

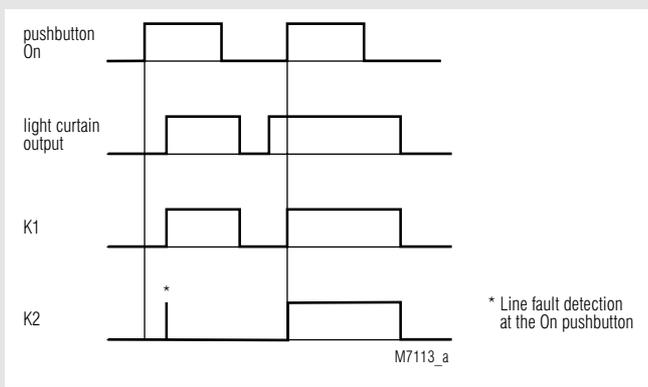
Light bar control unit BG 5925/900 safemaster

0233217

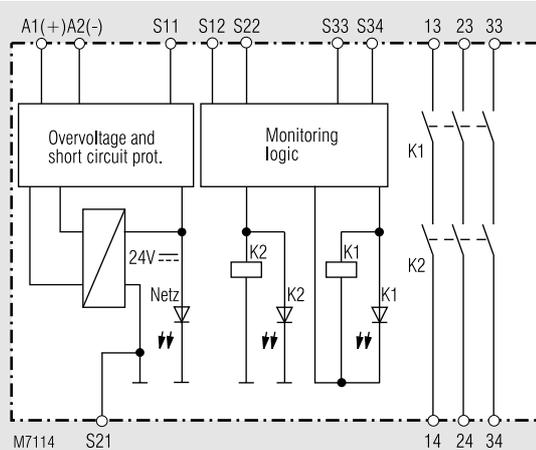


- According to EU directive for machines 98/37/EG
- According to IEC 204-1, EN 60 204-1, DIN VDE 0113-1, EN 954-1
- Safety category 4 according to DIN EN 954-1
- Output: max. 3 NO contacts, see contacts
- Single and 2-channel operation
- Line fault detection on On-button
- Manual restart or automatic restart when connecting the supply voltage, switch S2
- For light curtains with symmetric or asymmetric outputs, selection via S1
- Option: fast auto start
- LED indicator for state of operation
- LED indicator for channel 1 and 2
- Removable terminal strips
- Wire connection: also 2 x 1,5 mm² stranded ferruled (isolated), DIN 46 228-4 or 2 x 2,5 mm² stranded ferruled DIN 46 228-1/-2/-3
- Width 22,5 mm

Function diagram



Block diagram



Approvals and marking



Applications

Protection of people and machines

- control unit for light bars with selftest according to DIN EN 61 496-1.

Indicators

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

Notes

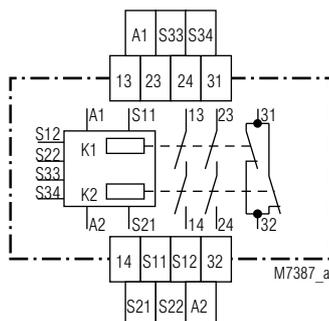
Line fault detection on On-button:

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.

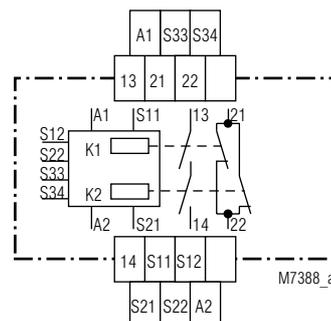
A line fault across the On-button which occurred after activation of the relay, will be detected with the next activation and the output contacts will not close. If a line fault occurs after the voltage has been connected to S12, S22, the unit will be activated because this line fault is similar to the normal On-function.

The gold plated contacts of the BG 5925 mean that this module is also suitable for switching small loads of 1 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. To operate light curtains with symmetric outputs switch S1 has to be in upper position "nicht querschlußsicher".

