Bistable Switching Amplifier MS41-22Ex0-R

1 channel

- Intrinsically safe input circuits [EEx ia] IIC
- Galvanic isolation between input circuit, output circuit and power supply
- 1 output relay with 2 SPDT contacts
- For optional use as a switching amplifier without bistable characteristics

The bistable amplifier relay MS41-22 is a single channel device with four intrinsically safe inputs. It can be used as a bistable relay, or as a programmable switching amplifier without bistable characteristics.

As a bistable relay, the switching performance can be programmed for "priority set" or "priority reset" functions.

By leaving the inputs open or closed, the desired function may be selected. Please refer to page 4-7 for further information on logic functions.
## Logic Controllers

<table>
<thead>
<tr>
<th>Type</th>
<th>MS41-22Ex0-R/230VAC</th>
<th>MS41-22Ex0-R/24VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idnt-No.</td>
<td>53 631</td>
<td>53 637</td>
</tr>
</tbody>
</table>

### Supply Voltage

- **Supply Voltage** \(U_b\)
- **Line frequency/ripple** \(W_{pp}\)
- **Power/current consumption**
- **Galvanic isolation**

<table>
<thead>
<tr>
<th></th>
<th>184...250 VAC</th>
<th>20...28 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Line frequency/ripple</strong> (W_{pp})</td>
<td>48...62 Hz</td>
<td>≤ 10 %</td>
</tr>
<tr>
<td><strong>Power/current consumption</strong> between input circuit, output circuit and supply voltage for 250 (V_{rms}), test voltage 2.5 (kV_{rms})</td>
<td>≤ 3.5 VA</td>
<td>≤ 3.6 W</td>
</tr>
<tr>
<td><strong>Galvanic isolation</strong> between input circuit, output circuit and supply voltage for 250 (V_{rms}), test voltage 2.5 (kV_{rms})</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Input Circuits

- **Operation characteristics** according to EN 50227 (NAMUR), intrinsically safe according to EN 50020
- **Voltage**
- **Current**
- **Switching threshold**
- **Hysteresis**

<table>
<thead>
<tr>
<th></th>
<th>8 V</th>
<th>8 V</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voltage</strong></td>
<td>4.5 mA</td>
<td>4.5 mA</td>
</tr>
<tr>
<td><strong>Current</strong></td>
<td>1.55 mA</td>
<td>1.55 mA</td>
</tr>
<tr>
<td><strong>Switching threshold</strong></td>
<td>0.2 mA</td>
<td>6.2 mA</td>
</tr>
</tbody>
</table>

### Output Circuits

- **Number of contacts** 2 SPDT contacts, AgCdO
- **Switching voltage** ≤ 250 VAC/60 VDC
- **Switching current** ≤ 4 A
- **Switching capacity** ≤ 1 000 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** \(U_0\)
- **Short-circuit current** \(I_k\)
- **Maximum external inductances/capacitances**

<table>
<thead>
<tr>
<th></th>
<th>11.0 V</th>
<th>11.0 V</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No-load voltage</strong> (U_0)</td>
<td>55.0 mA</td>
<td>55.0 mA</td>
</tr>
<tr>
<td><strong>Short-circuit current</strong> (I_k)</td>
<td>1 mH/500 nF</td>
<td>1 mH/500 nF</td>
</tr>
</tbody>
</table>

### LED Indication

- **Switching status** 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 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
Bistable Switching Amplifiers
MS41-22Ex0-R
1 channel

Switching Amplifier Functionality

When using the MS41-22Ex0-R as an amplifier, the bistable relays fulfil the function of a monostable switching amplifier. The output function (NO or NC operation) is programmed by the position of the jumpers and the input configuration.

**Note:** When mechanical contacts are used as input devices, the output function is reversed from those shown on the right.

### Bistable Functionality

If the amplifier is used as a bistable relay, the following module functions are available depending on the input configuration:

- **Set input with priority:** Any time two inputs are activated simultaneously, the set input has priority.
- **Reset input with priority:** Any time two inputs are activated simultaneously, the reset input has priority.
- **Switching upon detection of target:** Attenuation initiates the switching function as shown by (a) on the right.
- **Switching function with no target present.** A switching function occurs whenever no target is present as shown by (b) on the right.

**Note:** When mechanical contacts are used, the switching function is reversed.