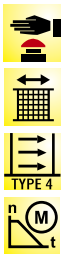
Basic device with time function – SNV 4063KL



Applications

- Protection of people and machinery
- Monitoring of emergency stop applications
- Monitoring of safety gates
- Termination of braking operations through OFF-delay time
- Control of solenoid-actuated interlocks
- Up to PL e / Category 4 (EN ISO 13849-1)
- Up to SIL_{CL} 3 (EN 62061)

Features

- Stop category 0/1 according to EN 60204-1
- Single-channel or two-channel control
- Manual or automatic start
- OFF-delay time adjustable in the range 0.15 to 3 s or 1.5 to 30 s
- Reset button monitoring, cross monitoring, monitoring of synchronous time
- 3 enabling current paths (2 undelayed, 1 OFF-delayed)

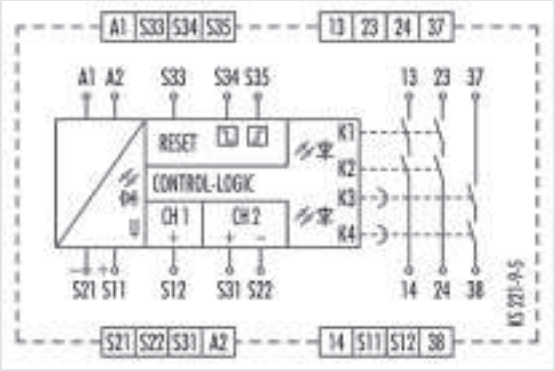
Function

With the supply voltage applied to terminals A1/A2 and the emergency set right and left margins in-line button. This controls relays K1 to K4, which become self-locking (when starting via reset button monitoring after the response time). After this switch-on phase the 3 enabling current paths are closed (terminals 13/14, 23/24 and 37/38).
Three LEDs display the state of relays K1/K2, K3/K4 and the supply voltage.
If the emergency stop button is activated, the current supplies for relays K1 to K4 are interrupted. The undelayed enabling current paths (terminals 13/14, 23/24) are opened with release time tR_1 while the off-delayed enabling current path (terminals 37/38) is opened after the pre-set OFF-delay time t_{R2}. The OFF-delay time can be adjusted infinitely in the range 0.15 to 3 s or 1.5 to 30 s. With a two-channel control and cross-monitoring wiring of the sensor circuit, additional errors such as short-circuit or ground fault can be detected. An electronic fuse protects the device against damage. After the cause of the malfunction has been removed, the device is operational again after approx. 3 s.

- **Reset button monitoring** – The device can be started either with the falling edge or with the rising edge (terminals S34 or S35). For emergency stop applications with manual start the button must be connected to terminals S33/S34. The device is enabled only with the falling edge of the reset signal. For starting, the reset button must be pressed and released. For safety gate applications in which an automatic start is performed it is necessary to bridge terminals S33/S35. The device will react at the rising edge of input S12 which is internally connected to S33.
- **Monitoring of synchronous time** – The use of safety limit switches for single-channel or two-channel circuits in safety gate applications depends on the required safety level. The device provides a monitoring of the synchronous time of two connected safety switches. A synchronous time $t_S \approx 0.5$ s requires limit switches positioned in such a way that channel 1, terminals S11/S12, closes before channel 2, terminals S21/S22. If channel 2 closes before channel 1, the synchronous time is $t_S = \infty$.

Circuit diagram

SNV 4063KL



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Overview of devices | part numbers

Type	Time range	Rated voltage	Terminals	Part no.	Std. pack
SNV 4063KL	3 s	24 V DC	Screw terminals, fixed	R1.188.0610.0	1
	30 s	24 V DC	Screw terminals, fixed	R1.188.0630.0	1
SNV 4063KL-A	3 s	24 V DC	Screw terminals, pluggable	R1.188.0620.0	1
	30 s	24 V DC	Screw terminals, pluggable	R1.188.0640.0	1
SNV 4063KL-C	3 s	24 V DC	Cage clamp, pluggable	R1.188.2010.0	1

Technical data

Function		Emergency stop relay for controlled stop
Function display		3 LEDs, green
Function mode / adjustment		Time / stepless
Adjustment range		0.15 - 3 s / 1.5 - 30 s
Power supply circuit		
Rated voltage U_N	A1, A2	24 V DC
Rated consumption	24 V DC	2.6 W
Operating voltage range U_B		0.85 - 1.1 x U_N
Electrical isolation supply circuit - control circuit		no
Control circuit		
Rated output voltage	S11, S33/S21	22 V DC
Input current / peak current	S12, S31/S22	25 mA / 2500 mA
	S34, S35	40 mA / 2500 mA
Response time t_{A1} / t_{A2}		30 ms / 700 ms
Minimum ON time t_M		200 ms
Recovery time t_w		500 ms
Release time t_R		25 ms
Release time t_R, delayed contacts (tolerance)		0.15 - 3 s / 1.5 - 30 s (±16 %)
Synchronous time t_s		500 ms
Permissable test pulse time t_{TP}		< 1 ms
Max. resistivity, per channel [1]		≤ (5 + (1.176 x U_B / U_N - 1) x 100) Ω
Output circuit		
Enabling paths	13/14, 23/24	normally open contact
	37/38	normally open contact, OFF-delayed
Contact assignment		forcebly guided
Contact type		Ag-alloy, gold-plated
Rated switching voltage	enabling path	230 V AC
Max. thermal current I_{th}	enabling path	6 A
Max. total current I^2 of all current path	(Tu = 55 °C)	5 A²
Application category (NO)	AC-15	U_e 230 V, I_e 3 A
	DC-13	U_e 24 V, I_e 2 A
Short-circuit protection (NO), lead fuse / circuit breaker		6 A Class gG / melting integral < 100 A²s
Mechanical life		10^7 switching cycles
General data		
Creepage distances and clearances between the circuits		EN 60664-1
Protection degree according to DIN 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 0.14 mm² – 2.5 mm² / 2 x 0.14 mm² – 0.75 mm²
	fine-stranded with ferrules	1 x 0.25 mm² – 2.5 mm² / 2 x 0.25 mm² – 0.5 mm²
Permissible torque		0.5 - 0.6 Nm
Wire ranges cage clamp terminals		1 x 0.25 mm² – 1.5 mm²
Weight		0.20 kg
Standards		EN ISO 13849-1, EN 62061
Approvals		

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