

2908660
<https://www.phoenixcontact.com/us/products/2908660>

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Ex i-Output loop-powered temperature transducer for transmitting up to 2 sensor signals from RTD and TC sensors, as well as from resistance and voltage sensors via 4 mA ... 20 mA. HART, Ex i signal conditioners with SIL functional safety, Standard configuration, Safety Integrity Level (SIL, IEC 61508): 2, Systematic Capability: 3, Screw connection

Commercial data

Item number	2908660
Packing unit	1 pc
Minimum order quantity	1 pc
Note	Made to order (non-returnable)
Sales key	C430
Product key	DK1243
GTIN	4055626355429
Weight per piece (including packing)	208 g
Weight per piece (excluding packing)	208 g
Customs tariff number	85437090
Country of origin	DE

MACX MCR-EX-TS-I-OLP - Temperature measuring transducer



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Technical data

Product properties

Product type	Temperature transmitter
Product family	MACX Analog
No. of channels	2
Configuration	Software HART

Insulation characteristics

Overvoltage category	II
Pollution degree	2

System properties

Functionality

Configuration	Software HART
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Electrical properties

Electrical isolation between input and output	yes
Step response (0–99%)	0.8 s (TC)

Electrical isolation Input/output

Test voltage	2 kV AC (50 Hz, 60 s)
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Supply

Supply voltage range	loop-powered, no external supply necessary 12 V DC ... 42 V DC (Standard) 12 V DC ... 32 V DC (SIL active) 12 V DC ... 30 V DC (Ex)
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Input data

Signal

Input signal	Temperature
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Measurement

Number of inputs	2
Input voltage range	-20 mV ... 100 mV (Minimum measuring span: 5 mV)
Sensor types (RTD) that can be used	Pt, Ni, Cu sensors: 2, 3, 4-wire
Sensor types that can be used (TC)	A, B, C, D, E, J, K, L, N, R, S, T, U
Temperature measuring range	-250 °C ... 2500 °C (Range depending on the sensor type) -200 °C ... 850 °C (Pt 100)
Temperature measuring range	> 10 K (RTD)

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	> 50 K (TC)
Linear resistance measuring range	10 Ω ... 2000 Ω (Minimum measuring span: 10 Ω)

Output data

Signal: Current

Configurable/programmable	no
Current output signal	4 mA ... 20 mA
	20 mA ... 4 mA
Max. current output signal	23 mA
Load	($U_L - 11$ V) / 0,023 A
HART coding	FSK $\pm$ 0.5 mA
HART version	7
Transmission speed	1200 Baud
Mains frequency filter	50/60 Hz
Communication resistance	$\geq$ 250 Ω
Switch-on delay	$\approx$  s (HART)
	$\approx$  s (Measured value)

Connection data

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross-section rigid	0.2 mm ² ... 2.5 mm ²
Conductor cross-section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross-section AWG	24 ... 14
Tightening torque	0.5 Nm ... 0.6 Nm

Test socket

Max. diameter	2 mm
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Ex data

Ex installation (EPL)	Gb
	Div. 1
Ex i circuits (EPL)	Ga
	Div. 1

Interfaces

Data communication (bypass)

Protocols supported	HART
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Signaling

Status display	LED (red)
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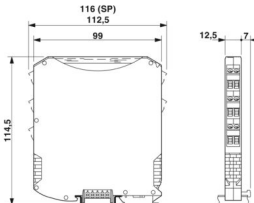
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Dimensions

Dimensional drawing	
Width	12.5 mm
Height	112.5 mm
Depth	113.7 mm
Depth NS 35/7,5	114.5 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715)

Material specifications

Color	gray (RAL 7042)
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Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20 (not assessed by UL)
Ambient temperature (operation)	-40 °C ... 85 °C -40 °C ... 70 °C (SIL active)
Ambient temperature (storage/transport)	-40 °C ... 100 °C
Altitude	≤ 4000 m (Above sea level)
Climatic class	B2
Permissible humidity (operation)	5 % ... 95 % (non-condensing)

