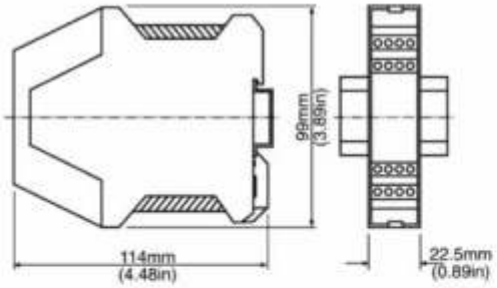
SCR Series - Safety Relays

SCR-2 SCR-3 Safety Monitoring Relays

Pending Pending

The SCR-2 and SCR-3 are all purpose Safety Monitoring Relays which ensure 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 or dual channel safety guard monitoring using Tongue switches or Non Contact Switches.

Standards: EN 60204-1, EN954-1
Stop Category: 0
Up to Category 4 to EN 954-1
Single or Dual Channel input
Force guided safety output contacts
Redundancy and cycle monitoring
Short circuit and earth fault monitoring
22mm Din Rail Mounting

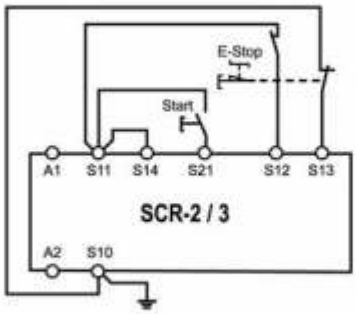


Application:

These devices are designed in accordance with EN 60204-1 for safety circuits and they may be applied for up to Cat.4 EN 954-1.
The force guided safety contacts will be opened by pressing an E Stop button or opening of 2 redundant safety switch circuits e.g. from a Tongue switch, Non Contact switch or Limit Switch.
It is ensured that the occurrence of a single fault does not cause the loss of the safety function and that every fault will be recognised by the cyclical self monitoring at the latest when the switch device is switched off and then on again.

A. Dual Channel Rope Pull Emergency Stop with Short Circuit monitoring and Earth Fault Monitoring up to Cat.4 EN 954-1.

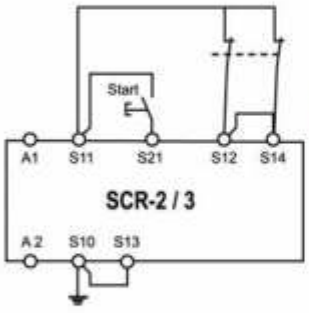
To activate the cross short circuit monitoring, S11 and S14 must be connected. The NC contacts from the GLS E Stop have to be looped into lines S11-S12 and S10-S13. The start button connects S11 to S21. To activate the detection of earth faults, S10 needs to be connected to earth. After connecting the power supply to A1 and A2, the safety output contacts can be actuated by the start button.



Dual channel emergency stop with short circuit monitoring and earth fault monitoring.

B. Dual Channel Interlocking with Earth Fault monitoring up to Cat.3 EN 954-1.

This application allows to reduce the wiring to the E Stop button by one line, but the cross short circuit monitoring is disabled. The terminals S10 and S13 are connected, the NC contacts from the KM Interlock switch is looped into lines S11-S12 and S11-S14. The start button connects S11 to S21.
To activate the detection of earth faults, S10 needs to be connected to earth. After connecting the power supply to A1 and A2, the safety output contacts can be actuated by the start button.

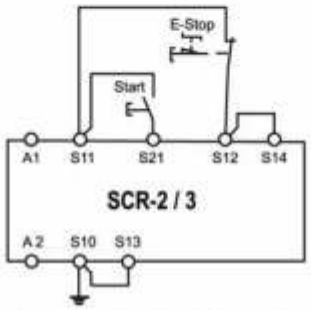


Dual channel safety guard application with earth fault monitoring.

