

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



2810382

<https://www.phoenixcontact.com/us/products/2810382>

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

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

## Commercial data

Item number	2810382
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	C403
Product key	DK1135
GTIN	4046356151993
Weight per piece (including packing)	87.6 g
Weight per piece (excluding packing)	87.6 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
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### 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
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

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: PT100	-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)	$30 \Omega \leq (\text{start span} - 2.5\% \text{ span})$
Error detection limit (overrange)	$(\text{end span} + 2.5\% \text{ span}) \leq \text{approx. } 254 \Omega$
Error detection limit (wire break)	$> \text{approx. } 254 \Omega$

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## Output data

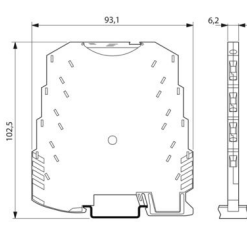
### Signal

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 mV <sub>PP</sub> (at 500 Ω)

## Connection data

Connection method	Spring-cage connection
Stripping length	8 mm
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	24 ... 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

Degree of protection	IP20
Ambient temperature (operation)	-20 °C ... 65 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C

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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
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## 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

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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

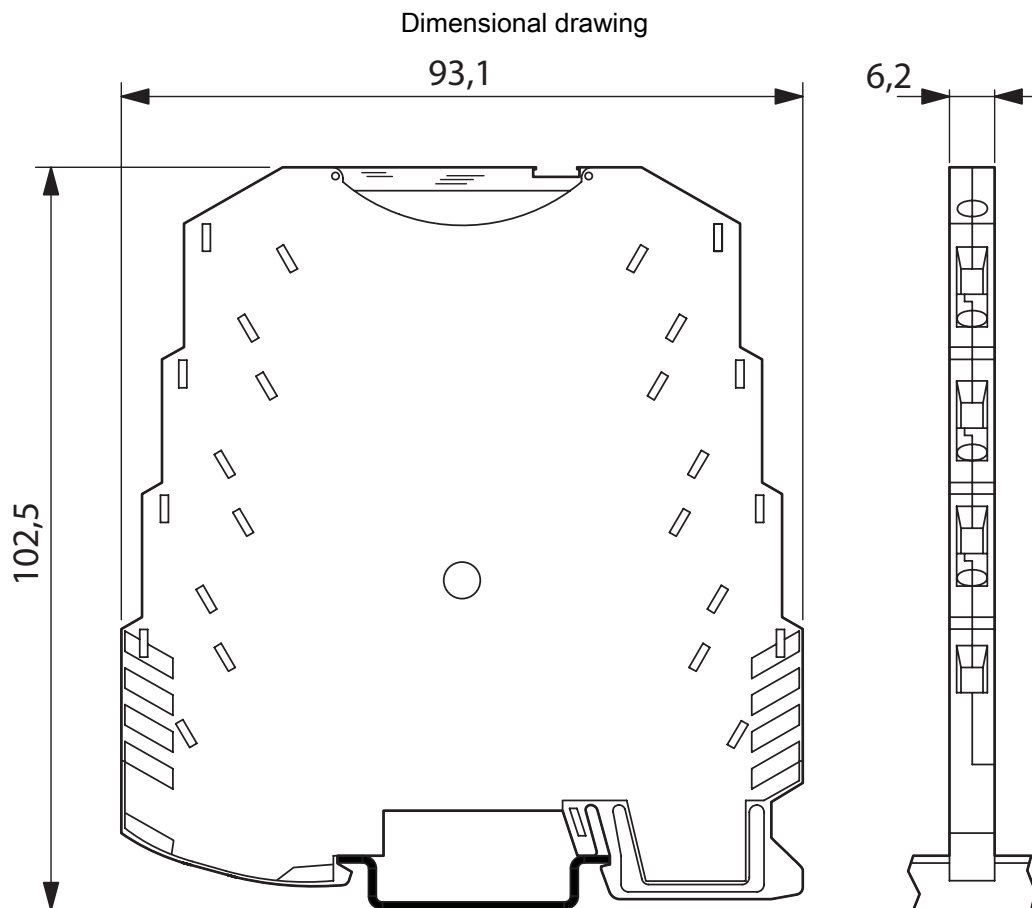
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## Drawings

