

# MACX MCR-EX-TS-I-OLP-SP - Temperature measuring transducer



2908661

<https://www.phoenixcontact.com/us/products/2908661>

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Ex i-Output loop-powered temperature transducer for transmitting up to 2 sensor signals from RTD and TC sensors, as well as from resistance and voltage sensors via 4 mA ... 20 mA. HART, Standard configuration, Safety Integrity Level (SIL, IEC 61508): 2, Systematic Capability: 3, Push-in connection

## Commercial data

Item number	2908661
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C430
Product key	CK3322
Catalog page	Page 190 (C-5-2019)
GTIN	4055626355436
Weight per piece (including packing)	205.7 g
Weight per piece (excluding packing)	205.7 g
Customs tariff number	85437090
Country of origin	DE

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## Technical data

### Product properties

Product type	Temperature transmitter
Product family	MACX Analog
No. of channels	2
Type	Ex i signal conditioners with SIL functional safety
Configuration	Software
	HART

### Insulation characteristics

Overvoltage category	II
Pollution degree	2

### Electrical properties

No. of channels	2
Step response (0–99%)	0.8 s (TC)

### Electrical isolation Input/output

Test voltage	2 kV AC (50 Hz, 60 s)
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### Supply

Supply voltage range	loop-powered, no external supply necessary
	12 V DC ... 42 V DC (Standard)
	12 V DC ... 32 V DC (SIL active)
	12 V DC ... 30 V DC (Ex)

### Input data

#### Signal

Input signal	Temperature
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#### Measurement

Number of inputs	2
Input voltage range	-20 mV ... 100 mV (Minimum measuring span: 5 mV)
Sensor types (RTD) that can be used	Pt, Ni, Cu sensors: 2, 3, 4-wire
Sensor types that can be used (TC)	A, B, C, D, E, J, K, L, N, R, S, T, U
Temperature measuring range	-250 °C ... 2500 °C (Range depending on the sensor type)
	-200 °C ... 850 °C (Pt 100)
Temperature measuring range	> 10 K (RTD)
	> 50 K (TC)
Linear resistance measuring range	10 Ω ... 2000 Ω (Minimum measuring span: 10 Ω)

### Output data

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## Signal: Current

Configurable/programmable	no
Current output signal	4 mA ... 20 mA 20 mA ... 4 mA
Max. current output signal	23 mA
Load	$(U_L - 11 \text{ V}) / 0,023 \text{ A}$
HART coding	FSK $\pm 0.5 \text{ mA}$
HART version	7
Transmission speed	1200 Baud
Mains frequency filter	50/60 Hz
Communication resistance	$\geq 250 \Omega$
Switch-on delay	$\approx \text{[Symbol]} \downarrow \text{s (HART)}$ $\approx \text{[Symbol]} \uparrow \text{s (Measured value)}$

## Connection data

Connection method	Push-in connection
Stripping length	8 mm
Conductor cross section rigid	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

## Ex data

Ex installation (EPL)	Gb Div. 1
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## Interfaces

### Data communication (bypass)

Protocols supported	HART
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## Signaling

Status display	LED red
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## Dimensions

Dimensional drawing	
Width	12.5 mm
Height	116 mm

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Depth	113.7 mm
Depth NS 35/7,5	114.5 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715)

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20 (not assessed by UL)
Ambient temperature (operation)	-40 °C ... 85 °C -40 °C ... 70 °C (SIL active)
Ambient temperature (storage/transport)	-40 °C ... 100 °C
Altitude	≤ 4000 m (Above sea level)
Climatic class	B2
Permissible humidity (operation)	5 % ... 95 % (non-condensing)

## Approvals

### CE

Certificate	CE-compliant
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### ATEX

Identification	⊕ II 2 (1) G Ex ib [ia Ga] IIC T6...T4 Gb
Certificate	EPS 17 ATEX 1 130 X

### IECEX

Identification	Ex ib [ia Ga] IIC T6...T4 Gb
Certificate	IECEX EPS 17.0076X

### UL, USA/Canada

Identification	UL 61010 Recognized
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### FM

Identification	Exia / Class I / Div. 1, 2 / Group ABCD NI, Class I, Div. 2, Groups A, B, C, D
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### CSA

Identification	AIS / Class I / Div. 1 / ABCD NI / Class I / Div. 2 / ABCD T6/T5/T4
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### Shipbuilding approval

Certificate	DNV GL TAA00002GX
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### Safety Integrity Level (SIL, IEC 61508)

Identification	2
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### Systematic Capability

Identification	3
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## DNV GL data

Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	A

## Mounting

Mounting type	DIN rail mounting
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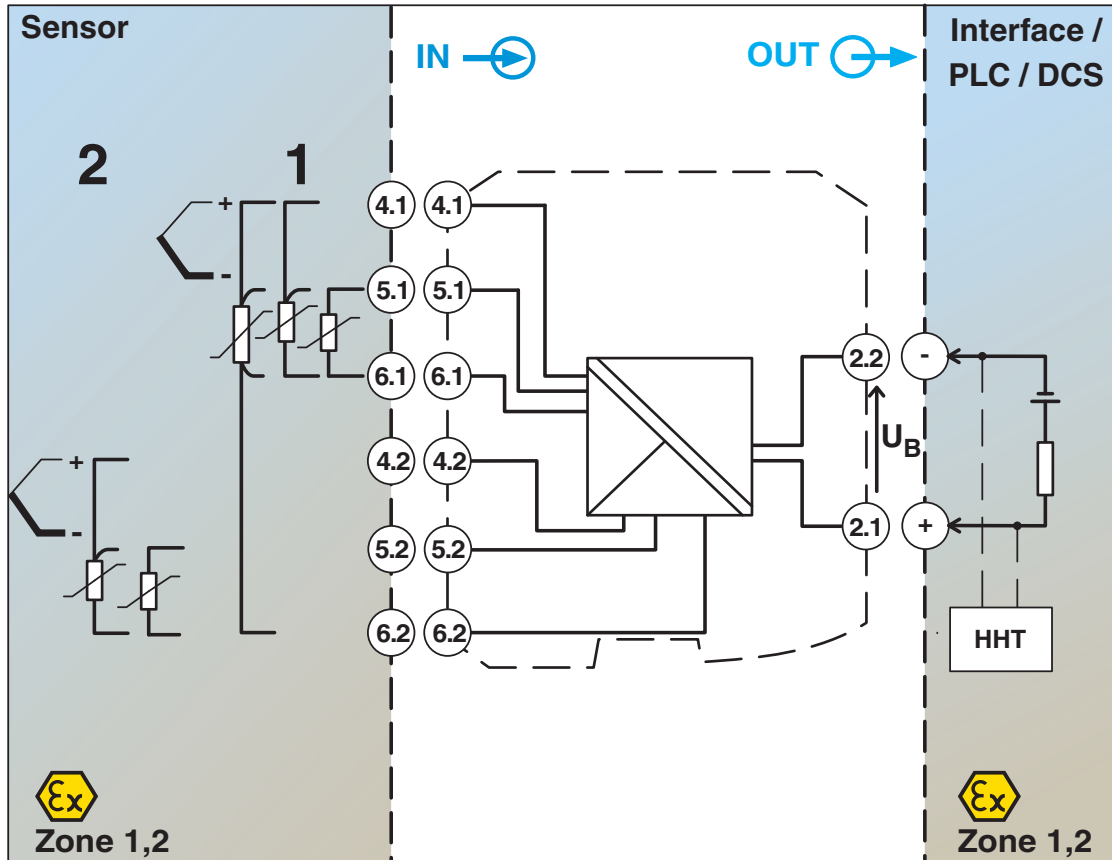
# MACX MCR-EX-TS-I-OLP-SP - Temperature measuring transducer

