SAFE-MULTI

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Datasheet

SAFE-MULTI is an all-purpose emergency stop device with seven safe relay contacts for safe monitoring of one or two channel sensors, certified by TÜV Rheinland. Further applications for the SAFE-MULTI include single or dual channel emergency stop circuits and guard monitoring on machines and plants according to EN ISO 13849-1, EN 62061 and EN 61508.

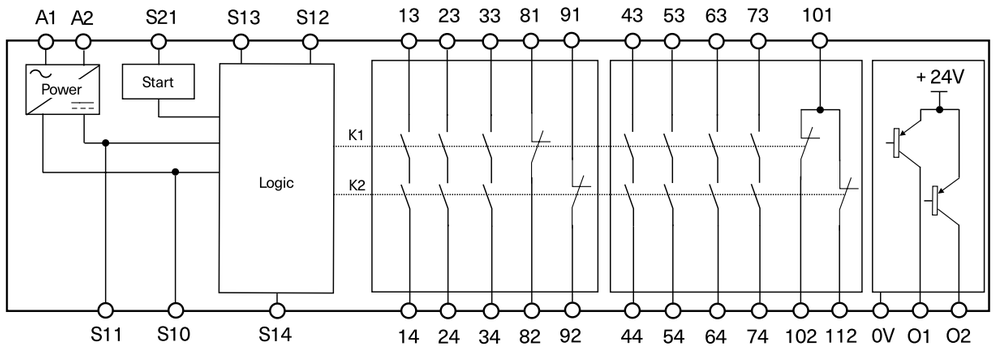
SAFE-MULTI

Functional Safety Module | E-Stop monitoring up to SIL 3

Features

- 7 non-delayed safety contacts
- 4 auxiliary relay and 2 auxiliary semiconductor outputs
- Connection of:
  - Emergency stop buttons
  - Mechanical safety switches
  - Non-contact safety switches
  - Safety components with OSSD outputs
- Control: single or dual channel
- Feedback loop for external contactors or extension modules
- Cyclical monitoring of the output contacts
- LED indicator for power and status
- Automatic or manual start
- Short-circuit monitoring and ground fault monitoring
- Up to PL e, SILCL 3, category 4 (EN ISO 13849-1, EN 62061, EN 61508)

Function



ORDER DETAILS

Brand	SALZ Automation
Product Name	SAFE-MULTI
Function	E-stop monitoring module with 7 N/O, 4 N/C, 2 PNP, up to SIL 3
Product SKU/Order No.	SA-SAFE-MU-01-00 | 1 pc

TÜVRheinland CERTIFIED
Product Safety
Functional Safety
www.tuv.com
ID 0600000000

Operation Instructions

Applications

Depending on the application or the result of the risk assessment according to EN ISO 13849-1, the device must be wired as shown in Fig. 5 to Fig. 16.

⚠ **WARNING:** In order to activate earth fault monitoring, the PE must be connected only to the power supply unit in accordance with EN60204-1.

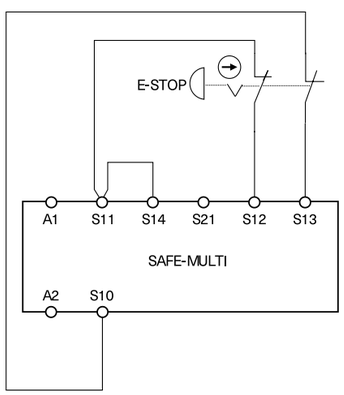


Fig. 1: Dual channel emergency stop with short circuit and ground fault monitoring. (category 4, up to PL e/SIL 3)

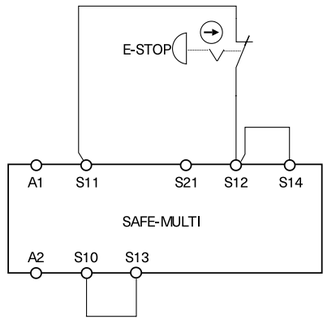


Fig. 2: Dual channel emergency stop with ground fault monitoring. (category 3, up to PL d/SIL 2)

