

Signal conditioner - MACX MCR-UI-UI-NC



2811446

<https://www.phoenixcontact.com/pc/products/2811446>

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Configurable 3-way isolating amplifier with safe electrical isolation, 24 V, power bridging. 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

- Power supply possible via DIN rail connector
- Over 1600 signal conversions can be set via DIP switches on the front
- Installation in zone 2 permitted
- Up to SIL 2 in accordance with EN 61508
- 3-way electrical isolation
- Analog signal conditioner for isolating, filtering, amplifying, and converting standard analog signals
- Configurable input and output signals, including bipolar current and voltage signals
- 10 kHz limit frequency for time-critical applications
- Status indicator for supply voltage
- Active or passive output
- Plug-in screw or spring-cage connection technology (Push-in technology)

Commercial Data

Item number	2811446
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CK1111
Catalog Page	Page 116 (C-5-2019)
GTIN	4046356288927
Weight per Piece (including packing)	178.05 g
Weight per Piece (excluding packing)	150 g
Customs tariff number	85437090
Country of origin	DE

Technical Data

Product properties

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

Insulation characteristics

Overvoltage category	II
Pollution degree	2

Electrical properties

Alignment span	$\pm 4 \%$
Alignment zero	$\pm 4 \%$
No. of channels	1
Rated insulation voltage	300 V AC
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	< 0.7 W (20 mA)
Protective circuit	Transient protection
Step response (10-90%)	35 μ s (10 kHz) 11 ms (30 Hz)
Maximum temperature coefficient	0.0075 %/K
Maximum transmission error	$\leq 0.1 \%$ (Compared to the final value)

Electrical isolation Input/output/power supply

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

Supply

Supply voltage range	12 V DC ... 24 V DC (-20 % ... +25 %)
Power dissipation	500 mW (at 24 V DC / 20 mA)
Power consumption	≤ 700 mW

Input data

Signal: Voltage/current input

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

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	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
	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

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	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 output / current output

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
	0 V ... 2.5 V
	0.5 V ... 2.5 V
	-2.5 V ... 2.5 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

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	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
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
Stripping length	7 mm
Screw thread	M3
Conductor cross section solid	0.2 mm ² ... 2.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross section AWG	24 ... 14

Dimensions

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

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Ambient temperature (storage/transport)	-40 °C ... 85 °C
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Approval data

CE

Certificate	CE-compliant
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ATEX

Identification	<input type="checkbox"/> II 3 G Ex ec IIC T4 Gc
Certificate	BVS 10 ATEX E 059 X

UKCA Ex (UKEX)

Identification	<input type="checkbox"/> II 3 G Ex nA IIC T4 Gc
Certificate	PxCIF21UKEX2811284X

IECEX

Identification	Ex ec IIC T4 Gc
Certificate	IECEX BVS 10.0044X

CCC / China-Ex

Identification	Ex ec IIC T4 Gc
Certificate	2021122304114077

UL, USA / Canada

Identification	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T6
	Class I, Zone 2, Group IIC

Shipbuilding approval

Certificate	DNV GL TAA000020C
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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 21.0063 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	A
Enclosure	Required protection according to the Rules shall be provided upon installation on board

