SAFE-SIL

Download
Datasheet

SAFE-SIL is an all-purpose safe coupling device with three safe relay contacts for safe switching, certified by TÜV Rheinland. The SAFE-SIL couples safe signals of pulsed PLC outputs to the field for galvanic isolation and power adjustment or it can be used as contact extension for a basic device. No feedback circuit necessary. It is designed according EN ISO 13849-1, EN 62061 and EN 61508.

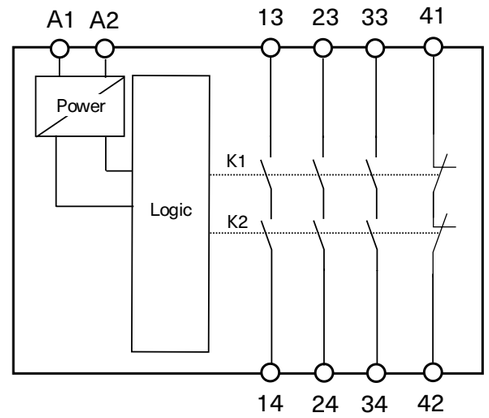
SAFE-SIL

Functional Safety Module | Safe coupling relay up to SIL 3

Features

- 3 non-delayed safety contacts
- 1 non-delayed auxiliary contact
- Coupling of safe signals for galvanic isolation and power adjustment
- LED indicator for status
- Self-monitoring
- Automatic start
- 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-SIL
Function	Safe coupling relay with 3 N/O and 1 N/C up to SIL 3
Product SKU/Order No.	SA-SAFE-SL-01-00 (1 pc) | SA-SAFE-SL-50-00 (50 pcs)

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

Operation Instructions

Applications

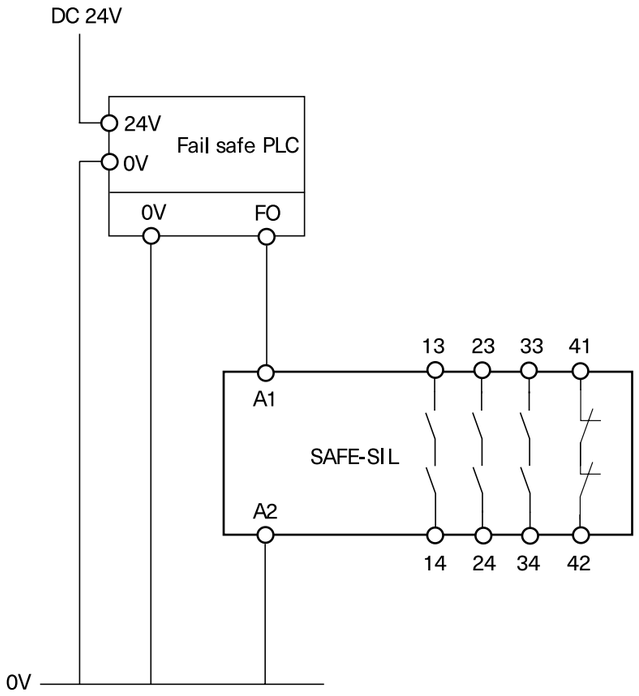


Fig. 1: SAFE-SIL as Coupling Relay for fail safe PLC output

Single channel control with fail safe PLC output. (Category 4, up to PL e/SILCL 3, if the safety output meets PL e/SILCL 3 and short circuits in line between the safety output and A1 of the SAFE-SIL can be ruled out - see Advice)

⚠ **CAUTION:** Safety contacts will be activated immediately by switching on the control line. Make sure that A2 is the correct reference potential to the switching voltage A1.

⚠ **ADVICE:** According to ISO 13849-2 the wiring has to be in a short-circuit-proof control cabinet with a minimum degree of protection of IP54. For example EN ISO 13849-2, table D4 - Cables within an electrical installation space in accordance with EN 60204-1.

A feedback loop for monitoring the SAFE-SIL is not necessary. However, if a feedback loop is necessary for the application, this can be achieved by wiring the feedback to the auxiliary contact 41-42.

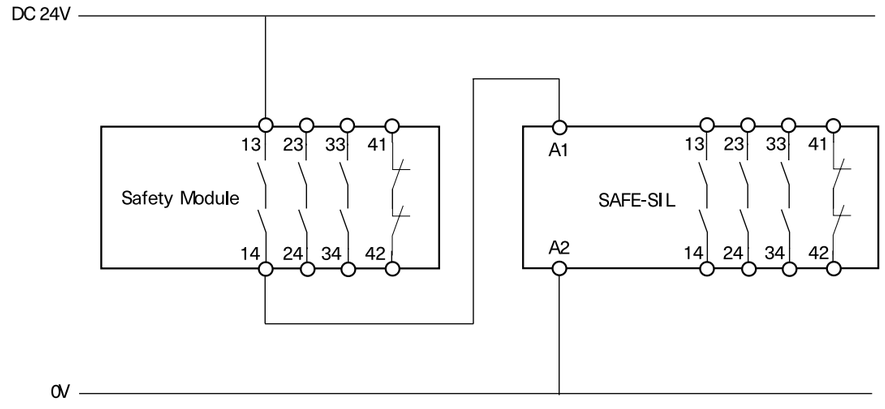


Fig. 2: SAFE-SIL as Expansion Module - Control with safe relay contacts

Wiring as contact extension of a basic device (Category 4, up to PL e/SILCL 3, if the safety output meets PL e/SILCL 3 and short circuits in line between the safety output and A1 of the SAFE-SIL can be ruled out - see Advice)

⚠ **CAUTION:** Safety contacts will be activated immediately by switching on the basic device.

