



## Evaluation device for two-hand actuators

SNZ 4052K, SNZ 4052K-A

PI 0122-0603 E



EN 60204-1	Stop category	0
EN 954-1	Safety category	4



- Basic unit according to DIN EN 574 Typ IIIC, IEC 204 - 1 and EN 954 - 1
- Two-channel control , 1 NO and 1 NC contact for each channel
- Monitoring of the synchronous activation
- For safety categorie 4 and Stop category 0
- 2 NO safety contacts, 1 NC control contact
- Rated voltage in the E-Stop circuit: 24 V DC

## Device Style

SNZ 4052K with screw terminals

SNZ 4052K-A with plug-in terminals

Devices available for AC/DC 24 V, AC 115 - 120 V or AC 230 V rated power supply.

## Device and Function Description

The device complies with the EN 574 Type IIIC requirements. The safety behavior of the device is designed according to the performance level for safety category 4 (EN 954 - 1). The device is single-fault safe and has self-monitoring. Synchronous activation of both actuators (two-hand momentary-contact or protective gate switches) is monitored. Each of the two two-hand momentary-contact switches is connected to the device with a normally open contact and a normally closed contact. The technical design of the input circuit provides cross and ground-fault monitoring. The output function is designed to be positively driven with two normally open contacts as enabling contacts, and with one normally closed contact as control contact.

After the supply voltage is applied to terminals A1/A2 and with closed feedback circuit (terminals Y1/Y2), the enable current paths are opened by activating simultaneously the actuators (S1 and S2). Both momentary contact switches must be activated synchronously within 0,5 s for the output contacts to be enabled. If only one of the two hand switches is released, the device is immediately de-excited. The enabling current paths open. The relay can be restarted only after both actuator elements have returned to their initial position (e.g. the two-hand momentary contact switches have been released) and the feedback circuit is closed again. The feedback circuit should only be opened again after both actuators are activated. Otherwise the device stays in its off-position. The current status of the device is indicated by three LEDs: application of the supply voltage with LED SUPPLY, activation of both actuators with LED K1 and with LED K2 in addition in case of synchronous activation.

## Proper Use

Machines whose operation requires repeated motion of the hands into the hazardous zone may be operated with this relay.

## Notes

- The safety category according to EN 954 - 1 also depends from the external circuit, the choice of the control station and its location on the machine.
- Insulation on external wiring should not be cut back more than 8 mm.
- To multiply the enabling current paths, the expansion units or external contactive elements with positively driven contacts can be used.
- External fuse protection for the relay and the contacts should not exceed 6 A type gG.

Please observe instructions from safety authorities.

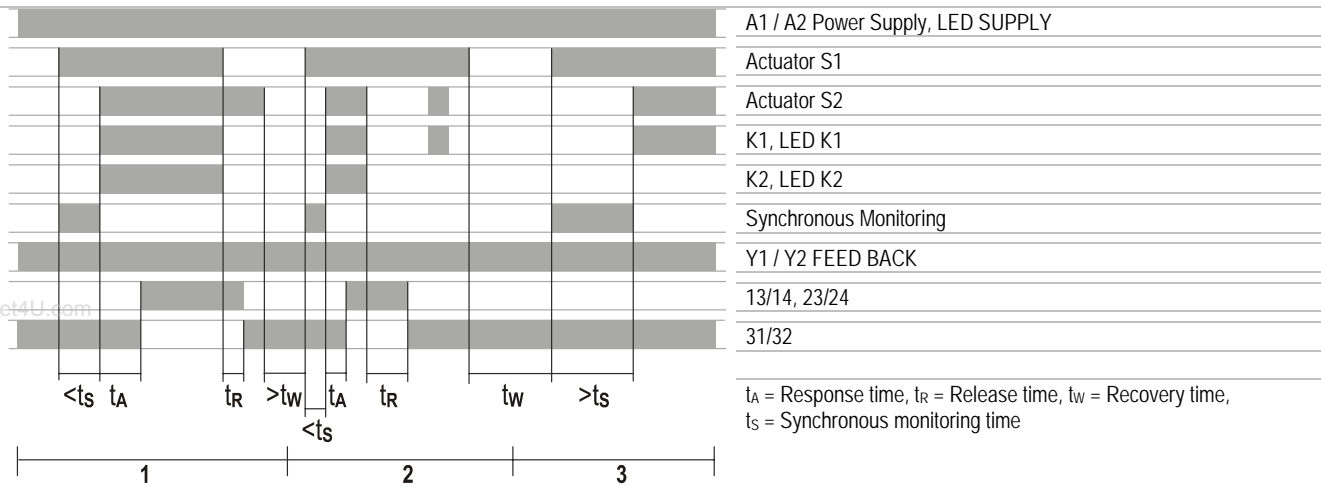


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Function Diagram



$t_A$  = Response time,  $t_R$  = Release time,  $t_W$  = Recovery time,  $t_S$  = Synchronous monitoring time

