Temperature measuring transducer - MACX MCR-EX-SL-TC-I-NC - 2865586

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (http://phoenixcontact.com/download)

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

- Input for resistance thermometers and resistance-type sensors, [Ex ia] IIC
- Power supply possible via DIN rail connector
- 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
- 0 ... 20 mA or 4 ... 20 mA output
- Configuration via software (FDT/DTM): sensor type, connection technology, measuring range, measuring unit, filter, alarm signal, and output range

Key Commercial Data

Packing unit	1 pc
GTIN	4 046356 160513
GTIN	4046356160513

Technical data

Dimensions

Width	12.5 mm
Height	106.4 mm
Depth	113.7 mm

Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C (Any mounting position)

Temperature measuring transducer - MACX MCR-EX-SL-TC-I-NC - 2865586

Technical data

Ambient conditions

Ambient temperature (storage/transport)	-40 °C ... 80 °C
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Degree of protection	IP20 (not assessed by UL)
Noise immunity	EN 61000-6-2 When being exposed to interference, there may be minimal deviations.

Input data

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)
Input signal range	-20 mV ... 70 mV
Measuring range span	Min. 50 K for thermocouples, 3 mV for mV sources
Voltage input signal	-20 mV ... 70 mV

Output data

Signal output	Current output
Configurable/programmable	Yes
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA
Load/output load current output	≤ 500 Ω
Output ripple (current)	< 50 μA_{PP}
Behavior in the event of a sensor error	As per NE 43 or can be freely defined
Configurable/programmable	no

Power 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

Connection data

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross section solid	0.2 mm² ... 2.5 mm²
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross section AWG	24 ... 14
Torque	0.5 Nm ... 0.6 Nm

General

No. of channels	1

Temperature measuring transducer - MACX MCR-EX-SL-TC-I-NC - 2865586

Technical data

General

Temperature coefficient, typical	0.01 %/K
Typical cold point errors	± 1 K
Step response (0–99%)	typ. 700 ms
	≤ 1100 ms
Alignment zero	± 5 %
Alignment span	± 5 %
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)
Degree of pollution	2
Overvoltage category	II
Electromagnetic compatibility	Conformance with EMC directive
Interference emission	EN 61000-6-4
Housing material	PA 6.6-FR
Color	gray
Designation	Input/output/power supply
	Input/output
Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
Designation	Input/power supply
Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
Conformance	CE-compliant, additionally EN 61326
ATEX	# II (1) G [Ex ia Ga] IIC/IIB
	# II (1) D [Ex ia Da] IIIC
	# II 3(1) G Ex nA ic [ia Ga] IIC T4 Gc X
IECEx	[Ex ia Ga] IIC/IIB
	[Ex ia Da] IIIC
	Ex nA ic [ia Ga] IIC T4 Gc
UL, USA/Canada	Class I Div 2; IS for Class I, II, III Div 1

Safety characteristic data

Safety Integrity Level (SIL)	2

Safety data

Max. output voltage U_o	6 V
Max. output current I_o	4.7 mA
Max. output power P_o	7 mW
Group	IIC
Max. external inductivity L_o	100 mH

Temperature measuring transducer - MACX MCR-EX-SL-TC-I-NC - 2865586

Technical data

Safety data

Max. external capacitance C_o	1.5 µF
Group	IIC
Max. external inductivity L_o	10 mH
Max. external capacitance C_o	1.9 µF
Group	IIC
Max. external inductivity L_o	1 mH
Max. external capacitance C_o	2.7 µF
Group	IIB
Max. external inductivity L_o	100 mH
Max. external capacitance C_o	7 µF
Group	IIB
Max. external inductivity L_o	10 mH
Max. external capacitance C_o	9.4 µF
Group	IIB
Max. external inductivity L_o	1 mH
Max. external capacitance C_o	15 µF
Safety-related maximum voltage U_m	253 V AC (125 V DC)

