PTC-Resistor Relay Type MSR220K

Single PTC-Circuit

MSR220K



Part number:

2 CO
T228111 AC/DC 24-240V

Replaces the following items:

MS220K

T221741	AC/DC 24V 1CO
T221743	AC 110-120V 1CO
T221749	AC/DC 24-240 V
T221761	AC/DC 24V 2CO
T221765	AC 220-240V, 2CO

MSR220K

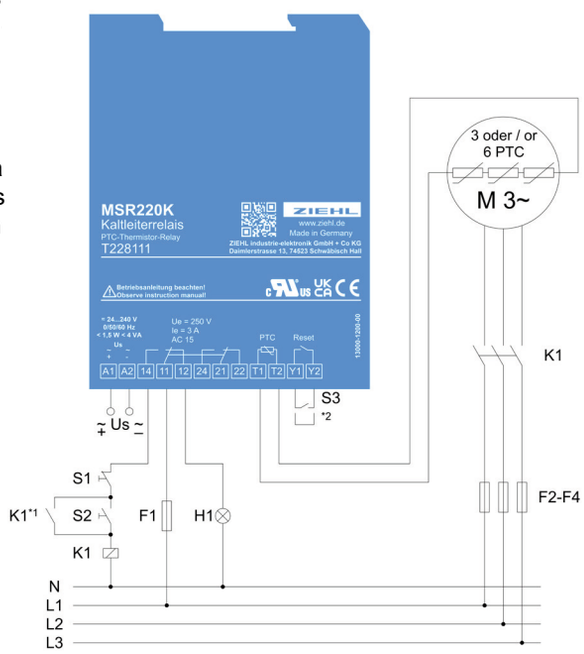
T221771	AC/DC 24V 2CO
T221775	AC 220-240V 2CO

The MSR220K is a specialized device for monitoring and protecting equipment such as power transformers and drive motors. It is a protective relay that responds to the increase in resistance of cold conductors (PTC resistors) and is specifically designed to prevent overheating.

Example of use:
In industrial processes, the MSR220K is commonly used as part of a motor protection system. Cold conductors are temperature-dependent resistors that change their resistance value drastically when a certain temperature is reached. The relay monitors these resistors and triggers when a defined threshold is exceeded, shutting down the motor to protect it from overheating. This is particularly important in applications where motors operate under heavy load, and the risk of overheating is high.
Due to its ability to automatically shut down the motor and require a manual reset, the MSR220K offers an effective protection mechanism that minimizes downtime and prevents costly repairs.

Features:

- Versatile power supply:
  Flexibility in integration into various systems with control voltage AC/DC 24-240V
- Connection options:
  Supports the connection of 1 to 6 cold conductors or bimetallic contacts (normally open, Klixon) to ensure temperature monitoring.
- Electronic restart lockout (can be disabled):
  Prevents automatic restarting after a trip until a manual or external reset is performed. Automatic reset when voltage returns.
- LED operational display on reset button
- Compact design



Technical data

Rated supply voltage U_S	**AC/DC 24 - 240 V 0/50/60 Hz**
Tolerance (voltage)	AC/DC 20,4 ... 297 V
Tolerance (frequency)	0/410 ... 70 Hz
Power consumption	< 1,5 W / < 4 VA

PTC-resistor connection:	**PTC-sensor according to DIN 44081/82**
Number	set with 1 ... 6 PTC´s in series
Cut-out-point	3,3 kΩ…3,65 kΩ…3,85 kΩ
Reclosing point	1,7 kΩ…1,8 kΩ …1,95 kΩ
response tolerance of system	±6 °C
Collective resistance cold sensors	≤ 1,65 kΩ
Terminal voltage (sensors)	≤ 2,5 V at R ≤ 3,65 kΩ, ≤ 9 V at R = ∞
Terminal current (sensors)	≤ 1 mA
Power consumption	≤ 2 mW

Reset input (Y1, Y2)	Potential free contact (no)
Current	1 mA
Voltage	< 30 VDC

Prüfbedingungen	IEC / EN 60947-8
Rated impulse voltage	4000 V
Overvoltage category	III
Contamination level	2
Rated insulation voltage Ui	320 V
Transformer	EN 61558-2-6 (VDE 0551)
On-period	100 %
Rated ambient temperature range	- 20 °C ... + 55 °C EN 60068-2 Dry Heat
EMC - Immunity	EN 61000-6-2
EMV - Emission	EN 61000-6-3
Vibration resistance EN 60068-2-6	2…25 Hz ±1,6 mm, 25 ... 150 Hz 5g

Relay output	EN 60947 / IEC- 947-5
Contacts	2x 1 change-over contact (co)
Switching voltage	max. AC 300 V; DC 300 V
Switch-on current (NO)	AC 15 A 4s 10% ED
min. voltage / current	12 V 10 mA
conventional thermal current Ith	max. 5 A
Switching power max. AC cos φ = 1	1500 VA 300 V * 5 A
Switching power max. DC (ohm)	0.3 A 300 V; 0.4 A 120 V; 0.8 A 60 V; 8 A 30 V
Contact life electrical	cos φ = 1 -> 5 x 105 operating cycles 250 V / 2 A
Contact life mechanical	3 x 107 operating cycles
Recommended fuse (NO)	4 A time-lag or miniature circuit-breaker MCB B4
Recommended fuse (NC)	3,15 A time-lag
Utilization category Rated operational current	AC-15 Ie = 3 A Ue = 250 V
Rated operational current	DC-13 Ie = 2 A Ue = 24 V
Rated operational voltage	DC-13 Ie = 0.4 A Ue = 120 V; DC-13 Ie = 0.2 A Ue = 240 V
UL electrical ratings	250 Vac, 3 A, general use C300

Reliability – failure rate	EN 61709 / SN29500		
Ambient conditions	Local operation in dry rooms		
Operation time 24/7/365	8760 h/y		
Failure rate (FIT)	Tu = 40 °C	Tu = 60°C	Tu = 80°C
Tu = Tref (component not in operation)	431 FIT	865 FIT	1901 FIT
	100 (264) years	100 (133) years	60 years

Contact termination	Push-In spring-type terminal
Protection class terminals	IP20
Actuation type	Push-Button
Number of levels	1
Solid conductor	1 x 0,14 mm2 … 1,5 mm2 / AWG 28 … 16
Fine-stranded conductor	1 x 0,14 mm2 … 1,5 mm2 / AWG 26 … 14
Fine-stranded with insulated ferrule	1 x 0,25 mm2 … 0,75 mm2
Fine-stranded with uninsulated ferrule	1 x 0,25 mm2 … 1,5 mm2
Strip length	8 … 9 mm / 0.31 … 0.35 inches

Housing	Type K
Dimensions (B x H x T)	22,5 x 75 x 115 mm
Width	1 M
Protection class housing	IP40
IK-Code	IK06 (1 J impact energy)
Mounting	Snap mounting on 35 mm standard rail EN60715 or M4 screws (additional bar not included)
Mounting position	any
Weight	app. 95 g

Subject to technical changes