

MINOS SD1E



Operating Instructions



Safety Relay MINOS SD1E

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Engl. Translation of the original document

Subject to technical modifications,
no responsibility is accepted for the
accuracy of this information.

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1. Scope

This document is valid for the following safety modules:

MINOS SD1E (Order-No.: 472841)

2. Target group

Specialist electricians and assembly, setup and service specialists who possess special knowledge in working with safety components.

3. Safety instructions



Safety components are intended to protect people. Not following the safety instructions, improper installation or manipulation may result in fatal injuries to persons and damage to property. Safety devices must not be bypassed, removed or manipulated in any way. Please follow all the safety instructions and warnings mentioned in this document.

Installation, commissioning, maintenance, and decommissioning should be done only by authorised and qualified technicians:

- who are familiar with proper handling of the safety components
- who are familiar with the applicable EMC and ESD regulations
- who are familiar with the local regulations concerning work safety and accident prevention
- who have read and understood these operating instructions.

The user shall be responsible for integrating the device into a safe overall system. For this purpose, the overall system has to be validated, e.g. according to EN ISO 13849-2.

Opening the device, any kind of manipulation to it and bypassing the safety devices are not permitted.

The device version (see nameplate "Ver.") should be stored and checked before every commissioning. If there is a version change, the use of the device in the overall application should be revalidated.

4. Appropriate use

MINOS SD1E is a safety emergency stop relay for monitoring e.g. emergency stop buttons, safety doors and light curtains. The modules are also certified for operation in furnaces and vessels according to EN 50156-1 / EN 746-2.

The approved operating parameters for use must be complied (see chapter 20 "Technical data").

A risk assessment should be carried out on the machine before using the device. For example, according to:

EN ISO 13849-1, Safety-related parts of control systems, Appendix A

EN ISO 12100, Safety of machinery - General principals for design - Risk assessment and risk reduction

IEC 62061, Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems.

Additional requirements may have to be considered depending on the type of machine or plant.

Appropriate use also includes compliance with:

EN ISO 13849-1, Safety-related parts of controllers,

EN 60204-1, Electrical equipment in machines.

For further information please refer to the above mentioned documents.



ATTENTION!

- The user is responsible for integrating the device into a safe overall system. For this purpose, the overall system has to be validated, e.g. according to EN ISO 13849-2
- If a operating instruction is enclosed with the product, then the specifications given in the operating instruction are applicable

5. Disclaimer and warranty

If the above mentioned conditions for appropriate use are not complied with or if the safety instructions are not followed or if any maintenance operations are not carried out as required, this shall lead to an exclusion of liability and loss of warranty.



ATTENTION!

We would like to point out that it is the full responsibility of the operator to ensure a plant availability.
Using the SD1E, a safety emergency stop relay according to

- EN ISO 13849-1
- IEC 62061
- IEC 61508
- EN 50156-1
- EN 746-2
- IEC 61511-1

is used, which will be brought into the safe state when the safety function is requested.

This means that the connected load is

switched off as soon as a request from connected sensor elements or diagnostic measures detects a dangerous state, e.g. caused by a component fault.

Since process-related applications in particular have high demands on availability, limited availability can also have significant consequences.

It is therefore recommended to stock a second unit to avoid long downtimes in such a case.

These are recommendations of the manufacturer, the evaluation of the importance of the plant availability is the sole responsibility of the operator.

6. Features

- Use up to PL e, Cat. 4, SILCL 3
- Certified for operation in furnaces and vessels according to EN 50156-1 / EN 746-2.
- Stop Category 0 according to EN 60204-1
- 1 two-channel safe input
- 1 safe relay contact
- 1 auxiliary output (PNP)
- Automatic or monitored manual start selectable at the device
- 6.8 mm width
- Extensive monitoring via front LED's

7. Function

Config-Switches S1 and S2:

At the back of the device are two slide-switches (S1 and S2) to configure the SD1E. The following functions can be configured:

With the Config-Switch **S1**, the function of the safety circuit at I1 / I2 can be configured. According to your application a cross circuit monitoring can be enabled or disabled (see Fig. 1)

With the Config-Switch **S2**, the function of the start input at S21 can be configured. An automatic start or an monitored, manual start can be set.

