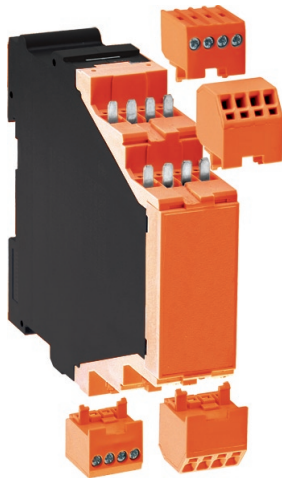




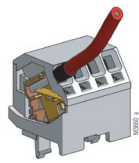
0243373

- 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
- when connected to a suitable safety module
- Control from semiconductor safety outputs (light curtains, e-stop, etc.) is also possible
- Redundant and positively-driven contacts
- Output: max. 5 NO contacts or 4 NO contacts / 1 NC contact
- 1-channel or 2-channel connection
- LED indication for operation
- Removeable terminal strips
- Wire connection: also 2 x 1.5 mm<sup>2</sup> stranded ferruled, or 2 x 2.5 mm<sup>2</sup> 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

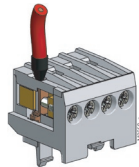
### Options with pluggable terminal blocks



LG \_ \_ \_ P\_



Terminal block with cage clamp terminals (PC / plugin cageclamp)



Terminal block with screw terminals (PS / plugin screw)

### Approvals and marking



\* see variants;  
 1) The approval to EN 954 will be replaced by a TÜV-approval according to EN ISO 13849-1:2008, IEC/EN 62061, e. g. 61508

### Applications

Contact multiplication of emergency-stop modules and safety door monitors.

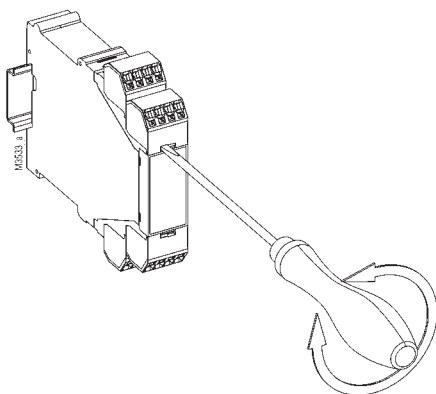
### Indication

LG 5929	
LED K1/K2:	on, when operating voltage applied
LG 5929/100	
LED K1:	on, when relay K1 energized
LED K2:	on, when relay K2 energized

### Notes

Removing the terminal blocks with cage clamp terminals

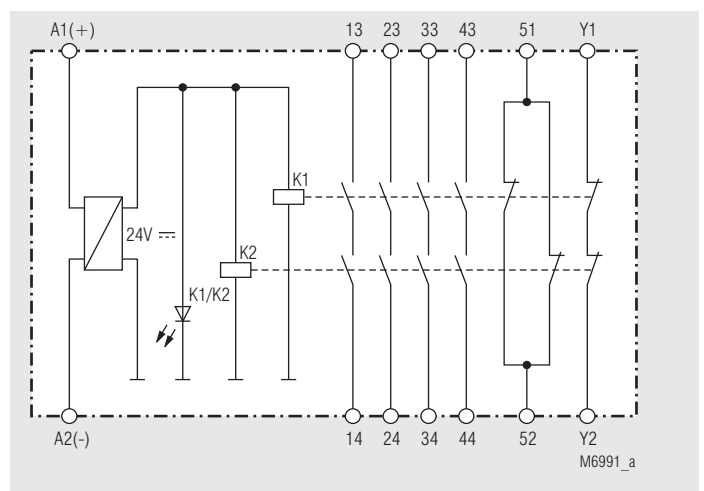
1. The unit has to be disconnected.
2. Insert a screwdriver in the side recess of the front plate.
3. Turn the screwdriver to the right and left.
4. Please note that the terminal blocks have to be mounted on the belonging plug in terminations.