Approvals

CE

Certificate	CE-compliant
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ATEX

Identification	Ex II 2 (1) G Ex ib [ia Ga] IIC T6...T4 Gb
Certificate	EPS 17 ATEX 1 130 X

IECEx

Identification	Ex ib [ia Ga] IIC T6...T4 Gb
Certificate	IECEx EPS 17.0076X

UKCA Ex (UKEX)

Certificate	CML 21UKEX2997X
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UL, USA/Canada

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Identification	UL 61010 Recognized
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FM

Identification	Exia / Class I / Div. 1, 2 / Group ABCD
	NI, Class I, Div. 2, Groups A, B, C, D

CSA

Identification	AIS / Class I / Div. 1 / ABCD
	NI / Class I / Div. 2 / ABCD T6/T5/T4

Shipbuilding approval

Certificate	DNV GL TAA00002GX
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Safety Integrity Level (SIL, IEC 61508)

Identification	2
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Systematic Capability

Identification	3
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Shipbuilding data

Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	A

Mounting

Mounting type	DIN rail mounting
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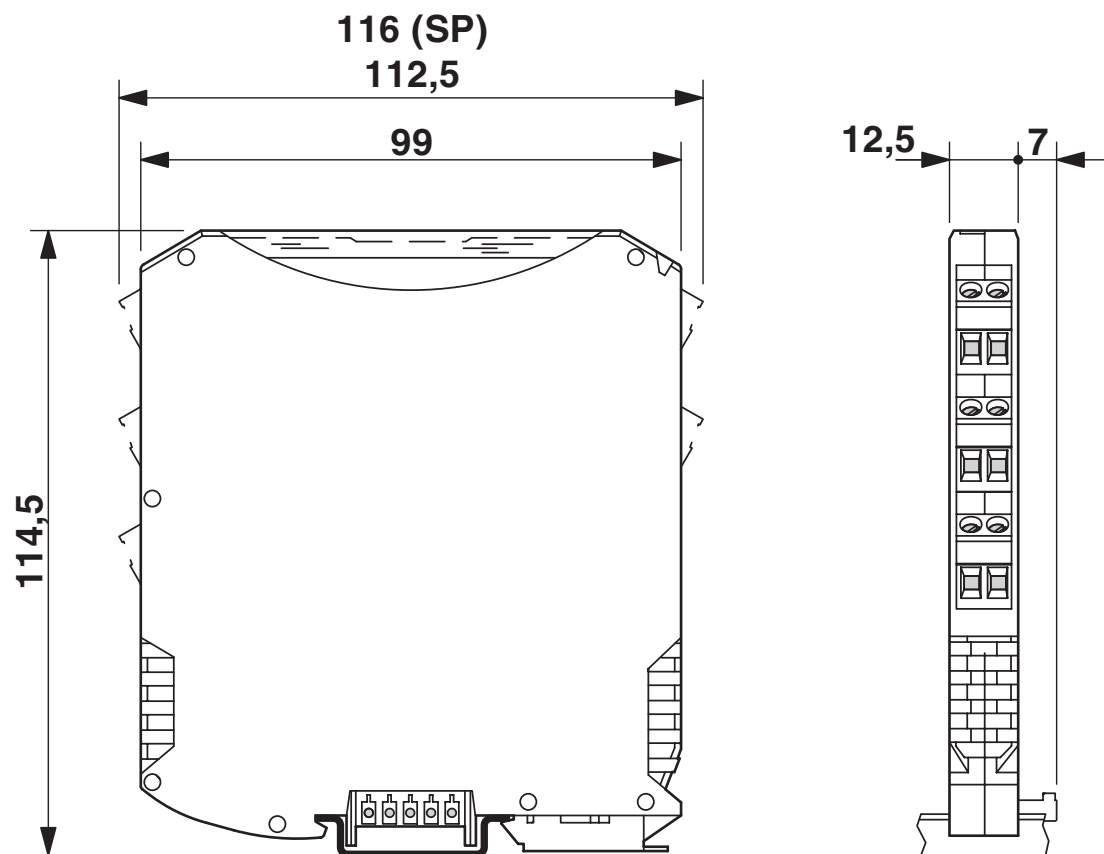