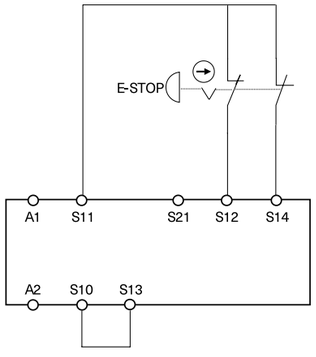


Fig. 3: Single channel emergency stop with ground fault monitoring. (category 1, up to PL c/SIL 1)

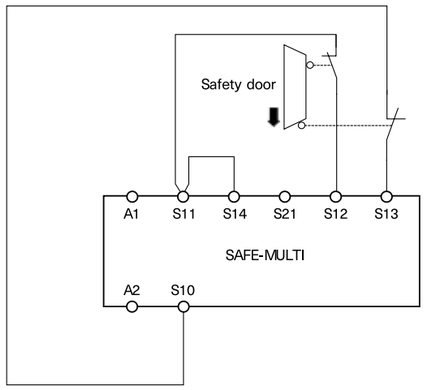


Fig. 4: Dual channel safety guard monitoring with short circuit and ground fault monitoring. (category 4, up to PL e/SIL 3)

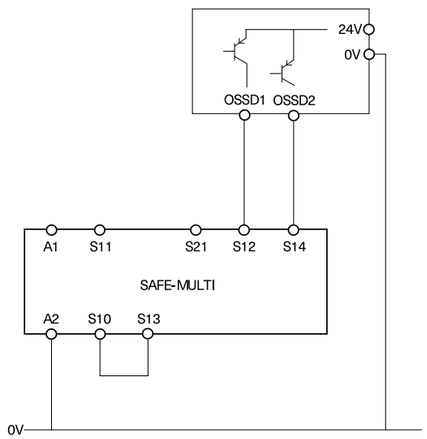


Fig. 5: Two channel emergency stop with PNP outputs/OSSD outputs with its own short circuit monitoring. (category 4, up to PL e/SIL 3)

PREREQUISITE: Signal generator meet requirements for PL e/SIL 3

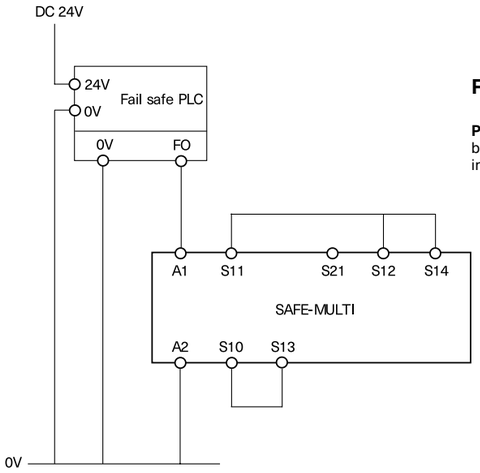


Fig. 6: Connecting to a safety PLC (category 4, up to PL e/SIL 3)

PREREQUISITE: Safe PLC output meets the required safety level and short circuit between PLC output and SAFE-ESTOP can be excluded (e.g. wiring inside an electrical installation space - see EN ISO 13849-2; Tab D4).

⚠ **ATTENTION: Loss of functional safety!**

For the applications according Fig. 8 and Fig. 9 the following is to be noted:

- Make sure that the ground potential of the signal generator and the MULTI is the same.
- It must be ensured that any switch-on pulses (light test) sent by the signal generator do not lead to a short activation of the safety relay and should therefore basically be deactivated.

Start Behaviour

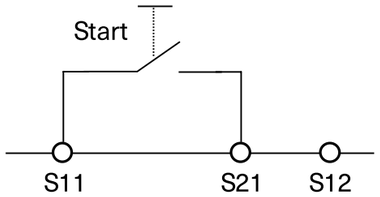


Fig. 7: Monitored manual start. It is monitored that the start button has been opened before the safety switch is closed.

