MCR-FL-TS-LP-I-EX - Temperature measuring transducer

2864587

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Measurement and control temperature transducers, resistance thermometers, thermocouples, resistance-type sensors, and voltage sensors. Replacement part: 2908660 MACX MCR-EX-TS-I-OLP.

Your advantages

- Input for resistance thermometers, thermocouples, and linear mV signals, Ex ia IIC
- Configuration via software
- Can be installed in zone 1
- 2-way electrical isolation
- Output: 4 mA ... 20 mA/20 mA ... 4 mA
- Loop-powered
- 1-channel
- HART-compatible (MCR-FL-TS-LP-I-EX)

Commercial data

Item number	2864587
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	C430
Product key	DK1XXX
GTIN	4017918907266
Weight per piece (including packing)	124.8 g
Weight per piece (excluding packing)	104.3 g
Customs tariff number	85437090
Country of origin	DE

Technical data

Product properties

Product type	Temperature transmitter
Application	Temperature
Configuration	With HART protocol

System properties

Functionality

Configuration	With HART protocol

Electrical properties

Switch-on delay	4 s
Line monitoring	NE 43
Maximum power dissipation for nominal condition	105 mW
Test voltage input/output	2 kV AC (50 Hz, 60 s)
Step response (10-90%)	< 2 s
Transmission error voltage sensor	±20 µV (-10 mV ... 100 mV)
Transmission error thermocouples	typ. 0.5 K (K, J, T, E, L, U), 1.0 K (N, C, D), 2.0 K (S, B, R)
Transmission error resistance-type sensor	±0.1 Ω (10 ... 400 Ω), ±1.5 Ω (10 ... 2000 Ω)
Transmission error resistance thermometer	0.2 K (Pt 100, Ni 100), 0.5 K (Pt 500, Ni 500), 0.3 K (Pt 1000, Ni 1000)

Supply

Designation	Loop-powered
Supply voltage range	12 V DC ... 30 V DC
Max. current consumption	< 3.5 mA

Input data

Signal

Number of inputs	1
Input signal	Temperature

Measurement

Configurable/programmable	Yes, programmable
Sensor types (RTD) that can be used	Pt, Ni (100, 500, 1000); min. measurement range 10 K
Sensor types that can be used (TC)	B, C, D, E, J, K, L, N, R, S, T, U; min. measurement range 50 K/500 K
Temperature measuring range: Pt 100	-200 °C ... 850 °C (freely adjustable)
Temperature measuring range: Pt 500	-200 °C ... 250 °C (freely adjustable)
Temperature measuring range: Pt 1000	-200 °C ... 250 °C (freely adjustable)
Temperature measuring range: Ni 100	-60 °C ... 180 °C (freely adjustable)
Temperature measuring range: Ni 500	-60 °C ... 150 °C (freely adjustable)
Temperature measuring range: Ni 1000	-60 °C ... 150 °C (freely adjustable)

Temperature measuring range: Thermoelement Typ B	0 °C ... 1820 °C (freely adjustable)
Temperature measuring range: Thermoelement Typ C	0 °C ... 2320 °C (freely adjustable)
Temperature measuring range: Thermoelement Typ D	0 °C ... 2495 °C (freely adjustable)
Temperature measuring range: Thermoelement Typ E	-270 °C ... 1000 °C (freely adjustable)
Temperature measuring range: Thermoelement Typ J	-210 °C ... 1200 °C (freely adjustable)
Temperature measuring range: Thermoelement Typ K	-270 °C ... 1372 °C (freely adjustable)
Temperature measuring range: Thermoelement Typ L	-200 °C ... 900 °C (freely adjustable)
Temperature measuring range: Thermoelement Typ N	-270 °C ... 1300 °C (freely adjustable)
Temperature measuring range: Thermoelement Typ R	-50 °C ... 1760 °C (freely adjustable)
Temperature measuring range: Thermoelement Typ S	-50 °C ... 1760 °C (freely adjustable)
Temperature measuring range: Thermoelement Typ T	-270 °C ... 400 °C (freely adjustable)
Temperature measuring range: Thermoelement Typ U	-200 °C ... 600 °C (freely adjustable)
Connection technology	2-, 3-, 4-conductor
Linear resistance measuring range	10 Ω ... 400 Ω (min. measurement range 10 Ω)
	10 Ω ... 2000 Ω (min. measurement range 100 Ω)
Linear mV signal range	-10 mV ... 100 mV (min. measurement range 5 mV)