For this, turn the SD1E until the printed configurationtable (see Fig. 1) is facing up and the opening at the back of the device is visible. Two slide switches can be seen, which you can slide to the left or right side depending on the desired configuration (see Fig. 1).

Configuration setting via slide switch at the back of the device			
S1: Cross circuit monitoring		S2: Start behavior	
Enabled	Disabled	Manual	Automatic
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
See the operating instructions for more information			

Fig. 1 Configurationtable SD1E
For example:
For a two channel application with cross circuit monitoring and automatic start the Config-Switches must be set as follows:

Config-Switch **S1**: Left (Enabled)
Config-Switch **S2**: Right (Automatic)

Safety circuit I1 / I2:

The safety circuit is designed to be used as single or dual channel via I1 and I2 depending on the wiring and the position of the Config-Switch S1 (see chapter 12 "Commissioning").

Start input S21:

A monitored, manual start or an automatic start is provided via the terminal S21. The start function can be set via the Config-Switch S2 on the back of the device. (see chapter 12; "Commissioning").

Safe relay contact 13-14:

Considering the start behaviour, the safe relay contact switches on at the time the safety circuit closes. Opening the safety circuit results in an immediate shutdown (safe condition).

Auxiliary output C1:

The PNP-semiconductor output switches invertedly to the safe relay contact and may not be used as safe output.

Behaviour in case of a fault:

It is ensured that one single fault does not lead to loss of the safety function and that every fault is detected latest when the system is switched off and switched on again through cyclic self-monitoring.

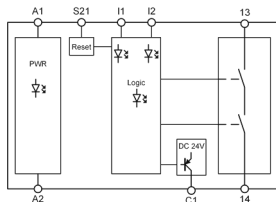


Fig. 2 Block diagram SD1E

Application example 3:

SD1E for two-channel monitoring of a non-contact safety switch with short circuit monitoring and automatic start up to PL e / SIL 3.

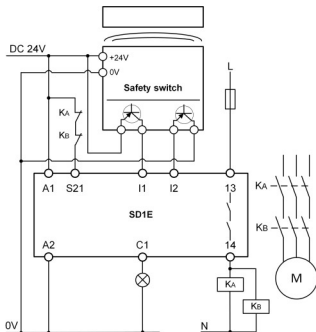


Fig. 5 Dual channel safety door monitoring with non-contact safety switch

Note: Config-Switches are set as follows:
S1: Enabled / **S2:** Automatic
 (see chapter 7. "Function")

Application example 4:

SD1E for dual channel safety door monitoring with manual start up to PL e / SIL 3.

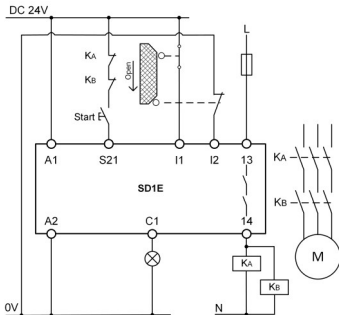


Fig. 6 Dual channel safety door monitoring

Note: Config-Switches are set as follows:
S1: Enabled / **S2:** Manual
 (see chapter 7. "Function")

Application example 5:

SD1E for two-channel monitoring of an OSSD-Output, e.g. light curtain/grid and automatic start up to PL e / SIL 3 (cross circuit monitoring by OSSD-Output)

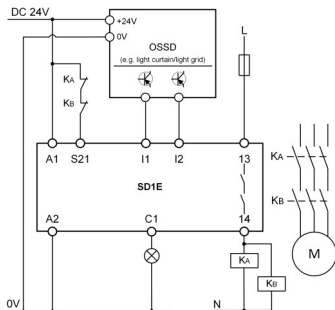


Fig. 7 Monitoring of an OSSD-Output, e.g. light curtain / light grid with auto-start

Note: Config-Switches are set as follows:

S1: Disabled / **S2:** Automatic
(see chapter 7. "Function")

Legend for all application examples:

E-Stop: Emergency stop button

Start: Start button

KA/KB: Positively driven contactors;

Monitoring via feedback circuit

PL and SIL: According to EN ISO 13849-1 and IEC 62061 / IEC 61508.

