Operating principle

Safety modules XPS DMB and XPS DME are specifically designed for monitoring coded magnetic safety switches. They incorporate two safety outputs and two solid-state outputs for signalling to the process PLC. Conforming to category 4 of EN 954-1, modules XPS DMB can monitor two independent sensors and modules XPS DME can monitor up to six independent sensors.

To monitor a higher number of magnetic switches using these safety modules, the magnetic switches can be connected in series, while meeting the requirements of category 3 of EN 954-1.

Safety modules XPS DMBP and XPS DMEP incorporate removable terminal blocks, thus optimising machine maintenance.

To aid diagnostics, the modules have LEDs on the front face which provide information on the monitoring circuit status.

Characteristics

<table>
<thead>
<tr>
<th>Module type</th>
<th>XPS DMB1132</th>
<th>XPS DME1132</th>
<th>XPS DMB1132P</th>
<th>XPS DME1132P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products designed for max. use in safety related parts of control systems (conforming to EN 954-1)</td>
<td>Category 4 max.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product certifications</td>
<td>UL, CSA, BIA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply (Ue)</td>
<td>Voltage</td>
<td>V</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Voltage limits</td>
<td>V</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumption</td>
<td>W</td>
<td>&lt; 2.5</td>
<td>&lt; 3.5</td>
<td>&lt; 2.5</td>
</tr>
<tr>
<td>Module inputs fuse protection</td>
<td>Internal, electronic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum wiring resistance RL between the module and the coded magnetic switches</td>
<td>Ω</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synchronisation time between magnetic switch inputs</td>
<td>s</td>
<td>&lt; 0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety outputs</td>
<td>Voltage reference</td>
<td>Volt-free</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number and type of safety circuits</td>
<td>2 N/O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number and type of solid-state outputs</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breaking capacity in AC-15</td>
<td>VA</td>
<td>C300; inrush 1800, sealed: 180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breaking capacity in DC-13</td>
<td>VA</td>
<td>24 V/1.5 A, L/R = 50 ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. thermal current (Ith)</td>
<td>A</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. total thermal current</td>
<td>A</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output fuse protection</td>
<td>A</td>
<td>4 g3 or 6 fast acting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum current</td>
<td>mA</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum voltage</td>
<td>V</td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical durability</td>
<td>See page 38610/6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response time on input opening</td>
<td>ms</td>
<td>&lt; 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated insulation voltage (Uir)</td>
<td>V</td>
<td>300 (degree of pollution 2 conforming to IEC/EN 60947-5-1, DIN VDE 0110 parts 1 &amp; 2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated impulse withstand voltage (Uimp.)</td>
<td>kV</td>
<td>4 (overvoltage category III, conforming to IEC/EN 60947-5-1, DIN VDE 0110 parts 1 &amp; 2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LED display</td>
<td>3</td>
<td>15</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Ambient air temperature</td>
<td>°C</td>
<td>For operation: -10…+55, for storage: -25…+85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of protection conforming to IEC 60529</td>
<td>Terminals: IP 20, enclosure: IP 40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection Type</td>
<td>Captive screw clamp terminals</td>
<td>Captive screw clamp terminals, removable terminal block</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-wire connection Without cable end</td>
<td>Solid or flexible cable: 0.14…2.5 mm²</td>
<td>Solid or flexible cable: 0.2…2.5 mm²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With cable end</td>
<td>Without bezel, flexible cable: 0.25…2.5 mm²</td>
<td>With bezel, flexible cable: 0.25…1.5 mm²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-wire connection Without cable end</td>
<td>Solid or flexible cable: 0.14…0.75 mm²</td>
<td>Solid or flexible cable: 0.2…1 mm², flexible cable: 0.2…1.5 mm²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With cable end</td>
<td>Without bezel, flexible cable: 0.25…1 mm²</td>
<td>With bezel, flexible cable: 0.5…1.5 mm²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Safety automation system solutions**

