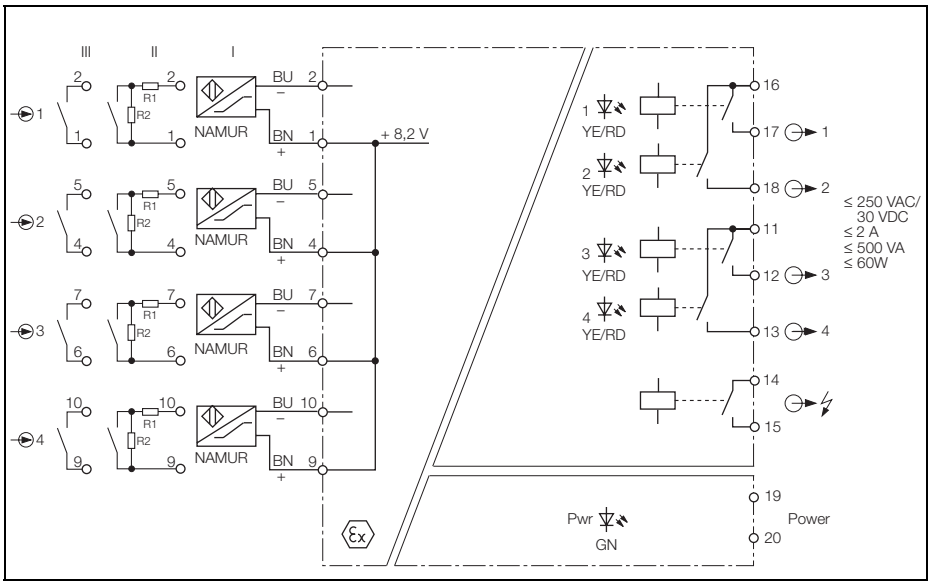
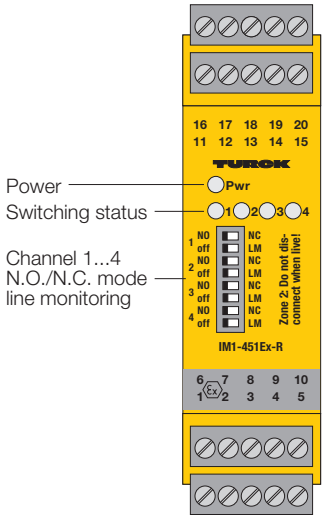
interface modul

Isolating switching amplifier
4-channel
IM1-451EX-R

TURCK
Industrial Automation





The 4-channel isolating switching amplifier IM1-451EX-R is equipped with an intrinsically safe input circuit.

The device can be connected to sensors according to EN 60947-5-6 (NAMUR) or potential-free contacts.

The output circuits each feature one relay with one normally open contact. The device features also a common alarm output.

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

When using mechanical contacts as input devices, wire-break and short-circuit monitoring must be disabled or shunt resistors must be connected to the contacts (II) (see connection diagram).

The green LED indicates operational readiness. The output switching status is indicated yellow by the two color LED. In the event of input circuit errors the dual color LED changes to red, provided the input circuit monitoring function is activated. Thereupon the output and the alarm relay are de-energized.

- **Intrinsically safe input circuits EEx ia**
- **Application area according to ATEX : II (1) GD**
- **Adjustable signal flow (N.O./ N.C.mode)**
- **Monitoring of input circuits for wire-break/short-circuit (ON/OFF mode)**
- **five relay outputs with one normally-open contact each**
- **Common alarm output**
- **Removable terminal blocks**
- **Universal operating voltage (20…250VAC/ 20…125VDC)**
- **Galvanic isolation of input circuits to output circuits and supply voltage**

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Isolating switching amplifier
4-channel
IM1-451EX-R

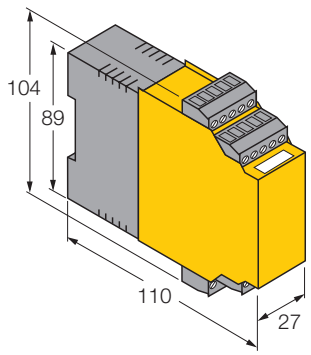
Industrielle Automation

Type	IM1-451EX-R
Ident-No.	7541188
Nominal voltage	Universal voltage supply unit
Operational voltage range:	20 … 250 VAC
Frequency	≥ 40 … ≤ 70 Hz
Operational voltage range:	20 … 125 VDC
Power consumption	≤ 3 W
NAMUR	EN-60947-5-6
No-load voltage	8.2 VDC
Short-circuit current	8.2 mA
Input resistance	1 kΩ
Output resistance	≤ 50 Ω
Switch-on threshold:	1.55 mA
Switch-off threshold:	1.75 mA
Wire breakage threshold	≤ 0.1 mA
Short-circuit threshold	≥ 6 mA
Output circuits (digital)	5 x relay (normally open)
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 3 A
Switching capacity per output	≤ 750 VA/60 W
Switching frequency	≤ 10 Hz
Contact quality	AgNi, 3µ Au
Test voltage	2.5 kV
Constant voltage supply	250 V
Ex approval acc. to conformity certificate	
Ex approval acc. to conformity certificate	TÜV 04 ATEX 2604
Application area	II (1) GD
Protection type	[EEx ia] IIC
Max.output voltage U_o	≤ 11.3 V
Max. output current I_o	≤ 13 mA
Max. output power P_o	≤ 36 mW
Characteristic	Linear
External inductance/capacitance L_o/C_o	removable terminal blocks
Ex approval acc. to conformity certificate	
Ex approval acc. to conformity certificate	TÜV 06 ATEX 552967 X
Application area	II 3 G
Protection type	Ex nA nC [nL] IIC T4
Max.output voltage U_o	≤ 11.3 V
Max. output current I_o	≤ 13 mA
Max. output power P_o	≤ 36
External inductance/capacitance L_o/C_o	

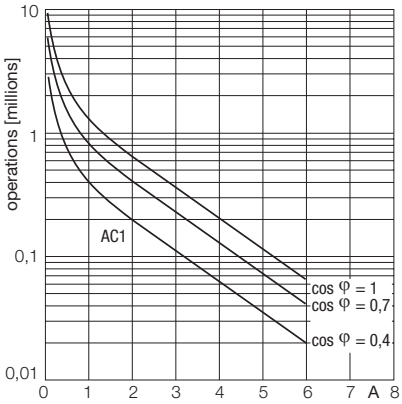
	Ex nL IIC			Ex nL IIB		
Lo [mH]	10	5,0	1,0	20,0	10,0	2,0
Co [µF]	0,91	1	1,5	4,3	4,9	6,8

Ex approval acc. to conformity certificate	FM3019329
Ex approval acc. to conformity certificate	IECEx TUN 06.0007 X
Protection type	[Ex ia] IIC/IIB, Ex nA nC [nL] IIC/IIB T4
Indication	
Operational readiness	green
Switching status	yellow
Error indication	red

Dimensions



Output relay electrical lifetime



Isolating switching amplifier
4-channel
IM1-451EX-R

Mechanical Data	
Degree of protection	IP20
Ambient temperature	-25 …+ 70 °C
Housing length	104 mm
Housing width	27 mm
Housing height	110 mm
Weight	204 g
Mounting instruction	Mounting on DIN rail or mounting panel
Housing material	polycarbonate/ABS
Electrical connection	4 x 5-pole removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm^2 / 2 x 1.5 mm^2