Dold Safety Relay
Standstill, Speed, and Gate Monitoring

UH5947-04PS24

The Dold speed and standstill monitor provides safe monitoring of motors and rotating equipment using encoders or proximity switches. The front displays user-selected parameters which can be easily and conveniently changed depending on the application.

Features

- Adjustable operation mode
- Single or 2-channel safety gate monitoring
- Adjustable start-up delay
- Adjustable monitoring time
- LED status Indicator
- Forcibly guided contacts

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	4.10×10^{-10} for LH5946 4.20×10^{-10} for UG6946

Standstill, Speed, and Gate Monitoring Relays Selection Chart

Part Number	Price	Marking Type	Monitoring Circuit	Control Voltage	Connection	Drawing
UH5947-04PS24	$647.00	Motor standstill, speed and safety gate monitoring	(2) PNP or NPN sensor inputs and/or (1) encoder	24VDC	Pluggable screw terminals	PDF
UH5947-04PS110	$667.00			110-240 VAC/VDC		PDF
UH5947-04-001PS24	$647.00		NAMUR sensor inputs and/or (1) encoder	24VDC		PDF
UH5947-04-001PS110	$667.00			110-240 VAC/VDC		PDF
UH5947-04PC24	$686.00		(2) PNP or NPN sensor inputs and/or (1) encoder	24VDC	Push-in cage clamp	PDF
UH5947-04PC110	$725.00			110-240 VAC/VDC		PDF
UH5947-04-001PC24	$686.00		NAMUR sensor inputs and/or (1) encoder	24VDC		PDF
UH5947-04-001PC110	$725.00			110-240 VAC/VDC		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.

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Standstill, Speed, and Gate Monitoring Relays Specifications		
General Specifications		
Storage Temperature	-20 to 70°C [-4 to 158°F]	
Operating Temperature	-20 to 60°C [-4 to 140°F]	
Altitude	< 2,000m [6562ft]	
Vibration Resistance	Amplitude: 0.35 mm Frequency: 10 to 55 Hz (IEC/EN 60068-2-6)	
Degree of Protection	IP20	
Housing	Thermoplastic with VO behavior; DIN rail mount	
Weight	420g [0.93 lb]	
Agency Approvals and Standards	cULus file E107778, CE, TUV	
Wire Connections	Pluggable screw terminal: 1x AWG 28 - 12 Push in cage clamp terminals: 1x AWG 24 - 12	
Input Specifications		
	UH5947-04xx110	***UH5947-04xx24***
Nominal Voltage	110 to 240 VAC/VDC	24VDC
Voltage Range	88 to 288 VAC/DC	21.6 to 26.4 VDC
Nominal Consumption	<6.5 W	<5 W
Frequency Range	50 to 60 Hz (+/- 5 Hz)	N/A
Minimum Off Time	600ms	150ms
Output Specifications		
Electrical Contact Life	To AC15 at 5A, 230V: $2x10^6$ switching cycles IEC/EN 60947-5-1	
Mechanical Life	≥ 50 x 10^6 Switching Cycles	
Contact Type	4 NO positively driven and 2 semiconductor-monitoring outputs (NO contacts are safety contacts)	
Thermal Current (I_{th})	5A (max)	
Short Circuit Strength	4A gG/gL (IEC/EN 60947-5-1)	
Switching Capacity IEC/ EN 60 947-5-1	AC 15: NO contacts: 3A/230V DC13: NO contacts: 1A/24VDC DC13: 4A/24V @0.1 Hz	
Semiconductor Monitoring	2 piece; 20mA DC 24V, plus switching	

