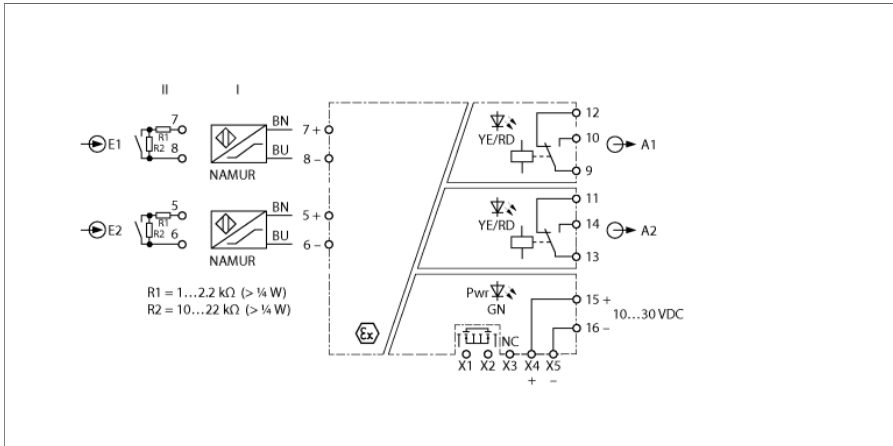


# Isolating switching amplifier 2-channel IMX12-DI01-2S-2R-PR/24VDC/CC



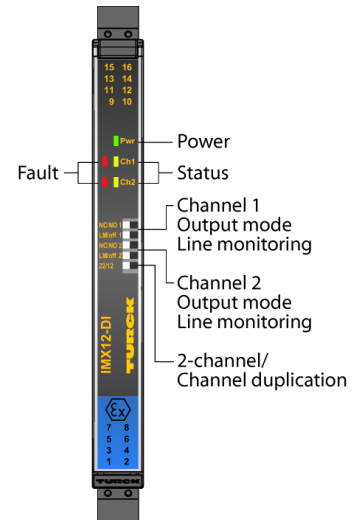
Sensors according to EN 60947-5-6 (NAMUR) or potential-free contacts can be connected to the IMX12-DI01-2S-2R-PR/24VDC/CC isolating switching amplifier. The device is equipped with intrinsically safe input circuits and can be installed in zone 2. A DIP switch allows toggling of the device between 2-channel or 1-channel operating mode with signal doubling. The output circuits are equipped with two changeover relays. The device can be powered from a power bridge that also transmits a collective fault signal. The device complies with the requirements of NE21.

The devices feature DIP switches on the front. This allows to select between the output mode, the input circuit monitoring, as well as toggle between signal duplication and 1-channel operation. When using mechanical contacts, either line monitoring must be switched off or the contact must be wired with resistors (see wiring diagram).

The green LED indicates operational readiness. An error in the input circuit causes the red LED to flash according to NE44. The relay of the corresponding output circuit drops out and the common alarm output switches to conductive.

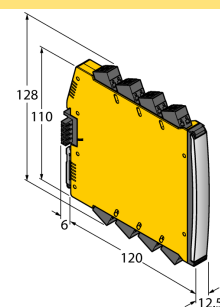
The device can be used in safety circuits up to SIL2 (high and low demand according to IEC 61508).

The device is equipped with removable spring type terminals.



- 2 relay outputs (complementary contact)
- Switchable: 2-channel or signal doubling
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Complete galvanic isolation
- Input reverse-polarity protected
- Removable spring type terminals
- Power bridge (connector incl. in delivery)
- ATEX, IECEx, NEPSI, cUL, cFM, IN-METRO, Kosha, TIIS, DNV, GL
- Use in Zone 2
- SIL 2

## Dimensions



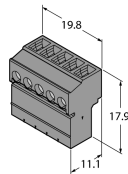
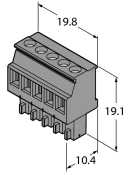
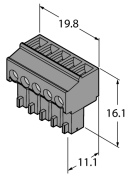
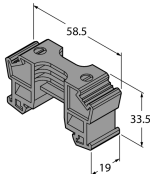
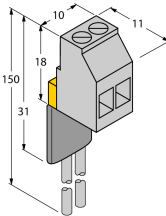
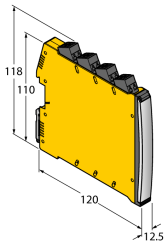
## Output relay – Load curve



