

# Isolation amplifier - MINI MCR-2-NAM-2RO-PT



2902005

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Configurable NAMUR signal conditioner with plug-in connection technology for proximity sensors, floating switch contacts, and switch contacts with resistance circuit. 2 transistor outputs. Configurable via DIP switch. Push-in connection technology.

## Product Description

Configurable NAMUR 4-way signal conditioner with plug-in connection technology for operating proximity sensors according to EN 60947-5-6, floating switch contacts, and switch contacts with resistance circuit. Two transistor outputs are available on the output side. The second output can be used either for duplicating signals or for signaling faults on the sensor line. You can configure the signal conditioner via DIP switches. The device supports fault monitoring and NFC communication.

## Your advantages

- Floating contacts and contacts with resistance circuit can be connected
- Power supply possible via the foot element (TBUS)
- Highly compact isolation amplifier for electrical isolation, amplification, and duplication of proximity sensor signals
- For proximity sensors according to IEC 60947-5-6 and EN 50227
- Second output can be used as a duplicator or error signaling output
- Error indication via diagnostic LED and analog signal
- N/O contacts at output
- Input and output signals can be configured via DIP switches
- 3-way isolation

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## Commercial Data

Order Key	2902005
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	CK1
Product Key	CK1441
Catalog Page	Page 92 (C-5-2019)
GTIN	4046356649513
Weight per Piece (including packing)	117 g
Weight per Piece (excluding packing)	63.9 g
Customs tariff number	85365019
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

No. of channels	1
Configuration	DIP switches

#### Insulation characteristics

Overvoltage category	II
Degree of pollution	2

### Electrical properties

No. of channels	1
Rated insulation voltage	300 V (effective)
Electrical isolation	Reinforced insulation in accordance with IEC 61010-1
Electrical isolation between input and output	yes
Maximum power dissipation for nominal condition	450 mW
Test voltage, input/output/supply	3 kV (50 Hz, 1 min.)

#### Supply

Nominal supply voltage	24 V DC
Supply voltage range	9.6 V DC ... 30 V DC (The DIN rail bus connector (ME 6,2 TBUS-2 1,5/5-ST-3,81 GN, Item No. 2869728) can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail according to EN 60715))
Typical current consumption	18 mA (24 V DC)
	35 mA (12 V DC)
Power consumption	450 mW (9.6 V DC)

### Input data

#### Signal

Number of inputs	1
Available input sources	NAMUR proximity sensors (IEC/EN 60947-5-6)
	open circuit switch contacts
	Switch contacts with resistance circuit

### Output data

#### Switching: Transistor

Output description	Output 1: Signal output; Output 2: Fault signaling output or signal duplicator, can be set via DIP switches
Contact type	2 N/O contacts

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Maximum switching voltage	30 V DC
Maximum inrush current	50 mA
Min. switching current	5 mA
Typical response time	10 µs
Typical turn-off time	35 µs
Switching frequency	5 kHz

## Connection data

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross section solid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (with ferrule) 0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (without ferrule)
Conductor cross section flexible	0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 12 (flexible)

## Interfaces

Data: NFC interface

No. of channels	0
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## LED signaling

Status display	Yellow LED (switching output) Yellow LED (switching output)
Operating voltage display	Green LED
Indication	Red LED

## Dimensions

Width	6.2 mm
Width	6.2 mm
Height	109.81 mm
Height	109.81 mm
Depth	119.2 mm
Depth	119.2 mm

## Material specifications

Fire protection for rail vehicles (DIN EN 45545-2) R22	HL 1 - HL 2
Fire protection for rail vehicles (DIN EN 45545-2) R23	HL 1 - HL 2
Fire protection for rail vehicles (DIN EN 45545-2) R24	HL 1 - HL 2
Housing material	PBT

## Environmental and real-life conditions

Ambient conditions

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

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Permissible humidity (operation)	5 % ... 95 % (non-condensing)
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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 20 ATEX E 014X