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EMC data

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

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

GB Standard

Standards/regulations	GB 3836.1
	GB 3836.3

Mounting

Mounting type	DIN rail mounting
Mounting position	any

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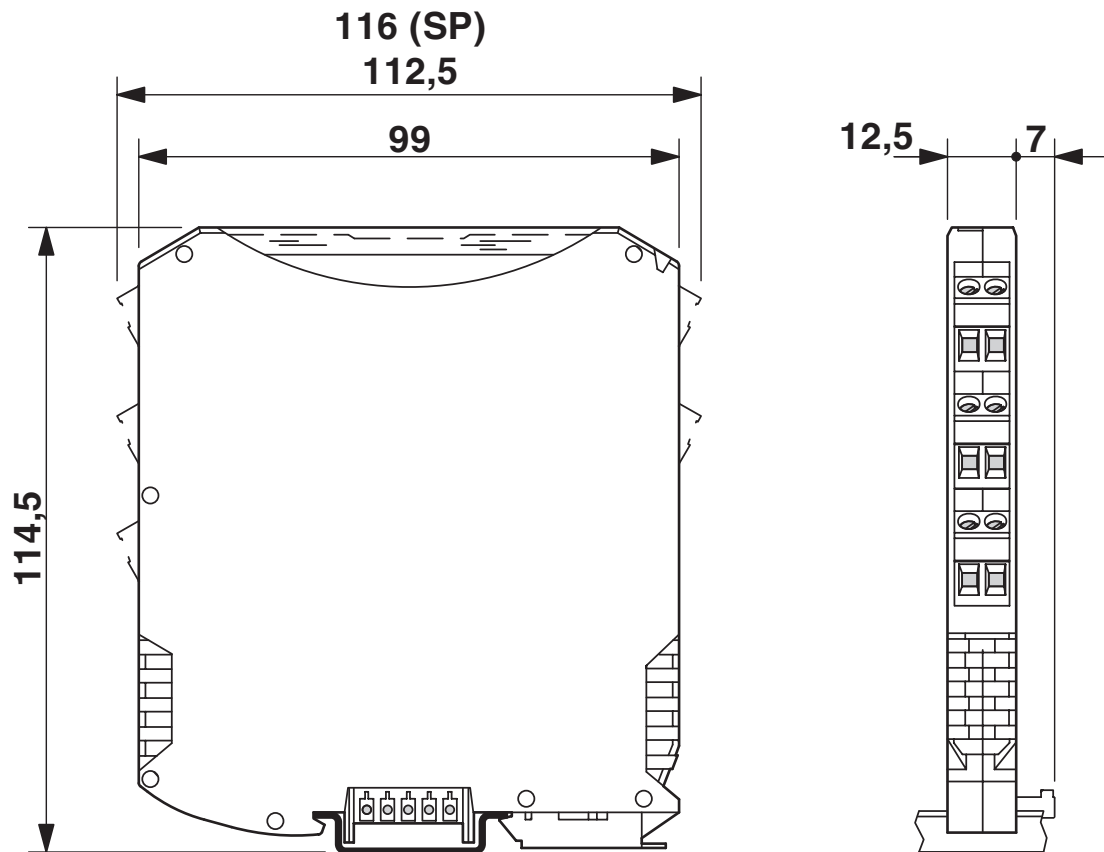
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Drawings

