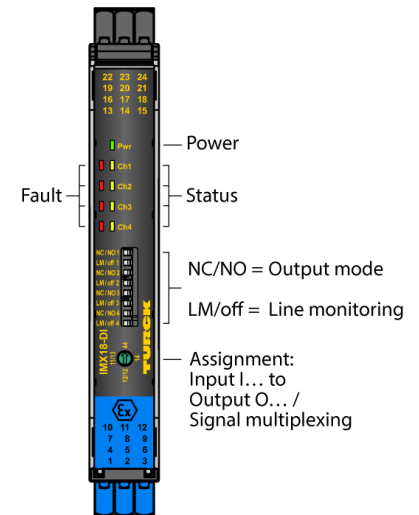
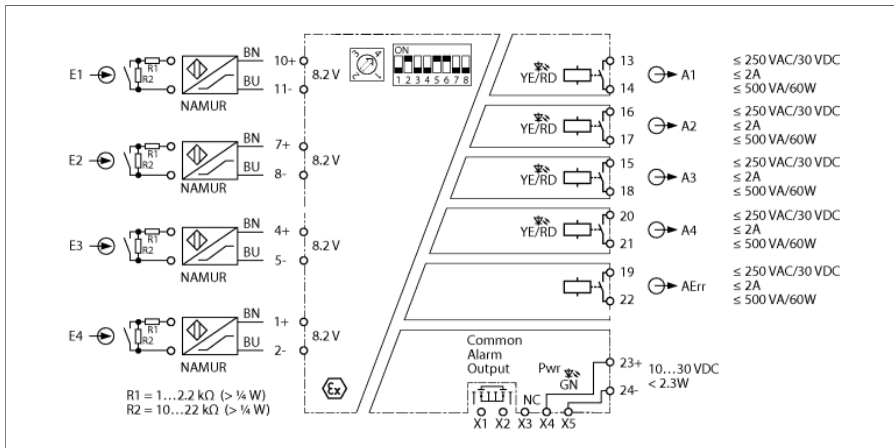


# Isolating switching amplifier 4-channel IMX18-DI03-4S-5R-SPR/24VDC/CC



The IMX18-DI03-... isolating switching amplifiers are equipped with intrinsically safe input circuits and transfer binary signals from the explosion-hazardous area to the non-explosion-hazardous area. Sensors according to EN 60947-5-6 (NAMUR) or potential-free contacts can be connected to the devices. The devices are also suitable for operation in Zone 2.

The IMX18-DI03-4S-5R-SPR/24VDC/CC isolating switching amplifier has a 4-channel design. The device complies with the requirements of NE21. During transmission, the signals of the connected sensors and mechanical contacts are galvanically isolated. The output circuits are each equipped with a relay output (NO/NC configurable). The input signals are interpreted as low or high signals depending on the input level, and are output as a corresponding output signal. A separate relay output (NO) for collective fault signals is also provided. Via the Power-Bridge connection, the device can be supplied and a collective fault signal can be transmitted.

The devices are configured via DIP and rotary coding switches on the front. The following operating modes are possible:

- 4-channel: Each input (E1, E2, E3, E4) is assigned an output (A1, A2, A3, A4)
- 4-way splitter: Input E1 is assigned output A1, A2, A3 and A4
- 2 × 2-way splitter: Input E1 is assigned output A1 and A2; input E3 is assigned output A3 and A4
- 1-channel + 3-way splitter: Input E1 is assigned output A1; input E2 is assigned output A2, A3 and A4

In addition, the input circuit monitoring for wire break and short circuit (on/off) and the output mode of the output circuits (NO/NC) can be configured for each channel. When using mechanical contacts, either line monitoring must be switched off or the contact must be wired with resistors (see wiring diagram).

The devices have a green power LED (Pwr). Each channel has a yellow status LED for the output and a red status LED for the input. A fault in the input circuit causes the red LED to flash according to NE44.

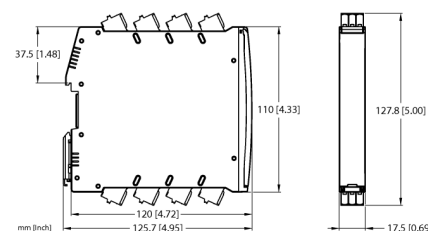
In the event of a fault (wire break or short circuit), the assigned outputs switch to the LOW level and the relay output for collective fault signals is activated. In addition, an error message is output via the Power-Bridge connection.

The device can be used in safety circuits up to SIL 2 (high and low demand according to IEC 61508) (hardware fault tolerance HFT = 0).

The device is equipped with removable spring-type terminals.

