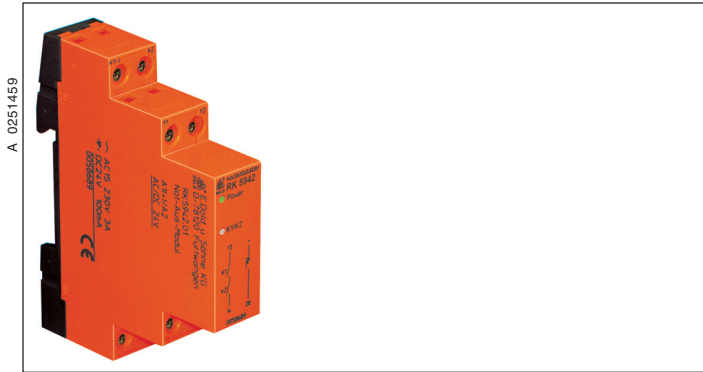
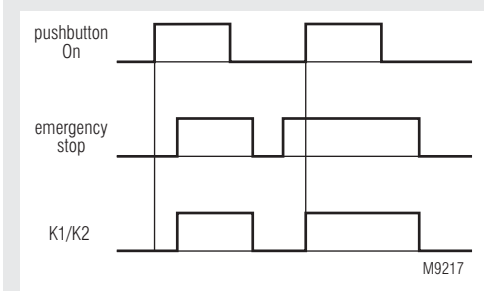


Emergency Stop Module RK 5942, extremely small safemaster



- corresponding to
 - Safety Integrity Level (SIL) 3 to IEC EN 61508
 - SIL Claimed Level (SIL CL) 3 to EN 62061
 - Performance Level (PL) e to DIN EN ISO 13849-1
- BG-Approval
 - Safety Category (SK) 4 to EN 954-1
- Single channel operation
- Output: 1 NO contact and 1 monitoring logic output
- LED-indicator for relay 1 / 2 and supply voltage
- Wire connection: max. cross section for connection each 1 x 6 mm² solid, each 1 x 4 mm² stranded ferruled, each 2 x 2.5 mm² wire with twin ferrule; min. cross section for connection: each 1 x 1 mm² stranded ferruled or 1 x 1.5 mm² solid
- Width 17.5 mm and 64 mm depth

Function diagramm



Approvals and marking



Applications

- Protection of people and machines
- Emergency stop circuits on machines

Indicators

- LED Power: on, when supply connected
- LED K1/K2: on, when relay K1 and K2 energized

Note

ATTENTION - AUTOMATIC START!

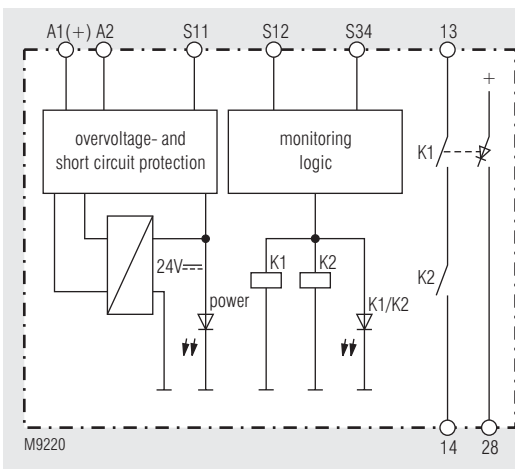


According to IEC/EN 60 204-1 part 9.2.5.4.2 and 10.8.3 it is not allowed to restart automatically after emergency stop. Therefore the machine control has to disable the automatic start after emergency stop.

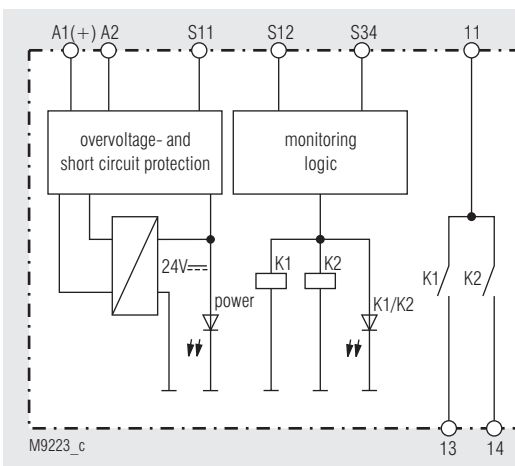


With single-channel connection safety category 4 can only be achieved when the input circuit is carried out failsafe. This can be done by selecting the right cable material and suitable wire arrangement.

