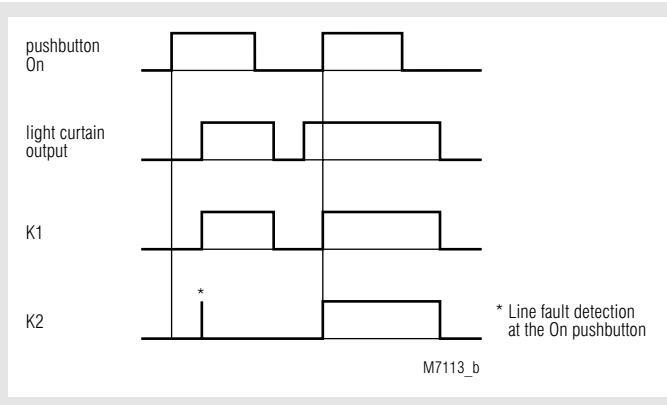


- According to EU directive for machines 98/37/EG
- According to IEC/EN 60 204-1
- Safety-mat module with manual or automatic restart
- can also be used for safety edges
- Safety category 4 according to EN 954-1
- Output: max. 3 NO contacts
- Line fault detection on On-button
- Manual restart or automatic restart when connecting the supply voltage, switch S2
- LED indicator for state of operation
- Indicator for status of switching element
- LED indicator for channel 1 and 2
- Removable terminal strips
- Wire connection: also 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/-4
- BG 5925/910: Width 22,5 mm
- BH 5925/910: Width 45 mm

### Function diagram



### Approvals and marking



\* see variants

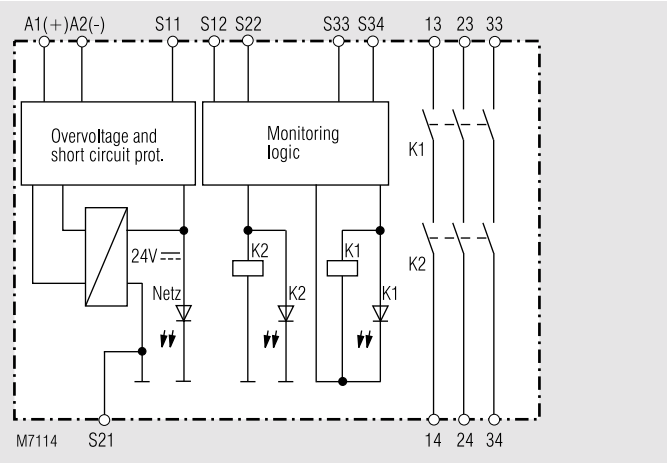
### Applications

- Protection of people and machines
- Emergency stop circuits on machines
  - Monitoring of safety gates
  - Control unit for lightbars
  - Control unit for safety mats and safety edges