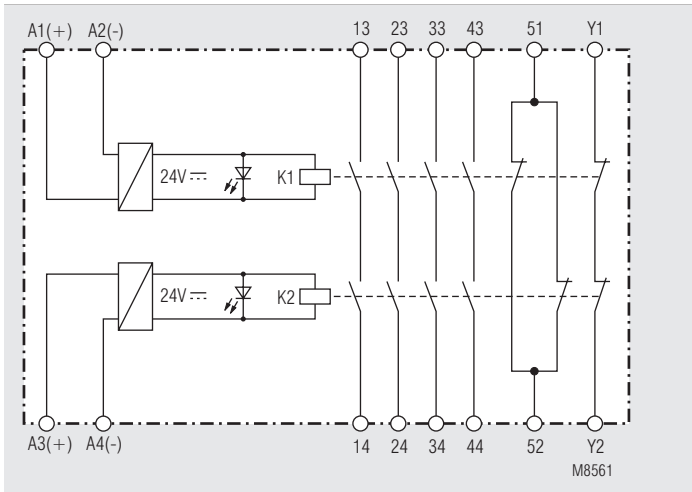
### Notes

The extension module LG 5929 must only be used together with a safety unit e.g. LG 5925) that monitors the feedback circuit Y1/Y2 to achieve (SIL CL) 3 acc. to IEC/EN 62061, SIL 3 to IEC/EN 61508, Performance Level (PL) e, Category 4 to EN ISO 13849-1: 2008 and Category 4 to EN 954-1. Performance level (PL) e and category 4 to EN ISO 13849-1:2008 and Category 4 to EN 954-1.

