

User Information

English translation

Correct Use

The SR3C is a universal emergency stop safety switching device with three safe relay outputs that can quickly and safely stop the moving parts of a machine or system in case of danger.

Applications for the SR3C include single or dual-channel emergency stop circuits and guard monitoring on machines and plants.

Features

- 3 safe, redundant relay outputs
1 auxiliary contact (signaling contact)
- Connection of:
 - Emergency stop buttons
 - Safety switches
 - Non-contact safety switches
 - OSSD-Outputs
- Single and dual-channel operation possible
- Feedback loop for monitoring downstream contactors or expansion modules
- Cyclical monitoring of the output contacts
- Indication of the switching state via LED



SR3C, Order no. 472170
Germanischer Lloyd
certificate 32915-06HH



(not for plug-in terminals)

- 2 start behaviors possible:
 - Monitored manual start
 - Automatic start
- Short circuit and earth fault monitoring
- Up to PL e, SILCL 3, category 4

Function

The emergency stop safety switching device SR3C is designed for safe isolation of safety circuits according to EN 60204-1 and can be used up to safety category 4, PL e according to EN ISO 13849-1.

The internal logical system closes the safety contacts when the start button is pressed.

If the safety switch is opened, the positively driven safety contacts are opened and safely switch the machine off. It is ensured that a single fault does not lead to a loss of the safety function and that every fault is detected by cyclical self-monitoring no later than when the system is switched off and switched on again.

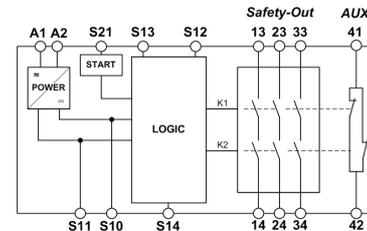


Fig. 1 Block diagram SR3C

Installation

As per EN 60204-1, the device is intended for installation in control cabinets with a minimum degree of protection of IP54. It is mounted on a 35 mm DIN rail according to DIN EN 60715 TH35.

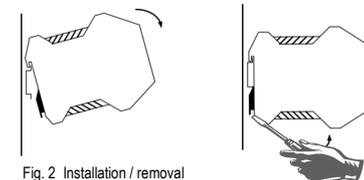


Fig. 2 Installation / removal

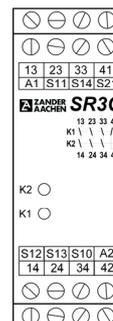
Safety Precautions



- Installation and commissioning of the device must be performed **only by authorized personnel**.
- Observe the country-specific regulations when installing the device.
- The electrical connection of the device is only allowed to be made with the device isolated.
- The wiring of the device must comply with the instructions in this user information, otherwise there is a risk that the safety function will be lost.
- It is not allowed to open the device, tamper with the device or bypass the safety devices.
- All relevant safety regulations and standards are to be observed.
- The overall concept of the control system in which the device is incorporated must be validated by the user.
- Failure to observe the safety regulations can result in death, serious injury and serious damage.
- Note down the version of the product (see label "Ver: x") and check it prior to every commissioning of a new device. If the version has changed, the overall concept of the control system in which the device is incorporated must be validated again by the user.

Electrical Connection

- When the 24 V version is used, a safety transformer according to EN 61558-2-6 or a power supply unit with electrical isolation from the mains must be connected.
- External fusing of the safety contacts (6 A slow-blow or 8 A quick-action or 10 A gG) must be provided.
- A maximum length of the control lines of 1000 meters with a line cross section of 0.75 mm² must not be exceeded.
- The line cross section must not exceed 2.5 mm².
- If the device does not function after commissioning, it must be returned to the manufacturer unopened. Opening the device will void the warranty.



- A1: Power supply
- A2: Power supply
- S11: DC 24 V control voltage
- S10: Control line
- S21: Start control line
- S13: Control line
- S14: Control line
- S12: Control line
- 13-14: Safety contact 1
- 23-24: Safety contact 2
- 33-34: Safety contact 3
- 41-42: Auxiliary contact

Fig. 3 Connections

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. 11.

