

# MACX MCR-UI-UI-UP-NC - Signal conditioner



2811297

<https://www.phoenixcontact.com/in/products/2811297>

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Isolating amplifier with safe electrical isolation and wide-range power supply (24 V ... 230 V AC/DC). DIP switches on the front, over 1600 signal conversions can be set. Standard configuration (IN 0 ... 10 V/OUT 0 ... 20 mA), screw connection, SIL.

## Your advantages

- Over 1600 signal conversions can be set via DIP switches on the front
- Up to SIL 2 in accordance with EN 61508
- Installation in zone 2 permitted
- Analog signal conditioner for isolating, filtering, amplifying, and converting standard analog signals
- Configurable input and output signals, including bipolar current and voltage signals
- Status indicator for supply voltage
- Wide-range power supply of 19.2 ... 253 V AC/DC
- Plug-in screw or spring-cage connection technology (Push-in technology)
- 3-way electrical isolation
- Active or passive output

## Commercial Data

Item number	2811297
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	CK1
Product Key	CK1111
Catalog Page	Page 118 (C-5-2019)
GTIN	4046356288910
Weight per Piece (including packing)	193.3 g
Weight per Piece (excluding packing)	167.2 g
Customs tariff number	85437090
Country of origin	DE

## Technical Data

### Notes

#### Utilization restriction

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

Product type	Signal conditioner
Product family	MACX Analog
No. of channels	1
Type	Signal conditioners with SIL functional safety
Configuration	DIP switches

#### Insulation characteristics: GB Standard

Overvoltage category	II
Pollution degree	2

### Electrical properties

Alignment span	± 4 %
Alignment zero	± 4 %
No. of channels	1
Rated insulation voltage	300 V AC (EN 61010-1) 275 V AC (EN 60079-7)
Electrical isolation between input and output	yes
Limit frequency (3 dB)	10 kHz (Can be switched to 30 Hz)
Maximum power dissipation for nominal condition	< 0.9 W (20 mA)
Protective circuit	Transient protection
Step response (10-90%)	35 µs (10 kHz) 11 ms (30 Hz)
Maximum temperature coefficient	0.0075 %/K
Maximum transmission error	≤ 0.1 % (Compared to the final value)

#### Electrical isolation Input/output/power supply

Rated insulation voltage	300 V <sub>rms</sub>
Test voltage	2.5 kV AC (50 Hz, 60 s)
Insulation	Safe isolation in accordance with IEC/EN 61010-1

#### Supply

Supply voltage range	19.2 V AC/DC ... 253 V AC/DC
Power dissipation	< 0.8 W (at 24 V DC / 20 mA) < 0.9 W (At 230 V AC / 20 mA)

### Input data

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Signal: Voltage/current

Number of inputs	1
Voltage input signal	0 mV ... 50 mV
	0 mV ... 60 mV
	0 mV ... 75 mV
	0 mV ... 100 mV
	0 mV ... 120 mV
	0 mV ... 150 mV
	0 mV ... 200 mV
	0 mV ... 300 mV
	0 mV ... 500 mV
	0 V ... 1 V
	0 V ... 1.5 V
	0 V ... 2 V
	0 V ... 3 V
	0 V ... 5 V
	0 V ... 10 V (Configurable via DIP switches)
	0 V ... 15 V
	0 V ... 20 V
	0 V ... 30 V
	0 V ... 50 V
	0 V ... 100 V
	-50 mV ... 50 mV
	-60 mV ... 60 mV
	-75 mV ... 75 mV
	-100 mV ... 100 mV
	-120 mV ... 120 mV
	-150 mV ... 150 mV
	-200 mV ... 200 mV
	-300 mV ... 300 mV
	-500 mV ... 500 mV
	-1 V ... 1 V
	-1.5 V ... 1.5 V
	-2 V ... 2 V
	-3 V ... 3 V
	-5 V ... 5 V
	-10 V ... 10 V
	-15 V ... 15 V
	-20 V ... 20 V
	-30 V ... 30 V
	-50 V ... 50 V
	-100 V ... 100 V
	1 V ... 5 V

