

MACX MCR-RTD-I-SP - Temperature measuring transducer



1050201

<https://www.phoenixcontact.com/us/products/1050201>

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 documentation. Our general terms of use for downloads are valid.



Temperature transducer, converts signals from resistance temperature detectors and resistors into analog 0/4 - 20 mA signals. Freely programmable, Push-in connection, SIL, 3-way electrical isolation, standard configuration.

Your advantages

- Power supply possible via DIN rail connector
- Programming possible during operation, when measuring circuit is connected, and also when power is switched off using the IFS-USB-PROG-ADAPTER programming adapter
- Installation in zone 2, protection type "ec" (EN 60079-7) permitted
- 3-way electrical isolation
- Status indicator for supply voltage, cable, sensor, and module errors
- Configuration via software (FDT/DTM): sensor type, connection technology, measuring range, measuring unit, filter, alarm signal, and output range
- Output: 0 mA ... 20 mA or 4 mA ... 20 mA

Commercial data

Item number	1050201
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C402
Product key	DK1115
GTIN	4055626651293
Weight per piece (including packing)	170.8 g
Weight per piece (excluding packing)	150 g
Customs tariff number	85437090
Country of origin	DE

MACX MCR-RTD-I-SP - Temperature measuring transducer



1050201

<https://www.phoenixcontact.com/us/products/1050201>

Technical data

Notes

Utilization restriction

EMC note	EMC: class A product, see manufacturer's declaration in the download area
----------	---

Product properties

Product type	Temperature transmitter
Product family	MACX Analog
Application	Temperature
No. of channels	1
Configuration	Software

System properties

Functionality

Configuration	Software
---------------	----------

Electrical properties

Electrical isolation	3-way isolation
Electrical isolation between input and output	yes
Step response (0–99%)	≤ 1.7 s
Temperature coefficient, typical	0.01 %/K
Transmission error, typical	0.1 % (e.g. for Pt 100, 300 K span, 4 ... 20 mA)

Electrical isolation

Test voltage	2.5 kV AC (50 Hz, 60 s)
Overvoltage category	II
Pollution degree	2

Electrical isolation Input/output/power supply IEC/EN 61010-1

Standards/regulations	IEC/EN 61010-1
Rated insulation voltage	300 V _{rms}
Insulation	Safe isolation

Electrical isolation Input/output IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V _{pp}

Electrical isolation Input/power supply IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V _{pp}

Supply

Nominal supply voltage	24 V DC -20 % ... +25 %
------------------------	-------------------------

MACX MCR-RTD-I-SP - Temperature measuring transducer



1050201

<https://www.phoenixcontact.com/us/products/1050201>

Supply voltage range	19.2 V DC ... 30 V DC
Power dissipation	≤ 0.76 W
Power consumption	≤ 1 W

Input data

Signal

Number of inputs	1
------------------	---

Measurement

Sensor types (RTD) that can be used	Pt, Ni, Cu sensors: 2, 3, 4-wire
Temperature measuring range	-200 °C ... 850 °C (Range depending on the sensor type)
Linear resistance measuring range	0 Ω ... 50 kΩ
Potentiometer resistance range	0 Ω ... 50 kΩ
Max. permissible overall conductor resistance	50 Ω (Per cable)
Sensor input current	10 μA ... 210 μA (Up to 2x 210 μA with 3-conductor technology)
Temperature measuring range	≥ 50 K

Output data

Signal: Current

Number of outputs	1
Configurable/programmable	Yes
Current output signal	0 mA ... 20 mA 4 mA ... 20 mA (SIL)
Max. current output signal	≥ 21 mA
Load/output load current output	≤ 600 Ω
Output ripple (current)	< 15 μA _{PP} < 10 μA _{rms}
Behavior in the event of a sensor error	Freely definable

Connection data

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross-section rigid	0.2 mm ² ... 2.5 mm ²
Conductor cross-section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross-section flexible (2 conductors with same cross section)	0.25 mm ² ... 0.34 mm ² (TWIN ferrule without plastic sleeve) 0.5 mm ² ... 1.5 mm ² (TWIN ferrule with plastic sleeve)
Conductor cross-section AWG	24 ... 14 24 ... 22 (TWIN ferrule without plastic sleeve) 20 ... 16 (TWIN ferrule with plastic sleeve)

