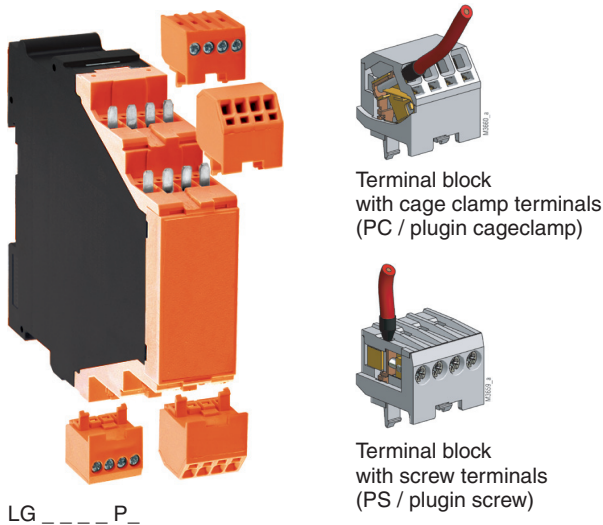




LG 5925/900

- According to
 - Performance Level (PL) e and category 4 to EN ISO 13849-1: 2008
 - SIL Claimed Level (SIL CL) 3 to IEC/EN 62061
 - Safety Integrity Level (SIL 3) to IEC/EN 61508
 - Category 4 to EN 954-1
- For light curtains with symmetric or asymmetric outputs adjustment with switch S1
- Output: max. 4 NO contacts, see contacts
- Single and 2-channel operation
- Line fault detection on On-button
- Manual restart or automatic restart, switch S2
- LED indicator for state of operation
- LED indicator for channel 1 and 2 and power
- Removable terminal strips
- Wire connection: also 2 x 1.5 mm² stranded ferruled, or 2 x 2.5 mm² solid DIN 46 228-1/-2/-3/-4
- As option with pluggable terminal blocks for easy exchange of devices
 - with screw terminals
 - or with cage clamp terminals
- Width 22.5 mm

Options with pluggable terminal blocks



Approvals and marking



* see variants

Applications

Protection of people and machines

- Light curtain controller for light curtains with selftesting (Type 4) according to IEC/EN 61 496-1

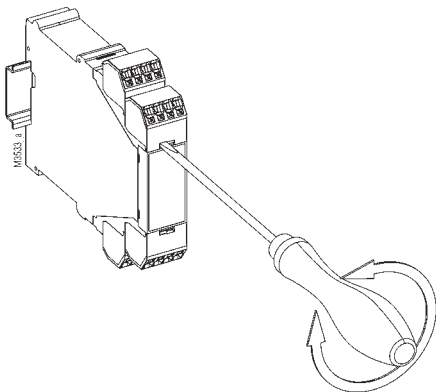
Indicators

upper LED: on when supply connected
lower LEDs: on when relay K1 and K2 energized

Notes

Removing the terminal blocks with cage clamp terminals

1. The unit has to be disconnected.
2. Insert a screwdriver in the side recess of the front plate.
3. Turn the screwdriver to the right and left.
4. Please note that the terminal blocks have to be mounted on the belonging plug in terminations.



Notes

The category of a safety relevant part of a control circuit according to EN 954-1 can be different to the category 4 of the E-stop module LG 5925 depending on the external connections.

Line fault detection on On-button:

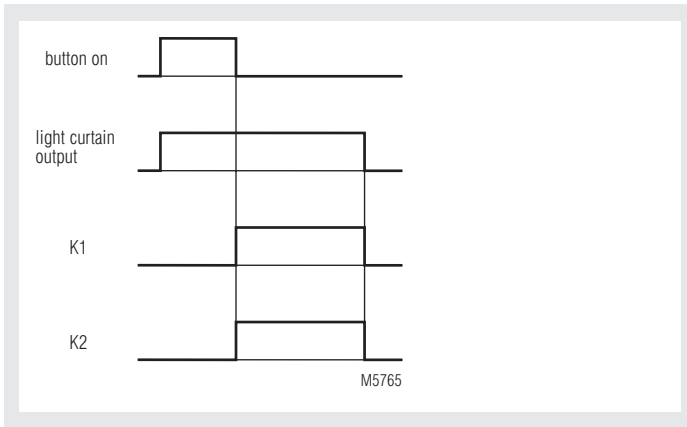
The line fault detection is only active when S12 and S22 are switched simultaneously. If The On-button is closed before S12, S22 is connected to voltage (also when line fault across On-Button), the output contacts will not close. A line fault across the On-button which occurred after activation of the relay, will be detected with the next activation and the output contacts will not close.

