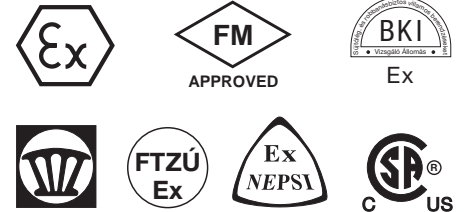
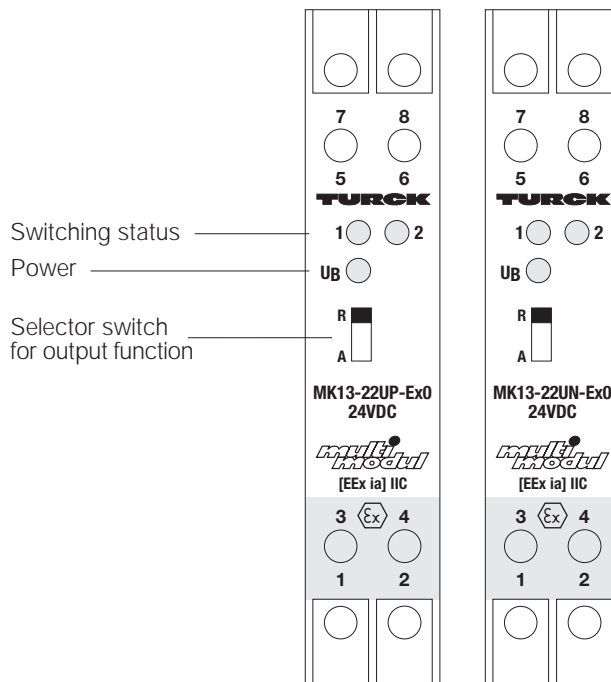


Isolating Switching Amplifier MK13-22UP-Ex0/24VDC MK13-22UN-Ex0/24VDC 2 channels



- **Dual channel switching amplifier**
- **Intrinsically safe input circuits [EEx ia] IIC**
- **Galvanic isolation between input circuit, output circuit and supply voltage**
- **Input circuit monitoring for wire-break and short-circuit (cannot be disabled)**
- **2 short-circuit protected transistor outputs:**
 - pnp (MK13-22UP-Ex0)
 - npn (MK13-22UN-Ex0)
- **Selectable NO/NC output function**

The MK13-22UP-Ex0 and the MK13-22UN-Ex0 are dual channel devices featuring intrinsically safe input circuits. They can be connected to sensors conforming to EN 50227 (NAMUR), variable resistors or potential-free contacts.

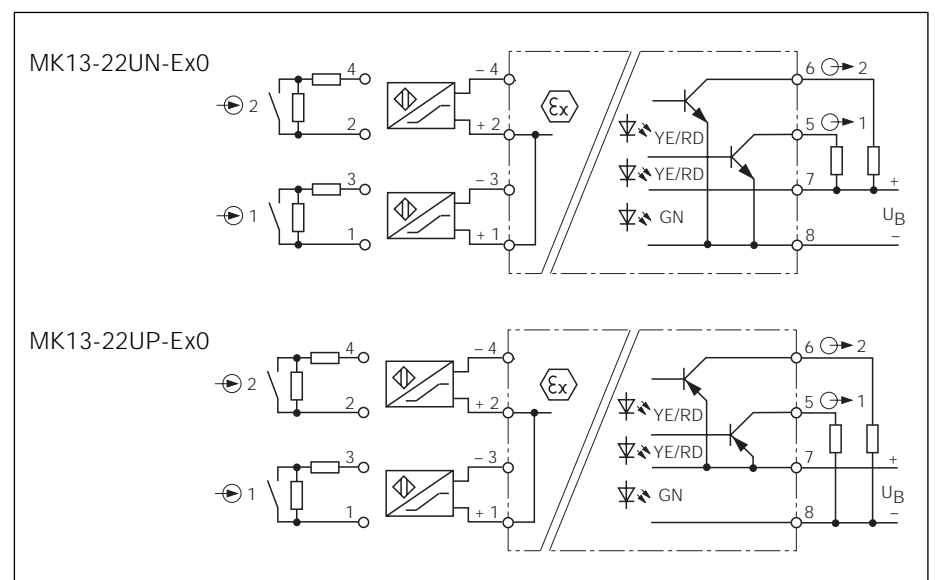
Both transistor outputs are short-circuit protected and available in either pnp (MK13-22UP-Ex0) or npn (MK13-22UN-Ex0) versions.

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. The input circuit monitoring function cannot be disabled. If input circuit monitoring is not required, the switching amplifiers MK1-22UP-Ex0 or MK1-22UN-Ex0 should be used alternatively.

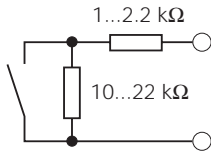
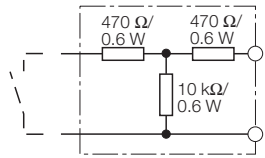
When using mechanical contacts as input devices, shunt resistors must be connected to the contacts (see next page for contact configuration).

Should an input circuit error occur, the respective output will be disabled and the dual colour LED will illuminate (red).



Isolating Switching Amplifiers



Type	MK13-22UP-Ex0/24VDC	MK13-22UN-Ex0/24VDC
Ident-No.	75 056 14	75 056 12
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 50227 (NAMUR), intrinsically safe according to EN 50020	according to EN 50227 (NAMUR), intrinsically safe according to EN 50020
Operating characteristics		
- Voltage	8 V	8 V
- Current	5 mA	5 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		
Of mechanical switches with active input circuit monitoring function		
		resistor module WM1, ident-no. 09 121 01
Output Circuits	pnp transistor outputs	npn transistor outputs
Voltage drop	≤ 2.5 V	≤ 2.5 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	PTB Ex-93.C.4091	PTB Ex-93.C.4091
Maximum nominal values		
- No load voltage U_0	12 V	12 V
- Short-circuit current I_k	36 mA	36 mA
Maximum external inductances/capacitances		
- [EEx ia] IIC	1 mH/470 nF	1 mH/470 nF
- [EEx ib] IIC	23 mH/1.7 μ F	23 mH/1.7 μ F
LED Indications		
- Status indication/fault indication	2 x yellow/red (2-colour LED)	2 x yellow/red (2-colour LED)
- Power "ON"	green	green
Terminal 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...+60 °C	

