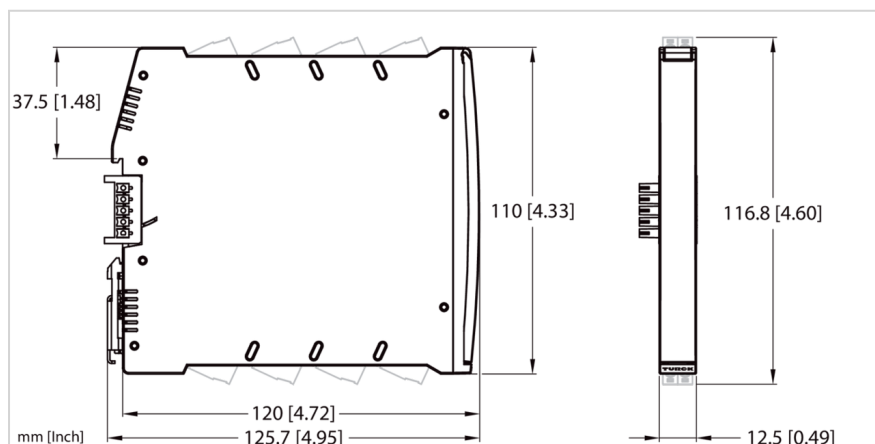


IM12-DI01-2S-2T-PR/24VDC

Isolating switching amplifier 2-channel



Type designation	IM12-DI01-2S-2T-PR/24VDC
Ident-No.	7580041

Technical data

General data	
Device type	Isolating switching amplifier
Signal type	Digital input
Power supply	
Operating voltage U_B	10...30 VDC
Nominal voltage	Power bridge 24 VDC
Power consumption	$\leq 0,8 \text{ W}$
Power dissipation, typical	$\leq 0,64 \text{ W}$
Nominal voltage	24 VDC
Power supply	24 VDC
Electrical data	
Input	2-channel or 1-channel with signal doubling
Safety specifications	
Functional safety (SIL/PL)	SIL 2
Inputs/Outputs	
Number of channels	2
Inputs	
Cable resistance	$\leq 50 \Omega$

Features

- 2 transistor outputs ($\leq 10\text{kHz}$)
- 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 screw terminals
- Includes connector for power bridge
- For use in ATEX Zone 2, cUL
- SIL 2

Technical data

Switching threshold on/off	1.75/1,55 mA
Input circuit monitoring	on/off switchable
Input resistance	1 kΩ
NAMUR	EN 60947-5-6
No-load voltage	8,2 VDC
Number of digital inputs	2
Number of NAMUR inputs	2
Short-circuit current	8,2 mA
Short-circuit threshold	≥6,4 mA
Wire breakage threshold	≤0,06 mA

Outputs

Switching current per output	0,1 A
Digital output	Transistor output
Number of digital outputs	2
Output circuits (digital)	2 x transistor (potential-free, short-circuit proof)
Switching frequency	≤10000 Hz
Switching voltage	≤30 VDC
Voltage drop	≤ 1.1 V at 20 mA, ≤ 1.8 V at 50 mA, ≤ 2.7 V at 100 mA

Error detection/message

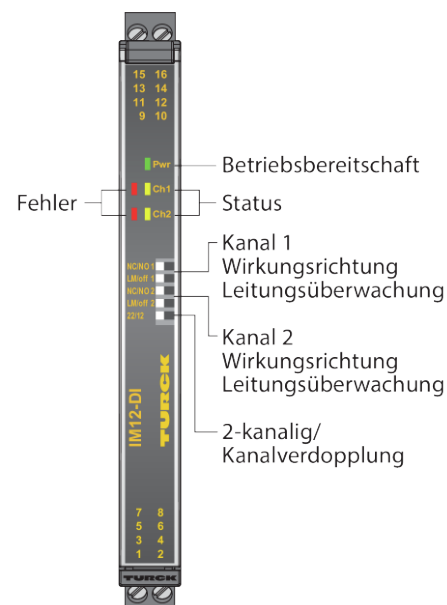
Power-Bridge common alarm output	MOSFET, U _{max} = 30 V, I _{max} = 100 mA
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Galvanic isolation