- 4-channel
- 4 relay outputs
- Separate relay output for collective fault signals (NO)
- Configuration via rotary and DIP switches
- 4-channel operation or signal multiplexing (switchable)
- Adjustable output mode (NO/NC)
- Input circuits monitored for wire break/short circuit (can be switched ON/OFF)
- Complete galvanic isolation
- Input reverse-polarity protected
- Removable spring-type terminals
- Power-Bridge (connector incl. in delivery)
- ATEX, IECEx
- Use in Zone 2
- SIL 2

|                            |                               |
|----------------------------|-------------------------------|
| Type                       | IMX18-DI03-4S-5R-SPR/24VDC/CC |
| ID                         | 100028616                     |
| Nominal voltage            | 24 VDC (SELV/PELV)            |
| Operating voltage          | 10...30 VDC                   |
| Power consumption          | ≤ 2.3 W                       |
| Power dissipation, typical | ≤ 1.9 W                       |



|                          |                   |
|--------------------------|-------------------|
| 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 kΩ              |
| Cable resistance         | ≤ 50 Ω            |
| Switch-on threshold      | 1.75 mA           |
| Switch-off threshold     | 1.55 mA           |
| Wire breakage threshold  | ≤ 0.06 mA         |
| Short-circuit threshold  | ≥ 6.4 mA          |

|                                |                      |
|--------------------------------|----------------------|
| Output circuits                |                      |
| Output circuits (digital)      | 5 x relays (NO)      |
| Output switching voltage relay | ≤ 30 VDC / ≤ 250 VAC |
| Switching current per output   | ≤ 2 A                |
| Switching capacity per output  | ≤ 500 VA/60 W        |
| Switching frequency            | ≤ 15 Hz              |
| Load type                      | Resistive load       |

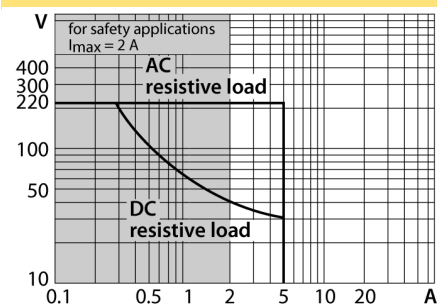
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|----------------------------------|------------------------------------------------------------|
| Power-Bridge common alarm output | MOSFET, U <sub>max</sub> = 30 V, I <sub>max</sub> = 100 mA |
|----------------------------------|------------------------------------------------------------|

|                    |                                           |
|--------------------|-------------------------------------------|
| Galvanic isolation |                                           |
| Test voltage       | 2.5 kV RMS                                |
| Output to supply   | 300 V RMS acc. to EN 50178 and EN 61010-1 |
| Output to output   | 300 V RMS acc. to EN 50178 and EN 61010-1 |
| Input to supply    | 375 V peak value acc. to EN 60079-11      |
| Input to output    | 375 V peak value acc. to EN 60079-11      |

|                                            |                                                                                                                                                                                               |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                                                                       |

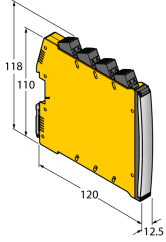
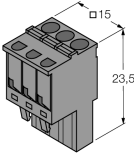
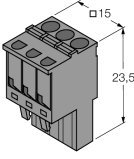
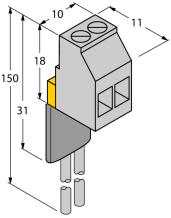
|                             |        |
|-----------------------------|--------|
| Displays/Operating elements |        |
| Operational readiness       | Green  |
| Switching state             | Yellow |
| Error indication            | red    |

## Output relay – Load curve



|                                  |                                           |                              |
|----------------------------------|-------------------------------------------|------------------------------|
| 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 17.5 x 128 mm                       |                              |
| Weight                           | 228 g                                     |                              |
| Mounting instructions            | DIN rail (NS35)                           |                              |
| Housing material                 | Polycarbonate/ABS                         |                              |
| Electrical connection            | Removable spring-type terminals, 3-pin    |                              |
| Connection variant               | Power bridge with collective fault signal |                              |
| Terminal cross-section           | 2.5 mm²                                   |                              |
| 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                                                                     |
|-------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 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                                                                                                                                                   |    |
| IM-CC-3X2BU/2BK               | 6900475   | Cage clamp terminals for IM modules (Ex-devices with 18 mm overall width); includes: 2 pcs. 3-pin blue terminals and 2 pcs. 3-pin black terminals.                                                                                                                                                |    |
| IM-CC-3X2BK/2BK               | 7541218   | Cage clamp terminals for IM modules ( Ex-devices with 18 mm overall width); includes: 4 pcs. of 3-pin black terminals                                                                                                                                                                             |   |
| 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. |  |