

Safety relay RT9



Approvals:



Safety relay for:

- Emergency stops
- Light curtains
- Three position devices
- Interlocked gates/hatches
- Magnetic switches
- Light beams
- Safety mats
- Contact strips
- Foot operated switches

Features:

- Five input options
- Single or dual channel input
- Manual supervised or automatic reset
- Test input for supervision of external contactors
- Width 22.5 mm
- LED indication of supply, inputs and outputs, short-circuit and low voltage level
- 2 NO relay outputs
- One changeover relay with a double information output
- Supply 24 VDC
- Quick release connector blocks

Would you like a small safety relay for all your safety applications?

Then choose the compact RT9 universal relay to supervise both your safety devices and the internal safety of your machinery. In addition, you can select the safety level that is required for each installation. All this is possible due to the RT9 offering the most versatile input option arrangement available on the market. The RT9 can therefore replace many other relays.

Other RT9 options include selection of either manual supervised or automatic resetting. The manual supervised reset can be used for gates and other safety devices that can be bypassed. Automatic reset can be used for small safety hatches, if deemed acceptable from risk assessment.

In addition, the RT9 has a double information output that will indicate e.g if a gate is open or if the relay needs resetting.

The RT9 uses the latest component technology and modern assembly techniques to ensure a highly cost effective solution.

Choose the RT9 to simplify your safety circuits and reduce your costs.

RT9

Technical information

Inputs

The RT9 can be configured to operate in either of the following input options:

1. Single channel, 1 NO contact from +24 VDC, category 1, up to PL c
2. Dual channel, 2 NO contacts from +24 VDC, category 3, up to PL d
3. Dual channel, 1 NO, 1 NC contact from +24 VDC, category 4, up to PL e
4. Dual channel, 1 NO contact from 0V and 1 NO contact from +24 VDC, category 4, up to PL e
5. Safety mat/contact strips, 1 'contact' from 0V and 1 'contact' +24 VDC, category 3, up to PL d

When the input/inputs are activated and the test/supervised reset is complete, relays 1 and 2 are energised. These are de-energised when the input/inputs are de-activated in accordance with the input option chosen or in case of a power failure.

Relays 1 and 2 must both be de-energized before the RT9 can be reset.

Relay output status information

The RT9 has a changeover contact relay output that can be connected to a PLC, control lamp, computer or similar. The output gives information about the status of the relay.

Reset and testing

The RT9 has two reset options; manual and automatic. The manual supervised reset can be used when the RT9 is monitoring safety devices that can be bypassed, i.e. to ensure that the outputs of the safety relay do not close just because a gate is closed. The automatic reset option should only be used if appropriate from a risk point of view.

Due to special internal circuits the RT9 can be automatically reset regardless of the operational voltage rise time, this being an important factor when large loads are started up on the same power supplies at the same time.

In addition, the RT9 can also test (supervise), if for example, contactors and valves etc are de-energised/de-activated before a restart is made.

Indication of low voltage

The 'On' LED will flash if the relay supply voltage falls below an acceptable level. This indication will also be given if a monitored safety mat/contact strip is actuated. Please see Connection option 5.

Safety level

The RT9 has internal dual and supervised safety functions. Power failure, an internal faulty component or external interference will not present a risk to options with the highest safety level. A manual reset requires that the reset input is closed and opened before the safety relay outputs are activated. A short-circuit or a faulty reset button is consequently supervised.

When the RT9 is configured for dual channel input, both the inputs are supervised for correct operation before the unit can be reset.

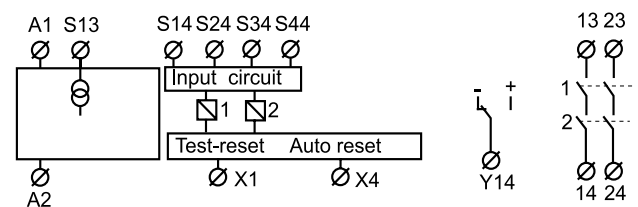
The input options 3 and 4 have the highest safety levels as all short-circuits and power failures are supervised. This in combination with an internal current limitation makes the relay ideal for supervision of safety mats and contact strips.

Regulations and standards

The RT9 is designed and approved in accordance with appropriate directives and standards. See technical data.

