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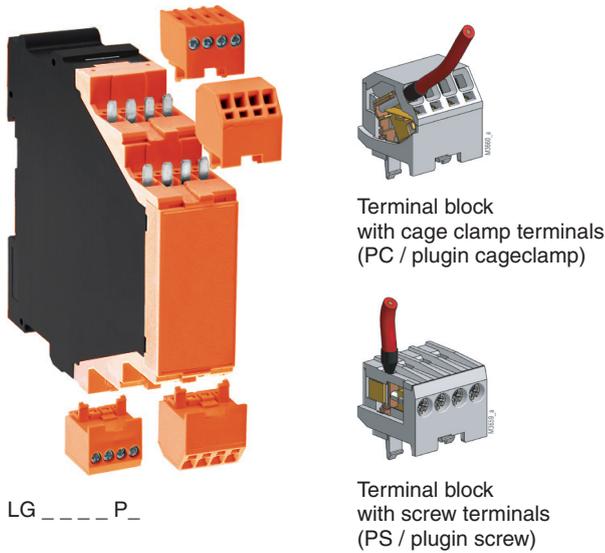
Your advantage

- Easy to realise safe timing circuits
- 4 positive guided output contacts at only 22.5 mm width

Features

- According to
 - Safety Integrity Level (SIL) 2 to IEC EN 61508
 - SIL Claimed Level (SIL CL) 2 to EN 62061
 - Performance Level (PL) d to DIN EN ISO 13849-1
 when connected to a suitable safety module
- Adjustable time delay
- As option fixed time delay
- High long life stability due to digital time base
- Adjustable with or without cross fault detection
- Output: 3 NO contacts + 1 NC contact + 1 positive guided feedback contact
 - or 4 NO contacts + 1 positive guided feedback contact
- LED indicator for channel 1, 2 and operation voltage
- 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



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

Terminal block with screw terminals (PS / plugin screw)

LG _ _ _ _ P _

Approvals an marking



Application

- Delayed start or enabling of a movement.
- Delayed enabling of a solenoid lock, e.g. SAFEMASTER STS

Attention!

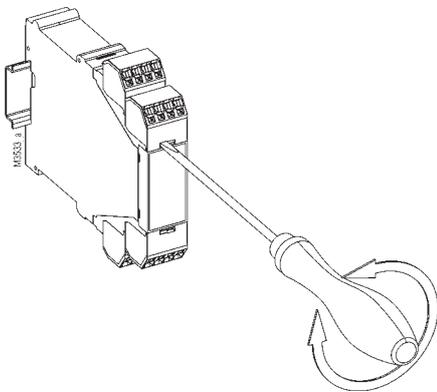


To achieve the safety levels stated under features, a supervising control must check the NC contact 55/56 before starting to make sure that both relays (Kt1 and Kt2) are switched off.

Notes

Removing the terminal blocks with cage clamp terminals

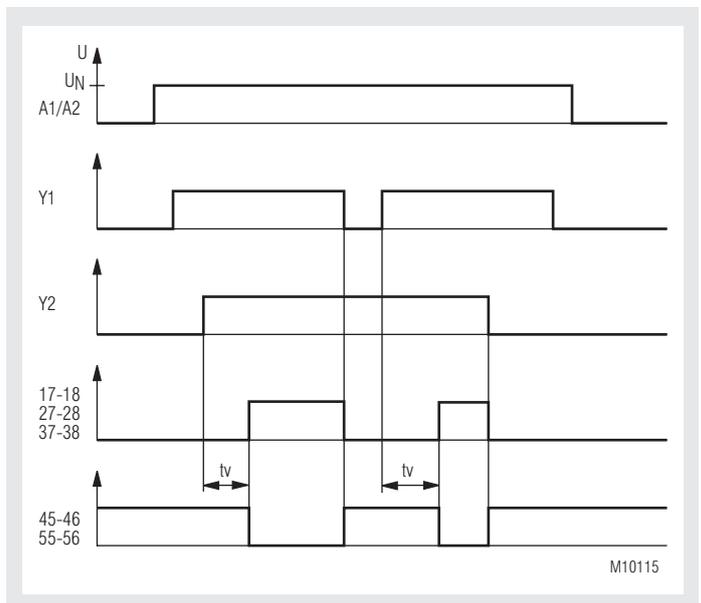
1. The unit has to be disconnected.
2. Insert a screwdriver in the side recess of the front plate.
3. Turn the screwdriver to the right and left.
4. Please note that the terminal blocks have to be mounted on the belonging plug in terminations.



