

Safety control unit module SB4 Module 4CP

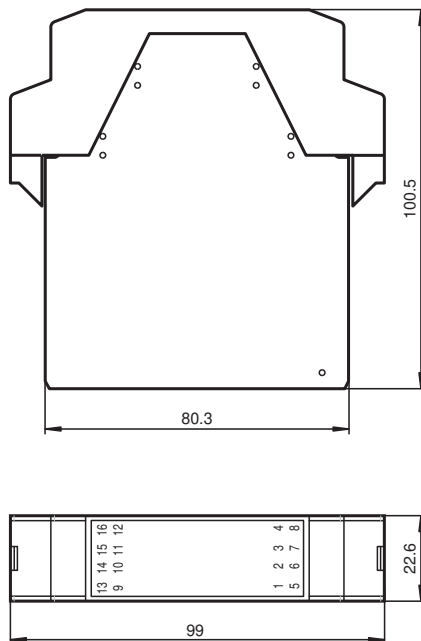


- Sensor module
- 4 sensor channels
- Single module for safety thru-beam sensors SLA12 and SLA29 and for 2 channel safety devices (emergency off)
- Micro-Controller controls
- Operating mode can be selected by means of DIP switches
- Screw terminals or spring terminals

Safety control unit module



Dimensions



Technical Data

General specifications

Operating mode	simultaneousness, antivalence
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Functional safety related parameters

Safety Integrity Level (SIL)	SIL 3
Performance level (PL)	PL e
Category	Cat. 4
Mission Time (T _M)	20 a
Type	4

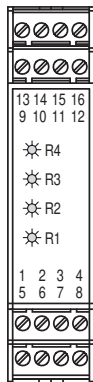
Indicators/operating means

Function indicator	LED yellow (4x): indicator lamp channel 1 ... 4
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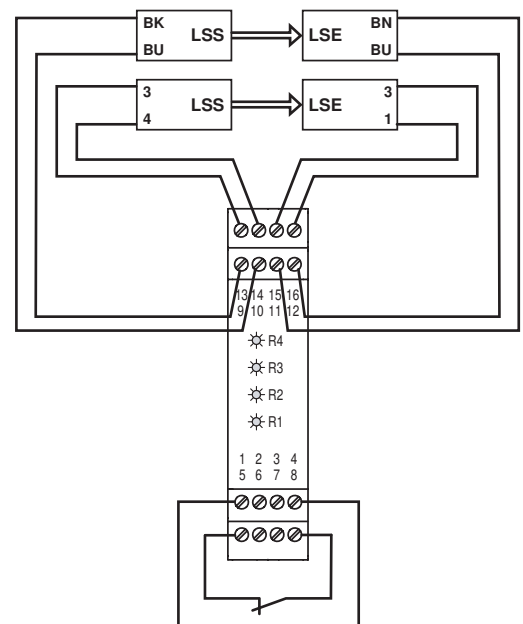
Technical Data

Stability alarm indicator		LED yellow flashing: Indicator lamp channel 1 ... 4
Control elements		DIP switch
Electrical specifications		
Operating voltage	U _B	24 V DC ± 20 % , via SB4 Housing
Input		
Activation current		approx. 7 mA
Conformity		
Functional safety		ISO 13849-1 ; EN 61508 part1-4
Product standard		EN 61496-1
Approvals and certificates		
CE conformity		CE
UL approval		cULus
TÜV approval		TÜV
Ambient conditions		
Ambient temperature		0 ... 50 °C (32 ... 122 °F)
Storage temperature		-20 ... 70 °C (-4 ... 158 °F)
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals , lead cross section 0.2 ... 2 mm ² Option /165: Cage tension spring terminals , Cable cross-section 0.2 ... 1.5 mm ²
Material		
Housing		Polyamide (PA)
Mass		approx. 150 g
General information		
Ordering information		without Option /165 -> with screw terminals with Option /165 -> spring clamp terminals

Connection



Terminal	Function	Channel assignment
1	Receiver 2 input	Channel 2
2	Receiver 2 +U	
3	Transmitter 2 +U	Channel 2
4	Transmitter 2 output	
5	Receiver 1 input	Channel 1
6	Receiver 1 +U	
7	Transmitter 1 +U	Channel 1
8	Transmitter 1 output	
9	Transmitter 3 output	Channel 3
10	Transmitter 3 +U	
11	Receiver 3 +U	Channel 3
12	Receiver 3 input	
13	Transmitter 4 output	Channel 4
14	Transmitter 4 +U	
15	Receiver 4 +U	Channel 4
16	Receiver 4 input	



Connection example

(LSS = transmitter of light barrier;
LSE = receiver of light barrier)

The operation of this module is possible only within a control unit of the type SafeBox SB4.
Is the operating instruction of the SafeBox pay attention.

Function

The 4-channel sensor card module SB4-4CP makes it possible to connect light barriers or light grids or contact safety sensors in a one or two-channel version. In addition it contains the Micro-Controller controls of the SafeBox.

This version only exists once in a system and is always located in slot 2 of the SafeBox. The module is supplied with plug-in jumper. If additional modules are used, this plug-in jumper must be moved.

There is a plug-in jumper on the module. If the system contains further units, this plug-in jumper onto the last slot must be moved.

When the system is switched on, the software determines whether a light barrier or a contact safety sensor is switched on at a channel and monitors its presence during operation. Safety sensors with switching contacts, which are connected to the SafeBox, must operate in the switching mode "normally closed". An open contact means "safe status".

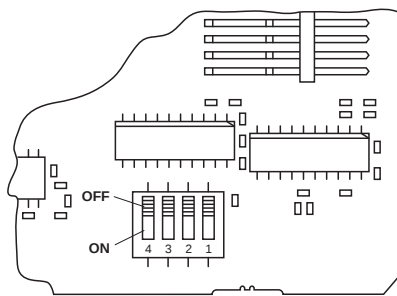
The channels 1 and 2 as well as 3 and 4 (and 5 and 6) can be monitored for simultaneousness or antivalence. If simultaneousness monitoring is activated, 2 channel safety equipment is monitored for simultaneous opening or changing of the signals. The monitoring time is 2 s.

Antivalence monitoring expects the normally closed contact at channel 1 or 3 (or 5) and the normally open contact at channel 2 or 4 (or 6). If antivalence monitoring is performed without simultaneousness monitoring, an incorrect contact position causes a switch-off and the error message 7 after approx. 60 s.

Operation types

The assembly contains 4 DIP switches for selecting the simultaneousness functions of neighbouring channels (1 and 2, 3 and 4) and for an antivalent evaluation of neighbouring channels (1 and 2, 3 and 4 or also 5 and 6). For selecting functions, 2 selector switches must always be actuated. The functions are not effective if light barriers are connected.

Position of the DIP switches



Switch	Position	Operation type
1 and 3	OFF	No antivalent evaluation
	ON	Antivalent evaluation active
2 and 4	OFF	No simultaneousness evaluation
	ON	Simultaneousness evaluation active

Display

For each channel, there is a yellow LED on the front panel of the module.

Display	LED	Meaning
R1 - R4	yellow	Status of light barrier 1 ... 4 Off: light beam interrupted On: light beam released Flashing (2.5 Hz): light beam released, function reserve fallen short of Flashing (5 Hz): error