Isolating Switching Amplifier
MK13-VP-Ex0/24VDC
MK13-VN-Ex0/24VDC
1 channel

- Single channel switching amplifier
- Intrinsically safe input circuit [Ex 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 complementary short-circuit protected transistor outputs:
  - pnp (MK13-VP-Ex0)
  - npn (MK13-VN-Ex0)

The MK13-VP-Ex0 and the MK13-VN-Ex0 are single channel devices with an intrinsically safe input circuit. They can be used in conjunction with sensors conforming to EN 50227 (NAMUR), variable resistors or potential-free contacts.

The devices have either two short-circuit protected pnp or npn transistor outputs with complementary function.

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 turned off (III), or shunt resistors must be connected to the contacts (II).

Should an input circuit error occur, both outputs will be disabled and the green LED (operational readiness) will turn off. An external exclusive OR circuit monitoring may be used to evaluate faults in the input circuit.
## Isolating Switching Amplifiers

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<th>Type</th>
<th>MK13-VP-Ex0/24VDC</th>
<th>MK13-VN-Ex0/24VDC</th>
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<td>Ident-No.</td>
<td>75 050</td>
<td>75 054 50</td>
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### Supply Voltage $U_b$

- **Ripple** $W_{pp}$: $\leq 10\%$  
- **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

- **Supply Voltage** $UB$: 10...30 VDC  
- **Ripple** $W_{pp}$: 10...30 VDC  
- **Current consumption** approx. 20 mA  
- **Galvanic isolation** between input circuit, output circuit and supply voltage for 250 $V_{rms}$  
- **test voltage** 2.5 $kV_{rms}$

### Operating characteristics

- **Voltage** 8.5 V  
- **Current** 5 mA  
- **Switching threshold** 1.55 mA  
- **Hysteresis** typ. 0.4 mA  
- **Wire-break threshold** $\leq 0.1$ mA  
- **Short-circuit threshold** $\geq 6$ mA

### Contact Configuration

- **Resistor module** WM1, ident-no. 09 121 01

### Output Circuits

- **Voltage drop** 2.5 V  
- **Switching current per output** 100 mA, short-circuit protected  
- **Switching frequency** 3 kHz

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

- **Certificate** BVS 89.C.2010

### Maximum nominal values

- **No load voltage** $U_0$: 10.5 V  
- **Short-circuit current** $I_k$: 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**
- **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** $\leq 2 \times 2.5$ mm² or $2 \times 1.5$ mm² with wire sleeves
- **Degree of protection** (IEC 60529/EN 60529) IP20
- **Operating temperature** -25... +60 °C