Specified safety level, considering a fault exclusion in the wiring between SD1E and the connected contactors KA and KB. See details in chapter 15 "Wiring / Applications - Safe relay contact"

9. Mounting

The device has to be installed in a cabinet having minimum protection class of IP54:

- Mount on a 35 mm mounting rail as per EN 60715
- Ensure adequate heat dissipation in the cabinet
- The mounting distance to the adjacent devices depends on the load at the safe contact. See chapter 20 "Technical data - Safe relay contact" and chapter 21 "Derating"

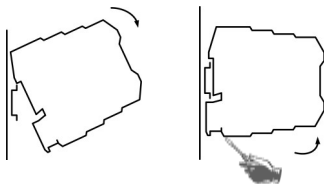


Fig. 8 Mounting / Demounting

10. Electrical connection

- Wiring and Config-Setting via the Config-Switches should only be carried out while the voltage supply is switched off
- Do not connect any external voltages to the output C1
- The output C1 is short-circuit-protected. Overloading is not allowed and results in damage to the device. (see chapter 20 "Technical data")
- All inductive loads at C1 and 13-14 should have adequate protection circuit such as a free-wheeling diode
- Auxiliary output C1 may not be used as safety output
- All electrical connections must either be isolated from the main supply by safety transformers (SELV/PELV) according to IEC 61558-2-6 with limited output voltage in the event of a fault, or by other equivalent isolation measures
- All lines to the device must be supplied by the same, short circuit proofed power supply. Separate power supplies for A1/A2 and all input circuits are not permitted.

**ATTENTION!!**

If automatic start is configured, the safe contact 13-14 immediately closes when the safety circuit is closing.

The monitored manual start of the device should not be used to start the machine in accordance with EN ISO 13849-1.

11. Commissioning

1. Set the Config-Switches

Set the Config-Switches at the back of the device according to your application (see chapter 7 "Function").

2. Wiring the safety circuit

Wire the safety circuit according to your application, as well as the required safety levels determined (see chapter 15 "Wiring / Applications - Safety circuit").

3. Wiring the start circuit / feedback circuit

Wire the start circuit and the feedback circuit according to your application (see chapter 15 "Wiring / Applications - Start circuit").

4. Wiring the power supply

Connect the power supply to the terminals A1 and A2 (see chapter 15 "Wiring / Applications - Power supply").

5. Starting the device

Switch on the power supply. The LED UB starts lighting immediately.

If the "Automatic start" behaviour is set, the safe relay contact will close immediately with a closed safety circuit and closed feedback loop.

If "monitored manual start" is set, press and release the start button after closing the safety circuit and the feedback loop to close the safe relay contact.

The LED's I1, I2 and K_{1/2} start glowing.

6. Triggering the safety function

Open the safety circuit. The safe relay contact opens immediately. The LEDs I1, I2 and K_{1/2} are off.

7. Switching on again

Restart the device.

12. Checks and maintenance

The following checks are regularly required to ensure proper and continuous functioning:

- Check the switching function
- Check for signs of manipulation and safety function bypassing
- Check if the device is mounted and connected securely
- Check for soiling

Check if the safe function of the whole safety system is working properly, in particular:

- Every time after initial commissioning
- Every time after replacing a component
- After a long downtime
- After every fault

Regardless of this, the safe functioning of the safety device should be checked at suitable intervals, e.g. as part of the maintenance schedule of the plant. No maintenance is required for the device itself.

**ATTENTION:**

Proper operation is no longer guaranteed if the device is damaged, e.g. after a fault. Replace the device in such cases. Only the manufacturer may repair the device and open the housing.

13. Proof-Test

To check the correct function of the device within the framework of a proof test, the following steps must be carried out:

- Demand the safety function by opening the safety circuit. Check that the relay contact (13-14) opened by activation of the safety function.
- Close the safety circuit and start the device again. Check that the relay contact (13-14) closed again.