Block diagrams

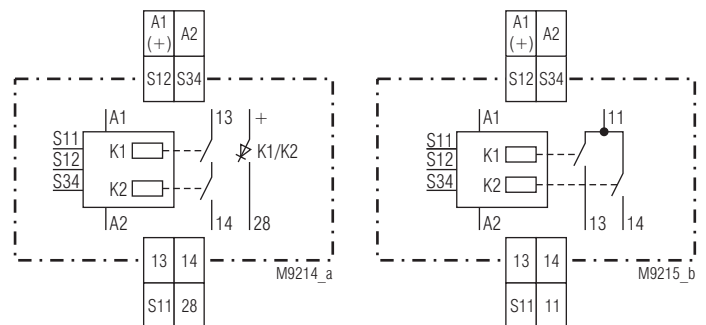


RK 5942.02



RK 5942.03

Circuit diagrams



RK 5942.02

RK 5942.03

Technical data

Input

Nominal voltage U_N:	DC 24 V
Nominal frequency:	50 / 60 Hz
Voltage range:	
at 10 % residual ripple:	DC 0.9 ... 1.1 U_N
Nominal consumption	
DC 24 V:	DC 2.2 W
Control voltage on S11	
DC 24 V:	typ. DC 22.5 V
Control current	
DC 24 V:	typ. DC 95 mA
Recovery time:	0.5 s

Output

Contacts	1 NO contact, 1 semiconductor contact The NO contacts are safety contacts. ATTENTION ! The relay with semiconductor output is available as DC device only. The semiconductor output can only be used for monitoring.
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Operate delay

DC 24 V: typ. DC 80 ms

Release delay

DC 24 V: typ. DC 70 ms

Contact type:

positive guided

Thermal current I_{th} : max. 5 A (see continuous current limit curve)

Nominal output voltage: AC 250 V

Switching capacity

to AC 15:
NO contacts: 3 A / AC 230 V IEC/EN 60 947-5-1

to DC 13:
NO contacts: 4 A / 24 V IEC/EN 60 947-5-1

Electrical life

at 5 A, AC 230 V $\cos \varphi = 1$: $> 10^5$ switching cycles

according to DC 13 semiconductor output: DC 24 V, 100 mA, short circuit strong

Output voltage at 100 mA: 21.5 V

Permissible operating frequency:

600 switching cycles / h

Short circuit strength

max. fuse rating: 6 A gL IEC/EN 60 947-5-1

line circuit breaker: B 6

Mechanical life: 10×10^6 switching cycles

General data

Operating mode: Continuous operation

Safety data

acc. to IEC 61 508, SIL-3: PFH = $1,03 \cdot 10^{-9}$ 1/h

SFF = 97,3 %

T1 = 20 years

- 15 ... + 55 °C

Temperature range:

Clearance and creepage distances

overvoltage category / pollution degree: 4 kV / 2 IEC 60 664-1

EMC

Electrostatic discharge: 8 kV (air) IEC/EN 61 000-4-2

HF-irradiation: 10 V / m IEC/EN 61 000-4-3

Fast transients: 2 kV IEC/EN 61 000-4-4

HF-wire guided: 10 V IEC/EN 61 000-4-6

Interference suppression: Limit value class B EN 55 011

Degree of protection

Housing: IP 40 IEC/EN 60 529

Terminals: IP 20 IEC/EN 60 529

Housing: Thermoplastic with V0 behaviour

according to UL subject 94

Vibration resistance: Amplitude 0.35 mm

frequency 10 ... 55 Hz, IEC/EN 60 068-2-6

15 / 055 / 04 IEC/EN 60 068-1

Terminal designation: EN 50 005

Technische Daten

Wire connection

max. cross section: each 1 x 6 mm² solid,
each 1 x 4 mm² stranded ferruled,
each 2 x 2.5 mm² wire with twin ferrule

min. cross section: each 1 x 1 mm² stranded ferruled or
1 x 1.5 mm² solid

Wire fixing: Plus-minus terminal screws

M 3.5 box terminals

Mounting: DIN rail IEC/EN 60 715

Weight: 110 g

Dimensions

Width x height x depth: 17.5 x 90 x 71 mm

Mounting depth: 64 mm

Safety related data

according to IEC 61 508, SIL-3:

Probability of dangerous

Failure per Hour (PFH_D): $1,03 \cdot 10^{-9}$ 1/h

Safe Failure Fraction (SFF): 97,3 %

Proof Test Intervall (T1): 20 Years

Standard types

RK 5942.02 DC 24 V

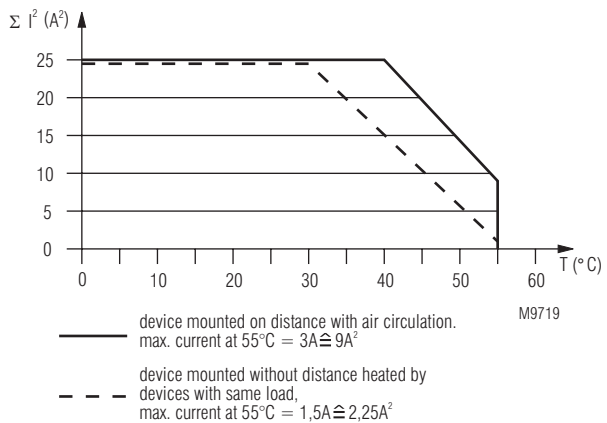
Article number: 0058690

• Output: 1 NO contact, 1 semiconductor output

• Nominal voltage U_N : DC 24 V

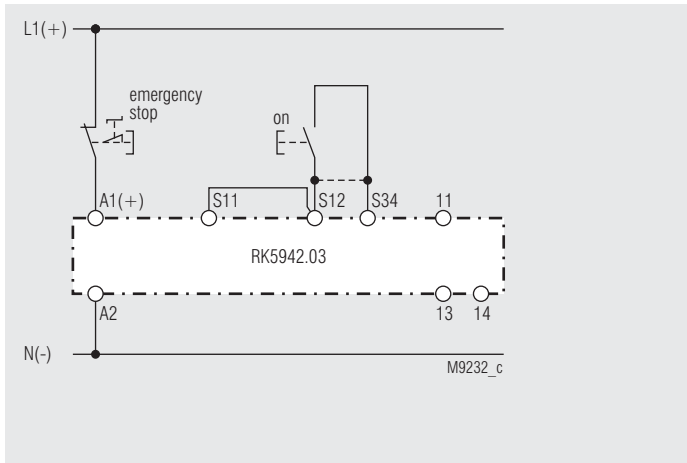
• Width: 17.5 mm

Characteristics



Continuous current limit curve

Applications



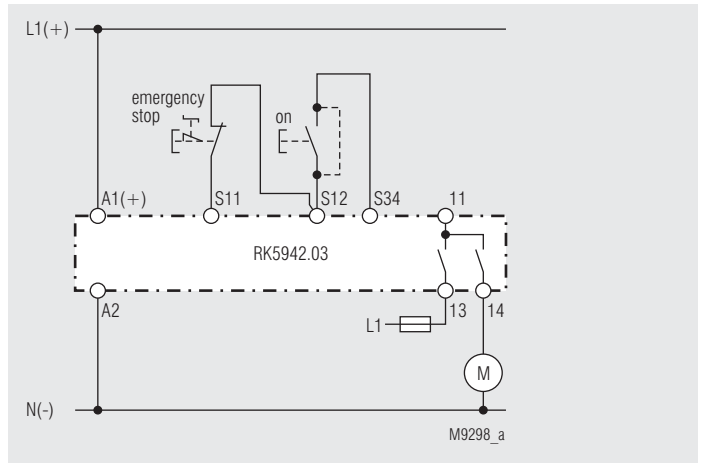
Single channel emergency-stop circuit without feed back loop, with or without automatic restart.

For automatic restart terminals S12 - S34 must be linked.

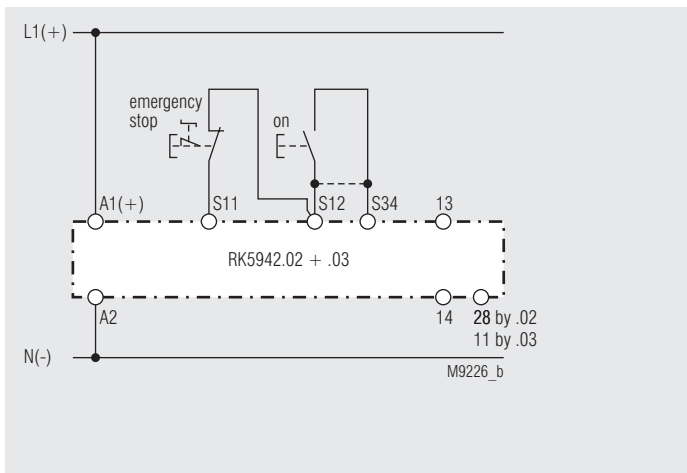
No ON-pushbutton necessary.

ATTENTION ! This application can only be used for RK 5942.03.

Applications



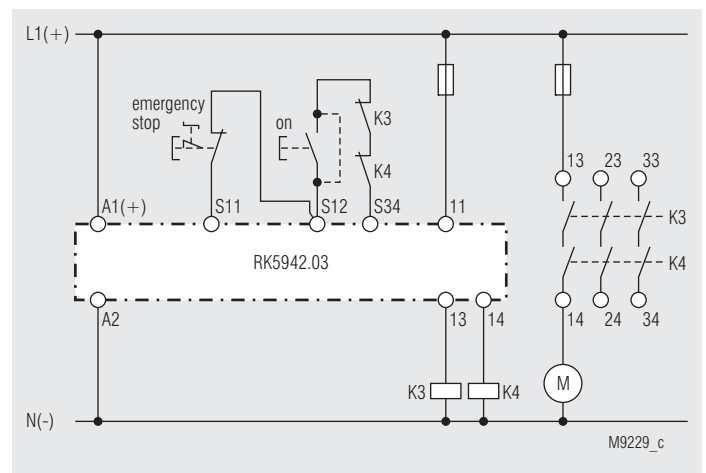
ATTENTION ! For applications of safety stops the load must be connected to the contacts in series with 2 NO contacts.



Single channel emergency-stop circuit without feed back loop, with or without automatic restart.

For automatic restart terminals S12 - S34 must be linked.

No ON-pushbutton necessary.



Contact reinforcement by external contactors.

At a thermal current $I_m > 5$ A the output contacts can be reinforced by external contactors with positively guided contacts.

Functioning of the external contactors is monitored by looping the NC contacts into the start circuit (S12 - S34).

ATTENTION ! For applications of safety stops the load must be connected to the contacts in series with 2 NO contacts.