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	2 V ... 10 V
Min. voltage input signal	± 50 mV
Max. voltage input signal	± 100 V
Current input signal	0 mA ... 1 mA (Configurable via DIP switches)
	0 mA ... 1.5 mA
	0 mA ... 2 mA
	0 mA ... 3 mA
	0 mA ... 5 mA
	0 mA ... 10 mA
	0 mA ... 15 mA
	0 mA ... 20 mA
	0 mA ... 30 mA
	0 mA ... 50 mA
	0 mA ... 100 mA
	-1 mA ... 1 mA
	-1.5 mA ... 1.5 mA
	-2 mA ... 2 mA
	-3 mA ... 3 mA
	-5 mA ... 5 mA
	-10 mA ... 10 mA
	-15 mA ... 15 mA
	-20 mA ... 20 mA
	-30 mA ... 30 mA
	-50 mA ... 50 mA
	-100 mA ... 100 mA
	1 mA ... 5 mA
	2 mA ... 10 mA
	4 mA ... 20 mA
Minimum current input signal	± 1 mA
Max. current input signal	± 100 mA
Input resistance of voltage input	approx. 1 MΩ (±1 V DC ... ±100 V DC)
Input resistance current input	approx. 10 Ω (±10 mA DC ... ±100 mA DC)

## Output data

Signal: Voltage/current

Number of outputs	1
Configurable/programmable	Yes, can be switched
Voltage output signal	0 V ... 10 V (Configurable via DIP switches)
	0 V ... 5 V
	2 V ... 10 V
	1 V ... 5 V
	-10 V ... 10 V
	-5 V ... 5 V

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	0 V ... 2.5 V
	0.5 V ... 2.5 V
	-2.5 V ... 2.5 V
Max. voltage output signal	15 V
Output signal voltage inverse	0 V ... 2.5 V
	0 V ... 5 V
	0 V ... 10 V
Current output signal	0 mA ... 5 mA
	0 mA ... 10 mA
	0 mA ... 20 mA (Configurable via DIP switches)
	1 mA ... 5 mA
	2 mA ... 10 mA
	4 mA ... 20 mA
	-5 mA ... 5 mA
	-10 mA ... 10 mA
	-20 mA ... 20 mA
Max. current output signal	35 mA
Output signal current inverse	0 mA ... 5 mA
	0 mA ... 10 mA
	0 mA ... 20 mA
Load/output load voltage output	$\geq 1 \text{ k}\Omega$ (10 V)
Load/output load current output	$\leq 600 \Omega$ (20 mA; active)
	passive: $\leq (U_B - 2 \text{ V}) / I_{\text{outmax}}$
Ripple	$< 10 \text{ mV}_{\text{rms}}$

## Connection data

Connection method	Screw connection
Connection technology	COMBICON
Stripping length	8 mm
Screw thread	M3
Conductor cross section rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 14

## Ex data

Ex installation (EPL)	Gc
	Div. 2

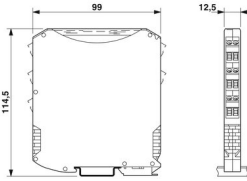
## Dimensions

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Dimensional drawing	
Width	12.5 mm
Height	112.5 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

Housing material	PA 6.6-FR
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## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20 (not assessed by UL)
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C

### Altitude range ( $\leq 2000$ m)

Altitude	$\leq 2000$ m (The technical data refers to altitudes $\leq 2000$ m above mean sea level. For altitudes $>2000$ m above mean sea level, refer to the data sheet.)
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### Altitude range ( $\leq 3000$ m)

Height range	$> 2000$ m ... 3000 m
Ambient temperature (operation)	-20 °C ... 60 °C

### Altitude range ( $\leq 4000$ m)

Height range	$> 3000$ m ... 4000 m
Ambient temperature (operation)	-20 °C ... 55 °C

### Altitude range ( $\leq 5000$ m)

Height range	$> 4000$ m ... 5000 m
Ambient temperature (operation)	-20 °C ... 45 °C

## Approvals

### CE

Certificate	CE-compliant
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### ATEX

Identification	<input type="checkbox"/> II 3 G Ex nA IIC T4 Gc
Certificate	BVS 09 ATEX E 028 X

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## UKCA Ex (UKEX)

Identification	<input type="checkbox"/> II 3 G Ex nA IIC T4 Gc
Certificate	PxCIF21UKEX2811459X

