

MACX MCR-EX-AP-RTD-RTD - Temperature measuring transducer



1291894

<https://www.phoenixcontact.com/us/products/1291894>

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Ex i-Resistance isolator for intrinsically safe operation of Pt 100 resistance thermometers in 2, 3, or 4-conductor technology and resistance-type sensors. The values measured at the Ex i input are transmitted 1:1 to the non Ex i output. number of channels: 1, Standard configuration, 3-way isolation, Screw connection

Commercial data

Item number	1291894
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C430
Product key	DK121W
GTIN	4063151524333
Weight per piece (including packing)	202.9 g
Weight per piece (excluding packing)	202.9 g
Customs tariff number	85437090
Country of origin	DE

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Technical data

Notes

Note on application	Accuracy, typically specified as a percentage of the basic measuring range at U_N , 23°C
Notes on operation	Installation conditions influence the ambient temperature. Please refer to the "Control cabinet installation instructions".
Notes on operation	Sensor set via DIP switches
Notes on operation	2-conductor comparison set via DIP switch ADJ

Product properties

Product type	Temperature transmitter
Product family	MACX Analog
No. of channels	1

Electrical properties

Electrical isolation	3-way isolation
Electrical isolation between input and output	yes
Signal transmission behavior	In = Out
Temperature coefficient, typical	≤ 0.1 % (10 K)
Reverse polarity protection	yes

Electrical isolation Input/output IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V _{PP}

Electrical isolation Input/power supply IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V _{PP}

Electrical isolation Input/error message output IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V _{PP}

Electrical isolation Input/configuration interface IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V _{PP}

Electrical isolation Output 1/output 2

Test voltage	350 V (50 Hz, 60 s)
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Electrical isolation Output/supply

Test voltage	350 V (50 Hz, 60 s)
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Electrical isolation Output/configuration interface

Test voltage	350 V (50 Hz, 60 s)
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Electrical isolation Output/supply/error message output

Test voltage	350 V (50 Hz, 60 s)
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Supply

Nominal supply voltage	24 V DC
Supply voltage range	18 V ... 31.2 V
Power dissipation	≤ 600 mW
Power consumption	≤ 650 mW

Input data

Measurement

Description of the input	intrinsically safe
Sensor types (RTD) that can be used	Pt 100
Connection technology	2-, 3-, 4-conductor
Linear resistance measuring range	18 Ω ... 391 Ω (Pt 100)
Max. permissible overall conductor resistance	≤ 50 Ω (per wire, 2-conductor circuit) ≤ 100 Ω (per wire, 3-, 4-conductor circuit)

Output data

Analog: Resistance thermometer

Output signal Voltage	2 V DC (Nominal voltage)
Output signal Current	5 mA (Nominal current)
Output signal Resistance	400 Ω
Output signal Resistance range	18 Ω ... 391 Ω (Pt 100)
Settling time	< 10 ms (10% ... 90%, multiplexer mode)
Setting range	< 1 s (Input/output)
Sensor input current	200 μA ... 5 mA
Connection technology	2-, 3-, 4-conductor

Signal: Error message output

Maximum switching voltage	30 V
Max. switching current	100 mA

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

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Ex data

Ex installation (EPL)	Gc
Ex i circuits (EPL)	[Ga]
	[Da]
	[Ma]

Safety data

Max. internal inductance L_i	negligible
Max. internal capacitance C_i	negligible
Max. output voltage U_o	6.5 V
Max. output current I_o	16.5 mA
Max. output power P_o	27 mW
Safety-related maximum voltage U_m	253 V AC
IIA (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	900 mH / 1000 μ F
IIB/IIIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	450 mH / 570 μ F
IIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	120 mH / 25 μ F
I (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	1000 mH / 1000 μ F
IIB/IIIC (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	100 mH / 5.3 μ F, 20 mH / 6.9 μ F, 2 mH / 11 μ F, 0.5 mH / 15 μ F
IIC (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	50 mH / 1.1 μ F, 5 mH / 1.7 μ F, 1 mH / 2.3 μ F, 0.2 mH / 3.4 μ F

