

MCR-FL-HT-TS-I-EX - Head-mounted transducer



2864545

<https://www.phoenixcontact.com/us/products/2864545>

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Measurement and control temperature transducer, for resistance thermometers, thermocouples, resistance-type sensors, and voltage sensors. For Pt 100 resistance temperature detectors. Replacement part: 2908742 FA MCR-HT-TS-I-OLP-PT.

Your advantages

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

Commercial data

Item number	2864545
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	C430
Product key	DK1XXX
GTIN	4017918893200
Weight per piece (including packing)	83.6 g
Weight per piece (excluding packing)	78.2 g
Customs tariff number	85437090
Country of origin	DE

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Technical data

Product properties

Product type	Temperature transmitter
Application	Temperature
Configuration	With HART protocol

System properties

Functionality

Configuration	With HART protocol
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Electrical properties

Switch-on delay	6 s
Line monitoring	NE 43
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 ... 75 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 ... 250 °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	50 °C ... 1820 °C (freely adjustable)

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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 ... 1768 °C (freely adjustable)
Temperature measuring range: Thermoelement Typ S	-50 °C ... 1768 °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 ... 75 mV (min. measurement range 5 mV)

Output data

Switching:

Configurable/programmable	no
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Signal

Number of outputs	1
Configurable/programmable	Yes, programmable
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 (linear increase/decrease)
Load/output load current output	≤ 630 Ω (At U _V = 24 V; U _{supply} - 10 V / 0.023 A)

Connection data

Connection method	Screw connection
Stripping length	8 mm
Screw thread	M3
Conductor cross-section rigid	0.2 mm² ... 1.75 mm²
Conductor cross-section flexible	0.2 mm² ... 1.75 mm²
Conductor cross-section AWG	24 ... 15
Tightening torque	0.5 Nm ... 0.6 Nm

Ex data

Safety data

Max. voltage U _i	30 V
Max. current I _i	100 mA

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Max. power P_i	750 mW
Max. output voltage U_o	5 V DC
Max. output current I_o	5.4 mA
Max. output power P_o	6.6 mW
Max. ambient temperature	Category 1: T4 = 60°C, T5 = 50°C, T6 = 40°C
	Category 2: 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 / 9.9 μ F
IIB: Max. external inductivity L_o / Max. external capacitance C_o	100 mH / 9.9 μ F
IIC: Max. external inductivity L_o / Max. external capacitance C_o	100 mH / 2 μ F

Material specifications

Color	green (RAL 6021)
Flammability rating according to UL 94	V0
Housing material	PC

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP00
	IP66 (Installed in the connection head)
Ambient temperature (operation)	-40 °C ... 55 °C

Approvals

CE

Certificate	CE-compliant
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ATEX

Identification	Ⓔ II 1 G bzw. II 2 G Ex ia IIC T6/T5/T4
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UL, USA/Canada

Identification	cULus
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Safety Integrity Level (SIL, IEC 61508)

Identification	2
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Standards and regulations

Standards

Standards/regulations	NAMUR recommendation NE 21
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Mounting

Assembly note	Installation in connection head according to DIN 43729 form B
Mounting position	Connecting head in acc. with DIN 43729 form B

