MONITORING RELAY MMR, 5SV8

MMR-T1-001-A230

Thermistor relay MMR-T1

- For the control of temperature of winding of a motor on the basis of measuring the resistance of PTC thermistor, which is built in the motor.
- After exceeding the value of the thermistor resistance 3.3 kΩ the relay switches over the contact. The re-switching is only possible after the thermistor resistance decrease 1.8 kΩ in three ways:
  – by pressing the RESET push-button
  – by pressing the remote RESET push-button con nected to terminals T1-R1
  – by automatic RESET (it is necessary to connect terminals T1 and R1).

Type	Order code	Number of modules	Weight [kg]	Package [pcs]
MMR-T1-001-A230	OEZ:43247	1	0.091	1

Specifications

Type			**MMR-T1**
Standards			EN 60255-1 IEC 60255-1
Approval marks			CE EAC
Main circuit (contact)			
Arrangement of contacts [1]			001
Rated operating voltage/current	U_e/I_e	AC-1	250 V / 8 A
Max. switched power		AC-1	2 000 VA
		AC-3	200 W
		AC-5b	200 W
Max. switched voltage			AC 400 V
Indication of contact state			red LED
Connection – conductor rigid and flexible			0.2 ÷ 2.5 mm^2
Torque			0.5 Nm
Mechanical endurance			3 000 000 operating cycles
Electrical endurance			10 000 operating cycles
Supply circuit			
Rated voltage	U_c		AC 230 V
Input power			max. 1.5 VA
Supply voltage indication			green LED
Rated frequency	f_n		50 Hz
Connection – conductor rigid and flexible			0.2 ÷ 2.5 mm^2
Torque			0.5 Nm
Measuring circuit			
Error indication			red LED
Resistance range of PTC thermistor, working state			50 Ω ÷ 3.3 kΩ
Resistance range of PTC thermistor, alarm state			> 3.3 kΩ or < 50 Ω
Method of setting			control knobs on the front panel
Connection – conductor rigid and flexible			0.2 ÷ 2.5 mm^2
Torque			0.5 Nm
Other data			
Galvanic isolation	input/output		4 kV
	output/probes		4 kV
Mounting on "U" rail according to EN 60715 – type			TH35
Degree of protection			IP20
Ambient temperature			-20 ÷ +55 °C
Working position			arbitrary

[1] Each digit indicates successively the number of make and break contacts.

MONITORING RELAY MMR, 5SV8

Description

Terminals L and N for connection of supply voltage

- U_c: AC 230 V.

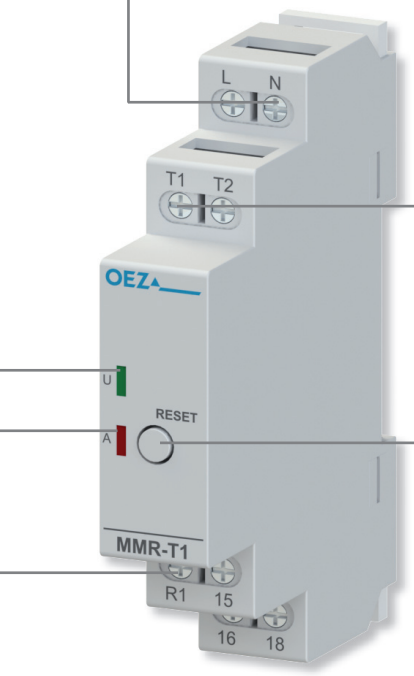
Indication of presence of supply voltage

- Supply voltage presence is indicated by continuously lighting green LED.

Indication of contact switching over

- Contact switching over is indicated by red LED.

