Dold LG5924 Series 1-Channel Emergency Stop

LG5924-48-61-24

Designed to protect people and machines in applications with E-stop buttons.

- Single channel operation
- Output options: 2 NO contacts or 3 NO contacts and 1 NC contact
- LED indicators for power and state of operation
- Short circuit detection between terminal Y1 and common

LG5924 Series Single Channel Safety Relays Selection Chart

Part Number	Price	Marking Type	Voltage	Outputs	Connection	Drawing
LG5924-02-61-24	$126.00	1-channel E-STOP	24VDC	2 NO	Fixed screw terminals	PDF
LG5924-02PC-61-24	$136.00	1-channel E-STOP	24VDC	2 NO	Push-in cage clamp	PDF
LG5924-48-61-24	$140.00	1-channel E-STOP	24VDC	3 NO, 1 NC	Fixed screw terminals	PDF
LG5924-48PC-61-24	$150.00	1-channel E-STOP	24VDC	3 NO, 1 NC	Push-in cage clamp	PDF
LG5924-48-61-110	$160.00	1-channel E-STOP	110VAC	3 NO, 1 NC	Fixed screw terminals	PDF
LG5924-48PC-61-110	$170.00	1-channel E-STOP	110VAC	3 NO, 1 NC	Push-in cage clamp	PDF
LG5924-48-61-230	$160.00	1-channel E-STOP	230VAC	3 NO, 1 NC	Fixed screw terminals	PDF

Safety Data – Values per EN ISO 13849-1

Category	Up to 4
Performance level	PLe
$MTTF_d$	220.9 years
DC_{avg}	99%

Safety Data – Values per IEC/EN 62061 / IEC/EN 61508

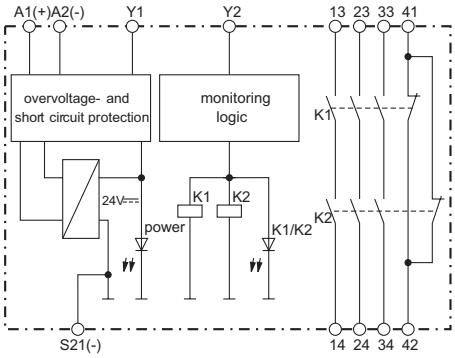
SIL	Up to 3
HFT (Hardware Failure Tolerance)	1
DC_{avg}	99%
SFF	$1.08E^{-10}$
PFH_D	$5.81E^{-5}$

