Temperature measuring transducer - MACX MCR-EX-T-UI-UP-SP - 2924689

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)

Programmable Ex-i temperature transducer with analog output and 1 limit value relay, standard configuration, resistance thermometer in 2-, 3-, or 4-wire technology, thermocouples, electrical isolation, wide-range power supply, Push-in connection, SIL, PL.

Your advantages

- Input for resistance thermometers, thermocouples, resistance-type sensors, potentiometers, and mV sources, [Ex ia] IIC
- Programming during operation with Ex measuring circuit connected and also voltage-free using IFS-USB-PROG-ADAPTER programming adapter
- Cold junction compensation with separate plug
- Configuration via software (FDT/DTM) or IFS-OP-UNIT operator interface and display unit
- Up to SIL 2 according to EN 61508
- Installation in zone 2, protection type "n" (EN 60079-15) permitted
- Plug-in screw or spring-cage connection technology (Push-in technology)
- Status indicator for supply voltage, cable, sensor, and module errors
- Measure differential temperatures
- Wide-range power supply of 19.2 ... 253 V AC/DC
- Freely programmable input and output
- Inverse output signal ranges as an option
- Relay switching output

Key Commercial Data

Packing unit	1 pc
GTIN	4 046356 629102
GTIN	4046356629102
Weight per Piece (excluding packing)	163.700 g
Weight per piece (including packing)	279.000 g
Custom tariff number	85437090
Country of origin	Germany

Temperature measuring transducer - MACX MCR-EX-T-UI-UP-SP - 2924689

Sales Key	J1 - MSR Technology

Technical data

Note

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

Dimensions

Width	17.5 mm
Height	99 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-20 °C ... 65 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	typ. 5 % ... 95 % (non-condensing)
Degree of protection	IP20
Noise immunity	EN 61000-6-2 When being exposed to interference, there may be minimal deviations.
Shock	15g, according to IEC 60068-2-27
Vibration (operation)	5g, accordance to IEC 60068-2-6

Input data

Sensor types (RTD) that can be used	Pt, Ni, Cu sensors: 2, 3, 4-wire
Sensor types that can be used (TC)	B, E, J, K, N, R, S, T, L, U, CA, DA, A1G, A2G, A3G, MG, LG
Temperature measuring range	-250 °C ... 2500 °C (Range depending on the sensor type)
Input signal range	0 Ω ... 50 kΩ
Potentiometer resistance range	0 Ω ... 50 kΩ
Input signal range	-1000 mV ... 1000 mV

Output data

Configurable/programmable	Yes
Max. voltage output signal	± 11 V
Current output signal	4 mA ... 20 mA (in the case of SIL; further free configuration without SIL)
Max. current output signal	22 mA
Load/output load voltage output	≥ 10 kΩ
Load/output load current output	≤ 600 Ω (at 20 mA)
Behavior in the event of a sensor error	according to NE 43 or freely configurable
Output name	Switching output
Configurable/programmable	no
Contact type	1 PDT
Contact material	$AgSnO_2$, hard gold-plated
Maximum switching voltage	30 V AC (30 V DC)

Temperature measuring transducer - MACX MCR-EX-T-UI-UP-SP - 2924689

Technical data

Output data

Maximum inrush current	0.5 A (30 V AC)
	1 A (30 V DC)
Mechanical service life	1x 10^5 cycles

Power supply

Supply voltage range	24 V ... 230 V AC/DC (-20 %/+10 %, 50/60 Hz)
Typical current consumption	< 50 mA (24 V DC)
Power consumption	< 1.5 W

Connection data

Connection method	Push-in connection
Stripping length	8 mm
Conductor cross section solid	0.2 mm² ... 1.5 mm²
Conductor cross section flexible	0.2 mm² ... 1.5 mm²
Conductor cross section AWG	24 ... 16

General

Maximum temperature coefficient	0.01 %/K
Step response (0–99%)	typ. 1000 ms (With SIL)
	typ. 700 ms (Without SIL)
Status display	Green LED (supply voltage, PWR)
	Red LED, flashing (line, sensor error, ERR)
	Red LED (module error, ERR)
	Yellow LED (switching output)
Flammability rating according to UL 94	V0
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
Electrical isolation	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)
Designation	Input/switching output
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Designation	Output/supply

Temperature measuring transducer - MACX MCR-EX-T-UI-UP-SP - 2924689

Technical data

General

Electrical isolation	300 V_{rms} (Rated insulation voltage (overvoltage category II; degree of pollution 2, safe isolation as per EN 61010-1))
Conformance	CE-compliant
ATEX	# II (1) G [Ex ia Ga] IIC
	# II (1) D [Ex ia Da] IIIC
	# II 3 G Ex nA nC ic IIC T4 Gc X
IECEx	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex nA nC ic IIC T4 Gc X
UL, USA/Canada	UL 508 Listed
SIL	2

