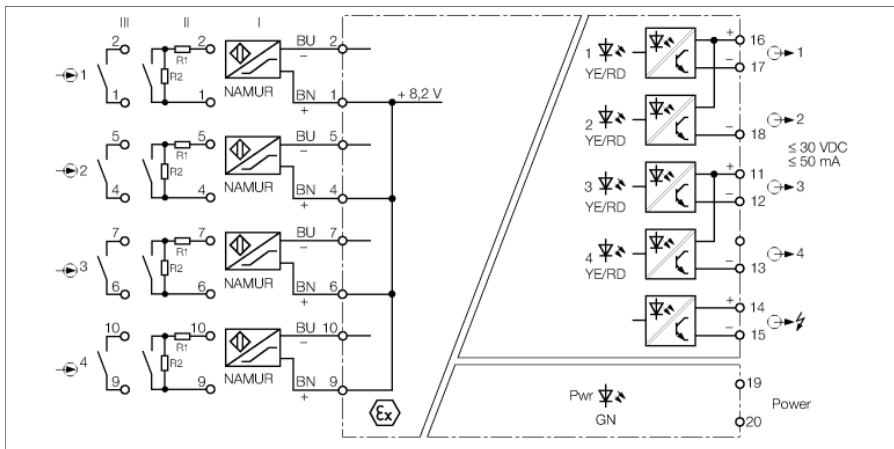


Isolating switching amplifier
4-channel
IM1-451EX-T



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

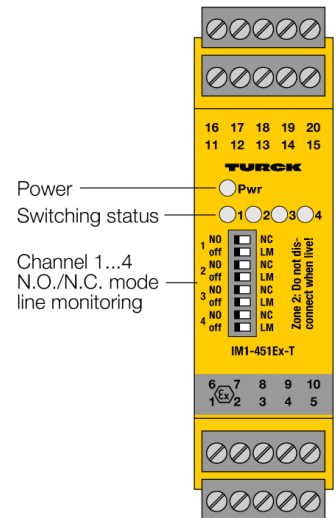
Sensors according to EN 60947-5-6 (NAMUR) can be connected to the device or potential-free contactors.

The output circuits each feature one potential-free, short circuit proof transistor and additionally a common alarm output.

Eight 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 contact must be wired with resistors (II) (see circuit 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 transistor are inhibited.



- Intrinsically safe input circuits Ex ia
- Installation in zone 2
- Application area acc. to ATEX: II (1) G, II (1) D; II G 3
- Five transistor outputs, short-circuit proof, potential-free and reverse-polarity protected
- Adjustable signal flow direction (NO/NC)
- Input circuit monitoring of wire-break/short-circuit (ON/OFF switchable)
- Common alarm output
- Removable terminal blocks
- Galvanic separation of input circuits, output circuits and power supply

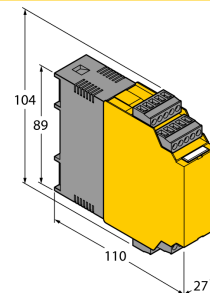
Isolating switching amplifier

4-channel

IM1-451EX-T

Type	IM1-451EX-T																					
Ident-No.	7541189																					
Ident-No (TUSA)	M7541189																					
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	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:	1.55 mA																					
Switch-off threshold:	1.75 mA																					
Wire breakage threshold	≤ 0.1 mA																					
Short-circuit threshold	≥ 6 mA																					
Voltage drop	≤ 2.5 V																					
Semiconductor output circuit(s)																						
Output circuits (digital)	5 x transistor (potential-free, short-circuit protected)																					
Switching voltage	≤ 30 VDC																					
Switching current per output	≤ 50 mA																					
Switching frequency	≤ 3000 Hz																					
Galvanic separation																						
Test voltage	2.5 kV																					
Ex approval acc. to conformity certificate	TÜV 04 ATEX 2604																					
Application area	II (1) G, II (1) D																					
Protection type	[Ex ia Ga] IIC ; [Ex ia Da] IIIC																					
Max.output voltage U _o	≤ 11.3 V																					
Max. output current I _o	≤ 13 mA																					
Max. output power P _o	≤ 36 mW																					
Rated voltage	250 V																					
Characteristic	linear																					
Internal inductance/capacitance L _i /C _i	Li = 100 µH, Ci = 1,1 nF																					
External inductance/capacitance L _e /C _e	■ 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 class for belonging equipment	Ex nA [nL] IIC T4																					
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 _e /C _e	<table><tr><td>Ex ic</td><td colspan="3">IIC</td><td colspan="3">IIB</td></tr><tr><td>L_o [mH]</td><td>10</td><td>5,0</td><td>1</td><td>20</td><td>10,0</td><td>2</td></tr><tr><td>C_e [µF]</td><td>0,91</td><td>1,0</td><td>1,5</td><td>4,3</td><td>4,9</td><td>6,8</td></tr></table>	Ex ic	IIC			IIB			L _o [mH]	10	5,0	1	20	10,0	2	C _e [µF]	0,91	1,0	1,5	4,3	4,9	6,8
Ex ic	IIC			IIB																		
L _o [mH]	10	5,0	1	20	10,0	2																
C _e [µF]	0,91	1,0	1,5	4,3	4,9	6,8																
Indication																						
Operational readiness	green																					
Switching state	yellow																					
Error indication	red																					

Dimensions



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

Mechanical Data

Protection class	IP20
Ambient temperature	-25...+70 °C
Storage temperature	-40...80°C
Dimensions	104 x 27 x 110 mm
Weight	189 g
Mounting instruction	For 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

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

Accessories

Type code	Ident-No.	Short text	Dimension drawing
IM-CC-5X2BU/2BK	7504031	Cage clamp terminals for IM modules (Ex devices; width 27 mm): 2 blue/2 black, 5-pin	