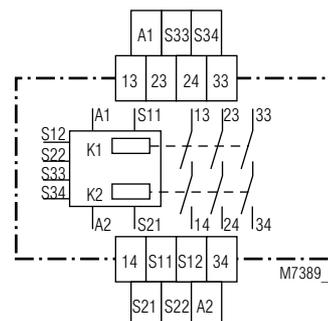
Circuit diagrams



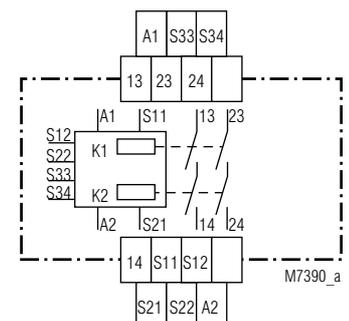
BG 5925.22/900



BG 5925.16/900

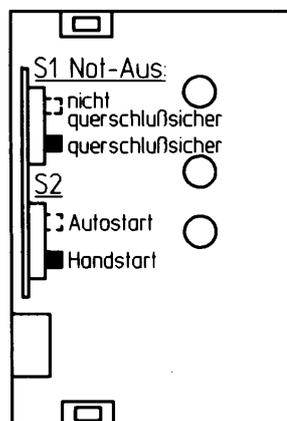
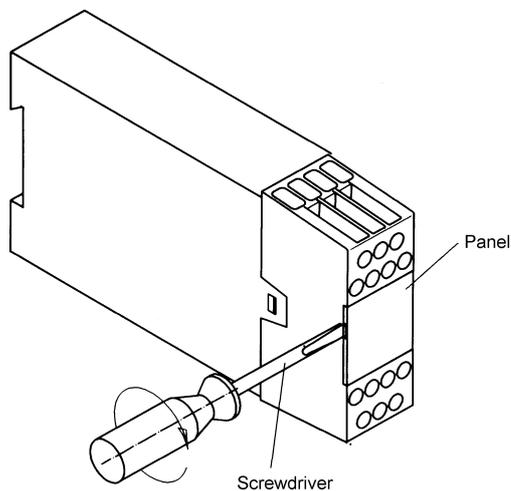


BG 5925.03/900



BG 5925.02/900

Unit programming



nicht querschlußsicher:
Light bars with symmetric outputs

querschlußsicher:
Light bars with asymmetric outputs

Drawing shows setting at the state of delivery

Notes

To operate light curtains with asymmetric outputs (1 output switches Plus, 1 output switches Minus) the switch S1 has to be put in lower position "querschlußsicher".
The minus switching channel has to be connected to S22, the plus switching channel to S12.

Technical data

Input circuit

Nominal Voltage U_N:	DC 24 V
Voltage range	DC
at 10% residual ripple:	0,9 ... 1,1 U_N
Nominal consumption:	DC approx. 2 W
Min. Off-time:	250 ms
Control voltage on S11:	DC 23 V at U_N
Control current over S12, S22:	40 mA at U_N
Min. voltage on S12, S22:	DC 21 V when relay activated
Short-circuit protection:	Internal PTC
Overvoltage protection:	Internal VDR

Output

Contacts		
BG 5925.02:	2 NO contacts	
BG 5925.03:	3 NO contact	
BG 5925.16:	1 NO, 1 NC contact	
BG 5925.22:	2 NO, 1 NC contact	
Operate delay typ. at U_N:		
Manual start:	40 ms	
automatic start:	250 ms	
BG 5925.__/901:	100 ms	
Release delay typ. at U_N:		
Disconnecting the supply:	50 ms	
Disconnecting S12, S22:	15 ms	
In the case that S22 is not disconnected because of fault:	≤ 200 ms	
Contact type:	positive guided	
Nominal output voltage:	AC 250 V	
	DC: see limit curve for arc-free operation	
Switching of low loads:	≥ 100 mV	
(contact 5 μ Au)	≥ 1 mA	
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	EN 60 947-5-1
	for NO contacts	
	AC 2 A / 230 V	EN 60 947-5-1
	for NC contact	
Electrical contact life		
to AC 15 at 2 A, AC 230 V:	10 ⁵ switching cycles	EN 60 947-5-1