Ex data

Ex installation (EPL)	Gc Div. 2
-----------------------	--------------

MACX MCR-RTD-I-SP - Temperature measuring transducer



1050201

<https://www.phoenixcontact.com/us/products/1050201>

Signaling

Status display	Green LED (supply voltage)
	Red LED, flashing 2.8 Hz (cable error, sensor error on input or output, ERR)
	Red LED, flashing 1.2 Hz (simulation mode, ERR)
	Red LED, permanently on (module error, ERR)

Dimensions

Dimensional drawing	
Width	12.5 mm
Height	107.9 mm
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)

Material specifications

Color	gray (RAL 7042)
Flammability rating according to UL 94 (Housing)	V0 (Housing)
Housing material	PA 6.6-FR

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)

Altitude range (≤ 2000 m)

Altitude	≤ 2000 m (The technical data refers to altitudes ≤2000 m above mean sea level. For altitudes >2000 m above mean sea level, refer to the data sheet.)
Ambient temperature (operation)	-40 °C ... 70 °C
Test voltage	2.5 kV
Rated insulation voltage	300 V _{rms}

Altitude range (≤ 3000 m)

Height range	> 2000 m ... 3000 m
Ambient temperature (operation)	-40 °C ... 63 °C
Test voltage	2.25 kV

MACX MCR-RTD-I-SP - Temperature measuring transducer



1050201

<https://www.phoenixcontact.com/us/products/1050201>

Rated insulation voltage	150 V _{rms}
--------------------------	----------------------

Altitude range (≤ 4000 m)

Height range	> 3000 m ... 4000 m
Ambient temperature (operation)	-40 °C ... 56 °C
Test voltage	2 kV
Rated insulation voltage	150 V _{rms}

Altitude range (≤ 5000 m)

Height range	> 4000 m ... 5000 m
Ambient temperature (operation)	-40 °C ... 49 °C
Test voltage	1.75 kV
Rated insulation voltage	150 V _{rms}

Approvals

CE

Certificate	CE-compliant
Note	and EN 61326

ATEX

Identification	⊕ II 3 G Ex ec ic IIC T4 Gc
Certificate	IBExU19ATEX1006 X

IECEX

Identification	Ex ec ic IIC T4 Gc
Certificate	IECEX IBE 19.0001 X

UL, USA/Canada

Identification	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC T4

Shipbuilding approval

Certificate	DNV GL TAA00000AG
-------------	-------------------

Safety Integrity Level (SIL, IEC 61508)

Identification	2
Certificate	SEBS-A.150520/17, V2.0

Systematic Capability

Identification	2
----------------	---

INMETRO

Identification	Ex ec ic IIC T4 Gc
Certificate	DNV 21.0064 X

EAC Ex

Identification	ERC Ex ec ic IIC T4 Gc
----------------	------------------------

MACX MCR-RTD-I-SP - Temperature measuring transducer



1050201

<https://www.phoenixcontact.com/us/products/1050201>

Certificate	BY/112 02.01 TP012 103.01 00082
-------------	---------------------------------

Shipbuilding data

Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board

EMC data

Electromagnetic compatibility	Conformance with EMC directive
Noise immunity	EN 61000-6-2
Note	When being exposed to interference, there may be minimal deviations.

Noise emission

Standards/regulations	EN 61000-6-4
-----------------------	--------------

Electromagnetic HF field

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
Typical deviation from the measuring range final value	1 %

Fast transients (burst)

Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Typical deviation from the measuring range final value	1 %

Conducted interference

Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Typical deviation from the measuring range final value	1 %

