

SNA 4043K/KM/KE, SNA 4044K/KM

MONITORING OF EMERGENCY STOP, SAFETY GATES AND LIGHT BARRIERS



APPLICATIONS

- Protection of people and machinery
- Monitoring of emergency stop applications
- Monitoring of safety gates
- Monitoring of light barriers
- Up to PL e/ Category 4 (EN ISO 13849-1)
- Up to SIL_{CL} 3 (EN 62061)

FEATURES

- Stop Category 0 according to EN 60204-1
- Single-channel or two-channel control
- Automatic start
- Manual reset without monitoring
- Cross monitoring
- 3 to 4 enabling current paths

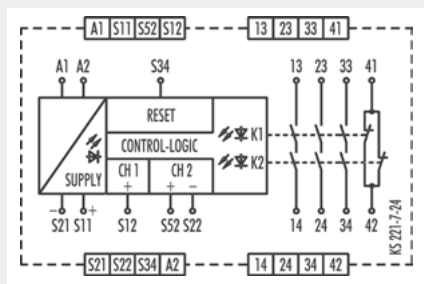
FUNCTION

Emergency stop and safety gate monitor The safety switching devices of our SNA product line are used to monitor safety sensors (emergency stop buttons, safety gate switches, etc.), feature a large number of safety switching contacts (3 NO contacts/1 NC contact or 4 NO contacts) with a total width of only 22.5 mm at a constant current of up to 8 A. They can be implemented in the extended temperature range up to 65° C.

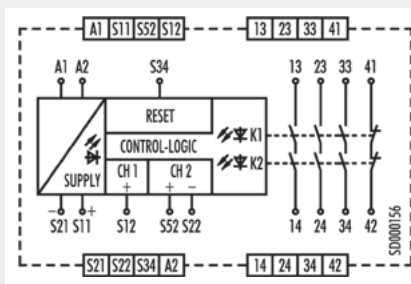
- **Automatic start** – Reset input S34 is connected to safety input S11. To monitor external contact blocks (EDM), their NC contacts must be connected in series between S34 and S11.
- **Manual start without monitoring** – Reset input S34 is connected to safety input S11 via a RESET button. To monitor external contact blocks (EDM), their NC contacts must be connected to the RESET button in series.
- **Monitoring of light curtains** – The KM device types are especially suitable for the monitoring of very fast tactile switching operations, for example in safety light curtain applications. Very short switch-off procedures of a few milliseconds are detected reliably and lead to the switching off of the internal relays.