If the device doesn't switch on again, the proof-test failed.

**ATTENTION:**

If the proof-test fails, the device must be replaced. Otherwise there is a risk of loss of functional safety.

14. Terminal assignment and LED display














	A1: Power supply + DC 24 V
	A2: Power Supply 0 V
	S21: Control line start
	I1: Control line safety circuit 1
SD1E 	SD1E: Variant label
A1 ↑ A2 S21 I1	Label - Upper terminal block
I2 13 14 C1 ↓	Label - Lower terminal block
UB  I1  I2  K1/2 	Monitoring LEDs: UB, I1, I2, K1/2 (see monitoring table)
	I2: Control line safety circuit 2
	13: Safe Relay Contact
	14: Safe Relay Contact
	C1: Auxilliary Output

Fig. 9 Front view SD1E

15. Wiring / Applications

Depending on application or result of the risk assessment, e.g. according to EN ISO 13849-1, the device should be wired according to Fig. 10 to 22.

Safety circuit

Dual-channel emergency stop or safety door monitoring with short circuit monitoring.

Up to PL e / SIL 3

Position Config-Switch S1: Enabled (Left)

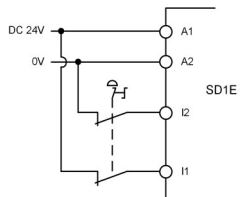


Fig. 10 Potential-free NC contacts dual channel

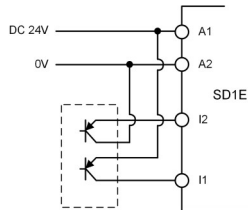


Fig. 11 PNP solid-state outputs dual channel

Safety circuit

Single-channel emergency stop or safety door monitoring with earth fault monitoring.

Up to PL c / SIL 1

Position Config-Switch S1: Disabled (Right)

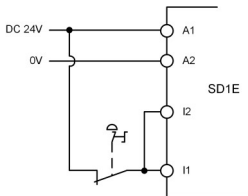


Fig. 12 Potential-free NC contact single channel

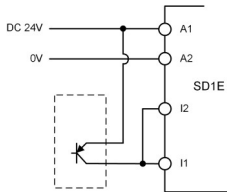


Fig. 13 PNP solid-state output single channel

Safety circuit

Dual-channel monitoring of safe OSSD outputs with integrated cross circuit monitoring.

Up to PL e / SIL 3

Position Config-Switch S1: Disabled (Right)

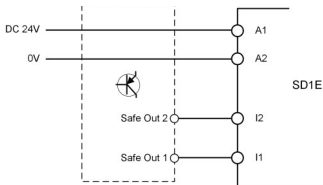


Fig. 14 OSSD outputs dual channel

Safety circuit

Single-channel monitoring of safe OSSD output.

Up to PL e / SILCL 3

Position Config-Switch S1: Disabled (Right)

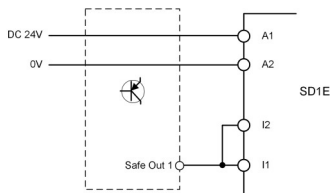


Fig. 15 OSSD outputs single channel

Note:

OSSD-Output meet the requirements for Safety-Level and fault exclusion of a short circuit in the safety circuit according to EN ISO 13849-2.

Start circuit

Monitored manual start without feedback circuit.

Note: *Evaluation of the falling edge of the start signal (contact opens).*

Position Config-Switch S2: Manual (Left)

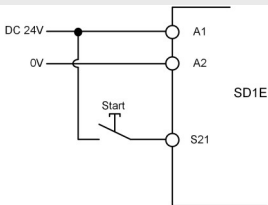


Fig. 16 Manual start without feedback circuit

Start circuit

Monitored manual start with feedback circuit.

Note: Evaluation of the falling edge of the start signal (contact opens).

Position Config-Switch S2: Manual (Left)

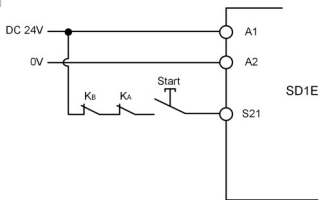


Fig. 17 Manual start with feedback circuit

KA, KB:
Positively driven NC contacts of the connected
contactors or expansion modules.

