

# MACX MCR-EX-SL-RPSSI-2I-1S - Repeater power supply



2908855

<https://www.phoenixcontact.com/us/products/2908855>

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Ex i measuring transducer repeater power supply and input signal conditioner, only output 1 is HART-transparent. Transmits supplied or active electrically isolated signals from the Ex area to two loads. SIL 2 in accordance with IEC 61508, screw connection.

## Commercial data

Item number	2908855
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C430
Product key	CK3111
Catalog page	Page 143 (C-5-2019)
GTIN	4055626352190
Weight per piece (including packing)	244.3 g
Weight per piece (excluding packing)	175 g
Customs tariff number	85437090
Country of origin	DE

# MACX MCR-EX-SL-RPSSI-2I-1S - Repeater power supply



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## 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	Repeater power supplies
Product family	MACX Analog
No. of channels	1
Type	Ex i signal conditioners with SIL and PL Functional Safety

#### Insulation characteristics: GB Standard

Overvoltage category	II
Pollution degree	2

### Electrical properties

No. of channels	1
Electrical isolation between input and output	yes
Signal transmission behavior	In = Out
Step response (10-90%)	1.3 ms (Output 1, for jump 4 mA ... 20 mA, typical) < 100 ms (Output 2, for jump 4 mA ... 20 mA)
Maximum temperature coefficient	< 0.01 %/K
Maximum transmission error	< 0.1 % (of final value)
Transmission error, typical	< 0.05 % (of 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

#### Electrical isolation Input/output

Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
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#### Electrical isolation Input/power supply

Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
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#### Electrical isolation Output 1/output 2

Test voltage	1.5 kV AC (50 Hz, 60 s)
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### Supply

Designation	Repeater power supply operation
Nominal supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (24 V DC, -20 % ... +25 %)
Max. current consumption	< 75 mA (24 V DC / 20 mA)

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Power dissipation	< 1.45 W (24 V DC / 20 mA)
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## Supply

Designation	Signal conditioner operation
Nominal supply voltage	24 V DC
Nominal supply voltage range	19.2 V DC ... 30 V DC (24 V DC, -20 % ... +25 %)
Max. current consumption	< 46 mA (24 V DC / 20 mA)
Power dissipation	< 1.1 W (24 V DC/20 mA)

## Input data

### Signal: Repeater power supply operation

Description of the input	Repeater power supply operation
Number of inputs	1
Current input signal	4 mA ... 20 mA
Transmitter supply voltage	> 16 V (20 mA) > 15.1 V (23 mA)
Polarization and surge protection	Yes
Underload/overload signal range	0 mA ... 24 mA (Extended transmission range for diagnostics)

### Signal: Signal conditioner operation

Description of the input	Signal conditioner operation
Current input signal	0 mA ... 20 mA 4 mA ... 20 mA
Voltage drop	approx. 3.9 V (in input isolating amplifier operation)
Underload/overload signal range	0 mA ... 24 mA (Extended transmission range for diagnostics)

## Output data

### Signal: Repeater power supply operation

Output description	Repeater power supply operation
Number of outputs	2
Current output signal	4 mA ... 20 mA (Output 1 and output 2 active)
Load/output load current output	< 450 Ω (20 mA) < 380 Ω (23 mA)
Output ripple	< 20 mV <sub>rms</sub>
Output behavior in the event of an error	0 mA (Cable break in the input) ≥ 23 mA (Cable short-circuit in the input)
Underload/overload signal range	0 mA ... 24 mA (Extended transmission range for diagnostics)

### Signal: Signal conditioner operation

Output description	Signal conditioner operation
Current output signal	0 mA ... 20 mA (active) 4 mA ... 20 mA (active)
Load/output load current output	< 450 Ω (20 mA) < 380 Ω (23 mA)

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Output ripple	< 20 mV <sub>rms</sub>
Output behavior in the event of an error	0 mA (Cable break in the input)
	0 mA (Cable short-circuit in the input)
Underload/overload signal range	0 mA ... 24 mA (Extended transmission range for diagnostics)

## Connection data

Connection method	Screw connection
Stripping length	7 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
Tightening torque	0.5 Nm ... 0.6 Nm

## Test socket

Max. diameter	2 mm
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## Ex data

