

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

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://download.phoenixcontact.com>)



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

Product Features

- 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

| | |
|------------------|---------------|
| package_quantity | 1 |
| GTIN | 4046356463683 |

Technical data

Note:

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

Dimensions

| | |
|--------|----------|
| Width | 17.5 mm |
| Height | 99 mm |
| Depth | 114.5 mm |

Ambient conditions

| | |
|---|------------------|
| Ambient temperature (operation) | -20 °C ... 60 °C |
| Ambient temperature (storage/transport) | -40 °C ... 80 °C |

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

Technical data

Ambient conditions

| | |
|---|---|
| Maximum altitude | ≤ 2000 m |
| Permissible humidity (operation) | 10 % ... 95 % (no condensation) |
| Noise immunity | EN 61000-6-2 When being exposed to interference, there may be minimal deviations. |
| Degree of protection | IP20 |

Input data

| | |
|--|-----------------------|
| Non-load voltage | 8 V DC ±10 % |
| 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) |
| Maximum switching voltage | 120 V DC (0.2 A) |
| Maximum switching voltage | 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 ... 60 Hz) |
| Max. current consumption | < 80 mA |
| Power consumption | ≤ 1.3 W |

Connection data

| | |
|---|---------------------|
| Conductor cross section solid min. | 0.2 mm ² |
| Conductor cross section solid max. | 1.5 mm ² |
| Conductor cross section stranded min. | 0.2 mm ² |
| Conductor cross section stranded max. | 1.5 mm ² |
| Conductor cross section AWG/kcmil min. | 24 |
| Conductor cross section AWG/kcmil max | 16 |
| Stripping length | 8 mm |
| Connection method | Spring-cage conn. |

General

| | |
|-------------------------------|----------------------------------|
| No. of channels | 2 |
| Step response (10-90%) | typ. 6 ms (N/O contact: OFF/ON) |
| Step response (10-90%) | typ. 6 ms (N/O contact: ON/OFF) |
| Step response (10-90%) | typ. 4 ms (N/C contact: ON/OFF) |
| Step response (10-90%) | typ. 10 ms (N/C contact: OFF/ON) |
| Status display | Green LED (supply voltage, PWR) |
| Status display | LED yellow (switching state) |

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

Technical data

General

| | |
|---|--|
| Status display | Red LED (line errors) |
| Inflammability class according to UL 94 | V0 |
| Pollution degree | 2 |
| Surge voltage category | III |
| Housing material | PA 66-FR |
| Color | green |
| Name | Input/output |
| Electrical isolation | 375 V (Peak value in accordance with EN 60079-11) |
| Name | Input/power supply |
| Electrical isolation | 375 V (Peak value in accordance with EN 60079-11) |
| Electrical isolation | 300 V _{rms} (Rated insulation voltage (surge voltage category II; pollution degree 2, safe isolation as per EN 61010-1)) |
| Electrical isolation | 2.5 kV AC (50 Hz, 1 min., test voltage) |
| Name | Output 1/output 2/input, power supply, T connector |
| Electrical isolation | 300 V _{rms} (Rated insulation voltage (surge voltage category III; pollution degree 2, safe isolation as per EN 61010-1)) |
| Electrical isolation | 2.5 kV (50 Hz, 1 min., test voltage) |
| Conformance | CE-compliant, additionally EN 61326 |
| ATEX | # II (1) G [Ex ia Ga] IIC |
| ATEX | # II (1) D [Ex ia Da] IIIC |
| ATEX | # II 3(1) G Ex nA nC [ia Ga] IIC T4 Gc X |
| IECEX | [Ex ia Ga] IIC |
| IECEX | [Ex ia Da] IIIC |
| IECEX | Ex nA nC [ia Ga] IIC T4 Gc |
| UL, USA / Canada | Class I Div 2; IS for Class I, II, III Div 1 |

Safety data

| | |
|--|---------|
| Max. output voltage U _o | 9.6 V |
| Max. output current I _o | 10.3 mA |
| Max. output power P _o | 25 mW |
| Gas group | IIC |
| Max. external inductivity L _o | 100 mH |
| Max. external capacity C _o | 0.5 µF |
| Gas group | IIC |
| Max. external inductivity L _o | 10 mH |
| Max. external capacity C _o | 0.75 µF |
| Gas group | IIC |
| Max. external inductivity L _o | 1 mH |
| Max. external capacity C _o | 1.2 µF |
| Gas group | IIB |
| Max. external inductivity L _o | 100 mH |
| Max. external capacity C _o | 2.7 µF |

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

Technical data

Safety data

| | |
|--------------------------------------|--------------------------------|
| Gas group | IIB |
| Max. external inductivity L_o | 10 mH |
| Max. external capacity C_o | 3.9 μ F |
| Gas group | IIB |
| Max. external inductivity L_o | 1 mH |
| Max. external capacity C_o | 6.3 μ F |
| Safety-related maximum voltage U_m | 253 V AC/DC (Supply terminals) |

EMC data

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

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 |
| 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 |