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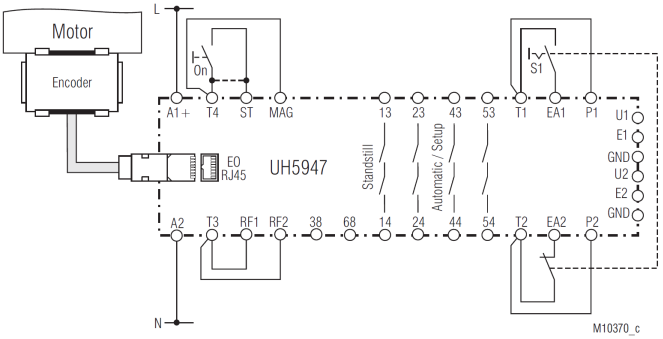
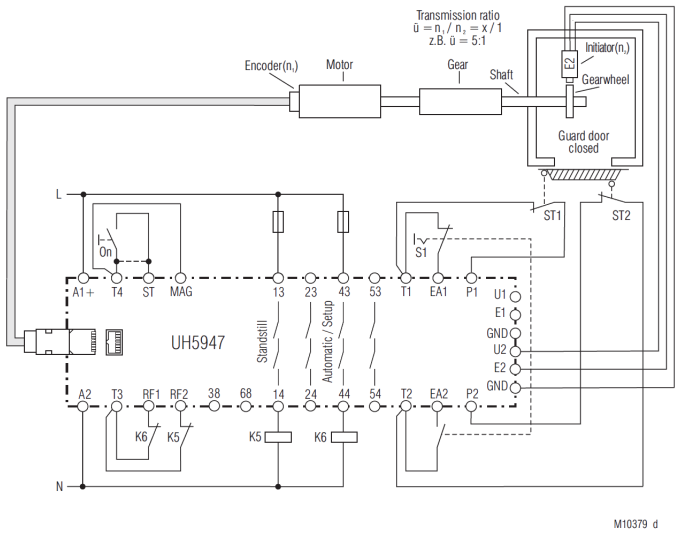
Applications



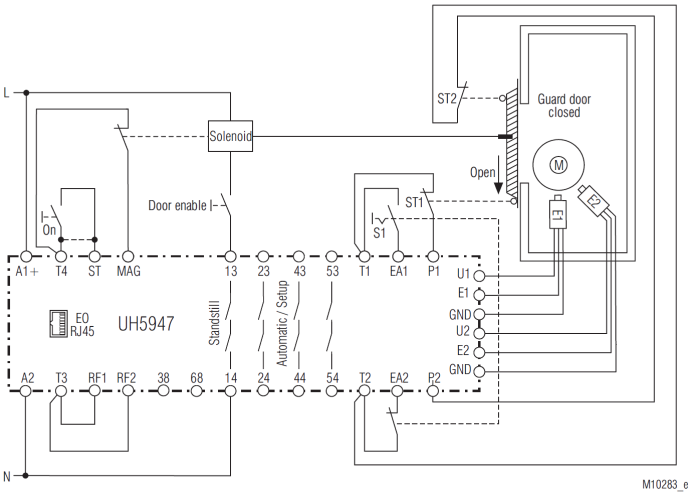
Rotational speed and standstill monitoring with suitable encoder, automatic mode

- For manual start: ON/OFF pushbutton to T4/ST
- For automatic start: jumper to T4/ST
- Suited up to SIL3, Performance Level e, Cat. 4 (requirement for Cat. 4 is, that during longer periods of standstill, a forced dynamization (t<24h) has to be carried out).



Rotational speed and standstill monitoring by means of encoder and one NPN or PNP proximity sensor, setup mode

- Gear ratio set
- Safety gate monitoring active
- For manual start: ON/OFF pushbutton to T4/ST
- For automatic start: jumper to T4/ST
- Suited up to SIL3, Performance Level e, Cat. 4 (Requirement for Cat. 4 is, that during longer periods of standstill a forced dynamization (t<24h) has to be carried out).



Two-channel rotational speed and standstill monitoring by means of two NPN or PNP proximity sensors, automatic mode

- Safety gate monitoring active
- For manual start: ON/OFF pushbutton to T4/ST
- For automatic start: jumper to T4/ST
- Suited up to SIL3, Performance Level e Cat. 4 (Requirement for Cat. 4 is, that during longer periods of standstill a forced dynamization (t<24h) has to be carried out).
- NOTE: For NAMUR Sensor there is no GND connection

Terminal Designation	Signal Description
A1 (+)	+ / L
A2	- / N
U1, U2	+ supply for proximity sensors or NAMUR sensors
GND	- supply for proximity sensors
E1, E2	Input for pulse signal from proximity sensors or NAMUR sensors
13, 14, 23, 24, 43, 44, 53, 54	Forcibly guided NO contacts for release circuit
38, 68	Semiconductor monitoring output
T1, T2, T3, T4	Control output
ST, MAG, RF1, RF2, P1, P2, EA1, EA2	Control input