

# Dold BH5932 Speed Monitor Relays **DOLD**



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 Data – Values per EN ISO 13849-1

| Category          | 3 according to EN 954-1     |
|-------------------|-----------------------------|
| Performance level | PLe according to EN 13849-1 |
| MTTF <sub>d</sub> | >273 years                  |
| DC <sub>avg</sub> | 99%                         |

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

|                                  |                                      |
|----------------------------------|--------------------------------------|
| SIL CL                           | 3 per IEC/EN 62061                   |
| SIL                              | 3 per IEC/EN 61508                   |
| HFT (Hardware Failure Tolerance) | 1                                    |
| DC <sub>avg</sub>                | 99%                                  |
| SFF                              | 99.7%                                |
| PFH <sub>D</sub>                 | 1.69E <sup>-10</sup> h <sup>-1</sup> |

## Safety Speed Monitor Relays Selection Chart

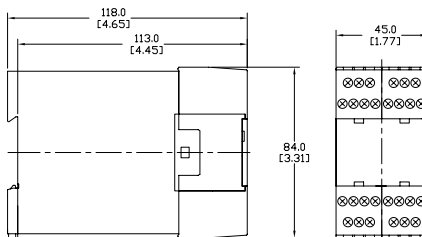
| Part Number             | Price    | Marking Type                         | Voltage    | Outputs       |
|-------------------------|----------|--------------------------------------|------------|---------------|
| <b>BH5932-22-113-24</b> | \$425.00 | Speed-monitoring safety relay module | 24 VAC/VDC | 2 NO and 1 NC |

## 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  | < 2000m (6562ft)  |
| 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 mm <sup>2</sup> solid or 1 x 2.5 mm <sup>2</sup> stranded ferruled (isolated) or 2 x 1.5 mm <sup>2</sup> stranded ferruled (isolated) DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm <sup>2</sup> solid per DIN 46 228-1/-2/-3 /-4 |
| Wire Fixing   | Plus-minus terminal screws M3.5 box terminals with wire protection. Torque 0.8N•m (0.59 lb•ft)  |
| 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<br>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. 4VA, 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                                       | 24VDC; 25mA max./3 mA min. per channel.; 1ms On/1ms Off min. pulse time; 30,000 lpm max. at inputs INA and INB  |
| Output Specifications                               |   |
| Electrical Contact Life                             | To AC15 at 2A, 230V: 3x10 <sup>5</sup> switching cycles IEC/EN 60 947-5-1   |
| Mechanical Life                                     | M50 x 10 <sup>6</sup> switching cycles  |
| Contact Type  | 2 NO positively driven and 1 NC relay contacts (NO contacts are safety contacts)  |
| Operate Delay on Standstill                         | Depends on setting; see manual and supplement   |
| Release Delay on Overspeed                          | t <sub>off</sub> = typ. 350ms   |
| Nominal Output Voltage                              | 250VAC  |
| Thermal Current (I <sub>th</sub> )                  | 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 15: NO contacts: 3A/230V; NC contacts: 2A/230VAC   |
| Switching Frequency                                 | Max. 1200 switching cycles/hr   |

## Dimensions

mm [in]

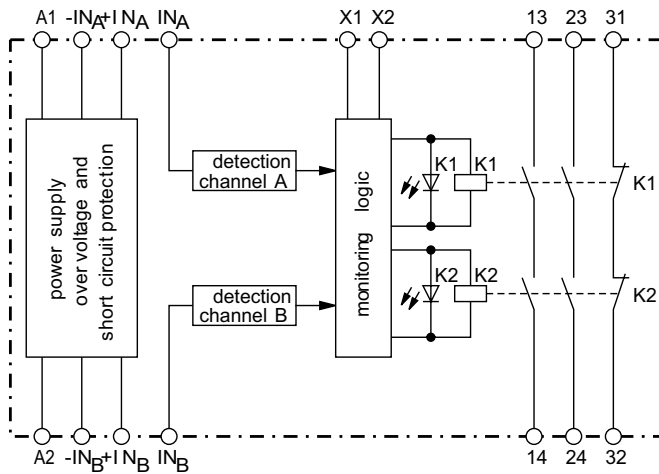


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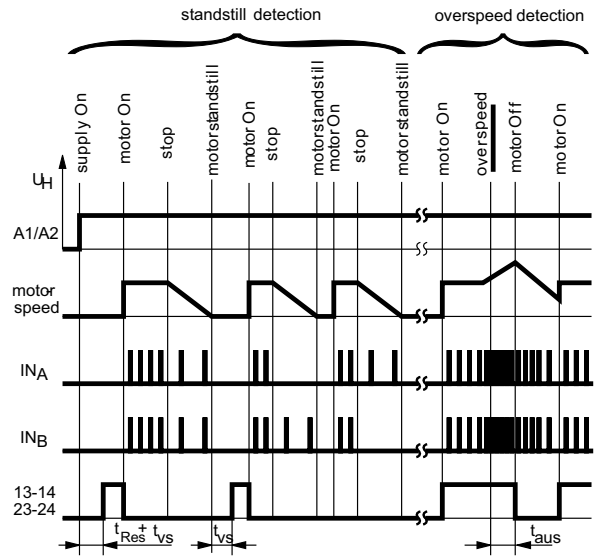


## Wiring

**BH5932 Block Diagram**



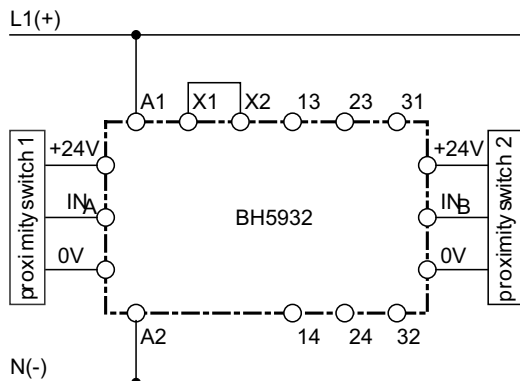
## Function diagram



$t_{Res}$ : reset time after connection of supply voltage  
 $t_{vs}$ : operate delay after detection of standstill/underspeed  
 $t_{aus}$ : release delay after detection of overspeed

## Application

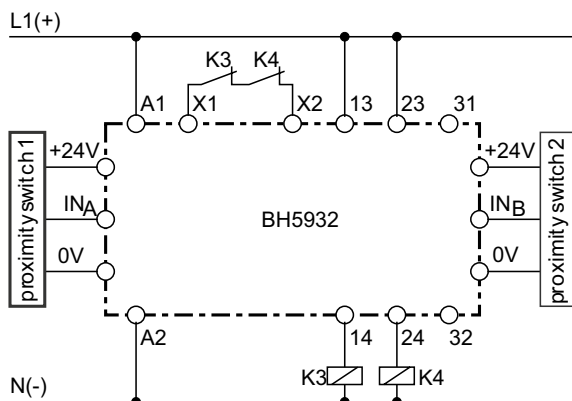
**Two PNP Proximity Sensors Monitoring a 3-Phase Motor**



**Standard connection**

### Connection Terminals

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



**Connection with external contactors**

# Safety Products



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