The MC13-452Ex0-RP are four-channel devices with intrinsically safe input circuits. The channels can be interconnected to distribute the signal.

The following operating modes are possible:

- 1 channel with 4 outputs,
- 2 channels, each with 2 outputs
- 4 channels, each with 1 output
- all outputs activated

Each channel has one SPDT relay contact and one pnp output transistor. The input circuits can be monitored for wire-break and short-circuit condition. If no faults are in any input circuit and the power is on, the common alarm output is enabled (transistor conducting, relay closed). The two-colour LED for the affected channel is yellow and the green “Power” LED is on.

If a short or a wire-break occurs in either input circuit, the common alarm output is disabled (transistor not conducting, relay open) and the two-colour LED changes to red.

If a 32-pole edge connector is used, the relay outputs can be programmed to function either in direct (N.O.) mode or inverse (N.C.) mode. (Programming via jumper blocks on the card).
Switching Amplifiers

Programming of functions with 10 front DIP-switches

<table>
<thead>
<tr>
<th>Channel</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N/K</td>
</tr>
<tr>
<td>2</td>
<td>N/K</td>
</tr>
<tr>
<td>3</td>
<td>N/K</td>
</tr>
<tr>
<td>4</td>
<td>N/K</td>
</tr>
<tr>
<td>1...4</td>
<td></td>
</tr>
</tbody>
</table>

Each channel has a programming jumper block to select the following functions:

- **DIP-switch position N/K:**
  - (NAMUR or mechanical contacts as input devices):
    - Position K: input circuit monitoring off
    - Position N: input circuit monitoring on.

- **DIP-switch position A/R:**
  - (N.O. or N.C. mode)
    - The mode indicated refers to a mechanical contact. Because the signal mode of inductive sensors according to DIN 19234 is inverse to mechanical contacts, this switch is used to select the type of input device used by reversing the signal direction of the input circuit.

The last two DIP-switches on the bottom are for selecting the operating mode (mode 1/2/3/4):

- **Mode 1:** input 1 on output 1...4
- **Mode 2:** input 1 on output 1 and 2, input 3 on output 3 and 4
- **Mode 3:** input 1 on output 1, input 2 on output 2, input 3 on output 4, input 4 on output 4
- **Mode 4:** outputs activated independently from input.
  - The A/R setting is used to reverse the direction of the input signal for each channel.

<table>
<thead>
<tr>
<th>Type</th>
<th>MC13-452Ex0-RP/24VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ident-No.</td>
<td>90 282 04</td>
</tr>
</tbody>
</table>

**Supply Voltage** $u_0$
- Ripple $W_{pp}$
- Overvoltage release
- Reverse polarity protection
- Power/Current consumption
- Galvanic isolation

**Input Circuits**
- Operating characteristics:
  - No-load voltage $u_0$
  - Switching current $I_K$
  - Switching capacity
  - Switching frequency
  - Contact material
  - Transistor output
  - Switching voltage
  - Switching current
  - Switching frequency
  - Common alarm output

**Output Circuits**
- Relay outputs:
  - Switching voltage
  - Switching current
  - Switching capacity
  - Switching frequency
  - Contact material
  - Transistor output
  - Switching voltage
  - Switching current
  - Switching frequency
  - Common alarm output

**Ex-Approval acc. to Certification of Conformity**
- PTB No. Ex-84/2110X

**LED Indications**
- Power “ON”
- Status indication / fault

**Eurocard**
- Material
- Front panel
- Connection
- Operating temperature
- Coding No. 20