Dimensional drawing

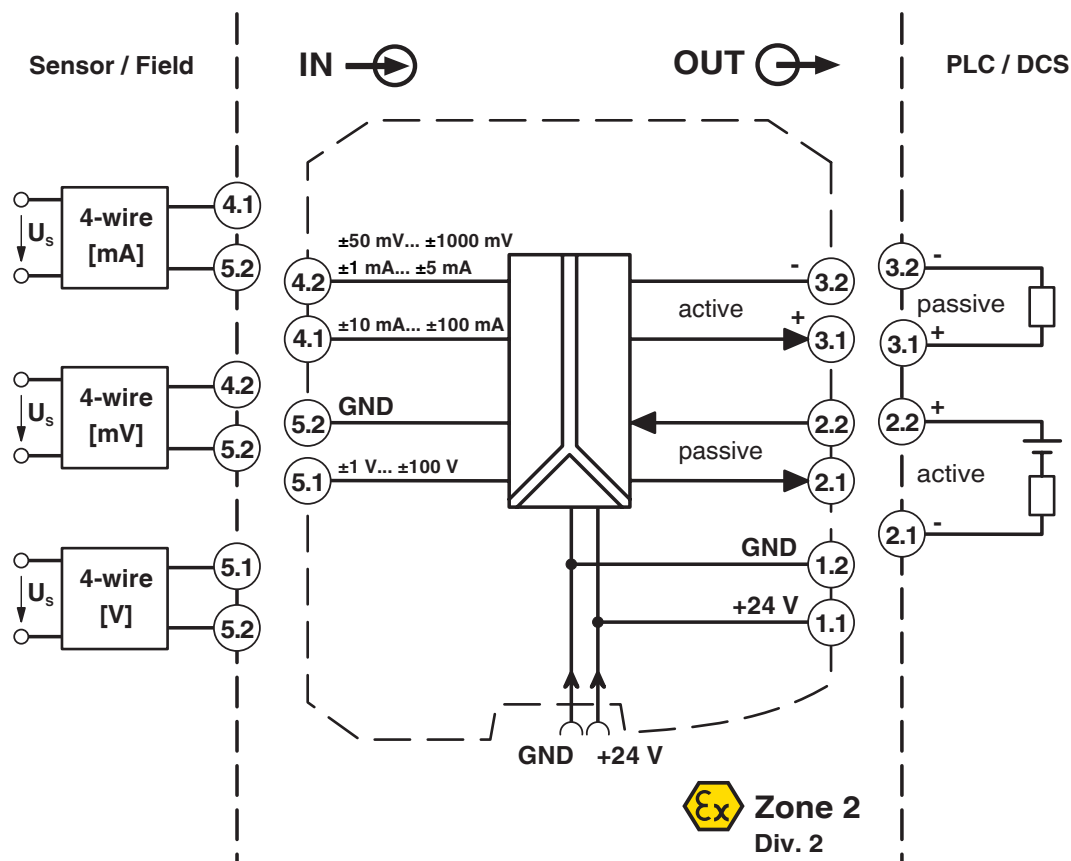


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Block diagram



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Approvals



DNV GL

Approval ID: TAA000020C



UL Listed

Approval ID: FILE E 330267



CCC

Approval ID: 2021122304114077



cUL Listed

Approval ID: FILE E 330267

Functional Safety

Approval ID: BVS Pb 01/10



IECEX

Approval ID: IECEX BVS 10.0044X



cUL Listed

Approval ID: FILE E 199827



UL Listed

Approval ID: FILE E 199827



ATEX

Approval ID: BVS 10 ATEX E059 X

INMETRO

Approval ID: DNV 21.0063 X



EAC Ex

Approval ID: TP012 103.01 00078

cULus Listed

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cULus Listed

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Classifications

ECLASS

ECLASS-9.0	27210120
ECLASS-10.0.1	27210120
ECLASS-11.0	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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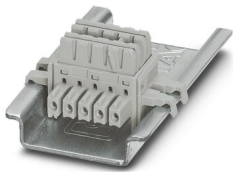
Accessories

DIN rail bus connectors

DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GY - 2695439

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

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



Power and error message module

Power and error message module - MACX MCR-PTB - 2865625

<https://www.phoenixcontact.com/pc/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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Power and error message module

Power and error message module - MACX MCR-PTB-SP - 2924184

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

Power supply unit

Power supply unit - QUINT4-SYS-PS/1AC/24DC/2.5/SC - 2904614

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



Primary-switched power supply unit, QUINT POWER, Screw connection, DIN rail mounting, input: 1-phase, output: 24 V DC / 2.5 A

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Module carrier

Module carrier - TC-D37SUB-AIO16-EX-PS-UNI - 2902932

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

Module carrier

Module carrier - TC-D37SUB-ADIO16-EX-P-UNI - 2924854

<https://www.phoenixcontact.com/pc/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)

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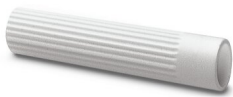


Insulating sleeve

Insulating sleeve - MPS-IH WH - 0201663

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

Insulating sleeve, color: white



Insulating sleeve

Insulating sleeve - MPS-IH RD - 0201676

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

Insulating sleeve, color: red



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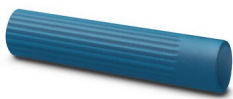


Insulating sleeve

Insulating sleeve - MPS-IH BU - 0201689

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

Insulating sleeve, color: blue



Insulating sleeve

Insulating sleeve - MPS-IH YE - 0201692

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

Insulating sleeve, color: yellow



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Insulating sleeve

Insulating sleeve - MPS-IH GN - 0201702

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

Insulating sleeve, color: green



Insulating sleeve

Insulating sleeve - MPS-IH GY - 0201728

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

Insulating sleeve, color: gray



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Insulating sleeve

Insulating sleeve - MPS-IH BK - 0201731

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

Insulating sleeve, color: black



Test plugs

Test plugs - MPS-MT - 0201744

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

Test plugs, with solder connection up to 1 mm² conductor cross section, color: gray



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Plastic label

Plastic label - UC-EMLP (11X9) - 0819291

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

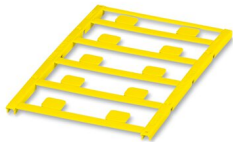


Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

Plastic label

Plastic label - UC-EMLP (11X9) YE - 0822602

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

Signal conditioner - MACX MCR-UI-UI-NC



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Plastic label

Plastic label - UC-EMLP (11X9) CUS - 0824547

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

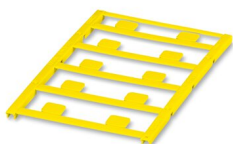


Plastic label

Plastic label - UC-EMLP (11X9) YE CUS - 0824548

<https://www.phoenixcontact.com/pc/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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Plastic label

Plastic label - UC-EMLP (11X9) SR - 0828094

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

Plastic label

Plastic label - UC-EMLP (11X9) SR CUS - 0828098

<https://www.phoenixcontact.com/pc/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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Plastic label

Plastic label - US-EMLP (11X9) - 0828789

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

Plastic label

Plastic label - US-EMLP (11X9) YE - 0828871

<https://www.phoenixcontact.com/pc/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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<https://www.phoenixcontact.com/pc/products/2811446>

Plastic label

Plastic label - US-EMLP (11X9) SR - 0828872

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

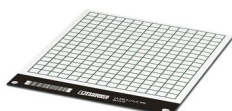


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Device marker

Device marker - LS-EMLP (11X9) WH - 0831678

<https://www.phoenixcontact.com/pc/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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Device marker

Device marker - LS-EMLP (11X9) SR - 0831705

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

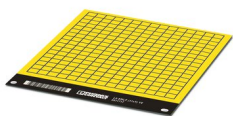


Device marker

Device marker - LS-EMLP (11X9) YE - 0831732

<https://www.phoenixcontact.com/pc/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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PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstraße 8
D-32825 Blomberg
+49 (0) 5235-3 00
info@phoenixcontact.com