SCR Series - Safety Relays

C. Single channel Emergency Stop up to Cat.1 EN 954-1.

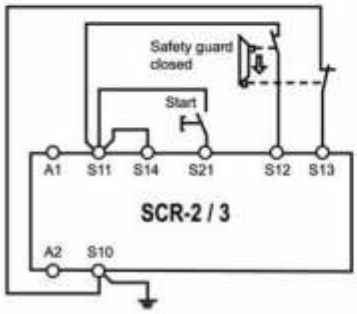
If the risk assessment permits the relays may be operated as an Emergency Stop relay with a single channel push button. For this purpose, S10 and S13 as well as S12 and S14 must be connected. The NC single channel GLES E Stop is looped into line S11-S12/S14. The earth fault monitoring is operated if S10 is connected to earth.



Single channel emergency stop with earth fault monitoring.

D. Dual channel Interlocking with Short Circuit monitoring and Earth Fault Monitoring up to Cat.4 EN 954-1.

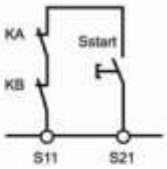
This application conforms to dual channel safety guard applications. The Safety Interlock switches must have dual channel redundant circuits



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

Feedback circuit.

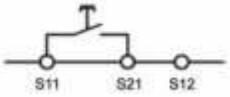
The feedback circuit monitors machine contactors which are connected to the relay. KA and KB are the force guided contacts of the connected contactors.



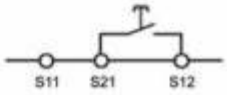
Start performance.

The SCR-2 and 3 provide an input for a start push button. When the start button is pressed the safety output contacts are closed. Depending upon the application and risk assessment it can be wired as follows:

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



Manual start. without monitoring.
It is monitored that the start button has been opened before the E Stop button has been closed.

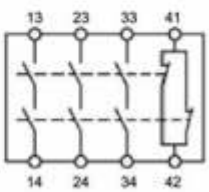


Automatic start.
Automatic start e.g. Safety guard application.
Max. allowable time difference when closing interlock switches:
S12 before S13 50ms
S13 before S12 infinite

Safety output contacts.

The SCR-2 provides two force guided NC (machine running) redundant safety contacts (13/14 23/24).

The SCR-3 provides three force guided NC (machine running) redundant safety contacts (13/14 23/24 33/34) , and one auxiliary



	SCR-2 SCR-3
Standards	EN60204-1
	EN 954-1 up to Category 4
Monitored Safety Inputs Circuits	2 NC
Monitored Reset Circuit loop	Auto or Monitored Manual Reset
Safety Switching Outputs	SCR-2 2 NC SCR-3 3NC
Auxiliary switching Output	SCR-3 1NO
Indication - Green	SCR-2 SCR-3
	LED 1 internal relay K1 energised
	LED 2 internal relay K2 energised
	LED 1 and 2 OSSD closed
Supply voltage	24Vdc 110V ac 230V. ac (by part number)
Voltage limits	+/- 10%
Control current	60mA
Fuse protection	6A slow blow
Wire width	up to 2.5 sq. mm
Minimum voltage and current (20°C)	10V/10mA
Maximum Current	6A. ac
Breaking capacity in AC15	250V. 3A.
Breaking capacity in DC12	24V. 2A.
Response time on output opening	90 ms
Rated impulse withstand voltage	2.5 kV
Operating temperature	-15°C to +40°C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	0 23kg

Sales Number	Type	Supply Voltage	EN 954-1 Category	Switch Input Circuits	Output Contacts
180001	SCR-2	24V.dc	Up to Cat.4	2 NC	2NC
180002	SCR-3	24V.dc	Up to Cat.4	2 NC	3NC 1NO
180003	SCR-3	230V.ac	Up to Cat.4	2 NC	3NC 1NO
180004	SCR-3	110V.ac	Up to Cat.4	2 NC	3NC 1NO