Signaling

Status display	Green LED (supply voltage)
	Red LED (line errors)

Dimensions

Dimensional drawing	
Width	17.5 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

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Flammability rating according to UL 94	V0
Housing material	PA 6.6

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20 (Terminal blocks)
	IP30 (Housing)
Ambient temperature (operation)	-20 °C ... 70 °C (Stand-alone device: any mounting position)
	-20 °C ... 60 °C (Group assembly: vertical DIN rail without circulating air)
	-20 °C ... 65 °C (Group assembly: vertical DIN rail with circulating air)
	-20 °C ... 65 °C (Group assembly: horizontal DIN rail without circulating air)
	-20 °C ... 70 °C (Group assembly: horizontal DIN rail with circulating air)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	≤ 2000 m
Permissible humidity (operation)	≤ 95 % (non-condensing)

Approvals

ATEX

Identification	⊕ II (1) G [Ex ia Ga] IIC
	⊕ II (1) D [Ex ia Da] IIIC
	⊕ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc
	⊕ I (M1) [Ex ia Ma] I

IECEX

Identification	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex nA nC [ia Ga] IIC T4 Gc
	[Ex ia Ma] I

EMC data

Electromagnetic compatibility	Tested in accordance with the following standards and regulations: EN 61326-1 For industrial use, NAMUR NE 21
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Standards and regulations

Electrical isolation	3-way isolation
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Mounting

Mounting type	NS 35/15, NS 35/7,5
Mounting position	vertical, horizontal

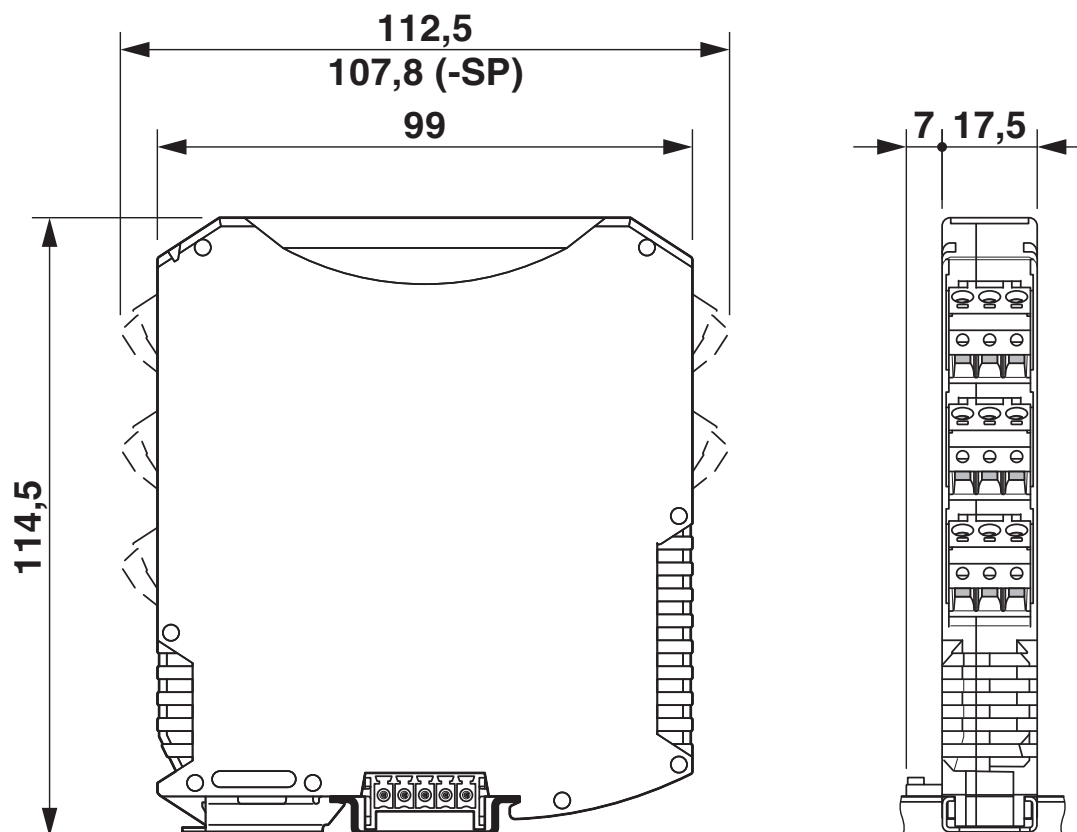
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Drawings

