Safety control unit module

SB4 Module 2E

- OSSD-R/E-stop-module
- Safety outputs OSSD, external status displays OSSD
- 2 sensor channels
- Operating mode can be selected by means of DIP switches
- Start/Restart disable
- Relay monitor
- Stop function Cat.0 or Cat.1 and central stop function Cat.0
- Time function
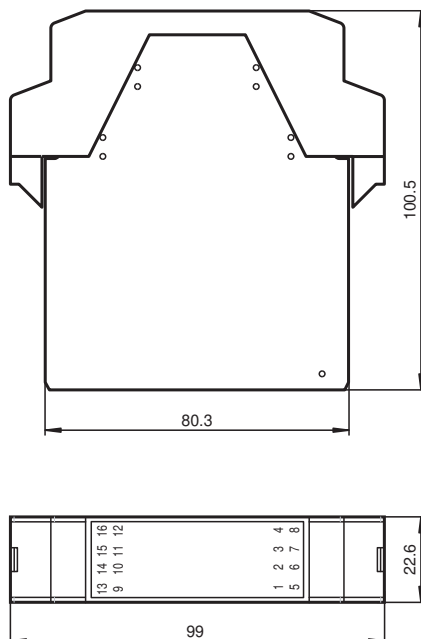- Screw terminals or spring terminals

Function

The OSSD-R/E stop module contains 2 OSSDs, the relay monitor, the restart connection, and two connections for contact-type safety signals (e.g., emergency off button). From position 3 on, this module may exist several times in the SafeBox and may perform different functions depending on the switch position.
The OSSDs are designed as potential free connection NO contacts. The module can be operated with or without startup / restart lock. Monitoring of the externally connected switching elements can also 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 to signal the start readiness status. In the case of fault, this output oscillates at 1 Hz. Insert a bridge if you want the sensor inputs of the OSSD-R/E stop module to remain unused; this also applies to the set Stop 1 function.
The module can work in the stop function cat. 0 or cat. 1, or in the central stop function cat. 0.

Dimensions

Technical Data

General specifications

Operating mode	Startup/restart disable, relay monitor, emergency off, turn off time

Functional safety related parameters

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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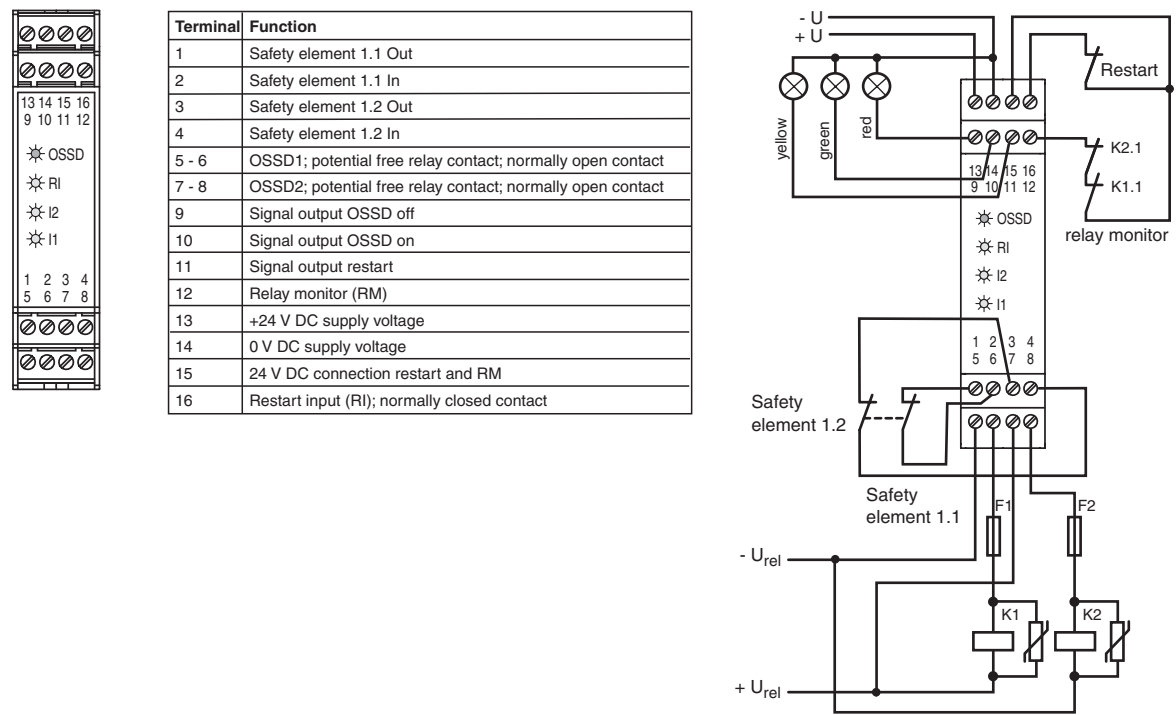Germany: +49 621 776 1111
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Technical Data

