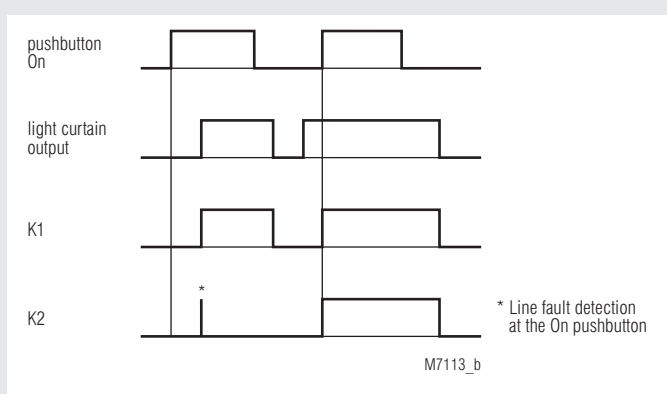


- According to
 - SIL-Claimed Level (SIL CL) 3 to EN 62061
 - Performance Level (PL) e to DIN EN ISO 13849-1
 - Category 4 to EN 954-1
- Safety-mat module with manual or automatic restart
- can also be used for safety edges
- Output: max. 3 NO contacts
- Line fault detection on On-button
- Manual restart 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 mm² stranded ferruled (isolated), DIN 46 228-1/-2/-3/-4 or 2 x 2,5 mm² 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



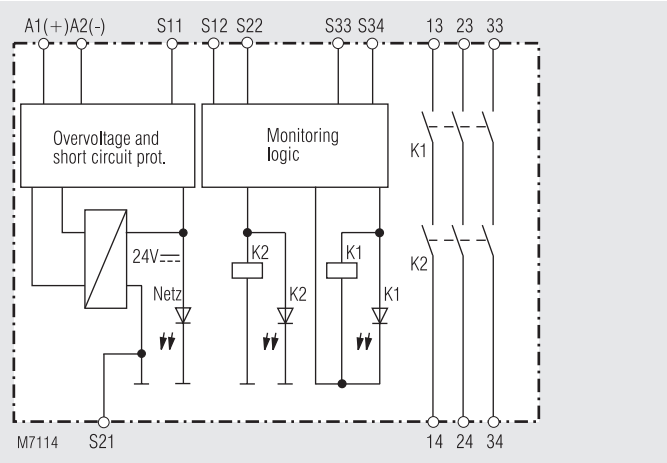
For the existing BG certificate DOLD has not demanded for an extension. There has not been made any changes on the product since then.

* pending

Applications

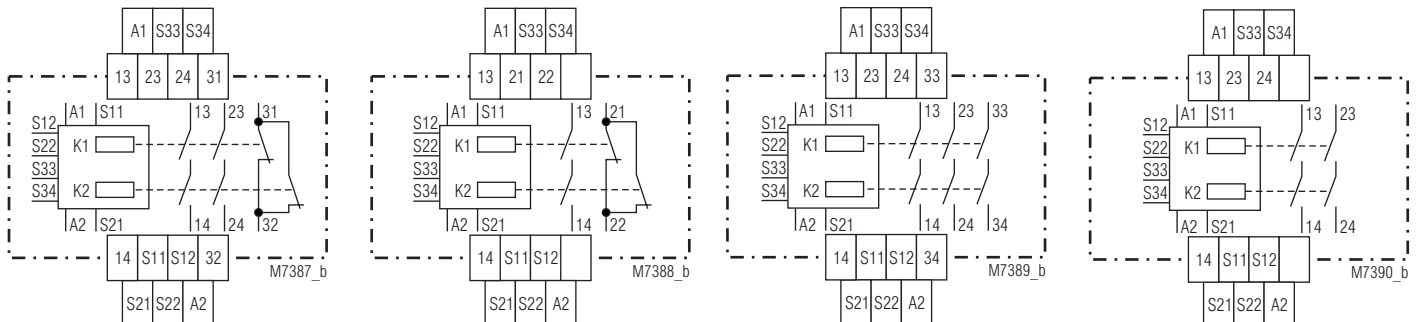
- Protection of people and machines
- Emergency stop circuits on machines
 - Monitoring of safety gates
 - Switch gear for lightbars
 - Switch gear for safety mats and safety edges