Output data

Switching:

Configurable/programmable	no

Signal

Output description	Current output
Number of outputs	1
Configurable/programmable	Yes
Current output signal	4 mA ... 20 mA
	20 mA ... 4 mA
Max. current output signal	≤ 23 mA
Output current with short-circuit	≤ 3.6 mA or ≥ 21 mA (adjustable, not for thermocouples)
Output current with wire break	≤ 3.6 mA or ≥ 21 mA (adjustable)
Output current range with overrange/underrange	3.8 mA ... 20.5 mA
Load/output load current output	≤ 520 Ω (At U_V = 24 V; U_{supply} - 12 V / 0.023 A)

Connection data

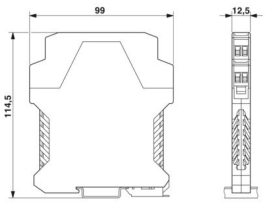
Connection method	Screw connection
Stripping length	8 mm
Screw thread	M3
Conductor cross-section rigid	0.2 mm² ... 2.5 mm²
Conductor cross-section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section AWG	24 ... 14
Tightening torque	0.5 Nm ... 0.6 Nm

Ex data

Safety data

Max. voltage U_i	30 V
Max. current I_i	100 mA
Max. power P_i	750 mW
Max. output voltage U_o	5 V DC
Max. output current I_o	5.9 mA
Max. output power P_o	7.2 mW
Max. ambient temperature	T4 = 85 °C, T5 = 70 °C, T6 = 55 °C
Safety-related maximum voltage U_m	250 V
IIA: Max. external inductivity L_o / Max. external capacitance C_o	100 mH / 10 µF
IIB: Max. external inductivity L_o / Max. external capacitance C_o	100 mH / 10 µF
IIC: Max. external inductivity L_o / Max. external capacitance C_o	100 mH / 2 µF

Dimensions

Dimensional drawing	
Width	12.5 mm
Height	99 mm
Depth	114.5 mm

Material specifications

Color	green (RAL 6021)
Flammability rating according to UL 94	V0
Housing material	Polyamide PA non-reinforced

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 55 °C

Approvals

CE

Certificate	CE-compliant

ATEX

Identification	⟨Ex⟩ II 2(1) G Ex ia IIC T6

UL, USA/Canada

Identification	cULus

Safety Integrity Level (SIL, IEC 61508)

Identification	2

Standards and regulations

Standards

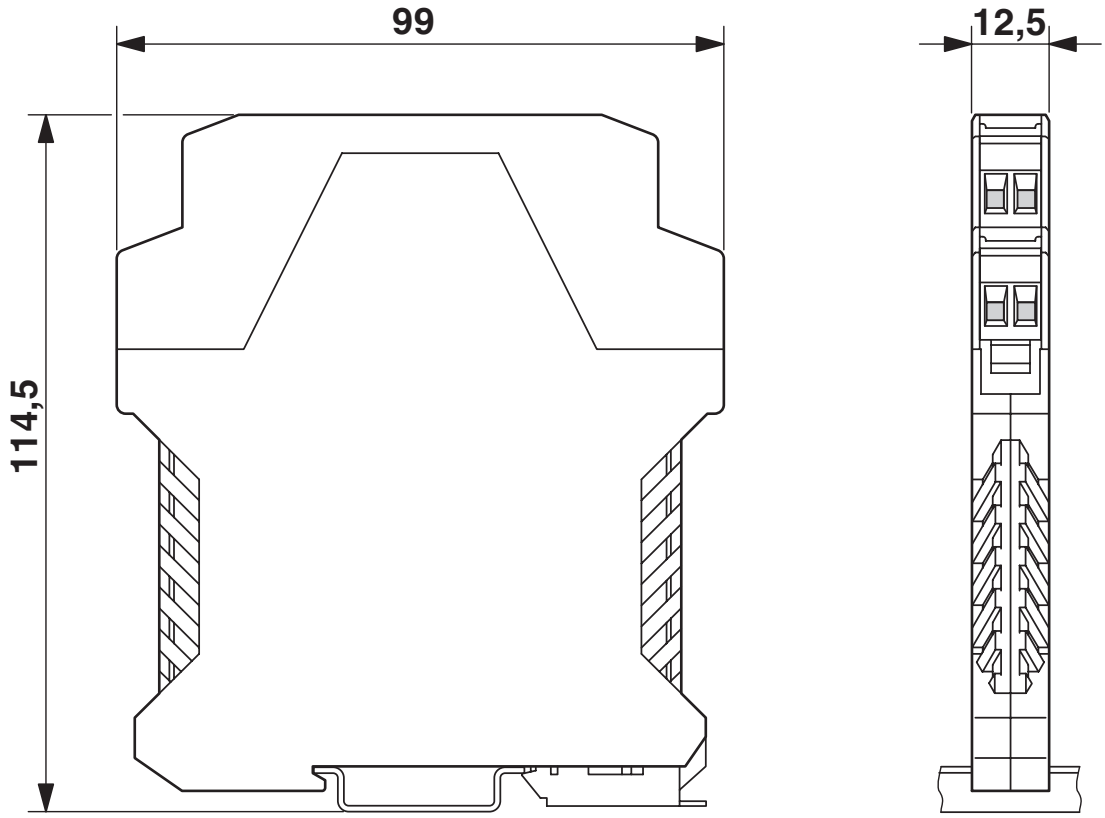
Standards/regulations	NAMUR recommendation NE 21