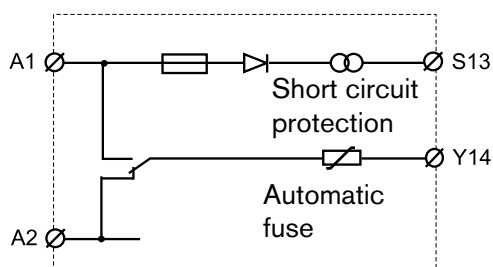
Connection examples

For examples of how our safety relays can solve various safety problems, please see the section "Connection examples".



Connection of supply - RT9

DC supply



The RT9 should be supplied with +24 V on A1 and 0 V on A2.

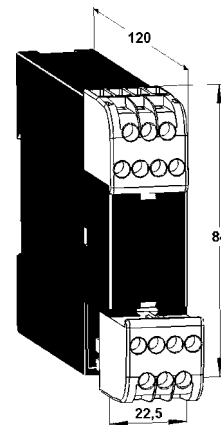
NOTE! If cable shielding is used this must be connected to an earth rail or an equivalent earth point.

Technical data – RT9

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| Article number RT9 24 VDC | 2TLA010029R0000 |
| Colour | Grey |
| Weight | 210 g |
| Supply Voltage (A1-A2) | 24 VDC ±20% |
| Power consumption Nominal voltage | 2 W |
| Connection S13 | Short-circuit protected voltage output 70 mA ± 10% current limitation. Is used for the inputs S14, S34 and S44. |
| Input currents (at nominal supply voltage) | |
| S14 (+) input | 30 mA |
| S24 (0V) input | 20 mA |
| S34 (+) input | 20 mA |
| S44 (+) input | 25 mA |
| Reset input X1 Supply for reset input Reset current | + 24 VDC 300 mA current pulse at contact closure, then 30 mA |
| Minimum contact closure time for reset | 80 ms |
| Minimum contact closure time (at low limit voltage -20%) | 100 ms |
| Maximum external connection cable resistance at a nominal voltage for | |
| S14, S24, S34 | 300 Ohm |
| S44, X1 | 150 Ohm |
| Response time At Power on When activating (input-output) When deactivating (input-output) At Power Loss | <100 ms <20 ms <20 ms <80 ms |
| Relay outputs NO Maximum switching capacity | 2 |
| Resistive load AC Inductive load AC Resistive load DC Inductive load DC Max. total switching capacity: Minimum load | 6A/250 VAC/1500 VA AC15 240 VAC 2A 6A/24 VDC/150 W DC13 24 VDC 1A 8A distributed on all contacts 10 mA/10V (if load on contact has not exceeded 100 mA) |
| Contact material | Ag+Au flash |
| Fuses output (External) | 5A gL/gG |
| Conditional short-circuit current (1 kA) | 6A gG |
| Mechanical life | 10 ⁷ operations |
| Relay information output Y14 (Changeover contacts) -(0V) +(24V) Maximum load of Y14 Short-circuit protection for information output | Indicates that RT9 is not reset. Indicates that RT9 is reset. 250 mA Internal automatic fuse |

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|--|---|
| LED indication On ● In1 ● In2 ● ☑ ● 1 ☑ ● 2 | Supply voltage OK, the LED is on. Flashing light in case of under-voltage, overload or current limiting Indicates that the input conditions are fulfilled. Indicates that the output relays have been activated. |
| Mounting Rail | 35 mm DIN rail |
| Connection blocks (detachable) Maximum screw torque Maximum connection area: Solid conductors Conductor with socket contact | 1 Nm 1x4 mm ² / 2x1.5 mm ² / 12AWG 1x2.5 mm ² / 2x1 mm ² |
| Protection class Enclosure Connection blocks | IP40 IEC 60529 IP20 IEC 60529 |
| Operating temperature range | -10°C to + 55°C (with no icing or condensation) |
| Operating humidity range | 35% to 85% |
| Impulse withstand Voltage | 2.5kV |
| Pollution degree | 2 |
| Performance (max.) The relays must be cycled at least once a year. | PL e/Cat. 4 (EN ISO 13849-1:2008) SIL 3 (EN 62061:2005)PFH _d 9.55E-09 |
| Conformity | 2006/42/EC, 2006/95/EC, 2004/108/EC EN 62061:2005 EN ISO 13849-1:2008 |

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Connector blocks are detachable
(without cables having to be disconnected)