

MACX MCR-EX-SL-TC-I-NC - Temperature measuring transducer



2865586

<https://www.phoenixcontact.com/us/products/2865586>

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Ex i temperature transducer: converts signals from thermocouples installed in the Ex area and mV sources and transmits a 0/4 - 20 mA signal to a load in the safe area. Freely programmable, 3-way isolation. Replacement item: 1050233 MACX MCR-EX-TC-I.

Your advantages

- Power supply possible via DIN rail connector
- Input for resistance thermometers and resistance-type sensors, [Ex ia] IIC
- Programming during operation with Ex measuring circuit connected and also voltage-free using IFS-USB-PROG-ADAPTER programming adapter
- Installation in zone 2, protection type "n" (EN 60079-15) permitted
- 3-way electrical isolation
- Status indicator for supply voltage, cable, sensor, and module errors
- Configuration via software (FDT/DTM): sensor type, connection technology, measuring range, measuring unit, filter, alarm signal, and output range
- Output: 0 mA ... 20 mA or 4 mA ... 20 mA

Commercial data

Item number	2865586
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	C430
Product key	CK3121
Catalog page	Page 146 (C-5-2017)
GTIN	4046356160513
Weight per piece (including packing)	165 g
Weight per piece (excluding packing)	165 g
Customs tariff number	85437090
Country of origin	DE

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Technical data

Product properties

Product type	Temperature transmitter
Application	Temperature
No. of channels	1
Type	Ex i signal conditioners

Insulation characteristics

Overvoltage category	II
Pollution degree	2

Electrical properties

Alignment span	$\pm 5 \%$
Alignment zero	$\pm 5 \%$
Typical cold point errors	$\pm 1 \text{ K}$
Step response (0–99%)	700 ms $\leq 1100 \text{ ms}$
Temperature coefficient, typical	0.01 %/K

Electrical isolation Input/output/power supply

Rated insulation voltage	300 V _{rms}
Test voltage	2.5 kV AC (50 Hz, 60 s)
Insulation	Safe isolation in accordance with IEC/EN 61010-1

Electrical isolation Input/output

Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
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Electrical isolation Input/power supply

Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
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Supply

Nominal supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (24 V DC, -20 % ... +25 %)
Max. current consumption	< 40 mA (24 V DC)
Power dissipation	< 1 W

Input data

Signal

Number of inputs	1
Input signal	Temperature Voltage
Voltage input signal	-20 mV ... 70 mV

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Measurement

Description of the input	Intrinsically safe
Sensor types that can be used (TC)	E, J, K, N as per IEC / EN 60584, L as per DIN 43760
Temperature measuring range	-250 °C ... 1372 °C (Range depending on the sensor type)
Sensor type:	-210 °C ... 1200 °C
	-200 °C ... 1372 °C
	-200 °C ... 1300 °C
	-226 °C ... 1000 °C
	-200 °C ... 900 °C
Linear mV signal range	-20 mV ... 70 mV
Temperature measuring range	Min. 50 K for thermocouples, 3 mV for mV sources

Output data

Switching:

Configurable/programmable	no
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Signal

Output description	Current output
Number of outputs	1
Configurable/programmable	Yes
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA
Load/output load current output	$\leq 500 \Omega$
Output ripple (current)	$< 50 \mu A_{PP}$
	$< 10 \mu A_{RMS}$
Behavior in the event of a sensor error	As per NE 43 or can be freely defined

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

Ex data

Safety data

Max. output voltage U_o	6 V
Max. output current I_o	4.7 mA
Max. output power P_o	7 mW
Safety-related maximum voltage U_m	253 V AC

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	125 V DC
IIC: Max. external inductivity L_o / Max. external capacitance C_o	100 mH / 1.5 μ F, 10 mH / 1.9 μ F, 1 mH / 2.7 μ F
IIB: Max. external inductivity L_o / Max. external capacitance C_o	100 mH / 7 μ F, 10 mH / 9.4 μ F, 1 mH / 15 μ F

Signaling

Status display	Green LED (supply voltage, PWR)
	Red LED, flashing 2.4 Hz (cable error, sensor error on input or output, ERR)
	Red LED, flashing 1.2 Hz (service operation, ERR)
	Red LED, permanently on (module error, ERR)