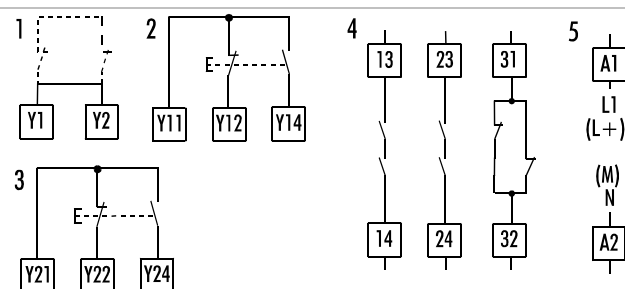
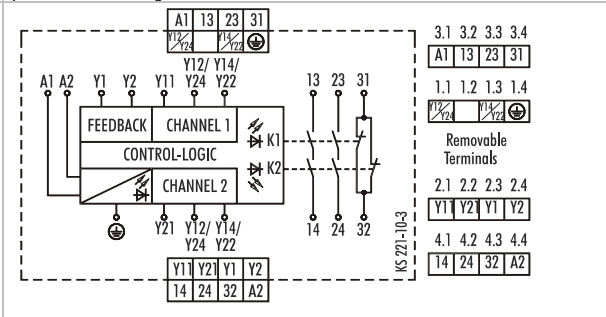
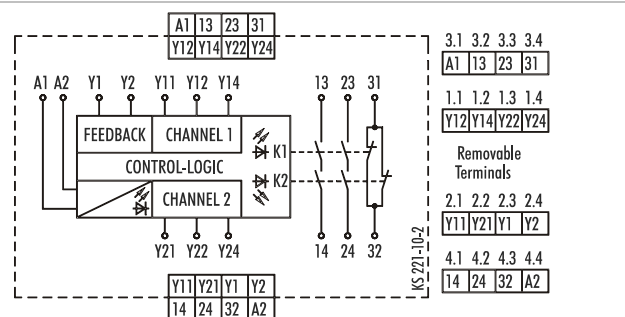
(1) Enabled in case of synchronous activation of both actuators. (2) Enabled in case of synchronous activation of both actuators. If on of the actuators is released the unit is immediately disabled. The unit can be enabled again only after both actuators have been released. (3) Not enabled in case of asynchronous activation.

Connection Diagrams

SNZ 4052K / K-A AC/DC 24 V

SNZ 4052K / K-A AC 115 V / AC 230 V

Die Klemmen Y12, Y24 und Y14, Y22 sind jeweils auf einem Klemmpunkt zusammengefasst.



- 1 Rückführkreis zur Überwachung externer Schütze
- 2 Stellteil S 1
- 3 Stellteil S 2
- 4 2 Freigabestrompfade  
1 Meldeöffner
- 5 Spannungsversorgung

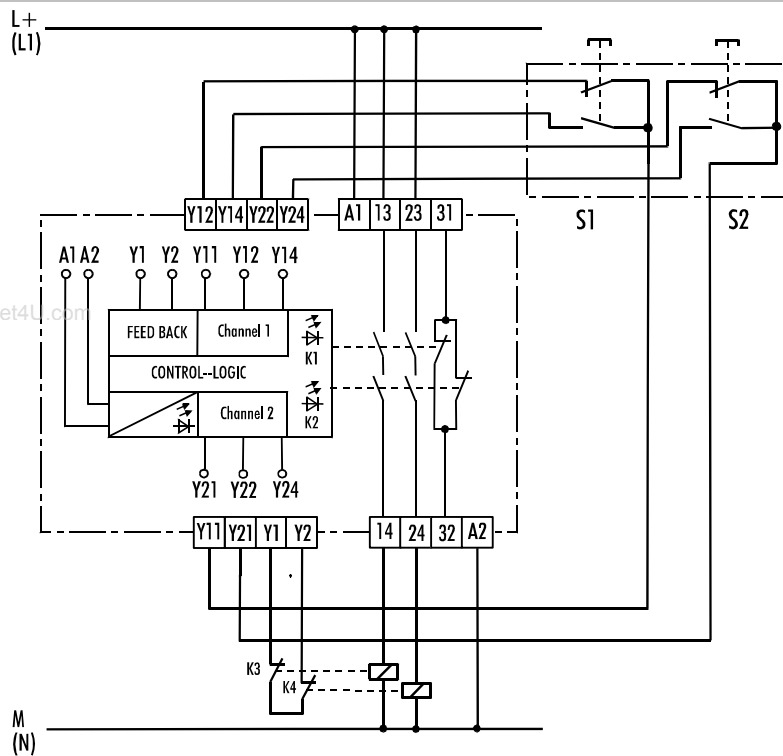


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Application Example



Two-hand control acc. to type III C safety category 4 with external contact expansion.