Standards and regulations

Electrical isolation	3-way isolation
----------------------	-----------------

Mounting

Mounting type	DIN rail mounting
---------------	-------------------

MACX MCR-RTD-I-SP - Temperature measuring transducer

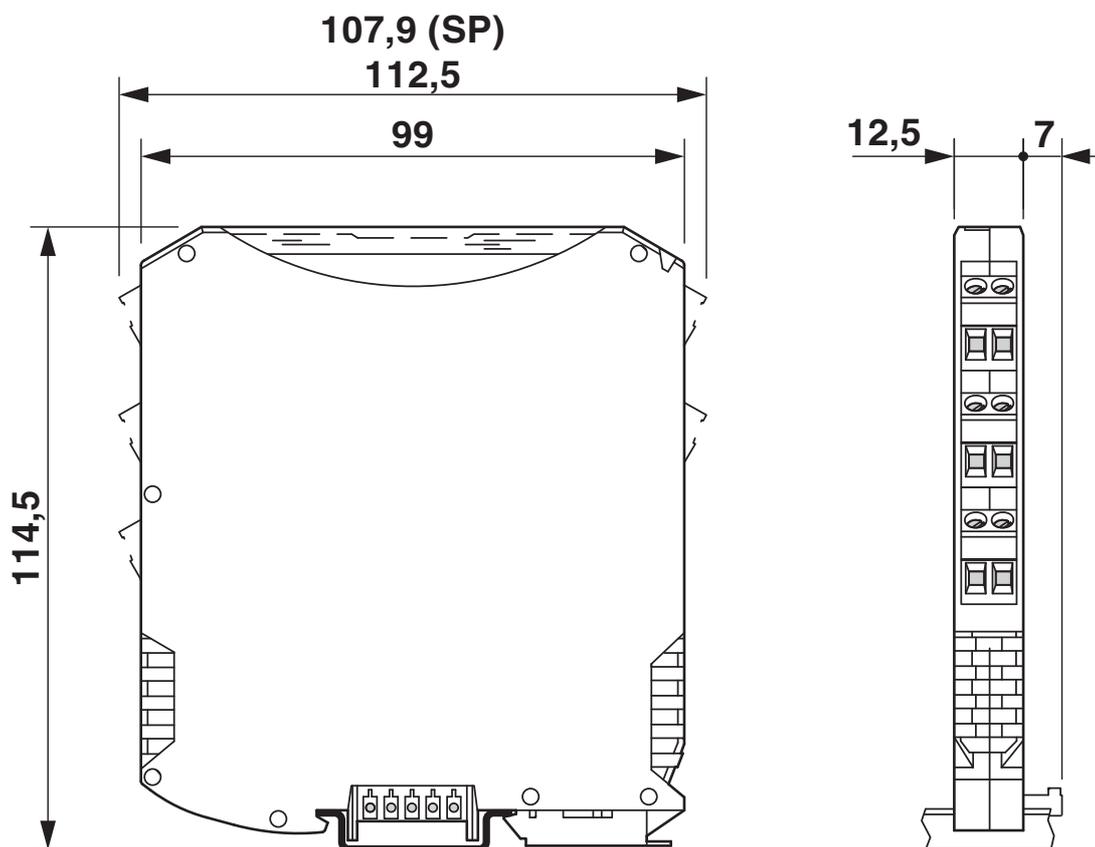


1050201

<https://www.phoenixcontact.com/us/products/1050201>

Drawings

Dimensional drawing



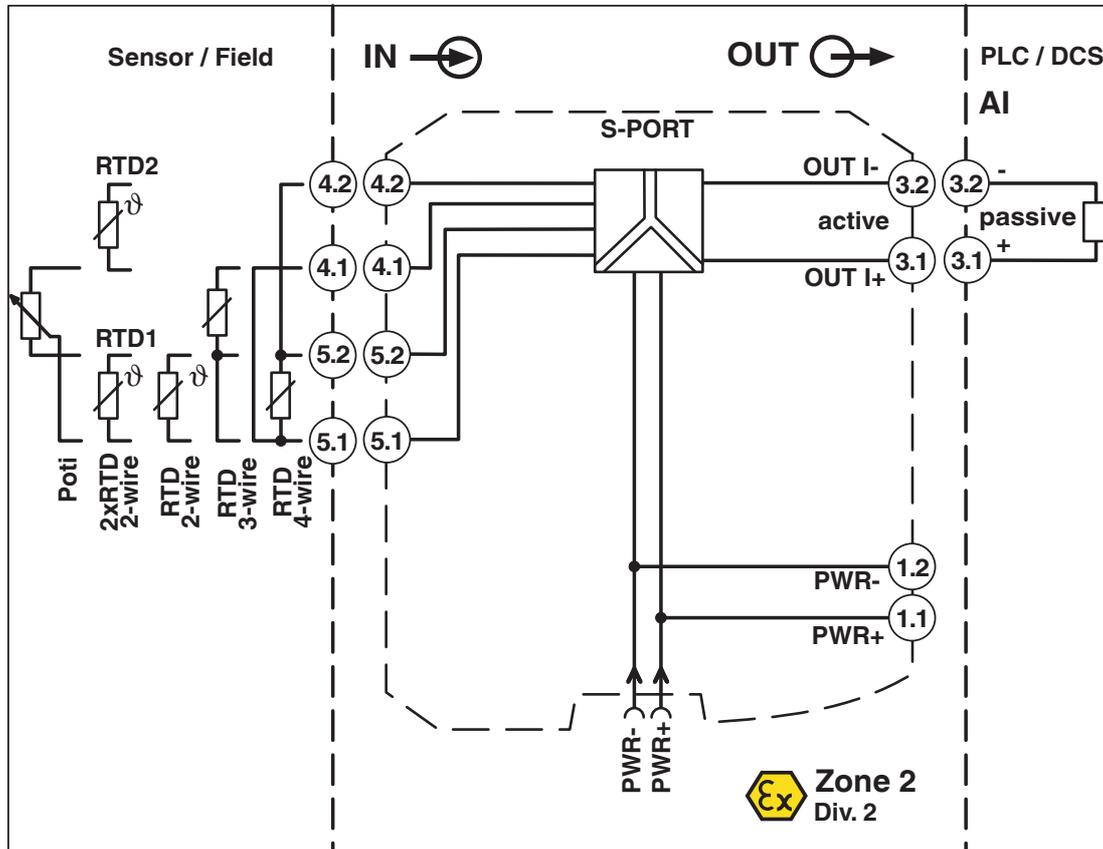
MACX MCR-RTD-I-SP - Temperature measuring transducer



