

### Characteristics

- Stop Category 0
- Safety Category 4
- 7 N/O safety contacts
- 4 N/C signaling contacts
- 2 solid-state aux. outputs
- 6 diagnostic LEDs
- Cross-fault monitoring
- Monitored or automatic reset
- Suitable for light curtain and safety mat applications
- Removable terminal blocks

**DIN** En60204 Part 1 / VDE0113 Part 1 prescribes that power circuits with a safety function must be specified as per Section 9.4.

The **F142** Safety Relay fulfills these requirements in accordance with EN 954-1 up to the highest Safety Category 4.

The protection function must be activated at least once every 6 months, to confirm its operational condition.

The **F142** can be used in 1- or 2-channel applications, with or without cross-fault monitoring.

It is put into operational state either by closing the external "Start" switch, or automatically on power-up.

The diagnostic LEDs indicate the states of the power supply input, the „Start“ switch, the emergency stop contacts and the output relays.

The solid-state switch output Y35 is activated by the closing of the emergency stop circuit, and the Y32 output by the energization of one or more of the output relays.

### Mode of Operation

Cross-fault protection is implemented with 2-channel control as shown in external circuit examples 1 through 3 (see next page). This means the actuation of a safety mat with 4-wire connection or line termination will result in electronic safety action that turns off the **F142**. All LEDs will turn off while a cross-fault exists, except the „PWR“ LED which blinks during this



time. The **F142** reverts automatically to normal operating mode when the fault is cleared.

In monitored reset mode, the „Reset“ switch is interrogated for a leading edge each time the unit is switched on. A reset is not possible if the „Reset“ switch is closed before the emergency stop contacts are opened, or before the power supply is switched on.

If the unit is in auto-reset mode (terminals X1-X2, X3-X4 and S33-S34 shorted), it turns on automatically as soon as the emergency-stop and feedback circuits are closed.

In auto-reset mode, if the emergency-stop circuits are not closed simultaneously, then the Channel 2 circuit must be closed before the Channel 1 circuit (e.g. safety gate monitoring).

If inputs (external contacts) are interrogated using an external 24 Vdc supply, its negative potential (0 VDC) must be connected to terminal S21 (e.g., in light curtain applications).

The solid-state outputs can be used to coordinate the **F142** with a PLC directly. If a contactor is used with the **F142**, a pair of N/C contacts of the former must be connected to terminals Y1-Y2 (feedback circuit).

The **F142** is reset by closing the feedback circuit.

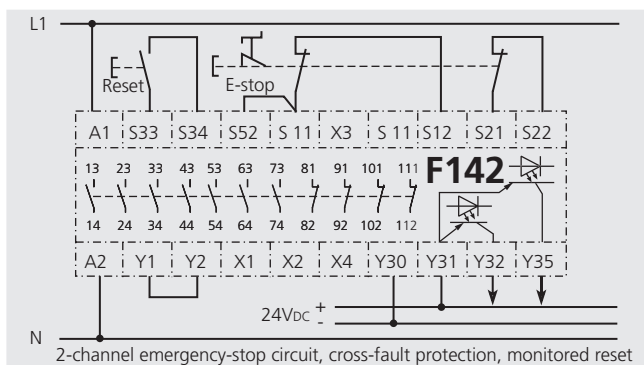
The **F142** has removable screw-terminal blocks for easy installation.

### Models and Ordering Data

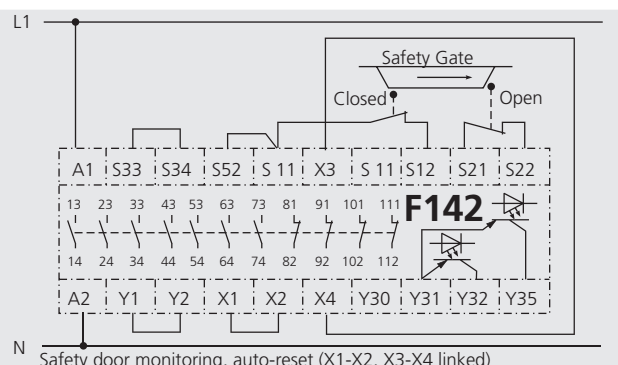
Outputs	7 N/O safety contacts 4 N/C signaling contacts 2 solid-state outputs
Type F142	<b>Order No.</b>
230VAC	074 00303
115VAC	074 00304
24VAC/DC	074 00305



