Isolating Switching Amplifier
MK13-22Ex0-T
2 channels

- Dual 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)
- 2 isolated, short-circuit and reverse polarity protected transistor outputs
- Selectable NO/NC output function

The MK13-22Ex0-T type switching amplifiers are dual channel devices featuring intrinsically safe input circuits. They can be connected to sensors according to EN 50227 (NAMUR), variable resistors or potential-free contacts.

Each channel is equipped with an isolated and reverse polarity protected transistor output.

Six front panel programming switches select the output function of each channel (normally open mode = switch position A/or normally closed mode = switch position R) and enable separate activation and deactivation of wire-break (switch position DB) and short-circuit (switch position K) monitoring of each channel.

When using mechanical contacts as the input device, wire-break and short-circuit monitoring must be disabled or shunt resistors must be connected to the contacts (I). (See next page for contact configuration).

The green LED on the front cover indicates that the device is powered. The two 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 in the input circuit and the respective transistor output is disabled.
## Isolating Switching Amplifiers

**Type**

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<th>MK13-22Ex0-T/230VAC</th>
<th>MK13-22Ex0-T/24VDC</th>
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<td>Ident-No.</td>
<td>75 421 20</td>
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**Supply Voltage $U_B$**

- **Line frequency/ripple $W_{pp}$**
  - MK13-22Ex0-T/230VAC: 48...62 Hz
  - MK13-22Ex0-T/24VDC: 10...30 VDC
- **Power/current consumption**
  - between input circuit, output circuit and supply voltage for 250 $V_{rms}$: $\leq 30 \text{ mA}_{\text{rms}}$
  - test voltage 2.5 $kV_{\text{rms}}$: $\leq 1.2 \text{ W}$

**Galvanic isolation**

- Test voltage 2.5 $kV_{\text{rms}}$
- Supply voltage for 250 $V_{rms}$
- between input circuit, output circuit and supply voltage for 250 $V_{rms}$

**Input Circuits**

- according to EN 50227 (NAMUR), intrinsically safe according to EN 50020

**Operating characteristics**

- Voltage: 8 V
- Current: 8 mA
- Switching threshold: 1.55 mA
- Hysteresis: typ. 0.2 mA
- Wire-break threshold: $\leq 0.1 \text{ mA}$
- Short-circuit threshold: $\geq 6.0 \text{ mA}$

**Contact Configuration**

Of mechanical switches with active input circuit monitoring function

**Output Circuits**

- 2 transistor outputs
  - potential-free, short-circuit protected
  - Switching voltage: $\leq 30 \text{ VDC}$
  - Switching current per output: $\leq 50 \text{ mA}$
  - Switching frequency: $\leq 3 \text{ kHz}$
  - Voltage drop: $\leq 2.5 \text{ V}$

**Ex-Approval acc. to Certificate of Conformity**

- PTB 99 ATEX 2083
- PTB 99 ATEX 2083

**Maximum nominal values**

- No load voltage $U_0$: $\leq 11.9 \text{ V}$
- Short-circuit current $I_0$: $\leq 36 \text{ mA}$

**Maximum external inductances/capacitances**

- $[\text{EEx ia}] \text{ II B}$: 87 mH/9.4 $\mu$F
- $[\text{EEx ia}] \text{ II C}$: 23 mH/1.45 $\mu$F

**LED Indications**

- Status indication/fault indication: 2 x yellow/red (2-colour LED)
- Power "ON": green

**Terminal Housing**

- 12-pole, 27 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
- via flat terminals with self-lifting pressure plates
- $\leq 2 \times 2.5 \text{ mm}^2$ or $2 \times 1.5 \text{ mm}^2$
- with wire sleeves
- IP 20
- Operating temperature: -25...+60 °C