



**Model Number**

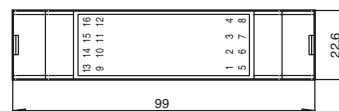
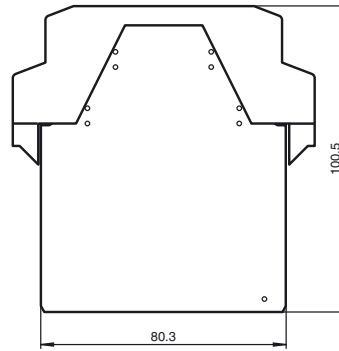
**SB4 Module 4COG**

Safety control unit module  
Module for Evaluation unit SafeBox - series SB4

**Features**

- 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
- Connection of a number of separate de-energizing circuits

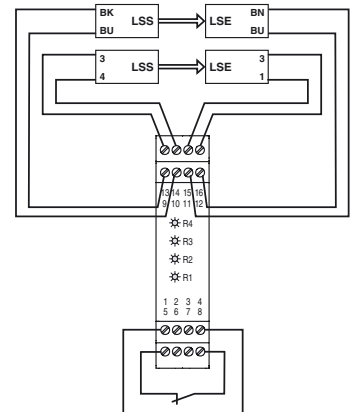
**Dimensions**



**Electrical connection**



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

**Technical data**

General specifications		
Operating mode		ODER-Function
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Performance level (PL)		PL e
Category		Cat. 4
Mission Time (T <sub>M</sub> )		20 a
Type		4
Indicators/operating means		
Function display		LED yellow (4x): indicator lamp channel 1 ... 4
Pre-fault indication		LED yellow flashing: Indicator lamp channel 1 ... 4
Controls		DIP-switch
Electrical specifications		
Operating voltage	U <sub>B</sub>	24 V DC ± 20 % , via SB4 Housing
Input		
Activation current		approx. 7 mA
Ambient conditions		
Ambient temperature		0 ... 50 °C (32 ... 122 °F)
Storage temperature		-20 ... 70 °C (-4 ... 158 °F)
Mechanical specifications		
Protection degree		IP20
Connection		screw terminals , lead cross section 0.2 ... 2 mm <sup>2</sup>
Material		
Housing		Polyamide (PA)
Mass		approx. 150 g

Release date: 2011-06-15 14:41 Date of issue: 2011-06-27 197116\_eng.xml

Subject to modifications without notice

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**Compliance with standards and directives**

Standard conformity	(extract)
Standards	EN IEC 61496-1 EN IEC 61508 EN ISO 13849-1

**Approvals and certificates**

SIL classification	up to SIL3 acc. to IEC 61508 tested and certified by TÜV SÜD according to: IEC 61508:1998 part 1, 3.4 IEC 61508: 2000 ISO 13849-1:2006 EN 50178:1997 IEC 61496-1:2004 IEC 61496-2:2006
UL approval	cULus
TÜV approval	TÜV

This module can only be operated within an evaluation device of the SafeBox SB4 type.

The SafeBox instruction manual should be observed.

**Function**

The 4-channel sensor card module SB4-4COG makes it possible to connect light barriers or light grids or contact safety sensors in a one-channel version. Also, it contains the microcontroller control of the SafeBox.

This module is only contained once in a SafeBox SB4 and has to be mounted on slot 2. The module has a plug-in jumper. If the system contains additional assemblies, then this plug-in jumper has to be connected to the last slot.

This module allowed multiple separate de-energising circuits inside any SafeBox.

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.

Contact safety sensors, which are connected to the SafeBox, must work according to the normally closed principle. An open contact indicates "safe state".

The channels 1 and 2 as well as 3 and 4 can be combined via an OR function when using light barriers.



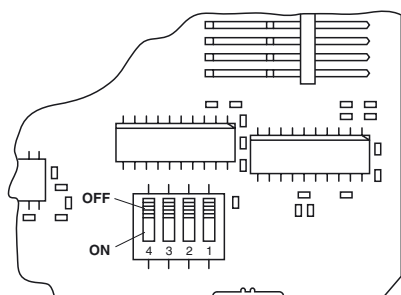
**Danger!**

When using this function, it must be ensured that the effectiveness of the fusing is maintained. This must be checked on installation and commissioning .

**Operating modes**

The assembly has 4 DIP switches for selecting the OR-operation of neighbouring channels (1 OR 2 and 3 OR 4). For selecting functions, 2 selector switches must always be actuated. The functions are only effective if light barriers are connected.

**Position of the DIP switches**



Switch	Position	Operation type
1 and 3	OFF	No OR-operation channel 1 and 2
	ON	OR-operation channel 1 and 2
2 and 4	OFF	No OR-operation channel 3 and 4
	ON	OR-operation channel 3 and 4

**Displays**

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

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