

E-Stop Relay and Safety Gate Monitor

Characteristics

- Stop category 0
- Safety category 4
- 3 Safety contacts
- 1 Auxiliary contact
- Crossfault monitoring
- Monitored or automatic reset
- Tested for light curtain applications
- Optional with removable terminals

DIN En60204 Section 1 / VDE0113 Section 1 (11/98) 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 **F127** fulfils this requirement – EN954-1 (3.97) – to the highest safety grade 4.

There are models for manual Start (applicable for autostart-function) or for monitored-start-function available. The **F127** may be used for single- or dual-channel operation with or without crossfault monitoring.

Mode of Operation

The dual-channel operation shown in wiring examples 3 and 5 includes crossfault monitoring between both E-stop circuits. That means in case of shorts between the two E-stop channels the **F127** will de-energise the outputs. This is achieved by an electronic protection circuit in the safety relay. After elimination of the malfunction, the **F127** is ready for operation again.

The versions with monitored start supervise the start circuit and will only



activate the **F127** if contacts via terminals S12 and S34 are closing during start conditions.

Models with autostart function will be activated automatically by the supply voltage, if the E-stop circuits and the feedback loop are closed. A start-push-button may be integrated between the feedback-loop (S12-S34) for manual reset.

In autostart-applications where both circuits are not closed simultaneously, (e.g. safety gates) channel 2 has to be activated before channel 1.

If the inputs of the **F127** are activated with external 24V_{DC}, the negative pole has to be connected to S21 (e.g. Light curtain applications). In those applications power supply on A1-A2 is only necessary to drive the Power-LED.

To control NC contacts from external contactors the feedback-loop should be connected in series between S12 and S34.

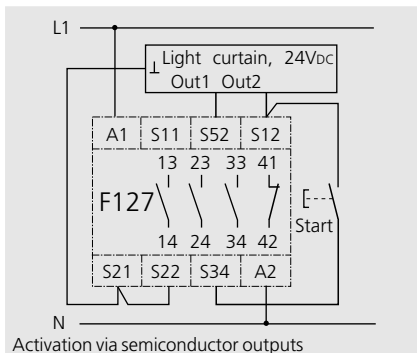
The relay is available with fixed or with removable terminals.

Models and Ordering Data

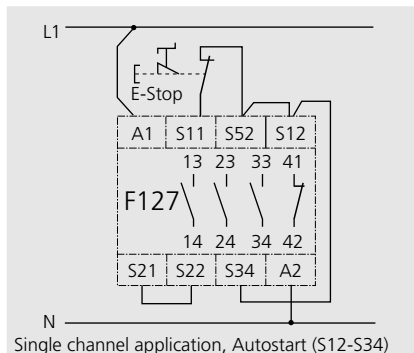
Contacts	3 N/O(safety contacts) 1 N/C(auxiliary contact)
Type F127	Order No.
Automatic or manual start	
230 V _{AC}	074 00074
115 V _{AC}	074 00075
24 V _{AC/DC}	074 00076
Monitored (supervised) start	
230 V _{AC}	074 00077
115 V _{AC}	074 00078
24 V _{AC/DC}	074 00079
Auto- / man. start removable terminals	
230 V _{AC}	074 00080
115 V _{AC}	074 00081
24 V _{AC/DC}	074 00082
Monitored start, removable terminals	
230 V _{AC}	074 00083
115 V _{AC}	074 00084
24 V _{AC/DC}	074 00085



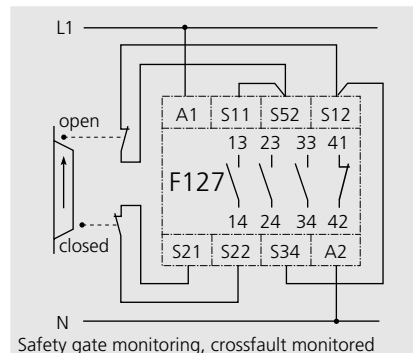
Wiring Example 1



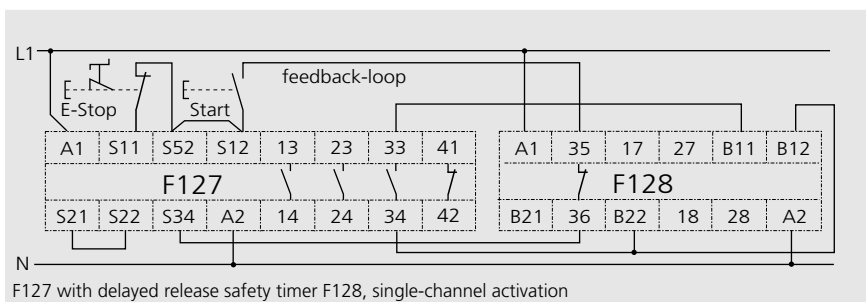
Wiring Example 2



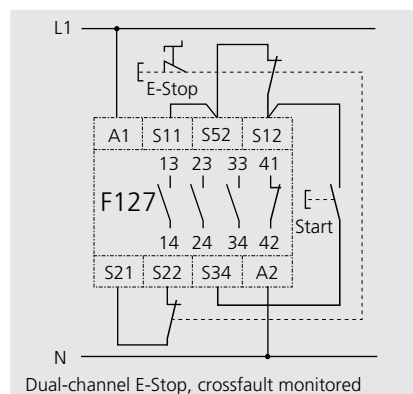
Wiring Example 3



Wiring Example 4



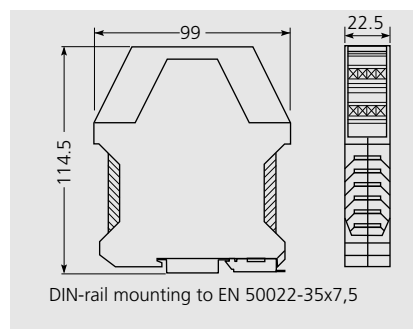
Wiring Example 5



Technical Data

Rated voltage	230 / 115 V _{AC} ; 24 V _{AC/DC}
Voltage range	0.8 to 1.1 x rated voltage
Power consumption	Approx. 2 W
Rated insulation voltage	250 V
Creep distance and gaps	Overvoltage category III Pollution level 2 to DIN VDE 0110-1: (04 / 97)
Test voltage	2.5 kV
Ambient temperature	-5 °C to +5 °C
Mode of protection	Terminals IP 20, IP 40 casing / DIN VDE 0470-1
Switching capacity	250 V _{AC} ; 1250 VA / 24 V _{DC} ; 120 W, preferably with spark arrest
Thermic current I _{th}	115V and 230V models: 3x3 A or 2x4 A 24 V models: 3x4 A or 2x5 A Max. 5 A in one current path
Utilisation categorie	AC-15 250 V 5 A; DC-13 24 V 3 A
Response time	Via reset button : <60 ms; Autostart: <300 ms
Release time at rated voltage	Via E-Stop button : <15 ms; loss of supply: <140 ms
Recovery timet	> 0.1s after E-Stop or light curtain operation > 1s after loss of supply
Output contacts	3 N/O (safety contacts) 1 N/C (auxiliary contact)
Mechanical lifetime	10 ⁷ switching cycles
Switch material	Ag Sn O ₂ 0.5µ Au
Terminals	Terminal box with wire protection
Line cross section	2.5 mm ²
Control circuit	approx. 22 V _{DC}
Contact protection	Screwed-type fuse: max 6 A slow blow Auto circuit breaker: max C10 A
Weight	260 g; Type 24 V _{AC/DC} 210 g

Dimensional Diagram



Circuit Diagram