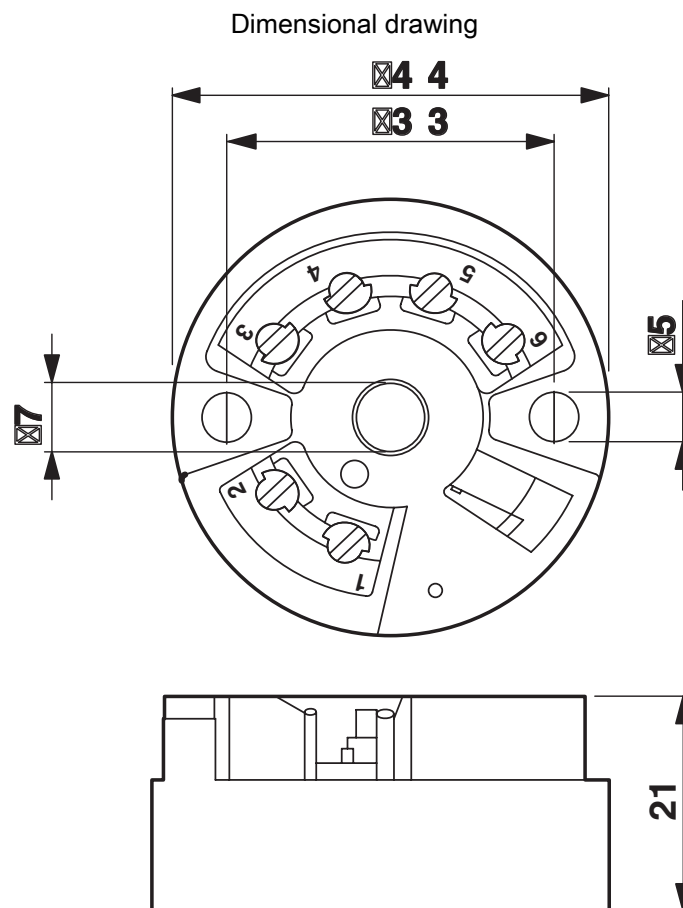
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Drawings



Dimensional drawing

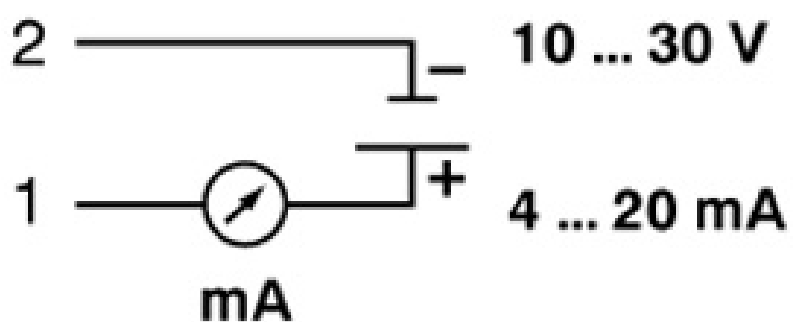
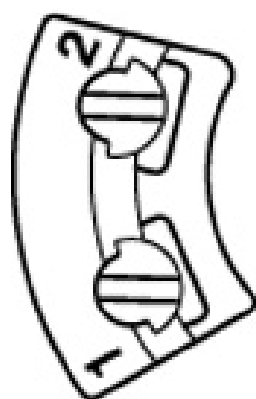
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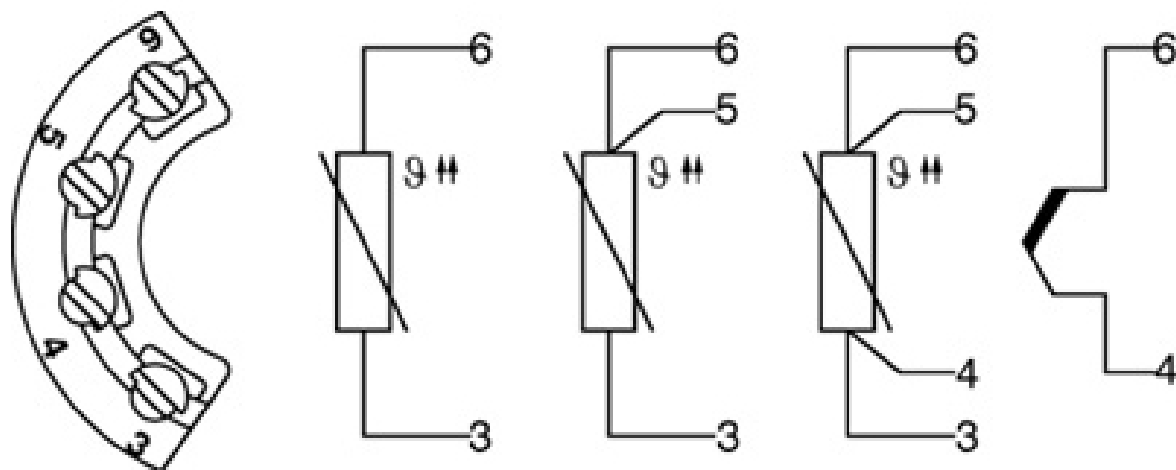
Connection diagram