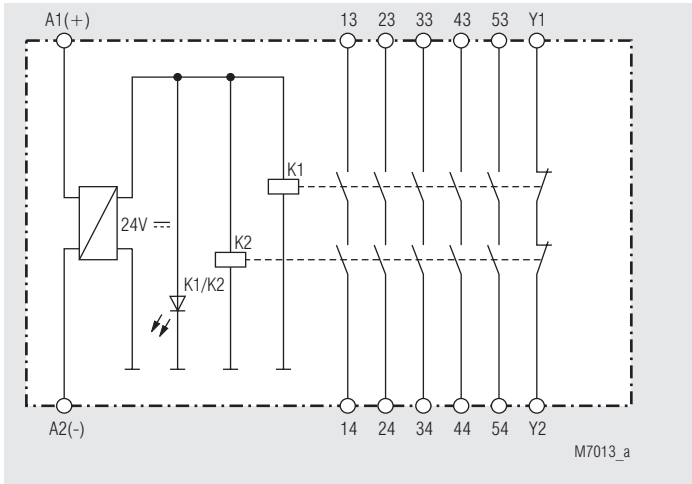
### Block diagram



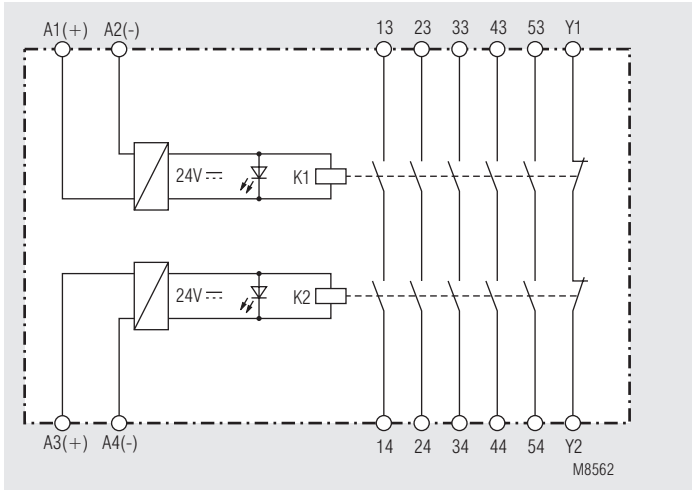
LG 5929.54



LG 5929.54/100

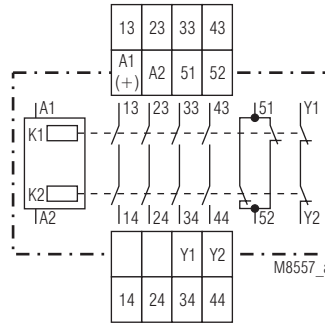


LG 5929.60

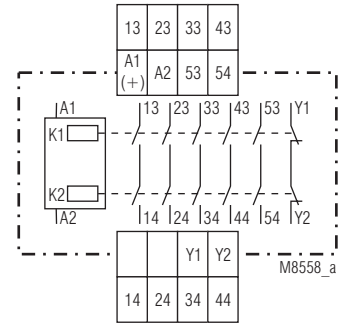


LG 5929.60/100

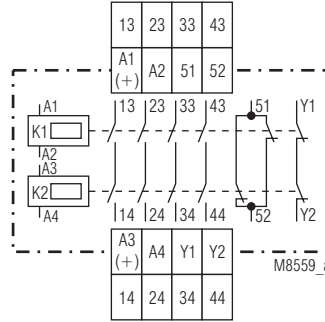
## Circuit diagrams



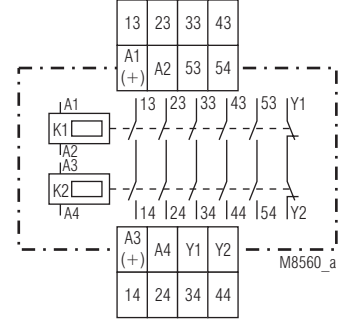
LG 5929.54



LG 5929.60



LG 5929.54/100



LG 5929.60/100

## Technical Data

### Input

**Nominal voltage  $U_N$ :** AC / DC 24 V, AC / DC 110 / 115 V, AC 110 / 115 V, AC 230 / 240 V

**Voltage range:** AC 0.85 ... 1.1  $U_N$

at 10% residual ripple:

at 48% residual ripple:

**Nominal consumption at  $U_N$**

AC / DC 24 V: 1.8 VA

AC / DC 110/115 V: 2.0 VA

AC 110/115 V, 230/240 V: 3.0 VA

**Nominal frequency:** 50 / 60 Hz

**Control current:**

at 24 V over 2 relays: 75 mA

### Output

#### Contacts

LG 5929.60, LG 5929.60/100: 5 NO contacts, 1 NC contact for feed back circuit

LG 5929.54, LG 5929.54/100: 4 NO contacts, 1 NC contact

1 NC contact for feed back circuit

**Operate time:** max. 20 ms

**Release time:** max. 35 ms

**Contact type:** relay, positively-driven

**Nominal output voltage:** AC 250 V

**Thermal current  $I_{th}$ :** see total current limit curve max. 5 A

#### Switching capacity

to AC 15:

NO contact: 3 A / AC 230 V IEC/EN 60 947-5-1

NC contact: 2 A / AC 230 V IEC/EN 60 947-5-1

to DC 13:

NO contact: 4 A / 24 V IEC/EN 60 947-5-1

NC contact: 4 A / 24 V IEC/EN 60 947-5-1

to DC 13

NO contact: 8 A / 24 V > 25 x 10<sup>3</sup>

ON: 0.4 s, OFF: 9.6 s

#### Electrical life

to AC 15 at 2 A, AC 230 V: 10<sup>5</sup> switching cycles IEC/EN 60 947-5-1

#### Permissible switching capacity:

1200 switching cycles / h

#### Short circuit strength

max. fuse rating: 10 A gL IEC/EN 60 947-5-1

max. line circuit breaker: B 6 A

**Mechanical life:** 20 x 10<sup>6</sup> switching cycles

## 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

HF-wire guided: 10 V IEC/EN 61 000-4-6

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

Surge voltages between

wires for power supply: 1 kV IEC/EN 61 000-4-5

0.5 kV IEC/EN 61 000-4-5

at AC/DC 24 V

between wire and ground: 4 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:

Thermoplast 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 Screw terminals (integrated):** DIN 46 228-1/-2/-3/-4

1 x 4 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) or 2 x 2.5 mm<sup>2</sup> solid

Insulation of wires or sleeve length:

8 mm

### Plugin with screw terminals

max. cross section

for connection:

1 x 2.5 mm<sup>2</sup> solid or

1 x 2.5 mm<sup>2</sup> stranded ferruled (isolated)

Insulation of wires or sleeve length:

8 mm

### Plugin with cage clamp terminals

max. cross section

for connection:

1 x 4 mm<sup>2</sup> solid or

1 x 2.5 mm<sup>2</sup> stranded ferruled

min. cross section for connection:

0.5 mm<sup>2</sup>

Insulation of wires or sleeve length:

12 <sup>+0.5</sup> mm

### Wire fixing:

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

### Mounting:

DIN rail IEC/EN 60 715

### Weight:

205 g

### Dimensions

#### Width x height x depth

LG 5929: 22.5 x 90 x 121 mm

LG 5929 PC: 22.5 x 111 x 121 mm

LG 5929 PS: 22.5 x 104 x 121 mm

### Safety related data

#### Values according to EN ISO 13849-1:

Category: 4

PL: e

MTTF<sub>d</sub>: > 100 a

DC<sub>avg</sub>: 99,0 %

d<sub>op</sub>: 365 d/a (days/year)

h<sub>op</sub>: 24 h/d (hours/day)

t<sub>Zyklus</sub>: 2,60E+06 s/Zyklus

≥ 1 /mth (month)

## Technical Data

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

SIL CL: 3 IEC/EN 62061

SIL 3 IEC/EN 61508

HFT<sup>1)</sup>: 1

DC<sub>avg</sub>: 99,0 %

SFF: 99,7 %

PFH<sub>D</sub>: 4,68E-10 h<sup>-1</sup>

<sup>1)</sup> HFT = Hardware-Failure Toleranz



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"**

### Switching capacity:

Ambient temperature 45°C: Pilot duty B300

5A 250Vac Resistive

5A 24Vdc Resistive or G.P.

Ambient temperature 55°C: Pilot duty B300

4A 250Vac Resistive

4A 24Vdc Resistive or G.P.c

### Wire connection:

60°C / 75°C copper conductors only

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

Plug-in screw: AWG 20 - 14 Sol Torque 0.8 Nm

AWG 20 - 16 Str Torque 0.8 Nm

Plug-in 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 5929.60 AC/DC 24 V 50/60 Hz

Article number: 0056090

• Output: 5 NO contacts, 1 NC contact for feed back circuit

• Nominal voltage U<sub>N</sub>: AC/DC 24 V

• Width: 22.5 mm

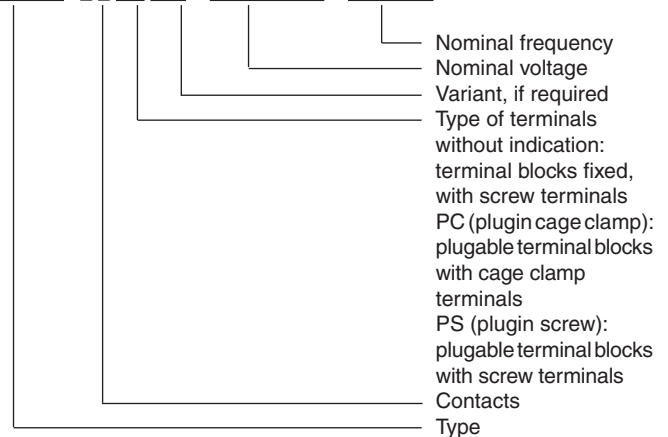
### Variants

LG 5925. \_\_ /60: with CSA-approval

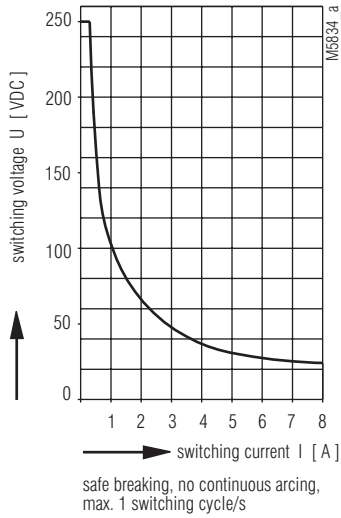
LG 5929. \_\_ / 100: for 2-channel connection, with 2 LEDs

