Thermistor Motor Protection Relays
CM-MSE 1 n/o Contact
Relay Output



- Automatic reset
- Connection of several sensors in series
- Monitoring of bimetals
- 1 SPST n.o. contact
- Excellent cost to performance ratio
- 24…240 V AC in 3 ranges

Approvals: c UL us LISTED

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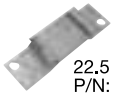
Accessories



Panel Mounting Adapter
22.5 mm
P/N: 1SVR 430 029 R 0100

Temperature Sensor



See accessory pages for specifications.

Operating principle and applications for thermistor motor protection relays

The CM range of thermistor motor protection relays are used to monitor motors equipped with PTC temperature sensors. The PTC temperature sensors are incorporated in the motor windings to measure the motor heating. This enables direct control and evaluation of the following operating conditions:

- heavy duty starting
- rapid cycling
- single-phase operation (phase loss)
- high ambient temperature
- insufficient cooling
- break operation
- unbalanced voltages

The relay is independent of the rated motor current, the insulation class and the method of starting. The PTC sensors are connected in series to the terminals T1 and T2. The number of possible PTC sensors per measuring circuit is limited by the sum of the individual PTC sensor resistances.

$RG = R1 + R2 + RN \leq 1.5\ k\Omega$.

Under normal operating conditions the resistance is below the trip point. If one of the PTC resistors heats up excessively, the output relay de-energizes.

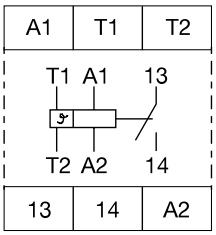
The output relay re-energizes automatically after the PTC cools.

Further applications:

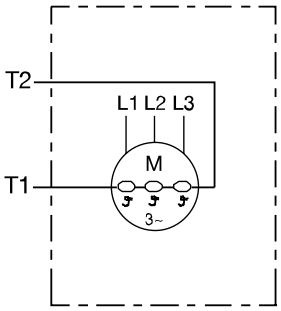
Temperature monitoring of equipment with PTC sensors integrated, such as

- machine rolling bearings
- hot-air ventilators
- oil
- air
- heating installations

Connection



A1-A2	Supply voltage
T1-T2	Sensor circuit
13/14	Output contact



Ordering Table

Supply voltage	Part Number
24 V AC	**1SVR 550 805 R 9300**
110…130 V AC	**1SVR 550 800 R 9300**
220…240 V AC	**1SVR 550 801 R 9300**

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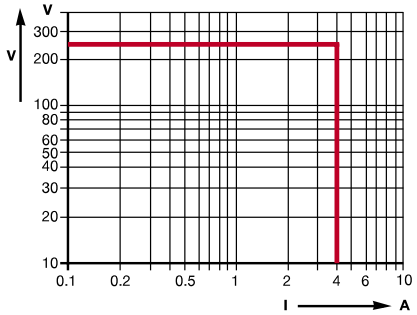
Technical Data

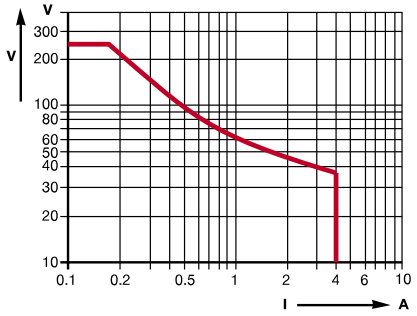
Input		
Supply voltage - Power consumption	A1-A2	24 V AC - ≅ 1.5 VA
	A1-A2	110…30 V AC - ≅ 1.5 VA
	A1-A2	220...240 V AC - ≅ 1.5 VA
Supply voltage tolerance		-15 % ... +10 %
Supply voltage frequency		50...60 Hz
Measuring Circuit		
Measuring input	T1-T2	
Total PTC resistance		≤1.5 kΩ
Response value (relay de-energizes)		2.7...3.7 kΩ
Reset value (relay energizes)		1.7...2.3 kΩ
Voltage at T1-T2, sensor not connected		≅ 20 V DC
Voltage at T1-T2, at 4000 W		< 7.5 V DC
Current between T1-T2 at 0 W		≤ 2 mA
Max. cable length		≤2 x 400 m at 14 AWG (2.5 mm²)
		≤2 x 100 m at 18 AWG (.75 mm²)
Output	13/14	Relay, 1 N/O contact
Rated voltage	VDE 0100, IEC947-1	250 V
Max. switching voltage max.		250 V AC
Rated operational current	AC 12 (resistive)	4 A (at 230 V)
	AC 15 (inductive)	3 A (at 230 V)
	DC 12 (resistive)	4 A (at 24 V)
	DC 13 (inductive)	2 A (at 24 V)
Mechanical life (max.)		30 x 10^6 operations
Electrical life (max.)	(to AC 12 / 230 V / 4 A)	1 x 10^5 operations
Short circuit protection, max. fuse rating		10 A / fast acting
General Data		
Rated impulse withstand voltage V_{imp}		4 kV
Operating temperature range		-20°C ... +60°C
Storage temperature range		-40°C ... +80°C
Mounting on DIN-rail (EN 50022)		Snap-on mounting/screw mounting using an adapter
Terminal capacity		2 x 16 AWG (2 x 1.5 mm²)
Weight		≅ 0.24 lb (110 g)

Load Limit Curves

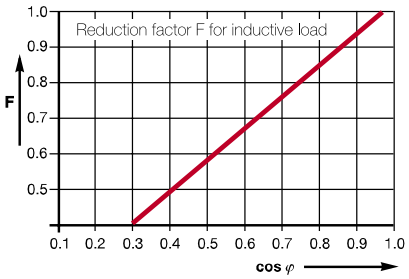
AC Load (Resistive)



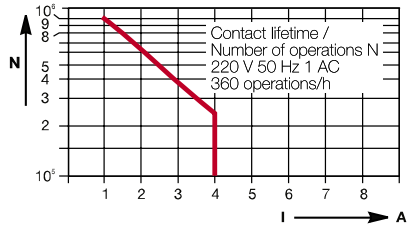
DC Load (Resistive)



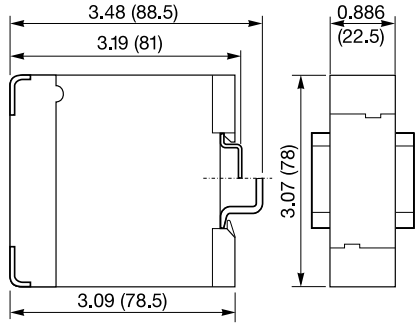
Reduction Factor for Inductive AC Load



Contact Lifetime



Mechanical View



Inches (Millimeters)

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