

## 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.

### Product Features

- 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
Weight per Piece (excluding packing)	160.0 g
Custom tariff number	85437090
Country of origin	Germany

### Technical data

Note

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

## 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	99 mm
Depth	114.5 mm

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	≤ 2000 m
Degree of protection	IP20

### Input data

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
	0 V ... 50 V
	0 V ... 100 V
	-50 mV ... 50 mV
	-60 mV ... 60 mV
	-75 mV ... 75 mV

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### Technical data

#### Input data

	-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 ... 0.001 A (Configurable via DIP switches)
	0 mA
	0 mA ... 0.002 A
	0 mA ... 0.003 A
	0 mA ... 0.005 A
	0 mA ... 0.01 A
	0 mA ... 0.015 A
	0 mA ... 0.02 A
	0 mA ... 0.03 A
	0 mA ... 0.05 A
	0 mA ... 0.1 A
	-1 mA ... 0.001 A
	-1.5 mA ... 0.0015 A
	-2 mA ... 0.002 A
	-3 mA ... 0.003 A
	-5 mA ... 0.005 A
	-10 mA ... 0.01 A
	-15 mA ... 0.015 A

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### Technical data

#### Input data

	-20 mA ... 0.02 A
	-30 mA ... 0.03 A
	-50 mA ... 0.05 A
	-100 mA ... 0.1 A
	1 mA ... 0.005 A
	2 mA ... 0.01 A
	4 mA ... 0.02 A
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

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 ... 0.005 A
	0 mA ... 0.01 A
	0 mA ... 0.02 A (please indicate if different setting when ordering)
	1 mA ... 0.005 A
	2 mA ... 0.01 A
	4 mA ... 0.02 A
	-5 mA ... 0.005 A
	-10 mA ... 0.01 A
	-20 mA ... 0.02 A
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>

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## Technical data

### Power supply

Supply voltage range	12 V DC ... 24 V DC (-20% / +25%)
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### Connection data

Connection method	Screw connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	14
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Stripping length	7 mm
Screw thread	M3

### 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 2004/108/EC
Color	green
Housing material	PA 66-FR
Mounting position	any
Conformance	CE-compliant
ATEX	# II 3 G Ex nA IIC T4 Gc
IECEX	Ex nA IIC T4 Gc
UL, USA / Canada	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T6
	Class I, Zone 2, Group IIC
Certificate of classification	DNV GL 11 564-14HH

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

## Technical data

### General

Functional Safety (SIL)	SIL 2
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### Safety characteristic data

Integrity requirement	IEC 61508 - Low demand
Designation	Input isolator (live zero signals)
Architecture	Single-channel, 1oo1
Equipment type	Type A
Safety Integrity Level (SIL)	Up to 2
Safe Failure Fraction (SFF)	83.43 %
MTBF	258 Years
$\lambda_{SU}$	$3.16 \times 10^{-7}$ (316 FIT)
$\lambda_{SD}$	0
$\lambda_{DU}$	$6.28 \times 10^{-8}$ (63 FIT)
$\lambda_{DD}$	0
Probability of a hazardous failure on demand (PFD <sub>AVG</sub> )	$2.76 \times 10^{-4}$ (1 year)
Diagnostic coverage (DC)	0 %
Integrity requirement	IEC 61508 - Low demand
Designation	Output isolator (live zero signals)
Architecture	Single-channel, 1oo1
Equipment type	Type A
Safety Integrity Level (SIL)	Up to 2
Safe Failure Fraction (SFF)	82.92 %
MTBF	258 Years
$\lambda_{SU}$	$3.14 \times 10^{-7}$ (314 FIT)
$\lambda_{SD}$	0
$\lambda_{DU}$	$6.48 \times 10^{-8}$ (65 FIT)
$\lambda_{DD}$	0
Probability of a hazardous failure on demand (PFD <sub>AVG</sub> )	$2.84 \times 10^{-4}$ (1 year)
Diagnostic coverage (DC)	0 %
Integrity requirement	IEC 61508 - High demand
Designation	Input isolator (live zero signals)
Architecture	Single-channel, 1oo1
Equipment type	Type A
Safety Integrity Level (SIL)	Up to 2
Safe Failure Fraction (SFF)	83.43 %
MTBF	258 Years
$\lambda_{SU}$	$3.16 \times 10^{-7}$ (316 FIT)

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### Technical data

#### Safety characteristic data

$\lambda_{SD}$	0
$\lambda_{DU}$	$6.28 \times 10^{-8}$ (63 FIT)
$\lambda_{DD}$	0
Probability of a hazardous failure per hour (PFH <sub>D</sub> )	$6,28 \times 10^{-8}$
Diagnostic coverage (DC)	0 %
Integrity requirement	IEC 61508 - High demand
Designation	Output isolator (live zero signals)
Architecture	Single-channel, 1oo1
Equipment type	Type A
Safety Integrity Level (SIL)	Up to 2
Safe Failure Fraction (SFF)	82.92 %
MTBF	258 Years
$\lambda_{SU}$	$3.14 \times 10^{-7}$ (314 FIT)
$\lambda_{SD}$	0
$\lambda_{DU}$	$6.48 \times 10^{-8}$ (65 FIT)
$\lambda_{DD}$	0
Probability of a hazardous failure per hour (PFH <sub>D</sub> )	$6,48 \times 10^{-8}$
Diagnostic coverage (DC)	0 %

#### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC
Conformance	CE-compliant
ATEX	# II 3 G Ex nA IIC T4 Gc
IECEX	Ex nA IIC T4 Gc
UL, USA / Canada	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T6
	Class I, Zone 2, Group IIC

### Classifications

#### eCl@ss

eCl@ss 4.0	27210120
eCl@ss 4.1	27210120
eCl@ss 5.0	27210120
eCl@ss 5.1	27210120
eCl@ss 6.0	27210120
eCl@ss 7.0	27210120

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## Classifications

eCl@ss

eCl@ss 8.0	27210120
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## ETIM

ETIM 2.0	EC001485
ETIM 3.0	EC001485
ETIM 4.0	EC001485
ETIM 5.0	EC002653

## UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	39121008

## Approvals

### Approvals

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Approvals

Functional Safety / UL Listed / cUL Listed / GL / EAC / cULus Listed

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Ex Approvals

IECEx / UL Listed / cUL Listed / ATEX / cULus Listed

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Approvals submitted

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### Approval details

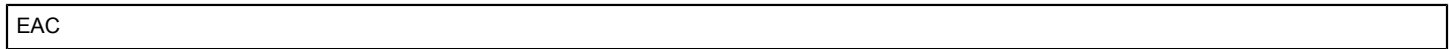
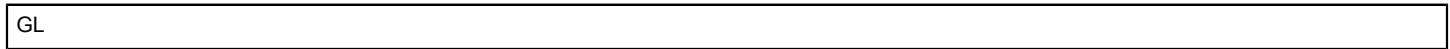
Functional Safety
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UL Listed 
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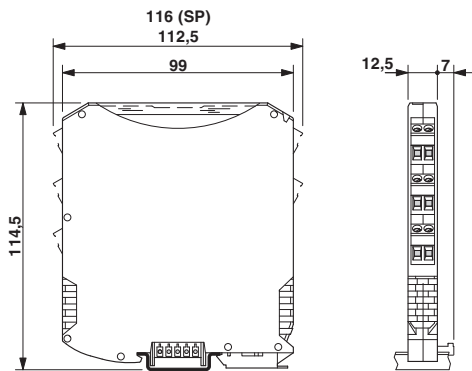
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## Approvals



## Drawings

Dimensional drawing



Block diagram