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## Drawings

Block diagram

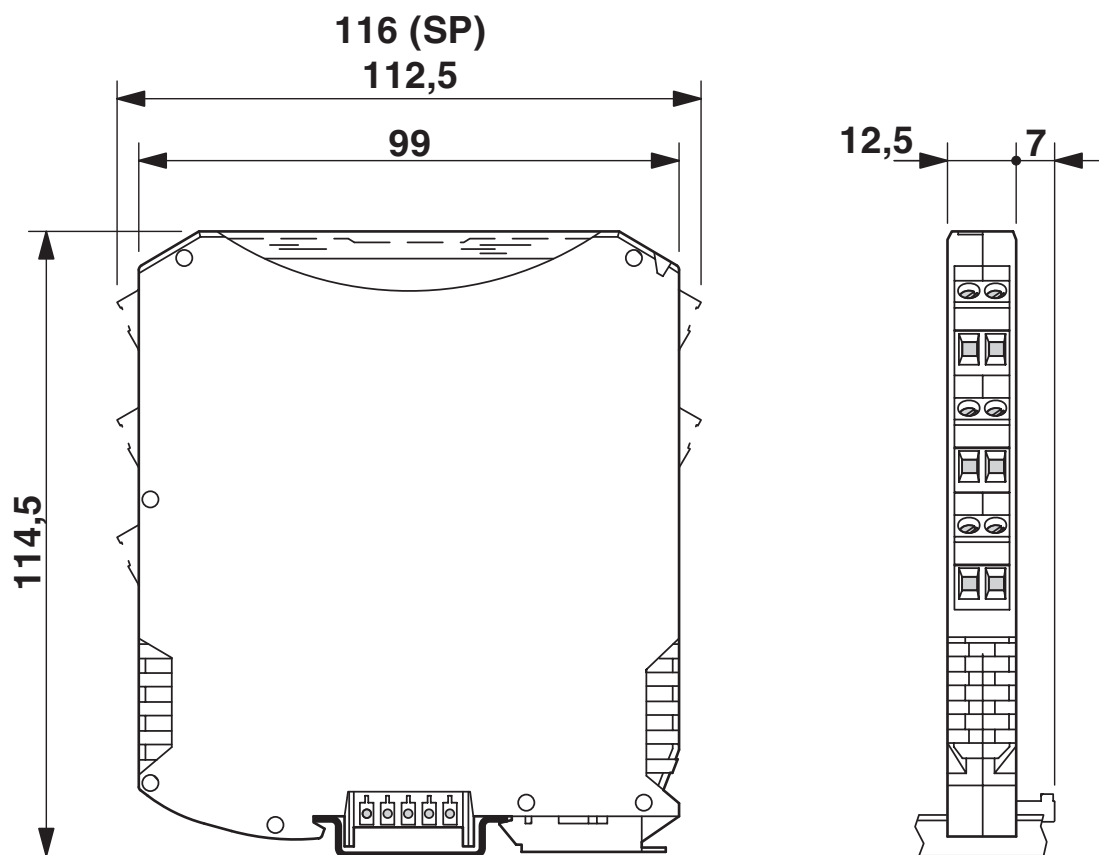


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Dimensional drawing



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2908661>



**cUL Recognized**  
Approval ID: FILE E 198586



**UL Recognized**  
Approval ID: FILE E 198586



**DNV GL**  
Approval ID: TAA00002GX

### Functional Safety

Approval ID: Z10 029429 0021



**IECEx**  
Approval ID: IECEx EPS 17.0076X



**CSA**  
Approval ID: 70107976



**ATEX**  
Approval ID: EPS 17 ATEX 1 130 X



**FM approved**  
Approval ID: FM17US0110X

**cULus Recognized**



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## Classifications

### ECLASS

ECLASS-11.0	27210129
ECLASS-13.0	27210129
ECLASS-12.0	27210129

### ETIM

ETIM 9.0	EC002919
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### UNSPSC

UNSPSC 21.0	41112100
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## Environmental product compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

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## Accessories

### MCR-PAC-T-USB - Programming adapter

2309000

<https://www.phoenixcontact.com/us/products/2309000>

Programming adapter with USB and T port interface, 2.4 m for programming FA MCR-..., MCR-...-LP-..., and MCR-...-HT-... modules



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### GW HART USB MODEM - Cable adapter

1003824

<https://www.phoenixcontact.com/us/products/1003824>

USB HART modem cable for communication between a PC and HART devices, cable length: 1m.



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## MPS-IH WH - Insulating sleeve

0201663

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

Insulating sleeve, color: white



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## MPS-IH RD - Insulating sleeve

0201676

<https://www.phoenixcontact.com/us/products/0201676>

Insulating sleeve, color: red



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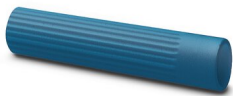
<https://www.phoenixcontact.com/us/products/2908661>

## MPS-IH BU - Insulating sleeve

0201689

<https://www.phoenixcontact.com/us/products/0201689>

Insulating sleeve, color: blue



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## MPS-IH YE - Insulating sleeve

0201692

<https://www.phoenixcontact.com/us/products/0201692>

Insulating sleeve, color: yellow



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## MPS-IH GN - Insulating sleeve

0201702

<https://www.phoenixcontact.com/us/products/0201702>

Insulating sleeve, color: green



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## MPS-IH GY - Insulating sleeve

0201728

<https://www.phoenixcontact.com/us/products/0201728>

Insulating sleeve, color: gray



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## MPS-IH BK - Insulating sleeve

0201731

<https://www.phoenixcontact.com/us/products/0201731>

Insulating sleeve, color: black



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## MPS-MT - Test plug

0201744

<https://www.phoenixcontact.com/us/products/0201744>

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



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<https://www.phoenixcontact.com/us/products/2908661>

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

0819291

<https://www.phoenixcontact.com/us/products/0819291>



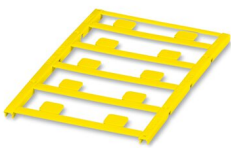
Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

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

0822602

<https://www.phoenixcontact.com/us/products/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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## UC-EMLP (11X9) CUS - Plastic label

0824547

<https://www.phoenixcontact.com/us/products/0824547>

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



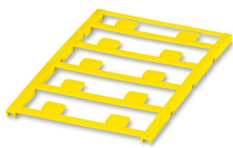
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## UC-EMLP (11X9) YE CUS - Plastic label

0824548

<https://www.phoenixcontact.com/us/products/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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## UC-EMLP (11X9) SR - Plastic label

0828094

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



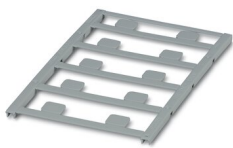
Plastic label, Sheet, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

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

0828098

<https://www.phoenixcontact.com/us/products/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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## US-EMLP (11X9) - Plastic label

0828789

<https://www.phoenixcontact.com/us/products/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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## 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

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

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## 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

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

0831705

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



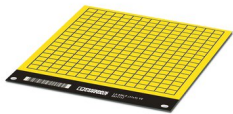
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## LS-EMLP (11X9) YE - Device marker

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



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

2865625

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

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

2924184

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

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## QUINT4-SYS-PS/1AC/24DC/2.5/SC - Power supply unit

2904614

<https://www.phoenixcontact.com/us/products/2904614>



Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A

## SZS 0,6X3,5 - Screwdriver

1205053

<https://www.phoenixcontact.com/us/products/1205053>



Actuation tool, for ST terminal blocks, insulated, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip

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