Product information

Thermal machine protection

Thermal motor protection relay

Type: TMS-Basic

TMS-Basic

Pt100, Pt1000, KTY84-130 sensors as well as PTC can be preset by a qualified person.

The reset conditions can be adjusted to manual or automatic mode.

10 switching temperatures can be adjusted on the front panel.

- Basic Information

The motor protection relay TMS-Basic monitors the temperature of motor windings. The TMS-Basic can handle the typical sensors used and prevents the protected device from overheating.

- Application

- Overload start condition
- Frequent starts
- Blocked rotor of the motor
- Dropout of a phase
- Heating and ventilation systems
- operation with different inverters
- transformer protection
- Temperature monitoring of high power semiconductors
- high temperatures up to +200°C

- Function

The relay measures the resistance of a sensor and calculates the corresponding temperature. It is able co handle Pt100, Pt1000, KTY84-130 and PTC sensors. In normal working condition the relay is actuated. When the detected temperature exceeds the preset temperature the relay opens the contact. A SPDT relay is used so a normally closed and a normally opened pair of contacts is present.
If the temperature has decreased 5K under preset temperature the relay is activated again. The hysteresis assure a well defined switching operation.
The electronic detects short and open circuit. The integrated LED displays all important operation conditions.

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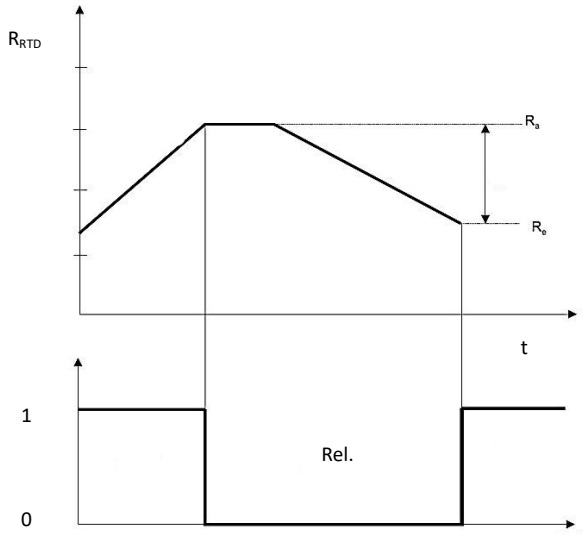
table of switching with hysteresis



- Advantage

- Switching temperature adjustable
- Sensor (KTY, Pt100, Pt1000 or PTC) is selectable via DIP switch.
- short and open circuit detection
- fail safe mode as relay actuated in normal condition
- Direct measurement of motor temperature
- very large temperature range
- perfect dimensions of the module
- excellent value for money

- Switching temperature

- switching temperature can be adjusted by any operator, factory setting is 140°C.

Position rotary switch----------	switching temperature
0	140°C
1	70°C
2	80°C
3	90°C
4	100°C
5	110°C
6	120°C
7	130°C
8	150°C
9	160°C

Remark:

changed settings requires a restart of the module

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- Technical data

Electrical data:

Input:	1 Sensor (P100, Pt1000, PTC or KTY84-130)
Output:	1 Relay SPDT (1Form A/B)
Switching power:	250VAC/2A/500VA 30 VDC/2A/60W
Working voltage:	Typ. 24 24 V DC ± 5% (Isolation 1kVdc) Type AC 100-240V AC, 50-60Hz (Isolation 3kVAc)
Power consumption:	<1VA
Working temperature:	0 ... 60°C
Stock temperature:	-40°C ... +75°C
Measurement range:	0°C ... +200°C

Switching temperature:

Pt or KTY sensor:	10 values adjustable Factory setting 140°C Hysteresis = 5°C
PTC:	>2900 Ohm and <1000 Ohm

Bicolor LED:

Normal working:	green LED constant
Short or open circuit.	red LED fast twinkling
Over temperature:	red LED constant
Hysteresis range:	red LED slowly twinkling Additional green LED when over temperature was not exceeded before (pre warning).

If an Error and over temperature is detected the Relay switches off.

- Technical data

Mechanical data:

Case:	blue plastic
Material:	Polyamide
Dimensions:	width x height x length 22,5 x 114,5 x 99 ± 0,5 mm
Installation:	35mm rail DIN TS 35
IP class:	IP 20
Terminal:	screw terminal 0,75-2,5mm² Pitch 5mm

Order information:

24Vdc type:	TMS-Basic-24
Part number:	005705
100-240Vac type:	TMS-Basic-AC
Part number:	005704

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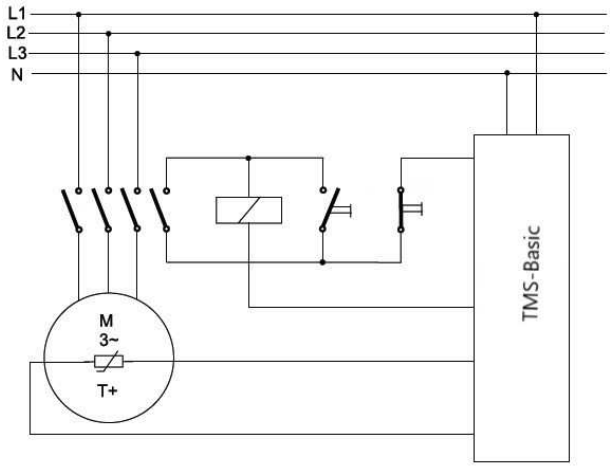
Schematic of function



Terminal connection

Power AC			A2 ~	A1 ~
Power DC			A2 +	A1 -
Reset / Sensor	RST	RST	S-	S+
Relay	14	11	12	11
	normally closed		normally open	

Setting of sensor type and reset mode

Sensor type and reset mode has to be adjusted by a 3-way dip switch on the pcb. Only qualified personal should open the module.

Setting table of the dip switch

D1	D2	D3	Sensor	Reset
0	0	0	Pt100	manual
0	1	0	Pt1000	manual
1	0	0	KTY84-130	manual
1	1	0	PTC	manual
0	0	1	Pt100	automatic
0	1	1	Pt1000	automatic
1	0	1	KTY84-130	automatic
1	1	1	PTC	automatic

Attention:

- Do not open the module while connected.
- Installation, adjustment and revision only by qualified personal.
- High voltage must be expected on all contacts of the module when installed.

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