F117 E-Stop Relay

E-Stop Relay and Safety Gate Monitor

Characteristics

- Stop grade 0
- Safety grade 4
- 3 safety contacts
- 24V AC/DC
- Detection of shorts
- Self-monitoring

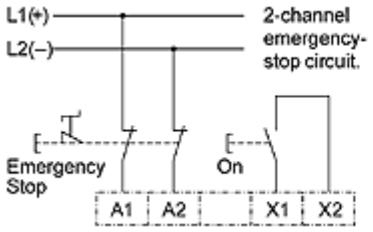
DIN EN 60204 Section 1/VDE 0113 Section1(06/93) prescribes that power circuits with a safety function must be specified as per Section 9.4. In such safety circuits auxiliary contactors must intervene to guarantee redundancy so that, despite the occurrence of a fault in one of the auxiliary contactors, the safety circuit remains operative. In every on-off cycle of the machine, the auxiliary contactors must be checked automatically at least once to ensure correct opening and closure of the contacts. Emergency-Stop Relay F117 fulfils this requirement–EN954-1(3.97)–to the highest safety grade 4 as well. Protection against shorts in the F117 input circuit exists in case of applications involving a 2-channel emergency-stop switch as shown in the wiring examples 1,2 and 3.

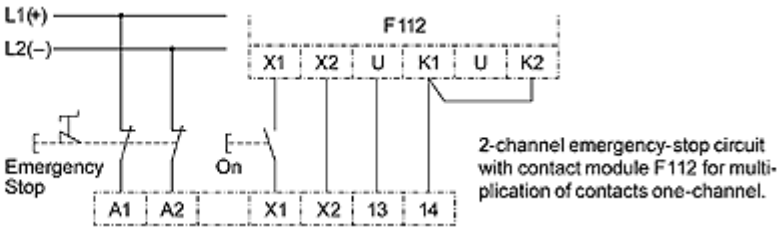
Mode of Operation

If both NC-contacts of the two channel emergency-stop switch are closed, **F117** can be activated via the terminals A1-A2 and thefeed back circuit X1-X2. The safety contacts 13-14 and 23-24 close and enable operation. The emergency-stop circuit can be specified 1or2 channel

The conditions of the corresponding application will dictate which of the two options is to be used. It should be noted that the 2-channel specification provides higher reliability and detection of shorts. One NCcontact respectively of the connected contactors (or F112) is obewired inseries with the start button into feedback circuit X1-X2 and is used for monitoring contactor function so that **F117** start is feasible only if the contactors are at rest and their NC contacts are closed (see wiring examples 2 and 3).

Wiring Exmples 1 and 2





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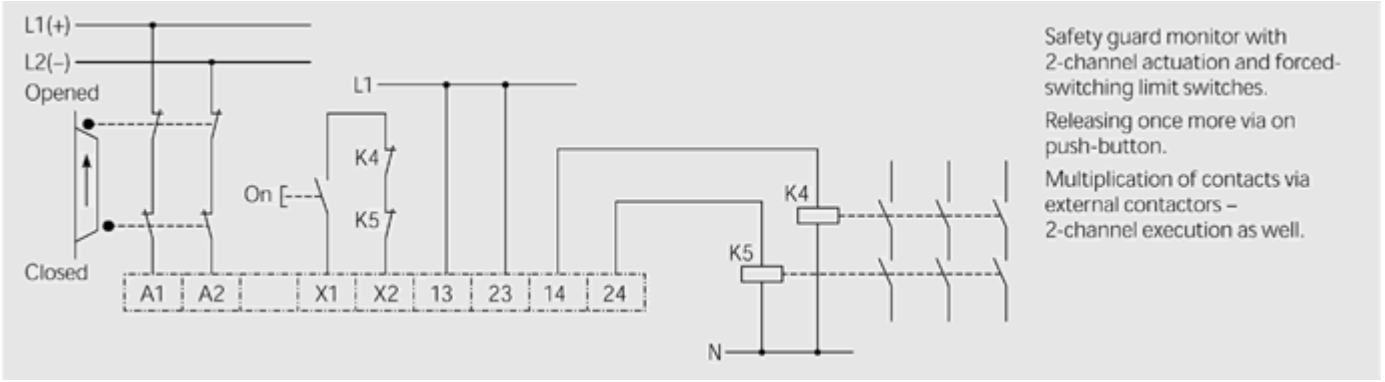
Wiring Example 3



Safety guard monitor with 2-channel actuation and forced-switching limit switches.

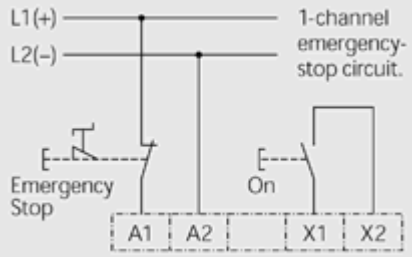
Releasing once more via on push-button.

Multiplication of contacts via external contactors – 2-channel execution as well.

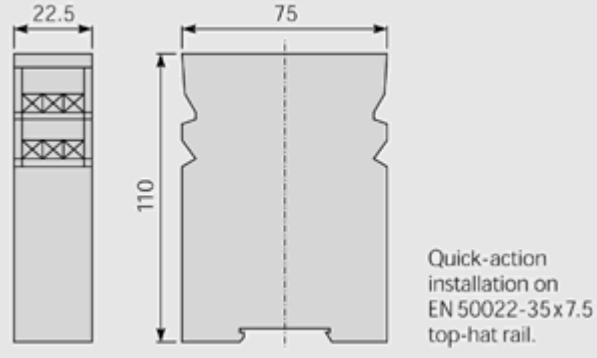
Technical Data

Rated voltage	24 VAC/DC
Voltage range	0.8 to 1.1 x rated voltage
Power consumption	approx. 2 W
Rated insulation voltage	250 V
Surface-leakage paths and air gaps	Overvoltage category III Pollution level 2 to DIN VDE 0110-1 (01/89) and DIN VDE 0110-2 (01/89)
Test voltage	2.5 kV
Ambient temperature	–5 °C to +55 °C
Mode of protection	IP 20 terminals, IP 40 casing to DIN VDE 0470-1 (11/92)
Switching capacity	250 VAC; 3 x 4 A or 2 x 5 A 24 VDC preferably with spark arrest
Utilisation category	AC-15; DC-13
Response time	on: approx. 110 ms off: approx. 30 ms
Output contacts	3 N/O (safety contacts); 1 N/C (auxiliary contact)
Mechanical service life	10^7 switching cycles
Switch material	AgSnO, 0.5 µ Au
Terminal bolts	Terminal box with wire protection
Line cross section	Rigid 4 mm², flexible 2.5 mm², connecting lead to be stripped up to max. 4 mm
Control circuit	Operating voltage
Output contact fuse	4 A slow blow

Wiring Example 4



Dimensional Drawing



Quick-action installation on EN 50022-35 x 7.5 top-hat rail.

Circuit Diagram