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Drawings

Dimensional drawing

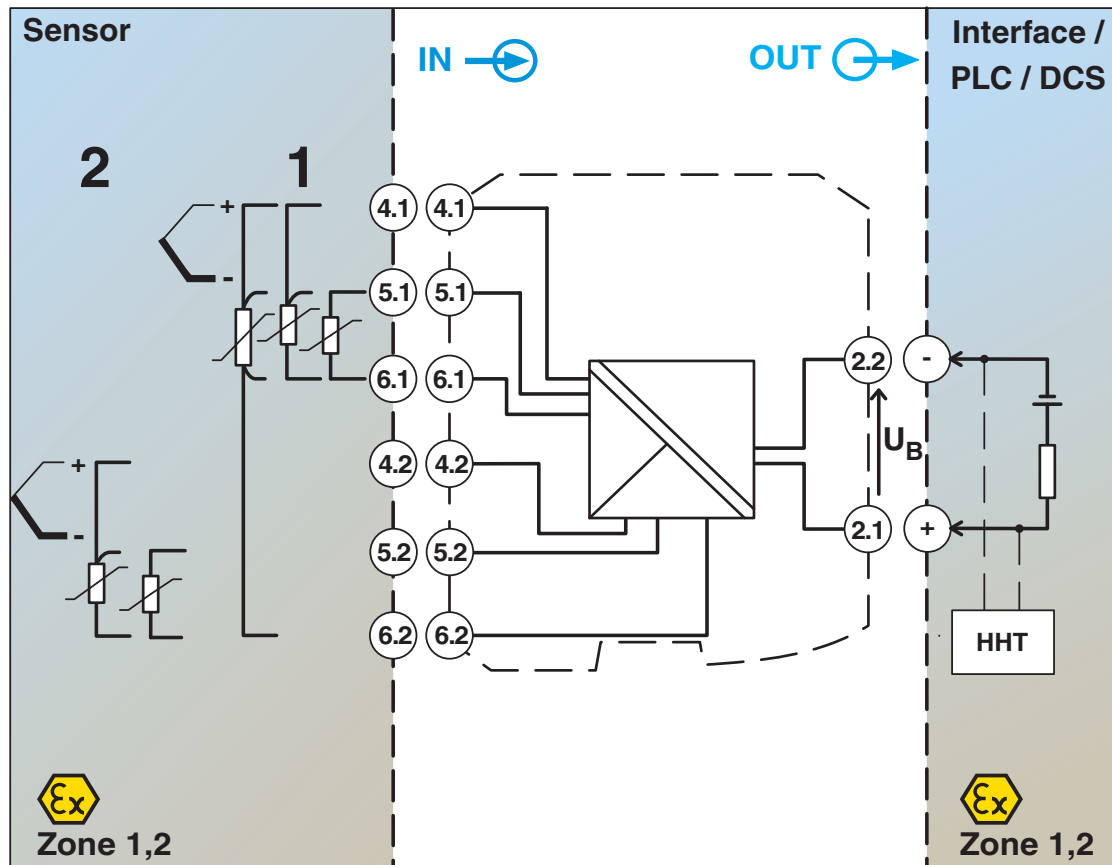


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Block diagram



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Approvals

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cUL Recognized
Approval ID: FILE E 198586



UL Recognized
Approval ID: FILE E 198586



DNV GL
Approval ID: TAA00002GX



Functional Safety
Approval ID: Z10 029429 0021

DNV

Approval ID: TAA00002GX



IECEx
Approval ID: IECEx EPS 17.0076X



CSA
Approval ID: 70107976



ATEX
Approval ID: EPS 17 ATEX 1 130 X



FM approved
Approval ID: FM17US0110X

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Classifications

ECLASS

ECLASS-13.0	27210129
ECLASS-15.0	27210129

ETIM

ETIM 9.0	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-E
	No hazardous substances above the limits

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	95167ca1-d643-4d51-a887-9ccef22c9eaa

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