LG5924 Controllers Safety Relay Specification Table

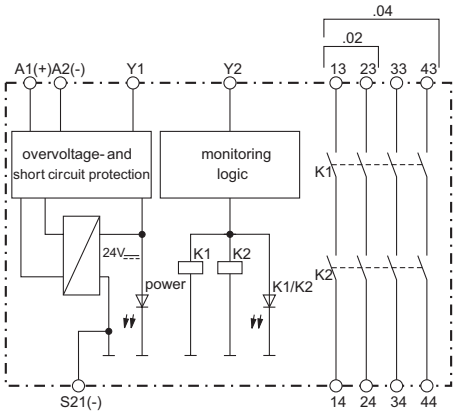
General Specifications	
Temperature	Storage: -25°C to 85°C [-13°F to 185°F] Operating: -25°C to 55°C [-13°F to 131°F]
Altitude	< 2,000m [6562ft]
Vibration Resistance	Amplitude: 0.35 mm, Frequency: 10 to 55 Hz (IEC/EN 60-068-2-6)
Degree of Protection	Per IEC/EN 60 529. Housing: IP40; Terminals IP20
Housing	UL 94V-0 Thermoplastic; DIN mount, 35 mm x 7.5 mm
Weight	LG5924 24VDC 200g [7.05 oz]; LG5924 110, 230VAC 270g [9.52 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 solid DIN 46 228-1/-2/-3
Wire Fixing	Plus-minus terminal screws M3.5 box terminals with self-lifting wire protection or cage clamp terminals.
Input Specifications	
Nominal Voltage	110, 230VAC, 24VDC
Voltage Range	AC: 0.85 to 1.1 UN. At 10% residual ripple: DC: 0.9 to 1.1 UN. At 48% residual ripple: DC: 0.85 to 1.1 UN
Maximum Consumption	230VAC approx. 3.5 A; 24V DC approx. 1.5W
Nominal Frequency	50 to 60 Hz
Control Voltage on Y1	24VDC: typ: 22VDC. 110V, 230VAC: typ. 45VDC
Control Current	24VDC: typ. DC 65mA. 110V, 230VAC: typ. AC 16mA
Short Circuit Protection	Internal with PTC (Positive Temperature Coefficient resistor)
Overvoltage Protection	Internal VDR (Voltage Dependent Resistor)
Output Specifications	
Electrical Contact Life	At 5A, 230VAC: cos Ø = 1: > 2.2 x 105 switching cycles
Mechanical Life	>$10x10^6$ switching cycles
Contact Type	LG5924.02: 2 NO relay contacts, positively driven. LG5924.48: 3 NO positively driven and 1 NC relay contacts. (NO contacts are safety contacts.)
Operate Delay	Operate delay: 24VDC: typ. 40ms; 110VAC, 230VAC typ. 200ms
Release Delay	Release delay: 24VAC/DC typ. 70ms; 230VAC typ. 35ms
Nominal Output Voltage	250VAC
Thermal Current (I_{th})	Max. 5A. See continuous current limit curve in installation manual.
Short Circuit Strength	Max. fuse rating: 10A gL (IEC/EN 60 947-5-1); Line circuit breaker: B 6A
Switching Capacity (IEC/EN 60947-5-1)	To AC 15: N.O. contacts: 3A/230VAC; NC contacts: 2A/230VAC To DC 13: N.C. contacts: 4A/24VDC; NO contacts: 4A/24VDC
Switching Frequency	Max. 600 switching cycles/hr

Dold LG5924 Series 1-Channel Emergency Stop

LG5924 Block Diagrams

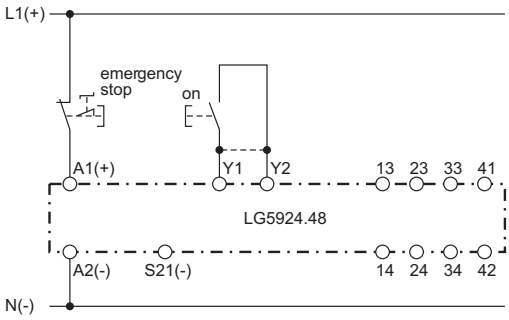


LG5924.48



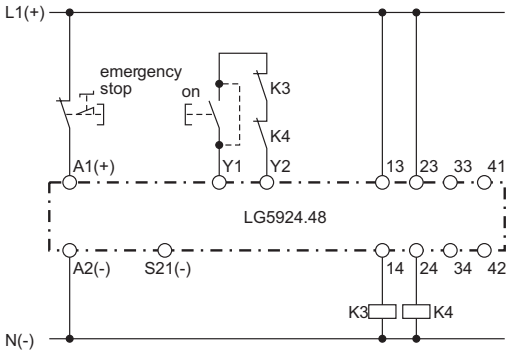
LG5924.02

Applications



Single-channel, emergency-stop circuit without feedback loop, with or without automatic restart. For automatic restart, terminals Y1 - Y2 must be jumpered. No ON pushbutton necessary.

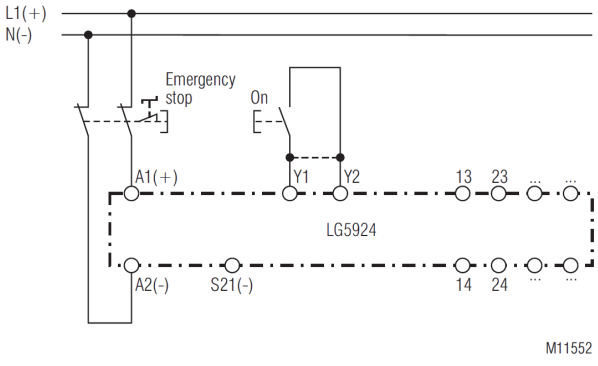
Suited up to SIL2, Performance Level d, Cat. 3*.



