Dold Standstill Monitor Relays



UG6946-02PS-40

Dold speed monitoring safety relay modules provide safe standstill detection on 3-phase and single-phase motors by monitoring remanence voltage.

- Can monitor motor voltages up to 690 VAC or VDC
- No external sensors necessary
- Independent of direction
- · Broken wire detection
- Monitors rotation and linear movement
- 2-channel operation for standstill monitoring
- Up to 3 NO and 1 NC positive-guided safety contacts
- · LED status indicator
- · Adjustable voltage setting
- Adjustable standstill time delay
- Semiconductor outputs for monitoring

Safety Data – Values per EN ISO				
13849-1				
Category	4 according to EN ISO 13849-1			
Performance level	PLe according to EN ISO 13849-1			
MTTF _d	>93 years for LH5946 >222 years for UG6946			
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%			
PFH _D	4.10 x 10 ⁻¹⁰ for LH5946 4.20 x 10 ⁻¹⁰ for UG6946			

Safety Standstill Monitor Relays Selection Chart							
Part Number	Price	Marking Type	Voltage Monitor Range	Voltage	Outputs	Muting	Drawing
LH5946-48-24-04	\$526.00	Standstill-monitoring safety relay module	20mV to 400mV	24 VDC	3 NO / 1 NC	No	<u>PDF</u>
LH5946-48-115-04	\$526.00			115 VAC		No	<u>PDF</u>
UG6946-02PS-04	\$347.00			24 VDC	2 NO / 1 NC	No	<u>PDF</u>
UG6946-02PS-001-04	\$367.00			24 VDC		Yes	<u>PDF</u>
LH5946-48-24-40	\$526.00	Standstill-monitoring safety relay module	200mV to 4V	24 VDC	3 NO / 1 NC	No	<u>PDF</u>
LH5946-48-115-40	\$526.00			115 VAC		No	<u>PDF</u>
UG6946-02PS-40	\$347.00			24 VDC	2 NO / 1 NC	No	PDF
UG6946-02PS-001-40	\$367.00			24 VDC		Yes	PDF

Note: The -04 models are recommended for applications where motors are controlled directly from contactors.

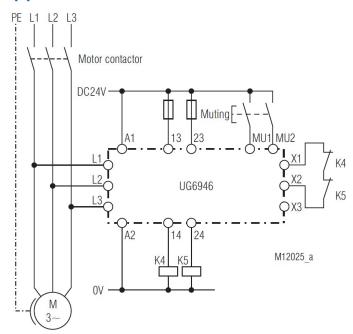
The -40 models are recommended for applications involving VFDs or soft starters where OFF-state leakage is present and higher voltage settings are required.

