SNE 4004K/KV

CONTACT EXPANSION

APPLICATIONS

- Expansion of a basic device's enabling current paths
- Contact expansion in safety equipment
- Up to PL d / Category 3 (EN ISO 13849-1)*
- Up to SIL_{CL} 2 (EN 62061)*

FEATURES

- Stop Category 0 and 1 according to EN 60204-1 (see "Function")
- Single-channel or two-channel control
- SNE 4004K: 4 enabling current paths, undelayed (NO contact)
  3 signaling curent paths, undelayed (NC contact)
- SNE 4004KV: 4 enabling current paths, OFF-delayed (NO contact)
  3 signaling current paths, OFF-delayed (NC contact),
  Time buffering

* Depends on the category of the basic device or the safety control.

FUNCTION

SNE 4004K

Supply voltage to the SNE devices is routed via an enabling current path of a basic device. When the supply voltage is applied relays K1 and K2 switch into the ON position. After this switch-on phase the four enabling current paths 13/14, 23/24, 33/34, 43/44 (of the SNE 4004K) or 17/18, 27/28, 37/38, 47/48 (of the SNE 4004KV) are closed and the feedback current path Y1/Y2 is open. This is displayed through two LEDs that are assigned to relays K1 and K2.

When the enabling current paths of the basic device are opened through the operation of the emergency stop button, relays K1 and K2 on the SNE 4004K switch back into the OFF-position. The enabling current paths open and the feedback current path closes. Feedback current path Y1/Y2 prevents the basic device from switching on again before K1 or K2 releases.

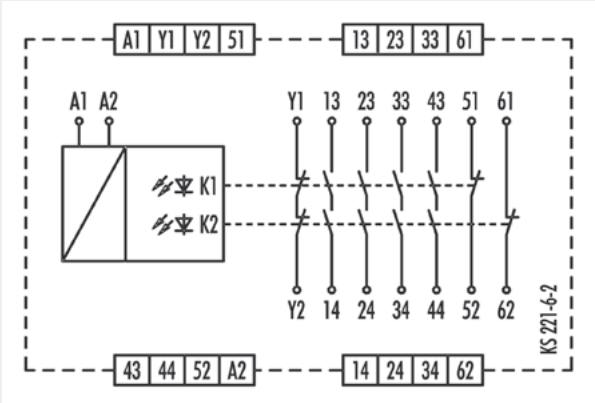
SNE 4004KV

The functions of this device correspond to those of the SNE 4004K. The SNE 4004KV is available with the following four OFF-delay times t_{R1}: 0.5 s; 1 s; 2 s and 3 s. The device has an OFF-delay time that is enabled through capacitors.

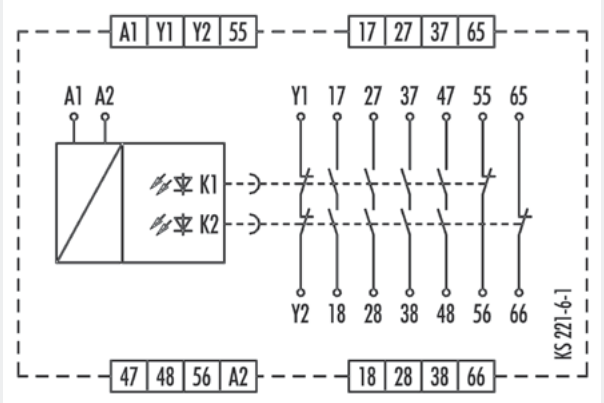
This causes the OFF-delay time t_{R1} to elapse completely even in case of failure of the power supply (A1/A2). It cannot be reset before it has elapsed. Once the delay time has elapsed, relays K1 and K2 switch into the OFF- position. OFF-delay times of > 0 s correspond to stop category 1.