Contact reinforcement by external contactors, 2-channel controlled. For currents>5A, the output contacts can be reinforced by external contactors. Functioning of the external contactors is monitored by looping the N.C. contacts into the start circuit (Y1 - Y2).

Suited up to SIL2, Performance Level d, Cat. 3*.

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



Two-channel emergency-stop circuit without feedback loop, with or without automatic restart. For automatic restart, terminals Y1-Y2 must be linked. No ON pushbutton necessary.

Suited up to SIL3, Performance Level e, Cat. 4*.

* Suited up to stated SIL, Performance Level, and Category for E-stop systems according to IEC 60947-5-5, under the following conditions:

- A maximum number of operations for the E-stop button is observed
- The E-stop button and the E-stop module are installed in the same cabinet

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 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 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%
PFH_D	$4.68E^{-10}$ h^{-1}

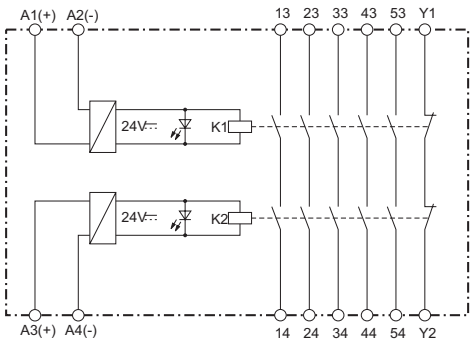
Safety Relay Extenson Module Specification Table

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 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 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

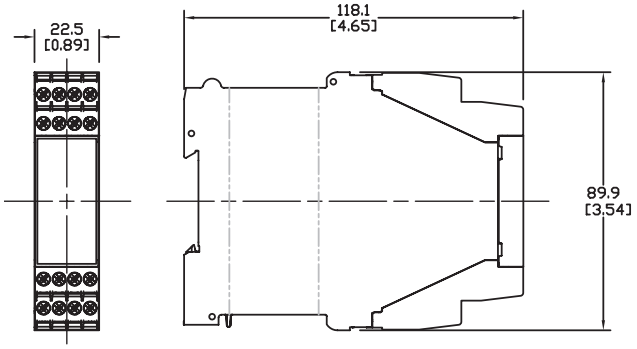
Dold LG5929 Extension Module

Wiring

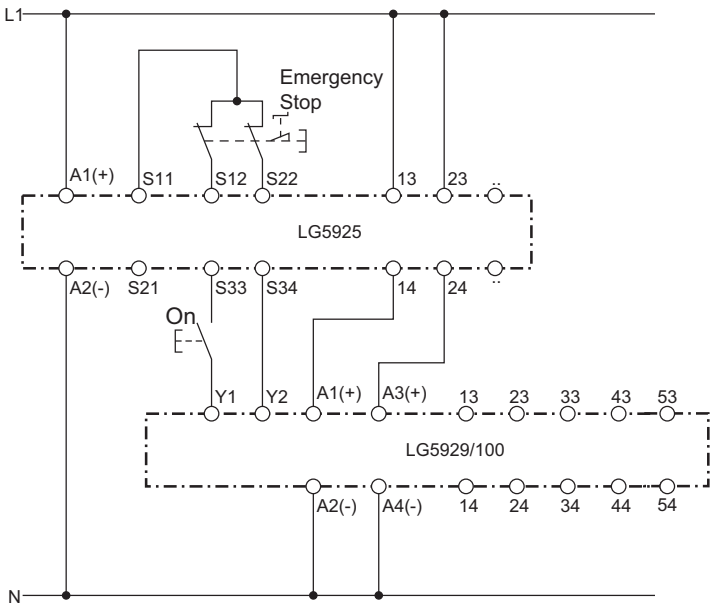
LG5929 Block Diagram



Dimensions mm [in]



Applications



Contact multiplication with LG 5929/100

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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