Technical data

Permissible operating frequency:	max. 1 200 operating cycles / h
Short circuit strength	
max. fuse rating:	6 A general-purpose EN 60 947-5-1
line circuit breaker:	C 8 A
Mechanical life:	10 x 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) EN 61 000-4-2
HF irradiation:	10 V / m EN 61 000-4-3
Fast transients:	2 kV EN 61 000-4-4
Surge voltages between wires for power supply:	1 kV EN 61 000-4-5
between wire and ground:	2 kV EN 61 000-4-5
Interference suppression:	Limit value class B EN 55 011
Degree of protection:	Housing: IP 40 EN 60 529
	Terminals: IP 20 EN 60 529
Housing:	Thermoplastic with V0 behaviour according to UL subject 94
Vibration resistance:	Amplitude 0,35 mm EN 60 068-2-6
	frequency 10 ... 55 Hz
Climate resistance:	15 / 055 / 04 EN 60 068-1
Terminal designation:	EN 50 005
Wire connection:	1 x 4 mm ² solid or
	1 x 2,5 mm ² stranded ferruled (isolated) or
	2 x 1,5 mm ² stranded ferruled (isolated)
	DIN 46 228-1/-2/-3/-4 or
	2 x 2,5 mm ² stranded ferruled
	DIN 46 228-1/-2/-3
Wire fixing:	Box terminal with wire protection, removable terminal strips
Mounting:	DIN rail EN 50 022
Weight:	220 g

Dimensions

Width x height x depth: 22,5 x 84 x 118 mm

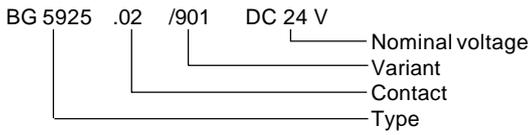
Standard type

BG 5925.02/900 DC 24 V	
Article number:	0050918
• Output:	2 NO contacts
• Nominal voltage U_N :	DC 24 V
• Width:	22,5 mm

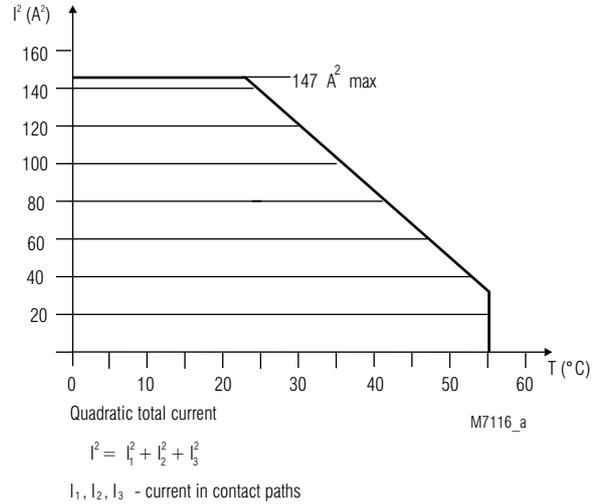
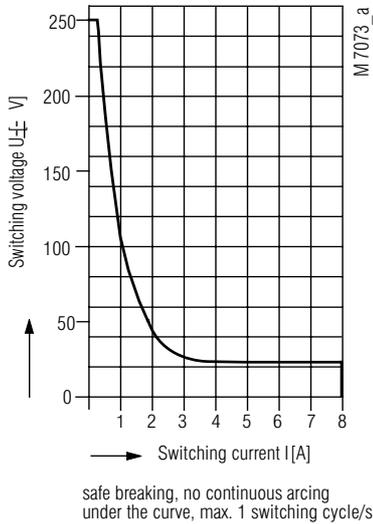
Variant

BG 5925._._/901: unit with fast autostart, switch 2 on "Autostart".
Without line fault detection on ON-button when
S2 on "Handstart"