ATTENTION! If a line fault occurs after the voltage has been connected to S12, S22, the unit will be activated because this line fault is similar to the normal On-function.

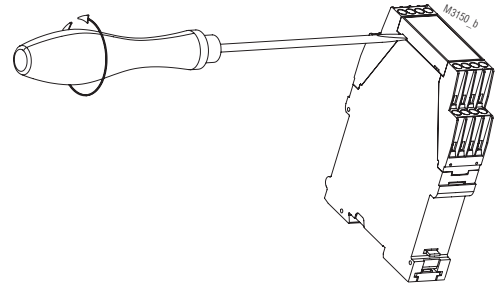
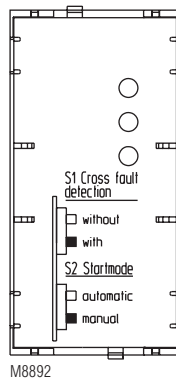
The gold plated contacts of the LG 5925/900 mean that this module is also suitable for switching small loads of 1 mVA - 7 VA, 1 mW - 7 W in the range 0.1 - 60 V, 1 - 300 mA. The contacts also permit the maximum switching current. However since the gold plating will be burnt off at this current level, the device is no longer suitable for switching small loads after this. The terminal S21 permits the operation of the device in IT-systems with insulation monitoring, serves as a reference point for testing the control voltage and is used to connect the E-stop loop when cross fault monitoring is selected.

To operate light curtains with symmetric outputs (both channels switching +) the selector switch S1 has to be in position "without". To operate light curtains with asymmetric outputs (1 channel switches +, one channel -) the selector switch S1 has to be in position "with". The channel switching must be connected to S22, the channel switching + to S12.

Function diagram

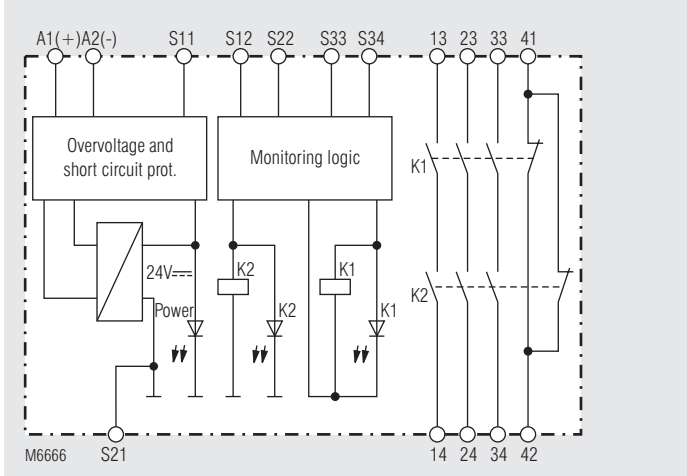


Setting



Disconnect unit before setting of S1
Drawing shows setting at the state of delivery

Block diagram



Technical Data

Input circuit

Nominal Voltage U_N:	DC 24 V
Voltage range:	0.9 ... 1.1 U_N
Nominal consumption:	DC approx. 1.7 W
Min. Off-time:	250 ms
Control voltage on S11 at U_N:	DC 22.5 V
Control current typ. over S12, S22:	35 mA at U_N
Min. voltage on S12, S22 when relay activated:	DC 21
Short-circuit protection:	Internal PTC
Overvoltage protection:	Internal VDR

Output

Contacts

LG 5925.02:	2 NO contacts
LG 5925.04:	4 NO contact
LG 5925.48:	3 NO, 1 NC contact
The NO contacts are safety contacts.	
ATTENTION! The NC contacts 41-42 can only be used for monitoring.	

Operate delay typ. at U_N :

Manual start:	20 ms
automatic start:	350 ms

Release delay typ. at U_N :

Disconnecting the supply:	20 ms
Disconnecting S12, S22:	15 ms

Contact type:

Relay positive guided	AC 250 V
DC: see limit curve for arc-free operation	≥ 100 mV

Nominal output voltage:

≥ 1 mA	max. 8 A per contact
see current limit curve	

Switching of low loads:

(contact 5 μ Au)	
Thermal current I_{th}:	max. 8 A per contact
	see current limit curve

Switching capacity

to AC 15:		
NO contacts:	3 A / AC 230 V	IEC/EN 60 947-5-1
NC contacts:	2 A / AC 230 V	IEC/EN 60 947-5-1
to DC 13:		
NO contacts:	4 A / DC 24 V	IEC/EN 60 947-5-1
	0.5 A / 110 V	IEC/EN 60 947-5-1
NC contacts:	4 A / 24 V	IEC/EN 60 947-5-1
to DC 13		
NO contacts:	8 A / 24 V > 25 x 10 ³	
	ON: 0.4 s, OFF: 9.6 s	

