

Signal isolator - MACX MCR-EX-SL-NAM-NAM-SP - 2924883

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Ex i NAMUR signal conditioners. For operating Ex i proximity sensors and switches in hazardous areas. Passive transistor output (resistive according to EN 60947-5-6), line fault transparency, up to SIL 2 according to IEC 61508; Push-in connection

Your advantages

- ✔ Signal input: intrinsically safe [Ex ia]; for NAMUR proximity sensors (EN 60947-5-6) or switch contacts
- ✔ Signal output with resistive behavior (transistor), according to EN 60947-5-6
- ✔ Signal output with line fault transparency, line fault indication directly via the signal output to SPS or PLS
- ✔ Up to 5 kHz switching frequency
- ✔ Direction of operation can be selected
- ✔ Line fault detection (LFD) can be enabled and disabled
- ✔ SIL 2 according to IEC 61508/EN 61508
- ✔ 3-way electrical isolation
- ✔ Power supply and error indication possible via DIN rail connector
- ✔ Plug-in connection terminals, push-in connection technology
- ✔ Installation in zone 2 permitted
- ✔ Housing width: 12.5 mm



Key Commercial Data

| | |
|--------------|---------------|
| Packing unit | 1 pc |
| GTIN | |
| GTIN | 4046356667852 |

Technical data

Note

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

Dimensions

| | |
|--------|---------|
| Width | 12.5 mm |
| Height | 99 mm |

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Technical data

Dimensions

| | |
|-------|----------|
| Depth | 114.5 mm |
|-------|----------|

Ambient conditions

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

Input data

| | |
|---------------------------------|--|
| Non-load voltage | 8 V DC ±10 % |
| Switching points (attenuated) | < 1.2 mA (blocking) |
| Switching points (unattenuated) | > 2.1 mA (conductive) |
| Signal input | Intrinsically safe |
| Available input sources | NAMUR proximity sensors (EN 60947-5-6) |
| Switching hysteresis | < 0.2 mA |
| Line fault detection | Break 0.05 mA < IIN < 0.35 mA |
| | Short circuit 100 Ω < RSensor < 360 Ω |

Output data

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|------------------|---------------------------------|
| Switching output | Resistive (transistor, passive) |
|------------------|---------------------------------|

Power supply

| | |
|------------------------|--|
| Nominal supply voltage | 24 V DC |
| Supply voltage range | 9.6 V DC ... 30 V DC (12 V DC ... 24 V DC (-20 % ... +25 %)) |
| Power dissipation | < 0.6 W |
| Power consumption | < 600 mW |

Connection data

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

Connection data 2

| | |
|-----------------|-------------|
| Connection name | Test socket |
| Max. diameter | 2.3 mm |

General

| | |
|-----------------|------------------------------|
| No. of channels | 1 |
| Status display | Green LED (supply voltage) |
| | LED yellow (switching state) |
| | Red LED (line errors) |

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Technical data

General

| | |
|--|--|
| Flammability rating according to UL 94 | V0 |
| Degree of pollution | 2 |
| Overvoltage category | II |
| Electromagnetic compatibility | Conformance with EMC directive |
| Interference emission | EN 61000-6-4 |
| Housing material | PA 6.6-FR |
| Color | gray |
| Designation | Input/output |
| Electrical isolation | 375 V (Peak value in accordance with EN 60079-11) |
| Designation | Input/output/supply, DIN rail connector |
| Electrical isolation | 300 V _{rms} (Rated insulation voltage (overvoltage category II; degree of pollution 2, safe isolation as per EN 61010-1)) |
| | 2.5 kV (50 Hz, 1 min., test voltage) |
| Designation | Input/supply, DIN rail connector |
| Electrical isolation | 375 V (Peak value in accordance with EN 60079-11) |
| Conformance | CE-compliant, additionally EN 61326 |
| ATEX | # II (1) G [Ex ia Ga] IIC |
| | # II (1) D [Ex ia Da] IIIC |
| | # II 3G Ex nA IIC T4 Gc X |
| IECEX | [Ex ia Ga] IIC |
| | [Ex ia Da] IIIC |
| | Ex nA IIC T4 Gc |
| UL, USA/Canada | UL 61010 Listed |
| SIL | 2 |

Safety characteristic data

| | |
|------------------------------|---|
| Safety Integrity Level (SIL) | 1 |
| | 1 |

Safety data

| | |
|--|------------|
| Max. internal inductance L _i | negligible |
| Max. internal capacitance C _i | negligible |
| Max. output voltage U _o | 9.6 V |
| Max. output current I _o | 10 mA |
| Max. output power P _o | 25 mW |
| Group | IIC |
| Max. external inductivity L _o | 100 mH |
| Max. external capacity C _o | 3.6 µF |
| Group | IIB/IIIC |
| Max. external inductivity L _o | 100 mH |
| Max. external capacity C _o | 26 µF |
| Group | IIA |

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Technical data

Safety data

| | |
|--------------------------------------|-------------|
| Max. external inductivity L_o | 1000 mH |
| Max. external capacity C_o | 210 μ F |
| Safety-related maximum voltage U_m | 253 V AC/DC |

Standards and Regulations

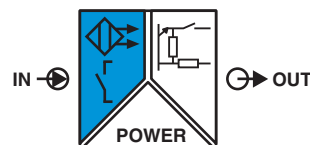
| | |
|--|-------------------------------------|
| Electromagnetic compatibility | Conformance with EMC directive |
| Noise emission | EN 61000-6-4 |
| Flammability rating according to UL 94 | V0 |
| Conformance | CE-compliant, additionally EN 61326 |
| ATEX | # II (1) G [Ex ia Ga] IIC |
| | # II (1) D [Ex ia Da] IIIC |
| | # II 3G Ex nA IIC T4 Gc X |
| IECEX | [Ex ia Ga] IIC |
| | [Ex ia Da] IIIC |
| | Ex nA IIC T4 Gc |
| UL, USA/Canada | UL 61010 Listed |
| Group | IIC |
| | IIB/IIIC |
| | IIA |

Environmental Product Compliance

| | |
|------------|---|
| China RoHS | Environmentally Friendly Use Period = 50 |
| | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

Drawings

Pictogram



Signal isolator - MACX MCR-EX-SL-NAM-NAM-SP - 2924883

Approvals

Approvals

Approvals

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

Ex Approvals

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

Approval details

| | | | |
|-----------|--|---|---------------|
| UL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 330267 |
|-----------|--|---|---------------|

| | | | |
|------------|--|---|---------------|
| cUL Listed | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 330267 |
|------------|--|---|---------------|

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|-------------------|--|--|------------------------|
| Functional Safety | | | 12/06-054 R016 V2R0 |
|-------------------|--|--|------------------------|

| | | | |
|--------|--|---|------------|
| DNV GL | | https://approvalfinder.dnvgl.com/ | TAA000020C |
|--------|--|---|------------|

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|--------------|--|--|--|
| cULus Listed | | | |
|--------------|--|--|--|

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