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Especialistas en Automatización

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Isolation amplifier - MACX MCR-EX-SL-2NAM-R-UP-SP - 2924249

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2-channel Ex-i NAMUR isolation amplifier with wide-range power supply for proximity sensors and switches. Every channel has a relay with PDT contact as a signal output. Line fault detection (LFD), 3-way isolation, SIL 2.

The illustration shows the versions with screw connection

Why buy this product

- Up to SIL 2 according to EN 61508
- Installation in zone 2, protection type "n" (EN 60079-15) permitted
- Line fault detection (LFD), can be activated/deactivated, error indicated by red flashing LED with de-excitation of output relay
- Wide-range power supply of 19.2 ... 253 V AC/DC
- Direction of operation can be selected (operating or closed circuit current behavior)
- LED indicators for supply voltage, switching state, and malfunction according to NAMUR NE 44
- Relay signal output (PDT)
- Input for NAMUR proximity sensors (EN 60947-5-6), floating contacts or contacts with resistance circuit, [Ex ia] IIC
- 3-way electrical isolation
- 2-channel



Key Commercial Data

Packing unit	1 STK
GTIN	4 046356 463683

Technical data

Note

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

Width	17.5 mm
Height	99 mm

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Technical data

Dimensions

Depth	114.5 mm
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Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Noise immunity	EN 61000-6-2
Degree of protection	IP20

Input data

Non-load voltage	~ 8 V DC
Switching points (attenuated)	< 1.2 mA (blocking)
Switching points (unattenuated)	> 2.1 mA (conductive)

Output data

Switching output	Relay output
Contact type	1 PDT per channel
Contact material	AgSnO ₂ , hard gold-plated
Maximum switching voltage	250 V AC (2 A, 60 Hz)
	120 V DC (0.2 A)
	30 V DC (2 A)
Maximum switching capacity	500 VA
Mechanical service life	10 ⁷ cycles

Power supply

Supply voltage range	24 V ... 230 V AC/DC (-20 % ... +10 %, 50 Hz ... 60 Hz)
Max. current consumption	< 80 mA
Power consumption	≤ 1.3 W
	< 1.9 W

Connection data

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

General

No. of channels	2
Step response (10-90%)	typ. 6 ms (N/O contact: OFF/ON)

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Technical data

General

	typ. 6 ms (N/O contact: ON/OFF)
	typ. 4 ms (N/C contact: ON/OFF)
	typ. 10 ms (N/C contact: OFF/ON)
Status display	Green LED (supply voltage, PWR)
	LED yellow (switching state)
	Red LED (line errors)
Flammability rating according to UL 94	V0
Degree of pollution	2
Overvoltage category	III
Housing material	PA 66-FR
Color	green
Designation	Input/output
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Designation	Input/power supply
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
	300 V _{rms} (Rated insulation voltage (overvoltage category II; degree of pollution 2, safe isolation as per EN 61010-1))
	2.5 kV AC (50 Hz, 1 min., test voltage)
Designation	Output 1/output 2/input, power supply
Electrical isolation	300 V _{rms} (Rated insulation voltage (overvoltage category III; degree of pollution 2, safe isolation as per EN 61010-1))
	2.5 kV (50 Hz, 1 min., test voltage)
Conformance	CE-compliant, additionally EN 61326
ATEX	# 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 X
IECEX	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex nA nC [ia Ga] IIC T4 Gc
UL, USA / Canada	Class I Div 2; IS for Class I, II, III Div 1
Functional Safety (SIL)	SIL 2

Safety data

Max. output voltage U _o	9.56 V
Max. output current I _o	10.3 mA
Max. output power P _o	25 mW
Group	IIC
Max. external inductivity L _o	300 mH
Max. external capacity C _o	3.6 µF
Group	IIB/IIIC
Max. external inductivity L _o	1000 mH

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Technical data

Safety data

Max. external capacity C_o	26 μ F
Safety-related maximum voltage U_m	253 V AC/DC (Supply terminals)

EMC data

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
Evaluation criterion	A
Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Evaluation criterion	A
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Evaluation criterion	A

