

Characteristics

- Stop category 0
- Safety category 4
- 2 Safety contacts
- 1 Semiconductor output with short circuit protection
- Crossfault monitoring
- Monitored or automatic reset
- Tested for light curtain applications (24V)

DIN EN 60204 Section 1 / VDE 0113 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 closing of the contacts.

Emergency-stop relay **F123** fulfils this requirement - EN 954-1 to the highest safety grade 4. The **F123** can be used as a safety guard monitor or as an E-stop relay in single or dual channel applications.

Mode of Operation

The dual channel operation shown in wiring example 1 includes crossfault monitoring between both E-stop circuits. That means in case of shorts between the two E-stop channels the **F123** will de- activate the outputs. This is achieved by an electronic protection circuit in the safety relay. After elimination of the malfunction, the **F123** is ready for operation again. The application with monitored start checks the start circuit (S33/S34) and will only activate the **F123** if there is a leading edge in this circuit. If wired for autostartfunction the **F123** will be activated automatically by the supply voltage if the E-stop circuits and the feedback loop (X5/S33) are closed.



In applications, where both E-stop circuits are not closed simultaneously, (e.g. safety gates) channel 2 has to be activated before channel 1. If the inputs will be activated with external 24V_{DC}, the negative pole has to be connected to A2 (Lightcurtain application). The open collector semiconductor output may transfer the status of the **F123** via the terminals Y31-Y32 direct to a PLC. To control NC contacts from external contactors the feedback loop has to be wired in series between the start button respectively X5 and S33 (Autostart).

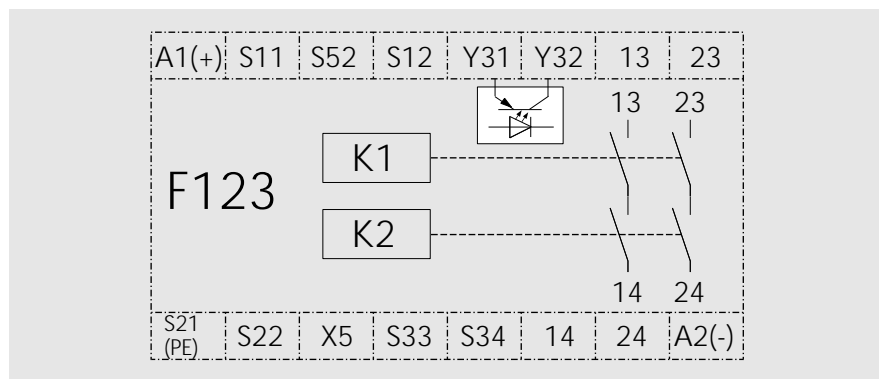
Models and Ordering Data

Contacts	2 N/O Safety contacts 1 Semiconductor output
Type F123	Order No.
230 V _{AC}	074 00037*
115 V _{AC}	074 00038*
42 V _{AC}	074 00039
24 V _{AC/DC} *	074 00040*

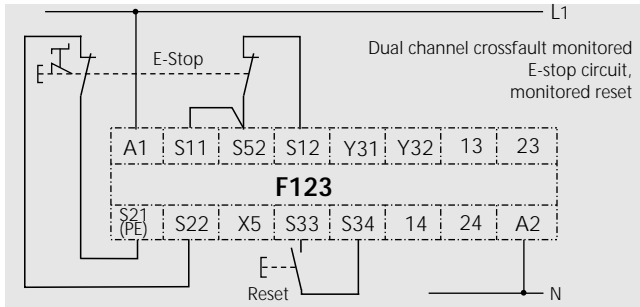
* Do not connect PE to this version
* = Approval for U.S. / Canada



