

# 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 N.O. and 1 N.C. 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 according to EN 954-1
Performance level	PLe according to EN 13849-1
MTTF <sub>d</sub>	584.5 years
DC <sub>avg</sub>	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 <sub>avg</sub>	99%
SFF	99.7%
PFF <sub>D</sub>	2.66E-10 h <sup>-1</sup>

## Safety Relays Selection Chart

Part Number	Price	Marking Type	Voltage	Outputs
LG5925-48-900-61	\$115.00	Light curtain controller, 2-channel	24 VDC	3 N.O. and 1 N.C.

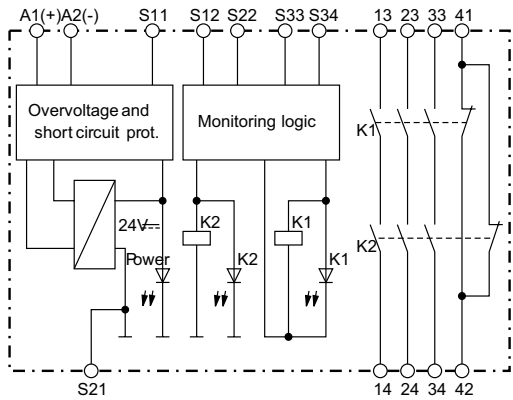
## 2-Channel Light Curtain Controller Specification Table

General Specifications	
<b>Temperature</b>	Storage: -25°C to 85°C (-13°F to 185°F) Operating: -15°C to 55°C (5°F to 131°F)
<b>Altitude</b>	< 2,000 meters
<b>Vibration Resistance</b>	Amplitude: 0.35mm, Frequency: 10 to 55 Hz (IEC/EN 60-068-2-6)
<b>Degree of Protection</b>	Per IEC/EN 60 529, Housing: IP40; Terminals IP20
<b>Housing</b>	UL 94V-0 Thermoplastic; Din mount 35 mm x 7.5 mm
<b>Weight</b>	220 g (7.76 oz.)
<b>Agency Approvals and Standards</b>	cULus file E107778, CE, RoHS, TUV
<b>Terminal Designation per EN 50 005 Wire Connections</b>	1x4 mm <sup>2</sup> solid or 1 x 2.5 mm <sup>2</sup> stranded ferruled (isolated) or 2 x 1.5 mm <sup>2</sup> stranded ferruled (isolated) DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm <sup>2</sup> stranded ferruled DIN 46 228-1/-2/-3
<b>Wire Fixing</b>	Terminal screws M3.5 box terminals with wire protection or cage clamp terminals.
Input Specifications	
<b>Nominal Voltage</b>	24V DC
<b>Voltage Range</b>	At 5% residual ripple: 0.9 to 1.1 U <sub>N</sub>
<b>Maximum Consumption</b>	DC approx. 1.7 W
<b>Control Voltage - S11</b>	U <sub>N</sub> : 22.5V DC
<b>Control Current on S12, S22</b>	35 mA at U <sub>N</sub>
<b>Minimum Voltage on Terminals S12, S22(when relay activated)</b>	21V DC
<b>Short Circuit Protection</b>	Internal with PTC (Positive Temperature Coefficient resistor)
<b>Overvoltage Protection</b>	Internal VDR (Voltage Dependent Resistor)
Output Specifications	
<b>Electrical Contact Life</b>	To 5 A, AC 230V: >.5 x 10 <sup>5</sup> switching cycles IEC/EN 60 947-5-1
<b>Mechanical Life</b>	20 x 10 <sup>6</sup> switching cycles
<b>Contact Type</b>	3 N.O. positively driven and 1 N.C. relay contacts, (N.O. contacts are safety contacts)
<b>Operate Delay</b>	Operate delay typ at U <sub>N</sub> : manual start 20 ms; automatic start: 350 ms.
<b>Release Delay</b>	Release delay typ. at U <sub>N</sub> : Disconnecting the supply: 20 ms.; Disconnecting S12, S22: 15 ms.
<b>Nominal Output Voltage</b>	AC: 250V; DC: See continuous current limit curve in installation manual.
<b>Thermal Current (I<sub>th</sub>)</b>	Max. 8A per contact. See continuous current limit curve in installation manual.
<b>Switching of Low Loads</b>	≥100 mV; (contacts with 5μ Au) ≥ 1 mA
<b>Short Circuit Strength</b>	Max fuse rating:10A gl (IEC/EN 60 9470-5-1); Line circuit breaker: B 6 A
<b>Switching Capacity</b>	AC 15: N.O. contacts: 3A/230V; N.C. contacts: 2A/230V AC DC 13: N.O. contacts: 4A/24V AC, 0.5A/110V AC; N.C. contacts: 4A/24V DC
<b>Switching Frequency</b>	Max. 1,200 switching cycles/hr