Standards and Regulations

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
Evaluation criterion	A
Standards/regulations	EN 61000-4-4
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Evaluation criterion	A
Flammability rating according to UL 94	V0
Conformance	CE-compliant, additionally EN 61326
ATEX	# 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 X
IECEX	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex nA nC [ia Ga] IIC T4 Gc
UL, USA / Canada	Class I Div 2; IS for Class I, II, III Div 1
Group	IIC
	IIB/IIIC

Classifications

eCl@ss

eCl@ss 4.0	27210121
eCl@ss 4.1	27210121
eCl@ss 5.0	27210121
eCl@ss 5.1	27210121
eCl@ss 6.0	27210121

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Classifications

eCl@ss

eCl@ss 7.0	27210121
eCl@ss 8.0	27210121

ETIM

ETIM 2.0	EC001430
ETIM 3.0	EC001599
ETIM 4.0	EC001485
ETIM 5.0	EC001485

UNSPSC

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

Approvals

Approvals

Approvals

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

Ex Approvals

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

Approvals submitted

Approval details

Functional Safety

UL Listed

cUL Listed

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Approvals

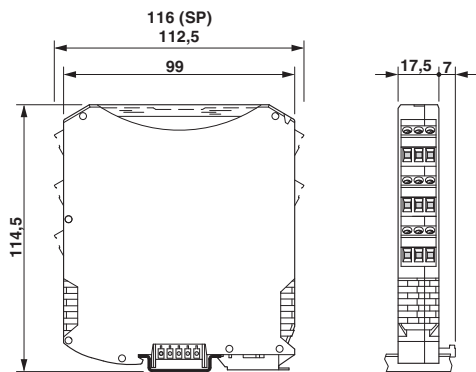
GL

EAC

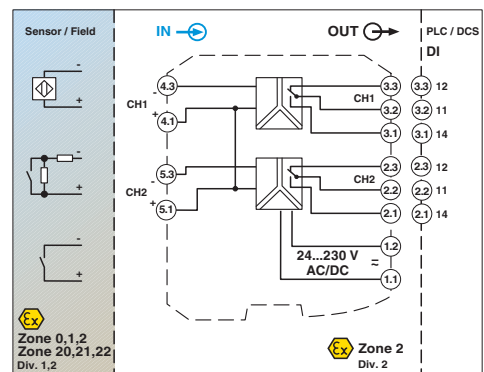
cULus Listed

Drawings

Dimensional drawing

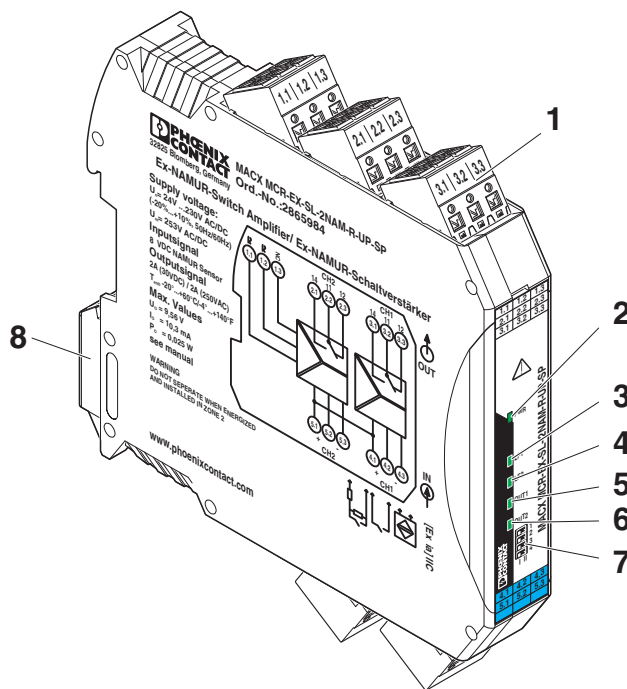


Block diagram



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Schematic diagram



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Product	Code	Reference	Product link
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