Terminal R1 for remote/automatic reset



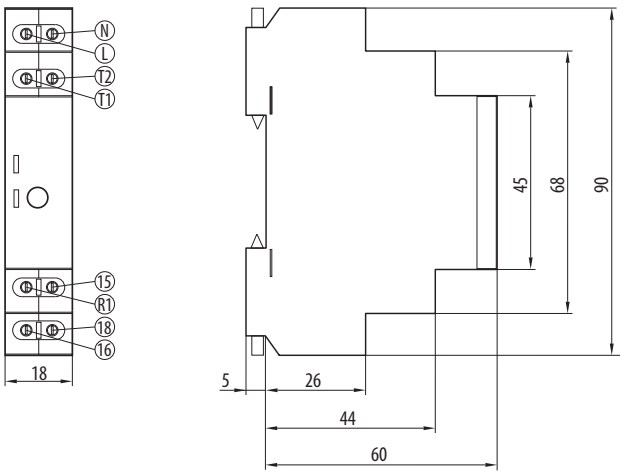
Terminals T1 and T2 for probe connection

- Probes are included in the engine.

Local reset push-button

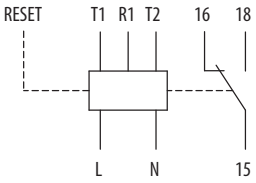
Dimensions

MMR-T1-...

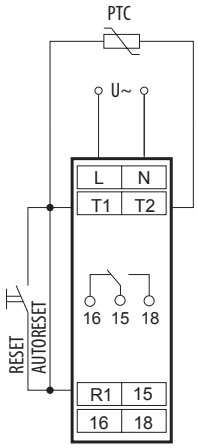


Diagram

MMR-T1-...

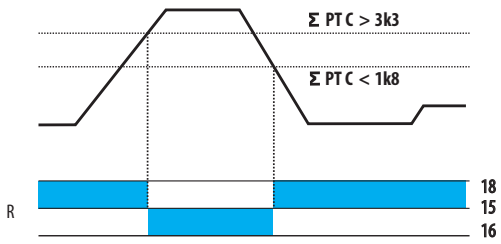


Wiring diagram



Graph

Engine winding temperature monitoring MMR-T1-001-A230



MONITORING RELAY MMR, 5SV8

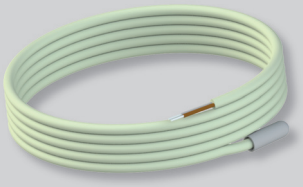
MMR-T2-200-A230

MMR-TD-200-A230

Thermostats

- MMR-T2 control temperature independently for two channels, compare it with a set reference temperature, and switch the output contacts with hysteresis of 2 °C.
- MMR-TD multiple-function differential thermostats equipped with six most frequently used functions and four service functions.
- The delivery includes two 3 m OD-MMR-T3N probes.

Type	Order code	Number of modules	Weight [kg]	Package [pcs]
MMR-T2-200-A230	OEZ:43248	1	0.211	1
MMR-TD-200-A230	OEZ:43249	1	0.211	1


OD-MMR-T3N

Thermal probes

- Accessory for MMR-T2 and MMR-TD.
- Temperature probe OD-MMR-T3N - standard temperature probe with plastic cap for use up to max. temperature of 100 °C. Cable length 3 m.
- Temperature probe OD-MMR-T3S - temperature probe with metallic cap and silicon supply cable for use up to max. temperature of 150 °C. Cable length 3 m.

Type	Order code	Cord Lenght	Weight [kg]	Package [pcs]
OD-MMR-T3N	OEZ:43725	3 m	0.050	1
OD-MMR-T3S	OEZ:43726	3 m	0.050	1

