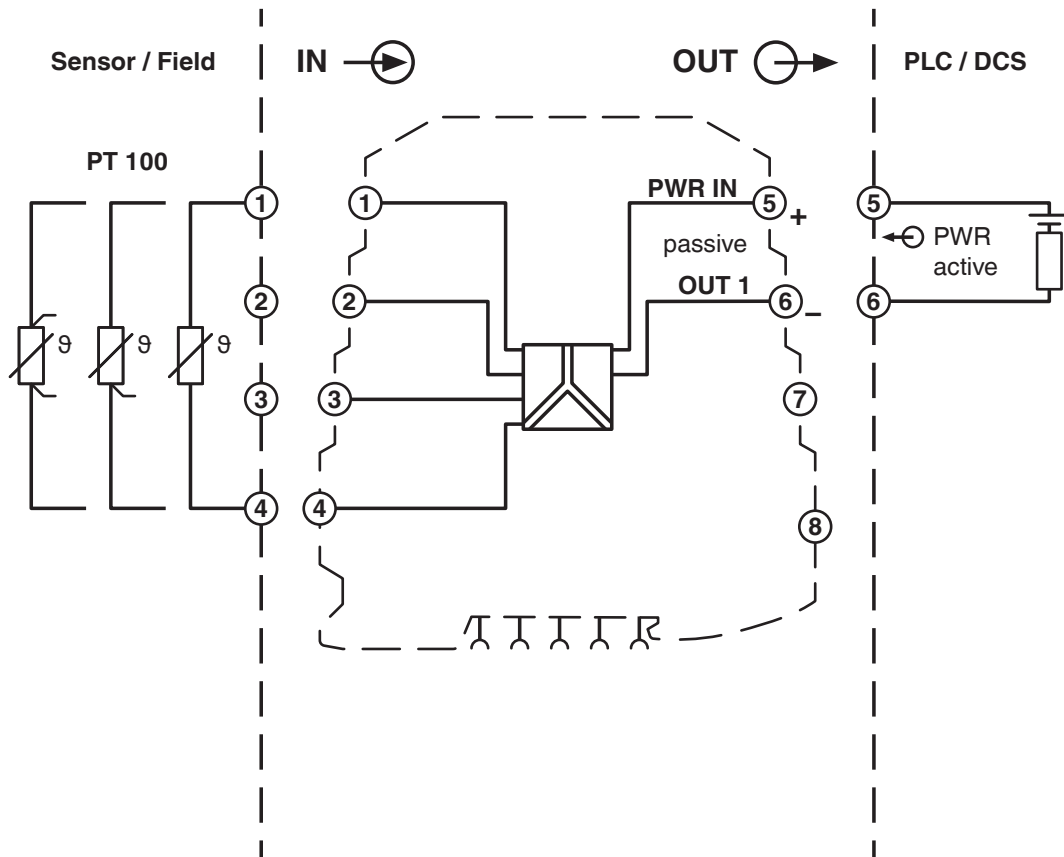
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Block diagram



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## 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.
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### EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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