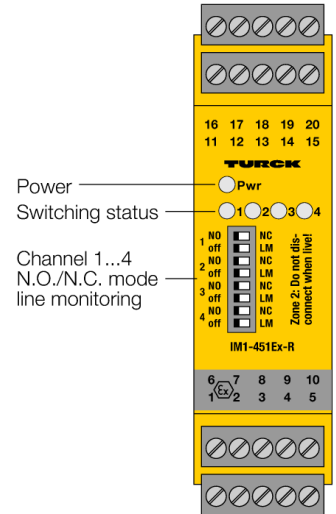
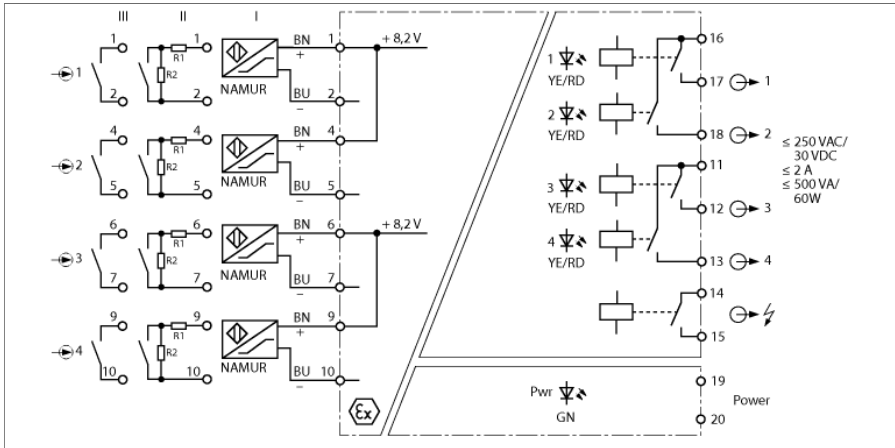


**Isolating switching amplifier
4-channel
IM1-451EX-R**



The 4-channel IM1-451EX-R isolating switching amplifier 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 each feature a relay with an NO contact. In addition, the device features a common alarm output.

Via eight switches on the front, the output mode (work or quiescent current behavior, i.e. NO/NC) can be switched on and off separately for each channel as well as wire-break (WB) and short-circuit monitoring (SC).

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).

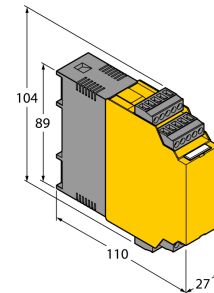
The Pwr LED lights green to indicate operational readiness. The 2-color LED 1 lights yellow to indicate the switching status of the output. In the event of an input circuit error, the 2-color LED turns red, with the input circuit monitoring switched on. Thereupon the output and the alarm relay drop out.

- ATEX, IECEx, UL, FM_{us}, CSA, TR CU, INMETRO, TIIS, NEPSI
- Installation in zone 2
- 5 relay outputs (NO)
- Output mode adjustable (NO/NC mode)
- Input circuits monitored for wire-break/short-circuit (ON/OFF switchable)
- Common alarm output
- Complete galvanic isolation
- Input reverse-polarity protected

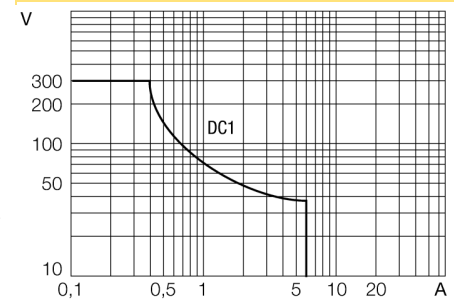
Isolating switching amplifier
4-channel
IM1-451EX-R

Type designation	IM1-451EX-R
Ident-No.	7541188
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
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)	5 x relays (NO)
Output switching voltage relay	≤ 30 VDC / ≤ 250 VAC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 750 VA/60 W
Switching frequency	≤ 10 Hz
Contact quality	AgNi, 3μ Au
Galvanic isolation	
Test voltage	2.5 kV
Important note	For Ex-applications the values specified in the corresponding Ex certificates (ATEX, IECEx, UL, etc.) apply.
Ex approval acc. to conformity certificate	TÜV 04 ATEX 2604
Application area	II (1) G, II (1) D
Ignition protection category	[Ex ia Ga] IIC ; [Ex ia Da] IIIC
Ex approval acc. to conformity certificate	TÜV 06 ATEX 552967 X
Application area	II 3 G
Ignition protection type	Ex nA nC [ic Gc] IIC T4
Characteristic	linear
Indication	
Operational readiness	green
Switching state	Yellow
Error indication	red
Mechanical Data	
Protection class	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 27 x 110 mm
Weight	216 g
Mounting instructions	DIN rail (NS35) or panel
Housing material	Polycarbonate/ABS
Electrical connection	4 x 5-pin removable terminal blocks, reverse polarity protected, screw terminal
Terminal cross-section	1 x 2.5 mm ² / 2 x 1.5 mm ²
Tightening torque	0.5 Nm

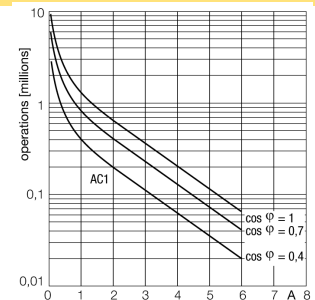
Dimensions



Output relay – Load curve

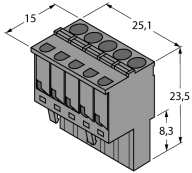


Output relay – Electrical lifetime



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

Accessories

Type code	Ident-No.	Description	Dimension drawing
IM-CC-5X2BU/2BK	7504031	Cage clamp terminals for IM modules (Ex-devices with 27 mm overall width); includes: 2 pcs. 5-pin blue terminals and 2 pcs. 5-pin black terminals.	
WM1	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.	