Dold Safety Relay Mat and Edge DOLD &







- Safety-mat switch gear with manual or automatic
- · Can also be used for safety edges
- Output: 2 NO contacts
- Line fault detection at the ON pushbutton
- LED indicator for state of operation
- LED indicator for channel 1 and 2
- Wire connection: also 2 x 1.5 mm² stranded ferruled (isolated), DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm² stranded









Safety Data – Values per EN ISO 13849-1		
Category	4	
Performance level	PLe	
MTTF _d	236.3 years	
DC _{avg}	99%	
Safety Data – Values per IEC/EN 62061 /IEC/EN 61508		
SIL CL	3	
SIL	3	
HFT (Hardware Failure Tolerance)	1	
DC _{avg}	99%	
SFF	99.7%	
PFH _D	2.09E ⁻¹⁰ h ⁻¹	

Safety Relays Selection Chart				
Part Number	Price	Marking Type	Voltage	Outputs
BG5925-22-910-24	\$175.00	Dold safety relay module, safety mat/edges, dual channel, manual or automatic restart	24VDC coil voltage	2 NO positive guided safety contact(s), 1 NC monitoing contact(s)

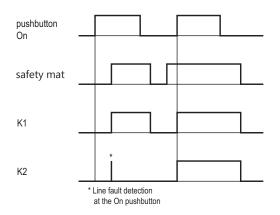
Relay Mat and Edge Specification Table				
General Specifications				
Temperature	Storage: -25°C to 85°C (-13°F to 185°F) Operating: -15°C to 55°C (5°F to 131°F)			
Altitude	< 2000m (6562ft)			
Vibration Resistance	Amplitude: 0.35mm, Frequency: 10 to 55 Hz (IEC/EN 60-068-2-6)			
Degree of Protection	Per IEC/EN 60 529. Housing: IP40; Terminals IP20			
Housing	UL 94V-0 Thermoplastic; DIN mount 35 mm x 7.5 mm			
Weight	220g (7.76 oz.)			
Terminal Designation per EN 50 005 Wire Connections	1x4 mm² solid or 1x2.5 mm² stranded ferruled (isolated) or 2x1.5 mm² stranded ferruled (isolated) DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm² stranded ferruled DIN 46 228-1/-2/-3			
Wire Fixing	Box terminal with wire protection, removable terminal strips			
Wire Connection	60°C/75°C Copper conductors only AWG20-12 Sol Torque 0.8N•m (0.59 lb•ft) AWG 20-14 STR Torque 0.8 NM(0.59 lb•ft)			
Input Specifications				
Nominal Voltage	24VDC			
Voltage Range	At 10% residual ripple: 0.9 to 1.1 UN			
Maximum Consumption	DC approx. 2W			
Control Voltage - S11	UN: 23VDC			
Control Current on S12, S22	40mA at UN			
Minimum Voltage on Terminals S12, S22 (when relay activated)	21VDC			
Short Circuit Protection	Internal fuse rating			
Overvoltage Protection	Internal VDR (Voltage Dependent Resistor)			
	Output Specifications			
Electrical Contact Life	To 2A, AC 230V: > 10 ⁵ switching cycles IEC/EN 60 947-5-1			
Mechanical Life	10 x 10 ⁶ switching cycles			
Contact Type	Forcibly guided			
Operate Delay	Operate delay typ at UN: manual start 80ms; automatic start 170ms			
Release Delay	Release delay typ. at UN: Disconnecting the supply: 50ms; Disconnecting S12, S22: 15ms			
Nominal Output Voltage	AC: 250V; DC: See continuous current limit curve in installation manual.			
Thermal Current (Ith)	Max. 5A per contact. See continuous current limit curve in installation manual.			
Switching of Low Loads	M100mV; (contacts with 5µ Au) M 1mA			
Short Circuit Strength	Max fuse rating: 6A gl (IEC/EN 60 947-5-1); Line circuit breaker: C 8A			
Switching Capacity	AC 15: NO contacts: 3A/230V; NC contacts: 2A/230V AC DC 13: NO contacts: 1A/24V DC, 0.5A/110V AC; NO contacts: 1A/24V DC			
Switching Frequency	Max. 1200 switching cycles/hr			
Agency Approvals	cULus file E107778, CE, RoHS, TUV			

Dold Safety Relay Mat and Edge

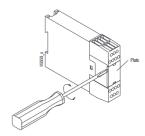




Function Diagram



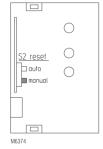
S1 and S2 Switch Setting Instructions



Disconnect unit before setting switches.

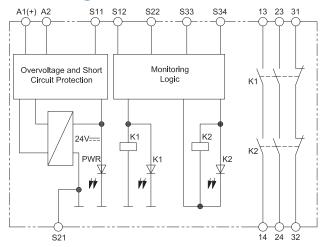
Drawing shows setting as delivered to the customer.





