Safety Emergency Stop Relay SR2C

SR2C is an all-purpose emergency stop device which ensures the quick and safe deactivation of the moving parts of a machine in case of danger. Preferred applications include single and dual-channel emergency stop circuits and dual-channel safety gate or safety guard monitoring.

- *STOP category: 0*
- *Up to safety category: 4*
- *Control: single or dual-channel*
- *Force guided safety contacts: 2*
- *Redundancy and cyclical monitoring*
- *Short-circuit monitoring and earth fault monitoring*
- *According to EN 60204-1, IEC 60204-1, EN 954-1*



4

Application / Installation

The device is designed according to EN 60204-1 (IEC 60204-1) for safety circuits and it may be applied up to safety category 4 according to EN954-1, provided that the start button is not replaced by a link. The force guided safety contacts will be opened by pressing the emergency stop button and so the machine is switched off safely. It is ensured that the occurrence of a single fault does not result in a loss of the safety function and that every fault will be recognized by the cyclical self monitoring at the latest when the device is switched off and shall be switched on again.

According to EN 60204-1 the unit is designed to be used in switch cabinets with a minimum environmental protection of IP54. The mounting is made on a 35 mm DIN-rail.

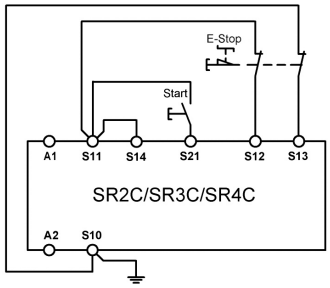
Provided that the system has been installed properly, no maintenance is necessary.

Safety Warnings

- **Installation and operation must be carried out by qualified personnel only.**
- **The electrical installation must be performed after disconnecting the device and the machine from the mains supply.**
- **The wiring must be carried out according to the instructions of this operating manual, or the safety function may be lost.**
- **Opening the device, any manipulation of the device and the avoidance of the safety facilities are not permitted.**
- **All relevant safety regulations and standards must be attended to.**
- **Non-observance of the safety regulations may cause death, severe injuries or substantial damage to property.**

Dual-Channel Emergency Stop with Short-Circuit Monitoring and Earth Fault Monitoring (up to Category 4)

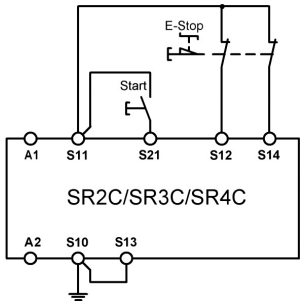
To activate the cross short-circuit monitoring, S11 and S14 must be connected. The emergency stop button has to be looped into the lines S11-S12 and S10-S13. The start button connects S11 with S21. To activate the detection of earth faults, S10 needs to be connected to earth ground. After connecting the power supply to A1 and A2, the safety contacts can be actuated with the start button.



Dual-channel emergency stop application with short-circuit and earth fault monitoring

Dual-Channel Emergency Stop, only with Earth Fault Monitoring, no Short-Circuit Monitoring (up to Category 3)

This application allows to reduce the wiring to the emergency stop button by one line, but the cross short-circuit monitoring is disabled. The terminals S10 and S13 are connected, the emergency stop button is looped into the lines S11-S12 and S11-S14. The start button connects S11 and S21. The earth fault monitoring is enabled by connecting S10 to earth ground.



Dual-channel emergency stop application with earth fault monitoring

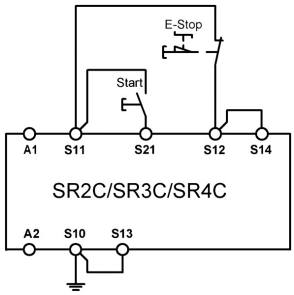
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Safety Emergency Stop Relay SR2C

Single-Channel Emergency Stop (up to Category 1)

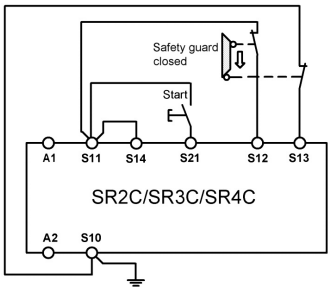
If the risk assessment acc. to EN 954-1 permits, the SR2C may be operated as an emergency stop relay with a single-channel push button. For this purpose, S10 and S13 as well as S12 and S14 must be connected. The single-channel emergency stop button is looped into the line S11-S12/S14. The earth fault monitoring is operative if S10 is connected to earth ground.



