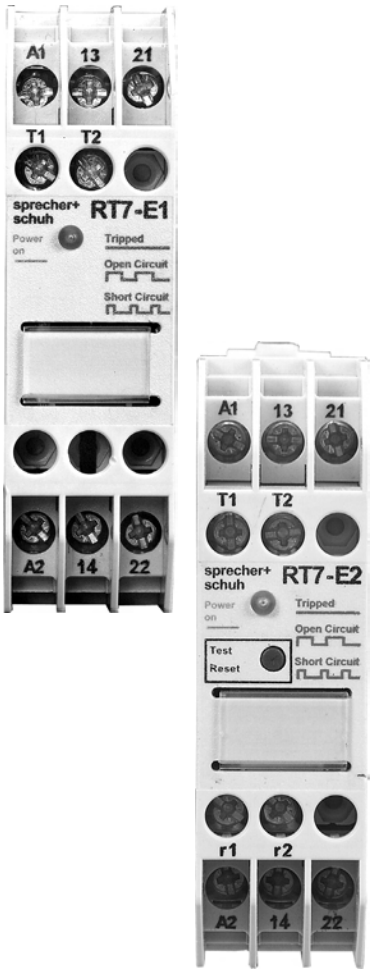
RT7 Thermistor Protection Relays



Investment Protection

Electric motors are significant investments, and losing them to overheating just isn't an option. Sprecher + Schuh's RT7-E1 and RT7-E2 Thermistor Protection Relays are designed to keep that from happening. The RT7 is not a replacement for an overload relay. Instead, it is additional protection from damaging heat build-up in the motor.

If you have thermistors…

Installed in many of today's electric motors, thermistors sense heat levels produced in the stator windings. If thermal levels exceed safe standards, thermistors send that information to the relay, which trips and switches off the motor. The RT7-E1 and RT7-E2 display a red LED to indicate a fault. The RT7-E1 and RT7-E2 also trip because of a short or open in the sensor measuring circuit. Each relay displays an open circuit alert with a 2 Hz red LED and a short circuit warning with a blinking red LED. The RT7-E2 stores a motor's switching status in memory during power failures – a critical safeguard.

When exact motor temperature sensing is critical

Compatibility and Convenience

These relays and their microprocessor technology provide very accurate and repeated protection. Neither requires adjustment, and their broad supply voltage rating (24…240V AC/DC) makes them ideal for a wide variety of applications. Up to six PTC thermistors can be connected in series.

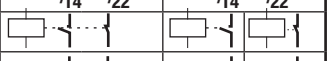
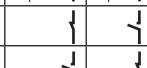
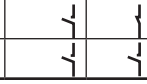
Automatic Reset

The RT7-E1 and RT7-E2 automatically reset if the sensor measuring circuit's resistance drops below the reset value. To keep a motor from restarting after automatic reset, provide three-wire momentary control. The RT7-E2 also has a manual reset button, as well as a terminals for remote reset.

Feature comparison

Model	RT7-E1	RT7-E2
Thermal overload protection	●	●
Short-circuit/open-circuit protection in the sensor measuring circuit	●	●
Trip indication (red LED)	●	●
Automatic reset	●	●
Manual reset		
Remote reset (external button)		●
Storage of switching status in memory		●
Test button		●
Power-on indication (green LED)	●	●

Relay Configuration

	RT7-E1	RT7-E2
	13/14 21/22	13/14 21/22
		
Normal		
Tripped		
Power off		

RT7 Pricing

RT7 Series	Price
RT7-E1	105
RT7-E2	147

Power/Trip Identification

Indication	LED	Resistance
Power On	Green	
Trip Overtemp	Red	3600 ohms
Trip Open Sensor Circuit	Red 2 Hz	>18000 ohms
Trip Shorted Sensor Circuit	Red Flashing	<20 ohms

Technical Information (Electrical)

Supply	
Rated Supply Voltage (Us)	24…240V AC/DC
Operating Range	AC: 0.8…1.1 Us DC: 0.9…1.1 Us
Maximum Power Consumption	1.5 VA
Output Relay	
Type of Contacts	Type E1: (2) Form A, one relay Type E2: (2) Form A, independent relays
Rated Thermal Current	5 A @ 250V AC 4 A @ 24V DC
Rated Insulation Voltage	250V AC
Rated Operating Voltage	250V AC
Utilization Category	AC15/DC13

Technical Information (Mechanical)

Environmental	
Ambient Temperature	-40˚C…+80˚C; (storage) -25˚C…+60˚C; (operating)
Humidity	5…95% noncondensing
Maximum Altitude	2000 m
Pollution Environment	Pollution Degree 2
Degree of Protection	IP 20
PTC Sensor Circuit	
Type of Control Unit	Mark A
PTC Sensor Characteristic	IEC 34-11-2
Max. Number of Sensors	6
Max. Cold Resistance of Sensor Chain	1500 ohm
Trip Resistance	3600 ohm (± 300 ohm):
Reset Resistance	1580 ohm (± 60 ohm):
Short Circuit Trip Resistance	<20 ohm (-5 ohm, +0 ohm):
Short Circuit Reset Resistance	24 ohm (-0 ohm, +6 ohm)
Open Circuit Trip Resistance	>18000 ohm:
Terminal Cross-Sections	
Terminal Screwdriver Blade	M3
Conductor Size	0.5…2.5 mm2 20…12 AWG
Measuring Line	
Minimum Cross Section (mm^2)	0.5 0.75 1 1.5
Maximum Length (m)	200 300 400 600 200…600m: twisted pair, shielded shield connection at T1
Remote Reset	
Maximum Line Length	200…600m: twisted pair, shielded shield connection at r1

RT7

Dimensions mm (inches)