Block diagram



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

Circuit diagrams



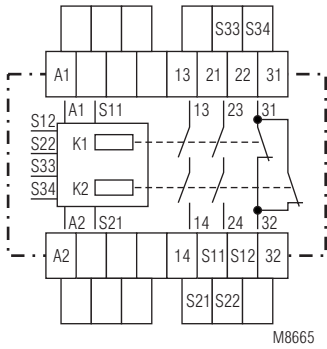
BG 5925.22/910

BG 5925.16/910

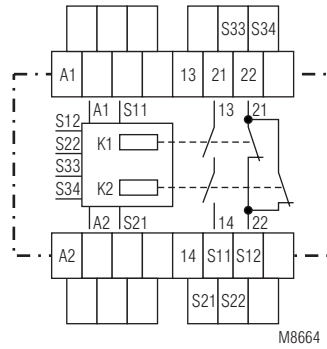
BG 5925.03/910

BG 5925.02/910

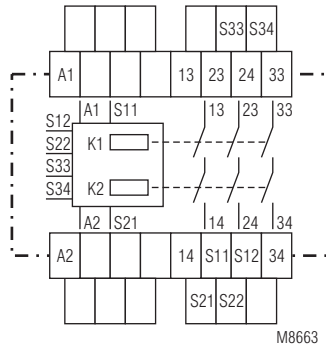
Circuit diagrams



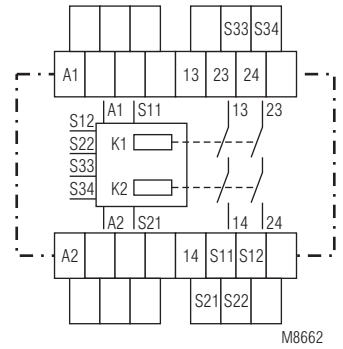
BH 5925.22/910



BH 5925.16/910

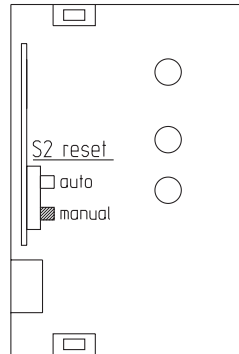
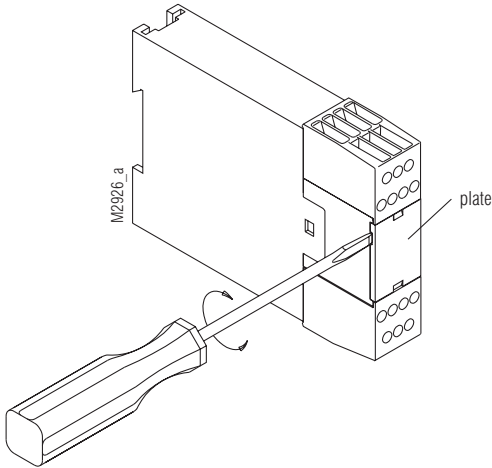


BH 5925.03/910



BH 5925.02/910

Unit programming



M6374

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

Notes

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 BG 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. 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 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.

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

Nominal Voltage U_N :

Voltage range

DC:

at 10% residual ripple:

AC:

*) other voltage on request

Nominal consumption:

Min. Off-time:

Control voltage on S11:

Max. permissible contact

resistance of safety mat:

Cross fault current

between line S11-S12 and

line S21-S22 with active

safety mat or safety edge

start-up:

continuously

DC:

AC:

Control current over

S12, S22:

Min. voltage between

terminals S12, S22 and S21:

Short-circuit protection:

Overvoltage protection:

	BG 5925/910	BH 5925/910
DC 24 V	AC/DC 24 V	AC 110, 115, 230 V *) AC
DC	AC/DC	—
0,9 ... 1,1 U_N	0,95 ... 1,1 U_N	—
—	0,8 ... 1,1 U_N	0,85 ... 1,1 U_N
DC approx. 2 W		
1 s		
approx. DC 23 V at U_N		
30 Ω		
max. 0,4 A for approx. 2 ms		
approx. 29 mA at U_N		
approx. 37 mA at U_N		
40 mA at U_N		
DC 21 V when relay activated and U_N on A1 - A2		
Internal PTC		
Internal VDR		

Output

Contacts

BG/BH 5925.02/910:

BG/BH 5925.03/910:

BG/BH 5925.16/910:

BG/BH 5925.22/910:

2 NO contacts

3 NO contact

1 NO, 1 NC contact

2 NO, 1 NC contact

The NO contacts are safety contacts.

ATTENTION! The NC contacts 21-22 or 31-32 can only be used for monitoring.

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:

positive guided
AC 250 V
DC: see limit curve for arc-free operation
 ≥ 100 mV
 ≥ 1 mA

Switching of low loads:

(contact 5 μ Au)

Thermal current I_{th} :

on 1 contact path: see current limit curve
max. 8 A
on more than 1 contact path: max. 7 A per contact path

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:

NC contact: 2 A / DC 24 V IEC/EN 60 947-5-1
NO contact

2 contacts in series:

8 A / 24 V $> 10^5$
ON: 0,4 s, OFF: 9,6 s

Electrical contact life

to AC 15 at 2 A, AC 230 V: 10^5 switching cycles IEC/EN 60 947-5-1
to DC 13 at 2 A, DC 24 V: $> 150 \times 10^3$ switching cycles

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:

10×10^6 switching cycles

General Data

Operating mode:

Continuous operation

Temperature range:

- 15 ... + 55 °C

Clearance and creepage distances

rated impuls voltage / pollution degree: 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

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: 1 x 4 mm² solid or

1 x 2,5 mm² stranded ferruled (isolated)

or

2 x 1,5 mm² stranded ferruled (isolated)

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

2 x 2,5 mm² 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

Safety related data

Probability of dangerous

Failure per Hour (PFH_D): $3,90 \cdot 10^{-9}$ 1/h

Safe Failure Fraction (SFF):

98,8 % (AC/DC 24 V)

Proof Test Intervall (T1):

20 Years



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

Standard type

BG 5925.02/910 DC 24 V

Article number: 0049869 stock item

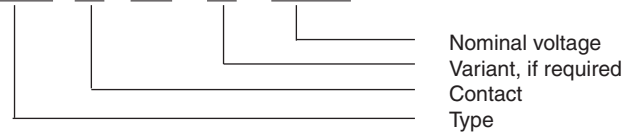
• Output: 2 NO contacts

• Nominal voltage U_N : DC 24 V

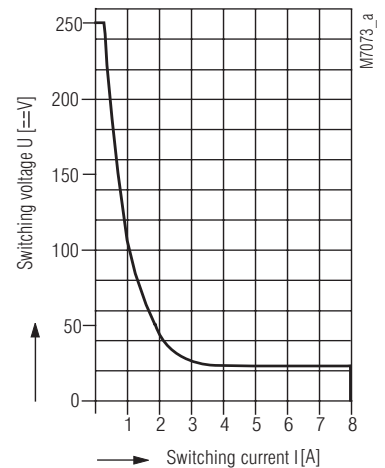
• Width: 22,5 mm

Ordering example

BG 5925 .02 /910 /60 DC 24 V

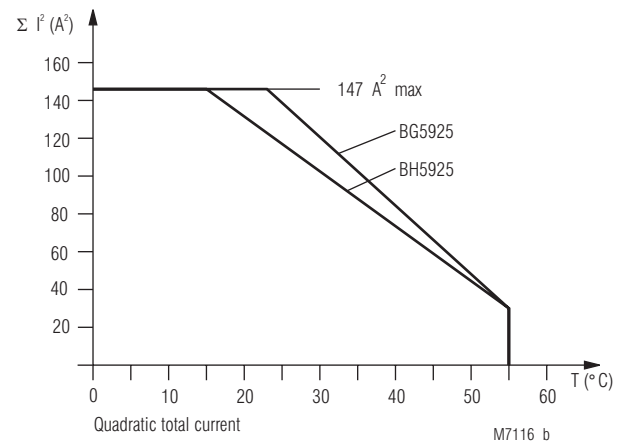


Characteristics



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

Arc limit curve under resistive load



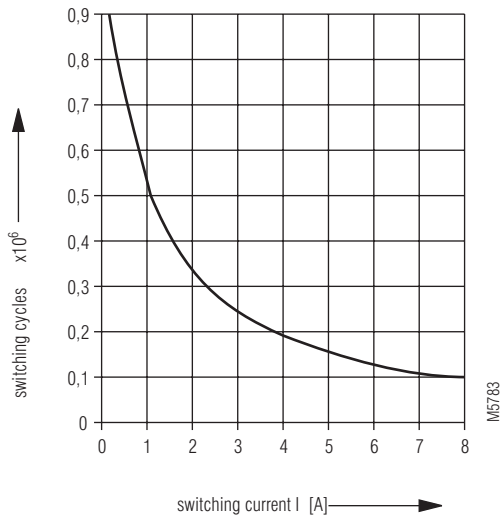
$$\Sigma I^2 = I_1^2 + I_2^2 + I_3^2$$

I_1, I_2, I_3 - current in contact paths

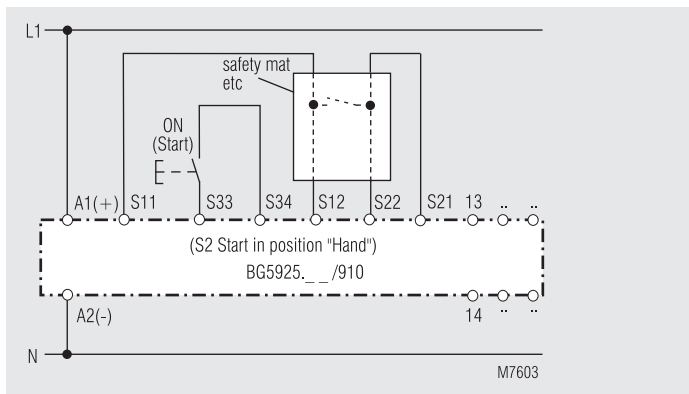
Quadratic total current limit curve

Application examples

electric life DC13 24V DC / i_{on} 0,4s; i_{off} 9,6s
2 contacts in series



Contact service life



Switch gear for safety mats and edges

switch S2 position: Manual start

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