## IECEX

Identification	Ex ec IIC T4 Gc
Certificate	IECEX BVS 09.0013X

## CCC / China-Ex

Identification	Ex ec IIC T4 Gc
Certificate	2021122304114078

## UL, USA/Canada

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

## Shipbuilding approval

Certificate	DNV GL TAA00000AG
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## Safety Integrity Level (SIL, IEC 61508)

Identification	2
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## INMETRO

Identification	Ex ec IIC T4 Gc
Certificate	DNV 21.0125 X

## EAC Ex

Identification	<input type="checkbox"/> 2Ex ec IIC T4 Gc
Certificate	BY/112 02.01 TP012 103.01 00078

## DNV GL 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

Noise immunity	EN 61000-6-2
Note	When being exposed to interference, there may be minimal deviations.
Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4

## Electromagnetic HF field

Designation	Electromagnetic RF field
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Standards/regulations	EN 61000-4-3
Typical deviation from the measuring range final value	1.9 %

## Fast transients (burst)

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

## Conducted interference

Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Typical deviation from the measuring range final value	4.6 %

## Standards and regulations

### GB Standard

Standards/regulations	GB 3836.1
	GB 3836.3

## Mounting

Mounting type	DIN rail mounting
Mounting position	any



# MACX MCR-UI-UI-UP-NC - Signal conditioner

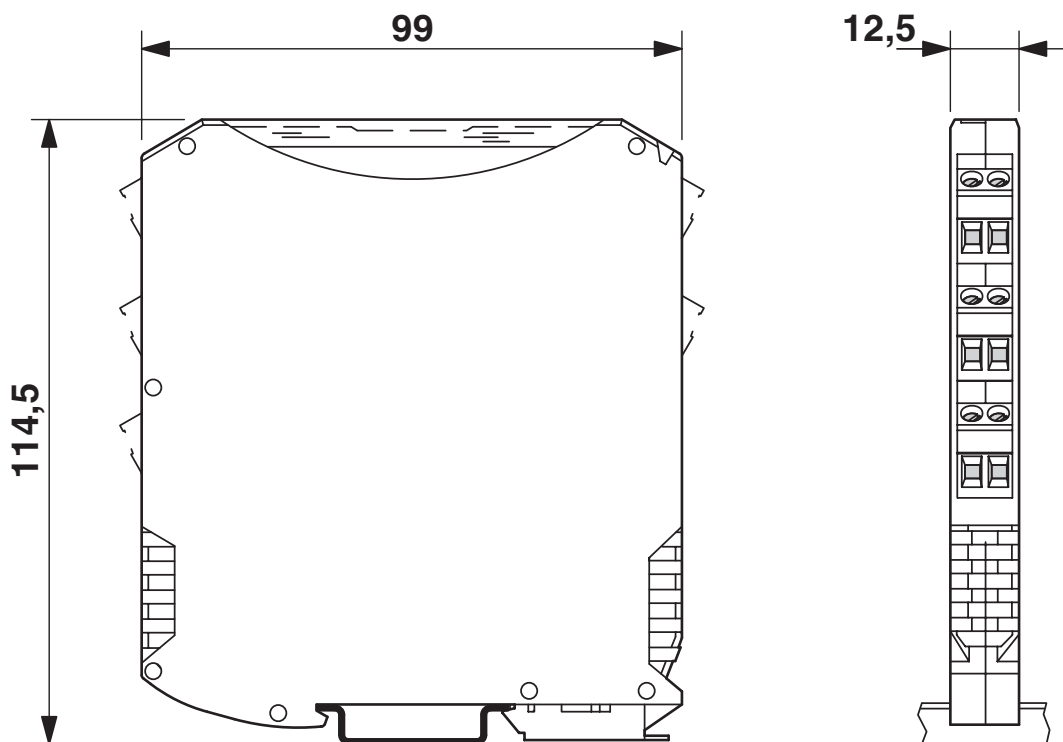


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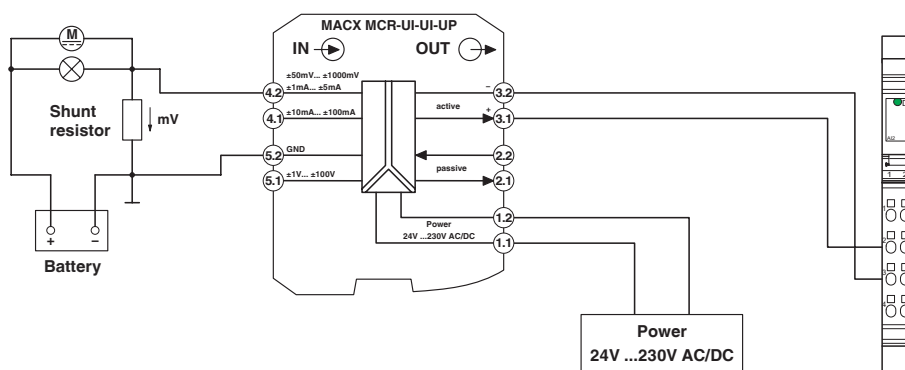
<https://www.phoenixcontact.com/in/products/2811297>

## Drawings

Dimensional drawing



Application drawing



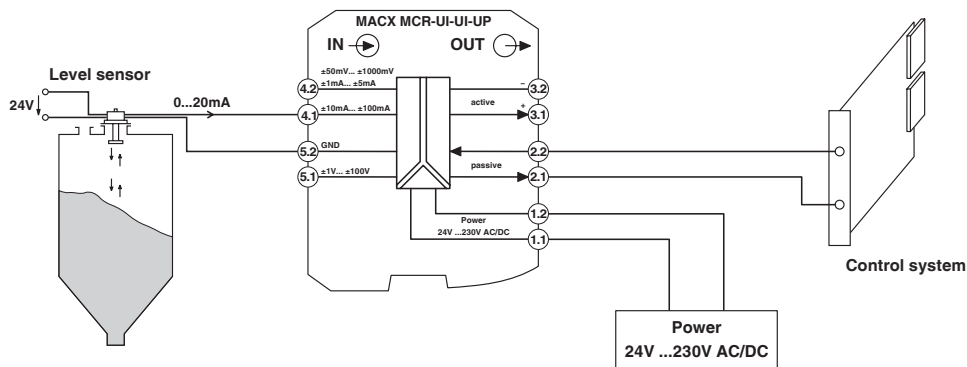
Shunt measurement and Inline terminal with analog input channels within an Inline station (passive input card)

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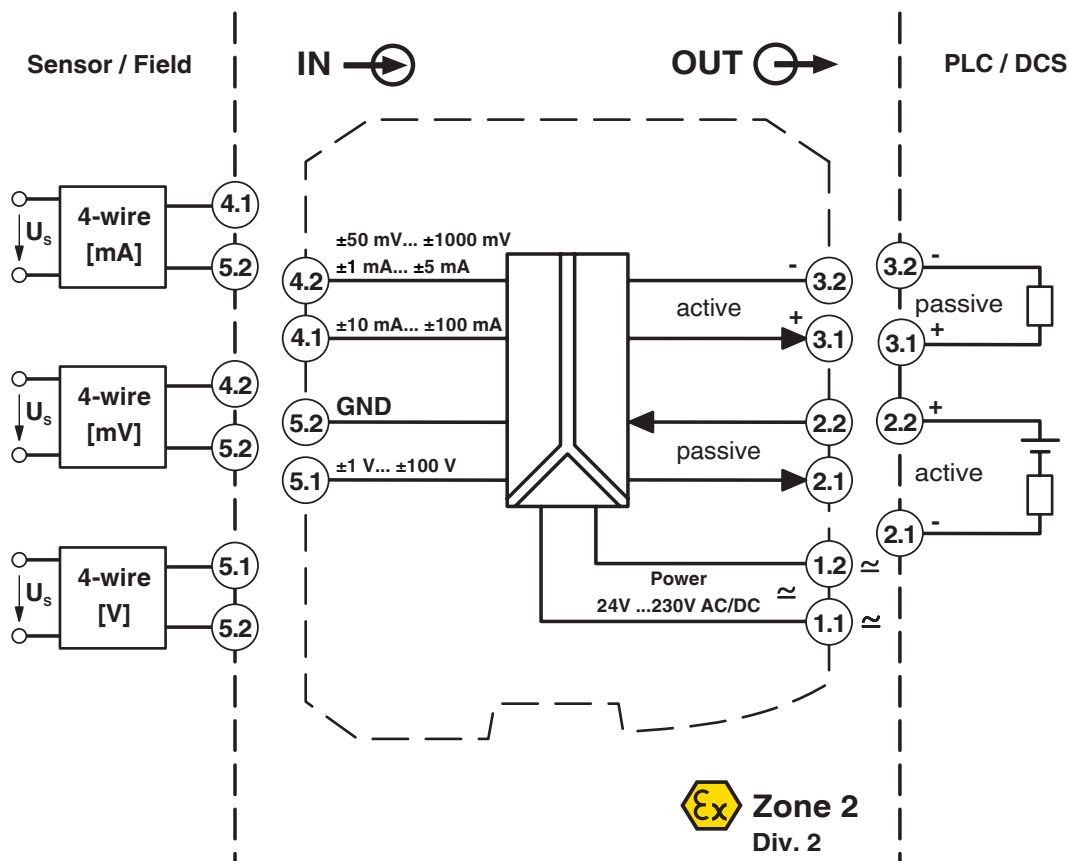
<https://www.phoenixcontact.com/in/products/2811297>