Start circuit

Automatic start.

Note: Difference time monitoring at safety
circuit in case of automatic start:

I2 before I1: Difference time is arbitrary

I1 before I2: Difference time max. 300 ms

Position Config-Switch S2: Automatic (Right)

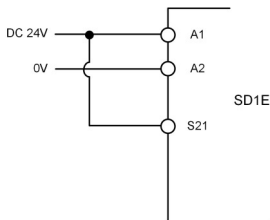


Fig. 18 Automatic start without feedback circuit

Start behaviour

Automatic start with feedback circuit.

Note: *Difference time monitoring at safety circuit in case of automatic start:*

I2 before I1: Difference time is arbitrary

I1 before I2: Difference time max. 300 ms

Position Config-Switch S2: Automatic (Right)

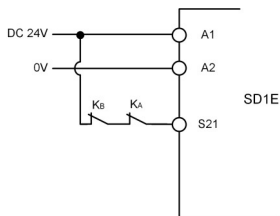


Fig. 19 Automatic start with feedback circuit

KA, KB:

Positively driven NC contacts of the connected contactors or expansion modules.

Power supply

Power supply A1/A2.

Note: See chapter 10 “Electrical connection” for further requirements of the power supply.

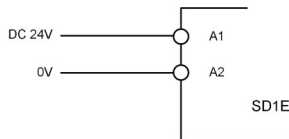


Fig. 20 DC 24 V power supply

Safe relay contact

Safe relay contact suitable for different loads (see chapter 20 "Technical Data - Safe relay contact") with interference suppression.

Note: Fault exclusion of a cross circuit should be carried out in the safety contact 13-14 e.g. in accordance with EN ISO 13849-2, table D4/D5 - Cables within an electrical installation space in accordance with EN 60204-1.

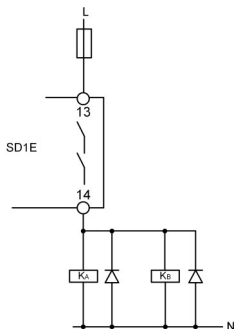


Fig. 21 Safe relay contact

Auxiliary output

Suitable for indicator lamps or control inputs of connected PLC controllers.