Single-channel emergency stop application with earth fault monitoring

Dual-Channel Safety Guard Monitoring with Short-Circuit Monitoring and Earth Fault Monitoring (up to Category 4)

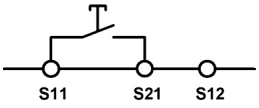
This application conforms to the dual-channel emergency stop, however, the emergency stop button is replaced by two limit switches which monitor the guard door. The limit switches must have positive opening NC contacts, i.e. in case of need they must cut off the electric connection by forcibly opening the switching contacts.



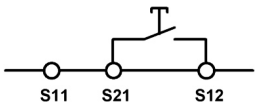
Dual-channel safety guard application with short-circuit monitoring and earth fault monitoring

Start Performance

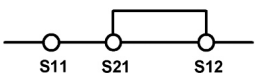
SR2C provides an input for a start push-button. When the start button is pressed the safety contacts are closed. Depending on the application and the demanded safety category it can be wired as follows:



Monitored manual start.
It is monitored that the start button has been opened before the emergency button is closed.



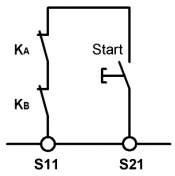
Manual start without monitoring



Automatic start (e.g. for safety gate application).
Maximum allowable time difference when closing the safety switches at S12 and S13:
S12 prior to S13: 50ms;
S13 prior to S12: any time (infinite)

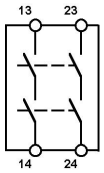
Feedback Circuit

The feedback circuit monitors contactors or the extension modules SREC or SRTC which are connected to the emergency stop relay. K_A, K_B are force guided contacts of the connected contactor or extension module, up to category 3.

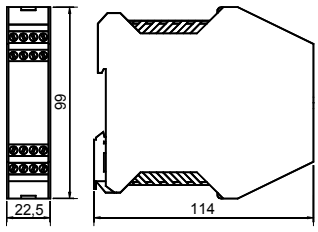


Safety Contacts

SR2C provides two force guided, redundant safety contacts (13-14, 23-24, NO).



Technical Data	
Conforms to standards	VDE 0113 part 1: 1998-11, EN 60204-1:1997, IEC 60204-1:1997, EN 954-1:1996
Operating voltage	AC 230V, AC 115V, AC/DC 24V At AC/DC 24V an insulating transformer acc. to EN 60742 must be used.
Allowable tolerance	+/-10%
Power consumption	approx. 2VA / 4W
Control voltage at S11	DC 24V
Control current	approx. 40mA
Safety contacts	2 NO
Switching voltage max.	AC 250V
Contact rating of safety contacts (13-14, 23-24)	AC: 250V, 1500VA, 6A for AC-12 230V, 4A for AC-15 DC: 24V, 30W, 1,25A for DC-12 24V, 30W, 2A for DC-13
Minimum current	24V/20mA
External fuses for safety cont.	4A slow-blow or 6A quick-blow
Wire width	max. 2,5mm²
Length of control lines	max. 1000m at 0,75mm²
Contact material	AgNi
Service life	mech. approx. 1x10⁷, elec. 1x10⁵ switching cycles
Rated impulse withstand voltage	2,5kV (control voltage/contacts)
Dielectric strength	4kV acc. to DIN VDE 0110-1:1997-04
Protection	IP20
Temperature range	DC 24V: -15°C to +60°C AC 230V/115V: -15°C to +40°C
Weight	approx. 230g
Mounting	DIN-rail acc. to EN 50022-35



Order No.	Type
472150	SR2C, AC 230V
472151	SR2C, AC 115V
472152	SR2C, AC/DC 24V

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