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Dold Safety Relays Light Curtain Controller





Designed to protect people and machinery in applications with light curtains.

- For light curtains with symmetric or asymmetric outputs, adjustment with switch S1
- Output: 3 NO and 1 NC contacts
- Line fault detection for ON-button
- LED indicators for power and state of operation
- Single and 2-channel operation

Safety Data – Values per EN ISO 13849-1		
Category	4	
Performance level	PLe	
MTTF _d	584.5 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	1.1E ⁻¹⁰	
PFHD	8.2E ⁻⁵	

Safety Relays Selection Chart						
Part Number	Price	Marking Type	Voltage	Outputs	Connection	Drawing
<u>LG5925-48-900-61</u>	\$165.00	Light curtain	3 NO		Fixed screw terminals	<u>PDF</u>
LG5925-48PC-900-24	\$175.00	controller, 2-channel	24 VDC	1 NC	Push-in cage clamp	<u>PDF</u>

2-Channel Light Curtai	n Controller Specification Table		
General Specifications			
Temperature	Storage: -40°C to 85°C [-40°F to 185°F]; Operating: -25°C to 60°C [-13°F to 140°F]		
Altitude	< 2,000m [6562ft]		
Vibration Resistance	Amplitude: 0.35 mm; 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 35mm x 7.5 mm		
Weight	220g [7.76 oz.)]		
Agency Approvals and Standards	cULus file E107778, CE, RoHS, TUV		
Terminal Designation per EN 50 005 Wire Connections	1x4 mm ² solid or 1 x 2.5 mm ² stranded ferruled (isolated) or 2 x 1.5 mm ² stranded ferruled (isolated) DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm ² stranded ferruled DIN 46 228-1/-2/-3		
Wire Fixing	Terminal screws M3.5 box terminals with wire protection or cage clamp terminals.		
Input Specifications			
Nominal Voltage	24VDC		
Voltage Range	At 5% residual ripple: 0.9 to 1.1 UN		
Maximum Consumption	DC approx. 1.7 W		
Control Voltage - S11	U _N : 22.5 VDC		
Control Current on S12, S22	35mA at U _N		
Minimum Voltage on Terminals S12, S22(when relay activated)	21VDC		
Short Circuit Protection	Internal with PTC (Positive Temperature Coefficient resistor)		
Overvoltage Protection	Internal VDR (Voltage Dependent Resistor)		
Out	put Specifications		
Electrical Contact Life	To 5A, AC 230V: >2.2 x 10 ⁵ switching cycles IEC/EN 60 947-5-1		
Mechanical Life	20 x 10 ⁶ switching cycles		
Contact Type	3 NO positively driven and 1 NC relay contacts, (NO contacts are safety contacts)		
Operate Delay	Operate delay typ at U _N : manual start 20ms; automatic start: 350ms		
Release Delay	Release delay typ. at U _N : Disconnecting the supply: 20ms.; Disconnecting S12, S22: 15ms		
Nominal Output Voltage	AC: 250V; DC: See continuous current limit curve in installation manual.		
Thermal Current (I _{th})	Max. 8A 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: B 6A		
Switching Capacity	AC 15: NO contacts: 3A/230VAC; NC contacts: 2A/230VAC DC 13: NO contacts: 2A/24VDC, NC contacts: 2A/24VDC DC 13: NO contacts: 4A/24VDC @ 0.1 Hz, NC contacts: 4A/24VDC @ 0.1 Hz		
Switching Frequency	Max. 1,200 switching cycles/hr		

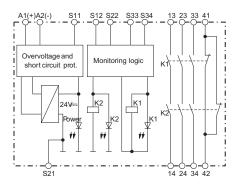
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Dold Safety Relays Light Curtain Controller

