Isolating Switching Amplifier
MS13-33Ex0-T
3 channels

- Intrinsically safe input circuits [EEx ia] IIC
- Galvanic isolation between input circuit, output circuit and power supply
- 3 isolated transistor outputs, short-circuit and reverse polarity protected
- Input circuit monitoring for wire-break and short-circuit
- Selectable NO/NC output function

The MS13-33Ex0-T switching amplifier is a 3-channel device with intrinsically safe input circuits. Each output circuit is provided with one isolated, short-circuit and reverse polarity protected transistor output.

The selected output mode applies to all three channels. Program for normally closed mode (NC/R) by leaving terminals 15/16 open and for normally open mode (NO/A) by linking terminals 15/16.

The input circuits are individually monitored for wire-break and short-circuit. The affected output turns off during an input fault (green LED off).

When mechanical contacts are used as input devices, resistors (II) must be added to the contacts. This will prevent the monitoring control circuit from recognising the mechanical contacts as a wire-break or short-circuit.
# Isolating Switching Amplifiers

<table>
<thead>
<tr>
<th>Type</th>
<th>MS13-33Ex0-R/230VAC</th>
<th>MS13-33Ex0-R/24VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>53 332</td>
<td>53 338</td>
</tr>
<tr>
<td><strong>Supply Voltage</strong> $U_b$</td>
<td>196...250 VAC</td>
<td>20...28 VDC</td>
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<tr>
<td>Line frequency/ripple $W_{pp}$</td>
<td>48...62 Hz</td>
<td>≤ 10 %</td>
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<tr>
<td>Power/current consumption</td>
<td>≤ 3.5 VA</td>
<td>≤ 3.6 W</td>
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<tr>
<td>Galvanic isolation</td>
<td>between input circuit, output circuit and supply voltage for 250 $V_{rms}$, test voltage 2.5 $kV_{rms}$</td>
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</tr>
</tbody>
</table>

### Input Circuits
- Operating characteristics:
  - Voltage: 8 V
  - Current: 4.5 mA
  - Switching threshold: 1.55 mA
  - Hysteresis: 0.2 mA
  - Wire-break threshold: ≤ 0.1 mA
  - Short-circuit threshold: $R_s$ approx. 200 Ω

### Output Circuits
- 3 relay outputs
- Contacts: 1 NO contact, AgCdO
- Switching voltage: ≤ 250 VAC/60 VDC
- Switching current: ≤ 4 A
- Switching capacity: ≤ 1000 VA/60 W
- Switching frequency: ≤ 10 Hz

### Ex-Approval acc. to Certificate of Conformity
- BVS 94.C.2006 X

### Maximum nominal values
- No load voltage $U_0$: 11.0 V
- Short-circuit current $I_k$: 41.0 mA

### Maximum external inductances/capacitances
- [EEex ia] IIC: 1 mH/500 nF
- [EEex ib] IIC: -

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

### Housing
- 50 mm wide, Polycarbonate/ABS panel mounting or snap-on clamps for top-hat rail (DIN 50022)
- Connection: 2 x 8 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