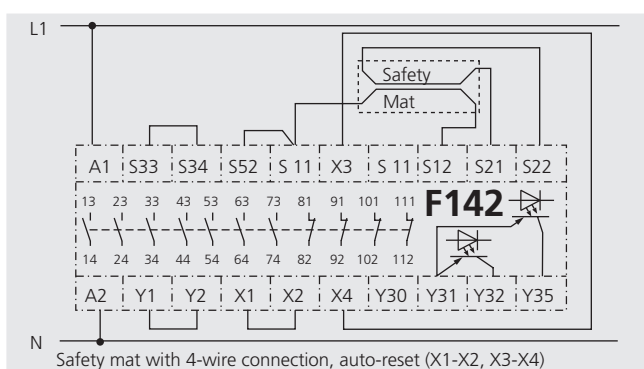
## Wiring Example 1



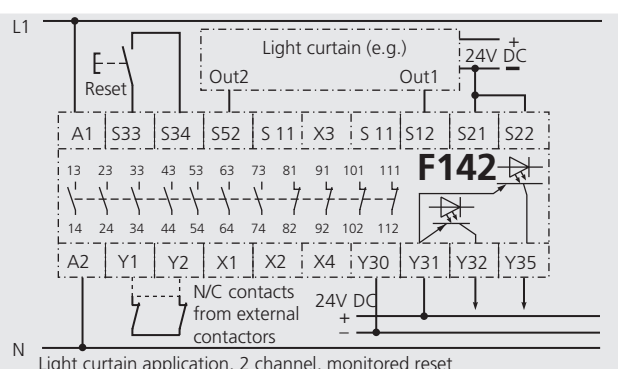
## Wiring Example 2



## Wiring Example 3



## Wiring Example 4

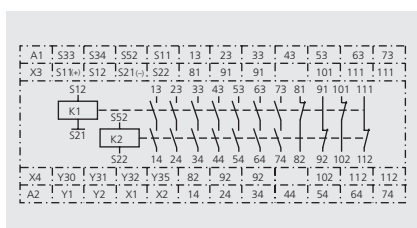


## Technical Data

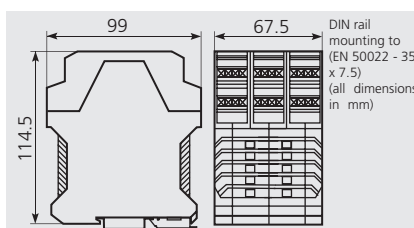
Rated voltage	230 / 115VAC; 24VAC/DC
Voltage range	0.85 to 1.1 x rated voltage
Power consumption	Approx. 4W
Rated insulation voltage	250V*
Creep distance and gaps	Overvoltagecategory III Pollution level 2 DIN VDE 0110-1
Test voltage	2.5kV
Ambient temperature	-5°C to +55°C
Protection DIN VDE 0470- 1	Terminals: IP 20. Housing: IP 40
Switching capacity	250VAC; 1250VA / 24Vdc; 120W, (Arc suppression recommended)
Resistive current load I <sub>th</sub>	7 x 4A max. 6A per current path
Response time	Via reset button: <60ms; Via auto-reset: <300ms
Release time at rated voltage	Via E-stop: <15ms; After power shut-down: <140ms

Utilization category	AC-15 (230V 6A); DC-13 (24V 3A)
Recovery time	>0.1s after emergency-stop or light curtain signal >1s after power-up >3s after monitored reset
Relay outputs	7 N/O safety contacts 4 N/C signaling contacts
Solid-state outputs (signaling)	2 x PNP, max. 30Vdc / 20mA Short-circuit protected
Mechanical lifetime	10 <sup>7</sup> switching cycles
Contact material	AgSnO <sub>2</sub> , 2-micron gold plated
Terminals	Terminal box with wire protection
Conductor material	Copper wire, rated at 60/75°C
Line cross section	2.5mm <sup>2</sup>
Control circuit	Approx. 24 Vdc
Contact protection	Fuse: Max. 6A, slow-blow Circuit breaker: Max. C10A
Weight	610g; 24VAC/DC type 470g

## Terminal Diagram



## Dimensional Diagram



\* External cable must be compatible with the rated isolation voltage.

