

# Temperature measuring transducer - MACX MCR-T-UIREL-UP-SP - 2811828

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Freely programmable temperature transducer with analog output and 3 limit value relays, standard configuration, resistance thermometer in 2-, 3-, or 4-conductor technology, thermocouples, electrical isolation, wide-range power supply, Push-in connection, SIL, PL.

## Your advantages

- ✓ Cold junction compensation with separate plug
- ✓ Configuration via software (FDT/DTM) or IFS-OP-UNIT operator interface and display unit
- ✓ Installation in zone 2, protection type "n" (EN 60079-15) permitted
- ✓ Up to SIL 2 according to EN 61508
- ✓ Plug-in screw or spring-cage connection technology (Push-in technology)
- ✓ Three limit value relays, can be used in combination as a safe limit value relay
- ✓ Programming during operation and also voltage-free using IFS-USB-PROG-ADAPTER programming adapter
- ✓ Input for resistance thermometers, thermocouples, resistance-type sensors, potentiometers, and mV sources
- ✓ Measure differential temperatures
- ✓ Freely programmable input and output
- ✓ Inverse output signal ranges as an option



## Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 579483
GTIN	4046356579483

## Technical data

### Note

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

Width	35 mm
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## Technical data

### Dimensions

Height	116 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)
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	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	Relay output
Configurable/programmable	Yes
Contact type	3 changeover contacts
Contact material	AgSnO <sub>2</sub> , hard gold-plated
Maximum switching voltage	250 V AC (250 V DC)
Maximum inrush current	2 A (250 V AC)
	2 A (28 V DC)

### Power supply

Supply voltage range	24 V ... 230 V AC/DC (-20 %/+10 %, 50/60 Hz)
Power consumption	< 2.4 W

### Connection data

Connection method	Push-in connection
Stripping length	8 mm

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## Technical data

### Connection data

Conductor cross section solid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 16

### General

Maximum transmission error	0.1 % (e.g. for Pt 100, 300 K span, 4 ... 20 mA)
Maximum temperature coefficient	0.01 %/K
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
Rated insulation voltage	300 V <sub>rms</sub>
Test voltage	2.5 kV AC (50 Hz, 1 min.)
Insulation	Safe isolation in accordance with IEC/EN 61010-1
Designation	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)
Designation	Input/switching output
Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)

### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Electrical isolation	4-way, between input/output/power supply/switching output
Conformance	CE-compliant
ATEX	# II 3 G Ex nA nC ic IIC T4 Gc X
IECEX	Ex nA nC ic IIC T4 Gc X
UL, USA/Canada	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T6
	Class I, Zone 2, Group IIC T6
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

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## Technical data

### Conformance/approvals

Designation	CE
Identification	CE-compliant
Designation	ATEX
Identification	# II 3 G Ex nA nC ic IIC T4 Gc X
Certificate	IBExU 10 ATEX B001 X
Designation	IECEX
Identification	Ex nA nC ic IIC T4 Gc X
Certificate	IECEX IBE 10.0011 X
Designation	UL, USA/Canada
Identification	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T6
	Class I, Zone 2, Group IIC T6
Designation	Shipbuilding approval
Certificate	DNV GL TAA000020C
Designation	Safety Integrity Level (SIL, IEC 61508)
Identification	2
Temperature	B
Humidity	B
Vibration	A
EMC	A
Enclosure	Required protection according to the Rules shall be provided upon installation on board

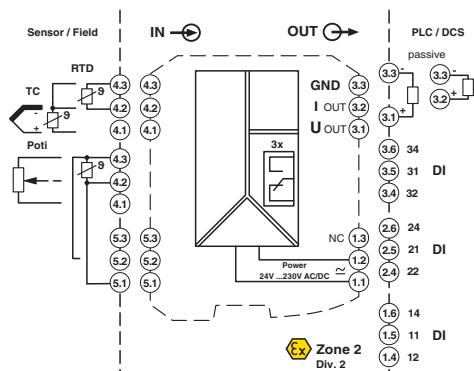
### Environmental Product Compliance

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"

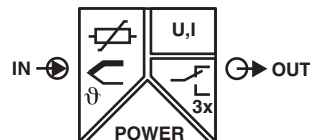
## Drawings

# Temperature measuring transducer - MACX MCR-T-UIREL-UP-SP - 2811828

Block diagram



Pictogram



## Classifications

eCl@ss

eCl@ss 10.0.1	27210129
eCl@ss 11.0	27210129
eCl@ss 4.0	27200200
eCl@ss 4.1	27200200
eCl@ss 5.0	27200200
eCl@ss 5.1	27200200
eCl@ss 6.0	27200200
eCl@ss 7.0	27200206
eCl@ss 9.0	27210129

ETIM

ETIM 2.0	EC001446
ETIM 3.0	EC001446
ETIM 4.0	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

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## Classifications

### UNSPSC

UNSPSC 21.0	41112105
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## Approvals

### Approvals

#### Approvals

UL Listed / cUL Listed / DNV GL / cULus Listed

#### Ex Approvals

IECEX / UL Listed / cUL Listed / ATEX / cULus Listed

## Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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DNV GL		<a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>	TAA000020C
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cULus Listed			
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## Accessories

### Accessories

Cradle unit

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## Accessories

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.

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## 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

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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

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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

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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

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## Accessories

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

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) 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

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

## Insulating sleeve



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## Accessories

Insulating sleeve - MPS-IH WH - 0201663

Insulating sleeve, color: white



Insulating sleeve - MPS-IH RD - 0201676

Insulating sleeve, color: red



Insulating sleeve - MPS-IH BU - 0201689

Insulating sleeve, color: blue



Insulating sleeve - MPS-IH YE - 0201692

Insulating sleeve, color: yellow



Insulating sleeve - MPS-IH GN - 0201702

Insulating sleeve, color: green



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## Accessories

Insulating sleeve - MPS-IH GY - 0201728

Insulating sleeve, color: gray



Insulating sleeve - MPS-IH BK - 0201731

Insulating sleeve, color: black



## 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

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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

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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

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## Plug

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## Accessories

Plug - MACX MCR-I20 - 2905680



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

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Plug - MACX MCR-CJC - 2924993



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

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## 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.

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## Test plug terminal block

Test plugs - MPS-MT - 0201744



Test plugs, with solder connection up to 1 mm<sup>2</sup> conductor cross section, color: gray

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