



# 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	
<b>Category</b>	4 according to EN ISO 13849-1
<b>Performance level</b>	PLe according to EN ISO 13849-1
<b>MTTF<sub>d</sub></b>	>93 years for LH5946 >222 years for UG6946
<b>DC<sub>avg</sub></b>	99%
Safety Data – Values per IEC/EN 62061 /IEC/EN 61508	
<b>SIL CL</b>	3 per IEC/EN 62061
<b>SIL</b>	3 per IEC/EN 61508
<b>HFT (Hardware Failure Tolerance)</b>	1
<b>DC<sub>avg</sub></b>	99%
<b>PFH<sub>D</sub></b>	4.10 x 10 <sup>-10</sup> for LH5946 4.20 x 10 <sup>-10</sup> for UG6946

Standstill, Speed, and Gate Monitoring Relays Selection Chart						
Part Number	Price	Marking Type	Monitoring Circuit	Control Voltage	Connection	Drawing
<a href="#">UH5947-04PS24</a>	\$647.00	Motor standstill, speed and safety gate monitoring	(2) PNP or NPN sensor inputs and/or (1) encoder	24VDC	Pluggable screw terminals	<a href="#">PDF</a>
<a href="#">UH5947-04PS110</a>	\$667.00			110-240 VAC/VDC		<a href="#">PDF</a>
<a href="#">UH5947-04-001PS24</a>	\$647.00		NAMUR sensor inputs and/or (1) encoder	24VDC		<a href="#">PDF</a>
<a href="#">UH5947-04-001PS110</a>	\$667.00			110-240 VAC/VDC		<a href="#">PDF</a>
<a href="#">UH5947-04PC24</a>	\$686.00		Push-in cage clamp	(2) PNP or NPN sensor inputs and/or (1) encoder	24VDC	<a href="#">PDF</a>
<a href="#">UH5947-04PC110</a>	\$725.00				110-240 VAC/VDC	<a href="#">PDF</a>
<a href="#">UH5947-04-001PC24</a>	\$686.00			NAMUR sensor inputs and/or (1) encoder	24VDC	<a href="#">PDF</a>
<a href="#">UH5947-04-001PC110</a>	\$725.00				110-240 VAC/VDC	<a href="#">PDF</a>

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.



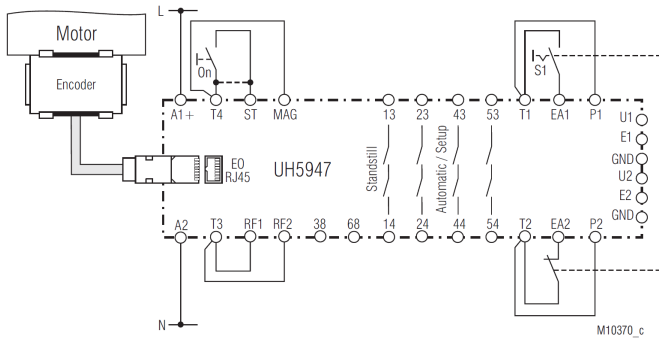
# Dold Safety Relay

## Standstill, Speed, and Gate Monitoring

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

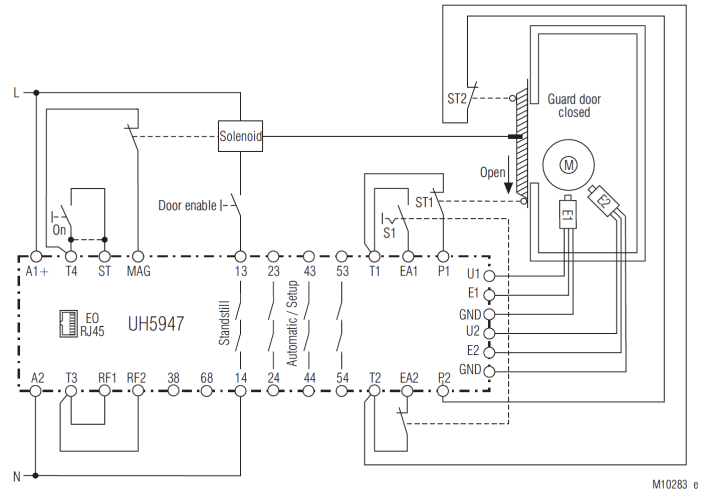
# Dold Safety Relay Standstill, Speed, and Gate Monitoring Applications

## Applications



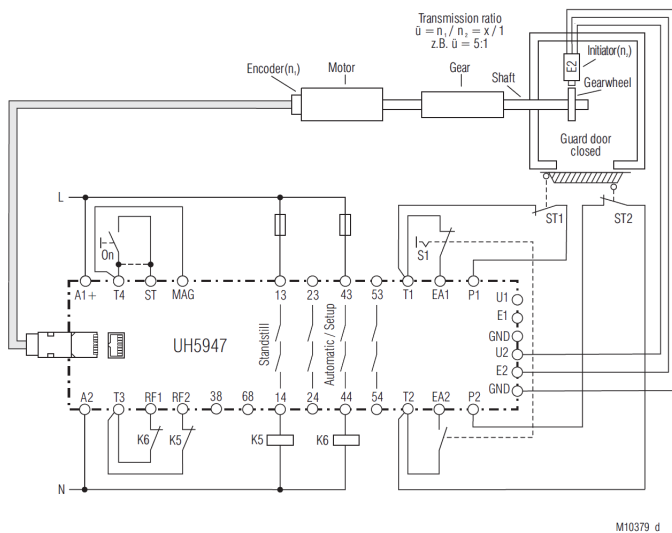
### Rotational speed and standstill monitoring with suitable encoder, automatic mode

- 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).



### 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



### 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).

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