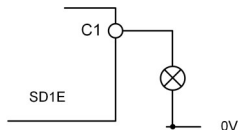


Fig. 22 Auxiliary output

16. Timing diagrams

SD1E with automatic start

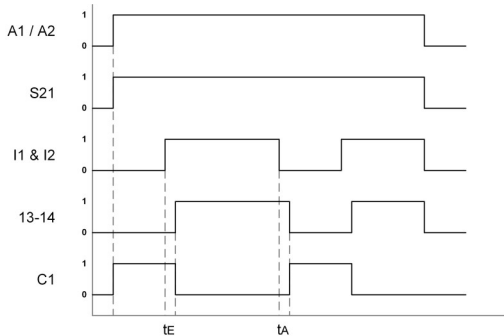


Fig. 23 Timing diagram - SD1E with automatic start

t_E : Switch-on delay - typ. 10 ms

t_A : Switch-off delay - typ. 10 ms

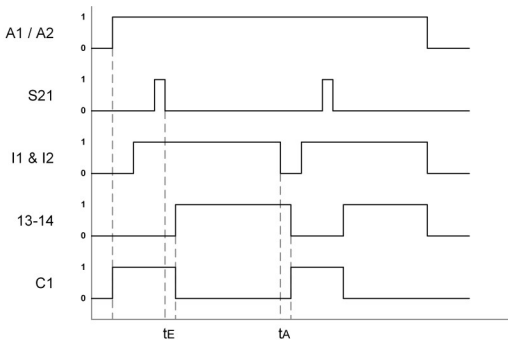
SD1E with monitored manual start

Fig. 24 Timing diagram - SD1E with monitored manual start

t_E : Switch-on delay - typ. 10 ms

t_A : Switch-off delay - typ. 10 ms

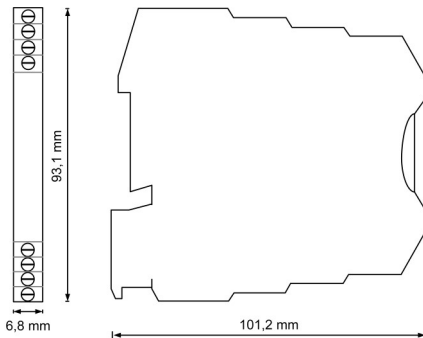
17. Monitoring table

If the device does not respond as expected, a monitoring can be carried out using the front LEDs according to the table below.

LED off ○ LED on: ●				Explanation / Measure
UB	I1	I2	K1/2	
○	○	○	○	<ul style="list-style-type: none"> Check the power supply - Power supply has to be within DC 24 V \pm 10% Check for a short circuit in all circuits of the safety relay
●	●	○	○	<p>Signal to the safety circuit I2 is missing:</p> <ul style="list-style-type: none"> Check the sensor at the input I2. Has an emergency stop been triggered or are safety doors open? Check if the sensor is working properly Check for a short circuit in the safety circuit Check the correct position of the Config-Switch S1 (see chapter 7 "Function")
●	○	●	○	<p>Signal to the safety circuit I1 is missing:</p> <ul style="list-style-type: none"> Check the sensor at the input I1. Has an emergency stop been triggered or are safety doors open? Check if the sensor is working properly Check for a short circuit in the safety circuit Check the correct position of the Config-Switch S1 (see chapter 7 "Function")
●	○	○	○	<p>There are no signals at the safety circuit I1 and I2:</p> <ul style="list-style-type: none"> Check the sensor at the input I1 and I2. Has an emergency stop been triggered or are safety doors open? Check if the sensor is working properly

LED off: ○ LED on: ●				Explanation / Measure
UB	I1	I2	K1/2	
●	○	○	○	<p>Overvoltage at A1/A2:</p> <ul style="list-style-type: none"> Measure the supply voltage and adjust if necessary. <p>Note! The maximum permissible supply voltage is DC 26.4 V</p>
●	●	●	○	<p>The safe relay contact 13-14 is not enabled:</p> <ul style="list-style-type: none"> Auto-start: Check if the reset circuit is connected to terminal S21 with U_B. Check the synchronisation time between I1 and I2. If I1 is present before I2, then the maximum time between the two signals should not exceed 300 ms Monitored manual start: Check the wiring of the reset circuit. Does the reset button work properly? Note: The falling edge of the start signal is evaluated (contact opens) Check if the feedback circuit through some connected contactors or expansion modules work properly. If not, replace the faulty device and perform a reset Check the correct position of the Config-Switch S2 (see chapter 7 "Function")

18. Dimensions



19. Safety parameters



ATTENTION!

According to CNB / M / 11.050, a request for the safety function is recommended at the following

intervals:

- Once a month for applications up to PL e with Cat. 3 respectively Cat. 4 or SIL 3 with HFT = 1

- Once a year for applications up to PL d with Cat. 3 or SIL 2 with HFT = 1

The following tables show the safety parameters for the SD1E according to EN ISO 13849-1 and IEC 61508 for High-Demand and Low-Demand.

Safety parameters according to EN ISO 13849-1

Conditions:

AC-15: 5 A; Max. 10.000 Switching-Cycles / Year

DC-13: 4 A; Max. 15.000 Switching-Cycles / Year

Max. duration of use [Years]	20
Category	4
PL	e
PFHd [1/h]	1.2E-08

Safety parameters according to IEC 61508 - High-Demand - Request Rate < 1 year

Conditions:

AC-15: 5 A; Max. 10.000 Switching-Cycles / Year

DC-13: 4 A; Max. 15.000 Switching-Cycles / Year

Max. duration of use [Years]	20
Proof-Test-Intervall [Years]	20
PFH [1/h]	1.2E-10
SIL	3

Safety parameters according to IEC 61508 - Low-Demand - Request Rate ≥ 1 year

Conditions:

AC-15: 5 A

DC-13: 4 A

Max. duration of use [Years]	20
Proof-Test-Intervall [Years]	9
PFD _{AVG}	9.87E-05
SIL	3

20. Technical data

Standards

Meets the following standards	EN ISO 13849-1; IEC 62061; IEC 61508; EN 50156-1; EN 746-2; IEC 61511-1; EN 60204-1
-------------------------------	--

Electrical data

Operating voltage	U _B : DC 24 V ± 10 %
Power consumption at U _B = 24 V (Module activated. No load)	1.5 W
Filter time at A1 (Voltagedips at U _B)	3 ms

Safe dual-channel input I1 / I2

Input current at high level	max. 21 mA
Galvanic isolation	no
Low level	0 V to 5 V
High level	21.6 V to 26.4 V
Pulse suppression - Signal to 0V	
Dark-Test (Pulse to 0 V)	Max. 5 ms
Light-Test (Pulse to U _B)	Max. 1 ms
	Note: It must be ensured that any switch-on pulses (light test) sent by the signal generator (e.g. PLC) do not lead to a short activation of the safety relay and should therefore basically be deactivated.

Start input / feedback circuit S21

Input current at high level	Max. 7 mA
Galvanic isolation	no
Low level	0 V to 5 V
High level	21.6 V to 26.4 V

Safe relay contact 13-14

Structure	Redundant relay contact
Max. Contact rating (6 switching cycles/ min)	AC-15: 5 A, AC 230 V DC-13: 4 A, DC 24 V See chapter 21 "Derating"
Min. switching voltage / current	AC/DC 12 V / 3 mA
Min. switching power	60 mW
External fuses	6 A gG Factor 0.6 for applications acc. to EN 50156-1, chapter 10.5.5.3.4
Mech. Service life	approx. 1×10^7 cycles
Contact material	AgSnO ₂

Auxiliary output C1

Structure	PNP output, single channel
Maximum switching capacity	100 mA
Galvanic isolation	no
Short-circuit-proof	yes
Output voltage at "1" (max. load) / "0"	U _B - 2 V / 0 V

Timings

Time till module is ready for operation after power-on	< 50 ms
Max. switch-on delay	< 20 ms
Off-delay	< 20 ms
Requested via the safety circuit or Pwr-Off	
Recovery time after shutdown via request through the safety circuit or Pwr-Off	< 50 ms

Environmental data

Ambient temperature	-15 °C to 55 °C - See chapter 21 "Derating"
Storage temperature	-15 °C to 80 °C
Humidity rating	93 % relative humidity at + 40 °C, non-condensing
Vibration / Shocks	10 Hz to 150 Hz, 2 g / 15 g
EMC	in accordance with EN 61326-3-1
Maximum altitude	2000 m (Above sea level)

General data

Clearance and creepage distances	According EN 60664-1
Overvoltage category	III (in accordance with DIN VDE 0110-1)
Pollution degree	2 (in accordance with DIN VDE 0110-1)
Rated insulation voltage	50 V (For SELV/PELV circuit) 250 V (Between relay circuit and SELV/PELV circuit)
Rated surge voltage strength	800 V - Basic insulation for SELV/PELV circuit 6 kV - Safe insulation, reinforced insulation between relay circuit and SELV/PELV circuit 4kV - Basic insulation between all current paths and housing
Degree of protection	IP20
Minimum degree of protection of installation space	IP54
Mounting	DIN rail
Installation position	vertical, horizontal
Dimensions (W x H x D)	6.8 x 93.1 x 102.5 mm
Weight	50 g (module without packaging)
Housing material	PBT, blue
Cross section of conductor	
- Rigid / flexible	0.2 mm ² to 2.5 mm ²
- AWG min/max	16/14
Insulation stripping length	12 mm
Tightening moment	0.5 Nm to 0.6 Nm

21. Derating

Maximum permissible current at safe relay contact 13-14 depending at on the ambient temperature.

