

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



2902851

<https://www.phoenixcontact.com/in/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	CK1
Product Key	CK1221
Catalog Page	Page 107 (C-7-2015)
GTIN	4046356689229
Weight per Piece (including packing)	117.8 g
Weight per Piece (excluding packing)	117.8 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

#### Insulation characteristics

Overvoltage category	II
Pollution degree	2

### Electrical properties

Electrical isolation	3-way isolation
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 Input/output/power supply

Rated insulation voltage	50 V AC/DC
Test voltage	1.5 kV AC (50 Hz, 60 s)
Insulation	Basic insulation in accordance with IEC/EN 61010

#### 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)

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## 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
Sensor type:	500 °C ... 1820 °C
	-230 °C ... 1000 °C
	-210 °C ... 1200 °C
	-250 °C ... 1372 °C
	-200 °C ... 1300 °C
	-50 °C ... 1768 °C
	-50 °C ... 1768 °C
	-200 °C ... 400 °C
	-200 °C ... 900 °C
	-200 °C ... 600 °C
	0 °C ... 2500 °C
	0 °C ... 1800 °C
	0 °C ... 1800 °C
-200 °C ... 100 °C	
-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
Max. voltage output signal	approx. 12.3 V
Non-load 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

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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

Width	6.2 mm
Height	93.1 mm
Depth	101.2 mm

## Material specifications

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
Housing material	PBT

## 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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## UKCA

Certificate	UKCA-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

## Shipbuilding approval

Certificate	DNV GL TAA00002R0
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## DNV GL data

Temperature	B
Humidity	B
Vibration	B
EMC	A
Enclosure	Required protection according to the Rules shall be provided upon installation on board

## EMC data

Noise immunity	EN 61000-6-2
Note	When being exposed to interference, there may be minimal deviations.
Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4

## 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)

Standards/regulations	EN 61000-4-5
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## Conducted interference

Designation	Conducted interferences
Standards/regulations	EN 61000-4-6

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Typical deviation from the measuring range final value	0.02 %
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## Standards and regulations

Electrical isolation	3-way isolation
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## Mounting

Mounting type	DIN rail mounting
Mounting position	any

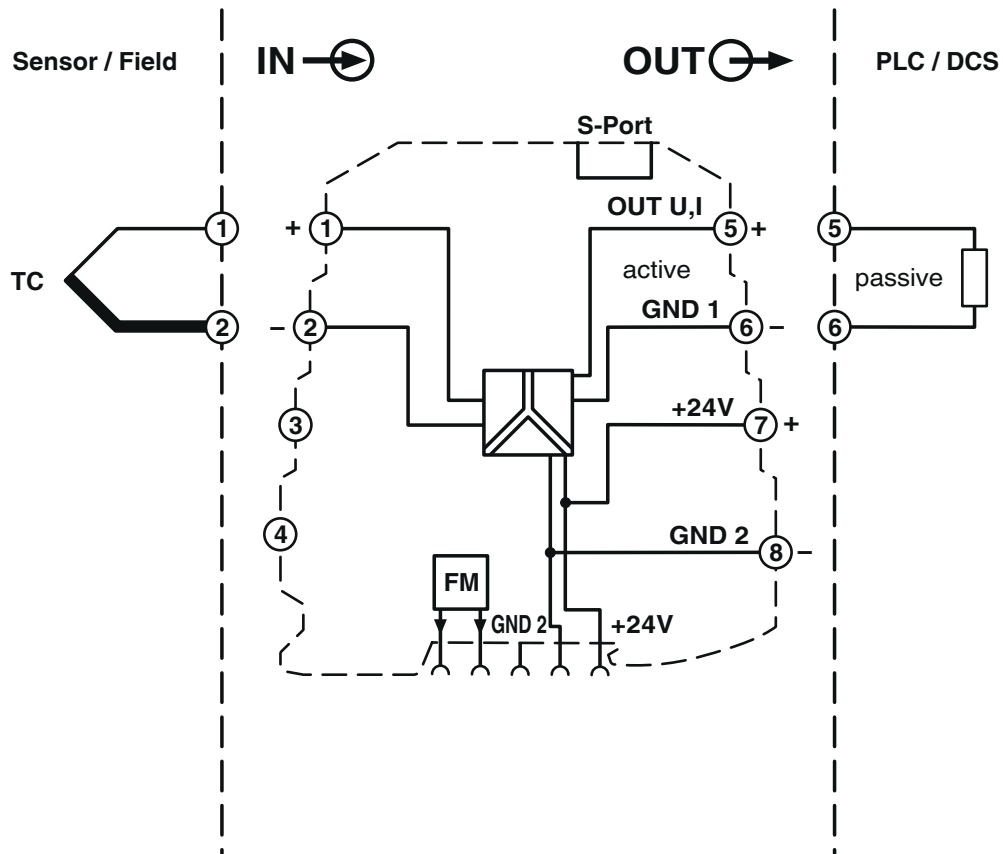
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## Drawings

