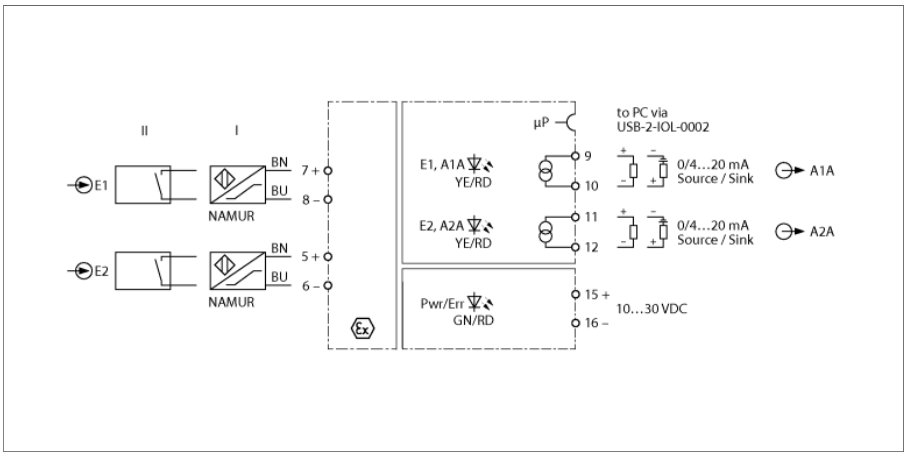
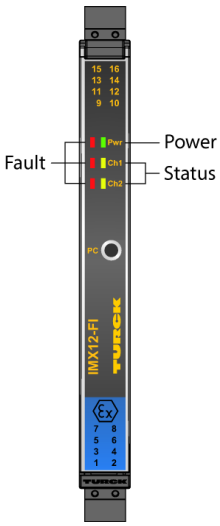
Frequency Transducer/Pulse Counter 2-channel
IMX12-FI01-2SF-2I-C0/24VDC/CC





The frequency transducer/pulse counter IMX12-FI01-2SF-2I-C/24VDC/CC is equipped with intrinsically safe input circuits and transmits frequency signals up to 20,000 Hz from the Ex area to the non-Ex area such that the signals are galvanically 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 connecting sensors in accordance with EN 60947-5-6 (NAMUR) or potential-free contacts. A current output (0/4…20 mA) is available on the output side.

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 (I1, I2, I1 - I2 or I2 - I1), the input signals are output as a 0/4…20 mA normalized 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, an internal error to a steady red 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 NE21. It is equipped with removable spring type terminals.

The device is equipped with removable spring-type terminals.

- Input circuits monitored for wire-break and short-circuit
- Parameterized via PC
- Complete galvanic isolation
- Input reverse-polarity protected
- Removable spring type terminals
- ATEX, IECEx, cFM, cUL, NEPSI, INMETRO, Kosha, TIIS,
- Use in Zone 2
- SIL 2

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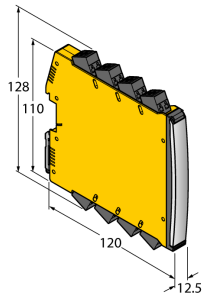
ID	7580211
Nominal voltage	24 VDC
Operating voltage U_B	10…30 VDC
Power consumption	≤ 3 W
Power dissipation, typical	≤ 1.7 W
Monitoring range/Setting range	0.0006…1,200,000 rpm
NAMUR input	
NAMUR	EN 60947-5-6
No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Cable resistance	≤ 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 current	2 × source/sink (15…28 V) 0/4…20 mA
Load resistance current output	≤ 0.8 kΩ
Response characteristic	
Reference temperature	23 °C
Measuring accuracy current output (including linearity, hysteresis and repeatability)	± 10 µA
Temperature drift	≤ 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	The values provided below indicate the relevant markings associated with the product's Ex certificates.
Ex approval acc. to conformity certificate	TÜV 16 ATEX 192124 X
Application area	II (1) G, II (1) D
Ignition protection category	G [Ex ia Ga] IIC; D [Ex ia Da] IIIC
Application area	II 3 (1) G
Ignition protection type	Ex ec [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
Error indication	red

Dimensions



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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	155 g	
Mounting instructions	DIN rail (NS35)	
Housing material	Plastic, Polycarbonate/ABS	
Electrical connection	Removable spring-type terminals, 2-pin	
Terminal cross-section	0.2…2.5 mm² (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

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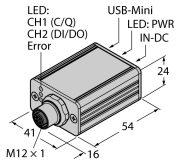
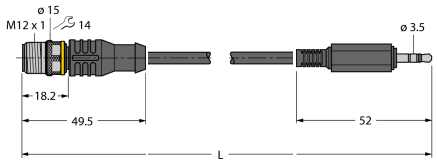
Accessories

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-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	

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