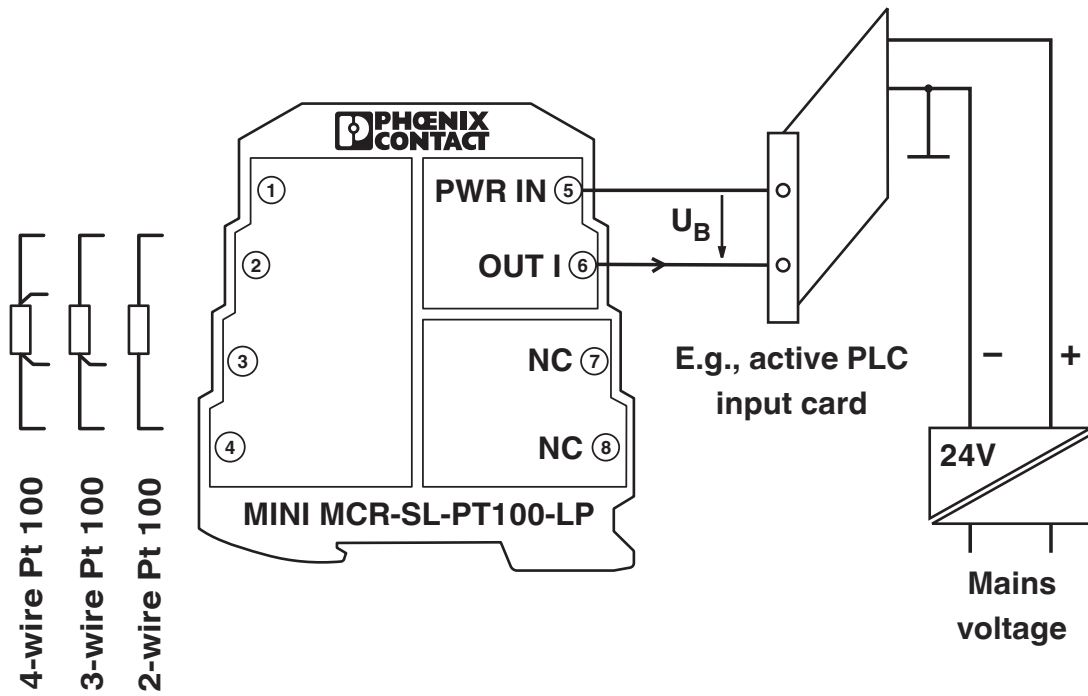


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Application drawing



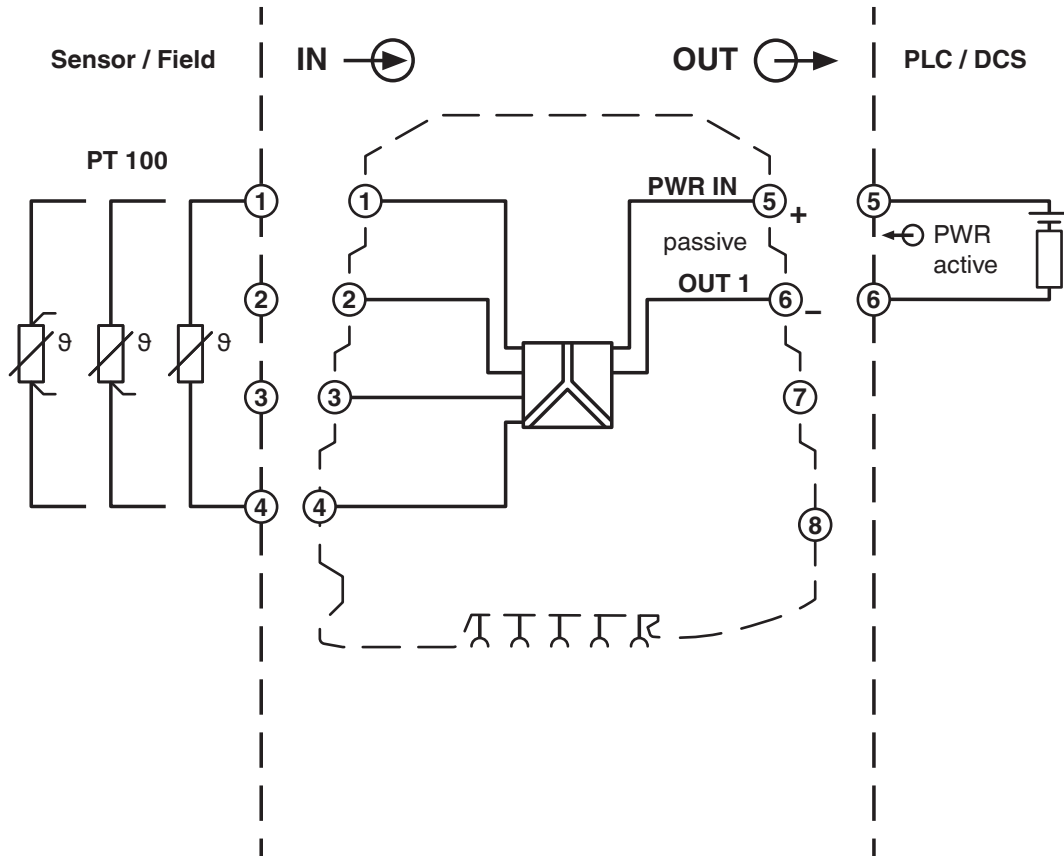
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Block diagram



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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.

### EU REACH SVHC

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