Block diagram



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## Approvals



**DNV GL**

Approval ID: TAA00002R0



**UL Listed**

Approval ID: FILE E 238705



**cUL Listed**

Approval ID: FILE E 238705



**cUL Listed**

Approval ID: FILE E 199827



**UL Listed**

Approval ID: FILE E 199827



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## Classifications

### ECLASS

ECLASS-11.0	27210129
ECLASS-13.0	27210129
ECLASS-13.0	27210129

### ETIM

ETIM 8.0	EC002919
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### UNSPSC

UNSPSC 21.0	41112100
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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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## Accessories

### TC-D37SUB-AIO16-M-PS-UNI - Module carrier

2902934

<https://www.phoenixcontact.com/in/products/2902934>



Universal termination carrier for connecting 16 MINI Analog signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection), with HART multiplexer connection

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### TC-D37SUB-ADIO16-M-P-UNI - Module carrier

2902933

<https://www.phoenixcontact.com/in/products/2902933>



Universal termination carrier for connecting 16 MINI Analog signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection)

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## IFS-BT-PROG-ADAPTER - Adapter

2905872

<https://www.phoenixcontact.com/in/products/2905872>

Bluetooth adapter with micro USB and S-PORT interface for wireless communication with the MINI Analog, MINI Analog Pro, MACX Analog, Interface System Gateways, and PLC logic device series.



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## IFS-USB-PROG-ADAPTER - Programming adapter

2811271

<https://www.phoenixcontact.com/in/products/2811271>

Programming adapter with USB interface, for programming with software. The USB driver is included in the software solutions for the products to be programmed, such as measuring transducers or motor managers.



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## MINI MCR-SL-PTB-FM - Power terminal block

2902958

<https://www.phoenixcontact.com/in/products/2902958>



The MINI MCR-SL-PTB-FM(-SP) power terminal block is used to supply the supply voltage to the DIN rail connector. The FM power terminal block offers the additional function of monitoring in combination with the fault monitoring module. Screw connection.

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## MINI MCR-SL-FM-RC-NC - Monitoring module

2902961

<https://www.phoenixcontact.com/in/products/2902961>



The fault monitoring module is used to evaluate and report group errors from the fault monitoring system and to monitor the supply voltages. The error is reported via an N/O contact. Screw connection, standard configuration.

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## MINI MCR-SL-PTB - Power terminal block

2864134

<https://www.phoenixcontact.com/in/products/2864134>



MCR power terminal block for supplying several MINI Analog modules via the DIN rail connector, with screw connection, maximum current consumption of up to 2 A

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## QUINT4-SYS-PS/1AC/24DC/2.5/SC - Power supply unit

2904614

<https://www.phoenixcontact.com/in/products/2904614>



Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A

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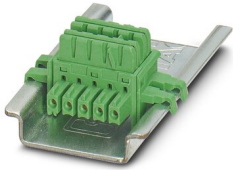
<https://www.phoenixcontact.com/in/products/2902851>

## ME 6,2 TBUS-2 1,5/5-ST-3,81 GN - DIN rail bus connectors

2869728

<https://www.phoenixcontact.com/in/products/2869728>

DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.



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## MINI MCR DKL - Transparent cover

2308111

<https://www.phoenixcontact.com/in/products/2308111>

Fold up transparent cover for MINI MCR modules with additional labeling option using insert strips and flat Zack marker strip 6.2 mm



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## MINI MCR-DKL-LABEL - Marking label

2810272

<https://www.phoenixcontact.com/in/products/2810272>

Label for extended marking of MINI MCR modules in connection with the MINI MCR-DKL



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