

Temperature measuring transducer - MACX MCR-EX-SL-RTD-I-NC - 2865573

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Ex i temperature measuring transducer: Converts signals from resistance thermometers installed in Ex areas and transmits a 0/4-20 mA signal to a load in the safe area. Freely programmable, 3-way isolation.

Why buy this product

- 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
- 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
- 3-way electrical isolation
- Status indicator for supply voltage, cable, sensor, and module errors



Key Commercial Data

Packing unit	1 STK
GTIN	 4 046356 160520
GTIN	4046356160520
Weight per Piece (excluding packing)	160.000 g
Custom tariff number	85437090
Country of origin	Germany

Technical data

Note

Temperature measuring transducer - MACX MCR-EX-SL-RTD-I-NC - 2865573

Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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Dimensions

Width	12.5 mm
Height	99 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Noise immunity	EN 61000-6-2 When being exposed to interference, there may be minimal deviations.

Input data

Sensor types (RTD) that can be used	Sensors (2-, 3-, 4-wire)
Temperature measuring range	-200 °C ... 850 °C (Range depending on the sensor type)
Input signal range	0 Ω ... 2000 Ω
Cable resistance	≤ 50 Ω per cable
Sensor input current	200 μA ... 1 mA
Measuring range span	min. 50 K

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

Supply voltage range	19.2 V DC ... 30 V DC
Power consumption	< 1 W

Connection data

Conductor cross section solid min.	0.2 mm ²
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Connection data

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

General

No. of channels	1
Temperature coefficient, typical	0.01 %/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)
Flammability rating according to UL 94	V0
Degree of pollution	2
Overvoltage category	II
Interference emission	EN 61000-6-4
Housing material	PA 66-FR
Color	green
Designation	Input/output/power supply
Electrical isolation	300 V _{rms} (Rated insulation voltage (overvoltage category II; degree of pollution 2, safe isolation as per EN 61010-1))
	2.5 kV (50 Hz, 1 min., test voltage)
Designation	Input/output
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Designation	Input/power supply
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)

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Technical data

General

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
	[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 data

Max. output voltage U_o	6 V
Max. output current I_o	6.3 mA
Max. output power P_o	9.4 mW
Group	IIC
Max. external inductivity L_o	100 mH
Max. external capacity C_o	1.4 μ F
Group	IIC
Max. external inductivity L_o	10 mH
Max. external capacity C_o	1.9 μ F
Group	IIC
Max. external inductivity L_o	1 mH
Max. external capacity C_o	2.7 μ F
Group	IIB
Max. external inductivity L_o	100 mH
Max. external capacity C_o	6.9 μ F
Group	IIB
Max. external inductivity L_o	10 mH
Max. external capacity C_o	9.4 μ F
Group	IIB
Max. external inductivity L_o	1 mH
Max. external capacity C_o	15 μ F
Safety-related maximum voltage U_m	253 V AC (125 V DC)

EMC data

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

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Technical data

EMC data

Typical deviation from the measuring range final value	4 %
Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Typical deviation from the measuring range final value	4 %
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Typical deviation from the measuring range final value	4 %

Standards and Regulations

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
Flammability rating according to UL 94	V0
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
	[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
Group	IIC
	IIC
	IIC
	IIB
	IIB
	IIB

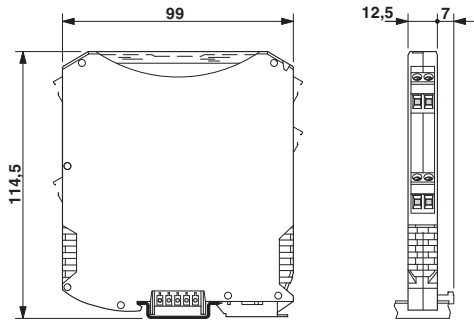
Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