Emergency Stop Circuit

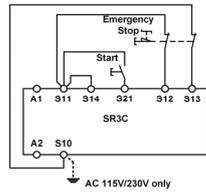


Fig. 1:
Two-channel emergency stop circuit with short circuit and earth fault monitoring. (category 4, up to PL e)

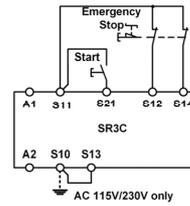


Fig. 2:
Two-channel emergency stop circuit with earth fault monitoring. (category 3, up to PL d)

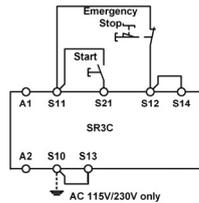


Fig. 3:
Single-channel emergency stop circuit with earth fault monitoring. (category 1, up to PL c)

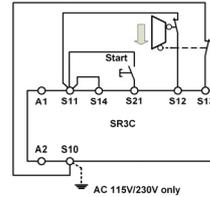


Fig. 4:
Two-channel sliding guard monitoring with short circuit and earth fault monitoring. (category 4, up to PL e)

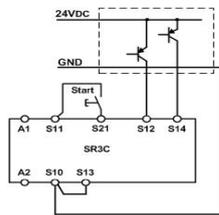


Fig. 5:
Two-channel emergency stop with pnp-outputs/OSSD-outputs with short circuit monitoring. (category 4, up to PL e)

Notice:

In order to activate earth fault monitoring, S10 must be connected to PE (protective earth) on the AC 115/230 V devices.

Starting Behavior

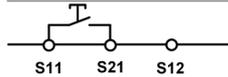


Fig. 6:
Monitored manual start. It is monitored that the start button was opened before the emergency stop button closes. (Prerequisite: operating voltage must not be interrupted.)

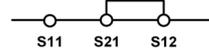


Fig. 7:
Automatic start. Max. perm. delay during closing of the safety switches on S12 and S13: S12 before S13: 300 ms S13 before S12: any

Warning:

Safety contacts switch immediately when the power supply is connected.

Feedback Loop

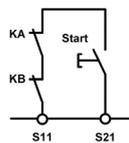


Fig. 8:
Feedback loop for monitored manual start: The feedback loop monitors contactors or the expansion modules.

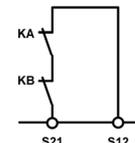


Fig. 9:
Feedback loop for automatic start: The feedback loop monitors contactors or the expansion modules.

Power supply and Safety contacts

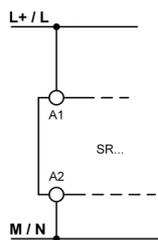


Fig. 10:
Power supply A1 and A2. (Power supply according to techn. Data)

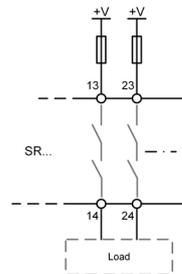


Fig. 11:
Connecting load to safety contacts. (Figure shows example. Voltage „+V“ according to techn. Data)

Commissioning Procedure

Note: The items listed under "Electrical connection" must be observed during commissioning.

1. Input circuit:

Depending on the risk evaluation choose one of the wiring diagrams in „Applications“ (Fig. 1 to 5).

2. Choose start mode:

Connect the start button with S11 and S21 for monitored manual start or connect S21 with S12 directly for automatic start (Fig. 6 or 7).

Warning:

If "Automatic start" is set, bear in mind that the safety contacts will switch immediately after the power supply is connected. If "Monitored manual start" is set, the start button must be opened after wiring.

3. Feedback loop:

If external contactors or extension modules are used, connect them according to Fig. 8 or Fig. 9.

4. Power supply:

Connect the power supply to A1 and A2 (Fig. 10). **Caution:** Power must not yet be activated.

5. Starting the device:

Switch on the operating voltage.

Warning:

If the "Automatic start" starting behavior is set, the safety contacts will close immediately.

If the "Monitored manual start" starting behavior is set, close the start button to close the safety contacts.

LEDs **K1** and **K2** are lit.