|                                            |                                                                                                                                                                                               |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                                       | IMX12-DI01-2S-2R-PR/24VDC/CC                                                                                                                                                                  |
| ID                                         | 7580019                                                                                                                                                                                       |
| Nominal voltage                            | 24 VDC                                                                                                                                                                                        |
| Operating voltage $U_s$                    | 10...30 VDC                                                                                                                                                                                   |
| Power consumption                          | $\leq 1.2 \text{ W}$                                                                                                                                                                          |
| Power dissipation, typical                 | $\leq 1.04 \text{ W}$                                                                                                                                                                         |
| Input                                      | 2-channel or 1-channel with signal doubling                                                                                                                                                   |
| NAMUR input                                |                                                                                                                                                                                               |
| NAMUR                                      | EN 60947-5-6                                                                                                                                                                                  |
| Input circuit monitoring                   | on/off switchable                                                                                                                                                                             |
| No-load voltage                            | 8.2 VDC                                                                                                                                                                                       |
| Short-circuit current                      | 8.2 mA                                                                                                                                                                                        |
| Input resistance                           | 1 k $\Omega$                                                                                                                                                                                  |
| Cable resistance                           | $\leq 50 \Omega$                                                                                                                                                                              |
| Switch-on threshold                        | 1.75 mA                                                                                                                                                                                       |
| Switch-off threshold                       | 1.55 mA                                                                                                                                                                                       |
| Wire breakage threshold                    | $\leq 0.06 \text{ mA}$                                                                                                                                                                        |
| Short-circuit threshold                    | $\geq 6.4 \text{ mA}$                                                                                                                                                                         |
| Output circuits                            |                                                                                                                                                                                               |
| Output circuits (digital)                  | 2 x relays (change-over)                                                                                                                                                                      |
| Output switching voltage relay             | $\leq 30 \text{ VDC} / \leq 250 \text{ VAC}$                                                                                                                                                  |
| Switching current per output               | $\leq 2 \text{ A}$                                                                                                                                                                            |
| Switching capacity per output              | $\leq 500 \text{ VA}/60 \text{ W}$                                                                                                                                                            |
| Switching frequency                        | $\leq 15 \text{ Hz}$                                                                                                                                                                          |
| Contact quality                            | AgNi, 0.3 $\mu$ Au                                                                                                                                                                            |
| Power-Bridge common alarm output           | MOSFET, $U_{\text{max}} = 30 \text{ V}$ , $I_{\text{max}} = 100 \text{ mA}$                                                                                                                   |
| Galvanic isolation                         |                                                                                                                                                                                               |
| Test voltage                               | 2.5 kV RMS                                                                                                                                                                                    |
| Input 1 to output 1                        | 375 V peak value acc. to EN 60079-11                                                                                                                                                          |
| Input 2 to output 2                        | 375 V peak value acc. to EN 60079-11                                                                                                                                                          |
| Input 1 to supply                          | 375 V peak value acc. to EN 60079-11                                                                                                                                                          |
| Input 2 to supply                          | 375 V peak value according to EN 60079-11                                                                                                                                                     |
| Output 1 to supply                         | 300 V RMS acc. to EN 50178 and EN 61010-1                                                                                                                                                     |
| Output 2 to supply                         | 300 V RMS acc. to EN 50178 and EN 61010-1                                                                                                                                                     |
| Output 1 to output 2                       | 300 V RMS acc. to EN 50178 and EN 61010-1                                                                                                                                                     |
| Important note                             | For Ex-applications the values specified in the corresponding Ex certificates (ATEX, IECEx, UL, etc.) apply.                                                                                  |
| Ex approval acc. to conformity certificate | TÜV 14 ATEX 147004 X                                                                                                                                                                          |
| Application area                           | II (1) G, II (1) D                                                                                                                                                                            |
| Ignition protection category               | [Ex ia Ga] IIC; [Ex ia Da] IIIC                                                                                                                                                               |
| Application area                           | II 3 (1) G                                                                                                                                                                                    |
| Ignition protection type                   | Ex nA nC [ia Ga] IIC T4 Gc                                                                                                                                                                    |
| Important note                             | If the device is used in applications to achieve functional safety according to IEC 61508, the safety manual must be used. Information in the data sheet are not valid for functional safety. |
| Use in SIL safety circuits                 | SIL 2 acc. to IEC 61508                                                                                                                                                                       |
| Displays/Operating elements                |                                                                                                                                                                                               |
| Operational readiness                      | Green                                                                                                                                                                                         |
| Switching state                            | Yellow                                                                                                                                                                                        |
| Error indication                           | red                                                                                                                                                                                           |