### UKCA Ex (UKEX)

Identification	<input type="checkbox"/> II 3 G Ex ec IIC T4 Gc
Certificate	PxCIF21UKEX2902004X

### IECEX

Identification	Ex ec IIC T4 Gc
Certificate	IECEX BVS 20.0010X

### CCC / China-Ex

Identification	Ex nA IIC T4 Gc
Certificate	NEPSI GYJ20.1320X

### UL, USA / Canada

Identification	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T6
	Class I, Zone 2, Group IIC T6

### Shipbuilding approval

Certificate	DNV GL TAA000021E Rev. 1
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### EAC Ex

Identification	<input type="checkbox"/> 2Ex ec IIC T4 Gc
Certificate	BY/112 02.01 TP012 103.01 00081

### 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

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.

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## Electrostatic discharge

Standards/regulations	EN 61000-4-2
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## Electrostatic discharge

Comments	Safety measures must be taken to prevent electrostatic discharge.
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## Electromagnetic HF field

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3

## Fast transients (burst)

Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4

## Surge current load (surge)

Standards/regulations	EN 61000-4-5
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## Conducted interference

Designation	Conducted interferences
Standards/regulations	EN 61000-4-6

## Standards and regulations

Electrical isolation	Reinforced insulation in accordance with IEC 61010-1
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## GB Standard

Standards/regulations	GB 3836.1
	GB 3836.8

## Mounting

Mounting type	DIN rail mounting
Assembly instructions	The T connector can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail according to EN 60715.
Mounting position	any

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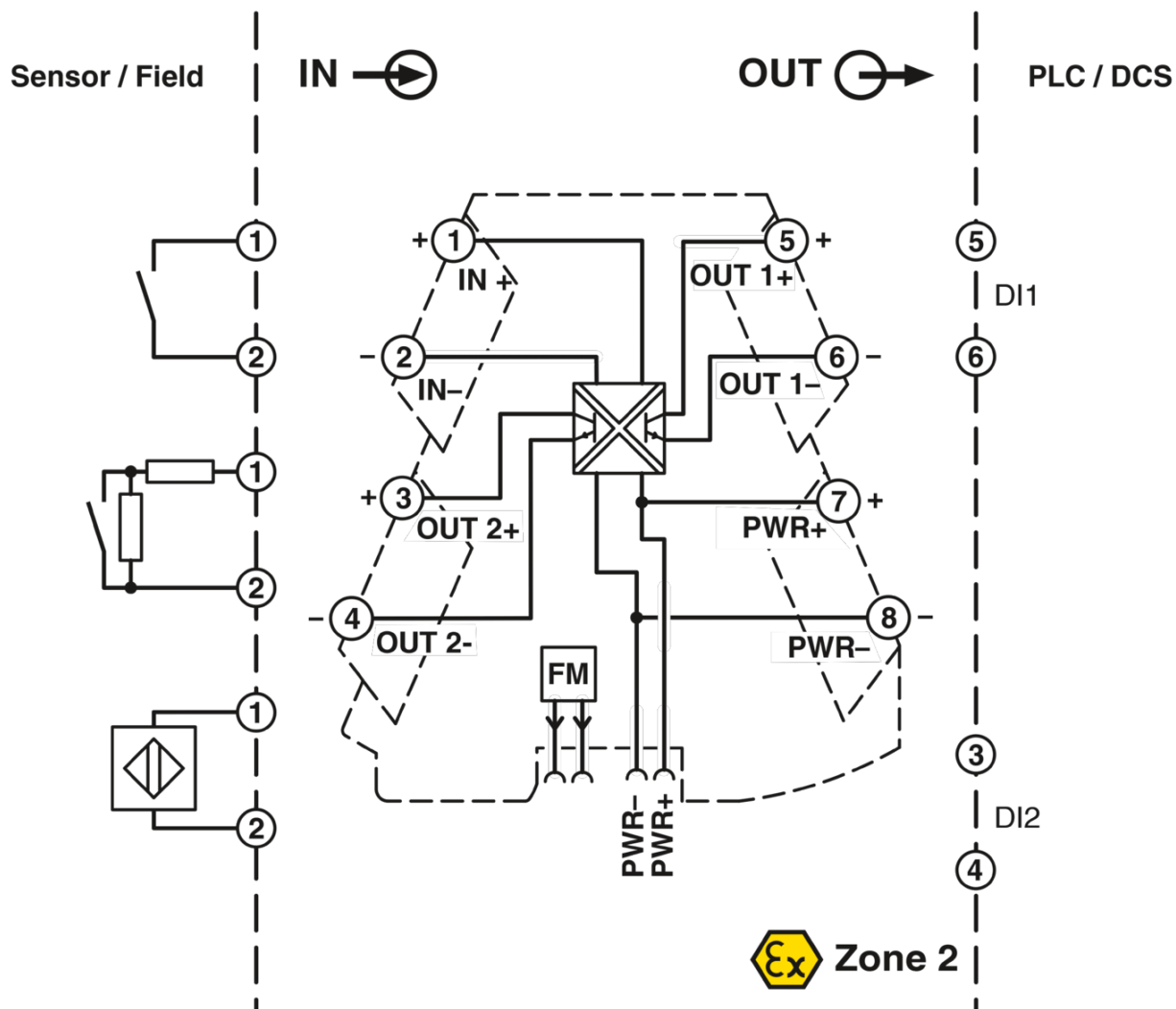