### Ordering example for Variants

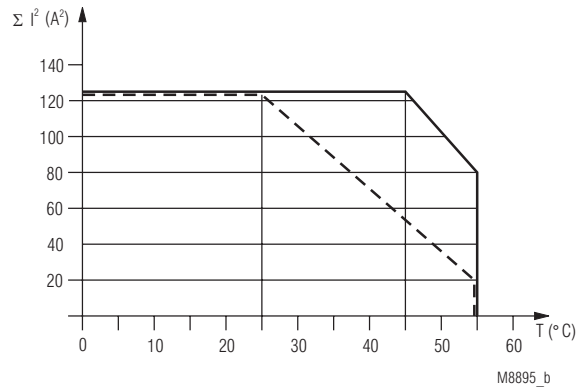
LG 5929. \_\_ PS/100 AC/DC 24 V 50/60 Hz



## Characteristics



Arc limit curve under resistive load



— AC / DC 24 V AC 230V device mounted on distance with aircondition

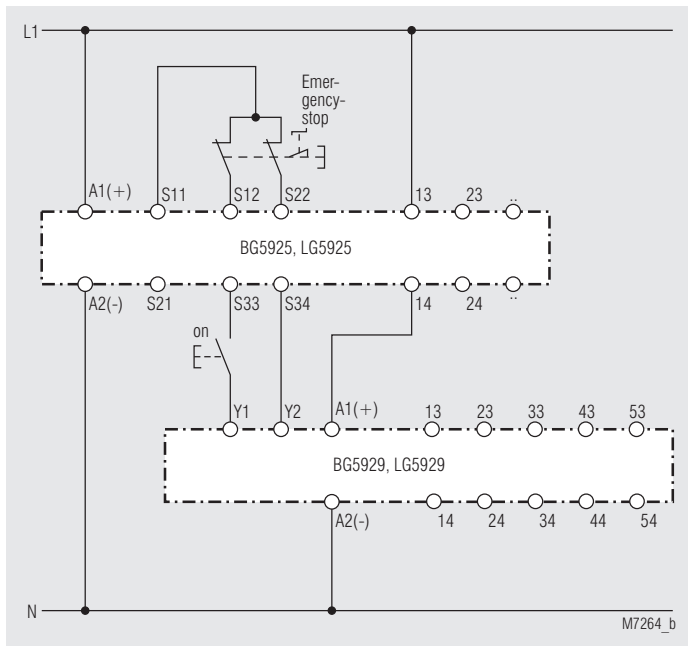
- - - AC / DC 24 V AC 230V device mounted without distances heated by devices with same load

quadratic total current

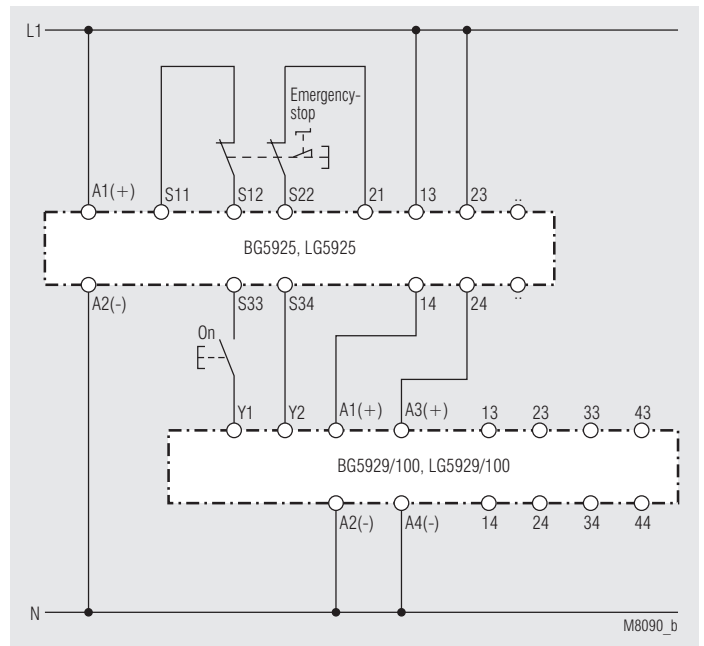
$$\Sigma I_{th}^2 = I_{th1}^2 + I_{th2}^2 + I_{th3}^2 + I_{th4}^2 + I_{th5}^2$$

$I_{th1}, I_{th2}, I_{th3}, I_{th4}, I_{th5}$  : thermal current  $I_{th}$  on contact rows

## Anwendungsbeispiele



LG 5929



Contact multiplication with LG 5929/100