Dold BH5932 Speed Monitor Relays

BH5932 speed monitoring safety relay modules use inputs from proximity sensors that are detecting rotating targets on the motor that needs monitoring.

- Energized when speed is under setting value
- Two PNP sensor inputs
- 10 to 20,000 IPM (impulses per minute) adjustable range
- Monitors rotation and linear movement
- 2-channel operation for standstill and over-speed monitoring
- 2 N.O. and 1 N.C. positive-guided contacts
- LED status indicators

**Safety Speed Monitor Relays Selection Chart**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Price</th>
<th>Marking Type</th>
<th>Voltage</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH5932-22-113-24</td>
<td>$295.00</td>
<td>Speed-monitoring safety relay module</td>
<td>24 VAC/VDC</td>
<td>2 N.O. and 1 N.C.</td>
</tr>
<tr>
<td>BH5932-22-113-120</td>
<td>$289.00</td>
<td>Please consider BH5932-22-113-24 as a comparable replacement.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH5932-22-113-230</td>
<td>$289.00</td>
<td>Please consider BH5932-22-113-24 as a comparable replacement.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Safety Data – Values per EN ISO 13849-1**

<table>
<thead>
<tr>
<th>Category</th>
<th>1 according to EN 13849-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance level</td>
<td>PLe according to EN 13849-1</td>
</tr>
<tr>
<td>MTTFd</td>
<td>273 years</td>
</tr>
<tr>
<td>DCavg</td>
<td>99%</td>
</tr>
</tbody>
</table>

**Safety Data – Values per IEC/EN 62061 / IEC/EN 61508**

| SIL CL            | 3 per IEC/EN 62061         |
| SFF               | 99.7%                     |
| PFHD              | 1.69E-10 h-1              |

**Safety Speed Monitor Relay Module Specification Table**

**General Specifications**

- **Temperature**
  - Storage: -25°C to 85°C (-13°F to 185°F)
  - Operating: -25°C to 60°C (-13°F to 140°F)
- **Altitude**
  - < 2,000 meters
- **Vibration Resistance**
  - Amplitude: 0.35mm, Frequency: 10 to 55 Hz (IEC/EN 60-068-2-6)
- **Degree of Protection**
  - Per IEC/EN 60 529. Housing: IP40, Terminals IP20
- **Housing**
  - UL 94V-0 Thermoplastic; Din mount 35 mm x 7.5 mm
- **Weight**
  - 410g (14.46 oz.)
- **Agency Approvals and Standards**
  - cULus file E107778, CE, RoHS
- **Terminal Designation**
  - per EN 50 005 Wire Connections
  - 1x4 mm² solid or 1 x 2.5 mm² stranded ferruled (isolated) or 2 x 1.5 mm² stranded ferruled (isolated) DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm² solid per DIN 46 228-1/-2 /-3/-4
- **Wire Fixing**
  - Plus-minus terminal screws M3.5 box terminals with wire protection. Torque 0.8 Nm (7 lb-in)

**Input Specifications**

- **Nominal Voltage**
  - 24V AC/DC, 110 VAC, 239VAC
- **Voltage Range**
  - AC: 0.85 to 1.1 UN. At 10% residual ripple: 0.9 to 1.1 UN At 48% residual ripple: 0.85 to 1.1 UN
  - DC: 0.9 to 1.1 UN. At 10% residual ripple: 0.9 to 1.1 UN At 48% residual ripple: 0.85 to 1.1 UN
- **Nominal Consumption**
  - ca. 4 VA, 2.5W
- **Nominal Frequency**
  - 50 to 60 Hz. Frequency range: 45 to 65 Hz
- **Control Current**
  - Control current typ. at 24V over 2 relays: 75mA
- **Overvoltage Protection**
  - Internal VDR (Voltage Dependent Resistor)
- **Sensor Inputs**
  - 24 VDC; 25 mA max. per channel; 1 ms On/1ms Off min. pulse time; 30,000 Ipm max. at inputs IN A and INB

**Output Specifications**

- **Electrical Contact Life**
  - To AC15 at 2 A, 230V: 3x10⁶ switching cycles IEC/EN 60 947-5-1
- **Mechanical Life**
  - >50 x 10⁶ switching cycles
- **Contact Type**
  - 2 N.O. positively driven and 1 N.C. relay contacts (N.O. contacts are safety contacts)
- **Operate Delay on Standstill**
  - Depends on setting; see manual and supplement
- **Release Delay on Overspeed**
  - t_off = typ. 350ms
- **Nominal Output Voltage**
  - 250VAC
- **Thermal Current (Ith)**
  - Max. 4A per contact. See continuous current limit curve in installation manual.
- **Short Circuit Strength**
  - Max fuse rating: 4A gl (IEC/EN 60 9470-5-1)
- **Switching Capacity IEC/EN 60 947-5-1**
  - AC 1S: N.O. contacts: 3A/230V, N.C. contacts: 2A/230VAC
- **Switching Frequency**
  - Max. 1,200 switching cycles/hr

**Dimensions mm [in]**

For the latest prices, please check AutomationDirect.com.
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**Wiring**

**BH5932 Block Diagram**

**Application**

**Two PNP Proximity Sensors Monitoring a 3-Phase Motor**

**Connection Terminals**

<table>
<thead>
<tr>
<th>Terminal designation</th>
<th>Signal designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 (+)</td>
<td>+ / L</td>
</tr>
<tr>
<td>A2</td>
<td>- / N</td>
</tr>
<tr>
<td>X1, X2</td>
<td>Feedback circuit</td>
</tr>
<tr>
<td>+24V</td>
<td>+ supply for proximity sensors 1 e. g. 2</td>
</tr>
<tr>
<td>0V</td>
<td>- supply for proximity sensors 1 e. g. 2</td>
</tr>
<tr>
<td>INA, INB</td>
<td>measuring output of proximity sensors 1 e. g. 2</td>
</tr>
<tr>
<td>13, 14, 23, 24</td>
<td>Positive driven NO contacts for release circuit</td>
</tr>
<tr>
<td>31, 32</td>
<td>Positive driven NC contacts for release circuit</td>
</tr>
</tbody>
</table>

**Function diagram**

- **standstill detection**
- **overspeed detection**

- **t_{rel}:** reset time after connection of supply voltage
- **t_{ale}:** operate delay after detection of standstill/underspeed
- **t_{aus}:** release delay after detection of overspeed

**Connection examples**

- **Standard connection**
- **Connection with external contactors**
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