

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input
isolating amplifier

1290776
<https://www.phoenixcontact.com/in/products/1290776>

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.



Ex i-Feed and input signal conditioner with 2 limit value relays, feeds 2-, 3-, and 4-conductor measuring transducer, transmits 1:1 passive or active 0 mA/4 mA ... 20 mA input signals and has 2 configurable limit value outputs. number of channels: 1, HART-transparent, Standard configuration, 4-way isolation, Safety Integrity Level (SIL, IEC 61508): 2, Push-in connection

Commercial data

Item number	1290776
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	DK121W
GTIN	4063151522711
Weight per piece (including packing)	205.1 g
Weight per piece (excluding packing)	160 g
Country of origin	DE

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

Technical data

Notes

Notes on operation	Installation conditions influence the ambient temperature. Please refer to the "Control cabinet installation instructions".
Notes on operation	Output behavior = input signal

Product properties

Product type	Repeater power supply
Product family	MACX Analog
No. of channels	1

Electrical properties

Electrical isolation	4-way isolation
Linearity error	$\leq 0.1 \%$
Typical offset error	$\leq 0.1 \%$
Signal transmission behavior	In = Out
Temperature coefficient, typical	$\leq 0.1 \%$ (10 K)
Reverse polarity protection	yes

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}

Electrical isolation Input/error message output IEC/EN 60079-11

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

Electrical isolation Input/limit value contact IEC/EN 60079-11

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

Electrical isolation Output/supply

Test voltage	350 V (50 Hz, 60 s)
--------------	---------------------

Electrical isolation Output/limit value contact

Test voltage	350 V (50 Hz, 60 s)
--------------	---------------------

Electrical isolation Output/supply/error message output

Test voltage	350 V (50 Hz, 60 s)
--------------	---------------------

Supply

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

Nominal supply voltage	24 V DC
Supply voltage range	18 V ... 31.2 V
Power dissipation	1.5 W (R_L 250 Ω)
Power consumption	2 W (20 mA)

Input data

Signal: Repeater power supply operation

Description of the input	active and passive current input, intrinsically safe
Input signal	Current
Current input signal	4 mA ... 20 mA (with HART) 2 mA ... 22 mA (Function area)
Short-circuit current	≤ 35 mA
Line fault detection	< 3.6 mA (Line break) > 21 mA (Short circuit)
Non-load voltage	≤ 26 V

Signal: Signal conditioner operation

Description of the input	Passive current input, intrinsically safe
Current input signal	4 mA ... 20 mA (with HART) 2 mA ... 22 mA (Function area)
Input resistance current input	> 250 Ω (for mA sources)
Input current	≤ 50 mA (for mA sources)
Short-circuit current	≤ 35 mA
Line fault detection	< 3.6 mA (Line break) > 21 mA (Short circuit)
Non-load voltage	≤ 26 V

Output data

Signal: Error message output

Maximum switching voltage	30 V
Max. switching current	100 mA

Switching: Relay

Contact switching type	2 N/O contacts
Max. switching current	≤ 170 mA (Resistive load) ≤ 500 mA (≤ 1 ms)
Typical response time	< 80 ms
Typical turn-off time	< 100 ms

Signal: Repeater power supply operation

Output description	Current output (active)
Current output signal	4 mA ... 20 mA (with HART) 2 mA ... 22 mA (Function area)

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

Load	0 Ω ... 600 Ω
Output ripple (current)	$\leq 40 \mu\text{A}$ (effective)

Signal: Signal conditioner operation

Output description	Signal conditioner operation
Current output signal	4 mA ... 20 mA (with HART)
	2 mA ... 22 mA (Function area)
Load	0 Ω ... 600 Ω
Output ripple (current)	$\leq 40 \mu\text{A}$ (effective)

Connection data

Connection method	Push-in connection
Stripping length	8 mm
Conductor cross section rigid	0.2 mm ² ... 1.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross section AWG	24 ... 16

Ex data

Ex installation (EPL)	Gc
Ex i circuits (EPL)	Ga
	Da
	Ma

Safety data: Repeater power supply operation (2-conductor measuring transducer)

Note	With connection of measuring transducers
Max. internal inductance L_i	negligible
Max. internal capacitance C_i	negligible
Max. output voltage U_o	27 V
Max. output current I_o	87.9 mA
Max. output power P_o	574 mW
Safety-related maximum voltage U_m	253 V AC
IIB/IIIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	14 mH / 705 nF
IIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	2.3 mH / 90 nF
IIB/IIIC (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	10 mH / 290 nF, 1 mH / 380 nF, 0.2 mH / 600 nF
IIC (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	1 mH / 56 nF, 0.5 mH / 72 nF, 0.2 mH / 90 nF