Mounting

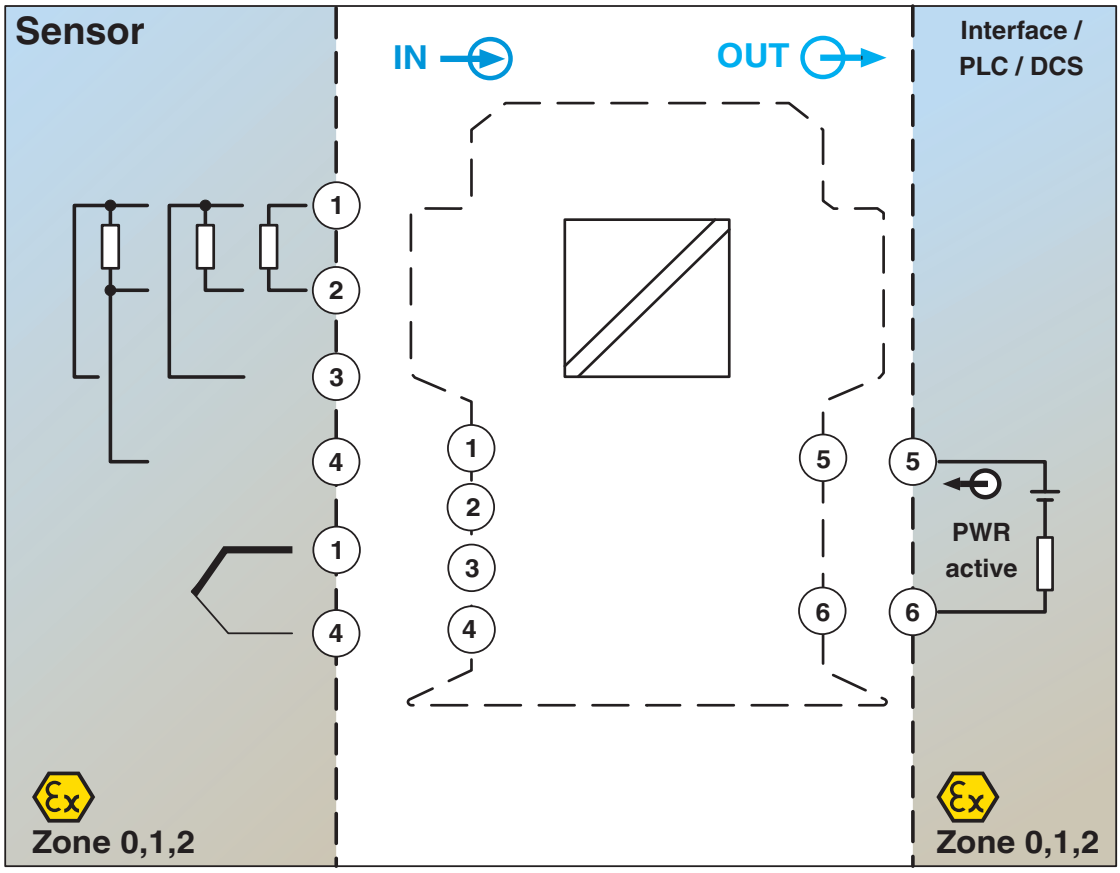
Mounting type	DIN rail mounting
Mounting position	any

Drawings

Dimensional drawing



Block diagram



Block diagram MCR-FL-TS-LP-I-EX

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c)

China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)

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