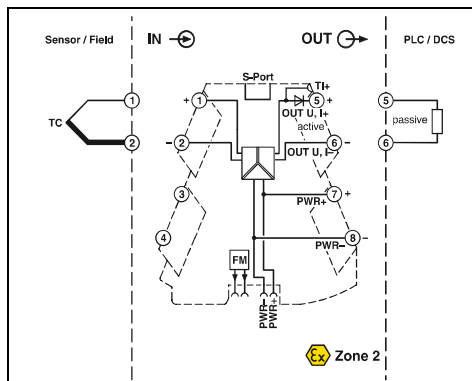
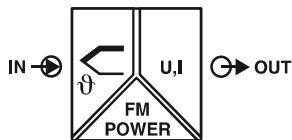


Temperature
Temperature transducers
for thermocouples



Universal temperature transducer for thermocouples



Housing width 6.2 mm

- Universally configurable, highly compact temperature transducer for electrical isolation, conversion, amplification, and filtering of thermocouple signals
- Voltage measurement from ±0 ... 15 mV to ±0 ... 500 mV, fully adjustable
- For thermocouples in accordance with IEC 584 and GOST
- Internal cold junction compensation
- Plug-in connection system
- Safe 3-way isolation
- Standard signal combinations configurable via DIP switches
- Freely-configurable with software or smartphone app
- Power supply and fault monitoring possible via DIN rail connector
- Status and error indicator LEDs

Notes:
The configuration software can be downloaded from the Internet: phoenixcontact.net/products.
Information on the programming adapters can be found on page 111
Information on MINI Analog Pro accessories can be found from page 107
To order a product with an order configuration, please enter the desired configuration by referring to the order key.

Input data

Input signal (can be configured using DIP switches)
Temperature range

Measuring range span

Output data
Output signal (configurable via DIP switch or freely via software)

Maximum output signal

No-load voltage
Short-circuit current
Load R_B
Ripple

General data

Supply voltage range
Current consumption
Power consumption

Transmission error

Cold junction errors
Temperature coefficient
Step response (0 - 99%)
Electrical isolation
EMC note

Conformance/approvals

Conformance
ATEX
UL, USA/Canada

DNV GL

Technical data

B, C, E, J, K, N, R, S, T, L, U, A-1, A-2, A-3, M, L
-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)

U output	I output
0 ... 5 V / 1 ... 5 V	0 ... 20 mA / 4 ... 20 mA
0 ... 10 V / 10 ... 0 V	20 ... 0 mA / 20 ... 4 mA
Approx. 12.3 V	24.6 mA
<31.5 mA	<17.5 V
≥10 kΩ	≤600 Ω (at 20 mA)
<10 mV _{rms}	<10 mV _{rms} (at 600 Ω)

9.6 V DC ... 30 V DC
32.7 mA (24 V DC)
≤850 mW (at I_{OUT} = 20 mA, 9.6 V DC, 600 Ω load)

0.1% * 600 K / set measuring range;
0.1% >600 K (C, 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

- (typically 2 K (2 K + (0.2 K * ΔT)))
≤0.01%/K
Typically 400 ms (highspeed Mode: typically 150 ms)
Reinforced insulation in accordance with IEC 61010-1
Class A product, see page 583

CE-compliant
Ex II 3 G Ex nA IIC T4 Gc X
UL 508 Listed
Class I, Div. 2, Groups A, B, C, D T6
Class I, Zone 2, Group IIC T6
C, EMC2

Ordering data

Type	Order No.	Pcs./Pkt.
MINI MCR-2-TC-UI-PT	2905249	1
MINI MCR-2-TC-UI	2902055	1
MINI MCR-2-TC-UI-PT-C	2905248	1
MINI MCR-2-TC-UI-C	2902053	1

Accessories

IFS-USB-PROG-ADAPTER	2811271	1
TWN4 MIFARE NFC USB ADAPTER	2909681	1
IFS-BT-PROG-ADAPTER	2905872	1

Description

Temperature transducers for thermocouples

Standard configuration	Push-in connection
Standard configuration	Screw connection
Order configuration	Push-in connection
Order configuration	Screw connection

Programming adapter for configuring modules with S-PORT interface

USB programming adapter for configuring modules with Windows software

Bluetooth programming adapter, with USB and S-PORT interface

MINI Analog Pro – Highly compact signal conditioners with plug-in connection technology

Order key for MINI MCR-2-TC-UI(-PT)(-C) temperature transducers (standard configuration entered as an example)