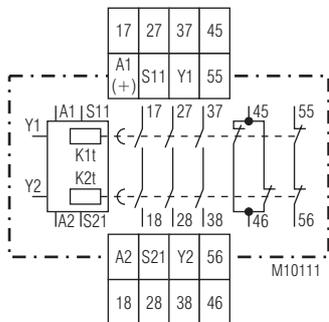
Indication

- | | |
|------------|--------------------------------------|
| upper LED: | on, when supply connected |
| lower LED: | on, when relay K1t and K2t energized |

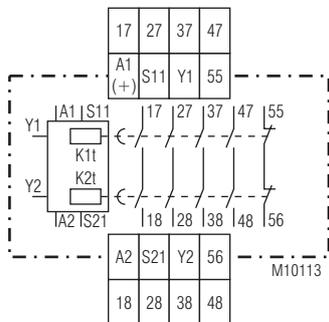
Function diagram



Circuit diagrams

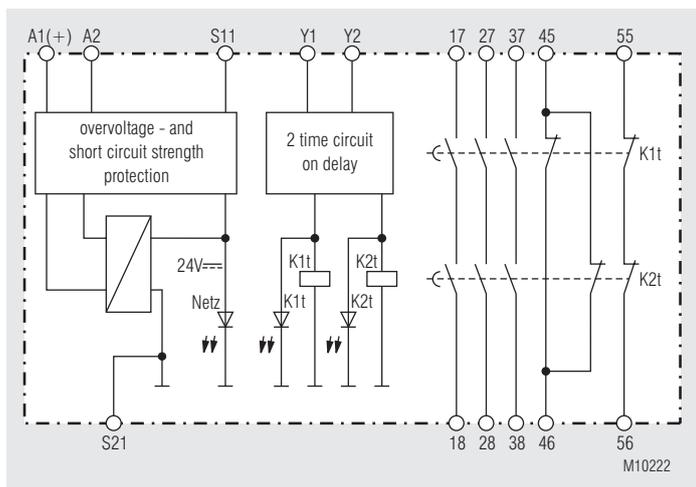


LG 7927.97

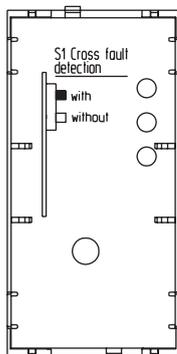
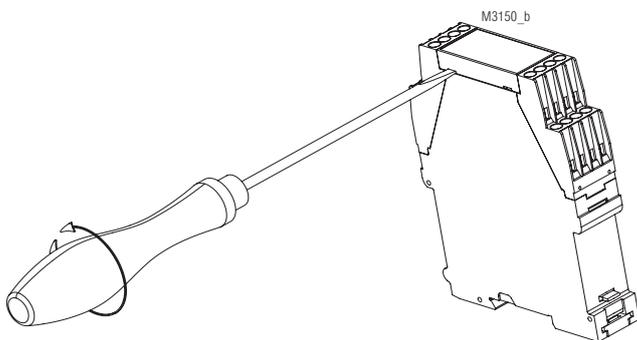


LG 7927.98

Block diagram



Unit programming



M10121



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

To alter the operation mode with or without crossfault monitoring the switch S1 is used. It is located behind the front cover. The adjustment of the operating mode must be selected before the adjustment of the time as the time potentiometer has to be set fully anti-clock-wise before removing the front plate. After selecting the operating mode the front plate is remounted. Please make sure that the setting knob is also in left position while mounting the front plate. For safety please check after finishing if a setting of the complete range is still possible.

Technical Data

Input

Nominal voltage U_N : DC 24 V
AC/DC 24 V
Voltage range: 0.9 ... 1.1 U_N
Nominal frequency: 50 / 60 Hz
Nominal consumption: typ. DC 2.0 W
typ. AC 3.5 VA
Control voltage on S11: min. DC 20 V at U_N
Control current in Y1, Y2: typ. DC 2,2 mA at U_N
typ. AC 3,1 mA at U_N
Short-circuit protection: Internal with PTC
Überspannungsschutz: Internal with VDR

Output

Contacts

LG 7927.97: 3 NO contacts, 2 NC contacts
LG 7927.98: 4 NO contacts, 1 NC contacts
The NO contacts are safety contacts.
ATTENTION! The NC contacts 45-46 can only be used for monitoring.

