Isolating Switching Amplifier
MK13-UR-Ex0
1 channel

- Single channel switching amplifier
- Intrinsically safe input circuit [EEx ia] IIC
- Galvanic isolation between input circuit, output circuit and supply voltage
- Input circuit monitoring for wire-break and short-circuit (can be disabled)
- Relay output with one NO contact
- Selectable NO/NC output function

The MK13-UR-Ex0 is a single channel switching amplifier with an intrinsically safe input circuit. It can be used in conjunction with sensors conforming to EN 50227 (NAMUR), variable resistors or potential-free contacts.

The device is provided with a relay output with one NO contact.

The output function is selected by a switch located on the front cover. Positions A and R represent normally open (NO) and normally closed (NC) modes, respectively.

The input circuit is monitored for short-circuit and wire-break. The input circuit monitoring function can be disabled by jumpering terminals 3 and 4.

When using mechanical contacts as the input device, the input circuit monitoring function must be disabled (III), or shunt-resistors must be connected to the contacts (II).

Should an input circuit error occur, the output will be de-energised and the green LED (operational readiness) will turn off.
## Isolating Switching Amplifiers

### Type
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<th>MK13-UR-Ex0/24VDC</th>
<th>MK13-UR-Ex0/230VAC</th>
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<td>75 053</td>
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### Supply Voltage $U_B$
- Ripple $W_{pp}$: 19...29 VDC
- Current consumption: approx. 20 mA
- Galvanic isolation: 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
- Operating characteristics:
  - Voltage: 8.5 V
  - Current: 5 mA
  - Switching threshold: 1.55 mA
  - Hysteresis: typ. 0.4 mA
  - Wire-break threshold: ≤ 0.1 mA
  - Short-circuit threshold: ≥ 6 mA

### Output Circuits
- Relay output (1 NO contact)
- Switching voltage: 250 VAC/120 VDC
- Switching current: ≤ 2 A
- Switching capacity: 500 VA/120 W
- Switching frequency: ≤ 10 Hz
- Contact material: silver-alloy + 3 µm Au

### Ex-Approval acc. to Certificate of Conformity
- BVS 89.C.2010
- Maximum nominal values:
  - No load voltage $U_0$: 10.5 V
  - Short-circuit current $I_c$: 31.3 mA
- Maximum external inductances/capacitances:
  - $[EEx ia]$ IIC: 5 mH/510 nF
  - $[EEx ib]$ IIC: 36 mH/3 µF

### LED Indications
- Status indication: yellow
- Power "ON": green

### Terminal Housing
- 8-pole, 18 mm wide, Polycarbonate/ABS, flammability class V-0 per UL 94
- 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: ≤ 2 x 2.5 mm² or 2 x 1.5 mm² with wire sleeves
- Degree of protection (IEC 60529/EN 60529): IP20
- Operating temperature: -25...+60 °C