

Isolating Switching Amplifier MK13-22P-Ex0/24VDC MK13-22N-Ex0/24VDC 2-channel



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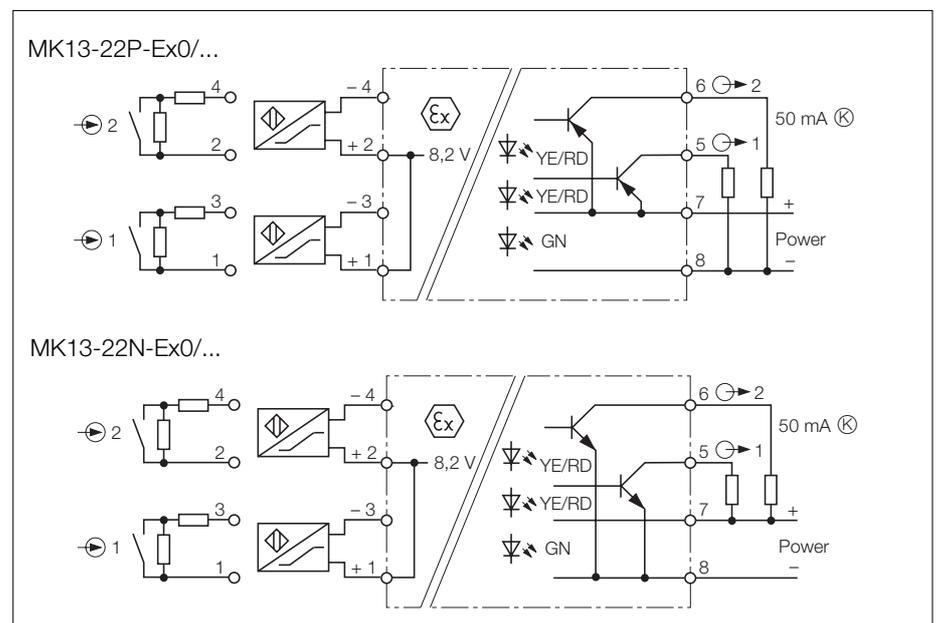
- **2-channel isolating switching amplifier**
- **Intrinsically safe input circuits EEx ia**
- **Area of application according to ATEX: II (1) GD**
- **Galvanic isolation between input circuits, output circuits and supply voltage**
- **Input circuit monitoring for wire-break and short-circuit (cannot be disabled)**
- **2 short-circuit protected transistor outputs:**
 - pnp (MK13-22P-Ex0)
 - npn (MK13-22N-Ex0)
- **Selectable NO/NC output function**

The MK13-22P-Ex0 and the MK13-22N-Ex0 are dual channel devices featuring intrinsically safe input circuits. They can be connected to sensors conforming to EN 60947-5-6 (NAMUR), variable resistors or potential-free contacts. Both transistor outputs are short-circuit protected and available in either pnp (MK13-22P-Ex0) or npn (MK13-22N-Ex0) versions. The output function (normally open mode = switch position A / or normally closed mode = switch position R) of both channels is selected by a selector switch located on the front cover. The input circuits are monitored for short-circuit and wire-break. Monitoring can be deactivated using the front side switch.

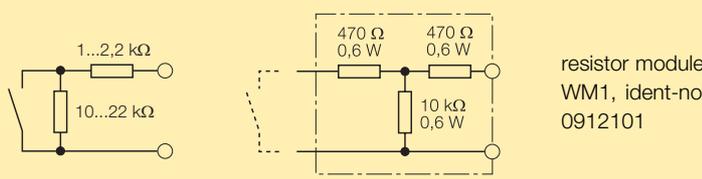
If input circuit monitoring is not required, the switching amplifiers MK1-22P-Ex0 or MK1-22N-Ex0 should be used alternatively.

When using mechanical contacts as input devices, shunt resistors must be connected to the contacts (see next page for contact configuration).

The green LED indicates that the device is powered. Both dual colour LEDs indicate the switching status (yellow) of the respective output. When the input circuit monitoring feature is activated, red illuminates to indicate a fault condition in the input circuit and the transistor output is disabled.



Isolating Switching Amplifier MK13-22P-Ex0/MK13-22N-Ex0

Type	MK13-22P-Ex0/24VDC	MK13-22N-Ex0/24VDC
Ident-no.	7542111	7542110
Supply voltage U_B	19...29 VDC	19...29 VDC
Ripple W_{PP}	$\leq 10\%$	$\leq 10\%$
Current consumption	approx. 50 mA	approx. 50 mA
Galvanic isolation	between input circuit, output circuit and supply voltage for 250 V_{rms} , test voltage 2.5 kV_{rms}	between input circuit, output circuit and supply voltage for 250 V_{rms} , test voltage 2.5 kV_{rms}
Input circuits	according to EN 60947-5-6 (NAMUR), intrinsically safe according to EN 50020	according to EN 60947-5-6 (NAMUR), intrinsically safe according to EN 50020
Operating characteristics		
– Voltage	8.2 V	8.2 V
– Current	8.2 mA	8.2 mA
Switching threshold	1.55 mA	1.55 mA
Hysteresis	typ. 0.2 mA	typ. 0.2 mA
Wire-break threshold	≤ 0.1 mA	≤ 0.1 mA
Short-circuit threshold	≥ 6 mA	≥ 6 mA
Contact configuration	 <p>resistor module WM1, ident-no. 0912101</p>	
Output circuits	pnp transistor outputs	npn transistor outputs
Voltage drop	≤ 1.7 V	≤ 1.7 V
Switching current output	≤ 50 mA, short-circuit protected	≤ 50 mA, short-circuit protected
Switching frequency	≤ 3 kHz	≤ 3 kHz
Ex-approval acc. to certificate of conformity	TÜV 03 ATEX 2235	TÜV 03 ATEX 2235
Maximum nominal values		
– No load voltage U_0	≤ 9.9 V	≤ 9.9 V
– Short-circuit current I_0	≤ 12 mA	≤ 12 mA
– Power P_0	≤ 30 mW	≤ 30 mW
Max. external inductances/capacitances L_0/C_0		
– [EEx ia] IIC	2/10/20 mH/5/3.6/3.2 μ F	1/5/10 mH/1.1/0.79/0.7 μ F
– [EEx ib] IIC	1/5/10 mH/1.1/0.79/0.7 μ F	1.7 μ F/23 mH
Marking of device	II (1) GD [EEx ia] IIC	II (1) GD [EEx ia] IIC
LED indications		
– Power	green	green
– Switching status/fault indication	2 x yellow/red (2-colour LED)	2 x yellow/red (2-colour LED)
Housing	8-pole, 18 mm wide, Polycarbonate/ABS, flammability class V-0 per UL 94	
Mounting	snap-on clamps for top-hat rail (DIN 50022) or screw terminals for panel mounting	
Connection	via flat terminals with self-lifting pressure plates	
Connection profile	$\leq 2 \times 2.5$ mm ² or 2×1.5 mm ² with wire sleeves	
Degree of protection (IEC 60529/EN 60529)	IP20	
Operating temperature	-25...+70 °C	
	