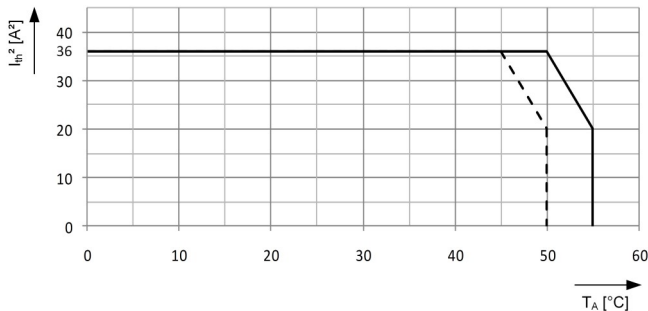


Fig. 25 Derating curve

— $U_B = DC 24 V$ and 0 mm clearance to adjacent devices with same load

- - - $U_B = DC 26.4 V$ and 0 mm clearance to adjacent devices with same load

22. Variants / Order No.

Order No.	Type	Application
472841	SD1E	Emergency stop relay for the connection of safety sensors, e.g. light-curtains / light-grids, safety (RFID) switches, emergency stop buttons, safety rope switches, interlock switches and guard lockings

23. Service

For service requirements, contact
H. Zander GmbH & Co. KG
Am Gut Wolf 15
52070 Aachen
Germany

Service line
+49 241 910 501-0

E-mail
info@zander-aachen.de

Internet
www.zander-aachen.de

24. Declaration of Conformity

CE **Konformitätserklärung**
EC Declaration of Conformity
Déclaration de conformité

Hersteller: Producer: Fabricant:	H. ZANDER GmbH & Co. KG Am Gut Wolf 15 • 52070 Aachen • Deutschland
Produktgruppe: Product Group: Groupe de produits:	Sicherheits-Not-Halt-Schaltgeräte Safety emergency stop switching devices Relais de sécurité d'arrêt d'urgence
Produkt Name Product Name Nom du produit	Anbringung der CE-Kennzeichnung Affixing of CE marking: Application du marque CE
SD1E	2023
SD1K	2023
	Zertifikats-Nr. No of Certificate N° du certificat
	01/205/5689.01/23
	01/205/5689.01/23

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
2011/65/EU : RoHS Richtlinie

2014/30/EU : EMV Richtlinie
2014/30/EU : EMC directive

Die Übereinstimmung der bezeichneten Produkte mit den Vorschriften der o.a. Richtlinie wird, falls anwendbar, nachgewiesen durch die vollständige Einhaltung folgender Normen:

The conformity of the designated products is proved by full compliance with the following standards:
La conformité des produits désignés sont conformes aux dispositions de la directive susmentionnée.

EN 61206-3-1:2017
EN IEC 61000-6-2:2019

Gemäß Zertifikat der benannten Stelle:

According to the certificate of the below mentioned organisation:
Selon de organisme notifié.


EN IEC 62061:2021
IEC 61508 Parts 1-2 and 4-7:2010
EN 50156-1:2015 in extracts
EN 60664-1:2007

EN ISO 13849-1:2015
IEC 61511-1:2017 + A1:2017 in extracts
EN 746-2:2010 in extracts
EN IEC 60664-1:2020 + AC:2020-12

Benannte Stelle / Organisme notifié: Nr. NB 0035
TUV Rheinland Industrie Service GmbH
10982 Berlin
Zertifizierungsstelle für Maschinen

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

Aachen, den 01.09.2023


Dr.-Ing. Marco Zander
General Manager
Direction


Dr. rer. oec. Jochen Zander
Labor CE-Konformitätsbewertung
Manager for EC declaration of conformity
Responsible evaluation of conformity CE

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F7 3.07/03

25. Edition of listed standards

Below are the valid editions of the standards and documents listed in this manual:

Standard / Document	Edition
EN ISO 13849-1	2016-06
EN ISO 13849-2	2013-02
IEC 62061	2016-05
IEC 61508	2011-02
IEC 61511	2005-05
EN 50156-1	2016-03
EN 746-2	2011-02
EN ISO 12100	2011-03
EN 60204-1	2007-06
EN 60715	2018-07
EN 61326-3-1	2018-04
EN60664-1	2008-01
CNB/M/11.050	Revision 05