Ordering example for Variant



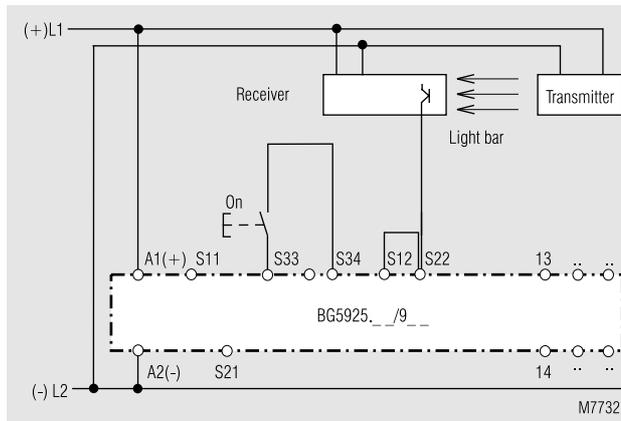
Characteristics



Quadratic total current limit curve

Arc limit curve under resistive load

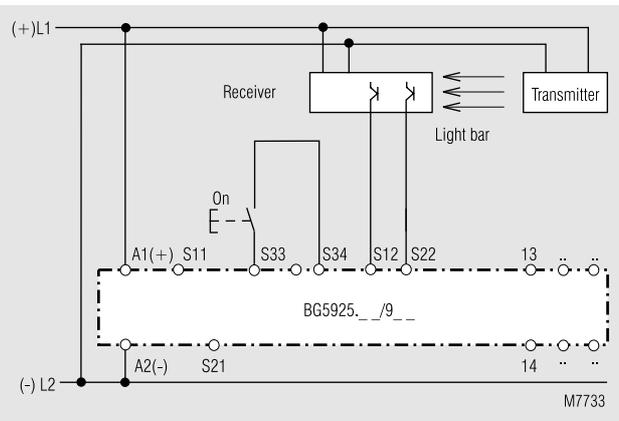
Application example



1-channel control by light bar with selftest

Note: Refer to "Unit programming"!

Switches in pos.: S1: "nicht querschlußsicher"
S2: manual start



2-channel control by light bar with selftest.

Crossfault monitoring by light bar.

Note: Refer to "Unit programming"!

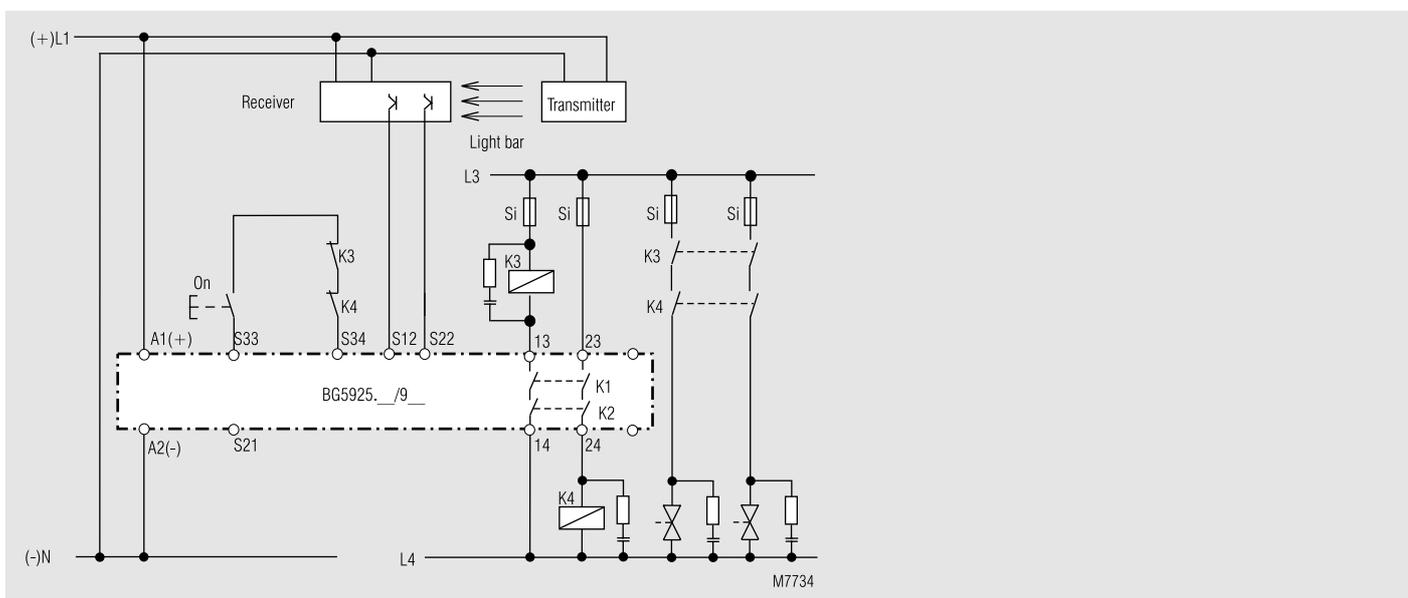
Switches in pos.:

S1: On light curtains with symmetric outputs S1 in upper position (nicht querschlußsicher).

On light curtains with asymmetric outputs S1 in lower position (querschlußsicher).

S2: manual start

Application example



Reinforcement and multiplication of contacts by external contactors

Note: Refer to "Unit programming"!

Switches in pos.:

- S1: On line curtains with symmetric outputs S1 in upper position
(nicht querschlußsicher).
- On line curtains with asymmetric outputs S1 in lower position
(querschlußsicher).

S2: manual start