Safety data: Repeater power supply operation (3-conductor measuring transducer)

Note	With connection of measuring transducers
Max. internal inductance L_i	negligible
Max. internal capacitance C_i	negligible
Max. output voltage U_o	27 V

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

Max. output current I_o	88.3 mA
Max. output power P_o	574 mW
Safety-related maximum voltage U_m	253 V AC
IIB/IIIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	14 mH / 705 nF
IIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	2.3 mH / 90 nF
IIB/IIIC (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	10 mH / 290 nF, 1 mH / 380 nF, 0.2 mH / 600 nF
IIC (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	1 mH / 56 nF, 0.5 mH / 72 nF, 0.2 mH / 90 nF

Safety data: Signal conditioner operation

Note	With connection of power sources
Input voltage U_i	30 V
Input current I_i	100 mA
Max. internal inductance L_i	negligible
Max. internal capacitance C_i	negligible
Max. output voltage U_o	4.1 V
Max. output current I_o	0 mA
Max. output power P_o	0 mW

Interfaces

Data communication (bypass)

Protocols supported	HART-transparent
Frequency measuring range	0.5 kHz ... 10 kHz (bidirectional HART transmission)

Signaling

Status display	Green LED (supply voltage)
	LED yellow (switching state)
	Red LED (line errors)

Dimensions

Dimensional drawing	
Width	17.5 mm
Height	107.8 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)

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

Material specifications

Flammability rating according to UL 94	V0
Housing material	PA 6.6

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20 (Terminal blocks) IP30 (Housing)
Ambient temperature (operation)	-40 °C ... 70 °C (Stand-alone device: any mounting position) -40 °C ... 48 °C (Group assembly: vertical DIN rail without circulating air) -40 °C ... 58 °C (Group assembly: vertical DIN rail with circulating air) -40 °C ... 56 °C (Group assembly: horizontal DIN rail without circulating air) -40 °C ... 60 °C (Group assembly: horizontal DIN rail with circulating air)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	≤ 2000 m
Permissible humidity (operation)	≤ 95 % (non-condensing)

Approvals

ATEX

Identification	⚡ II (1) G [Ex ia Ga] IIC ⚡ II (1) D [Ex ia Da] IIIC ⚡ II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc ⚡ I (M1) [Ex ia Ma] I
----------------	---

IECEx

Identification	[Ex ia Ga] IIC [Ex ia Da] IIIC Ex nA nC [ia Ga] IIC T4 Gc [Ex ia Ma] I
----------------	---

Safety Integrity Level (SIL, IEC 61508)

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

EMC data

Electromagnetic compatibility	Tested in accordance with the following standards and regulations: EN 61326-1 For industrial use, NAMUR NE 21
-------------------------------	---