Electrical contact life

to 5 A, AC 230 V $\cos \varphi = 1$:	> 1.5 x 10 ⁶ switching cycles
---------------------------------------	--

Permissible operating frequency:

	max. 1 200 operating cycles / h
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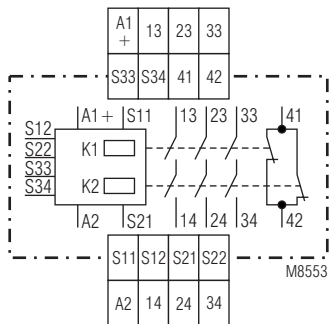
Short circuit strength

max. fuse rating:	10 A gL	IEC/EN 60 947-5-1
line circuit breaker:	B 6 A	

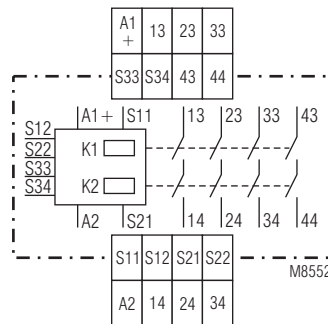
Mechanical life:

	> 20 x 10 ⁶ switching cycles
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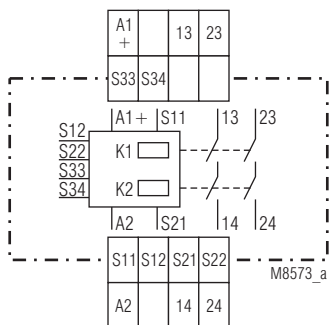
Circuit diagrams



LG 5925/900.48



LG 5925/900.04



LG 5925/900.02

Technical Data

General Data

Operating mode: Continuous operation

Temperature range

operation: -15 ... +55 °C

storage: -25 ... +85 °C

altitude: < 2.000 m

Clearance and creepage distances

Rated impuls voltage / pollution degree: 4 kV / 2 (basis insulation) IEC 60 664-1

EMC

Electrostatic discharge: 8 kV (air) IEC/EN 61 000-4-2

HF irradiation: 10 V / m IEC/EN 61 000-4-3

Fast transients: 2 kV IEC/EN 61 000-4-4

Surge voltages between

wires for power supply: 0.5 kV IEC/EN 61 000-4-5

between wire and ground: 2 kV IEC/EN 61 000-4-5

Interference suppression: Limit value class B EN 55 011

Degree of protection

Housing: IP 40 IEC/EN 60 529

Terminals: IP 20 IEC/EN 60 529

Housing: Thermoplastic with V0 behaviour according to UL subject 94

Vibration resistance: Amplitude 0.35 mm IEC/EN 60 068-2-6 frequency 10 ... 55 Hz

Climate resistance: 15 / 055 / 04 IEC/EN 60 068-1

Terminal designation: EN 50 005

Wire connection DIN 46 228-1/-2/-3/-4

Screw terminals

(integrated): 1 x 4 mm² solid or 1 x 2.5 mm² stranded ferruled (isolated) or 2 x 1.5 mm² stranded ferruled (isolated) or 2 x 2.5 mm² solid

Wire stripping length: 8 mm

Plugin with screw terminals

max. cross section

for connection: 1 x 2.5 mm² solid or 1 x 2.5 mm² stranded ferruled (isolated)

Wire stripping length: 8 mm

Plugin with cage clamp terminals

max. cross section

for connection: 1 x 4 mm² solid or 1 x 2.5 mm² stranded ferruled (isolated)

min. cross section

for connection: 0.5 mm²

Wire stripping length: 12 ^{+0.5} mm

Wire fixing: Plus-minus terminal screws M 3.5 box terminals with wire protection or cage clamp terminals

DIN rail IEC/EN 60 715

Weight: 220 g (DC unit)

Dimensions

Width x height x depth

LG 5925: 22.5 x 90 x 121 mm

LG 5925 PC: 22.5 x 111 x 121 mm

LG 5925 PS: 22.5 x 104 x 121 mm

Safety related data

Values according to EN ISO 13849-1:

Category:	4	
PL:	e	
MTTF _d :	584,5	a
DC _{avg} :	99,0	%
d _{op} :	220	d/a (days/year)
h _{op} :	12	h/d (hours/day)
L _{Zyklus} :	3600	s/Zyklus
	≥ 1	/h (hour)

Technical Data

Values according to IEC/EN 62061 / IEC/EN 61508:

SIL CL:	3	IEC/EN 62061
SIL	3	IEC/EN 61508
HFT ¹⁾ :	1	
DC _{avg} :	99,0	%
SFF	99,7	%
PFH _D :	2,66E-10	h ⁻¹

¹⁾ HFT = Hardware-Failure Tolerance



The values stated above are valid for the standard type. Safety data for other variants are available on request.