⚠ **ADVICE:** According to EN ISO 13849-2 the wiring has to be in a short-circuit-proof control cabinet with a minimum degree of protection of IP54. For example, EN ISO 13849-2, table D4-Cables within an electrical installation space in accordance with EN 60204-1.

A feedback loop for monitoring the SAFE-SIL is not necessary. However, if a feedback loop is necessary for the application, this can be achieved by wiring the feedback to the auxiliary contact 41-42 (see Fig.6 or Fig. 7).

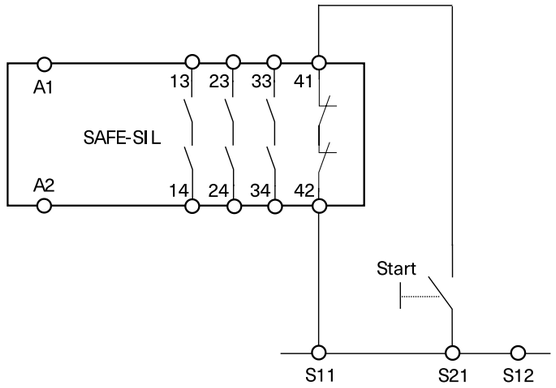


Fig. 3: SAFE SIL as Expansion Module - Feedback loop using a manual, monitored start.

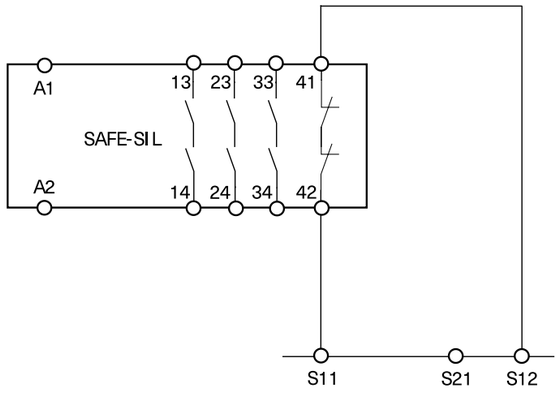


Fig. 4: SAFE SIL as Expansion Module - Feedback loop, automatic start.

Technical Data

In compliance with	EN 60204-1; DIN EN ISO 13849-1; EN 62061; EN 50156-1 EN 746-2; IEC 61508 Parts 1-2 and 4-7; IEC 61511-1
Operating voltage	DC 24 V +/- 10 %
Power consumption	Typ. 2 W
Safety contacts	3 N/O
Auxiliary contacts	1 N/C
Max. switching voltage	AC 250 V
Contact rating of safety contacts (13-14, 23-24, 33-34) 6 switching cycles/ min	AC: 250 V, 2000 VA, 8 A for resistive load 250 V, 5 A for AC-15
	DC: 30 V, 240 W, 8 A for resistive load 24 V, 4 A for DC-13
Max. total current through all 3 contacts	15 A (13-14, 23-24, 33-34)
Contact rating of auxiliary contact	AC: 250 V, 500 VA, 2 A for resistive load DC: 30 V, 60 W, 2 A for resistive load
Minimum contact load	5 V, 10 mA
External fuses	10 A gG (NO)
Contact rating of auxiliary contact	AC: 250 V, 500 VA, 2 A for resistive load DC: 30 V, 60 W, 2 A for resistive load
Minimum contact load	5 V, 10 mA
External fuses	10 A gG (NO); 6 A gG (NC) 6 A gG for applications acc. to EN 50156-1 and EN 746-2 (See EN 50156-1; Chapter 10.5.5.3.4)
Max. switch-on delay	< 30 ms
Max. switch-off delay	< 60 ms
Recovery time	< 500 ms
Max. line resistance at nominal voltage	50 Ω
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. 1×10^7
Rated impulse withstand voltage	2.5 kV (control voltage/contacts)
Dielectric strength (EN 60664-1)	6 kV between relays safety loops, control lines and internal logic
Rated insulation voltage	250 V
Degree of pollution/Overvoltage category	2/3 (EN 60664-1)
Protection	IP20
Temperature range Ambient	-15 °C to +55 °C
Temperature range Storage	-15 °C to +85 °C
Max. altitude	≤ 2000 m (above sea level)
Weight approx.	150 g
Mounting DIN rail according to EN 60715	TH35