Dimensions

Dimensional drawing	
Width	12.5 mm
Height	106.4 mm
Depth	114.5 mm

Material specifications

Color	gray (RAL 7042)
Flammability rating according to UL 94	V0 (Housing)
Housing material	PA 6.6-FR

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20 (not assessed by UL)
Ambient temperature (operation)	-20 °C ... 60 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	≤ 2000 m
Permissible humidity (operation)	5 % ... 95 % (non-condensing)

Approvals

CE

Certificate	CE-compliant
Note	and EN 61326

ATEX

Ⓜ II (1) G [Ex ia Ga] IIC/IIB

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Identification	Ⓜ II (1) D [Ex ia Da] IIIC
	Ⓜ II 3(1) G Ex nA ic [ja Ga] IIC T4 Gc X
Certificate	IBExU 09 ATEX 1030

IECEX

Identification	[Ex ia Ga] IIC/IIB
	[Ex ia Da] IIIC
	Ex nA ic [ja Ga] IIC T4 Gc
Certificate	IECEX IBE 09.0002X

UL, USA/Canada

Identification	Class I Div 2; IS for Class I, II, III Div 1
Certificate	Ⓜ.Ⓜ. C.D.-No 83104549

KC-s

Identification	[Ex ia] IIC/IIB
Certificate	17-KA4BO-0415X

Shipbuilding approval

Identification	C, EMC1
Certificate	GL 86 644-10HH

EAC Ex

Identification	Ⓜ [Ex ia Ga] IIC
	Ⓜ [Ex ia Da] IIIC
Certificate	RU C-DE.AB72.B.00093/19

EMC data

Noise immunity	EN 61000-6-2
Note	When being exposed to interference, there may be minimal deviations.
Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4

Electromagnetic HF field

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3

Fast transients (burst)

Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4

Conducted interference

Designation	Conducted interferences
Standards/regulations	EN 61000-4-6

Mounting

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Mounting type

DIN rail mounting

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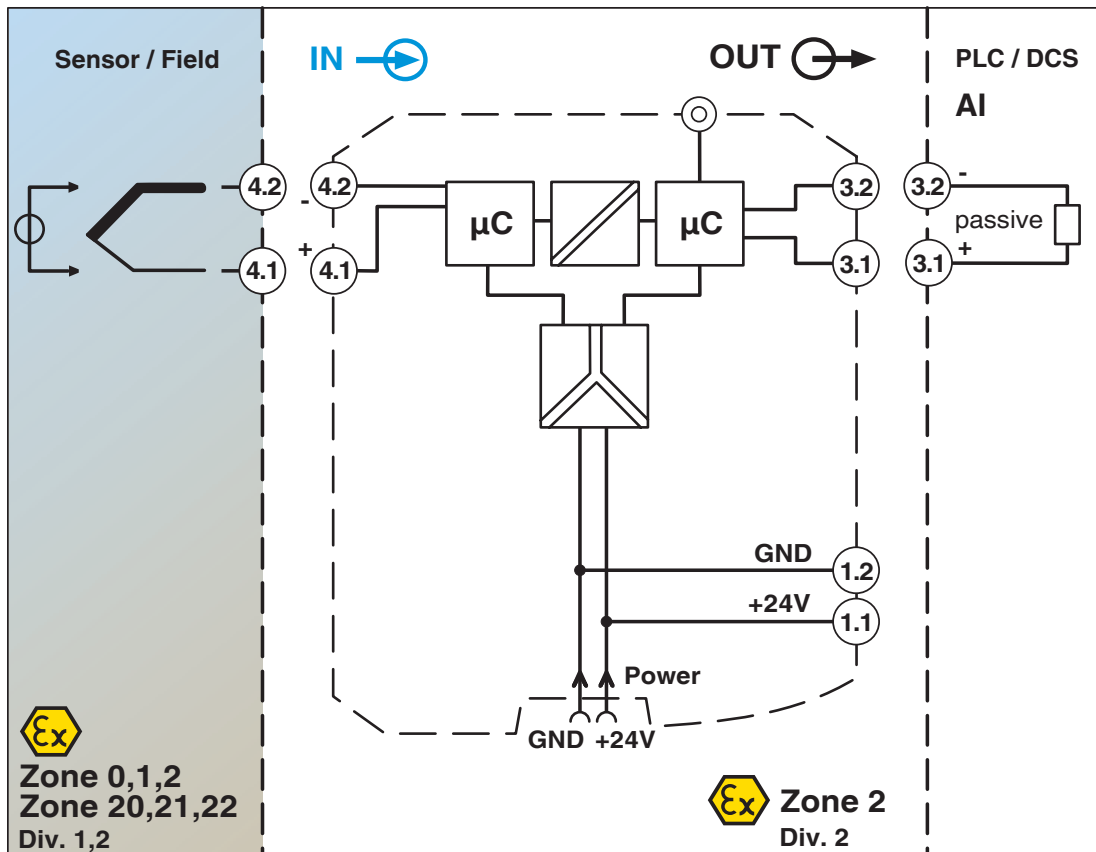