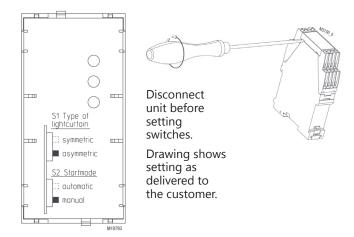


Wiring

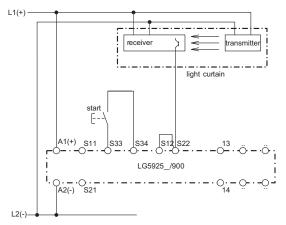
LG5925-48-900-61 and LG5925-48PC-900-24 **Block Diagram**



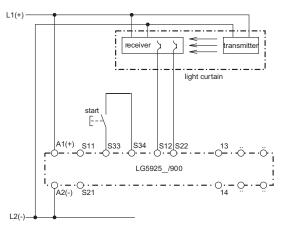
S1 and S2 **Switch Setting Instructions**



Applications



Single channel connection of light curtains with self-test according to EN 61 496-1. Note: Refer to "Unit programming" Set switch or dip switches in position: S1 "without" S2 "manual' With autostart link S33 - S34 set to "automatic."



2 channel connection of light curtains with self-test according to EN 61 496-1.

Cross fault detection in the light curtain.

Note: Refer to "Unit programming"

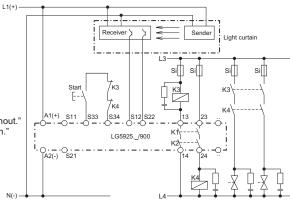
Set switch or dip switches in position:

With symmetric outputs on light curtain, switch S1 in position "without." S1: With asymmetric outputs on light curtains, switch S1 in position "with." S2: "manual"

Contact reinforcement and contact extension by external contactors Note: Refer to "Unit programming"

Set switches or dip switches in position:

S1: With symmetric outputs on light curtain, switch S1 in position "without." With asymmetric outputs on light curtains, switch S1 in position "with." S2: "manual"



*Note: When switching inductive loads, surge suppressors are recommended.

Safety Electrical Components

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1-800-633-0405 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 – Values 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%	
PFHD	4.68E ⁻¹⁰ h ⁻¹	

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

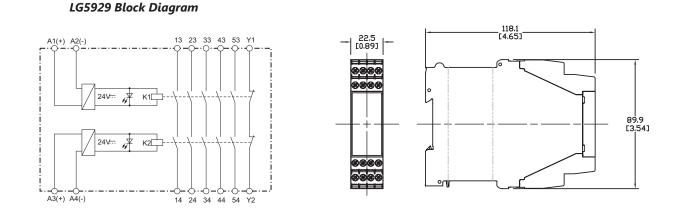
Safety Relay E	xtenson Module Specification Table	
General Specifications		
Temperature	Storage: -25°C to 85°C (-13°F to 185°F) Operating: -15°C to 55°C (5°F to 131°F)	
Altitude	< 2,000 meters	
Vibration Resistance	Amplitude: 0.35mm, Frequency: 10 to 55 Hz (IEC/EN 60-068-2-6)	
Degree of Protection	Per 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 mm ² solid or 1 x 2.5 mm ² stranded ferruled (isolated) or 2 x 1.5 mm ² stranded ferruled (isolated) D 228-1/-2/-3/-4 or 2 x 2.5 mm ² 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_N At 10% residual ripple: 0.9 to 1.1 U_N; At 48% residual ripple: 0.85 to 1.1 U_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

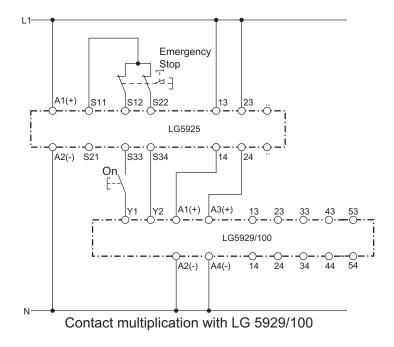


Wiring

Dimensions mm [in]



Applications



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

*Note: When switching inductive loads, surge suppressors are recommended.

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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