Technical Data

Supply

Rated voltage $U_N$	AC/DC 24 V	AC 115 - 120 V	AC 230 V
Rated power	DC 2,4 W AC 1,9 W / 3,1 VA	2,2 W / 2,4 VA	2,2 W / 2,4 VA
Residual ripple	2,4 V <sub>ss</sub>	-	-
Rated frequency		50 ... 60 Hz	
Operating range		0,85 ... 1,1 x $U_N$	
Isolation between supply circuit / control circuit	no	yes	yes

Control circuit

Internal operating voltage (Y12 -- Y14 or Y22 -- Y24 and Y1), used only for the supply of the inputs Y11 -- Y21 and Y2	DC 24 V		
Fusing	PTC resistor	transformer short circuit proof	transformer short circuit proof
Response time $t_A$ K1, K2	40 ms		
Release time $t_R$	< 50 ms		
Simultaneity check $t_S$	≤ 500 ms		
Recovery time $t_W$	≤ 250 ms		

Output circuit

Contacts	2 NO safety contacts positively driven, 1 NC control contact		
Switching voltage $U_n$	AC/DC 230 V		
Max. rated current $I_n$ per contact	6 A		
Max. total current for all contacts	12 A	8 A	8 A
Application category according to IEC 947 - 5 - 1	AC--15 Ue 230 V AC, Ie 4 A (360 Sch/h) DC--13 Ue 24 V DC, Ie 4 A (360 Sch/h)		
Short-circuit protection, max. fuse element type gG	6 A		

General data

Creepage and clearance	acc. DIN VDE 0110 part 1 : 04.97		
Rated withstand voltage	4 kV		
Contamination level: internal/external	2 / 3		
Test voltage	AC 300 V		
Protection degree Housing / Terminals acc. to DIN VDE 0470 part 1	IP 40 / IP 20		



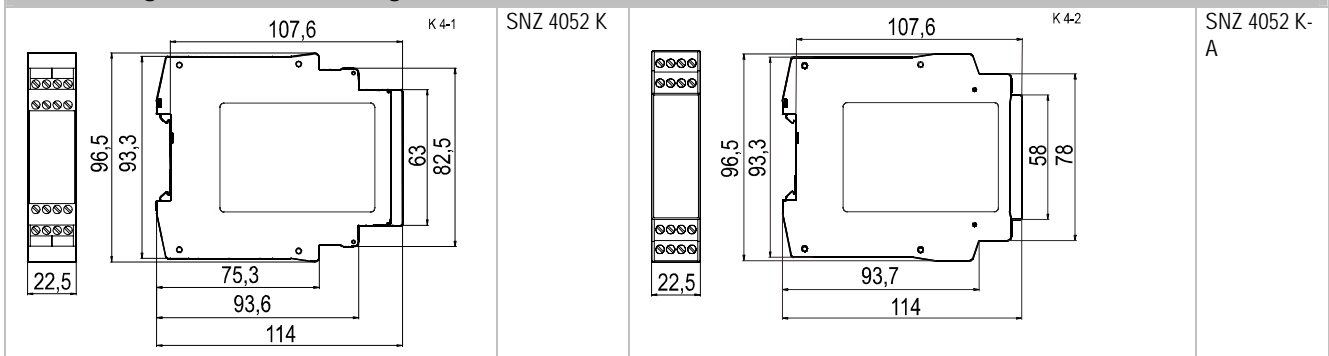
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Ambient temperature working range / storage range		-25 ... +55 / -25 ... +75 °C		
Weight		0,2 kg	0,25 kg	0,25 kg
Terminals and connection				
Single-core or finely stranded		1 x 0.14 mm <sup>2</sup> to 2.5 mm <sup>2</sup> 2 x 0.14 mm <sup>2</sup> to 0.75 mm <sup>2</sup>		
Stripping length		max. 8 mm		
Finely stranded with wire-end ferrule to DIN 46228		1 x 0.25 mm <sup>2</sup> to 2.5 mm <sup>2</sup> 2 x 0.25 mm <sup>2</sup> to 0.5 mm <sup>2</sup>		
Max. tightening torque		0.5 to 0.6 Nm		
For UL and CSA approvals	Conductor sizes	AWG 18-16 use only Cu lines		
	Max. tightening torque	0.79 in-lbs		

Abmessungen / Dimension Diagram / Dimensions



Assembly	
	<p>1 Attach relay to DIN rail.</p> <p>2 Press the relay carefully onto the DIN rail (in direction of arrow) until it locks into place.</p>
	<p>3 Push relay down (in direction of arrow)</p> <p>4 Release relay and remove it from the DIN rail (see arrow)</p>
Disassembly	
	<p>3 Push relay down (in direction of arrow)</p> <p>4 Release relay and remove it from the DIN rail (see arrow)</p>
	<p>3 Push relay down (in direction of arrow)</p> <p>4 Release relay and remove it from the DIN rail (see arrow)</p>

Subject to changes

SCHLEICHER Electronic  
GmbH & Co. KG  
Pichelswerderstraße 3-5  
D-13597 Berlin  
Germany

Phone +49.30.33005.0  
Fax +49.30.33005.344  
Hotline +49.30.33005.304

Internet: <http://www.schleicher-de.com>  
email: [info@schleicher-de.com](mailto:info@schleicher-de.com)