Contact type:

Time delay:

positive guided
adjustable **fixed**
0.1 ... 1 s 1 s
0.3 ... 3 s 3 s
0.5 ... 5 s 5 s
1.0 ... 10 s 10 s
3.0 ... 30 s 30 s
6.0 ... 60 s 60 s
30.0 ... 300 s 300 s
Other time ranges on request

Repeat accuracy:

Thermal current I_{th} :

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 / DC 24 V IEC/EN 60 947-5-1

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

Electrical life:

at 5 A, AC 230 V cos. $\varphi = 1$: > 2.2 x 10⁵ switch. cycl. IEC/EN 60 947-5-1

Permissible switching frequency:

max. 2000 switching cycles / h
with manual restart and short
release delay time

Short circuit strength

Max. fuse rating:

6 A gL IEC/EN 60 947-5-1

Mechanical life:

20 x 10⁶ switching cycles

General Data

Nominal operating mode: continuous operation

Temperatur range

Operation: - 15 ... + 55°C

Storage: - 25 ... + 85°C

Altitude: < 2.000 m

Clearance and creepage distance

rated impuls voltage /
pollution degree: 4 kV / 2 IEC 60 664-1

EMC

Electrostatic discharge (ESD): 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 voltage

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

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

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

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 VO behaviour
according to UL subject 94

Vibration resistance:

Amplitude 0.35 mm
Frequency 10 ... 55 Hz, IEC/EN 60 068-2-6

Technical Data

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 mm ² solid or 1 x 2.5 mm ² stranded ferruled or 2 x 1.5 mm ² stranded ferruled or 2 x 2.5 mm ² solid	
Insulation of wires or sleeve length:	8 mm	
Plugin with screw terminals		
max. cross section for connection:	1 x 2.5 mm ² solid or 1 x 2.5 mm ² stranded ferruled	
Insulation of wires or sleeve length:	8 mm	
Plugin with cage clamp terminals		
max. cross section for connection:	1 x 4 mm ² solid or 1 x 2.5 mm ² stranded ferruled	
min. cross section for connection:	0.5 mm ²	
Insulation of wires or sleeve length:	12 ±0.5 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:	approx. 190 g	

Dimensions

Width x height x depth:

LG 7927:	22.5 x 90 x 121 mm
LG7927 PC:	22.5 x 111 x 121 mm
LG 7927 PS:	22.5 x 104 x 121 mm

Safety related data

Values according to EN ISO 13849-1:

Category:	3	
PL:	d	
MTTF _d :	173,4	a
DC _{avg} :	99,0	%
d _{op} :	365	d/a (days/year)
h _{op} :	24	h/d (hours/day)
t _{Zyklus} :	3600	s/Zyklus
	± 1	/h (hour)

Values according to IEC EN 62061 / IEC EN 61508:

SIL CL:	2	IEC EN 62061
SIL	2	IEC EN 61508
HFT ¹⁾ :	1	
DC _{avg} :	99,0	%
SFF	99,7	%
PFH _D :	2,93E-10	h ⁻¹

¹⁾ HFT = Hardware-Failure Tolerance



At a time delay of > 30 s the unit is limited to (PL) c, cat. 1 and SIL CL1.

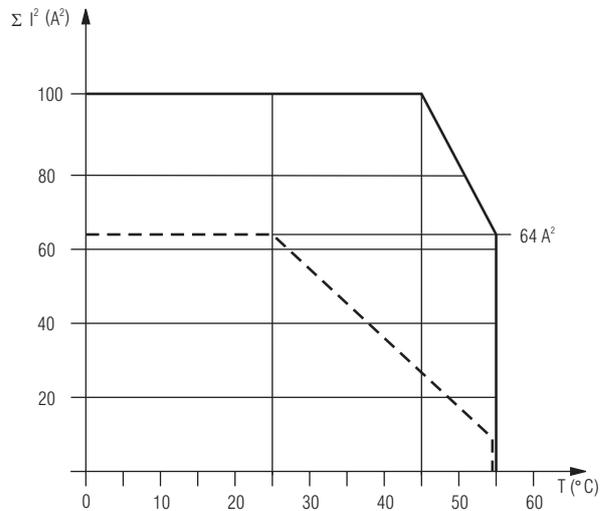
The values stated above are valid for the standard type. Safety data for other variants are available on request.