1050201

<https://www.phoenixcontact.com/us/products/1050201>

Block diagram



MACX MCR-RTD-I-SP - Temperature measuring transducer



1050201

<https://www.phoenixcontact.com/us/products/1050201>

Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1050201>

 **UL Listed**
Approval ID: E330267

 **cUL Listed**
Approval ID: FILE E 330267

 **Functional Safety**
Approval ID: SEBS-A.20170608

DNV
Approval ID: TAA00000AG

 **IECEx**
Approval ID: IECEx IBE 19.0001X

 **cUL Listed**
Approval ID: E199827

 **UL Listed**
Approval ID: E199827

INMETRO
Approval ID: DNV 21.0064 X

 **ATEX**
Approval ID: IBEExU 19 ATEX 1006 X

MACX MCR-RTD-I-SP - Temperature measuring transducer



1050201

<https://www.phoenixcontact.com/us/products/1050201>

Classifications

ECLASS

ECLASS-13.0	27210129
ECLASS-15.0	27210129

ETIM

ETIM 9.0	EC002919
----------	----------

UNSPSC

UNSPSC 21.0	41112100
-------------	----------

MACX MCR-RTD-I-SP - Temperature measuring transducer



1050201

<https://www.phoenixcontact.com/us/products/1050201>

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	ed2c7da1-ad8a-4951-afcc-8ccd5cfebcbd

MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

Accessories

ME 6,2 TBUS-2 1,5/5-ST-3,81 GY - DIN rail bus connector

2695439

<https://www.phoenixcontact.com/us/products/2695439>

DIN rail bus connector (TBUS), 5-pos., for bridging the supply voltage, can be snapped onto NS 35/... DIN rail in accordance with EN 60715



ME 6,2 TBUS-PR-ADAPTER - DIN rail bus connector

1136500

<https://www.phoenixcontact.com/us/products/1136500>

Power rail adapter (ME 6,2 TBUS-PR-ADAPTER), 2-pos., enables MINI and MACX Analog modules to be adapted for supply via universal power rail UPR-03 and UPR-05.



MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

MCR-DP - Separating plate

1430594

<https://www.phoenixcontact.com/us/products/1430594>



The partition plate is used to maintain Ex i isolating distances when Ex i and non-Ex i devices are mounted side by side on a DIN rail.

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

2902932

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

MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

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

2924854

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

IFS-USB-PROG-ADAPTER - Programming adapter

2811271

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

MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

IFS-BT-PROG-ADAPTER - Adapter

2905872

<https://www.phoenixcontact.com/us/products/2905872>

Bluetooth adapter with micro USB and S-PORT interface for wireless communication with the MINI Analog, MINI Analog Pro, MACX Analog, Interface System Gateways, and PLC logic device series.