CIRCUIT DIAGRAMS

SNE 4004K



SNE 4004KV



OVERVIEW OF DEVICES | PART NUMBERS

Type	Time range	Rated voltage	Terminals	Part no.	P.U.
SNE 4004K-A	–	24 V AC/DC	Screw terminals, pluggable	R1.188.0590.0	1
SNE 4004K-C	–	24 V AC/DC	Push-in terminals, pluggable	R1.188.1980.0	1
SNE 4004KV-A	0.5 s	24 V DC	Screw terminals, pluggable	R1.188.0460.0	1
	1 s	24 V DC	Screw terminals, pluggable	R1.188.0470.0	1
	2 s	24 V DC	Screw terminals, pluggable	R1.188.0480.0	1
	3 s	24 V DC	Screw terminals, pluggable	R1.188.0490.0	1
SNE 4004KV-C	0.5 s	24 V DC	Push-in terminals, pluggable	R1.188.2410.0	1
	1 s	24 V DC	Push-in terminals, pluggable	R1.188.2420.0	1
	2 s	24 V DC	Push-in terminals, pluggable	R1.188.2430.0	1
	3 s	24 V DC	Push-in terminals, pluggable	R1.188.2440.0	1

TECHNICAL DATA		
Function		Emergency stop expansion relay
Function display		2 LEDs, green
Function mode / adjustment		Time, fixed
Adjustment range		0,5 s / 1 s / 2 s / 3 s
Power supply circuit		
Rated voltage U_N	A1, A2	24 V DC / 24 V AC/DC
Rated consumption	24 V DC | 24 V AC/DC	1.2 W | 1.7 W / 3.1 VA
Rated frequency		50 - 60 Hz
Operating voltage range U_B		0.85 - 1.1 x U_N
Electrical isolation supply circuit - control circuit		non
Control circuit		
Input current / peak current	A1, A2	65 mA / 1800 mA
Response time t_{A1} / t_{A2}		20 ms
Minimum ON time t_M		0,15 x t_R
Recovery time t_W		≤ 200 ms
Release time t_R		40 ms
Release time t_R, delayed contacts (tolerance)		0.5 s / 1 s / 2 s / 3 s (± 35 %)
Max. resistivity, per channel [1]		≤ (2.5 + (1.176 x U_B / U_N - 1) x 50) Ω
Output circuit		
Enabling paths	13/14, 23/24, 33/34, 43/44	normally open contact
	17/17, 27/28, 37/38, 47/48	normally open contact, time delayed
Signaling paths	51/52, 61/62	normally closed contact
	55/56, 65/66	normally closed contact, time delayed
Contact assignment		forcebly guided
Contact type		Ag-alloy, gold-plated
Rated switching voltage	enabling / signaling path	230 V AC
	Y1/Y2	230 V AC
Max. thermal current I_{th}	enabling / signaling path	6 A / 2 A
	Y1/Y2	2 A
Max. total current I^2 of all current path	(Tu = 55 °C)	9 A^2
Application category (NO)	AC-15 | DC-13	U_e 230 V, I_e 5 A | U_e 24 V, I_e 5 A
Short-circuit protection (NO), lead fuse / circuit breaker		6 A class gG / melting integral < 100 A^2s
Mechanical life		10^7 switching cycles
General data		
Creepage distances and clearances between the circuits		EN 60664-1
Protection degree according to EN 60529 (housing / terminals)		IP40 / IP20
Ambient temperature / storage temperature		-25 °C - +55 °C / -25 °C - + 75 °C
Wire ranges screw terminals,	fine-stranded / solid	1 x 0.2 mm^2 – 2.5 mm^2 / 2 x 0.2 mm^2 – 1.0 mm^2
	fine-stranded with ferrules	1 x 0.25 mm^2 – 2.5 mm^2 / 2 x 0.25 mm^2 – 1.0 mm^2
Permissible torque		0,5 - 0,6 Nm
Wire ranges push-in terminals		1 x 0.25 mm^2 –1.5 mm^2
Weight		0.20 kg
Standards		EN ISO 13849-1, EN 62061
Approvals		DGUV, cULus, CCC

[1] If two-channel devices are installed as single channel, the value is halved.