6. Triggering safety function:

Open the emergency stop circuit by actuating the connected safety switch. The safety contacts open immediately.

7. Reactivation:

Close the emergency stop circuit. If "Automatic start" is selected, the safety contacts will close immediately.

If the "Monitored manual start" starting behavior is set, close the start button to close the safety contacts.

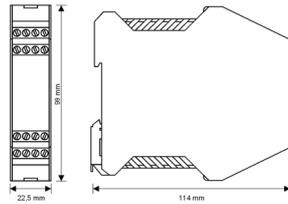


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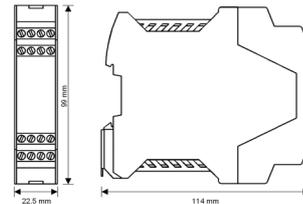
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Dimension Drawing

Fixed Terminals



Plug-In Terminals



Variants

Order no. 472170	SR3C, AC 230 V (50-60 Hz), fixed screw terminals
Order no. 472171	SR3C, AC 115 V (50-60 Hz), fixed screw terminals
Order no. 472173	SR3C, AC/DC 24 V, fixed screw terminals
Order no. 473170	SR3C, AC 230 V (50-60 Hz), plug-in terminals
Order no. 473171	SR3C, AC 115 V (50-60 Hz), plug-in terminals
Order no. 473173	SR3C, AC/DC 24 V, plug-in terminals
Order no. 472592	EKLS4, set of plug-in screw terminals
Order no. 472593	EKLZ4, set of plug-in tensile spring terminals

CE Konformitätserklärung EC Declaration of Conformity Déclaration de conformité

Hersteller: H. ZANDER GmbH & Co. KG
Producer: Am Gut Wolf 15 • 52070 Aachen • Deutschland
Fabricant:

Produktgruppe: Sicherheits-Not-Halt-Schaltgeräte
Product Group: Safety emergency stop switching devices
Groupe de produits: Relais de sécurité d'arrêt d'urgence

Produkt Name	Anbringung der CE-Kennzeichnung	Zertifikats-Nr.
Product Name	Affixing of CE marking:	No of Certificate
Nom du produit	Application du marque CE	N° du certificat
SR1C	2014.....	01/205/0594.01/14
SR2C	2014.....	01/205/0594.01/14
SR3C	2014.....	01/205/0594.01/14
SR3D	2014.....	01/205/0594.01/14

Die Produkte stimmen mit den Vorschriften folgender Europäischer Richtlinien überein:
The products conform with the essential protection requirements of the following European directives:
Les produits sont conformes aux dispositions des directives européennes suivantes:

2006/42/EG : Maschinenrichtlinie
2006/42/EG : Machinery directive
2006/42/EG : Directive <<Machines>>

2004/108/EG : EMV Richtlinie
2004/108/EG : EMC directive
2004/108/EG : Directive <<CEM>>

Die Übereinstimmung der bezeichneten Produkte mit den Vorschriften der o.a. Richtlinie wird, falls anwendbar, nachgewiesen durch die vollständige Einhaltung folgender Normen:
If applicable, the conformity of the designated products is proved by full compliance with the following standards:
Le strict respect des norms suivantes confirme, s'il y a lieu, que les produits désignés sont conformes aux dispositions de la directive susmentionnée:

EN 60439-1:2005-01 **EN 60947-1:2011-10** **EN 60947-5-1:2010-04**
EN 61000-6-2:2006-03 **EN 61000-6-3:2011-09** **DIN EN 61326-3-1:2008-11**

Gemäß Zertifikat der benannten Stelle:
According to the certificate of the below mentioned organisation:
Selon de organisme notifié:

DIN EN ISO 13849-1:2008-12 **EN 62061:2005 +A1:2013** **EN 50156-1: 2005-03 (SR3D)**

Benannte Stelle / Organisme notifié: Nr. NB 0035
TÜV Rheinland Industrie Service GmbH
10882 Berlin
Zertifizierungsstelle für Maschinen

Dokumentationsbeauftragte/-r: Christiane Nittschalk
Documentation manager
Autorisé à constituer le dossier technique

Aachen, den 02.05.2014

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FT-3-07/03

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