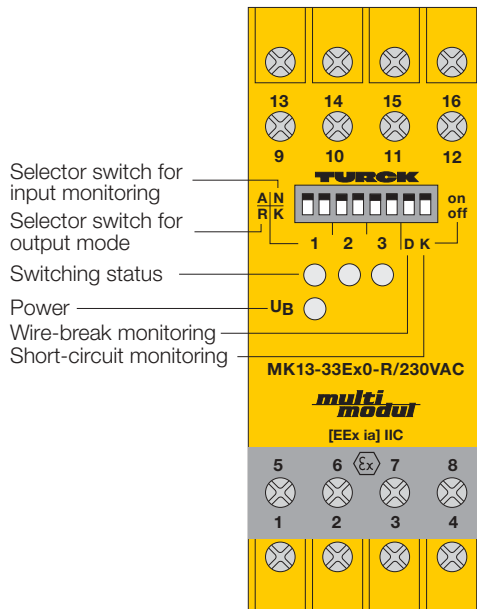




Isolating Switching Amplifier

MK13-33Ex0-R/24VDC

MK13-33Ex0-R/230VAC

3-channel



- **3-channel isolating switching amplifier**
- **Intrinsically safe input circuits EEx ia**
- **Area of application according to ATEX: II (1) G**
- **Galvanic isolation between input circuits, output circuits and supply voltage**
- **Input circuit monitoring for wire-break and short-circuit (can be disabled)**
- **3 relay outputs, each with one NO contact**
- **Selectable NO/NC output function**

The MK13-33Ex0-R switching amplifiers are 3-channel devices featuring intrinsically safe input circuits. They can be connected to sensors according to EN 60947-5-6 (NAMUR), variable resistors or potential-free contacts. The output circuits each feature a relay with a NO contact.

Eight front panel programming switches select the output function of each channel (switch positions A and R represent normally open mode (NO) and normally closed (NC) mode, respectively) and enable input circuit monitoring.

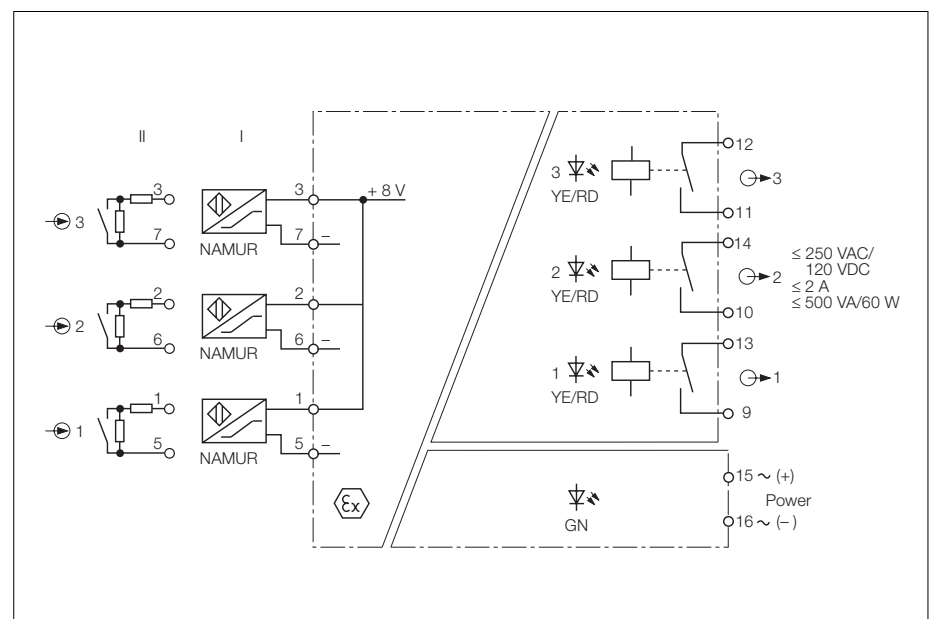
Switches D (wire-break) and K (short-circuit) determine which of their conditions should be monitored for all channels with

activated input circuit monitoring (switch position N).

