

Single-Function Safety Relays

MSR127RTP



Description

The MSR127RTP can be connected in three different input wiring configurations: one normally closed, two normally closed, or with two PNP connections from a light curtain. When connected in the two normally closed fashion, the MSR127RTP checks for cross faults across the two inputs. When connected to light curtains, the light curtain must perform the cross fault detection.

The MSR127RP has a monitored manual reset. The MSR127TP has an automatic/manual reset. Models with automatic/manual reset can have the reset jumpered or can be converted to an unmonitored manual reset by adding a normally open switch in the monitoring loop. Models with monitored manual reset provide checking of the output monitoring circuit.

The outputs include three normally open safety-rated outputs as well as one normally closed auxiliary output. The safety outputs have independent and redundant internal contacts to support the safety function. The auxiliary output is a nonsafety output intended to provide an external signal about the status of the safety outputs.

Features

- Category 4 per EN 954-1
- Stop category 0
- Three safety contacts
- One auxiliary contact
- Cross fault monitoring
- Monitored or automatic reset
- Removable terminals
- Light curtain, E-stop or safety gate applications

LED Indicators

| | |
|-------|------------|
| Green | Power On |
| Green | CH1 Closed |
| Green | CH2 Closed |

Specifications

| Safety Ratings | |
|--|---|
| Standards | EN 954-1, ISO 13849-1, IEC/EN 60204-1, IEC 60947-4-1, IEC 60947-5-1, ANSI B11.19, AS4024.1 |
| Safety Classification | Cat. 4 per EN 954-1 (ISO 13849-1), SIL CL3 per EN IEC 62061, PLe per ISO 13849-1 |
| Functional Safety Data * | PFH _D : < 1.45 x 10 ⁻⁹ MTTF _d : > 398 years Suitable for performance levels PLe (according to ISO 13849-1:2006) and for use in SIL3 systems (according to IEC 62061) depending on the architecture and application characteristics |
| Certifications | CE Marked for all applicable directives, cULus and BG |
| Power Supply | |
| Input Power Entry | 24V AC/DC, 115V AC or 230V AC 50/60 Hz |
| Power Consumption | 2 W |
| Inputs | |
| Safety Inputs | 1 N.C. or 2 N.C. or LC |
| Input Simultaneity | Infinite (ch2 before ch1) with Auto Reset |
| Input Resistance, Max. | 110 Ω |
| Reset | Auto./Manual or Monitored Manual |
| Power On Delay/Recovery Time | 1 second/100 ms |
| Response Time | 15 ms |
| Outputs | |
| Safety Contacts | 3 N.O. |
| Auxiliary Contacts | 1 N.C. |
| Thermal Current I _{th} | Units with 24V AC/DC supply: 3 x 4 A or 2 x 5 A nonswitching Units with 115/230V AC supplies: 3 x 3 A or 2 x 4 A or 1 x 5 A nonswitching |
| Rated Impulse withstand Voltage | 2500V |
| Switching Current @ Voltage, Min. | 10 mA/10V |
| Fuses, Output | External 6 A slow blow or 10 A fast acting |
| Electrical Life (Operations) | (With surge suppression) 250V AC/6 A/1500VA cosφ = 1...0.1 M 250V AC/2.5 A/625VA cosφ = 1...0.5 M 250V AC/1.5 A/375VA cosφ = 0.35...0.3 M 250V AC/5 A/1250VA cosφ = 0.6...0.1 M 24V DC/2 A/48 W = 1 M 10V DC/0.01 A/0.1 W = 2 M |
| Mechanical Life | 2,000,000 operations |
| Utilization Category | UL: B300, R300 5 A/250V AC, 24V DC |
| Resistive: AC-1 | 5 A/250V AC |
| Resistive: DC-1 | 5 A/24V DC |
| Inductive: AC-15 | 5 A/250V AC |
| Inductive: DC-13 | 3 A/24V DC |
| | 5 A/24V DC @ 6 ops/min |
| Environmental and Physical Characteristics | |
| Enclosure Type Rating/Terminal Protection | IP40 (NEMA 1)/IP20 |
| Operating Temperature [C (F)] | -5...+55 ° (23...131 °) |
| Vibration | 10...55 Hz, 0.35 mm |
| Shock | 10 g, 16 ms 100 shocks |
| Mounting | 35 mm DIN Rail |
| Weight [g (lbs)] | 24V DC: 210 (0.46), 115/230V AC: 260 (0.57) |
| Conductor Size, Max. | 0.2...4 mm ² (24...12 AWG) |

* Usable for ISO 13849-1:2006 and IEC 62061. Data is based on the following assumptions:
 - Mission time/Proof test interval of 20 years
 - Functional test at least once within six-month period