|                                  |                                           |                              |
|----------------------------------|-------------------------------------------|------------------------------|
| Mechanical data                  |                                           |                              |
| Protection class                 | IP20                                      |                              |
| Flammability class acc. to UL 94 | V-0                                       |                              |
| Ambient temperature              | -25...+70 °C                              |                              |
| Storage temperature              | -40...+80 °C                              |                              |
| Dimensions                       | 120 x 12.5 x 128 mm                       |                              |
| Weight                           | 178 g                                     |                              |
| Mounting instructions            | DIN rail (NS35)                           |                              |
| Housing material                 | Plastic, Polycarbonate/ABS                |                              |
| Electrical connection            | Removable spring-type terminals, 2-pin    |                              |
| Connection variant               | Power bridge with collective fault signal |                              |
| Terminal cross-section           | 0.2...2.5 mm <sup>2</sup> (AWG: 24...14)  |                              |
| Environmental conditions         | Operating height                          | Up to 2000 m above sea level |
|                                  | Pollution degree                          | II                           |
|                                  | Surge/Overvoltage category                | II (EN 61010-1)              |
|                                  | Standards used                            |                              |
|                                  | Voltage resistance and insulation         |                              |
|                                  |                                           | EN 50178                     |
|                                  |                                           | EN 61010-1                   |
|                                  |                                           | EN 50155                     |
|                                  |                                           | GL VI-7-2                    |
|                                  | Shock                                     |                              |
|                                  |                                           | EN 61373 class B             |
|                                  |                                           | EN 50155                     |
|                                  |                                           | GL VI-7-2                    |
|                                  |                                           | EN 60068-2-6                 |
|                                  |                                           | EN 60068-2-27                |
|                                  | Temperature                               |                              |
|                                  |                                           | EN 60068-2-1 Ad              |
|                                  |                                           | EN 50155                     |
|                                  |                                           | GL VI-7-2                    |
|                                  |                                           | EN 60068-2-2 Bd              |
|                                  |                                           | EN 60068-2-1                 |
|                                  | Air humidity                              |                              |
|                                  |                                           | EN 60068-2-38                |
|                                  | EMC                                       |                              |
|                                  |                                           | EN 50155                     |
|                                  |                                           | GL VI-7-2                    |
|                                  |                                           | NE21                         |
|                                  |                                           | EN 61326-1                   |
|                                  |                                           | EN 61326-3-1                 |
|                                  |                                           | EN 61000-4-2                 |
|                                  |                                           | EN 61000-4-3                 |
|                                  |                                           | EN 61000-4-4                 |
|                                  |                                           | EN 61000-4-5                 |
|                                  |                                           | EN 61000-4-6                 |
|                                  |                                           | EN 61000-4-11                |
|                                  |                                           | EN 61000-4-29                |
|                                  |                                           | EN 55011                     |
|                                  |                                           | EN 55016                     |
|                                  |                                           | EN 50121-3-2                 |
|                                  |                                           | EN 61000-6-2                 |

## Accessories

| Type code                     | Ident no. |                                                                                                                                                                                                                                                                                                   | Dimension drawing                                                                     |
|-------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| IMC 1.5/ 5-ST-3.81 BK         | 7580954   | Power Bridge Connection Terminal                                                                                                                                                                                                                                                                  |    |
| MCVR 1.5/ 5-ST-3.81 BK        | 7580955   | Power Bridge Connection Terminal                                                                                                                                                                                                                                                                  |    |
| MC 1.5/ 5-ST-3.81 BK          | 7580956   | Power Bridge Connection Terminal                                                                                                                                                                                                                                                                  |   |
| E/ME TBUS NS35 BK             | 7580957   | Power Bridge Connection Terminal                                                                                                                                                                                                                                                                  |  |
| WM1 WIDER-STANDSMODUL         | 0912101   | The resistor module WM1 meets the requirements for line monitoring between a mechanical contact and a TURCK signal processor. The input circuit of the signal processor is designed for sensors acc. to EN60947-5-6 (NAMUR) and equipped with a wire-break and short-circuit monitoring function. |  |
| IMX12-PS02-UI-UIR-PR/24VDC/CC | 7580611   | Power supply module power bridge; Collective fault signal via relay; Single and redundant power supply via terminals; Removable screw terminals                                                                                                                                                   |  |

## Accessories

| Type code       | Ident no. |                                                                                            | Dimension drawing |
|-----------------|-----------|--------------------------------------------------------------------------------------------|-------------------|
| IMX12-SC-2X-4BK | 7580940   | Screw terminals for IM(X)12 modules; included in delivery: 4 pcs. of 2-pin black terminals |                   |
| IMX12-SC-2X-4BU | 7580941   | Screw terminals for IM(X) 12 modules; included in delivery: 4 pcs. of 2-pin blue terminals |                   |
| IMX12-CC-2X-4BK | 7580942   | Spring terminals for IM(X)12 modules; included in delivery: 4 pcs. black terminals, 2-pin  |                   |
| IMX12-CC-2X-4BU | 7580943   | Spring terminals for IM(X)12 modules; included in delivery: 4 pcs. blue terminals, 2-pin   |                   |