

# MINI MCR-TC-UI-NC - Temperature measuring transducer



2902851

<https://www.phoenixcontact.com/us/products/2902851>

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Configurable temperature transducer for the connection of thermocouples. Can be configured via DIP switches or, with extended functionality, using the software. Screw connection, standard configuration.

## Product description

The configurable temperature transducer with 3-way isolation is suitable for the connection of thermocouples.

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	2902851
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C403
Product key	DK1135
GTIN	4046356689229
Weight per piece (including packing)	62 g
Weight per piece (excluding packing)	56 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
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### Product properties

Product type	Temperature transmitter
Product family	MINI Analog
Configuration	DIP switches
	Software

### System properties

#### Functionality

Configuration	DIP switches
	Software

### Electrical properties

Electrical isolation	3-way isolation
Electrical isolation between input and output	yes
Typical cold point errors	< 2 K
Cold point error, max.	< 3 K
Protective circuit	Transient protection
Step response (0–99%)	400 ms (Highspeed Mode: typ. 150 ms)
Maximum temperature coefficient	≤ 0.01 %/K
Transmission error thermocouples	0.1 % * 600 K / set measuring range; 0.1 % > 600 K (E, J, K, N, T, L, U, M Gost, L Gost)
	0.2 % * 600 K / set measuring range; 0.2 % > 600 K (B, R, S, A1, A2, A3)
	0.2 % * 600 K / set measuring range; 0.2 % > 600 K (E, J, K, N, T, L, U, M Gost, L Gost); Highspeed Mode
	0.4 % * 600 K / set measuring range; 0.4 % > 600 K (B, R, S, A1, A2, A3); Highspeed Mode

#### 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

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## 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)
Max. current consumption	72 mA
Power consumption	≤ 700 mW (at I <sub>OUT</sub> = 20 mA, 9.6 V DC, load 500 Ω)

## Input data

### Signal

Number of inputs	1
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### Measurement

Number of inputs	1
Configurable/programmable	Yes
Sensor types that can be used (TC)	B, E, J, K, N, R, S, T, L, U, A-1, A-2, A-3, M, L
Temperature measuring range	-250 °C ... 2500 °C (Range depends on sensor type, range can be set freely via software or in increments from -150 °C to 1350 °C via DIP switches)
Temperature measuring range	min. 50 K
Temperature measuring range: Type B thermocouple	500 °C ... 1820 °C
Temperature measuring range: Type E thermocouple	-230 °C ... 1000 °C
Temperature measuring range: Type J thermocouple	-210 °C ... 1200 °C
Temperature measuring range: Type K thermocouple	-250 °C ... 1372 °C
Temperature measuring range: Type N thermocouple	-200 °C ... 1300 °C
Temperature measuring range: Type R thermocouple	-50 °C ... 1768 °C
Temperature measuring range: Type S thermocouple	-50 °C ... 1768 °C
Temperature measuring range: Type T thermocouple	-200 °C ... 400 °C
Temperature measuring range: Type L thermocouple	-200 °C ... 900 °C
Temperature measuring range: Type U thermocouple	-200 °C ... 600 °C
Temperature measuring range: Type A1 GOST thermocouple	0 °C ... 2500 °C
Temperature measuring range: Type A2 GOST thermocouple	0 °C ... 1800 °C
Temperature measuring range: Type A3 GOST thermocouple	0 °C ... 1800 °C
Temperature measuring range: Type M GOST thermocouple	-200 °C ... 100 °C
Temperature measuring range: Type L GOST thermocouple	-200 °C ... 800 °C

## Output data

### Signal: Voltage/current

Number of outputs	1
Configurable/programmable	Yes
Voltage output signal	0 V ... 5 V
	1 V ... 5 V
	0 V ... 10 V
	10 V ... 0 V

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2902851

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Max. voltage output signal	approx. 12.3 V
Open-circuit voltage	< 17.5 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
Short-circuit current	< 31.5 mA
Load/output load voltage output	≥ 10 kΩ
Load/output load current output	< 500 Ω (at 20 mA)
Ripple	< 20 mV <sub>PP</sub> < 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>
Conductor cross-section AWG	26 ... 12

## Interfaces

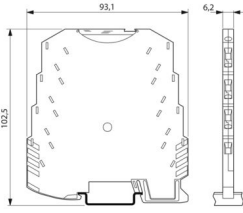
Data: IFS interface

Connection method	S-PORT
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## Signaling

Status display	LED (red)
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## 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

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2902851

<https://www.phoenixcontact.com/us/products/2902851>

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
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### UL, USA/Canada

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

## 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	0.15 %

### Fast transients (burst)

Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Typical deviation from the measuring range final value	0.05 %

### Surge current load (surge)

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2902851

<https://www.phoenixcontact.com/us/products/2902851>

Standards/regulations	EN 61000-4-5
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## 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
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## Mounting