Ex installation (EPL)	Gc
	Div. 2
Ex i circuits (EPL)	Ga
	Da
	Ma
	Div. 1

## Safety data: Repeater power supply operation

Note	Repeater power supply operation
Max. output voltage U <sub>o</sub>	25.2 V
Max. output current I <sub>o</sub>	93 mA
Max. output power P <sub>o</sub>	587 mW
Safety-related maximum voltage U <sub>m</sub>	253 V AC
	125 V DC
IIB (simple circuit): Max. external inductivity L <sub>o</sub> / Max. external capacitance C <sub>o</sub>	4 mH / 820 nF
IIC (simple circuit): Max. external inductivity L <sub>o</sub> / Max. external capacitance C <sub>o</sub>	2 mH / 107 nF
IIB (mixed circuit): Max. external inductivity L <sub>o</sub> / Max. external capacitance C <sub>o</sub>	4 mH / 370 nF, 1 mH / 430 nF, 500 μH / 510 nF, 200 μH / 660 nF, 100 μH / 820 nF
IIC (mixed circuit): Max. external inductivity L <sub>o</sub> / Max. external capacitance C <sub>o</sub>	2 mH / 49 nF, 1 mH / 63 nF, 500 μH / 80 nF, 200 μH / 107 nF

## Safety data: Signal conditioner operation

Note	Signal conditioner operation
Input voltage U <sub>i</sub>	≤ 30 V
Input current I <sub>i</sub>	≤ 150 mA
Max. internal inductance L <sub>i</sub>	negligible
Max. internal capacitance C <sub>i</sub>	negligible

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Safety-related maximum voltage $U_m$	253 V AC
	125 V DC

## Interfaces

### Data communication (bypass)

HART function	Yes
Protocols supported	HART-transparent
Protocol	HART (only output 1)

## Signaling

Status display	Green LED (supply voltage)
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## Dimensions

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

Flammability rating according to UL 94	V0 (Housing)
Housing material	PA 6.6-FR

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20 (not assessed by UL)
Ambient temperature (operation)	-20 °C ... 60 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	≤ 2000 m
Permissible humidity (operation)	10 % ... 95 % (non-condensing)

## Approvals

### CE

Certificate	CE-compliant
Note	and EN 61326

### ATEX

Identification	⊕ II (1) G [Ex ia Ga] IIC
	⊕ II (1) D [Ex ia Da] IIIC
	⊕ II 3 (1) G Ex nA [ia Ga] IIC T4 Gc
Certificate	BVS 10 ATEX E 143 X

### IECEX

[Ex ia Ga] IIC
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# MACX MCR-EX-SL-RPSSI-2I-1S - Repeater power supply



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Identification	[Ex ia Da] IIC
	Ex nA [ia Ga] IIC T4 Gc
Certificate	IECEX BVS 10.0097X

## CCC / China-Ex

Identification	[Ex ia Ga] IIC
	[Ex iaD]
	Ex nA [ia Ga] IIC T4 Gc
Certificate	NEPSI GYJ20.1308X

## UL, USA/Canada

Identification	IS for Class I,II,III, Division 1 and Zone 0
	Installation in Class I, Division 2 and Zone 2
Certificate	UL, C.D.-No 83104549

## UL, USA/Canada

Identification	Class I Div 2; IS for Class I, II, III Div 1
Certificate	UL, C.D.-No 83104549

## Shipbuilding approval

Certificate	DNV GL TAA000020C
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## Safety Integrity Level (SIL, IEC 61508)

Identification	2
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## Performance Level (ISO 13849)

Identification	d
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## INMETRO

Identification	[Ex ia Ga] IIC
	[Ex ia Da] IIC
	Ex ec [ia Ga] IIC T4 Gc
Certificate	DNV 18.0139 X

## EAC Ex

Identification	ERC [Ex ia Ga] IIC
	ERC [Ex ia Da] IIC
Certificate	RU C-DE.AB72.B.00093/19

## 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

## EMC data

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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

## Standards and regulations

### GB Standard

Standards/regulations	GB 3626.20
	GB 3836.1
	GB 3836.4
	GB 3836.8
	GB 12476.1
	GB 12476.4

