



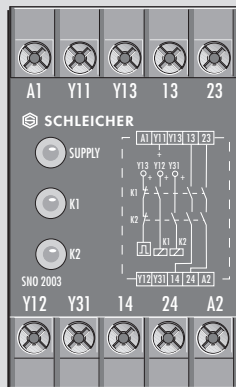
Emergency-Stop Relay

Basic Unit

According to EN 60204 - 1 and EN 954 - 1
 Single or Dual Channel E-Stop Possible
 Rated Voltage in the E-Stop Control Circuit: 24 V DC

SNO 2003	EN 60204-1	For Stop Category	0
	EN 954-1	Safety Category	3

SNO 2003-xx



For Example

- ▶ Protection of persons and machines
- ▶ Monitoring of sliding safety gates
- ▶ Use with programmable logic control systems
- ▶ Protection in assembly lines

Function

After the supply voltage is applied to terminals A1 – A2, and if the E-STOP switch is not activated, the start control circuit is released by the RESET key. The RESET key triggers the relays K1 and K2. The latter become self-locking through their own contacts after the response time t_A . At the same time time, the relay contacts of K1 and K2 de-energize the start control circuit. After this switch-on phase, the two enabling current paths which are intended for the output, are closed (terminals connection 13 – 14, 23 – 24). Three LEDs provide a display and these LEDs are associated with the safety channels K1, K2 and the supply voltage. If the E-Stop switch is pressed, the current leads for the K1 and K2 relays are interrupted. The enabling current paths at the output are opened.

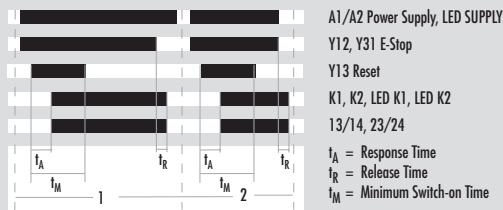
Notes

- ▶ To multiply the enabling current paths, expansion units or external power contactors with positively guided contacts can be used.