## Application drawing



Level measurement with analog input terminals (active input card)

## Block diagram



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<https://www.phoenixcontact.com/in/products/2811297>

## Approvals



**DNV GL**

Approval ID: TAA00000AG



**UL Listed**

Approval ID: FILE E 330267



**CCC**

Approval ID: 2021122304114078



**cUL Listed**

Approval ID: FILE E 330267



**EAC Ex**

Approval ID: TP012 103.01 00078



**cUL Listed**

Approval ID: FILE E 199827



**UL Listed**

Approval ID: FILE E 199827



**IECEx**

Approval ID: IECEx BVS 09.0013X



**ATEX**

Approval ID: BVS 09 ATEX E 028 X

# MACX MCR-UI-UI-UP-NC - Signal conditioner



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## Classifications

### ECLASS

ECLASS-11.0	27210120
ECLASS-12.0	27210120
ECLASS-13.0	27210120

### ETIM

ETIM 8.0	EC002653
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### UNSPSC

UNSPSC 21.0	39121000
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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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## Accessories

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

2865625

<https://www.phoenixcontact.com/in/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/in/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/in/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

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## MPS-IH WH - Insulating sleeve

0201663

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

Insulating sleeve, color: white



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## MPS-IH RD - Insulating sleeve

0201676

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

Insulating sleeve, color: red



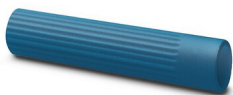
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## MPS-IH BU - Insulating sleeve

0201689

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

Insulating sleeve, color: blue





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## MPS-IH YE - Insulating sleeve

0201692

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

Insulating sleeve, color: yellow



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## MPS-IH GN - Insulating sleeve

0201702

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

Insulating sleeve, color: green



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## MPS-IH GY - Insulating sleeve

0201728

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

Insulating sleeve, color: gray



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## MPS-IH BK - Insulating sleeve

0201731

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

Insulating sleeve, color: black



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## MPS-MT - Test plugs

0201744

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



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

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

0819291

<https://www.phoenixcontact.com/in/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

# MACX MCR-UI-UI-UP-NC - Signal conditioner



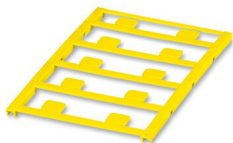
2811297

<https://www.phoenixcontact.com/in/products/2811297>

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

0822602

<https://www.phoenixcontact.com/in/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/in/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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2811297

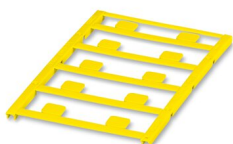
<https://www.phoenixcontact.com/in/products/2811297>

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

0824548

<https://www.phoenixcontact.com/in/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



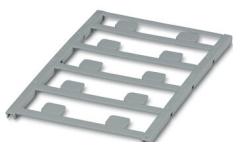
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## UC-EMLP (11X9) SR - Plastic label

0828094

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

Device marker, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER: without print, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255



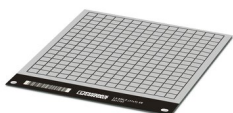
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## LS-EMLP (11X9) SR - Device marker

0831705

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

Device marker, Sheet, silver, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER: without print, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255





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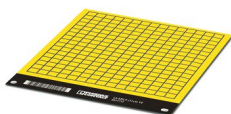


## LS-EMLP (11X9) YE - Device marker

0831732

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

Device marker, Sheet, yellow, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER: without print, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255



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