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
Input 2 to output 2	375 V peak value acc. to EN 60079-11
Input 2 to supply	375 V peak value acc. to EN 60079-11
Output 1 to output 2	100 V RMS according to EN 50178 and EN 61010-1
Output 1 to supply	100 V RMS acc. to EN 50178 and EN 61010-1
Output 2 to supply	100 V RMS acc. to EN 50178 and EN 61010-1
Test voltage	2.5 kV RMS

Mechanical data

Dimensions	120 mm x 12,5 mm x 117 mm
Housing material	Plastic, Polycarbonate/ABS
Electrical connection	Removable screw terminals, 2-pin



Technical data

Terminal cross-section	0.2...2.5 mm ² (AWG: 24...14)
Design	Modular housing
Connection variant	Power bridge with collective fault signal
Suitable for row installation	yes
Tightening torque	0,5 Nm
Tightening torque	4,43 LBS-Inch
Mounting instructions	DIN rail (NS35)
Ambient conditions	
Ambient temperature	-25...+70 °C
Storage temperature	-40...+80 °C
Relative humidity	95 %
Altitude	max. 2000 m
Pollution degree	2
Schock	EN 61373 Klasse B, EN 50155, GL VI-7-2, EN 60068-2-6, EN 60068-2-27
Protection class	IP20
Standards/directives	
Flammability class acc. to UL 94	V-0
Use in SIL safety circuits	SIL 2 acc. to IEC 61508 gemäß IEC 61508
Tests/approvals	
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.
Approvals	ATEX, cULus
Device designation	□
Displays/controls	
Error indication	red
Power on display	Green
Switching state	Yellow

Sensors according to EN 60947-5-6 (NAMUR) or potential-free contacts can be connected to the IM12-DI01-2S-2T-PR/24VDC isolating switching amplifier. A DIP switch on the device allows toggling between 2-channel or 1-channel operating mode with signal doubling. The output circuits are equipped with two potential-free transistors with a high cut-off frequency (10 kHz). The device

can be powered from a power bridge that also transmits a collective fault signal. The device complies with the requirements of the NE21.

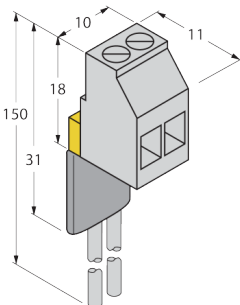
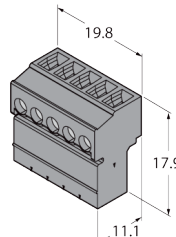
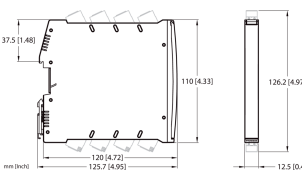
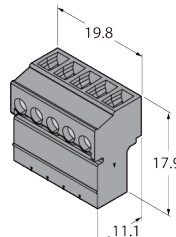
The devices feature DIP switches on the front. This allows to select between the output mode, the input circuit monitoring, as well as toggle between signal duplication and 1-channel operation. When using mechanical contacts, either line monitoring must be switched off or the contact must be wired with 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 transistor of the belonging output circuit locks and the common alarm output becomes conducting.

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.

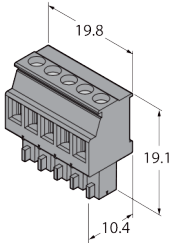
Mounting accessories

WM1 WIDERSTANDSMODUL	912101	IMX12-SC-2X-4BK	7580940
	The WM1 resistor module 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 in accordance with EN 60947-5-6 (NAMUR) and equipped with a wire-break and short-circuit monitoring function.		Screw terminals for IM(X)12 modules; includes: 4 × 2-pin black terminals
IMX12-CC-2X-4BK	7580942	IMC 1.5/ 5-ST-3.81 BK	7580954
	Spring-type terminals for IM(X)12 modules; includes: 4 × 2-pin black terminals		Power bridge connection terminal

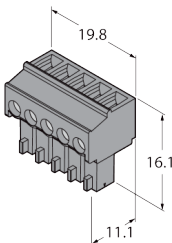
Mounting accessories

MCVR 1.5/ 5-ST-3.81 BK	7580955	MC 1.5/ 5-ST-3.81 BK	7580956
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Power bridge connection terminal

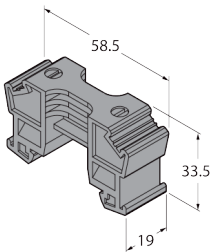


Power bridge connection terminal



E/ME TBUS NS35 BK	7580957
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Power bridge connection terminal



Circuit diagram