Function Diagram

FD 0221-5 W1

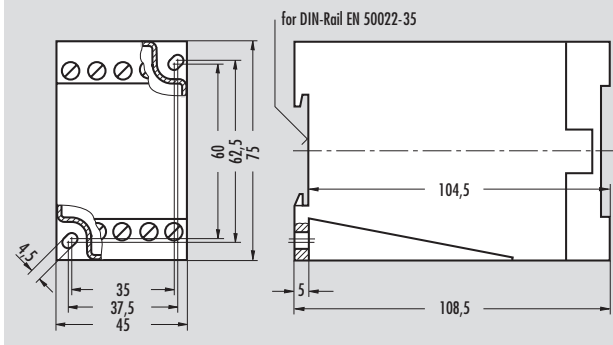
SNO 2003-xx



1 = E-Stop at Y12, Y31
 2 = E-Stop at A1/A2

Dimension Diagram

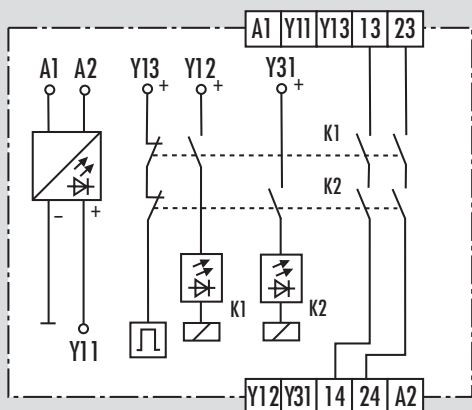
S 3-2



Connection Diagram

KS 0344-2 W1

SNO 2003-xx



Approvals



Order Example

SNO 2003-230	230 V AC
SNO 2003-17	24 V DC
Type	Rated Voltage

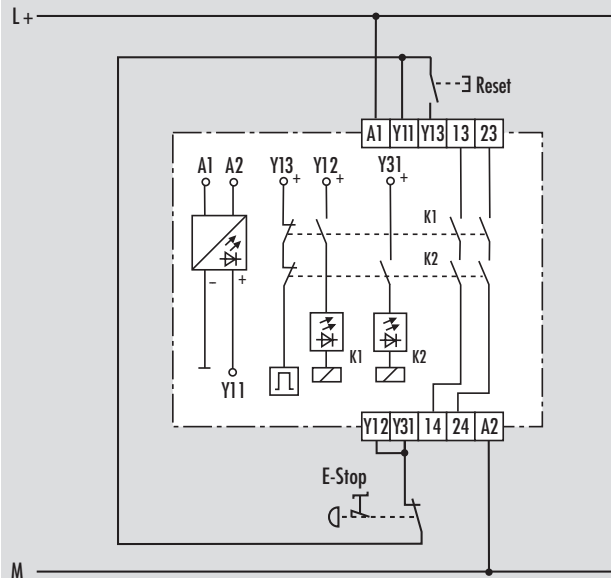


SNO 2003-xx

Application Example

A 1082

Single-Channel E-Stop Circuit

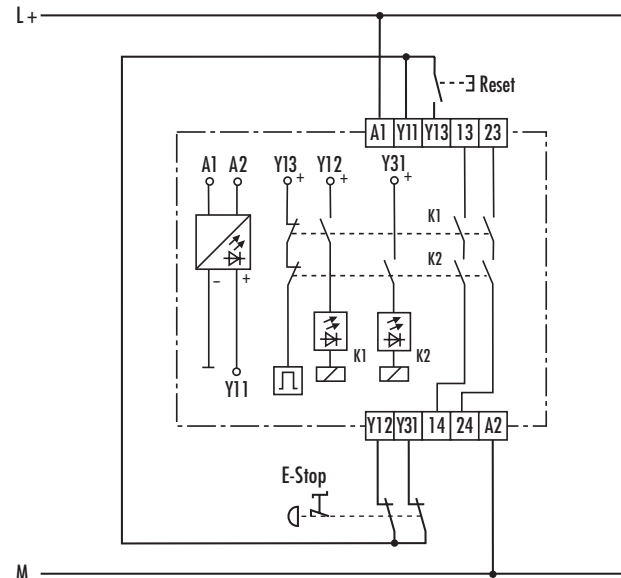


The single channel E-Stop circuit complies with the requirements of the EN 60204-1 norm. However, the circuit of the E-Stop momentary contact is not redundant. Ground faults in the E-Stop circuit are immediately detected.

Application Example

A 1084

Dual-Channel E-Stop Circuit



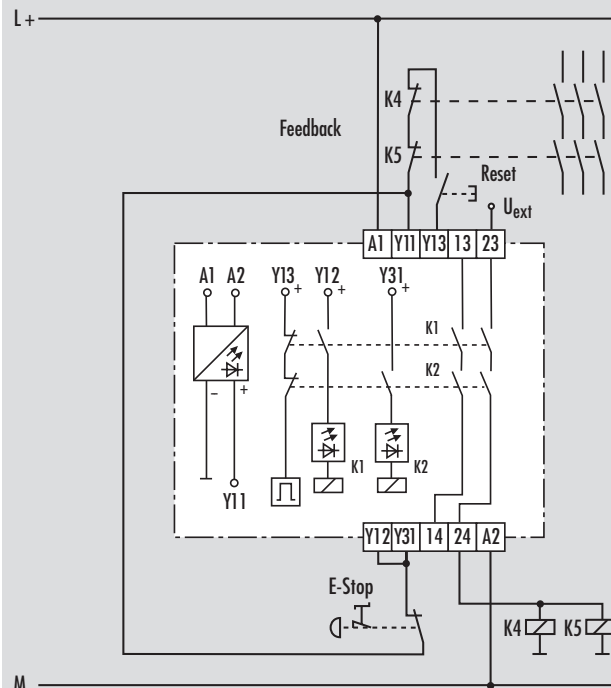
The dual channel E-Stop circuit switches off even if one of the two contacts of the E-Stop button does not open. If a fault occurs (e.g. the E-Stop contact connected to Y12 does not open), the safety circuit is activated by the second (redundant) contact Y31. The enabling current paths 13/14 and 23/24 open.

In case of short circuit in the cables connected to the E-Stop switch, the voltage present at Y11 is short circuited. The relays K1, K2 switch back into their off-position and the protective internal circuitry is activated.