PREREQUISITE: Power supply may not be interrupted.

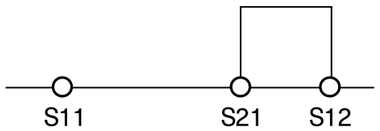


Fig. 8: Automatic start. Maximum allowable delay when closing the safety switches at S12 and S13/S14:

S12 before S13/S14: 300ms
S13/S14 before S12: no limit

⚠ **WARNING:** Safety contacts will be activated immediately at power ON.

Feedback Loop

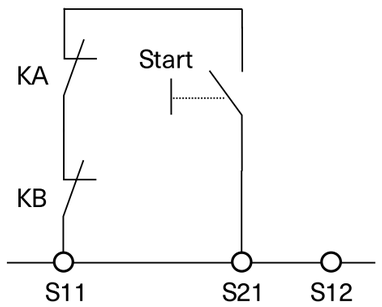


Fig. 9: Feedback loop for monitored manual start. The feedback loop monitors contactors or the expansion modules.

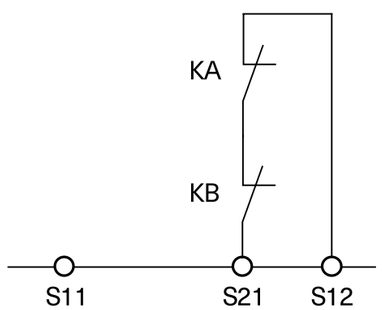


Fig. 10: Feedback loop for automatic start. The feedback loop monitors contactors or the expansion modules.

Technical Data

In compliance with	EN 60204-1; EN ISO 13849-1; IEC 62061
Operating voltage	AC/DC 24 V +/- 10 %
Power consumption	AC 8.5 VA/DC 4.5 W
Rated supply frequency	50 - 60 Hz
Safety contacts	7 non-delayed safety contacts (NO)
Auxiliary contacts	4 non-delayed auxiliary contact (NC)
Auxiliary transistor outputs (O1, O2)	DC 24 V/30 mA, over current protected
Max. switching voltage	AC 250 V
Contact rating of safety contacts (13-14, ..., 73-74) 6 switching cycles/ min	AC: 250 V, 2000 VA, 8 A for resistive load 250 V, 3 A for AC-15
	DC: 30 V, 240 W, 8 A for resistive load 24 V, 3 A for DC-13
Max. total current through all 7 contacts up to Ta=40 °C:	35 A with 10 mm spacing between the devices 20 A no spacing between the devices
Contact rating of auxiliary contact	AC: 250 V, 2000 VA, 8 A for resistive load DC: 40 V, 320 W, 8 A for resistive load
Minimum contact load	5 V, 10 mA
External fuses	10 A gG (NO); 6 A gG (NC)
Max. switch-on delay	< 30 ms
Max. switch-off delay	Via S12 or S13/S14 < 20 ms
Recovery time	< 500 ms
Max. length of control line	2x 1000 m at 1.5 mm^2, 2x 500 m at 0.75 mm^2
Wire width	0.14 - 2.5 mm^2
Tightening moment (Min./Max.)	0.5 Nm/0.6 Nm
Contact material	$AgSnO_2$
Service Life	mech. approx. 1 x 10^7
Rated impulse withstand voltage, leakage path/air gap	4 kV (DIN VDE 0110-1)
Rated insulation voltage	250 V
Degree of pollution/Overvoltage category	2/3 (DIN VDE 0110-0)
Protection	IP20
Temperature range Ambient	-15 °C to +40 °C
Temperature range Storage	-15 °C to +85 °C
Max. altitude	≤ 2000 m (above sea level)
Weight approx.	350 g
Mounting DIN rail according to EN 60715	TH35