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Drawings

Block diagram



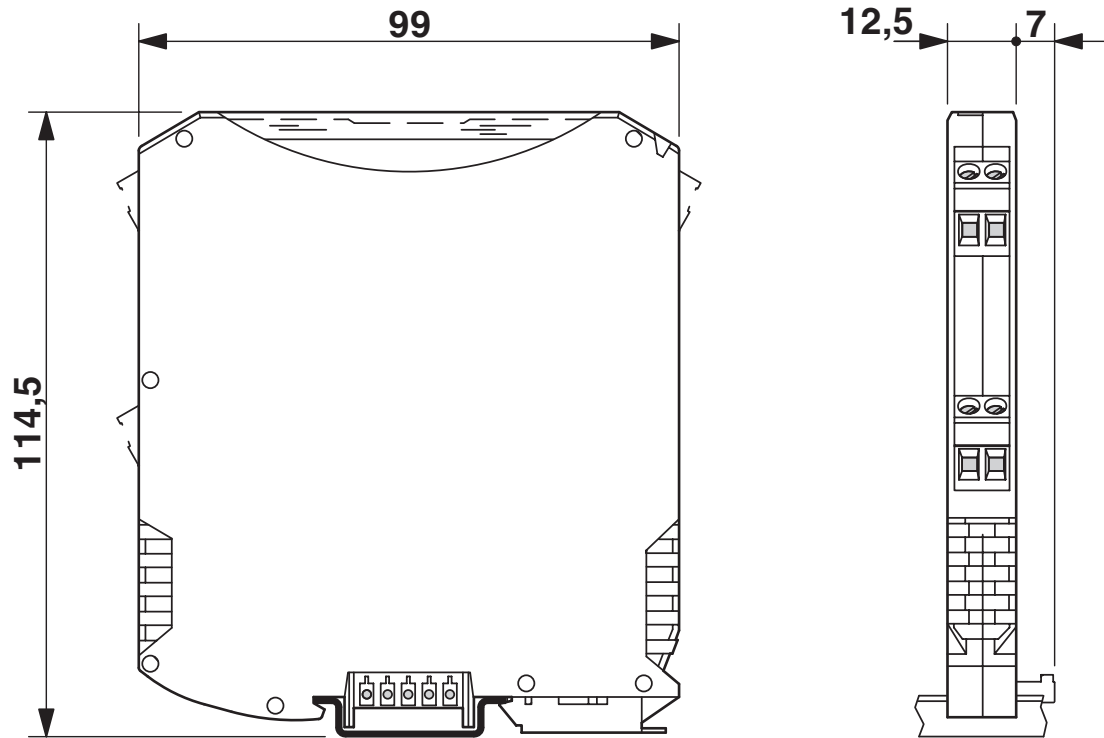
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Dimensional drawing



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Classifications

ECLASS

ECLASS-11.0	27210129
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ETIM

ETIM 9.0	EC002919
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UNSPSC

UNSPSC 21.0	41112105
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Environmental product compliance

China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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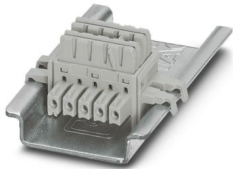
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Accessories

ME 6,2 TBUS-2 1,5/5-ST-3,81 GY - DIN rail bus connectors

2695439

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DIN rail connector (TBUS), 5-pos., for bridging the supply voltage, can be snapped onto NS 35/... DIN rail in accordance with EN 60715

