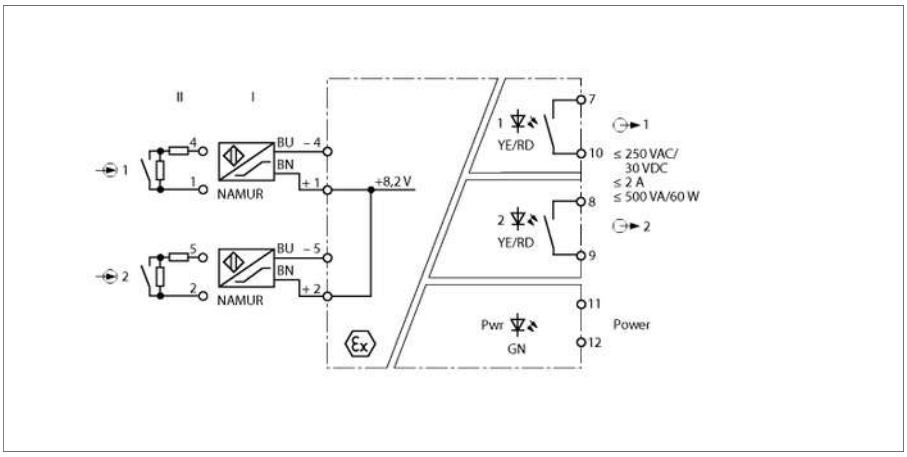
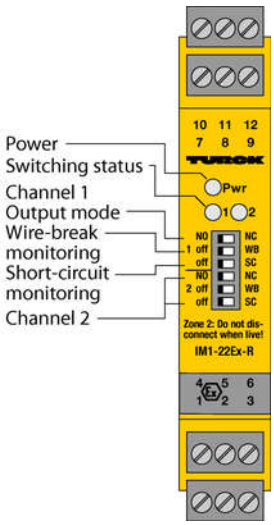
interface modul

Isolating switching amplifier
2-channel
IM1-22EX-R





The 2-channel isolating switching amplifier IM1-22EX-R is equipped with intrinsically safe input circuits.

Sensors according to EN 60947-5-6 (NAMUR) or potential-free contact transmitters can be connected to the device.

The output circuits feature 2 relays, each with 1 NO contact.

Six front panel switches are available to set the output mode separately for each channel (NO/NC mode), as well as to enable/disable wire-break (WB) and short-circuit (SC) monitoring separately.

When using mechanical contacts, wire-break and short-circuit monitoring must be switched off or the contacts must be wired to resistors (II) (see circuit diagram).

The Pwr LED lights green to indicate operational readiness. The 2-color LEDs 1 and 2 light yellow to indicate the switching status of the associated output. In the event of an input circuit error, the 2-color LED associated to the affected input turns red, provided the input circuit monitoring function is activated. Thereupon the output relay drops out.

- **ATEX, IECEx, UL, $_{c}$FM$_{us}$, CSA, TR CU, NEPSI, KOSHA, TIIS, CCOE, INMETRO**
- **Installation in zone 2**
- **2 relay outputs (NO)**
- **Output mode adjustable (NO/NC mode)**
- **Input circuits monitored for wire-break/ short-circuit (ON/OFF switchable)**
- **SIL 2**
- **Complete galvanic isolation**

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Isolating switching amplifier
2-channel
IM1-22EX-R

Type code	IM1-22EX-R
Ident no.	7541231
Nominal voltage	Universal voltage supply unit
Operating voltage	20…250 VAC
Frequency	40…70 Hz
Operating voltage range	20…125 VDC
Power consumption	≤ 3 W
Power loss, typical	≤ 0.98 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 (digital)	2 x relays (NO)
Relay switching voltage	≤ 250 VAC/30 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Switching frequency	≤ 10 Hz
Contact quality	AgNi, 3µ Au
Galvanic isolation	
Test voltage	2.5 kV
Important note	For safety applications the values specified in the safety manual or the relevant Ex certificates (ATEX, IECEx, UL, etc.) apply.
Ex approval acc. to conformity certificate	TÜV 04 ATEX 2553
Application area	II (1) G, II (1) D
ignition protection category	[Ex ia Ga] IIC; [Ex ia Da] IIIC
Max. values:	Terminal connection: 1+4 / 2+5
Max. output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	Li = 65 µH, Ci negligibly small
External inductance/capacitance L_o/C_o	

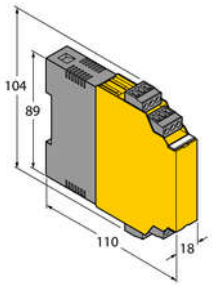
Ex ia	IIC			IIB		
Lo [mH]	1	5	10	2	10	20
Co [µF]	1,1	0,83	0,74	5,2	3,8	3,4

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552968 X
Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC/IIB T4 Gc
Max. values:	Terminal connection: 1+4 / 2+5
Max.output voltage U_o	≤ 9.6 V
Max. output current I_o	≤ 11 mA
Max. output power P_o	≤ 26 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	Li = 65 µH, Ci negligibly small
External inductance/capacitance L_o/C_o	

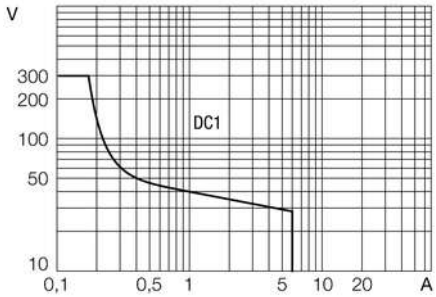
Ex ic	IIC			IIB		
Lo [mH]	1	5	10	1	5	10
Co [µF]	1.9	1.4	1.2	11	7.5	6.6

Approval	SIL 2 acc. to EXIDA FMEDA
MTTF	272 years acc. to SN 29500 (Ed. 99) 40 °C

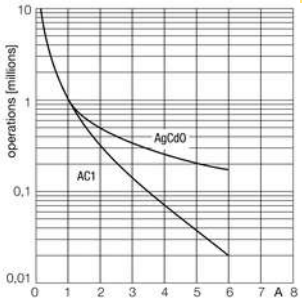
Dimensions



Output relay – Load curve



Output relay – Electrical lifetime



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2-channel
IM1-22EX-R

Indication	
Operational readiness	green
Switching state	yellow
Error indication	red

Mechanical Data	
IP Rating	IP20
Flammability class acc. to UL 94	V-0
Ambient temperature	-25 …+70 °C -25 ... +60 °C für UL, FM, TIIS
Storage temperature	-40…+80°C
Relative humidity	≤ 95 %
Dimensions	104 x 18 x 110 mm
Weight	158 g
Mounting instruction	for DIN rail / panel
Housing material	polycarbonate/ABS
Electrical connection	4 x 3-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm^2 / 2 x 1.5 mm^2
Tightening torque	0.5 Nm

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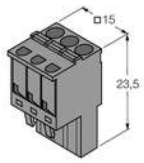
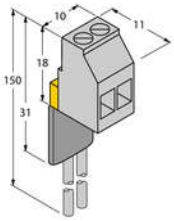
Accessories

Type code	Ident no.	Description	Design
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.	
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.	

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