

## Signal conditioner - MACX MCR-UI-UI-NC - 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 according to 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)



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 288927
GTIN	4046356288927

### Technical data

#### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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#### Dimensions

Width	12.5 mm
Height	112.5 mm

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## Technical data

### Dimensions

Depth	113.7 mm
	114.5 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715)

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Degree of protection	IP20 (not assessed by UL)
Altitude	≤ 2000 m (For use at altitudes ≥2000 m above sea level, see data sheet.)
Ambient temperature (operation)	-20 °C ... 70 °C
Altitude	≤ 3000 m
Ambient temperature (operation)	-20 °C ... 60 °C
Rated insulation voltage	190 V
Altitude	≤ 4000 m
Ambient temperature (operation)	-20 °C ... 55 °C
Rated insulation voltage	63 V
Altitude	≤ 5000 m
Ambient temperature (operation)	-20 °C ... 45 °C
Rated insulation voltage	63 V

### Input data

Designation	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
	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 (please indicate if different setting when ordering)
	0 V ... 15 V
	0 V ... 20 V
	0 V ... 30 V

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### Technical data

#### Input data

	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
Current input signal	0 mA ... 1 mA (Configurable via DIP switches)
	0 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

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### Technical data

#### Input data

	-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
Min. input voltage	± 50 mV
max. input voltage	± 100 V
Max. input current	± 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

Output name	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
Current output signal	0 mA ... 5 mA
	0 mA ... 10 mA
	0 mA ... 20 mA (please indicate if different setting when ordering)
	1 mA ... 5 mA
	2 mA ... 10 mA
	4 mA ... 20 mA
	-5 mA ... 5 mA
	-10 mA ... 10 mA
	-20 mA ... 20 mA
Load/output load voltage output	≥ 1 kΩ (10 V)
Load/output load current output	≤ 600 Ω (20 mA; active)
	passive: ≤ (UB-2 V) / I <sub>outmax</sub>
Ripple	< 10 mV <sub>rms</sub>

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## Technical data

### Power supply

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

### Connection data

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross section solid	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

### General

No. of channels	1
Maximum transmission error	≤ 0.1 % (Compared to the final value)
Maximum temperature coefficient	0.0075 %/K
Limit frequency (3 dB)	10 kHz (Can be switched to 30 Hz)
Alignment zero	± 4 %
Alignment span	± 4 %
Step response (10-90%)	35 μs (at 10 kHz)
	11 ms (At 30 Hz)
Protective circuit	Transient protection
Overvoltage category	II
Degree of pollution	2
Rated insulation voltage	300 V AC
Test voltage, input/output/supply	2.5 kV (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC directive
Color	gray
Housing material	PA 6.6-FR
Mounting position	any

### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive
Designation	GB Standard
Standards/regulations	GB 3836.1
	GB 3836.8

### Conformance/approvals

Designation	CE
Certificate	CE-compliant
Designation	ATEX
Identification	# II 3 G Ex ec IIC T4 Gc
Certificate	BVS 10 ATEX E 059 X
Designation	IECEX

# Signal conditioner - MACX MCR-UI-UI-NC - 2811446

## Technical data

### Conformance/approvals

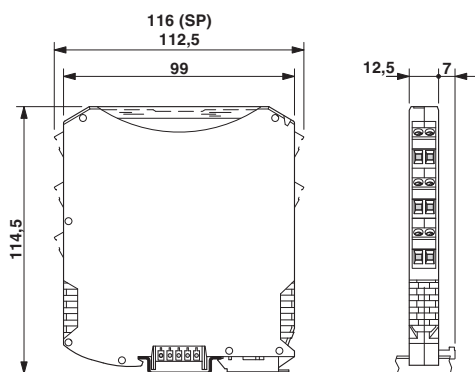
Identification	Ex ec IIC T4 Gc
Certificate	IECEX BVS 10.0044X
Designation	CCC / China-Ex
Identification	Ex nA IIC T4 Gc
Designation	UL, USA / Canada
Identification	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T6
	Class I, Zone 2, Group IIC
Designation	Shipbuilding approval
Certificate	DNV GL TAA000020C
Designation	Safety Integrity Level (SIL, IEC 61508)
Identification	2
Designation	INMETRO
Identification	Ex ec IIC T4 Gc
Certificate	DNV 21.0063 X
Temperature	B
Humidity	B
Vibration	A
EMC	A
Enclosure	Required protection according to the Rules shall be provided upon installation on board