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Connection diagram



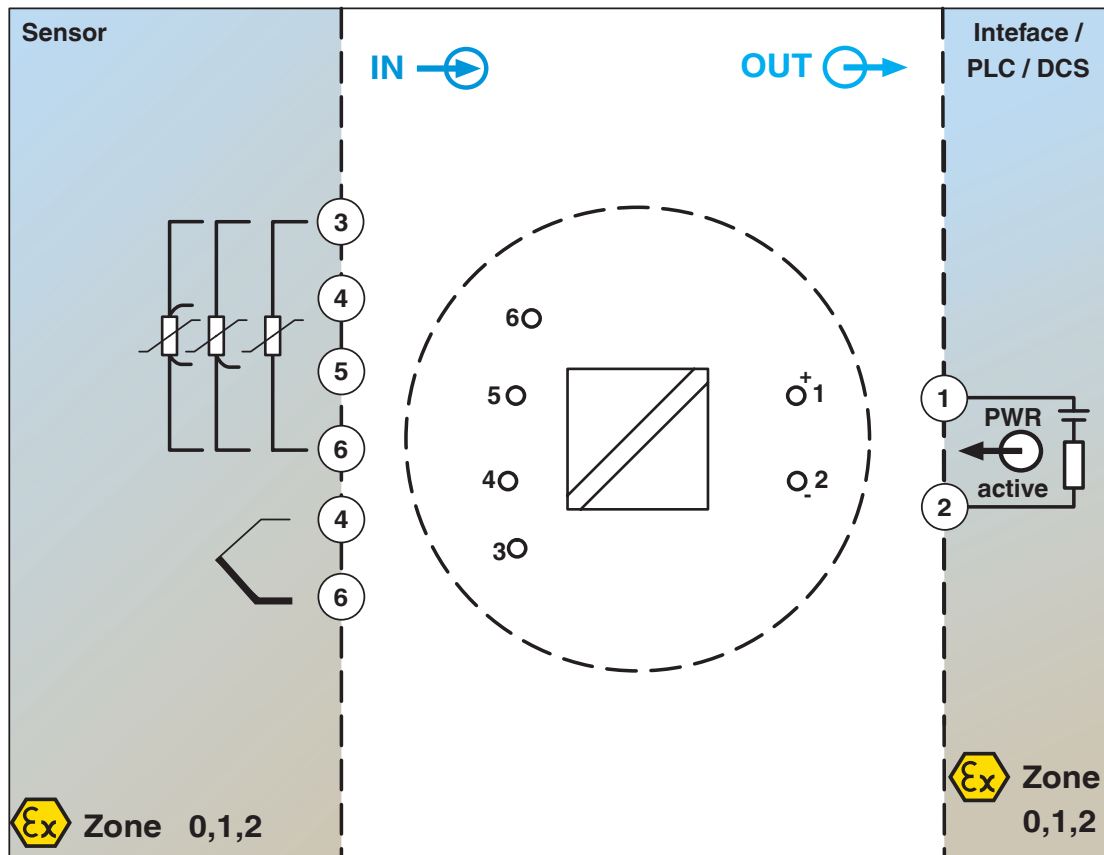
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Block diagram



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

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Classifications

ETIM

ETIM 9.0	EC002919
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Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes, No exemptions
China RoHS	
Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits
EU REACH SVHC	
REACH candidate substance (CAS No.)	No substance above 0.1 wt%

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