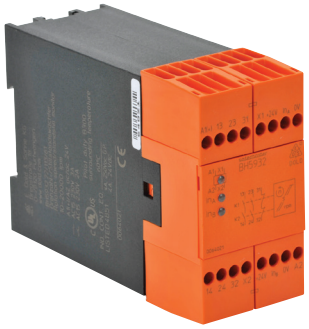
Dold BH5932 Speed Monitor Relays



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 Data – Values per EN ISO 13849-1	
Category	***3 according to EN 954-1***
Performance level	PLe according to EN 13849-1
$MTTF_d$	>273 years
DC_{avg}	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_{avg}	99%
SFF	99.7%
PFH_D	$1.69E^{-10}$ h^{-1}

Safety Speed Monitor Relays Selection Chart

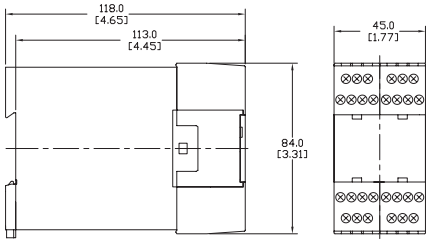
Part Number	*Price*	*Marking Type*	*Voltage*	*Outputs*
BH5932-22-113-24		Speed-monitoring safety relay module	24 VAC/VDC	2 NO and 1 NC
BH5932-22-113-120		Please consider BH5932-22-113-24 as a comparable replacement.		
BH5932-22-113-230		Please consider BH5932-22-113-24 as a comparable replacement.		

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^2 solid or 1 x 2.5 mm^2 stranded ferruled (isolated) or 2 x 1.5 mm^2 stranded ferruled (isolated) DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm^2 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 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 Ipm max. at inputs INA and INB
Output Specifications	
Electrical Contact Life	To AC15 at 2A, 230V: $3x10^5$ switching cycles IEC/EN 60 947-5-1
Mechanical Life	M50 x 10^6 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_{off} = typ. 350ms
Nominal Output Voltage	250VAC
Thermal Current (I_{th})	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

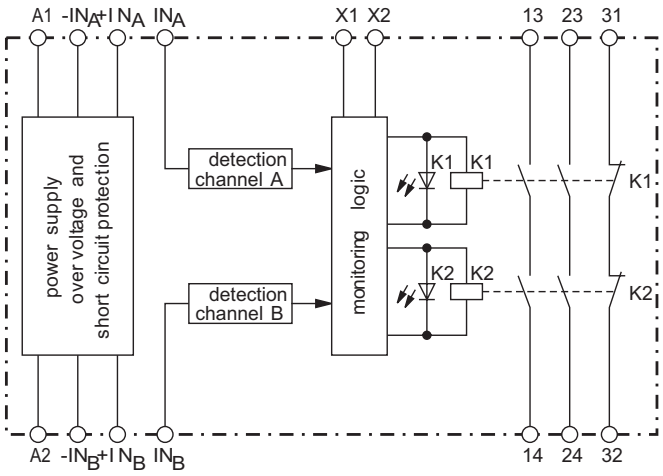
mm [in]



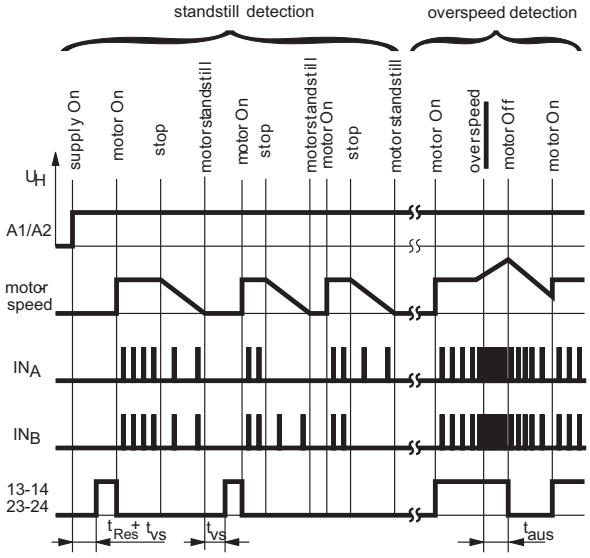
Dold BH5932 Speed Monitor Relays

Wiring

BH5932 Block Diagram



Function diagram

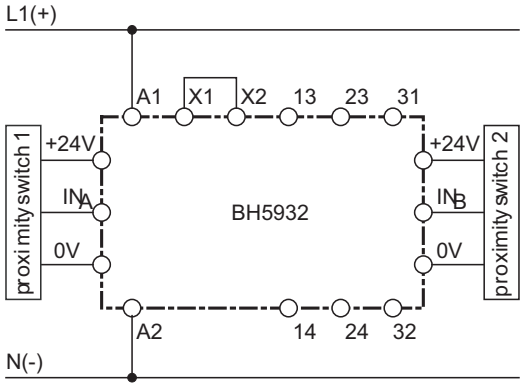


IN_A : proximity switch A
IN_B : proximity switch B

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

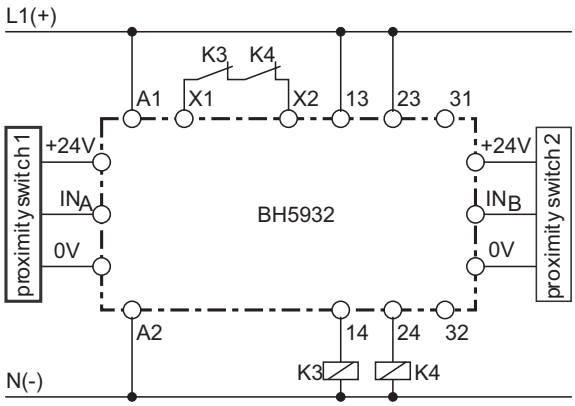
Two PNP Proximity Sensors Monitoring a 3-Phase Motor



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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