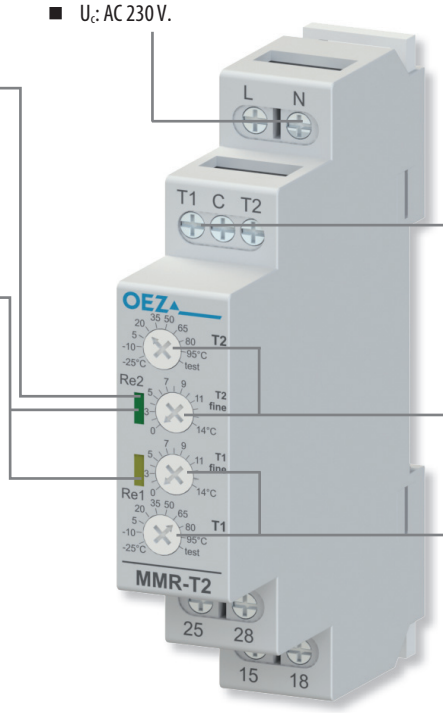
MONITORING RELAY MMR, 5SV8

Description MMR-T2

Terminals L and N for connection of supply voltage
- U_c: AC 230 V.

Indication of presence of supply voltage
- Supply voltage presence is indicated by blinking green LED.

Indication of contact switching over
- Contact switching over is indicated by yellow LED and green LED for contact 1 and contact 2 respectively.



Terminals T1, T2 and C for probe connection
- OD-MMR-T3N … up to 100 °C.
- OD-MMR-T3S … up to 150 °C

Temperature setting T2
- Upper disk defines temperature range -25 ÷ + 95 °C.
- Lower knob enables fine setting 0 ÷ + 14 °C with step of 1 °C.

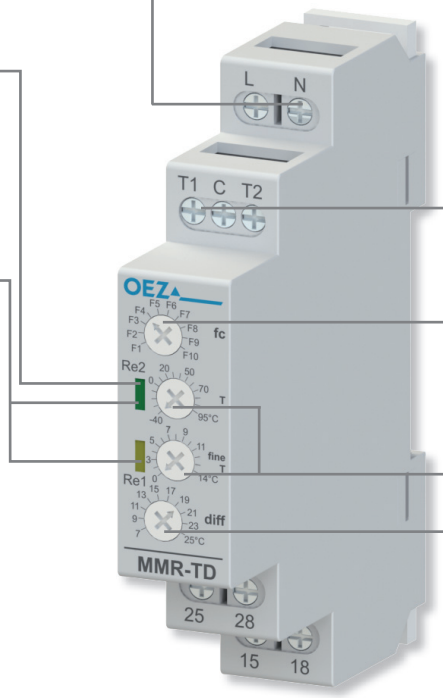
Temperature setting T1
- Lower knob defines temperature range -25 ÷ + 95 °C.
- Upper disk enables fine setting 0 ÷ + 14 °C with step of 1 °C.

Description MMR-TD

Terminals L and N for connection of supply voltage
- U_c: AC 230 V.

Indication of presence of supply voltage
- Supply voltage presence is indicated by blinking green LED.

Indication of contact switching over
- Contact switching over is indicated by yellow and green LED.



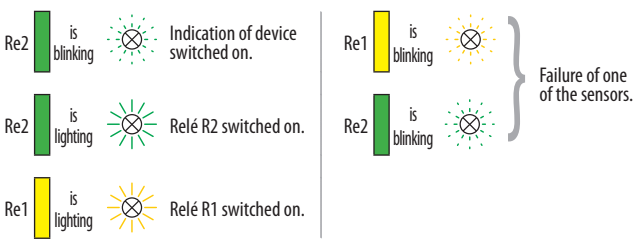
Terminals T1, T2 and C for probe connection
- OD-MMR-T3N … up to 100 °C.
- OD-MMR-T3S … up to 150 °C

Functions selection
- F1 … F6 thermal functions.
- F7 … F10 service functions.

Temperature setting T
- Upper disk defines temperature range -25 ÷ + 95 °C.
- Lower knob enables fine setting 0 ÷ + 14 °C with step of 1 °C.

Difference setting
- For some of the functions.