Standards and regulations

Electrical isolation	4-way isolation
----------------------	-----------------

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

Mounting

Mounting type	NS 35/15, NS 35/7,5
Mounting position	vertical, horizontal

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier

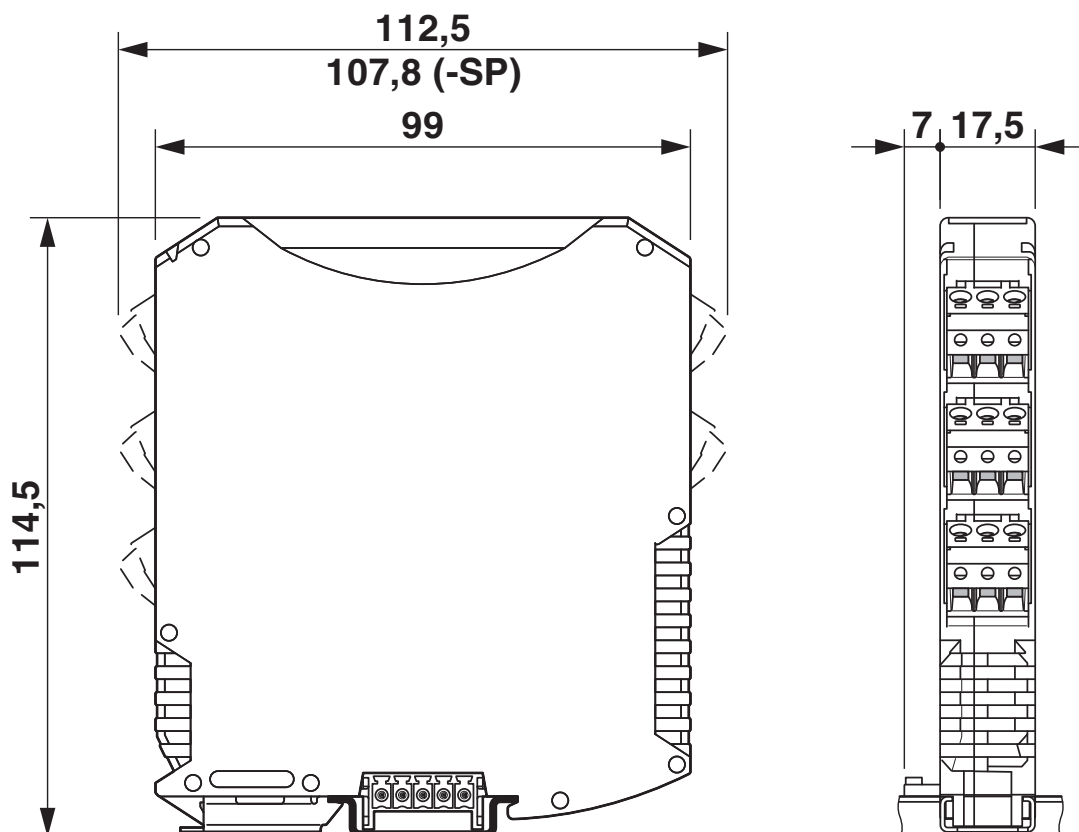


1290776

<https://www.phoenixcontact.com/in/products/1290776>

Drawings

Dimensional drawing

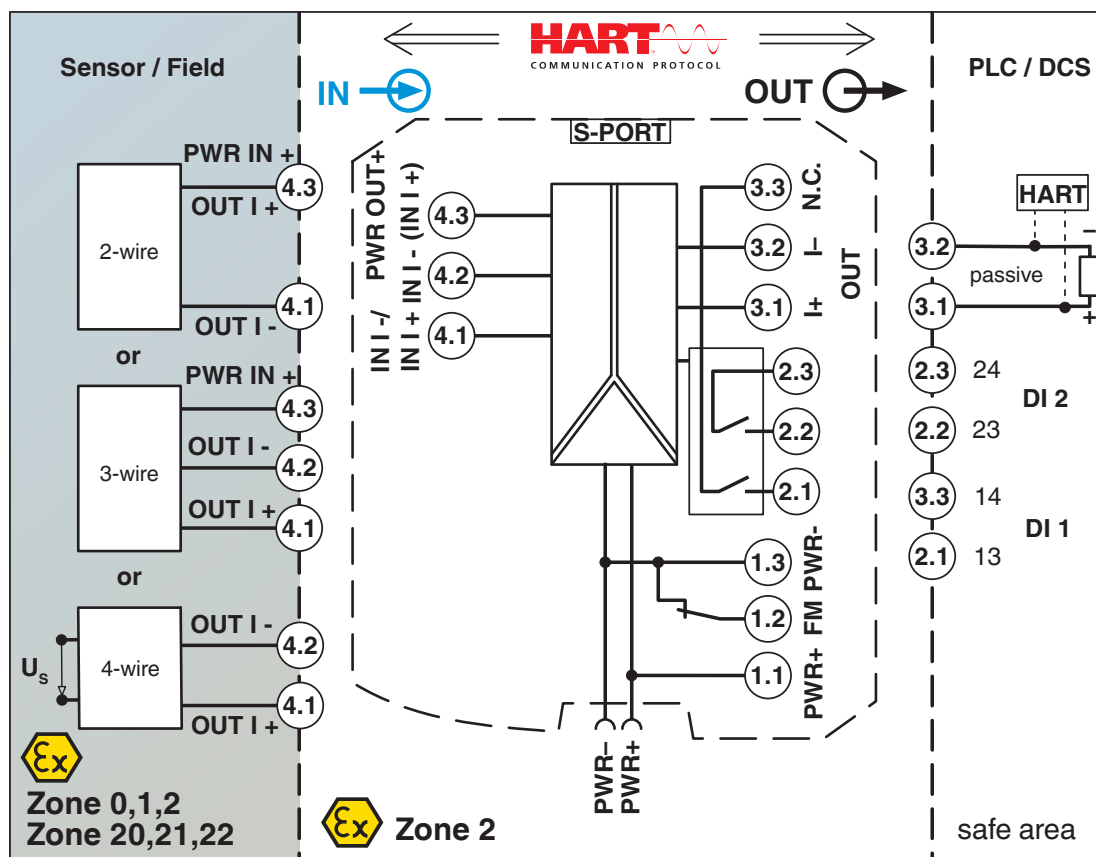


MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier

1290776

<https://www.phoenixcontact.com/in/products/1290776>

Block diagram



MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

Approvals

 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/in/products/1290776>

Functional Safety

Approval ID: 22/05-248 R030 V1R0



IECEx

Approval ID: IECEx BVS 21.0020X



ATEX

Approval ID: BVS 21 ATEX E 018X

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

Classifications

ECLASS

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

ETIM

ETIM 9.0	EC002653
----------	----------

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 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	ef8c88ba-fd59-4cd3-9e72-66732d2d170b