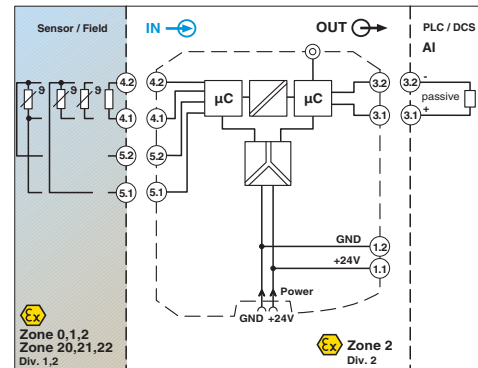
Drawings

Temperature measuring transducer - MACX MCR-EX-SL-RTD-I-NC - 2865573

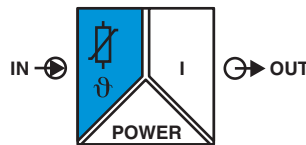
Dimensional drawing



Block diagram



Pictogram



Classifications

eCl@ss

eCl@ss 4.0	27200206
eCl@ss 4.1	27200206
eCl@ss 5.0	27200206
eCl@ss 5.1	27200206
eCl@ss 6.0	27200206
eCl@ss 7.0	27200206
eCl@ss 8.0	27200206
eCl@ss 9.0	27210129

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Classifications

ETIM

ETIM 2.0	EC001446
ETIM 3.0	EC001446
ETIM 4.0	EC001446
ETIM 5.0	EC001446
ETIM 6.0	EC002568

UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	41112105

Approvals

Approvals

Approvals

UL Listed / cUL Listed / EAC / cULus Listed

Ex Approvals

ATEX / UL Listed / cUL Listed / IECEx / EAC Ex / cULus Listed

Approval details

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 330267
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cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 330267
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Approvals

EAC		EAC-Zulassung
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cULus Listed	
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Accessories

Accessories

Device marking

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



Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK CLED, BLUEMARK LED, CMS-P1-PLOTTER, PLOTMARK, Mounting type: Adhesive, Lettering field: 11 x 9 mm

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



Plastic label, Sheet, yellow, unlabeled, can be labeled with: BLUEMARK CLED, BLUEMARK LED, CMS-P1-PLOTTER, PLOTMARK, Mounting type: Adhesive, Lettering field: 11 x 9 mm

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



Plastic label, Sheet, silver, unlabeled, can be labeled with: BLUEMARK CLED, BLUEMARK LED, CMS-P1-PLOTTER, PLOTMARK, Mounting type: Adhesive, Lettering field: 11 x 9 mm

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Accessories

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



Plastic label, Card, white, unlabeled, can be labeled with: THERMOMARK PRIME, THERMOMARK CARD, Mounting type: Adhesive, Lettering field: 11 x 9 mm

Plastic label - US-EMLP (11X9) YE - 0828871



Plastic label, Card, yellow, unlabeled, can be labeled with: THERMOMARK PRIME, THERMOMARK CARD, Mounting type: Adhesive, Lettering field: 11 x 9 mm

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



Plastic label, Card, silver, unlabeled, can be labeled with: THERMOMARK PRIME, THERMOMARK CARD, Mounting type: Adhesive, Lettering field: 11 x 9 mm

Device marker - LS-EMLP (11X9) WH - 0831678



Device marker, Sheet, white, unlabeled, can be labeled with: TOPMARK LASER, Mounting type: Adhesive, Lettering field: 11 x 9 mm

Device marker - LS-EMLP (11X9) YE - 0831732



Device marker, Sheet, yellow, unlabeled, can be labeled with: TOPMARK LASER, Mounting type: Adhesive, Lettering field: 11 x 9 mm

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Accessories

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

Device marker, Sheet, silver, unlabeled, can be labeled with: TOPMARK LASER, Mounting type: Adhesive, Lettering field: 11 x 9 mm



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

Insulating sleeve - MPS-IH GY - 0201728



Insulating sleeve, color: gray

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Accessories

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

Insulating sleeve - MPS-IH WH - 0201663



Insulating sleeve, color: white

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Accessories

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: 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: 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: 11 x 9 mm

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)

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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 GN 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 GN 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

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Accessories

Test plugs - MPS-MT - 0201744



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