The safety relevant data of the complete system has to be determined by the manufacturer of the system.

UL-Data

The safety functions were not evaluated by UL. Listing is accomplished according to requirements of Standard UL 508, "general use applications"

Nominal voltage U_N: DC 24 V

Ambient temperature: -15 ... +55°C

Switching capacity

LG 5925.04/900

Ambient temperature 35°C:	Pilot duty B300 8A 250Vac Resistive 8A 24Vdc Resistive or G.P.
Ambient temperature 55°C:	Pilot duty B300 4A 250Vac Resistive 4A 24Vdc Resistive or G.P.

LG 5925.02/900, LG 5925.48/900

Ambient temperature 45°C:	Pilot duty B300 8A 250Vac Resistive 8A 24Vdc Resistive or G.P.
Ambient temperature 55°C:	Pilot duty B300 6A 250Vac Resistive 6A 24Vdc Resistive or G.P.

Wire connection:

60°C / 75°C copper conductors only

Screw terminals fixed: AWG 20 - 12 Sol/Str Torque 0.8 Nm

Plugin screw: AWG 20 - 14 Sol Torque 0.8 Nm

AWG 20 - 16 Str Torque 0.8 Nm

Plugin cage clamp: AWG 20 - 12 Sol/Str



Technical data that is not stated in the UL-Data, can be found in the technical data section.

Standard type

LG 5925.48/900 DC 24 V

Article number: 0057044

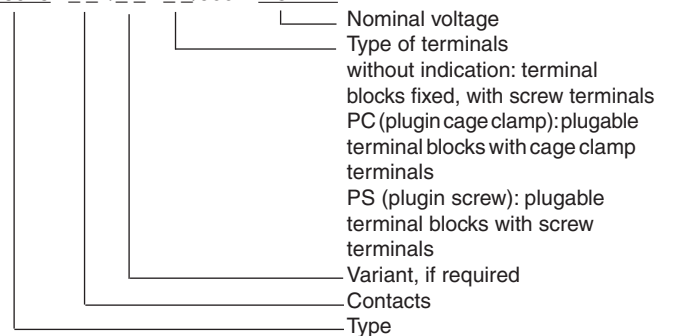
- Output: 3 NO contacts, 1 NC contact
- Nominal voltage U_N: DC 24 V
- Width: 22.5 mm

Variant

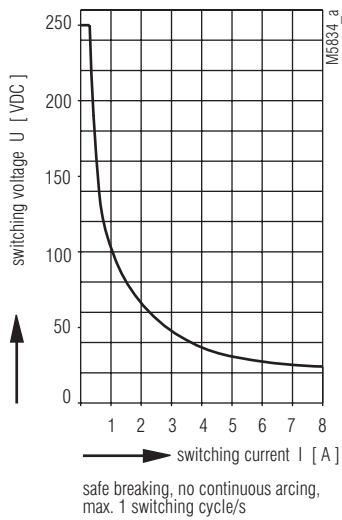
LG 5925._./900/61: with UL-approval

Ordering example for variants

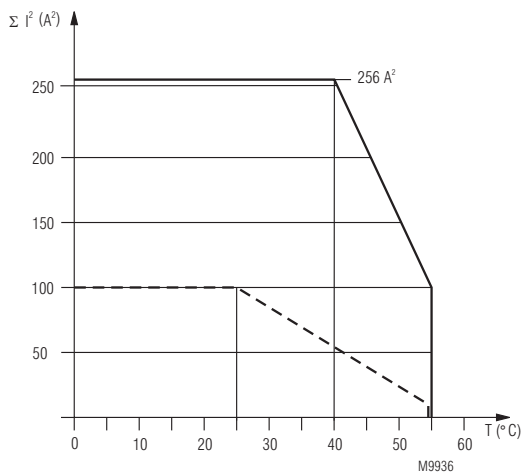
LG 5925 _ _ _ / _ _ _ /900 DC 24 V



Characteristics



Arc limit curve under resistive load



— device mounted on distance with air circulation.
max. current at 55°C over
4 contactrows = 5A $\cong 4 \times 5^2 \text{ A}^2 = 100 \text{ A}^2$

