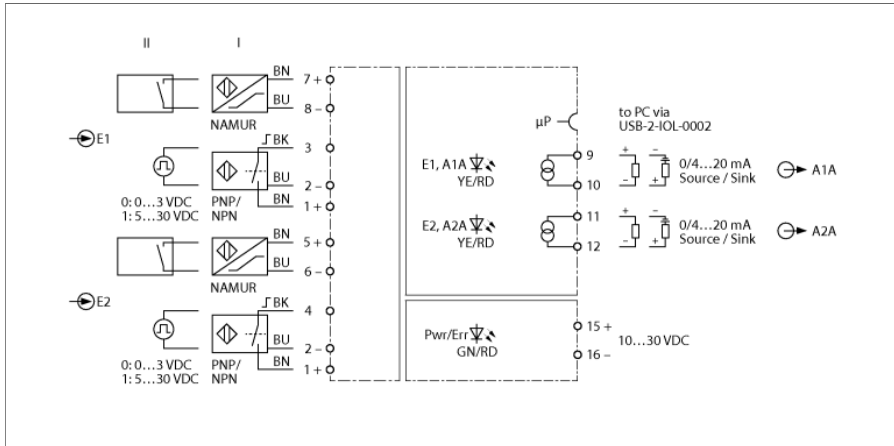


# Frequency Transducer/Pulse Counter 2-channel IM12-FI01-2SF-2I-C0/24VDC



The frequency transducer/pulse counter IM12-FI01-2SF-2I-C0/24VDC transmits frequency signals up to 20000 Hz electrically isolated. In addition, the input signals can be monitored for slip. The devices are suitable for operation in zone 2.

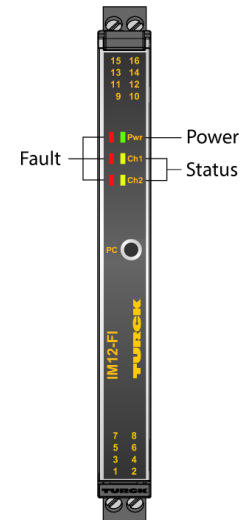
Each channel of the 2-channel device is equipped with an intrinsically safe input for connection of sensors acc. to EN 60947-5-6 (NAMUR) or potential-free contacts. On the output side, a current output 0/4 ... 20 mA is available for each channel.

The device is parameterized via FDT and IODD with a PC. The current output can be set to 0/4...20 mA (source or sink optional). In accordance with the parameterization (E1, E2, E1-E2 or E2-E1), the input signals are provided as a 0/4...20 mA standard current signal.

The devices have a green power LED (Pwr) and a red LED to indicate internal faults. For each input circuit there is a yellow and a red status LED. A fault in the input circuit leads to a flashing red LED according to NE44 and an internal fault to a steady read LED. The fault current can be adjusted to < 3.5 mA or > 21.5 mA.

The device can be used in safety circuits up to SIL2 (high and low demand according to IEC 61508) and meets the requirements of the NE21. It is equipped with removable screw terminals.

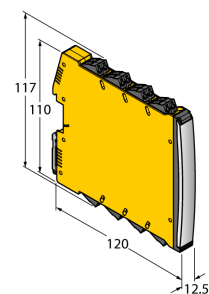
The device is equipped with removable screw terminals.



- Input circuits monitored for wire-break and short-circuit
- Parameterized via PC
- Complete galvanic isolation
- Removable screw terminals
- ATEX use in Zone 2, cUL
- SIL 2

## Dimensions

|                                                                                       |                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                                                                                  | IM12-FI01-2SF-2I-C0/24VDC                                                                                                                                                                     |
| ID                                                                                    | 7580229                                                                                                                                                                                       |
| Nominal voltage                                                                       | 24 VDC                                                                                                                                                                                        |
| Operating voltage $U_s$                                                               | 10...30 VDC                                                                                                                                                                                   |
| Power consumption                                                                     | $\leq 3$ W                                                                                                                                                                                    |
| Power dissipation, typical                                                            | $\leq 1.8$ W                                                                                                                                                                                  |
| Monitoring range/Setting range                                                        | 0.0006...1,200,000 rpm                                                                                                                                                                        |
| NAMUR input                                                                           |                                                                                                                                                                                               |
| NAMUR                                                                                 | EN 60947-5-6                                                                                                                                                                                  |
| 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                                                                                                                                                                                 |
| 3-wire input                                                                          |                                                                                                                                                                                               |
| No-load voltage                                                                       | 12 VDC                                                                                                                                                                                        |
| 0-signal                                                                              | 0...3VDC                                                                                                                                                                                      |
| 1-signal                                                                              | 5...30 VDC                                                                                                                                                                                    |
| External signal source                                                                |                                                                                                                                                                                               |
| 0-signal                                                                              | 0...3 VDC                                                                                                                                                                                     |
| 1-signal                                                                              | 5...30 VDC                                                                                                                                                                                    |
| Output circuits                                                                       |                                                                                                                                                                                               |
| Output current                                                                        | 2 $\times$ source/sink (15...28 V) 0/4...20 mA                                                                                                                                                |
| Load resistance current output                                                        | $\leq 0.8$ k $\Omega$                                                                                                                                                                         |
| Response characteristic                                                               |                                                                                                                                                                                               |
| Reference temperature                                                                 | 23 $^{\circ}$ C                                                                                                                                                                               |
| Measuring accuracy current output (including linearity, hysteresis and repeatability) | $\pm 10$ $\mu$ A                                                                                                                                                                              |
| Temperature drift                                                                     | $\leq 0.0025$ % of full scale/K                                                                                                                                                               |
| Galvanic isolation                                                                    |                                                                                                                                                                                               |
| Test voltage                                                                          | 2.5 kV RMS                                                                                                                                                                                    |
| E1,E2-A1A,A2A                                                                         | 375 V peak value acc. to EN 60079-11                                                                                                                                                          |
| A1A supply voltage                                                                    | 300 V RMS acc. to EN 50178 and EN 61010-1                                                                                                                                                     |
| A2A supply voltage                                                                    | 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.                                                                                  |
| 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                                                                                                                                                                                         |
| 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                           | 170 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 |
|-----------------|-----------|-------------------------------------------------------------------------------------------------------|-------------------|
| USB-2-IOL-0002  | 6825482   | IO-Link Master with integrated USB port                                                               |                   |
| IOL-COM/3M      | 7525110   | IO-Link communication line for connecting IO-Link devices to an IO-link master via a 3.5-mm jack plug |                   |
| 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             |                   |