CIRCUIT DIAGRAM

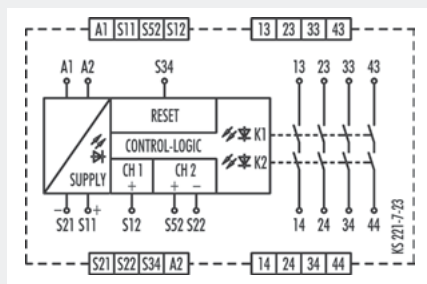
SNA 4043K/KM



SNA 4043KE



SNA 4044K/KM





OVERVIEW OF DEVICES | PART NUMBERS

| Type | Rated voltage | Terminals | Part no. | P.U. |
|--------------|---------------|------------------------------|---------------|------|
| SNA 4043K-A | 24 V AC/DC | Screw terminals, pluggable | R1.188.1810.0 | 1 |
| SNA 4043K-A | 115-120 V AC | Screw terminals, pluggable | R1.188.1830.0 | 1 |
| SNA 4043K-A | 230 V AC | Screw terminals, pluggable | R1.188.1840.0 | 1 |
| SNA 4043K-C | 24 V AC/DC | Push-in terminals, pluggable | R1.188.1940.0 | 1 |
| SNA 4043KM-A | 24 V AC/DC | Screw terminals, pluggable | R1.188.3250.0 | 1 |
| SNA 4043KM-C | 24 V AC/DC | Push-in terminals, pluggable | R1.188.3400.0 | 1 |
| SNA 4043KE-A | AC/DC 24 V | Screw terminals, pluggable | R1.188.3810.0 | 1 |
| SNA 4043KE-C | AC/DC 24 V | Push-in terminals, pluggable | R1.188.3820.0 | 1 |
| SNA 4044K-A | 24 V AC/DC | Screw terminals, pluggable | R1.188.1860.0 | 1 |
| SNA 4044K-A | 115-120 V AC | Screw terminals, pluggable | R1.188.1880.0 | 1 |
| SNA 4044K-A | 230 V AC | Screw terminals, pluggable | R1.188.1890.0 | 1 |
| SNA 4044K-C | 24 V AC/DC | Push-in terminals, pluggable | R1.188.1960.0 | 1 |
| SNA 4044KM-A | 24 V AC/DC | Screw terminals, pluggable | R1.188.1480.0 | 1 |
| SNA 4044KM-C | 24 V AC/DC | Push-in terminals, pluggable | R1.188.3410.0 | 1 |

| TECHNICAL DATA | | | |
|---|---|---|---|
| Function | Emergency stop relay | | |
| Function display | 3 LEDs, green | | |
| Power supply circuit | | | |
| Rated voltage U_N | A1, A2 | 24 V AC/DC / 42-48 V AC / 115-120 V AC / 230 V AC | |
| Rated consumption | 24 V DC / 24 V AC | 1.6 W / 2.9 VA | |
| | 42-48 V AC / 115-120 V AC / 230 V AC | 2.3 W / 2.6 VA | |
| Rated frequency | 50 - 60 Hz | | |
| Operating voltage range U_B | 0.85 - 1.1 x U_N | | |
| Electrical isolation supply circuit - control circuit | yes (at $U_N = 42-48$ V AC, 115-230 V AC, 230 V AC) | | |
| Control circuit | | | |
| Rated output voltage | S11/S21 | 24 V DC | |
| Input current / peak current | S12, S52/S22 S34 | 25 mA / 100 mA 5 mA / 50 mA | |
| Response time t_{A1} / t_{A2} | 350 ms / 350 ms | | |
| Minimum ON time t_M | 100 ms | | |
| Recovery time t_W | 750 ms | | |
| Release time t_R | 10 ms | | |
| Synchronous time t_S | no | | |
| Permissible test pulse time t_{TP} | < 1 ms | | |
| Max. resistivity, per channel ¹⁾ | | 24V AC/DC | $\leq (5 + (1.176 \times U_B / U_N - 1) \times 100) \Omega$ |
| | | 42-48V AC / 115-120 V AC, 230 V AC | $\leq (5 + (1.176 \times U_B / U_N - 1) \times 100) \Omega$ |
| Output circuit | | | |
| | SNA 4043K/KM | SNA 4044K/KM | |
| Enabling paths | 13/14, 23/24, 33/34 | 13/14, 23/24, 33/34, 43/44 | normally open contact |
| Signaling paths | 41/42 | --- | normally closed contact |
| Contact assignment | forcebly guided | | |
| Contact type | Ag-alloy, gold-plated | | |
| Rated switching voltage | enabling / signaling path | 230 V AC | |
| Max. thermal current I_{th} | enabling / signaling path | 8 A / 5 A | |
| Max. total current I^2 of all current path | ($T_u = 55$ °C) / ($T_u = 65$ °C) | 25 A ² / 9 A ² | |
| Application category (NO) | AC-15 DC-13 | | U_e 230 V, I_e 3 A U_e 24 V, I_e 3 A |
| Short-circuit protection (NO), lead fuse / circuit breaker | 6 A class gG / melting integral < 100 A ² s | | |
| 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 - +65 °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 | 24 V AC/DC device / AC device | 0.21 kg / 0.25 kg | |
| Standards | EN ISO 13849-1, EN 62061, EN 81-20/50, EN 50156-1, EN 61511 | | |
| Approvals | TÜV, cULus, CCC, GL | | |

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