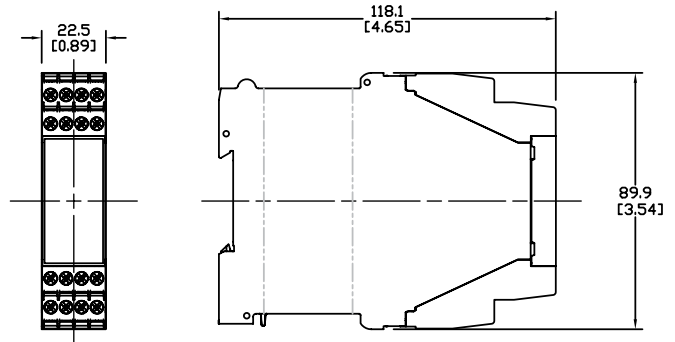
# Dold Safety Relays – Light Curtain Controller

## Wiring

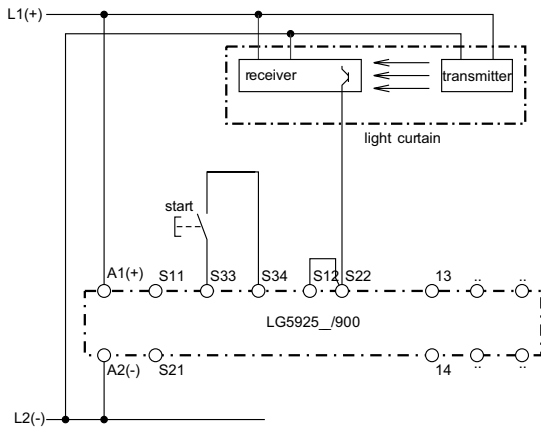
### LG5925-48-900-61 Block Diagram



### Dimensions mm [in]

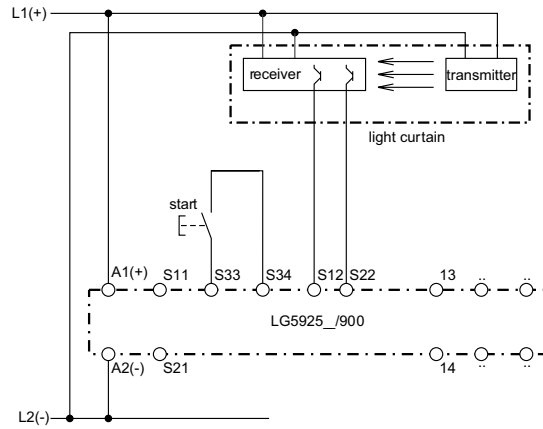


## Applications



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."

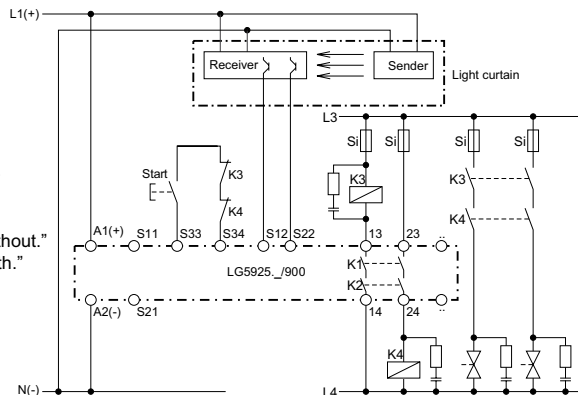


2 channel connection of light curtains with self-test according to EN 61 496-1.

Cross fault detection in the light curtain.  
Note: Refer to "Unit programming"  
Set switch or dip switches in position:  
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"

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.**

# 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 <sub>d</sub>	>100 years
DC <sub>avg</sub>	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 <sub>avg</sub>	99%
SFF	99.7%
PFFH <sub>D</sub>	4.68E-10 h <sup>-1</sup>

## Safety Relays Selection Chart

Part Number	Price	Marking Type	Voltage	Outputs
LG5929-60-100-61	\$95.00	Safety relay extension module	24 VAC/VDC	5 N.O./1 N.C.

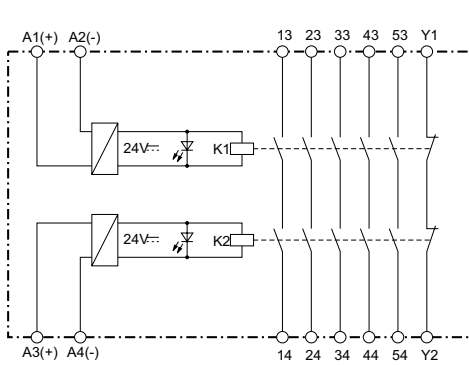
## Safety Relay Extension Module Specification Table