Dimensional drawing

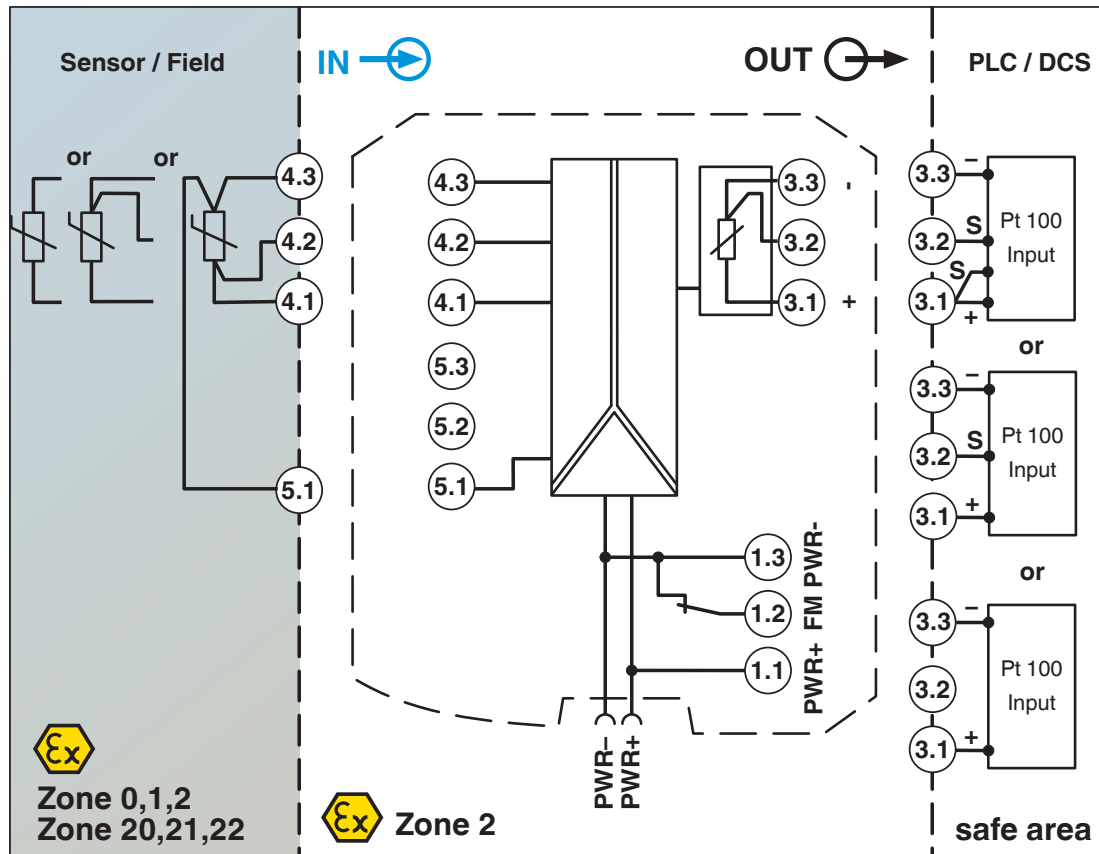


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Block diagram



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Approvals

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IECEx

Approval ID: IECEx BVS 21.0033X



ATEX

Approval ID: BVS 21 ATEX E 031X

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Classifications

ECLASS

ECLASS-13.0	27210129
ECLASS-15.0	27210129

ETIM

ETIM 10.0	EC002919
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50 An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.
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EU REACH SVHC

REACH candidate substance (CAS No.)	Lead titanium zirconium oxide(CAS: 12626-81-2) Lead(CAS: 7439-92-1)
SCIP	94c59bd9-d5b5-4802-8972-47743bc10e55

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