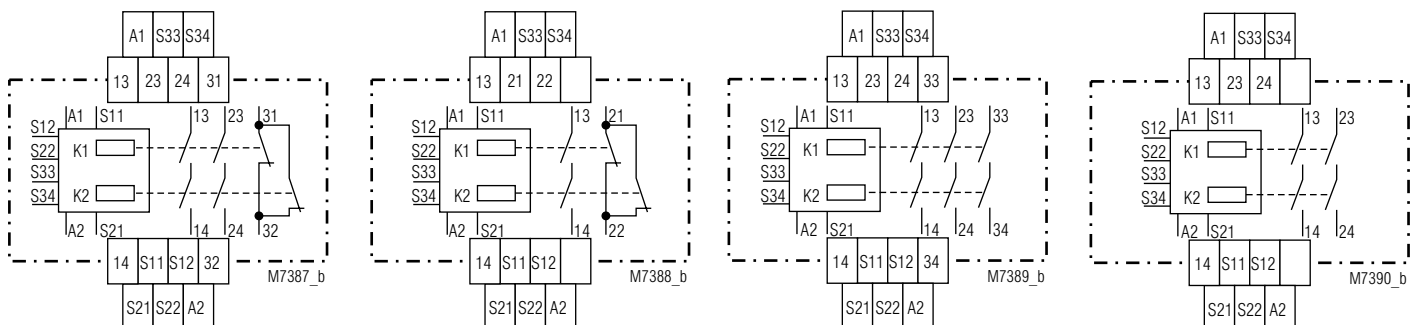
### Indicators

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

### Block diagram



### Circuit diagrams



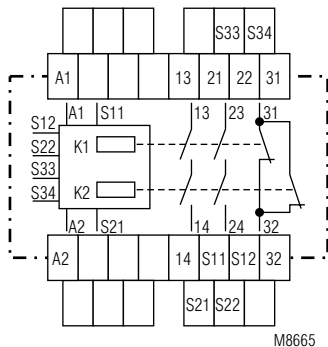
BG 5925.22/910

BG 5925.16/910

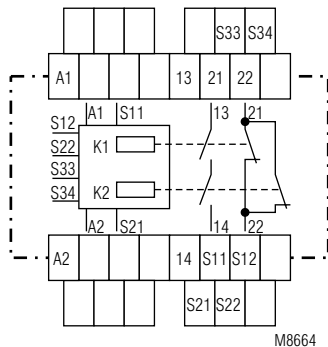
BG 5925.03/910

BG 5925.02/910

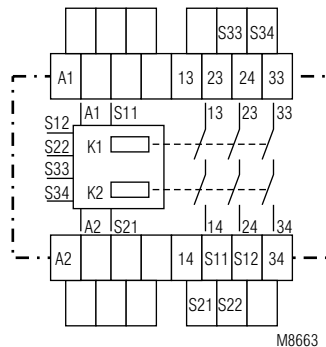
## Schaltbilder



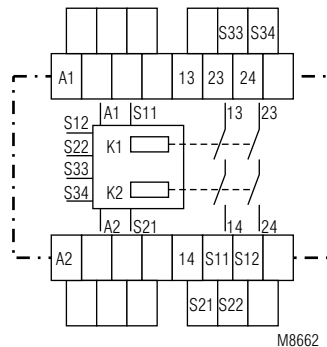
BH 5925.22/910



BH 5925.16/910

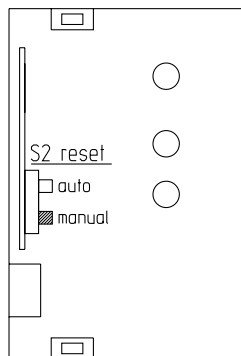
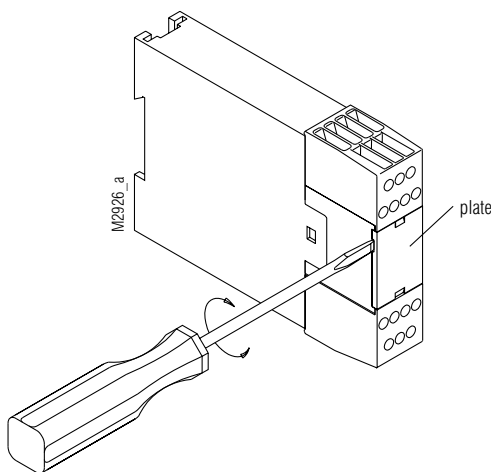


BH 5925.03/910



BH 5925.02/910

## Unit programming



M6374

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

## Notes

### 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. 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 BG 5925 mean that this module is also suitable for switching small loads of 1 mA - 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.

Connecting the terminal S21 to the protective ground bridges the internal short-circuit protection of Line A2 (-). The short-circuit protection of line A1 (+) remains active.

With the model BG 5925/910 control unit for safety mats, the switch S1 must always be set to cross fault monitoring. Depending on the operation of the machine, the switch S2 is set to automatic or manual restart.

### ATTENTION - AUTOMATIC START!



According to IEC/EN 60 204-1 part 9.2.5.4.2 it is not allowed to restart automatically after emergency stop. Therefore the machine control has to disable the automatic start after emergency stop.

## Technical data

### Input circuit

	BG 5925/910		BH 5925/910
<b>Nominal Voltage <math>U_N</math>:</b>	DC 24 V	AC/DC 24 V	AC 110, 115, 230 V *)
<b>Voltage range</b>	DC	AC/DC	AC
DC:	at 10% residual ripple: 0,9 ... 1,1 $U_N$ 0,95 ... 1,1 $U_N$ —		
AC:	— 0,8 ... 1,1 $U_N$ 0,85 ... 1,1 $U_N$		
*) other voltage on request			
<b>Nominal consumption:</b>	DC approx. 2 W		
<b>Min. Off-time:</b>	1 s		
<b>Control voltage on S11:</b>	approx. DC 23 V at $U_N$		
<b>Cross fault current</b>	between line S11-S12 and line S21-S22 with active safety mat or safety edge start-up:		
continuously	max. 0,4 A for approx. 2 ms		
DC:	approx. 29 mA at $U_N$		
AC:	approx. 37 mA at $U_N$		
<b>Control current over S12, S22:</b>	40 mA at $U_N$		
<b>Min. voltage on S12, S22:</b>	DC 21 V when relay activated		
<b>Short-circuit protection:</b>	Internal PTC		
<b>Overvoltage protection:</b>	Internal VDR		

### Output

#### Contacts

BG/BH 5925.02/910:	2 NO contacts
BG/BH 5925.03/910:	3 NO contact
BG/BH 5925.16/910:	1 NO, 1 NC contact
BG/BH 5925.22/910:	2 NO, 1 NC contact
The NO contacts are safety contacts.	
<b>ATTENTION! The NC contacts 21-22 or 31-32 can only be used for monitoring.</b>	

## Technical data

### Operate delay typ. at $U_N$ :

Manual start:	40 ms
automatic start:	200 ms

### Release delay typ. at $U_N$ :

Disconnecting the supply:	50 ms
Disconnecting S12, S22:	15 ms

### Contact type:

Nominal output voltage:	positive guided AC 250 V DC: see limit curve for arc-free operation
-------------------------	--