MACX MCR-PTB - Power and error message module

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Power and fault signaling module with screw connection, including corresponding ME 17,5 TBUS 1,5/ 5-ST-3,81 GY DIN rail connector

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MACX MCR-PTB-SP - Power and error message module

2924184

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Power and fault signaling module with Push-in connection, including corresponding ME 17,5 TBUS 1,5/ 5-ST-3,81 GY DIN rail connector

IFS-USB-PROG-ADAPTER - Programming adapter

2811271

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Programming adapter with USB interface, for programming with software. The USB driver is included in the software solutions for the products to be programmed, such as measuring transducers or motor managers.

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TC-D37SUB-ADIO16-EX-P-UNI - Module carrier

2924854

<https://www.phoenixcontact.com/us/products/2924854>



Universal termination carrier for connecting 16 MACX Analog Ex i signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection)

TC-D37SUB-AIO16-EX-PS-UNI - Module carrier

2902932

<https://www.phoenixcontact.com/us/products/2902932>



Universal termination carrier for connecting 16 MACX Analog Ex i signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection), with HART multiplexer connection

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UC-EMLP (11X9) - Plastic label

0819291

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Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

UC-EMLP (11X9) CUS - Plastic label

0824547

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Plastic label, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm

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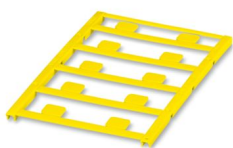
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UC-EMLP (11X9) YE - Plastic label

0822602

<https://www.phoenixcontact.com/us/products/0822602>

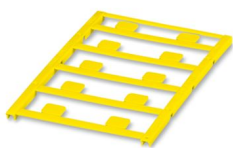


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UC-EMLP (11X9) YE CUS - Plastic label

0824548

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Plastic label, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm

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UC-EMLP (11X9) SR - Plastic label

0828094

<https://www.phoenixcontact.com/us/products/0828094>

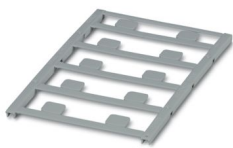


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UC-EMLP (11X9) SR CUS - Plastic label

0828098

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Plastic label, can be ordered: by sheet, silver, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

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US-EMLP (11X9) - Plastic label

0828789

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Plastic label, Card, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

US-EMLP (11X9) YE - Plastic label

0828871

<https://www.phoenixcontact.com/us/products/0828871>



Plastic label, Card, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

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US-EMLP (11X9) SR - Plastic label

0828872

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Plastic label, Card, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

LS-EMLP (11X9) WH - Device marker

0831678

<https://www.phoenixcontact.com/us/products/0831678>



Device marker, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255

MACX MCR-EX-SL-TC-I-NC - Temperature measuring transducer



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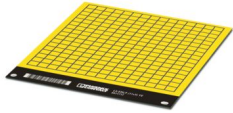
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LS-EMLP (11X9) YE - Device marker

0831732

<https://www.phoenixcontact.com/us/products/0831732>

Device marker, Sheet, yellow, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255



LS-EMLP (11X9) SR - Device marker

0831705

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Device marker, Sheet, silver, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255



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MPS-MT - Test plug

0201744

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Test plug, with solder connection up to 1 mm² conductor cross section, number of positions: 1, color: gray

MPS-IH BK - Insulating sleeve

0201731

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Insulating sleeve, color: black



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MPS-IH GY - Insulating sleeve

0201728

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Insulating sleeve, color: gray



MPS-IH GN - Insulating sleeve

0201702

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Insulating sleeve, color: green



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MPS-IH YE - Insulating sleeve

0201692

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Insulating sleeve, color: yellow

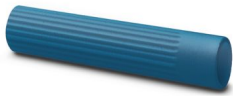


MPS-IH BU - Insulating sleeve

0201689

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Insulating sleeve, color: blue



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MPS-IH RD - Insulating sleeve

0201676

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Insulating sleeve, color: red



MPS-IH WH - Insulating sleeve

0201663

<https://www.phoenixcontact.com/us/products/0201663>

Insulating sleeve, color: white



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Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com