EVE

# Thermostat relay TER-3 (A, B, C)

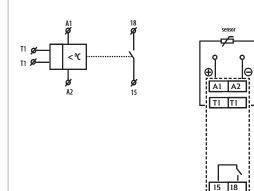
### Advantages

- 1-module, DIN rail mounting
- Red LED indicates status of output, green LED indicates energization of the device
- Single thermostat for temperature monitoring and regulation in range of -30.. +70°C in six ranges
- Can be used for monitoring temperature e.g. in switchboards, heating systems, cooling systems, liquids, radiators, motors, devices, open spaces etc.
- Function of short-circuit or sensor disconnection monitoring
- Possibility to set function "heating"/"cooling" (setting is done by DIP switch)
- Adjustable hysteresis (sensitivity), switching by potentiometer in range 0.5 - 5 K
- Universal supply AC/DC 24V -240 V, not galvanically separated
- Output contact: 1x NO 16 A /250 V AC1
- It is possible to place the sensor directly on terminal block for temperature monitoring in a switchboard or in its surroundings
- Choice of external thermo sensors with double insulation in standard lengths 3, 6 and 12 m

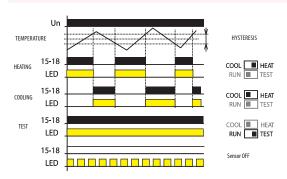
#### **Technical data**

	TER-3 (A, B, C)			
Function	single level			
Supply	A1-A2			
Universal supply	AC/DC 24-240 galvanically unseparated			
Consumption	2 VA			
Supply voltage tolerance	-15% - +10%			
Measuring circuit				
Measuring terminals		T1 - T1		
Temperature range	TER-3A	TER-3B	TER-3C	
	-30+10°C	0+40 °C	-30+70 °C	
Hysteresis	adjustable in range 0.55K			
Sensor	external, termistor NTC			
Sensor fault indication	flashing red LED			
Setting accuracy - mechanical	5%			
Switching difference	0,5⁰C			
Temperature coefficient	< 0.1 % / °C			
Output				
Number of contacts	1 x changeover (AgNi)			
Rated current	16 A / AC1, 10A/24 V DC			
Breaking capacity	4000 VA / AC1, 300W / DC			
Switching voltage	250V AC1/ 24V DC			
Min. breaking capacity DC	500 mW			
Output indication	red LED			
Mechanical life	3x10 <sup>7</sup>			
Electrical life	0,7x10 <sup>5</sup>			
Controlling				
Operating temperature	-20+55 °C			
Storage temperature	-30+70 °C			
Electrical strength	4 kV			
Operating position	any			
Mounting	DIN rail EN 60715			
Protection degree	IP 40 from front panel			
Overvoltage category	III.			
Pollution degree	2			
Max. cable size	2.5 mm <sup>2</sup>			
Dimensions	90 x 17,6 x 64 mm			
Standards	EN 60730-2-9, EN 61010-1			

#### Connection



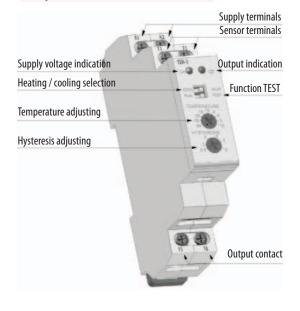
#### Functions



TER-3 It is a single but practical thermostat with a separated sensor for monitoring temperature. The device is placed in a switchboard and an external sensor senses temperature of required space, object or liquid. Supply is not galvanically separated from the sensor. The sensor is double insulated. Maximal length of a delivered sensor is 12m. device has in-built

indication of sensor damage, which means that in case of short-circuit or disconnection red LED flashes. Thanks to adjustable hysteresis, it is advantageous to regulate width of the range and thus define sensitivity of load switching. Sensed temperature is decreased by set hysteresis. When installing it is necessary to keep in mind that hysteresis is increased by temperature gradient between sensor's jacket and thermistor.