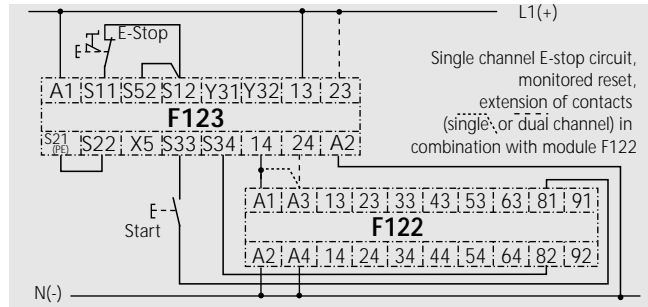
Circuit Diagram



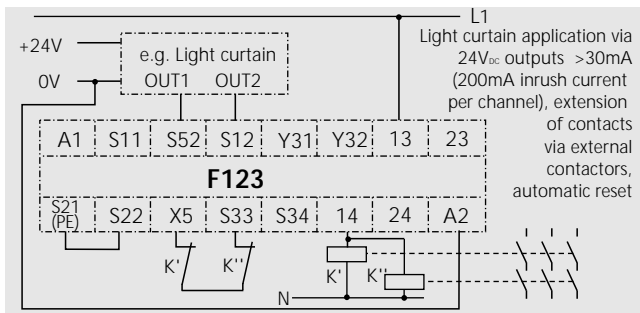
Wiring Example 1



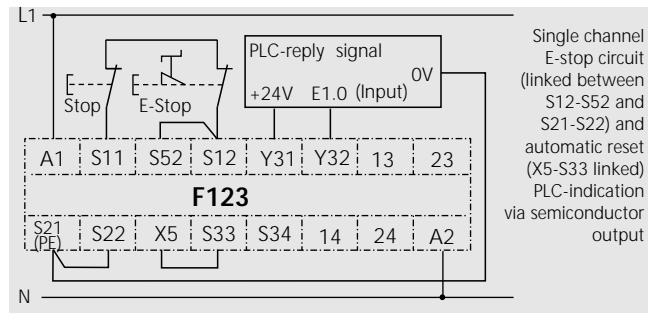
Wiring Example 2



Wiring Example 3

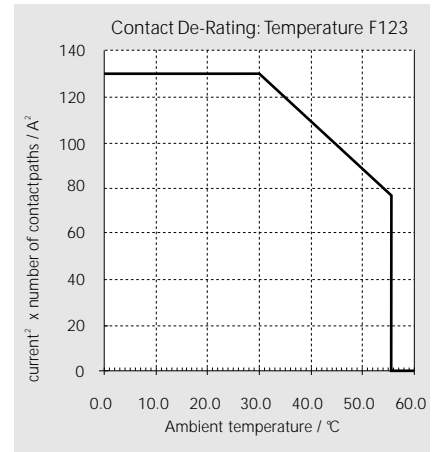


Wiring Example 4



Technical Data

Rated voltage	230 / 115 / 42 V _{AC} ; 24 V _{AC/DC}
Voltage range	0.8 (0.9 at 24V _{DC}) to 1.1 x rated voltage
Power consumption	Approx. 4 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 + 55 °C
Mode of protection	Terminals IP 20, IP 40 casing to DIN VDE 0470-1 (11/92)
Switching capacity	250 V _{AC} ; 1500 VA / 24 V _{DC} ; 144 W preferably with spark arrest
Thermic current I _{th}	According to current summary limit curve (right) (max. 10 A in one current path)
Utilisation categorie	AC-15 250 V 6 A; DC-13 24 V 3 A
Response time	Via reset button: <60 ms; Autostart: <600 ms
Release time	Via E-stop button: <20 ms; loss of supply: <250 ms
Release time at 24V _{DC}	Via E-stop button or light curtain: <15 ms
Recovery time	With monitored reset: > 5s; with autoreset: > 2s
Recovery time at 24V _{DC}	> 0,1s after E-stop or light curtain operation
Output contacts	2 N/O (safety contacts), Semiconductor output
Mechanical lifetime	10 ⁷ switching cycles
Semiconductor output	24V _{DC} / 20mA, PNP, short circuit protection
Switch material	Ag SN O ₂ + 0.5µ Au
Terminals	Terminal box with wire protection
Line cross section	Rigid 4mm ² , flexible 2.5mm ² Connecting lead to be stripped up to max. 4mm
Control circuit	Approx. 24 V _{DC}
Contact protection	Screwed-type fuse max. 6 A slow blow Auto.circuit breaker max C10 A quick break
Weight	350g; Typ 24V _{AC/DC} : 270g



Dimensional Diagram