Operating states of MMR-T2, MMR-TD



MONITORING RELAY MMR, 5SV8

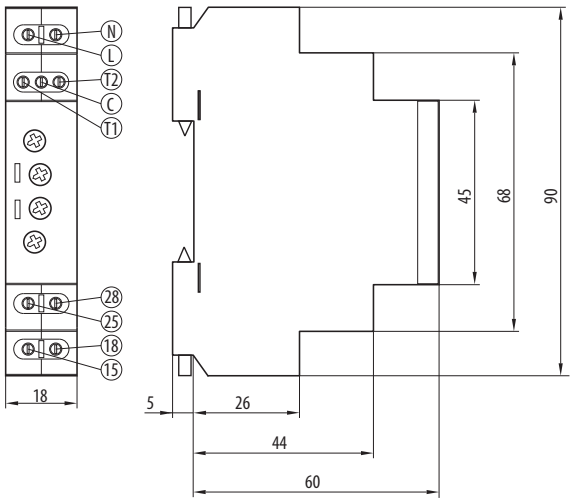
Specifications

Type			MMR-T2	MMR-TD
Standards			EN 60255-1 IEC 60255-1	EN 60255-1 IEC 60255-1
Approval marks			CE EAC	CE EAC
Main circuit (contact)				
Arrangement of contacts [1]			200	200
Rated operating voltage/current	U_e/I_e	AC-1	250 V / 16 A	250 V / 16 A
Max. switched power		AC-1	4 000 VA	4 000 VA
		AC-3	1 kW	1 kW
		AC-5a	288 W ($\cos\varphi = 0.8$)	288 W ($\cos\varphi = 0.8$)
		AC-5b	1 kW	1 kW
Max. switched voltage			AC 400 V	AC 400 V
Indication of contact state			green/yellow LED	green/yellow LED
Connection – conductor rigid and flexible			0.2 ÷ 2.5 mm^2	0.2 ÷ 2.5 mm^2
Torque			0.5 Nm	0.5 Nm
Mechanical endurance			3 000 000 operating cycles	3 000 000 operating cycles
Electrical endurance			10 000 operating cycles	10 000 operating cycles
Supply circuit				
Rated voltage	U_c		AC 230 V	AC 230 V
Input power			max. 1.5 VA	max. 1.5 VA
Supply voltage indication			green LED is blinking	green LED is blinking
Rated frequency	f_n		50 Hz	50 Hz
Connection – conductor rigid and flexible			0.2 ÷ 2.5 mm^2	0.2 ÷ 2.5 mm^2
Torque			0.5 Nm	0.5 Nm
Measuring circuit				
Error indication			green/yellow LED is blinking	green/yellow LED is blinking
Adjustable delay			0 s ÷ 10 s	0 s ÷ 10 s
Adjustable undervoltage level [2]			180 ÷ 220 V	180 ÷ 220 V
Adjustable overvoltage level [2]			225 ÷ 265 V	225 ÷ 265 V
Temperature measuring range			-25 ÷ +95 °C	-25 ÷ +95 °C
Method of setting			control knobs on the front panel	control knobs on the front panel
Connection – conductor rigid and flexible			0.2 ÷ 2.5 mm^2	0.2 ÷ 2.5 mm^2
Torque			0.5 Nm	0.5 Nm
Other data				
Galvanic isolation	input/output		4 kV	4 kV
	input/probes		4 kV	4 kV
	output/probes		4 kV	4 kV
Mounting on "U" rail according to EN 60715 – type			TH35	TH35
Degree of protection			IP20	IP20
Ambient temperature			-20 ÷ +55 °C	-20 ÷ +55 °C
Working position			arbitrary	arbitrary

[1] Each digit indicates successively the number of make and break contacts.

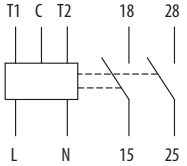
Dimensions

MMR-T2-...
MMR-TD-...

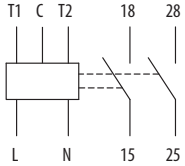


Diagram

MMR-T2-...