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

Standard type

LG 7927.97 DC 24 V 1 ... 10 s	
Article number:	0062790
• Output:	3 NO contacts, 2 NC contacts
• Nominal voltage U _N :	DC 24 V
• Time delay t _v :	1 ... 10 s
• Width:	22.5 mm

Characteristic



— AC/DC 24V device mounted on distance with air circulation.
max. current at 55°C over
4 contactrows = 4A ≙ 4x4²A²=64A²

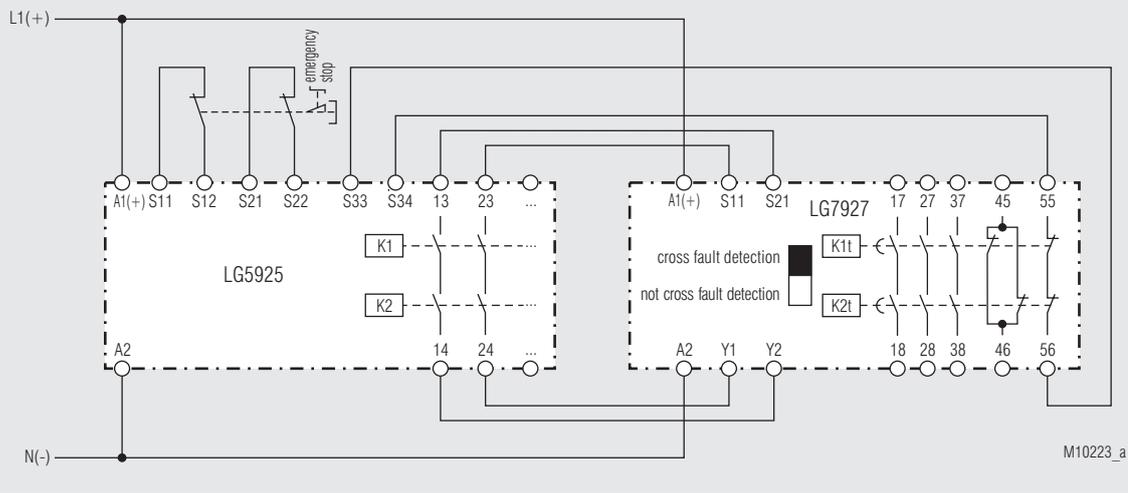
- - - AC/DC 24V device mounted without distance heated by
devices with same load,
max current at 55°C over
4 contactrows = 1,5A ≙ 4x1,5²A²=9A²

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

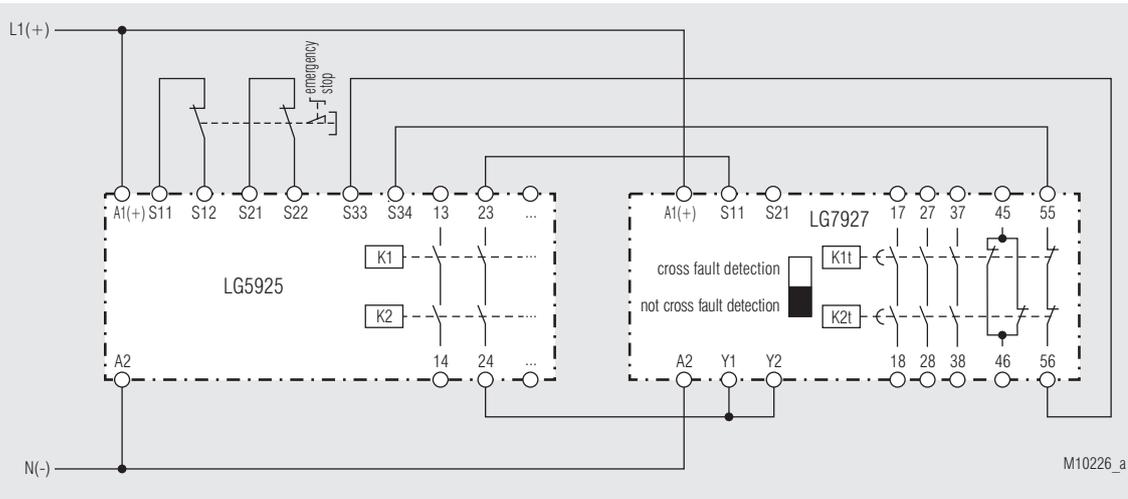
I₁, I₂, I₃, I₄ - current in contact paths

quadratic total current limit curve

Application example



LG 5925 with LG 7927, cross fault detection, suitable up to SIL2, Performance Level d



LG 5925 with LG 7927, non cross fault detection, suitable up to SIL2, Performance Level d