

SAFE-DELAY



22.5 mm

Download
Datasheet



SAFE-DELAY is an all-purpose emergency stop device that combines non-time-delayed and time-delayed contacts. This permits dangerous components of a system to be switched off quickly and safely in an emergency situation. At the same time, other circuits can continue to be supplied with voltage for up to 30 seconds to allow a tool to be moved to its idle position or to brake following parts, for example. The safety module provides two safe relay contacts without any delay and two safe relay contacts with a time-off delay up to 30 seconds. Further applications for the SAFE-DELAY include single or dual channel emergency stop circuits and guard monitoring on machines and plants according to EN ISO 13849-1 and EN 62061.

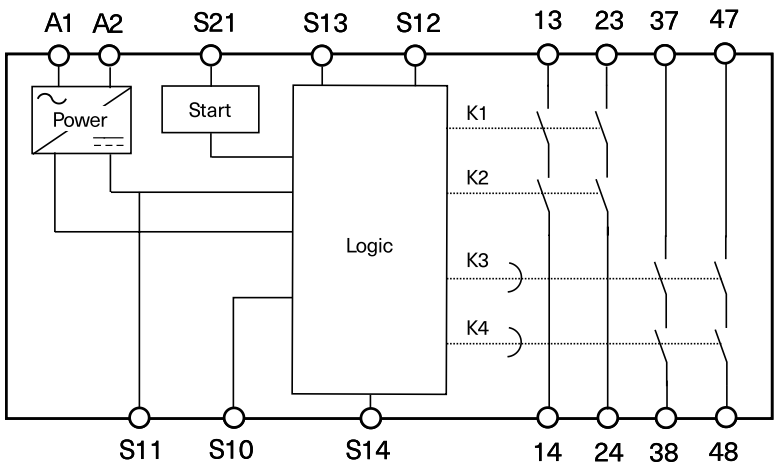
SAFE-DELAY

Functional Safety Module | E-Stop monitoring up to SIL 3
with time-off delayed contacts

Features

- 2 non-delayed safety contacts
- 2 time-off delayed contacts
- Continuously adjustable time delay (1 to 30 s)
- 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)

Function



ORDER DETAILS

Brand	SALZ Automation
Product Name	SAFE-DELAY
Function	E-stop monitoring module SIL 3 with time-off delay 30 sec.
Product SKU/Order No.	SA-SAFE-DL-01-00 1 pc



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. 1 to Fig. 9. Non delayed contacts 13/14, 23/24 can be used up to category 4, PL e, time-off delayed safety contacts 37/38, 47/48 up to category 3, PL e.

WARNING: In order to activate earth fault monitoring, the PE must be connected only to the power supply unit in accordance with EN 60204-1.

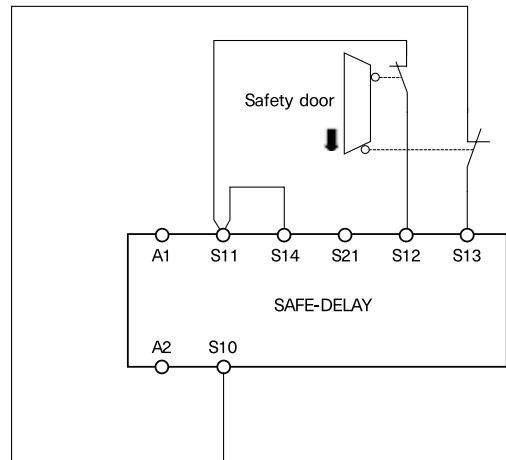


Fig. 1: Dual channel emergency stop with short circuit and ground fault monitoring. (category 4, up to PL e/SIL 3)

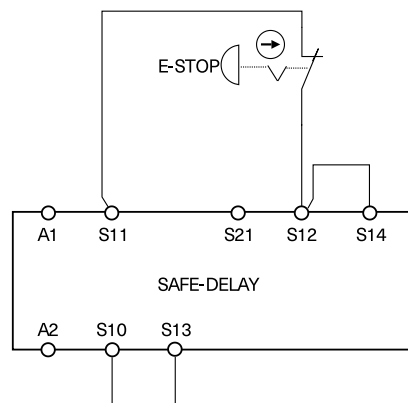


Fig. 2: Dual channel emergency stop with ground fault monitoring. (category 3, up to PL d/SIL 2)

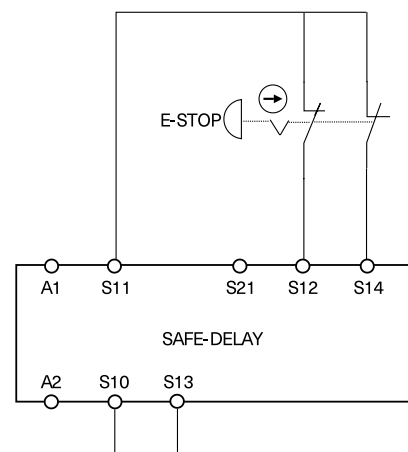


Fig. 3: Single channel emergency stop with ground fault monitoring. (category 1, up to PL c/SIL 1)