#### Description



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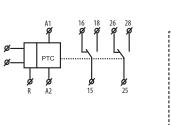
## Thermostat for monitoring temperature of motor winding TER-7

#### Advantage:

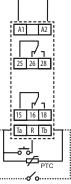
- Monitors temperature of motor winding of motors with built in PTC sensor
- Fixed levels of switching
- MEMORY function active by DIP switch
- RESET of faulty state:
  - button on the front panel
  - by external contact (remote by two wires)
- Function of short-circuit or sensor disconnection monitoring, red LED flash-
- ing
  - indicates faulty sensor
- Output contact: 2x changeover 8 A / 250 V AC1
- Red LED shines and indicates exceeded temperature
- Multivoltage supply AC/DC 24-240 V (UNI)
- 1-module, DIN rail assembly possible

#### **Technical data**

	TER-7	
Function	monitoring temperature of motor winding	
Supply terminals	A1-A2	
Supply voltage	24-240 V AC/DC	
Consumption	max. 2 VA	
Supply voltage tolerance	-15 %; +10 %	
Measuring circuit		
Measuring terminals	Ta-Tb	
Cold sensor resistance	50 Ω - 1.5 kΩ	
Upper level	3.3 kΩ	
Bottom level:	1.8 kΩ	
Sensor:	PTC temperature of motor winding	
Sensor failure indication	blinking red LED	
Accuracy	< 5%	
Accuracy in repetition	± 5 %	
Temperature dependance	< 0.1 % / °C	
Output		
Number of contacts	2x changeover (AgNi)	
Rated current	8 A / AC1	
Breaking capacity	2000 VA / AC1, 192 W / DC	
Inrush current	10 A /< 3 s	
Switching voltage	250 V AC1 / 24 V DC	
Min. breaking capacity DC	500mW	
Mechanical life	3x10 <sup>7</sup>	
Electrical life	0.7x10 <sup>5</sup>	
Other information		
Operating temperature	- 20 +55 °C	
Storage temperature	- 30 +70 °C	
Electrical strength	4 kV (supply - output)	
Operating position	any	
Mounting	DIN rail EN 60715	
Protection degree	IP 40	
Overvoltage category	III.	
Pollution degree	2	
Max. cable size (mm <sup>2</sup> )	solid wire max.1x 2.5 or 2x1.5	
	with sleeve max. 1x2.5	
Dimensions	90 x17.6 x 64 mm,	
Weight	83 g	
Standard	EN 60730-2-9, EN 61010-1	

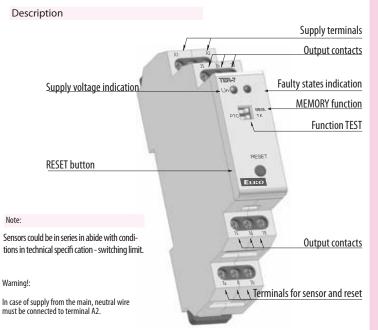


Symbol and connection



Function

The device controls temperature of motor winding with PTC thermistor which is mostly placed in motor winding or very close to it. Resistance of PTC thermistor run to max 1.5 k\Omega in cold stage. By temperature increase the resistance goes strongly up and by overrun the limit of 3.3 k\Omega the contact of output relay switch off - mostly contactor controlling a motor. By temperature decrease and thereby decrease of thermistor resistance under 1.8 kΩ the output contact of relay again switches on. The relay has function "Control of sensor fault". This controls interruption or disconnection of sensor. When switch is in position "TK" monitoring of faulty sensor is not functional - it is possible to connect bimetal sensor with only 2 states: ON or OFF. The device can work with bi-metal sensor in this position. Other safety unit is function "Memory". By temperature overrun (and output switches off ) the output is hold in faulty stage until service hit. This bring the relay to normal stage (with RESET button) on front panel or by external contact ( remote).



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