Application Example

A 1083

External Contact Expansion

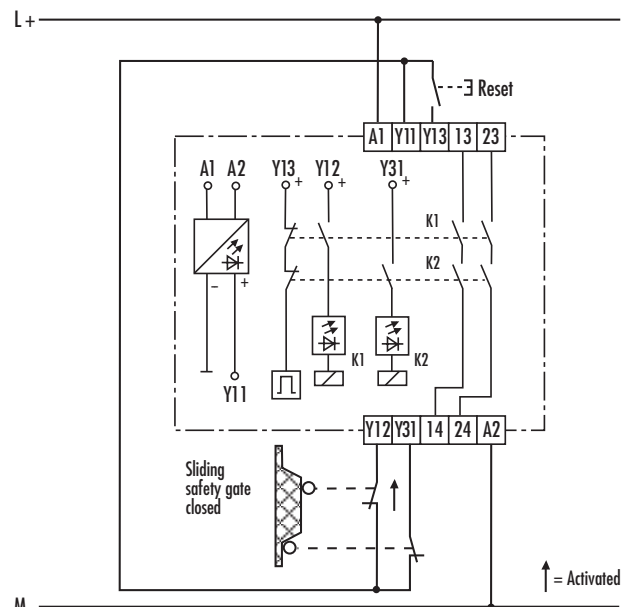


If the number of enabling current paths is not sufficient, two external contactors can be used for expansion. They are driven through one of the enabling current paths of the SNO 2003-xx. The function of the external contactors is monitored by their own NC contacts connected in series with the Reset switch. The contactors K4 and K5 must have positive guided contacts.

Application Example

A 1085

Dual-Channel Sliding Safety Gate Monitoring



The position of the safety sliding gate is monitored through channel 1 (Y12) and channel 2 (Y31). The SNO 2003-xx is activated through the Reset switch. If the sliding safety gate opens, the internal safety relays K1 and K2 return to their off-position and the enabling current paths 13/14, 23/24 open. If the safety gate is closed again the E-Stop Safety Relay SNO 2003-xx can be activated again through the Reset switch.



TECHNICAL DATA

FUNCTION According to EN 60204-1
Function Display
Function Diagram

POWER SUPPLY DATA

Rated Voltage U_N	V AC
Rated Voltage U_N	V DC
Rated Consumption at 50 Hz and U_N (AC)	VA
Rated Consumption at 50 Hz and U_N (AC)	W
Rated Consumption at U_N (DC)	W
Residual Ripple	V _{ss}
Rated Frequency	Hz
Operating Voltage Range	

CONTROL CIRCUIT

only for supplying the control inputs

Control Output Y11 with respect to A2:

Line Resistance (Control Inputs)	Ω
Rated Output Voltage	V DC
No-Load Voltage (AC- Unit)	V DC
Rated Current	mA
Rated Short-Circuit Current I_K max.	mA
Fuse	
Response Time (PTC)	s
Recovery Time (PTC)	s

Control Inputs Y12, Y13, Y31:

Rated Current Input Y13	mA
Rated Current Input Y12, Y31	mA
Response Time t_A K1, K2	ms
Release Time t_r for the E-Stop K1, K2	ms
Minimum Switch-ON Time t_M for Y13	ms

OUTPUT CIRCUIT

Contact Equipment	
Contact Type	
Contact Material	
Switching Voltage U_n	V AC/DC
Maximum Rated Current I_n per Contact	A
Maximum Total Current for all Contacts	A
Application Category According to EN 60947-5-1:1991	
Short-Circuit Protection, Max. Fuse Element Class gG	A
Permissible Switching Frequency	Switching Cycle/h
Mechanical Lifetime	Switching Cycles

GENERAL DATA

Creepage and Clearance Distances Between Circuits According to DIN VDE 0110-1:04.97: Rated Withstand Voltage	kV
Over-Voltage Category	
Contamination Level	
Design Voltage	V AC
Test Voltage U_{eff} 50 Hz acc. to DIN VDE 0110-1, Table A.1	kV
Protection Class Housing/Terminals acc. to DIN VDE 0470 Sec. 1:11.92	
Radiated Noise	
Noise Immunity	
Ambient Temperature, Working Range	°C
Dimension Diagram	
Connection Diagram	
Weight	kg
Approvals	

GENERAL TECHNICAL SPECIFICATIONS

SNO 2003-xx

Emergency- Stop Relay
3 LED's green
FD 0221-5 W1

	24	115	120	230
24				
	2,9	2,9	2,9	2,9
	2,7	2,7	2,7	2,7
	1,7			
	2,4			
	50 to 60			
	0,8 to 1,1 x U_N			

≤ 70
24
≤ 40
60
1000
AC: Short-Circuit Proof Transformer
DC: PTC- Resistance
2
2

30
30
20
10
30

2 N.O. Safety Contact
Forced Contact
Ag- Alloy; Gold- Plated
230/230
6
12
AC-15: U_e 230 V AC, I_e 4 A
DC-13: U_e 24 V DC, I_e 3 A
6
3600
10×10^6

4
III
3 Outside, 2 Inside
300
2,21
IP 40/IP 20
EN 50081-1:03.93, -2:03.94
EN 50082-2:1995

- 25 to + 55
S 3-2
KS 0344-2 W1
0,3 (AC-Unit), 0,2 (DC-Unit)
BG, CSA, SAG, UL

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