### Switching of low loads:

(contact  $5 \mu\text{Au}$ )  $\geq 100 \text{ mV}$

Thermal current  $I_{th}$ : see current limit curve

on 1 contact path: max. 8 A  
on more than 1 contact path: max. 7 A per contact path

### Switching capacity

to AC 15:	AC 3 A / 230 V IEC/EN 60 947-5-1 for NO contacts AC 2 A / 230 V IEC/EN 60 947-5-1 for NC contact
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### Electrical contact life

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

### Permissible operating

frequency: max. 1 200 operating cycles / h

### Short circuit strength

max. fuse rating: 6 A gL IEC/EN 60 947-5-1

line circuit breaker: C 8 A

Mechanical life:  $10 \times 10^6$  switching cycles

## General data

### Operating mode:

Continuous operation

### Temperature range:

- 15 ... + 55 °C

### Clearance and creepage distances

Overvoltage category /  
contamination level: 4 kV / 2 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: 1 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

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:

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)

DIN 46 228-1/-2/-3/-4 or

2 x 2,5 mm<sup>2</sup> stranded ferruled

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

### Wire fixing:

Box terminal with wire protection,

removable terminal strips

### Mounting:

DIN rail IEC/EN 60 715

### Weight:

BG 5925/910: 220 g

BH 5925/910: 430 g

## Dimensions

### Width x height x depth:

BG 5925/910: 22,5 x 84 x 121 mm

BH 5925/910: 45 x 84 x 121 mm

## Standard type

BG 5925.02/910 DC 24 V

Article number: 0049869 stock item

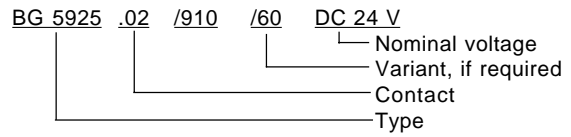
• Output: 2 NO contacts

• Nominal voltage  $U_N$ : DC 24 V

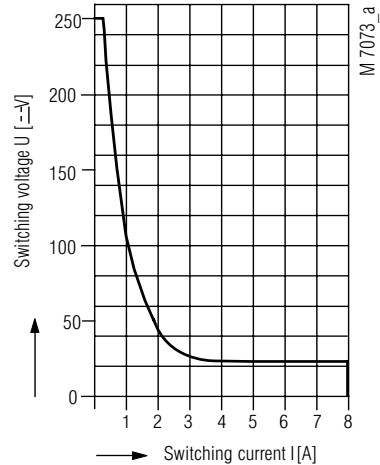
## Variant

BG 5925.\_\_/60: CSA/UL approval

## Ordering example for variant

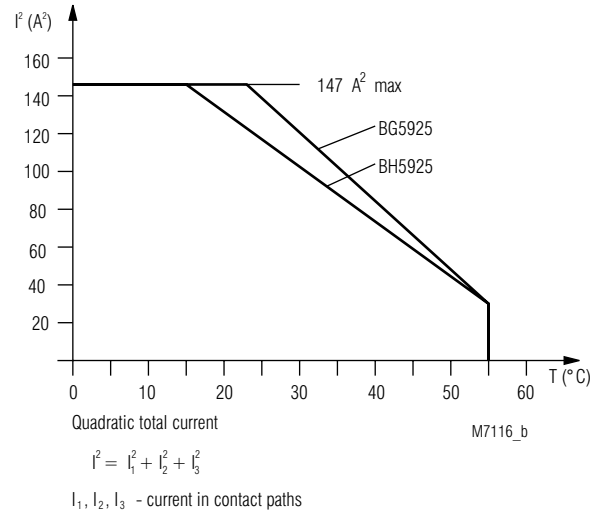


## Characteristics



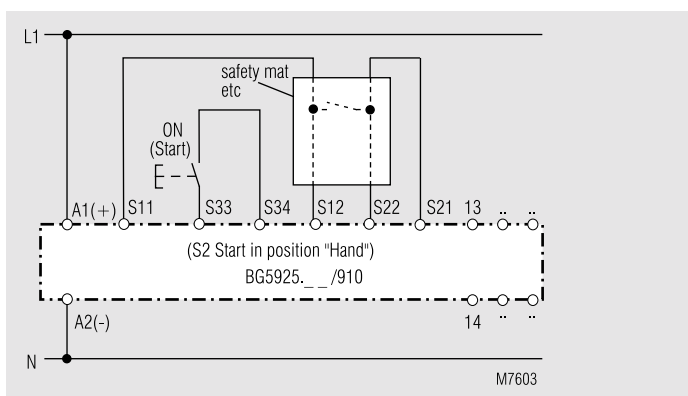
safe breaking, no continuous arcing  
under the curve, max. 1 switching cycle/s

## Arc limit curve under resistive load



## Quadratic total current limit curve

## Application examples



Control unit for safety mats and edges

switch S1 position: querschlußsicher

switch S2 position: Handstart

(For automatic restart S2 in position Autostart and link on S33-S34)