**Isolating Switching Amplifier**

**MS13-12Ex0-R**

1 channel

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- **Intrinsically safe input circuit [EEx ia] IIC**
- **Galvanic isolation between input circuit, output circuit and power supply**
- **Input circuit monitoring for short-circuit and wire-break (can be disabled)**
- **2 relay outputs, each with one SPDT contact**
- **Selectable common alarm output**
- **Selectable NO/NC output function**

The MS13-12Ex0-R switching amplifier is a single channel device with an intrinsically safe input circuit. The output circuit has two independent relays, each one with an SPDT contact.

The output is programmable for normally open mode (NO/A) or normally closed mode (NC/R). Select NO mode by installing a jumper between terminals 11 and 12. Leave terminals 11 and 12 open for NC mode.

This unit provides optional wire-break and short-circuit monitoring of the input circuit.

During an input fault, the alarm output is disabled (relay de-energised, green LED off). When no faults are in any of the input circuits and the power is on, the alarm output is enabled (relay energised, green LED on).

When using mechanical contacts as the input device, the input circuit monitoring function must be disabled (IV), or shunt resistors (II) connected to the contacts. This will prevent the switching amplifier from recognising the contacts as a wire-break or a fault.

The input circuit monitoring function is disabled by jumpering terminals 13/14.

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**Diagram**

- **Power**
- **Switching status**

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**Diagram Description**

- Linking terminals 15 and 16 changes the function of one relay (terminals 8, 7, 6) to provide a common output fault alarm (II).
## Isolating Switching Amplifiers

<table>
<thead>
<tr>
<th>Type</th>
<th>MS13-12Ex0-R/230VAC</th>
<th>MS13-12Ex0-R/24VDC</th>
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<td>Ident-No.</td>
<td>52 112</td>
<td>52 118</td>
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### Supply Voltage $U_b$
- Line frequency/ripple $W_{pp}$: $48...62$ Hz
- Power/current consumption: ≤ $3.5$ VA
- Galvanic isolation: between input circuit, output circuit and supply voltage for $250 \, \text{Vrms}$, test voltage $2.5 \, \text{kVrms}$
- $U_b$ (Supply Voltage): $184...250 \, \text{VAC}$, $20...28 \, \text{VDC}$
- ≤ $10$ %
- ≤ $3.6$ W

### Input Circuits
- Operating characteristics:
  - Voltage: $8 \, \text{V}$
  - Current: $8 \, \text{mA}$
  - Switching threshold: $1.55 \, \text{mA}$
  - Hysteresis: $0.2 \, \text{mA}$
  - Wire-break threshold: ≤ $0.1 \, \text{mA}$
  - Short-circuit threshold: $R_s$ approx. $200 \, \Omega$

### Output Circuits
- Contacts: 1 SPDT contact, AgCdO
- Switching voltage: ≤ $250 \, \text{VAC/60 VDC}$
- Switching current: ≤ $4 \, \text{A}$
- Switching capacity: ≤ $1000 \, \text{VA/60 W}$
- Switching frequency: ≤ $10 \, \text{Hz}$

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

### Maximum nominal values
- No load voltage $U_0$: $11.0 \, \text{V}$
- Short-circuit current $I_k$: $14.0 \, \text{mA}$
- Maximum external inductances/capacitances:
  - [EEx ia] IIC: $1 \, \text{mH/600 nF}$
  - [EEx ib] IIC: -

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

### Housing
- Mounting: 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: ≤ $2 \times 2.5 \, \text{mm}^2$ or $2 \times 1.5 \, \text{mm}^2$
- Degree of protection (IEC 60529/EN 60529): IP20
- Operating temperature: -25...+60 °C