Product Selection

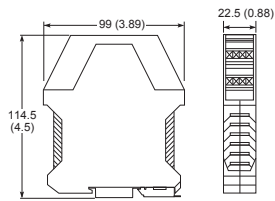
| Inputs | Safety Outputs | Auxiliary Outputs | Terminals | Reset Type | Power Supply | Cat. No. |
|-------------------------------|----------------|--------------------|--------------------------|------------------|--------------|---------------------|
| 1 N.C., 2 N.C., Light Curtain | 3 N.O. | 1 N.C. | Fixed | Auto./Manual | 24V AC/DC | 440R-N23126 |
| | | | | Monitored Manual | | 440R-N23129 |
| | | | | Auto./Manual | 115V AC | 440R-N23125 |
| | | | | Monitored Manual | | 440R-N23128 |
| | | | | Auto./Manual | 230V AC | 440R-N23124 |
| | | | | Monitored Manual | | 440R-N23127 |
| | | | Removable (Screw) | Auto./Manual | 24V AC/DC | 440R-N23132 |
| | | | | Monitored Manual | | 440R-N23135 |
| | | | Removable (Spring Clamp) | Auto./Manual | 24V AC/DC | 440R-N23132S |
| | | | | Monitored Manual | | 440R-N23135S |
| | | | Removable (Screw) | Auto./Manual | 115V AC | 440R-N23131 |
| | | | | Monitored Manual | | 440R-N23134 |
| Auto./Manual | 230V AC | 440R-N23130 | | | | |
| Monitored Manual | | 440R-N23133 | | | | |

Accessories

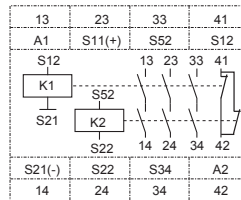
| Description | Cat. No. |
|--|--------------------|
| 4 Replacement 4-pin Terminals (screw) | 440R-A23209 |
| 4 Replacement 4-pin Terminals (spring clamp) | 440R-A23228 |

Approximate Dimensions

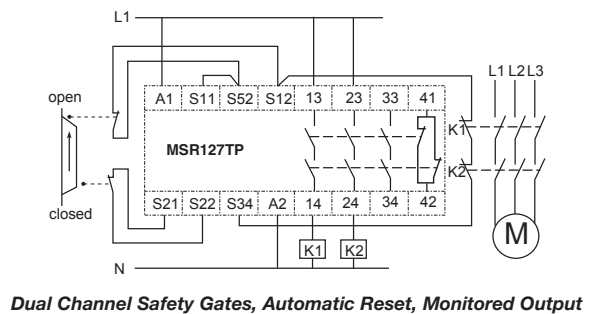
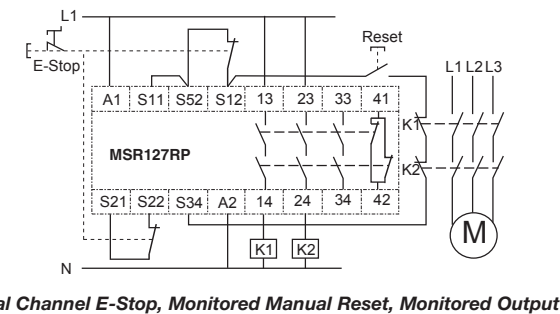
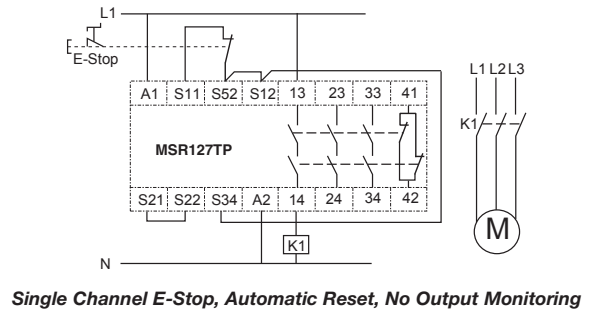
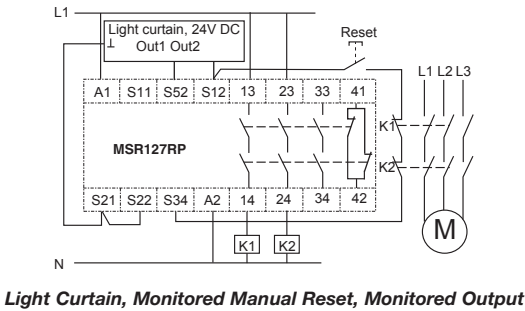
Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.



Block Diagram



Typical Wiring Diagrams



5-Safety Relays