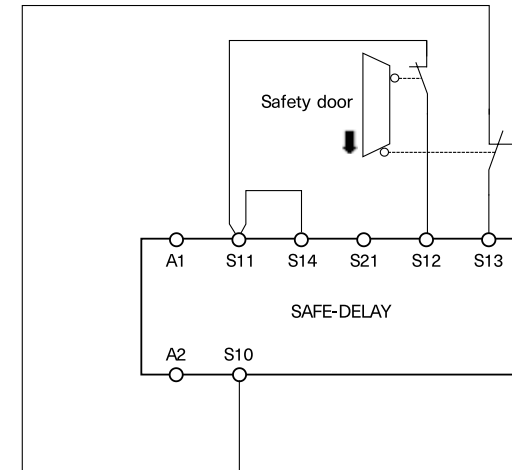


Fig. 4: Dual channel safety guard monitoring with short circuit and ground fault monitoring. (category 4, up to PL e/SIL 3)

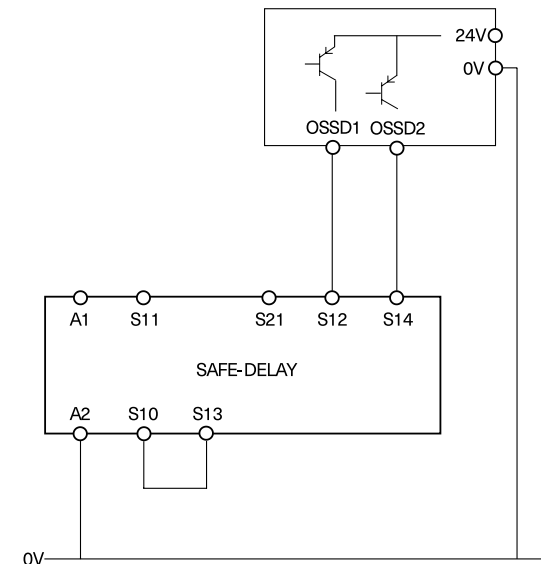


Fig. 5: Two channel emergency stop with PNP outputs/OSSD outputs with its own short circuit monitoring. (category 4, up to PL e/SIL 3)

ATTENTION: Loss of functional safety!

For the application according Fig. 5 the following is to be noted:

- Make sure that the ground potential of the signal generator and the SAFE-DELAY 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

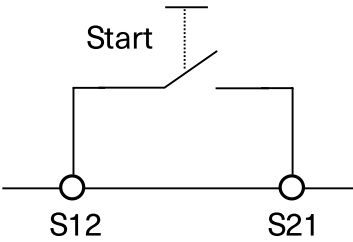


Fig. 6: Manual start.

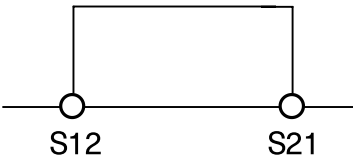


Fig. 7: Automatic start. Maximum allowable delay when closing the safety switches at S12 and S13:

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

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

Feedback Loop

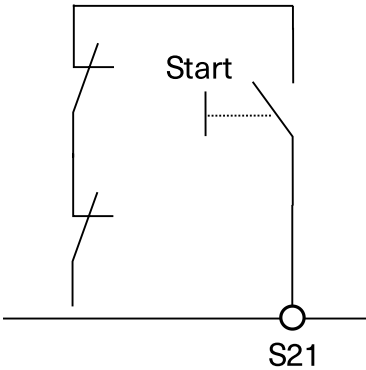


Fig. 8: Feedback loop for monitored manual start. The feedback loop monitors contactors or the expansion modules.

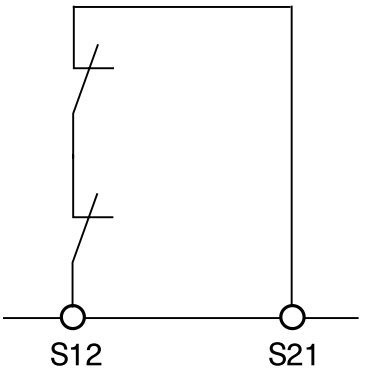


Fig. 9: Feedback loop for automatic start. The feedback loop monitors contactors or the expansion modules.

Technical Data

In compliance with	EN 60204-1; EN ISO 13849-1; IEC 62061
Operating voltage	AC/DC 24 V +/- 10 %
Power consumption	AC 5.3 VA/DC 4.7 W
Rated supply frequency	50 - 60 Hz
Control voltage at S11	DC 24 V
Control current	typical 190 mA
Safety contacts non-delayed	2 NO
Safety contacts delayed	2 NO
Max. switching voltage	AC 250 V
Contact rating of safety contacts 6 switching cycles/min	AC: 250 V, 2000 VA, 8 A for resistive load 250 V, 3 A for AC-15
	DC: 40 V, 320 W, 8 A for resistive load 24 V, 3 A for DC-13
Max. total current through all contacts	15 A I more than one device is closely spaced under load, the max. total current at the ambient temperature of T=20 °C: 9 A; at T=30 °C: 3 A; at T=40 °C =1 A. Otherwise a distance of 5 mm between two devices is necessary.
Minimum contact load	5 V, 10 mA
External fuses	10 A gG
Max. switch-on delay	< 30 ms
Switch-off delay (adjustable)	30 ms to 30 sec.
Recovery time	< 500 ms
Max. length of control line	1000 m at 0.75 mm²
Wire width	0.14 - 2.5 mm²
Tightening moment (Min./Max.)	0.5 Nm/0.6 Nm
Contact material	AgSnO ₂
Service Life	mech. approx. 1 x 10 ⁷
Test voltage	2.5 kV (control voltage/contacts)
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.	250 g
Mounting DIN rail according to EN 60715	TH35