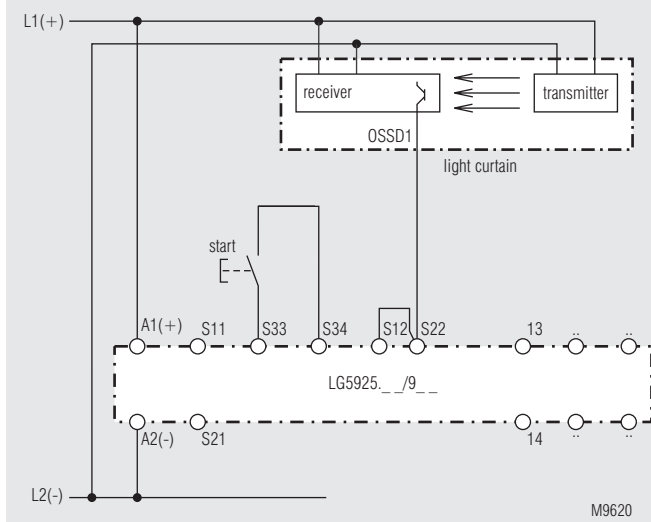
- - - device mounted without distance heated by
devices with same load,
max current at 55°C over
4 contactrows = 1A $\cong 4 \times 1^2 \text{ A}^2 = 4 \text{ A}^2$

$$\Sigma I^2 = I_1^2 + I_2^2 + I_3^2 + I_4^2$$

I_1, I_2, I_3, I_4 - current in contactrows

Total current limit curve

Application examples

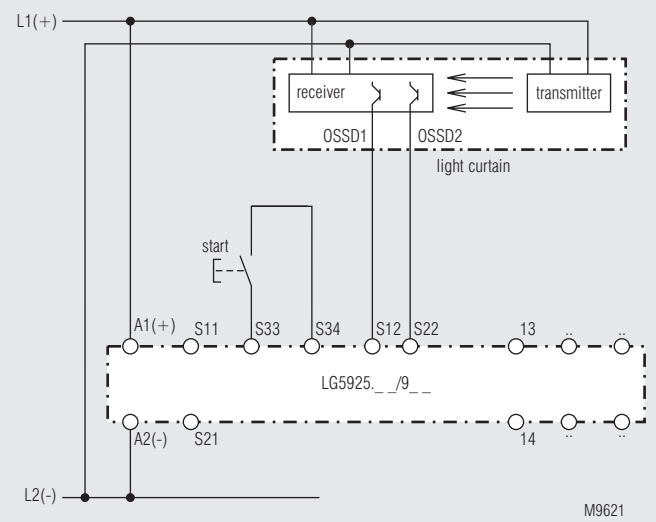


Single channel connection of light curtains with selftest according to EN 61 496-1.

Note: Refer to "Unit programming"!

Switches in pos.: S1 "without"
S2 "manual"

With autostart link S33 - S34 set to "automatic".



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

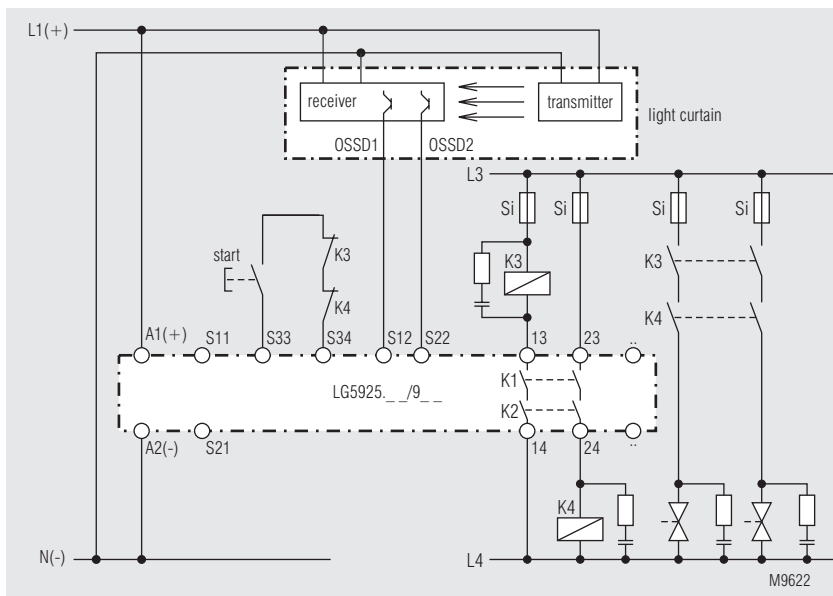
Cross fault detection in the light curtain.

Note: Refer to "Unit programming"!

Switches in pos.:

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"!

Switches in pos.:

Switches in pos.:

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"