Preventa safety modules types XPS DMB, XPS DME

For coded magnetic switch monitoring

<table>
<thead>
<tr>
<th>Description</th>
<th>Type of terminal block connection</th>
<th>Number of safety circuits</th>
<th>Solid-state outputs for PLC</th>
<th>Supply</th>
<th>Reference</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety module for monitoring 2 coded magnetic switches</td>
<td>Integrated in module</td>
<td>2 N/O</td>
<td></td>
<td>24</td>
<td>XPS DMB1132</td>
<td>0.250</td>
</tr>
<tr>
<td>Safety module for monitoring 6 coded magnetic switches</td>
<td>Integrated in module</td>
<td>2 N/O</td>
<td></td>
<td>24</td>
<td>XPS DME1132</td>
<td>0.300</td>
</tr>
<tr>
<td>Safety module for monitoring 2 coded magnetic switches</td>
<td>Removable from module</td>
<td>2 N/O</td>
<td></td>
<td>24</td>
<td>XPS DMB1132P</td>
<td>0.250</td>
</tr>
<tr>
<td>Safety module for monitoring 6 coded magnetic switches</td>
<td>Removable from module</td>
<td>2 N/O</td>
<td></td>
<td>24</td>
<td>XPS DME1132P</td>
<td>0.300</td>
</tr>
</tbody>
</table>

Connections: pages 38793/4 to 38793/7
Dimensions: page 38730/2
Connections

Safety automation system solutions
Preventa safety modules types XPS DMB,
XPS DME
For coded magnetic switch monitoring

**XPS DMB**

Wiring to category 4 conforming to EN 954-1. Example with 2-pole N/C + N/O (N/C staggered) contact. For example with 3-pole N/C + N/C + N/O contact see page 32942/4

ESC: External start conditions.

Wiring to category 3 conforming to EN 954-1. Example with 3 switches with 2-pole N/C + N/O (N/C staggered) contacts.

Input: S11, S12, S13 or S21, S22, S23.
Input not used: terminals S21-S23 linked.
Connections (continued)

Safety automation system solutions
Preventa safety modules types XPS DMB,
XPS DME
For coded magnetic switch monitoring

XPS DME
Wiring to category 4 conforming to EN 954-1. Example with 2-pole N/C + N/O (N/C staggered) contact

ESC: External start conditions.
Wiring to category 3 conforming to EN 954-1. Example with 3 switches with 2-pole N/C + N/O (N/C staggered) contacts.

Input: S1, S2, S3 or S21, S22, S23, S31, S32, S33 or S41, S42, S43 or S51, S52, S53 or S61, S62, S63.
Input not used: terminals S1-S3 (S21-S23, S31-S33, S41-S43, S51-S53, S61-S63) linked.

References:
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Dimensions:
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Preventa safety modules types XPS DMB, XPS DME
For coded magnetic switch monitoring

XPS DMB
Functional diagram

Supply voltage
Magnetic switch 1 activated
Magnetic switch 2 activated
Start
Magnetic switch 2 opens
Magnetic switch 2 activated
Fault

Magnetic switch 1
(S11-S12)

Magnetic switch 1
(S11-S13)
Magnetic switch 2
(S21-S22)

Magnetic switch 2
(S21-S23)

Feedback loop/start
(Y1-Y2)

Solid-state output Y34
(fault)

Solid-state output Y44
(K1/K2)

Output 13-14/23-24 (N/O)

< 0.5 s
< 0.5 s

Key

0
1

LED details

1 Supply voltage A1-A2, internal electronic fuse status.
2 Fault signalling.
3 Safety outputs closed.
Safety automation system solutions
Preventa safety modules types XPS DMB,
XPS DME
For coded magnetic switch monitoring

**XPS DME**

Functional diagram

<table>
<thead>
<tr>
<th>Magnetic switch 1 (S11-S12)</th>
<th>Supply voltage</th>
<th>Magnetic switch 1 activated</th>
<th>Magnetic switch 2 activated</th>
<th>Start</th>
<th>Magnetic switch 2 opens</th>
<th>Magnetic switch 2 activated</th>
<th>Fault</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetic switch 1 (S11-S13)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnetic switch 2 (S21-S22)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnetic switch 2 (S21-S23)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback loop/start (Y1-Y2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid-state output Y34 (fault)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid-state output Y44 (K1/K2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output 13-14/23-24 (N/O)</td>
<td>&lt; 0.5 s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LED details**

2. Fault signalling.
4. Magnetic switch 1 activated.
5. Magnetic switch 1 deactivated.
7. Magnetic switch 2 deactivated.
8. Magnetic switch 3 activated.
10. Magnetic switch 4 activated.
11. Magnetic switch 4 deactivated.
12. Magnetic switch 5 activated.
15. Magnetic switch 6 deactivated.

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Characteristics: page 38793/2
References: page 38793/3
Dimensions: page 38730/2