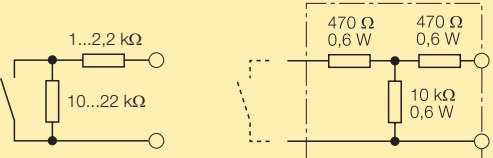
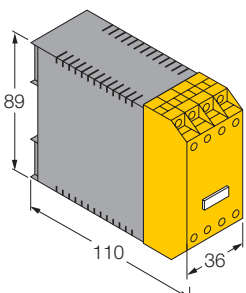
When using mechanical contacts as the input device, input circuit monitoring must be disabled (switch position K) or shunt resistors must be connected to the contacts (II). (See next page for contact configuration).

The green LED on the front cover indicates that the device is powered.

The three dual colour LEDs indicate the switching status (yellow) as well as fault conditions (red). When the input circuit monitoring feature is activated, red illuminates to indicate a fault condition in the input circuit and the respective output relay is de-energised.



Isolating Switching Amplifier MK13-33Ex0-R

Type	MK13-33Ex0-R/230VAC	MK13-33Ex0-R/24VDC
Ident-no.	7541140	7541147
Supply voltage U_B	195.5...253 VAC	10...30 VDC
Line frequency/ripple W_{PP}	48...62 Hz	$\leq 10\%$
Power/current consumption	$\leq 3\text{ VA}$	$\leq 2\text{ W}$
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 V	8 V
– Current	8 mA	8 mA
Switching threshold	1.55 mA	1.55 mA
Hysteresis	typ. 0.2 mA	typ. 0.2 mA
Wire-break threshold	$\leq 0.1\text{ mA}$	$\leq 0.1\text{ mA}$
Short-circuit threshold	$\geq 6\text{ mA}$	$\geq 6\text{ mA}$
Contact configuration	 resistor module WM1, ident-no. 0912101	
Output circuits	3 relay outputs (NO)	3 relay outputs (NO)
Switching voltage	$\leq 250\text{ V}$	$\leq 250\text{ V}$
Switching current per output	$\leq 2\text{ A}$	$\leq 2\text{ A}$
Switching capacity per output	$\leq 500\text{ VA}/60\text{ W}$	$\leq 500\text{ VA}/60\text{ W}$
Switching frequency	$\leq 10\text{ Hz}$	$\leq 10\text{ Hz}$
Contact material	silver-alloy + 3 $\mu\text{m Au}$	silver-alloy + 3 $\mu\text{m Au}$
Ex-approval acc. to certificate of conformity	PTB 99 ATEX 2084	PTB 99 ATEX 2084
Maximum nominal values		
– No load voltage U_0	$\leq 11.5\text{ V}$	$\leq 11.5\text{ V}$
– Short-circuit current I_0	$\leq 51.2\text{ mA}$	$\leq 51.2\text{ mA}$
Max. external inductances/capacitances L_0/C_0		
– [EEx ia/ib] IIC	1.64 $\mu\text{F}/14\text{ mH}$	1.64 $\mu\text{F}/14\text{ mH}$
– [EEx ia/ib] IIB	11.2 $\mu\text{F}/55\text{ mH}$	11.2 $\mu\text{F}/55\text{ mH}$
Marking of devices	II (1) G [EEx ia] IIC	II (1) G [EEx ia] IIC
LED indications		
– Power	green	green
– Switching status/fault indication	3 x yellow/red (2-colour LED)	3 x yellow/red (2-colour LED)
Housing	16-pole, 36 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	$\leq 2 \times 2.5\text{ mm}^2$ or $2 \times 1.5\text{ mm}^2$ with wire sleeves	
Degree of protection (IEC 60529/EN 60529)	IP20	
Operating temperature	-25...+60 °C	