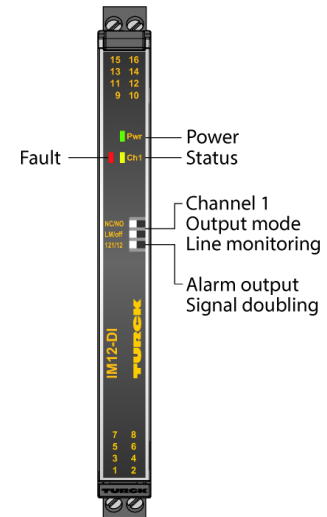
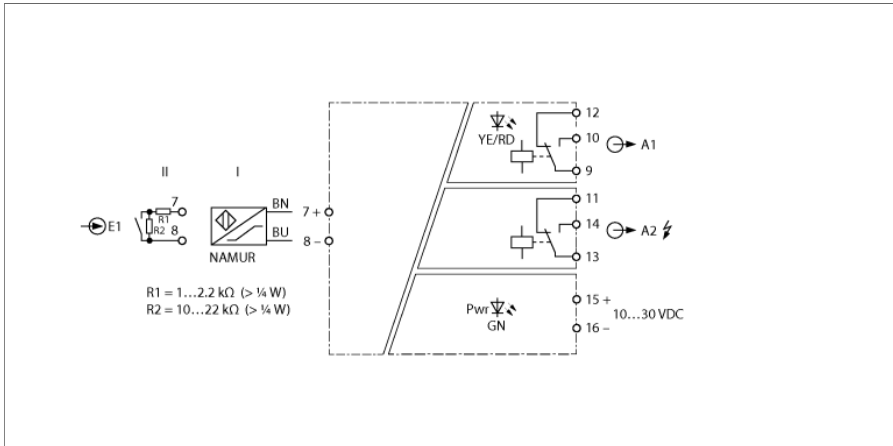


# Isolating switching amplifier 1-channel IM12-DI03-1S-2R-S/24VDC



Sensors according to EN 60947-5-6 (NAMUR) or potential-free contacts can be connected to the IMX12-DI03-1S-2R-S/24VDC isolating switching amplifier. The device can be installed in zone 2. The device can be switched between 1-channel operation with signal doubling or 1-channel operation with alarm message output using DIP switches. The output circuits are equipped with two changeover relays. The device complies with the requirements of the 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 Pwr LED lights green to indicate operational readiness. An error in the input circuit leads to a flashing red LED according to NE44. Thereupon the relay of the belonging output circuit drops out.

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

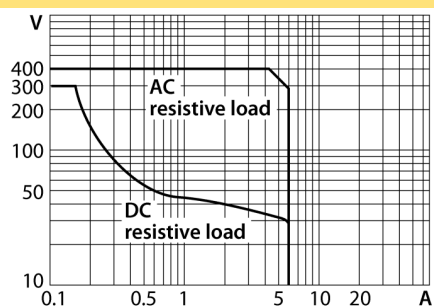
The device is equipped with removable screw terminals.

- Relay output (changeover contact)
- Alarm output (changeover contact)
- Switchable between: Alarm output or signal doubling
- Output mode adjustable (open-circuit/closed current mode)
- Input circuits monitored for wire break/short circuit (ON/OFF switchable)
- Complete galvanic isolation
- Input reverse-polarity protected
- Removable screw terminals
- ATEX use in Zone 2, cUL
- SIL 2

## Dimensions



## Output relay – Load curve



|                                    |                                                                                                                                                                                               |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                               | IM12-DI03-1S-2R-S/24VDC                                                                                                                                                                       |
| ID                                 | 7580028                                                                                                                                                                                       |
| Nominal voltage                    | 24 VDC                                                                                                                                                                                        |
| Operating voltage $U_s$            | 10...30 VDC                                                                                                                                                                                   |
| Power dissipation, typical         | $\leq 1.03$ W                                                                                                                                                                                 |
| <b>NAMUR input</b>                 |                                                                                                                                                                                               |
| 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            | $\leq 0.06$ mA                                                                                                                                                                                |
| Short-circuit threshold            | $\geq 6.4$ mA                                                                                                                                                                                 |
| <b>Output circuits</b>             |                                                                                                                                                                                               |
| Output circuits (digital)          | 1 x relay (change-over)                                                                                                                                                                       |
| Output switching voltage relay     | $\leq 30$ VDC / $\leq 250$ VAC                                                                                                                                                                |
| Switching current per output       | $\leq 2$ A                                                                                                                                                                                    |
| Switching capacity per output      | $\leq 500$ VA/60 W                                                                                                                                                                            |
| Switching frequency                | $\leq 10$ Hz                                                                                                                                                                                  |
| Contact quality                    | AgNi, 0.3 $\mu$ Au                                                                                                                                                                            |
| <b>Galvanic isolation</b>          |                                                                                                                                                                                               |
| Test voltage                       | 2.5 kV RMS                                                                                                                                                                                    |
| Input 1 to output 1                | 375 V peak value acc. to EN 60079-11                                                                                                                                                          |
| Input 1 to supply                  | 375 V peak value acc. 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                                                                                                                                                     |
| <b>Important note</b>              |                                                                                                                                                                                               |
| Important note                     | For Ex-applications the values specified in the corresponding Ex certificates (ATEX, IECEx, UL, etc.) apply.                                                                                  |
| 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                                                                                                                                                                       |
| <b>Displays/Operating elements</b> |                                                                                                                                                                                               |
| 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 117 mm               |                              |
| Weight                           | 163 g                             |                              |
| Mounting instructions            | DIN rail (NS35)                   |                              |
| Housing material                 | Plastic, Polycarbonate/ABS        |                              |
| Electrical connection            | Removable screw terminals, 2-pin  |                              |
| Terminal cross-section           | 0.2...2.5 mm² (AWG: 24...14)      |                              |
| Tightening torque                | 0.5 Nm                            |                              |
| Tightening torque                | 4.43 LBS-Inch                     |                              |
| 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 |
|-----------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 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-SC-2X-4BK       | 7580940   | Screw terminals for IM(X)12 modules; included in delivery: 4 pcs. of 2-pin black terminals                                                                                                                                                                                                        |                   |
| IMX12-CC-2X-4BK       | 7580942   | Spring terminals for IM(X)12 modules; included in delivery: 4 pcs. black terminals, 2-pin                                                                                                                                                                                                         |                   |