EMC data

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
	EN 61000-4-4
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Conformance	CE-compliant, additionally EN 61326
ATEX	# II (1) G [Ex ia Ga] IIC/IIB
	# II (1) D [Ex ia Da] IIIC
	# II 3(1) G Ex nA ic [ia Ga] IIC T4 Gc X
IECEx	[Ex ia Ga] IIC/IIB
	[Ex ia Da] IIIC

Temperature measuring transducer - MACX MCR-EX-SL-TC-I-NC - 2865586

Technical data

Standards and Regulations

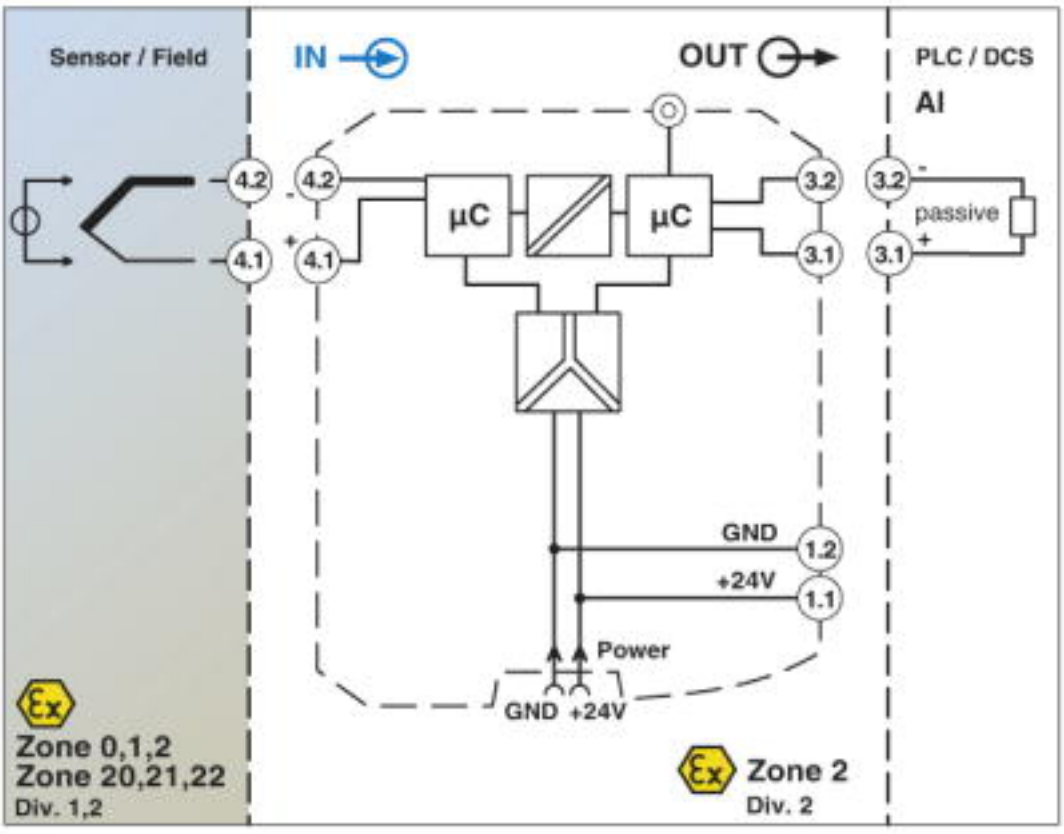
	Ex nA ic [ia Ga] IIC T4 Gc
UL, USA/Canada	Class I Div 2; IS for Class I, II, III Div 1
Group	IIC
	IIC
	IIC
	IIB
	IIB
	IIB

Environmental Product Compliance

REACh SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab “Downloads”, Category “Manufacturer's declaration”