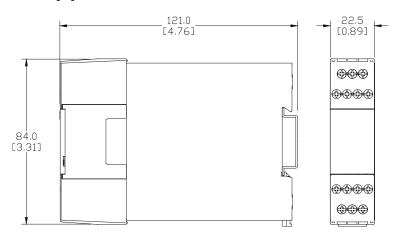


Block Diagram

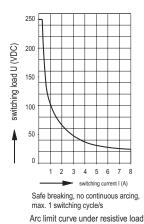


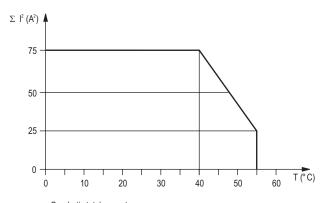
Dimensions

mm [in]



Characteristic Curves





Quadratic total current

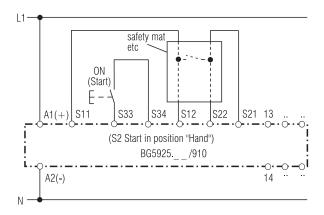
 $\sum_{1}^{2} = I_{1}^{2} + I_{2}^{2} + I_{3}^{2}$

 ${\sf I_1}$, ${\sf I_2}$, ${\sf I_3}$ - current in contact paths

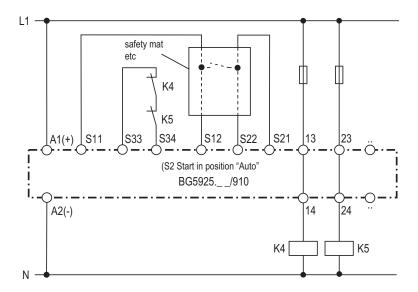
Dold Safety Relay Mat and Edge



Application Examples



Switch gear for safety mats and edges switch S2 position: Manual start (For automatic restart S2 in position Autostart and link on S33-S34) Suited up to SIL3, Performance Level e, Cat. 4



Switch gear for safety mats and edges
Contact reinforcement by external contactors, 2-channel.
switch S2 position:
Auto start
Suited up to SIL3, Performance Level e, Cat. 4

Dold LG5929 Extension Module







Additional contacts for emergency-stop modules and safety gate monitors.

- 1-channel or 2-channel connection
- LED indication for operation
- Output: 5 N.O. and 1 N.C. contacts

Safety Data – \	lalues per EN ISO 13849-1	
Category	4 according to EN 954-1	
Performance level	PLe according to EN 13849-1	
MTTF _d	>100 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	4.68E ⁻¹⁰ h ⁻¹	

Safety Relays Selection Chart				
Part Number	Price	Marking Type	Voltage	Outputs
LG5929-60-100-61	\$136.00	Safety relay extension module	24 VAC/VDC	5 N.O./1 N.C.

Safety Relay Extenson Module Specification Table			
General Specifications			
Temperature	Storage: -25°C to 85°C (-13°F to 185°F) Operating: -15°C to 55°C (5°F to 131°F)		
Altitude	< 2,000 meters		
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	205g (7.23 oz.)		
Agency Approvals and Standards	CSA, cULus file E107778, CE, RoHS, TUV		
Terminal Designation per EN 50 005 Wire Connections	1x4 mm² solid or 1 x 2.5 mm² stranded ferruled (isolated) or 2 x 1.5 mm² stranded ferruled (isolated) DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm² solid per DIN 46 228-1/-2/-3 /-4		
Wire Fixing	Plus-minus terminal screws M3.5 box terminals with wire protection or cage clamp terminals.		
Input Specifications			
Nominal Voltage	24V AC/DC		
Voltage Range	AC: 0.85 to 1.1 U $_{ m N}$ At 10% residual ripple: 0.9 to 1.1 U $_{ m N}$; At 48% residual ripple: 0.85 to 1.1 U $_{ m N}$		
Maximum Consumption	24VAC/DC: 1.8VA		
Nominal Frequency	50 to 60 Hz		
Control Current	Control current typ. at 24V over 2 relays: 75 mA		
Overvoltage Protection	Internal VDR (Voltage Dependent Resistor)		
Output Specifications			
Electrical Contact Life	To AC15 at 2 A,230V: 10 ⁵ switching cycles IEC/EN 60 947-5-1		
Mechanical Life	20 x 10 ⁶ switching cycles		
Contact Type	5 N.O. positively driven and 1 N.C. relay contacts (N.O. contacts are safety contacts)		
Operate/Release Time	Operate typ at U_N : 20 m.; Release typ at U_N : 35 ms.		
Nominal Output Voltage	250VAC		
Thermal Current (I _{th})	Max. 5A per contact. See continuous current limit curve in installation manual.		
Short Circuit Strength	Max fuse rating:10A gl (IEC/EN 60 9470-5-1); Line circuit breaker: B6A		
Switching Capacity IEC/EN 60 947-5-1	AC 15: N.O. contacts: 3A/230V; N.C. contacts: 2A/230VAC DC 13: N.O. contacts: 4A/24V; N.C. contacts: 4A/24VDC; N.O. contact: 8A/24V >25x10 ³ ON: 0.4s, OFF: 9.6s		
Switching Frequency	Max. 1,200 switching cycles/hr		

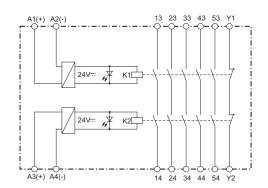
Dold LG5929 Extension Module

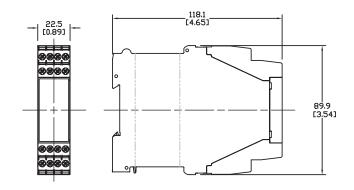


Wiring

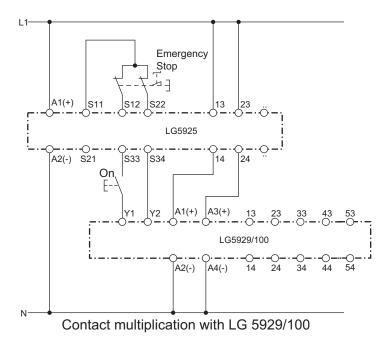
Dimensions mm [in]

LG5929 Block Diagram





Applications



Note: This is a representative drawing. Depending on the LG5925 safety relay you select, different voltage sources may be required.

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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