SCR Series - Safety Relays

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SEU-1 Expansion Relay

SEU-TD-1 Time Delay Expansion Relay

PS-1 Power Supply

SEU-1 SEU-TD-1

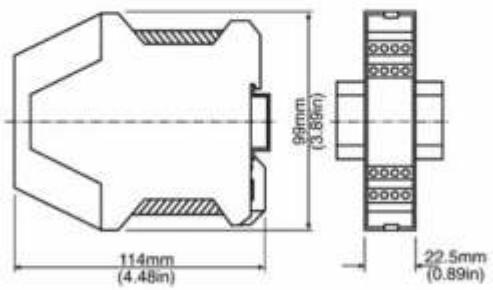
Standards: EN 60204-1, EN954-1
Stop Category : 0
Up to Category : 3 EN 954-1
Force Guided Contacts : 3
Fault Monitoring by basic SCR device.

The SEU-1 is an expansion unit which offers 3 additional NC Safety Output Contacts.
An existing system using SCR-2 or SCR-3 can be expanded modularly.
The safety actuation is achieved from the basic SCR-2 or SCR-3 relay.

The SEU-TD-1 is an expansion unit which can be used with an existing system using SCR-2 or SCR-3 to allow delayed shutdown or timing to a safety application.
Time Delay is variable 1-30s.
The safety actuation is achieved from the basic SCR-2 or SCR-3 relay.

The PS-1 is an accessory unit which can be used to drop 230V / 110V. ac to a smooth 24V.dc supply for use with Safety Relays or switches.
It can de advantageous to applications where only 230V / 110V.ac exist, but safety components are required to operate from 24V.dc.

	SEU-1	SEU-TD-1	PS-1
Standards	EN60204-1 EN 954-1 up to Category 3	EN60204-1 EN 954-1 up to Category 3	
NC Outputs	3NC	-	-
NO Outputs	1NO	-	-
NC Outputs - Delayed variable 1-30s.	-	3NC 1-30s	-
NO Outputs - Delayed variable 1-30s.	-	1NO 1-30s	-
Supply voltage	24Vdc 110V ac 230V. ac (by part number)	24Vdc 110V ac 230V. ac (by part number)	230V.ac / 110V/ac.
Power consumption	4VA / 2W	4VA / 2W	7VA
Voltage limits	+/- 10%	+/- 10%	+/- 10%
Control voltage / current	24V. dc / 60mA	24V. dc / 60mA	-
Fuse protection	4A. or 6A slow blow	4A. or 6A slow blow	-
Wire width	up to 2.5 sq. mm	up to 2.5 sq. mm	up to 2.5 sq. mm
Minimum voltage and current (20°C)	24V/20mA	24V/20mA	-
Maximum Voltage / Current	230V / 6A. ac	230V / 6A. ac	-
Breaking capacity in AC15	250V. 4A.	250V. 4A.	-
Breaking capacity in DC12	24V. 2A.	24V. 2A.	-
Rated impulse withstand voltage	2.5 kV	2.5 kV	-
Output Voltage / Current	-	-	24V.dc / 100mA max. (smoothed)
Operating temperature	-15°C to +40°C	-15°C to +40°C	-15°C to +40°C
IP Protection IEC529	Terminals IP20	Terminals IP20	Terminals IP20
Mounting	35mm DIN rail	35mm DIN rail	35mm DIN rail
Weight	0·23kg	0·23kg	0·23kg



Sales Number	Type	Supply Voltage	EN 954-1 Category	Output Contacts
180010	SEU-1	24V.dc	Up to Cat.3	3NC 1NO
180011	SEU-1	110V.ac	Up to Cat.3	3NC 1NO
180012	SEU-1	230V.ac	Up to Cat.3	3NC 1NO
180015	SEU-TD-1	24V.dc	Up to Cat.3	3NC 1NO Delayed 1-30s.
180016	SEU-TD-1	110V.ac	Up to Cat.3	3NC 1NO Delayed 1-30s.
180017	SEU-TD-1	230V.ac	Up to Cat.3	3NC 1NO Delayed 1-30s.
180020	PS-1	230V. / 110V.ac		