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

approvals

IECEEx / ATEX / Functional Safety /

Approval details

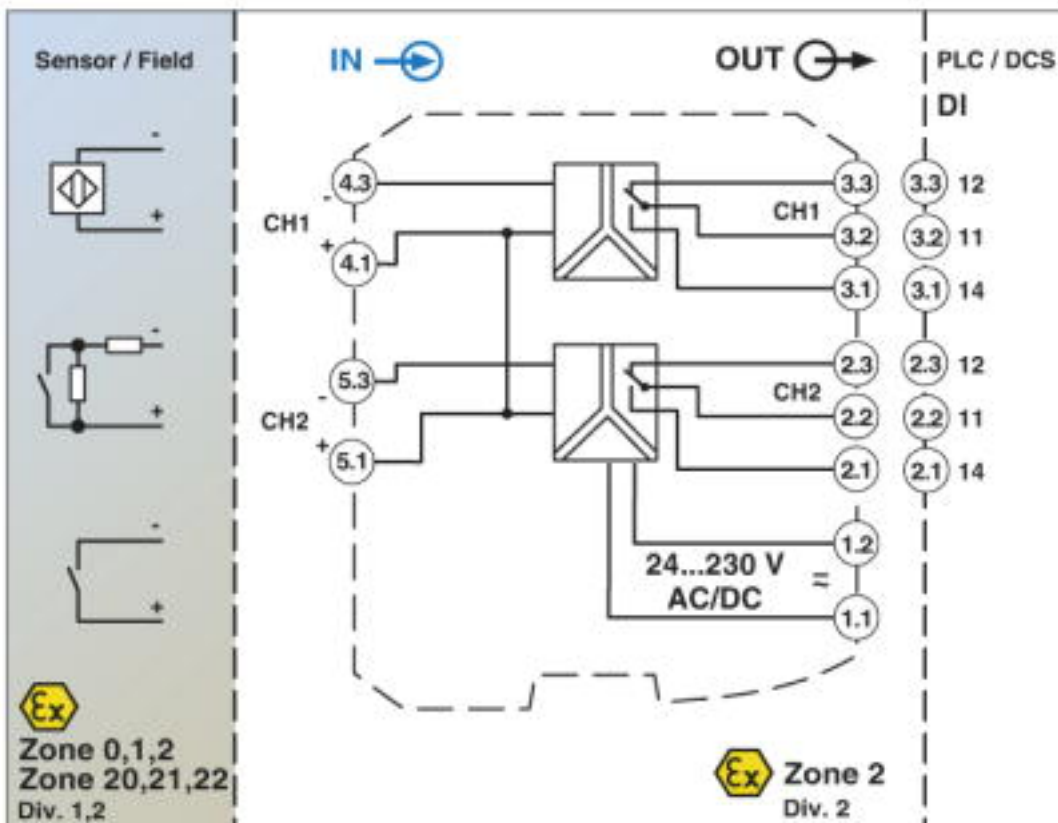
IECEEx

ATEX

Functional Safety

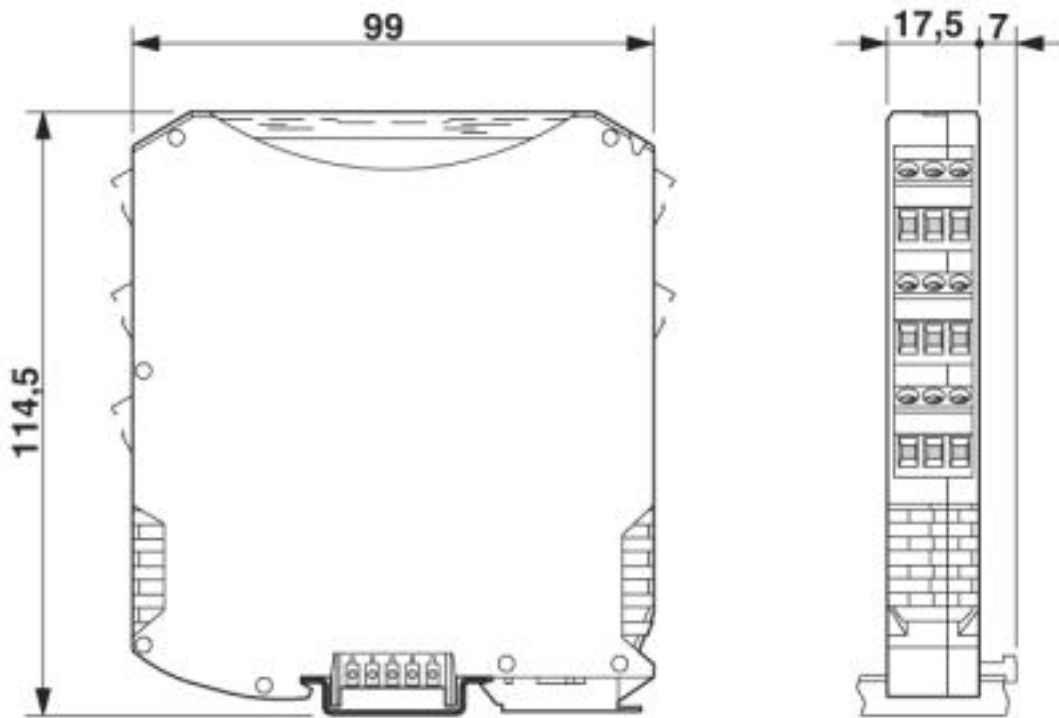
Drawings

Block diagram



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

Dimensioned drawing



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

Schematic diagram