Order No.	Sensor type	Cold junction error compensation	Measuring unit	Measuring range		Output		
				Start	End	Output signal	Start	End
2902053	J	1	C	-200	1200	I	4.0	20.0
2902053 ≙ MINI MCR-2-TC-UI-C	B ≙ B IEC 584-1 (Pt30Rh-Pt6Rh) E ≙ E IEC 584-1 (NiCr-CuNi) J ≙ J IEC 584-1 (Fe-CuNi) K ≙ K IEC 584-1 (NiCr-Ni) N ≙ N IEC 584-1 (NiCrSi-NiSi) R ≙ R IEC 584-1 (Pt13Rh-Pt) S ≙ S IEC 584-1 (Pt10Rh-Pt) T ≙ T IEC 584-1 (Cu-CuNi) L ≙ L DIN 43760 (Fe-CuNi) U ≙ U DIN 43760 (Cu-CuNi) A1G ≙ A-1 GOST 8.585-2001 A2G ≙ A-2 GOST 8.585-2001 A3G ≙ A-3 GOST 8.585-2001 MG ≙ M GOST 8.585-2001 LG ≙ L GOST 8.585-2001	0 ≙ OFF 1 ≙ AN	C ≙ °C F ≙ °F	Freely selectable between -250°C ... 2500°C (measuring range limits depend on sensor type)	Freely selectable between -250°C ... 2500°C (measuring range limits depend on sensor type)	I ≙ I U ≙ U	I: freely selectable between 0.0 ... 21 mA U: freely selectable between 0.0 ... 10.5 V	I: freely selectable between 0.0 ... 21 mA U: freely selectable between 0.0 ... 10.5 V

Minimum measuring span 50 K

Output signal span at least 0.5 V / 1 mA
Increment 0.1 V / 0.1 mA

Failure information

Behavior in the event of an error

Open circuit

Measuring value over-range

Measured value under-range

Factory calibration certificate

...	NE43DO	0.0	0.0	0.0	None
FD ≙ Freely definable	0.0 ≙ 0 mA I: freely selectable between 0.0 ... 21.5 mA U: freely selectable between 0.0 ... 11 V (signal type corresponds to selected output signal)	0.0 ≙ 0 mA I: freely selectable between 0.0 ... 21.5 mA U: freely selectable between 0.0 ... 11 V (signal type corresponds to selected output signal)	0.0 ≙ 0 mA I: freely selectable between 0.0 ... 21.5 mA U: freely selectable between 0.0 ... 11 V (signal type corresponds to selected output signal)	0.0 ≙ 0 mA I: freely selectable between 0.0 ... 21.5 mA U: freely selectable between 0.0 ... 11 V (signal type corresponds to selected output signal)	None ≙ no factory calibration certificate Yes ≙ certificate but no test data YesPlus ≙ certificate with test data
Note: Failure information in accordance with NE 43 can only be selected for 4 ... 20 mA output					
NE43UP ≙ NE 43 upscale NE43DO ≙ NE 43 downscale NE430 ≙ NE 43 0 mA NE43UD ≙ NE 43 upscale/downscale	21.5 mA 3.5 mA 0 mA 3.5 mA	21.5 mA 3.5 mA 0 mA 21.5 mA	21.5 mA 3.5 mA 0 mA 21.5 mA	21.5 mA 3.5 mA 0 mA 21.5 mA	

Sensor types and measuring ranges for MINI MCR-2-TC-UI(-PT)(-C) temperature transducers

Sensor type	Standard	Measuring range	Smallest measuring span	Adjustable using:
B	IEC 584-1	+500°C ... +1,820°C	50 K	Software or smartphone app
E	IEC 584-1	-230°C ... +1,000°C	50 K	Software or smartphone app
J	IEC 584-1	-210°C ... +1,200°C	50 K	DIP switch
K	IEC 584-1	-250°C ... +1,372°C	50 K	DIP switch
N	IEC 584-1	-200°C ... +1,300°C	50 K	Software or smartphone app
R	IEC 584-1	-50°C ... +1,768°C	50 K	Software or smartphone app
S	IEC 584-1	-50°C ... +1,768°C	50 K	Software or smartphone app
T	IEC 584-1	-200°C ... +400°C	50 K	Software or smartphone app
L	DIN 43710	-200°C ... +900°C	50 K	Software or smartphone app
U	DIN 43710	-200°C ... +600°C	50 K	Software or smartphone app
A-1	GOST 8.585	0°C ... +2,500°C	50 K	Software or smartphone app
A-2	GOST 8.585	0°C ... +1,800°C	50 K	Software or smartphone app
A-3	GOST 8.585	0°C ... +1,800°C	50 K	Software or smartphone app
M	GOST 8.585	-200°C ... +100°C	50 K	Software or smartphone app
L	GOST 8.585	-200°C ... +800°C	50 K	Software or smartphone app
Customer-specific characteristic curves		-250°C ... +2,500°C	50 K	Software or smartphone app