General Specifications	
<b>Temperature</b>	Storage: -25°C to 85°C (-13°F to 185°F) Operating: -15°C to 55°C (5°F to 131°F)
<b>Altitude</b>	< 2,000 meters
<b>Vibration Resistance</b>	Amplitude: 0.35mm, Frequency: 10 to 55 Hz (IEC/EN 60-068-2-6)
<b>Degree of Protection</b>	Per IEC/EN 60 529. Housing: IP40; Terminals IP20
<b>Housing</b>	UL 94V-0 Thermoplastic; Din mount 35 mm x 7.5 mm
<b>Weight</b>	205g (7.23 oz.)
<b>Agency Approvals and Standards</b>	CSA, cULus file E107778, CE, RoHS, TUV
<b>Terminal Designation per EN 50 005 Wire Connections</b>	1x4 mm <sup>2</sup> solid or 1 x 2.5 mm <sup>2</sup> stranded ferruled (isolated) or 2 x 1.5 mm <sup>2</sup> stranded ferruled (isolated) DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm <sup>2</sup> solid per DIN 46 228-1/-2/-3 /-4
<b>Wire Fixing</b>	Plus-minus terminal screws M3.5 box terminals with wire protection or cage clamp terminals.
Input Specifications	
<b>Nominal Voltage</b>	24V AC/DC
<b>Voltage Range</b>	AC: 0.85 to 1.1 U <sub>N</sub> At 10% residual ripple: 0.9 to 1.1 U <sub>N</sub> ; At 48% residual ripple: 0.85 to 1.1 U <sub>N</sub>
<b>Maximum Consumption</b>	24VAC/DC: 1.8VA
<b>Nominal Frequency</b>	50 to 60 Hz
<b>Control Current</b>	Control current typ. at 24V over 2 relays: 75 mA
<b>Overvoltage Protection</b>	Internal VDR (Voltage Dependent Resistor)
Output Specifications	
<b>Electrical Contact Life</b>	To AC15 at 2 A,230V: 10 <sup>5</sup> switching cycles IEC/EN 60 947-5-1
<b>Mechanical Life</b>	20 x 10 <sup>6</sup> switching cycles
<b>Contact Type</b>	5 N.O. positively driven and 1 N.C. relay contacts (N.O. contacts are safety contacts)
<b>Operate/Release Time</b>	Operate typ at U <sub>N</sub> : 20 ms.; Release typ at U <sub>N</sub> : 35 ms.
<b>Nominal Output Voltage</b>	250VAC
<b>Thermal Current (I<sub>th</sub>)</b>	Max. 5A per contact. See continuous current limit curve in installation manual.
<b>Short Circuit Strength</b>	Max fuse rating:10A gl (IEC/EN 60 9470-5-1); Line circuit breaker: B6A
<b>Switching Capacity IEC/EN 60 947-5-1</b>	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 <sup>3</sup> ON: 0.4s, OFF: 9.6s
<b>Switching Frequency</b>	Max. 1,200 switching cycles/hr

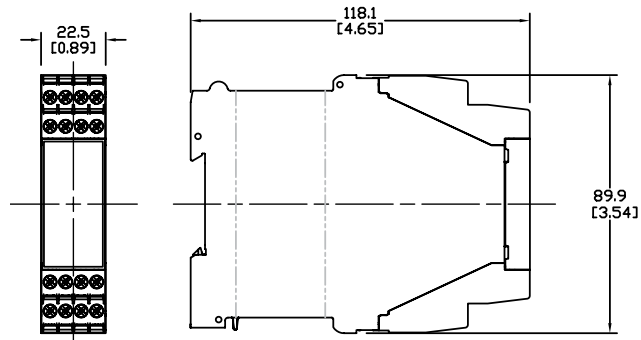
# Dold LG5929 Extension Module

## Wiring

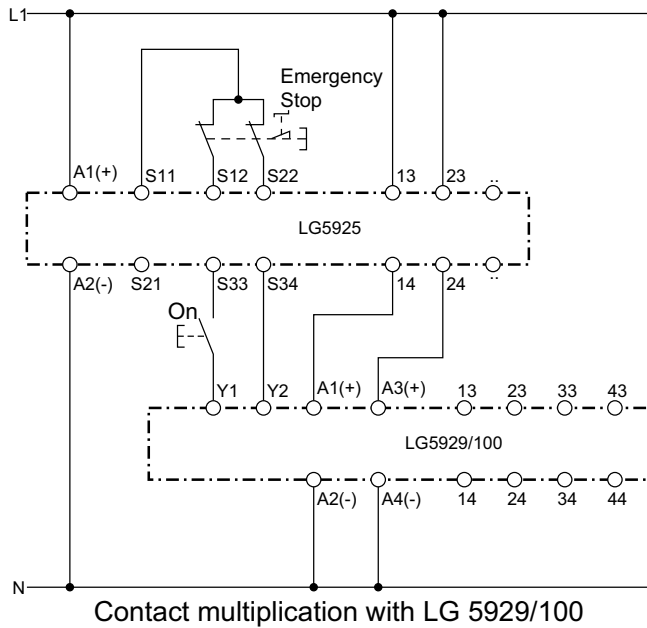
LG5929 Block Diagram



## 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. AutomationDirect does not provide design or consulting services, and cannot advise whether any specific application or use of our products would ensure compliance with the safety requirements for any application.***