MPS-IH WH - Insulating sleeve

0201663

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

Insulating sleeve, color: white



MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

MPS-IH RD - Insulating sleeve

0201676

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

Insulating sleeve, color: red



MPS-IH BU - Insulating sleeve

0201689

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

Insulating sleeve, color: blue



MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

MPS-IH YE - Insulating sleeve

0201692

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

Insulating sleeve, color: yellow



MPS-IH GN - Insulating sleeve

0201702

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

Insulating sleeve, color: green



MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

MPS-IH GY - Insulating sleeve

0201728

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

Insulating sleeve, color: gray



MPS-IH BK - Insulating sleeve

0201731

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

Insulating sleeve, color: black



MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

MPS-MT - Test plug

0201744

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



Test plug, with solder connection up to 1 mm² conductor cross-section, number of positions: 1, color: gray

UC-EMLP (11X9) - Plastic label

0819291

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



Plastic label, Sheet, white, unmarked, can be labeled with: BLUEMARK E. CARD, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, Number of individual labels: 10, text field height: 9 mm, text field width: 11 mm

MACX MCR-RTD-I-SP - Temperature measuring transducer

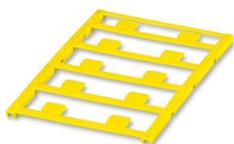
1050201

<https://www.phoenixcontact.com/us/products/1050201>

UC-EMLP (11X9) YE - Plastic label

0822602

<https://www.phoenixcontact.com/us/products/0822602>



Plastic label, Sheet, yellow, unmarked, can be labeled with: BLUEMARK E. CARD, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, Number of individual labels: 10, text field height: 9 mm, text field width: 11 mm

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, text field height: 9 mm, text field width: 11 mm

MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

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, text field height: 9 mm, text field width: 11 mm

UC-EMLP (11X9) SR - Plastic label

0828094

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



Plastic label, Sheet, silver, unmarked, can be labeled with: BLUEMARK E. CARD, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, Number of individual labels: 10, text field height: 9 mm, text field width: 11 mm

MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

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, Number of individual labels: 10, text field height: 9 mm, text field width: 11 mm

US-EMLP (11X9) - Plastic label

0828789

<https://www.phoenixcontact.com/us/products/0828789>



Plastic label, Card, white, unmarked, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, THERMOMARK PRIME 2.0, mounting type: adhesive, Number of individual labels: 135, text field height: 9 mm, text field width: 11 mm

MACX MCR-RTD-I-SP - Temperature measuring transducer



1050201

<https://www.phoenixcontact.com/us/products/1050201>

US-EMLP (11X9) YE - Plastic label

0828871

<https://www.phoenixcontact.com/us/products/0828871>



Plastic label, Card, yellow, unmarked, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, THERMOMARK PRIME 2.0, mounting type: adhesive, Number of individual labels: 135, text field height: 9 mm, text field width: 11 mm

US-EMLP (11X9) SR - Plastic label

0828872

<https://www.phoenixcontact.com/us/products/0828872>



Plastic label, Card, silver, unmarked, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, THERMOMARK PRIME 2.0, mounting type: adhesive, Number of individual labels: 135, text field height: 9 mm, text field width: 11 mm

MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

LS-EMLP (11X9) WH - Device marker

0831678

<https://www.phoenixcontact.com/us/products/0831678>

Device marker, Sheet, white, unmarked, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, Number of individual labels: 255, text field height: 9 mm, text field width: 11 mm



LS-EMLP (11X9) SR - Device marker

0831705

<https://www.phoenixcontact.com/us/products/0831705>

Device marker, Sheet, silver, unmarked, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, Number of individual labels: 255, text field height: 9 mm, text field width: 11 mm



MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

LS-EMLP (11X9) YE - Device marker

0831732

<https://www.phoenixcontact.com/us/products/0831732>

Device marker, Sheet, yellow, unmarked, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, Number of individual labels: 255, text field height: 9 mm, text field width: 11 mm



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



MACX MCR-RTD-I-SP - Temperature measuring transducer

1050201

<https://www.phoenixcontact.com/us/products/1050201>

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

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

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

MACX MCR-RTD-I-SP - Temperature measuring transducer



1050201

<https://www.phoenixcontact.com/us/products/1050201>

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

Phoenix Contact 2025 © - all rights reserved

<https://www.phoenixcontact.com>

Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com