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

Accessories

IFS-USB-PROG-ADAPTER - Programming adapter

2811271

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

GW HART USB MODEM - Cable adapter

1003824

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



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

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

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

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

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

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

2904614

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

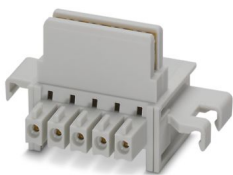


Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A

ME 17,5 TBUS 1,5/ 5-ST-3,81 GY - DIN rail bus connectors

1090049

<https://www.phoenixcontact.com/in/products/1090049>



DIN rail connector, color: gray, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, number of positions: 5, product range: TBUS5-17,5..., pitch: 3.81 mm, mounting: DIN rail mounting, locking: without, mounting method: without, type of packaging: packed in cardboard, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

ME-TBUS-A MC 1,5-2 - DIN rail bus connectors

1351974

<https://www.phoenixcontact.com/in/products/1351974>



DIN rail connector adapter (2-pos.) for connection of MACX MCR-EX-AP ... devices on the right side to the MACX MCR-PTB(-SP) power module with DIN rail connector ME 17,5 TBUS 1,5/5-ST-3,81 GY for bridging the supply voltage.

ME-TBUS-A IMC1,5-2 - DIN rail bus connectors

1351982

<https://www.phoenixcontact.com/in/products/1351982>



DIN rail connector adapter (2-pos.) for connection of MACX MCR-EX-AP... devices on the left side to the MACX MCR-PTB(-SP) power module with DIN rail connector ME 17,5 TBUS 1,5/5-ST-3,81 GY for bridging the supply voltage.

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

MCR-DP - Separating plate

1430594

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

MPS-IH WH - Insulating sleeve

0201663

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

Insulating sleeve, color: white



MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

MPS-IH RD - Insulating sleeve

0201676

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

Insulating sleeve, color: red

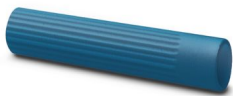


MPS-IH BU - Insulating sleeve

0201689

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

Insulating sleeve, color: blue



MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

MPS-IH YE - Insulating sleeve

0201692

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

Insulating sleeve, color: yellow



MPS-IH GN - Insulating sleeve

0201702

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

Insulating sleeve, color: green



MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

MPS-IH GY - Insulating sleeve

0201728

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

Insulating sleeve, color: gray



MPS-IH BK - Insulating sleeve

0201731

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

Insulating sleeve, color: black



MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

MPS-MT - Test plug

0201744

<https://www.phoenixcontact.com/in/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/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, Number of individual labels: 10, text field height: 9 mm, text field width: 11 mm

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



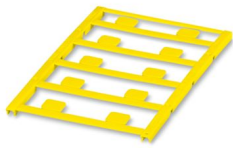
1290776

<https://www.phoenixcontact.com/in/products/1290776>

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, 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/in/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-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



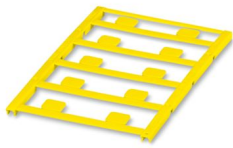
1290776

<https://www.phoenixcontact.com/in/products/1290776>

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

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

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

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, 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/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, Number of individual labels: 135, text field height: 9 mm, text field width: 11 mm

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

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, 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/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, Number of individual labels: 135, text field height: 9 mm, text field width: 11 mm

MACX MCR-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

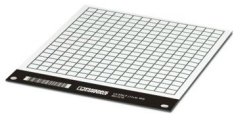
<https://www.phoenixcontact.com/in/products/1290776>

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, 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/in/products/0831705>

Device marker, Sheet, silver, unlabeled, 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-EX-AP-RPSS-I-IR-SP - Power/input isolating amplifier



1290776

<https://www.phoenixcontact.com/in/products/1290776>

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, mounting type: adhesive, Number of individual labels: 255, text field height: 9 mm, text field width: 11 mm



SZS 0,6X3,5 - Screwdriver

1205053

<https://www.phoenixcontact.com/in/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 (I) Pvt. Ltd.

A-58/2, Okhla Industrial Area, Phase - II, New Delhi-110 020

+91.1275.71420

info@phoenixcontact.co.in