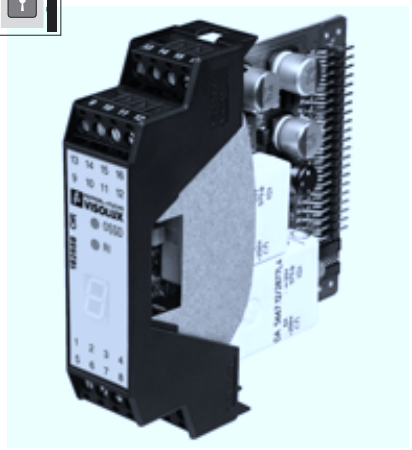
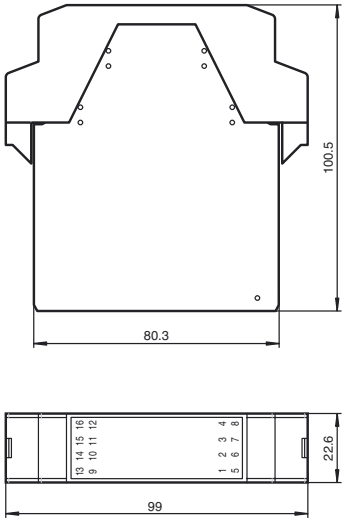


Dimensions



Model Number

SB4 Module OR

Safety control unit module

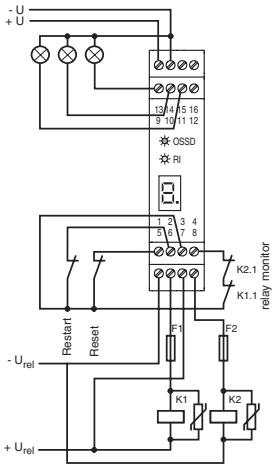
Module for Evaluation unit SafeBox - series SB4

Features

- OSSD-R/Supply-module
- Safety outputs OSSD, external status displays OSSD
- Start/Restart disable
- Operating mode can be selected by means of DIP switches
- Relay monitor
- Screw terminals or spring terminals

Electrical connection

Terminal	Function
1	Reset input; normally closed contact
2	Restart input (RI); normally closed contact
3	24 V DC connection for reset, restart and RM
4	Relay monitor (RM)
5 - 6	OSSD1; potential free relay contact; normally open contact
7 - 8	OSSD2; potential free relay contact; normally open contact
9	Signal output OSSD OFF
10	Signal output OSSD ON
11	Signal output restart
12	Leave free (n.c.)
13	+24 V DC supply voltage
14	0 V DC supply voltage
15	Earth
16	Leave free (n.c.)



Technical data

General specifications		
Operating mode		Start/restart disable, relay monitor,
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		
Diagnostics display		7-segment display
Function display		LED red: OSSD OFF LED green: OSSD ON Yellow LED: start readiness
Controls		DIP-switch
Electrical specifications		
Operating voltage	U_B	24 V DC ± 20 % , via SB4 Housing
Input		
Activation current		approx. 7 mA
Activation time		0.4 ... 1.2 s
Test input		Reset-input for system test
Output		
Safety output		2 relay outputs, force-guided NO-contact
Signal output		Output for displaying the switching state of the OSSDs
Switching voltage		10 V ... 250 V AC/DC
Switching current		min. 10 mA , max. 6 A AC/DC
Switch power		max. DC 24 VA , AC 230 VA
Ambient conditions		

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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^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
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 SÜD

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

The SafeBox instruction manual should be observed.

Function

The OSSD-R/supply module contains the power supply of the SafeBox, 2 OSSDs, the relay monitor and the restart connection. This module is located in slot 1 of the SafeBox and only exists once.

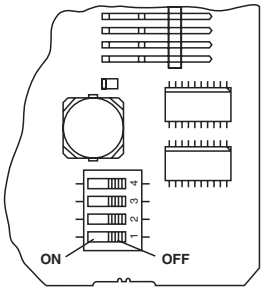
The OSSDs are designed as potential free connection NO contacts. The module can be operated with or without restart interlock. Also, monitoring of the externally connected switching elements can be activated (relay monitor). The OSSD On or Off statuses are indicated via a short-circuit-proof pnp signal output. The restart output is used for indication of the start readiness status. In the case of an error, this output oscillates with 1 Hz.

Settings

The assembly contains 4 DIP switches for selecting the functions

Restart and relay monitor. For selecting functions, 2 selector switches must always be actuated.

Position of the DIP switches



Switch	Position	Operation type
1 and 3	OFF	Without restart interlock (restart, RI)
	ON	With restart interlock (restart, RI)
2 and 4	OFF	Without relay monitor (RM)
	ON	With relay monitor (RM)

Displays

The OSSD-R/supply module has a red/green LED for indicating the OSSD on/off statuses, a yellow LED for the start-ready status and a 7 segment display for system diagnosis.

The 7 segment display indicates the status and the error codes of the system. The concept of error localisation is structured in such a way that the 7 segment display shows the error code. The yellow LED of the Stop 0-OSSD assembly of the group in which the error occurs is flashing and the indicators on the faulty assembly are also flashing with 5 Hz. If there is an error on the OSSD assembly itself, only the displays on this assembly are flashing.

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Display	LED	Meaning
OSSD	red	OSSD outputs switched off
	green	OSSD outputs switched on
RI	yellow	Continuous light: protected area free, OSSD off, start readiness, actuate restart push button Flashing (5 Hz): Error on the card, in the switch group or system errors (see status 7 segment display)

Display	7 segment display
1	DIP switch position does not match
2	Incorrect configuration
3	Time-out at one or more muting sensors
4	Transmitter error
6	Muting lamp error
7	Simultaneousness monitoring error
8	Receiver error
9	Error at sensor channel
E	System error
F	Relay monitor error
H	Selection chain error
U	Low voltage or voltage surge detected

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