Safety data

Max. internal inductance L_i	negligible
Max. internal capacitance C_i	44 nF
Max. output voltage U_o	6 V
Max. output current I_o	7.4 mA
Max. output power P_o	11 mW
Group	IIC
Max. external inductivity L_o	100 mH
Max. external capacity C_o	1.3 µF
Group	IIC
Max. external inductivity L_o	10 mH
Max. external capacity C_o	1.7 µF
Group	IIC
Max. external inductivity L_o	1 mH
Max. external capacity C_o	2.6 µF
Group	IIB
Max. external inductivity L_o	100 mH
Max. external capacity C_o	6.8 µF
Group	IIB
Max. external inductivity L_o	10 mH
Max. external capacity C_o	9.2 µF
Group	IIB
Max. external inductivity L_o	1 mH
Max. external capacity C_o	15 µF
Safety-related maximum voltage U_m	253 V AC/DC

EMC data

Designation	Electromagnetic RF field

Temperature measuring transducer - MACX MCR-EX-T-UI-UP-SP - 2924689

Technical data

EMC data

Standards/regulations	EN 61000-4-3
Typical deviation from the measuring range final value	2 %
Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Typical deviation from the measuring range final value	2 %
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Typical deviation from the measuring range final value	2 %

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
Electrical isolation	4-way, between input/output/power supply/switching output
Flammability rating according to UL 94	V0
Shock	15g, according to IEC 60068-2-27
Vibration (operation)	5g, accordance to IEC 60068-2-6
Conformance	CE-compliant
ATEX	# II (1) G [Ex ia Ga] IIC
	# II (1) D [Ex ia Da] IIIC
	# II 3 G Ex nA nC ic IIC T4 Gc X
IECEx	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex nA nC ic IIC T4 Gc X
UL, USA/Canada	UL 508 Listed
DNV GL-Temperature	B
DNV GL-Humidity	B
DNV GL-Vibration	A
DNV GL-EMC	A
DNV GL-Enclosure	Required protection according to the Rules shall be provided upon installation on board
Group	IIC
	IIC
	IIC
	IIB
	IIB

Temperature measuring transducer - MACX MCR-EX-T-UI-UP-SP - 2924689

Technical data

Standards and Regulations

	IIB

Environmental Product Compliance

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

Classifications

eCl@ss

eCl@ss 4.0	27210120
eCl@ss 4.1	27210120
eCl@ss 5.0	27210120
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

Approvals

Approvals

Approvals

UL Listed / cUL Listed / DNV GL / cULus Listed

Temperature measuring transducer - MACX MCR-EX-T-UI-UP-SP - 2924689

Approvals

Ex Approvals

KC-s / IECEx / ATEX / UL Listed / cUL Listed / EAC Ex / cULus Listed

Approval details

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
DNV GL		https://approvalfinder.dnvgl.com/	TAA000020C
cULus Listed			

Accessories

Accessories

Cradle unit

Adapter module - IFS-OP-CRADLE - 2811886

The adapter (IFS-OP-CRADLE) for the operator interface is ideal for use as a remote operator panel and display device for 17.5 mm / 35 mm modules. Can be mounted directly on the DIN rail. Replacement part: 2905872 IFS-BT-PROG-ADAPTER.

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

Temperature measuring transducer - MACX MCR-EX-T-UI-UP-SP - 2924689

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

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

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

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

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

Temperature measuring transducer - MACX MCR-EX-T-UI-UP-SP - 2924689

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

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

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

Insulating sleeve

Insulating sleeve - MPS-IH BK - 0201731

Insulating sleeve, color: black

Insulating sleeve - MPS-IH GY - 0201728

Insulating sleeve, color: gray

Temperature measuring transducer - MACX MCR-EX-T-UI-UP-SP - 2924689

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

Labeled device marker

Temperature measuring transducer - MACX MCR-EX-T-UI-UP-SP - 2924689

Accessories

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

Operator interface

Operator interface - IFS-OP-UNIT - 2811899

The operator interface facilitates straightforward parameterization and operation of the MACX MCR(-EX)-...-UI(REL)(-UP) on-site, even without software. Can be snapped onto the 35 mm module. Replacement part: 2905872 IFS-BT-PROG-ADADPTER.

Plug

Plug - MACX MCR-EX-I20 - 2905679

Connection terminal block for current signals +20 mA ...-20 mA for safe switching of limit values, in combination with MACX...EX-T-UI... temperature transducers.

Temperature measuring transducer - MACX MCR-EX-T-UI-UP-SP - 2924689

Accessories

Plug - MACX MCR-EX-CJC - 2925002

Plug for cold junction compensation for thermocouples, for safe switching of limit values, in combination with MACX ...EX-T-UI... temperature transducers.

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