Dold Standstill Monitor Relays

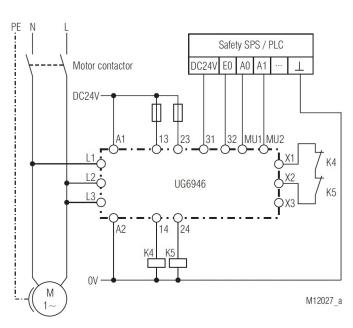
Safety Standstill Monitor Relays Specification Table				
General Specifications	LH5946	UG6946		
Temperature	Storage: -40°C to 75°C (-40°F to 167°F)			
Altitude	Operating: -25°C to 60°C (-13°F to 140°F) < 2.000 meters			
Vibration Resistance	Amplitude: 0.35 mm			
Degree of Protection	Housing: IP40 Terminals: IP20			
Housing	Thermoplastic with VO behavior; DIN rail mount			
Weight	400g (14.11 oz.) 295g (10.41 oz.)			
Agency Approvals and Standards	cULus file E10	7778, CE, TUV		
Wire Connections	1x AWG 20-12 solid or stranded 2x AWG 20-14 solid or stranded 2x AWG 24-18 solid or stranded			
Wire Fixing	Plus-minus terminal screws M3.5 box terminals with wire protection. Torque 0.8 Nm [7 lb•in] Captive slotted screw. Torque 0.8 Nm			
	Input Specifications			
Nominal Voltage	24VDC, 115VAC, 230VAC	24VDC		
Measuring/Motor Voltage	690 VAC/VDC (for UL applications, max 600 VAC/VDC)			
Input Resistance	500ΚΩ			
Response Value U _{an}	20 mV to 400 mV, adjustable or 0.2 to 4V adjustable			
Response Value Dependent on Frequency	Input Frequency (Hz) 50 Response Value U _{an} 1.0	100 200 400 600 1k 1.5k 2k 1.1 1.2 1.5 2.0 2.8 5 8		
Voltage Range	AC: 0.8 to 1.1 $\rm U_N$. At 10% residual ripple: 0.9 to 1.1 $\rm U_N$ DC: 0.9 to 1.2 $\rm U_N$. At 10% residual ripple: 0.9 to 1.1 $\rm U_N$	DC: 0.9 to 1.2 U _N . At 10% residual ripple: 0.9 to 1.1 U _N		
Nominal Consumption	3W			
Nominal Frequency	50 to 60 Hz. Frequency range: 45 to 65 Hz	N/A		
Control Current	Control current typical at 24V over two relays: 75mA			
Overvoltage Protection	Internal VDR (Voltage Dependent Resistor)			
	Output Specifications			
Electrical Contact Life	To AC15 at 3A, 230V: 2x10 ⁵ swit			
Mechanical Life	50 x 10 ⁶ switching cycles 20 x 10 ⁶ switching cycles			
Contact Type	3 NO positively driven and 1 NC relay contacts (NO contacts are safety contacts) 2 NO positively driven and 1 NC relay contacts (NO contacts are safety contacts)			
Operate Delay on Standstill	Depends on setting; adjust by potentiometer			
Release Delay for Detection of Running Motor	< 10	0ms		
Nominal Output Voltage	250VAC 250VAC (for NO contact 24VDC (for NC contact 24VDC)			
Thermal Current (I _{th})	5A per contact See continuous current limit curve in manual. 5A (for NO contacts) 2A (for NC contacts) See quadratic total current limit curve			
Short Circuit Strength	Max fuse rating: 4 AGL (IEC/EN 60 9470-5-1), line circuit breaker C6A			
Switching Capacity IEC/EN 60 947-5-1	AC 15: NO contacts: 3A/230V NC contacts: 1A/230VAC DC13: 4A/24V AC 15: NO contacts: 3A/230V DC13: 4A/24V DC13: 4A/24V			
Switching Frequency	Max. 1,200 switching cycles/hr			
Semiconductor Monitoring	100 mA DC 24V; supply via A3+/A4 N/A			

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Applications

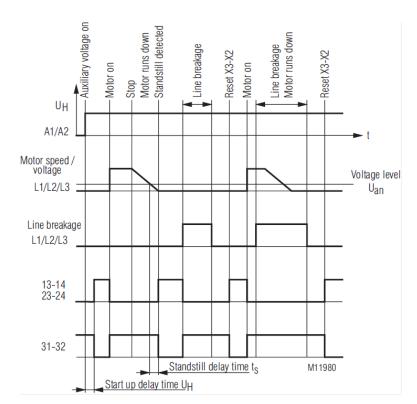


With 3-phase motor



With single-phase motor

Function Diagram



Connection Terminals			
Terminal Designation	Signal Description		
L1-L2-L3	Connection to monitored motor		
31-32	Forcibly guided indicator output		
13-14, 23-24	Forcibly guided NO contacts for release circuit		
X1-X2	Connection of feedback circuit (for external contactors)		
X2-X3	Manual reset for external faults		
A1-A2	Auxiliary supply (U _H)		
MU1, MU2	Muting inputs		

Setting		
Potentiometer U _{an}	Adjustment of voltage level for standstill detection	
Potentiometer t _S	Adjustment of time delay before activation of safety contacts	

Safety Products



Warning: Safety products sold by AutomationDirect are Safety components only. The purchaser/installer is solely responsible for the application of these components and ensuring all necessary steps have been taken to assure each application and use meets all performance and applicable safety requirements and/or local, national and/or international safety codes as required by the application. AutomationDirect cannot certify that our products, used solely or in conjunction with other AutomationDirect or other vendors' products, will assure safety for any application. Any person using or applying any products sold by AutomationDirect is responsible for learning the safety requirements for their individual application and applying them, and therefore assumes all risks, and accepts full and complete responsibility, for the selection and suitability of the product for their respective application.

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