### Environmental Product Compliance

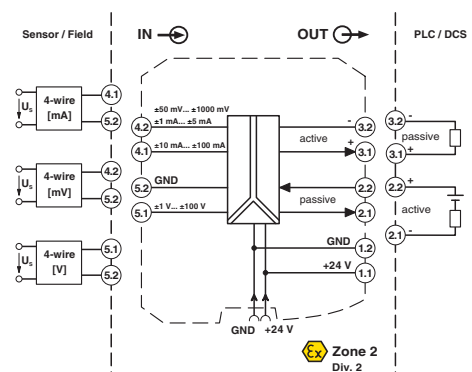
REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

Dimensional drawing

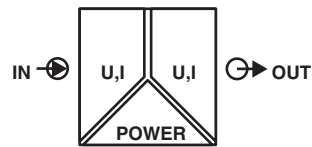


Block diagram



# Signal conditioner - MACX MCR-UI-UI-NC - 2811446

Pictogram



## Classifications

### eCl@ss

eCl@ss 10.0.1	27210120
eCl@ss 11.0	27210120
eCl@ss 4.0	27210100
eCl@ss 4.1	27210100
eCl@ss 5.0	27210100
eCl@ss 5.1	27210100
eCl@ss 6.0	27210100
eCl@ss 7.0	27210120
eCl@ss 9.0	27210120

### ETIM

ETIM 4.0	EC002653
ETIM 6.0	EC002653
ETIM 7.0	EC002653

### UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	39121008
UNSPSC 18.0	39121008
UNSPSC 19.0	39121008
UNSPSC 20.0	39121008
UNSPSC 21.0	39121008

# Signal conditioner - MACX MCR-UI-UI-NC - 2811446

## Approvals

### Approvals

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#### Approvals

UL Listed / cUL Listed / Functional Safety / DNV GL / CCC / cULus Listed

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#### Ex Approvals

UL Listed / cUL Listed / EAC Ex / ATEX / INMETRO / IECEX / cULus Listed

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### Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 330267
cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 330267
Functional Safety			BVS Pb 01/10
DNV GL		<a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>	TAA000020C
CCC			2021122304114077
cULus Listed			

## Accessories

### Accessories

### Device marking



## Signal conditioner - MACX MCR-UI-UI-NC - 2811446

### Accessories

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

## Signal conditioner - MACX MCR-UI-UI-NC - 2811446

### Accessories

#### Plastic label - US-EMLP (11X9) SR - 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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#### Device marker - LS-EMLP (11X9) WH - 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 - LS-EMLP (11X9) SR - 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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#### Device marker - LS-EMLP (11X9) YE - 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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### DIN rail connector

#### 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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### Insulating sleeve

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### Accessories

Insulating sleeve - MPS-IH WH - 0201663

Insulating sleeve, color: white



Insulating sleeve - MPS-IH RD - 0201676

Insulating sleeve, color: red



Insulating sleeve - MPS-IH BU - 0201689

Insulating sleeve, color: blue



Insulating sleeve - MPS-IH YE - 0201692

Insulating sleeve, color: yellow



Insulating sleeve - MPS-IH GN - 0201702

Insulating sleeve, color: green



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### Accessories

Insulating sleeve - MPS-IH GY - 0201728

Insulating sleeve, color: gray



Insulating sleeve - MPS-IH BK - 0201731

Insulating sleeve, color: black



### Labeled device marker

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

Plastic label, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm



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



### Module carrier

## Signal conditioner - MACX MCR-UI-UI-NC - 2811446

### Accessories

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

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Module carrier - TC-D37SUB-ADIO16-EX-P-UNI - 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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### Power module

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

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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### Test plug terminal block

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### Accessories

Test plugs - MPS-MT - 0201744



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

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