Mounting type	DIN rail mounting
Mounting position	any

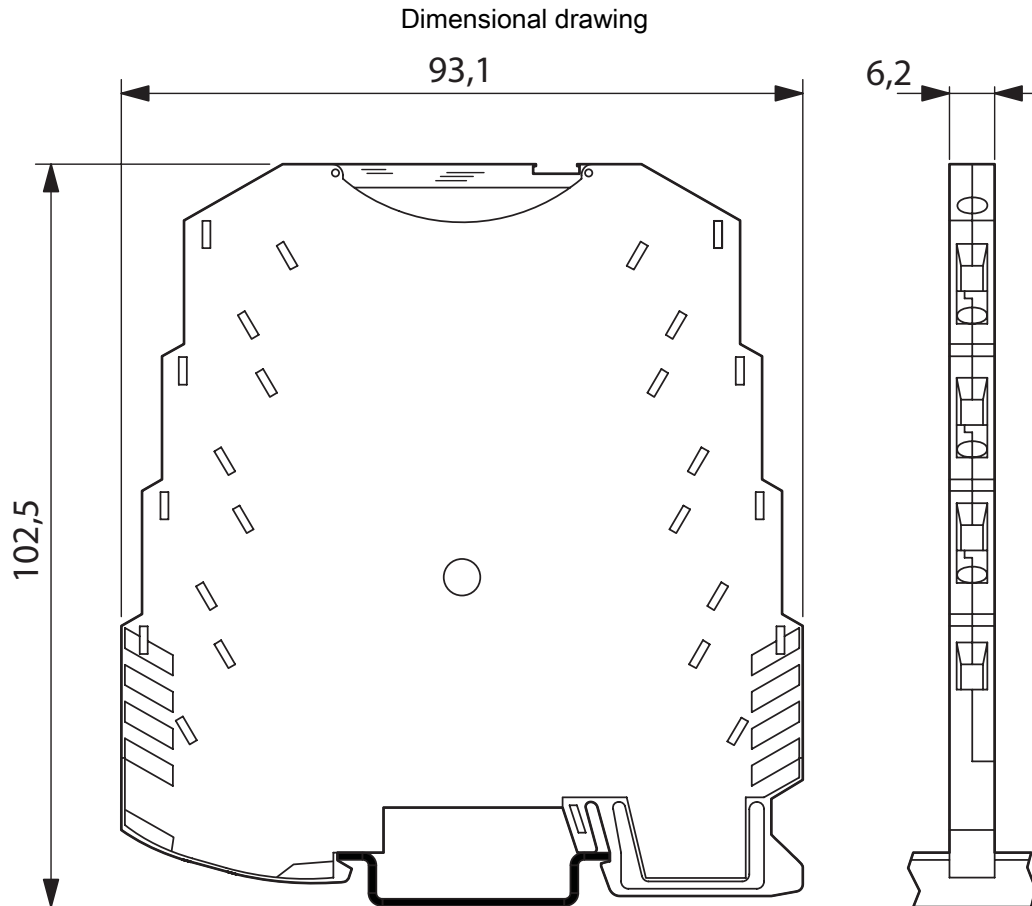
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## Drawings



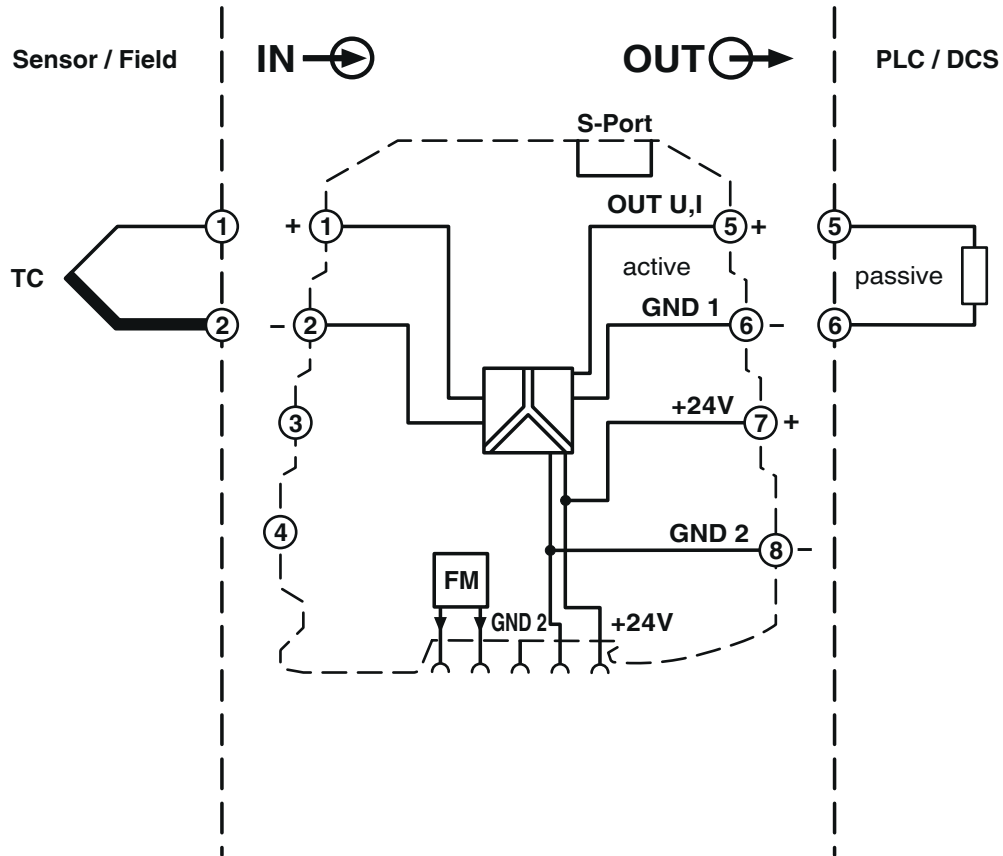
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Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2902851>



**UL Listed**

Approval ID: E238705



**cUL Listed**

Approval ID: E238705



**cUL Listed**

Approval ID: E199827



**UL Listed**

Approval ID: FILE E 199827

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## Classifications

### ECLASS

ECLASS-13.0	27210129
ECLASS-15.0	27210129

### ETIM

ETIM 10.0	EC002919
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### 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)
SCIP	b23c309d-8a67-4b13-ade9-13e54fc347a7

### EF3.1 Climate Change

CO2e kg	5.268 kg CO2e
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