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
- · 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		

values per IEG/EN 62061 /IEG/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	Connection	Muting	Drawing		
LH5946-48-24-04	\$526.00		20mV to 400mV	24 VDC	3 NO / 1 NC	Fixed screw terminals	No	PDF		
LH5946-PC-24-04	\$526.00			24 VDC		Push-in cage clamp	No	PDF		
LH5946-48-115-04	\$526.00			115 VAC		Fixed screw terminals	No	PDF		
LH5946-PC-115-04	\$526.00			20mV to 400mV	20mV to 400mV	115 VAC		Push-in cage clamp	No	PDF
UG6946-02PS-04	\$347.00				24 VDC	2 NO / 1 NC	Pluggable screw terminals	No	<u>PDF</u>	
UG6946-02PS-001-04	\$367.00	Standstill-monitoring safety relay module		24 VDC	ZNO/INC	Pluggable screw terminals	Yes	PDF		
LH5946-48-24-40	\$526.00		200mV to 4V	24 VDC	3 NO / 1 NC	Fixed screw terminals	No	PDF		
LH5946-PC-24-40	\$526.00			24 VDC		Push-in cage clamp	No	PDF		
LH5946-48-115-40	\$526.00			115 VAC		Fixed screw terminals	No	PDF		
LH5946-PC-115-40	\$526.00			200mV to 4V	115 VAC		Push-in cage clamp	No	PDF	
UG6946-02PS-40	\$347.00				24 VDC	2 NO /4 NO	Pluggable screw terminals	No	PDF	
UG6946-02PS-001-40	\$367.00				24 VDC	2 NO / 1 NC	Pluggable screw terminals	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 DOLD &

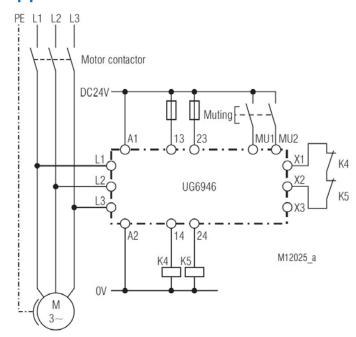


Safety Standsti	ill Monitor Relays Specification Table					
General Specifications	LH5946 UG6946					
Temperature	Storage: -40°C to 75°C [-40°F to 167°F)]					
Altitude	< 2,000m [6562ft]					
Vibration Resistance	Amplitude: 0.35 mm Amplitude: 0.075 mm Frequency: 10 to 55 Hz (IEC/EN 60068-2-6) Frequency: 10 to 57 Hz (IEC/ EN 60068-2-6)					
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 E1077778, CE, TUV					
Wire Connections	1x AWG 20-12 solid or stranded 1x AWG 24-12 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 N•m [7 lb•in]					
	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}	20mV to 400mV, adjustable or 0.2 V to 4V adjustable					
	Input Frequency (Hz) 50 100 200 400 600 1k 1.5k 2k					
Response Value Dependent on Frequency	Response Value U _{an} 1.0 1.1 1.2 1.5 2.0 2.8 5 8					
Voltage Range	AC: 0.8 to 1.1 U $_{ m N}$ At 10% residual ripple: 0.9 to 1.1 U $_{ m N}$ DC: 0.9 to 1.2 U $_{ m N}$ At 10% residual ripple: 0.9 to 1.1 U $_{ m N}$ At 10% residual ripple: 0.9 to 1.1 U $_{ m N}$					
Nominal Consumption	3W					
Nominal Frequency	50 to 60 Hz. Frequency range: 45 to 65 Hz					
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 switching cycles IEC/EN 60 947-5-1					
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	< 100ms					
Nominal Output Voltage	250VAC 250VAC (for NO contacts) 24VDC (for NC contacts)					
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 curves in manual.					
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 AC 15: NO contacts: 3A/230V					
Switching Frequency	Max. 1,200 switching cycles/hr					
Semiconductor Monitoring	100 mA DC 24V; supply via A3+/A4 N/A					

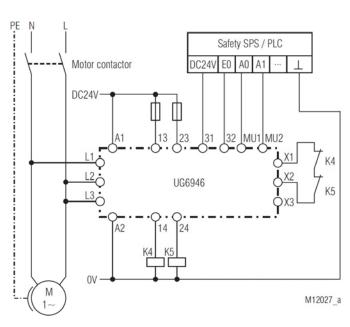
Dold UG6946 Standstill Monitor Relays



Applications

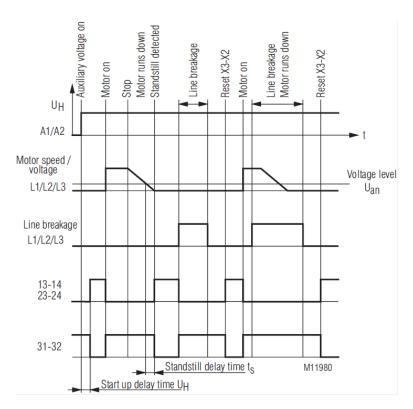


With 3-phase motor



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



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