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## Drawings

Block diagram



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## Approvals

EAC

DNV GL

UL Listed	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $mm^2$
			-	-

CCC

cUL Listed	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $mm^2$
			-	-

IECEX

cUL Listed	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $mm^2$
			-	-

UL Listed	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $mm^2$
			-	-

ATEX

NEPSI

cULus Listed

cULus Listed



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## Classifications

### ECLASS

ECLASS-9.0	27210121
ECLASS-10.0.1	27210121
ECLASS-11.0	27210121

### ETIM

ETIM 6.0	EC001485
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### UNSPSC

UNSPSC 19.0	39121008
UNSPSC 20.0	39121008
UNSPSC 21.0	39121008

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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

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## Accessories

### Monitoring module

Monitoring module - MINI MCR-2-FM-RC - 2904504



Fault monitoring module with plug-in connection technology for evaluating and reporting group errors from the FM system and for monitoring the supply voltages. Error message via N/C contact. Screw connection technology, standard configuration

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### Monitoring module

Monitoring module - MINI MCR-2-FM-RC-PT - 2904508



Fault monitoring module with plug-in connection technology for evaluating and reporting group errors from the FM system and for monitoring the supply voltages. Error message via N/C contact. Push-in connection technology, standard configuration

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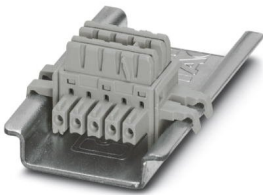
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## DIN rail bus connectors

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

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

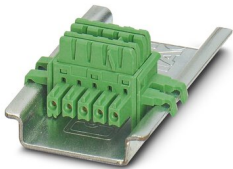


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## DIN rail bus connectors

DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GN - 2869728

DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.



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## Communication module

Communication module - MINI MCR-2-V8-MOD-RTU - 2905634



Eight MINI Analog Pro signal conditioners and measuring transducers can be quickly and easily integrated into a Modbus/RTU network via a communication adapter.

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## Communication module

Communication module - MINI MCR-2-V8-MOD-TCP - 2905635



Eight MINI Analog Pro signal conditioners and measuring transducers can be quickly and easily integrated into a Modbus/TCP network via a communication adapter.

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## Communication module

Communication module - MINI MCR-2-V8-PB-DP - 2905636



Eight MINI Analog Pro signal conditioners and measuring transducers can be quickly and easily integrated into a PROFIBUS DP network via a communication adapter.