## Mounting

Mounting type	DIN rail mounting
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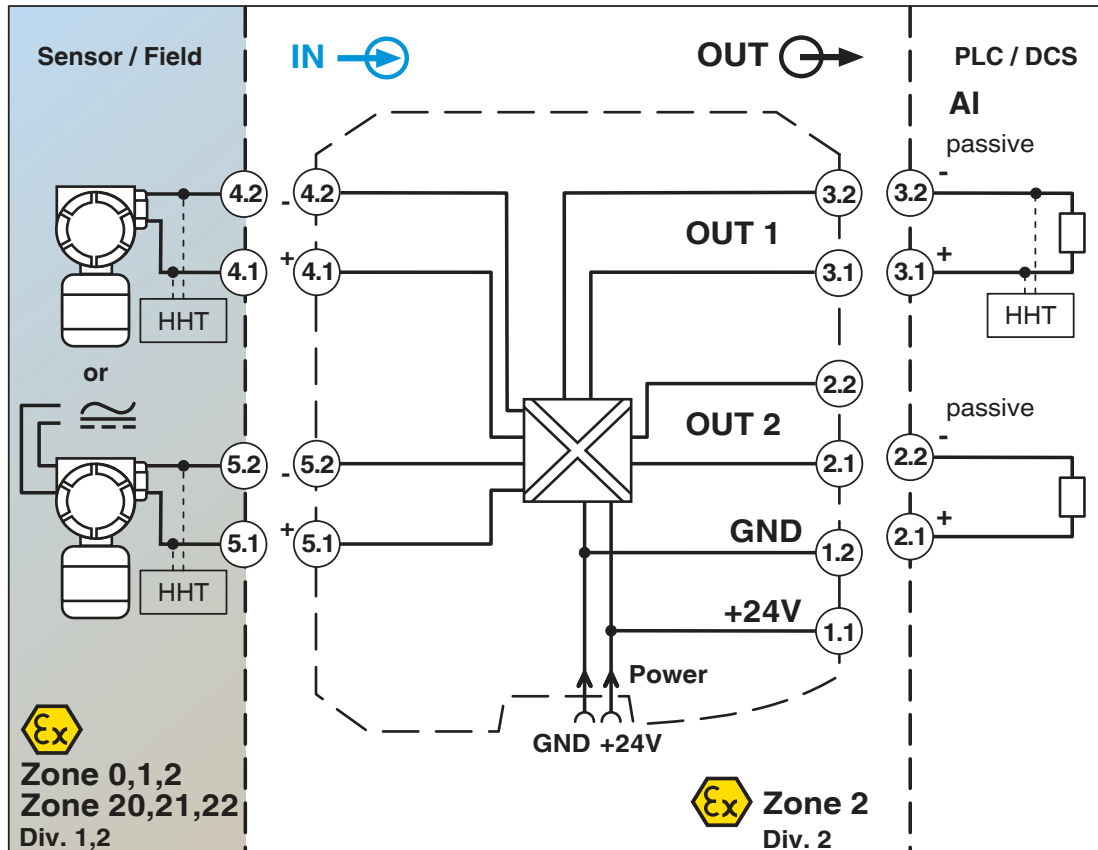
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## Drawings

Block diagram





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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2908855>



**DNV GL**

Approval ID: TAA000020C



**UL Listed**

Approval ID: FILE E 330267



**CCC**

Approval ID: 2020322 316001579



**cUL Listed**

Approval ID: FILE E 330267

**Functional Safety**

Approval ID: BVS PB 13-10-04



**EAC Ex**

Approval ID: RU C-DE.AB72.B.00093



**IECEx**

Approval ID: IECEx BVS 10.0097X



**cUL Listed**

Approval ID: FILE E 199827



**UL Listed**

Approval ID: FILE E 199827



**ATEX**

Approval ID: BVS 10 ATEX E143 X

**INMETRO**

Approval ID: DNV 18.0139 X

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**ATEX**

Approval ID: BVS 10 ATEX E143 X



**IECEx**

Approval ID: IECEx BVS 10.0097X

**cULus Listed**

**cULus Listed**

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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

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

2695439

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



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TC-2D37SUB-ADIO32-2EX-P-UNI - Module carrier

2904684

<https://www.phoenixcontact.com/us/products/2904684>

Universal Termination Carrier for connecting 16 two-channel MACX Analog Ex i signal conditioners to digital or analog I/O cards, via two D-SUB connectors, 37-pos. (1:1 connection)



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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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## EA-MSTB 2,5/ 5 - Accessories

1831016

<https://www.phoenixcontact.com/us/products/1831016>

Filler plug, Accessories, product range: Accessories, width: 24.6 mm



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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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## 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 plugs

0201744

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



# MACX MCR-EX-SL-RPSSI-2I-1S - Repeater power supply



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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

# MACX MCR-EX-SL-RPSSI-2I-1S - Repeater power supply



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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

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## 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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