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 red: OSSD OFF LED green: OSSD ON Yellow LED: start readiness LED yellow (2x): indicator lamp channel 1 ... 2
Control elements		DIP switch
Electrical specifications		
Operating voltage	U_B	24 V DC ± 20 % , 24 V DC ± 20 % , via SB4 Housing
Input		
Activation current		approx. 7 mA
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
Switching power		max. DC 24 VA , AC 230 VA
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
Dimensions		
Height		99 mm
Width		22.6 mm
Depth		100.5 mm
General information		
Ordering information		without Option /165 -> with screw terminals with Option /165 -> spring clamp terminals

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Connection

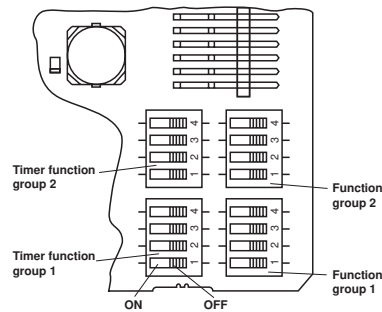| Terminal	Function
1	Safety element 1.1 Out
2	Safety element 1.1 In
3	Safety element 1.2 Out
4	Safety element 1.2 In
5 - 6	OSSD1; potential free relay contact; normally open contact
7 - 8	OSSD2; potential free relay contact; normally open contact
9	Signal output OSSD off
10	Signal output OSSD on
11	Signal output restart
12	Relay monitor (RM)
13	+24 V DC supply voltage
14	0 V DC supply voltage
15	24 V DC connection restart and RM
16	Restart input (RI); normally closed contact

Indication

The OSSD assembly has a red/green LED for indicating the OSSD on/off statuses, a yellow LED for the start-ready status, and 2 LEDs for the sensor channels.
If there is an error on the OSSD assembly itself, only the indicators on this assembly will flash.

Display	LED	Meaning
OSSD	Red	OSSD outputs switched off
	Green	OSSD outputs switched on
RI	Yellow	Continuous light: protection field clear, OSSD off, ready to start, press restart button
		Flashing (5 Hz).: error on the card, in the switch group, or system error
I1, I2	Yellow	Continuous light: sensor channel closed
		Flashing (5 Hz). Sensor channel error

Configuration

Position of the DIP switches

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Configuration

The assembly contains 16 DIP switches for selecting the restart, relay monitor, central emergency switching off, OSSD assignment, and time functions. Two switches must always be activated in order to select a function.

The 2E module can be used for two different functions:
1. Position within a SafeBox, this acts as a Stop 1 module, whereby the function switch pairs 1, 2, and 3 of both groups must be set to OFF and switch 4 to ON, otherwise the error L is displayed.
2. The 2E module at the last position in the system is effective locally or centrally as an emergency switching off device.

Locally effective means that the stop function only affects the relevant stop card.
Centrally effective means that the stop function affects all stop cards.

DIP Switch Function Selection

Switch	Item	Operating mode: Card position not as last card	Operating mode: Card position as last card
Switch group function			
1 Groups 1 and 2	OFF	Not effective	If stop function cat. 0: locally effective If stop function cat. 1: no function
	ON	Not effective	If stop function cat. 0: centrally effective If stop function cat. 1: no function
2 Groups 1 and 2	OFF	Not effective	Without startup / restart lock (restart, RI)
	ON	Not effective	If stop function cat. 0: with startup / restart lock (restart, RI) If stop function cat. 1: no function
3 Groups 1 and 2	OFF	Without relay monitor (RM)	Without relay monitor (RM)
	ON	With relay monitor (RM)	With relay monitor (RM)
4 Groups 1 and 2	OFF	Error L	Stop function cat. 0
	ON	Stop function cat. 1 centrally effective	Stop function cat. 1

DIP Switch Time Setting

Time value [s]	Switch group time function			
	Switch 1	Switch 2	Switch 3	Switch 4
0.0	OFF	OFF	OFF	OFF
0.3	ON	OFF	OFF	OFF
0.4	OFF	ON	OFF	OFF
0.5	ON	ON	OFF	OFF
0.63	OFF	OFF	ON	OFF
0.8	ON	OFF	ON	OFF
1.0	OFF	ON	ON	OFF
1.3	ON	ON	ON	OFF
1.6	OFF	OFF	OFF	ON
2.0	ON	OFF	OFF	ON
2.5	OFF	ON	OFF	ON
3.2	ON	ON	OFF	ON
4.0	OFF	OFF	ON	ON
5.0	ON	OFF	ON	ON
6.3	OFF	ON	ON	ON
8.0	ON	ON	ON	ON

Safety Information

Operation of this module is only possible within a SafeBox SB4 control unit.

Please note the operating instructions for the SafeBox.

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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