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## Power terminal block

Power terminal block - MINI MCR-2-PTB - 2902066



Power terminal with plug-in connection technology for delivering the supply voltage to the DIN rail connector. Monitoring of the supply voltages in combination with the fault monitoring module. Screw connection technology

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## Power terminal block

Power terminal block - MINI MCR-2-PTB-PT - 2902067



Power terminal with plug-in connection technology for delivering the supply voltage to the DIN rail connector. Monitoring of the supply voltages in combination with the fault monitoring module. Push-in connection technology

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## Marker for end clamp

Marker for end clamp - UCT-EM (30X5) - 0801505



Marker for end clamp, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: snap in, lettering field size: 30 x 5 mm, Number of individual labels: 24

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## Marker for end clamp

Marker for end clamp - UCT-EM (30X5) CUS - 0801589

Marker for end clamp, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: snapped into marker carrier, lettering field size: 30 x 5 mm, Number of individual labels: 24



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## Marker for end clamp

Marker for end clamp - UCT-EM (30X5) YE - 0830340

Marker for end clamp, Sheet, yellow, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: snap in, lettering field size: 30 x 5 mm, Number of individual labels: 24





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## Marker for end clamp

Marker for end clamp - UCT-EM (30X5) YE CUS - 0830348

Marker for end clamp, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: snapped into marker carrier, lettering field size: 30 x 5 mm, Number of individual labels: 24



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## Marker strip

Marker strip - SK 5,0 WH:REEL - 0805221

Marker strip, Roll, white, unlabeled, can be labeled with: THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, mounting type: adhesive, for terminal block width: 5 mm, lettering field size: continuous x 5 mm, Number of individual labels: 90000



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## System adapter

System adapter - MINI MCR-2-V8-FLK 16 - 2901993



Eight MINI Analog Pro signal conditioners and measuring transducers can be connected to a controller with minimal cabling effort and without any errors using system adapters and system cabling.

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## Power supply unit

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

Plastic label - UC-EMLP (15X5) - 0819301

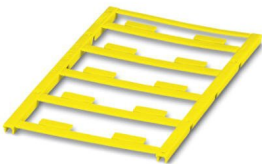


Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10

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## Plastic label

Plastic label - UC-EMLP (15X5) YE - 0822615



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: 15 x 5 mm, Number of individual labels: 10

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## Plastic label

Plastic label - UC-EMLP (15X5) CUS - 0824550

Plastic label, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm

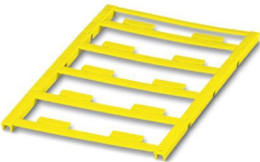


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## Plastic label

Plastic label - UC-EMLP (15X5) YE CUS - 0824551

Plastic label, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm



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## Plastic label

Plastic label - UC-EMLP (15X5) SR - 0828095



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: 15 x 5 mm, Number of individual labels: 10

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## Plastic label

Plastic label - UC-EMLP (15X5) SR CUS - 0828099



Plastic label, can be ordered: by sheet, silver, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10

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## Plastic label

Plastic label - US-EMLP (15X5) - 0828790



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: 15 x 5 mm, Number of individual labels: 189

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## Plastic label

Plastic label - US-EMLP (15X5) YE - 0828873



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: 15 x 5 mm, Number of individual labels: 189

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## Plastic label

Plastic label - US-EMLP (15X5) SR - 0828874



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: 15 x 5 mm, Number of individual labels: 189

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## Plastic label

Plastic label - US-EMLP (15X5) CUS - 0830076



Plastic label, can be ordered: by card, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

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## Plastic label

Plastic label - US-EMLP (15X5) YE CUS - 0830077

Plastic label, can be ordered: by card, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189



## Plastic label

Plastic label - US-EMLP (15X5) SR CUS - 0830078

Plastic label, can be ordered: by card, silver, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189



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