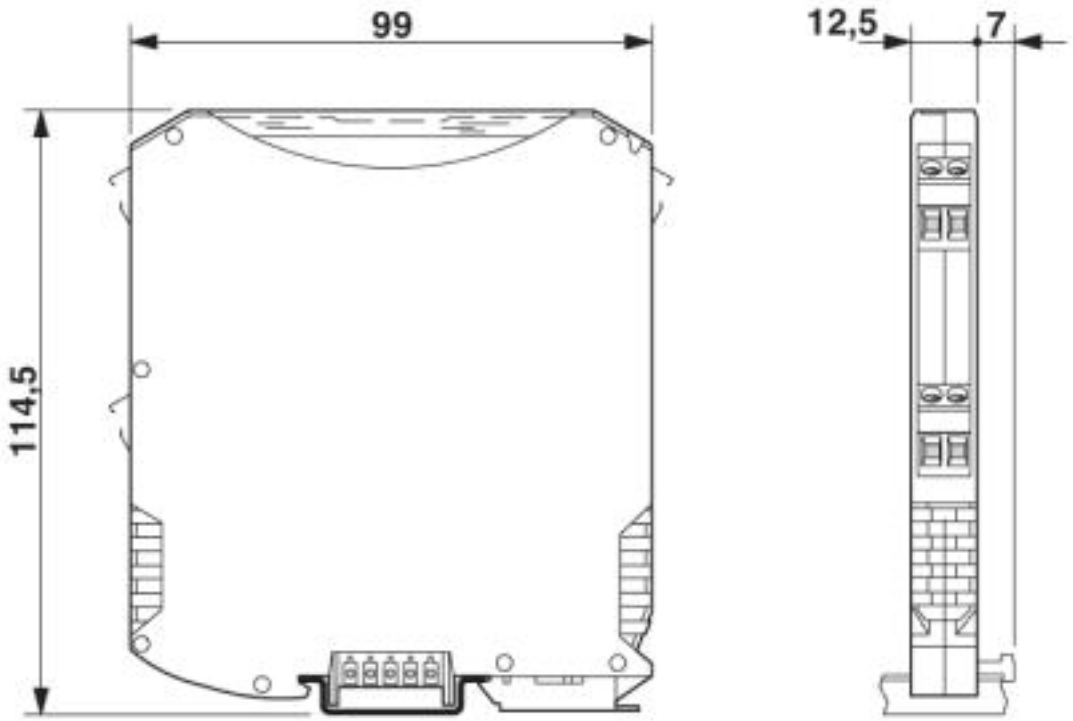
Drawings

Block diagram

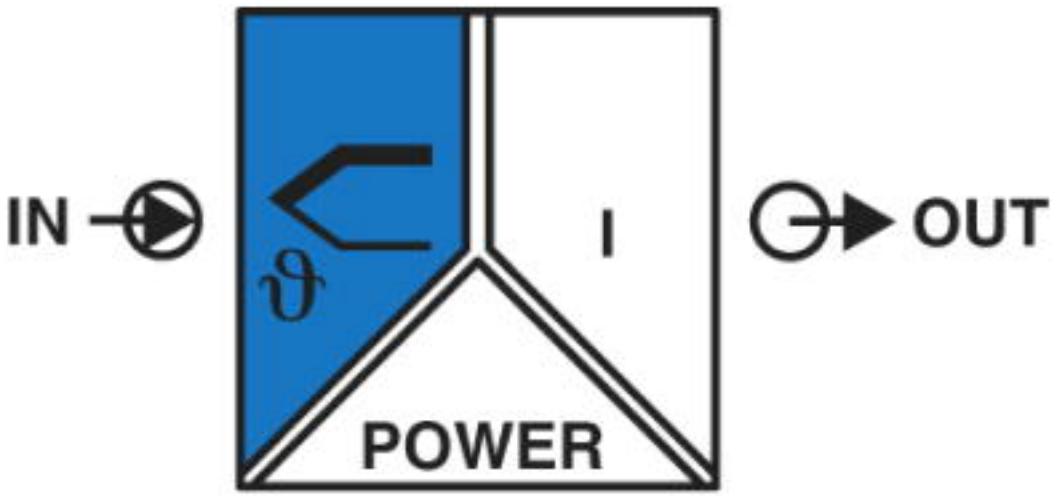


Temperature measuring transducer - MACX MCR-EX-SL-TC-I-NC - 2865586

Dimensional drawing



Pictogram



Classifications

eCl@ss

eCl@ss 4.0	27200200
eCl@ss 4.1	27200200

Temperature measuring transducer - MACX MCR-EX-SL-TC-I-NC - 2865586

Classifications

eCl@ss

eCl@ss 5.0	27200200
eCl@ss 5.1	27200200
eCl@ss 6.0	27200200
eCl@ss 7.0	27200206
eCl@ss 8.0	27200206
eCl@ss 9.0	27210129

ETIM

ETIM 2.0	EC001446
ETIM 3.0	EC001446
ETIM 4.0	EC001446
ETIM 5.0	EC001446
ETIM 6.0	EC002919
ETIM 7.0	EC002919

UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	41112105
UNSPSC 18.0	41112105
UNSPSC 19.0	41112105
UNSPSC 20.0	41112105
UNSPSC 21.0	41112105

Accessories

Accessories

Device marking

Plastic label - UC-EMLP (11X9) - 0819291

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

Temperature measuring transducer - MACX MCR-EX-SL-TC-I-NC - 2865586

Accessories

Plastic label - UC-EMLP (11X9) YE - 0822602

Plastic label, Sheet, yellow, 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

Plastic label - UC-EMLP (11X9) SR - 0828094

Plastic label, Sheet, silver, 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

Plastic label - US-EMLP (11X9) - 0828789

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

Plastic label - US-EMLP (11X9) YE - 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

Plastic label - US-EMLP (11X9) SR - 0828872

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

Temperature measuring transducer - MACX MCR-EX-SL-TC-I-NC - 2865586

Accessories

Device marker - LS-EMLP (11X9) WH - 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

Device marker - LS-EMLP (11X9) YE - 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

Device marker - LS-EMLP (11X9) SR - 0831705

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

DIN rail connector

DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GN - 2869728

DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.

Insulating sleeve

Insulating sleeve - MPS-IH BK - 0201731

Insulating sleeve, color: black

Temperature measuring transducer - MACX MCR-EX-SL-TC-I-NC - 2865586

Accessories

Insulating sleeve - MPS-IH GY - 0201728

Insulating sleeve, color: gray

Insulating sleeve - MPS-IH GN - 0201702

Insulating sleeve, color: green

Insulating sleeve - MPS-IH YE - 0201692

Insulating sleeve, color: yellow

Insulating sleeve - MPS-IH BU - 0201689

Insulating sleeve, color: blue

Insulating sleeve - MPS-IH RD - 0201676

Insulating sleeve, color: red

Temperature measuring transducer - MACX MCR-EX-SL-TC-I-NC - 2865586

Accessories

Insulating sleeve - MPS-IH WH - 0201663

Insulating sleeve, color: white

Labeled device marker

Plastic label - UC-EMLP (11X9) CUS - 0824547

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

Plastic label - UC-EMLP (11X9) YE CUS - 0824548

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

Plastic label - UC-EMLP (11X9) SR CUS - 0828098

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

Module carrier

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

Temperature measuring transducer - MACX MCR-EX-SL-TC-I-NC - 2865586

Accessories

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

Power module

Power and error message module - MACX MCR-PTB - 2865625

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

Power and error message module - MACX MCR-PTB-SP - 2924184

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

Programming adapter

Programming adapter - IFS-USB-PROG-ADAPTER - 2811271

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.

Test plug terminal block

Test plugs - MPS-MT - 0201744

Test plugs, with solder connection up to 1 mm² conductor cross section, color: gray

PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstr. 8
32825 Blomberg
Germany
Tel. +49 5235 300
Fax +49 5235 3 41200
http://www.phoenixcontact.com