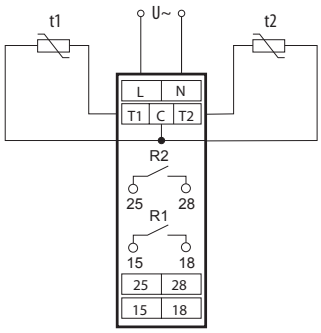


MMR-TD-...



Wiring diagram

MMR-T2, MMR-TD

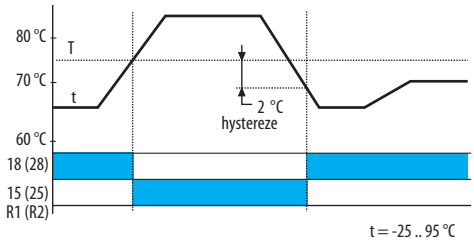


MONITORING RELAY MMR, 5SV8

Graphs of functions

The function of the double thermostats MMR-T2 200-A230

T = 75 °C
t < T = > R1 ON
t ≥ T = > R1 OFF
t - 2 °C ≤ T = > R1 ON



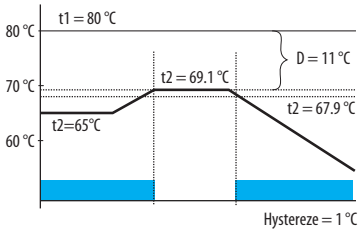
The function of the differential thermostat MMR-TD-200-A230

Function F1
Differential thermostat

T = -40 °C
t1 - t2 > D + 1 °C => R1 ON
t1 - t2 < D => R1 OFF
t2 - t1 > D + 1 °C => R2 ON
t2 - t1 < D => R2 OFF

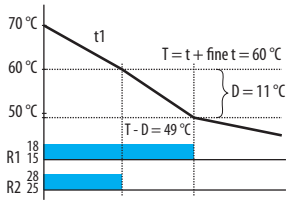
T ≠ -40 °C (T = 68 °C)
t1 - t2 > D + 1 °C
t2 < T
} => R1 ON

t1 - t2 < D °C => R1 OFF
t2 > T + 1 °C => R1 OFF



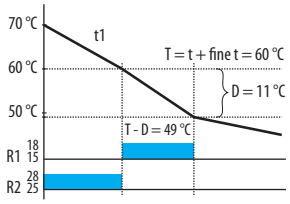
Function F2
Two-stage thermostat

T = 60 °C
D = 11 °C
t1 > T => R1, R2 ON
T - D < t1 < T => R1 ON, R2 OFF
t1 < T - D => R1, R2 OFF



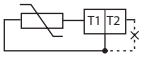
Function F3
Two-stage thermostat

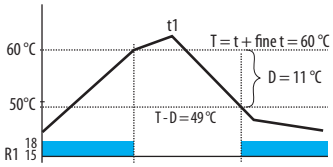
T = 60 °C
D = 11 °C
t1 > T => R1 OFF, R2 ON
T - D < t1 < T => R1 ON, R2 OFF
t1 < T - D => R1, R2 OFF



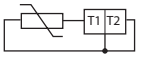
Function F4
Single-channel zone thermostat

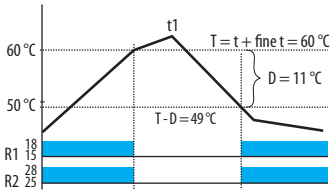
T = 60 °C
D = 11 °C
t1 < T - D => R1 ON
t1 > T => R1 OFF





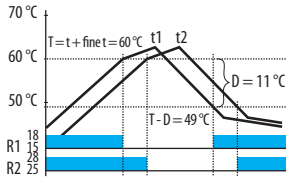
T = 60 °C
D = 11 °C
t1 < T - D => R1, R2 ON
t1 > T => R1, R2 OFF





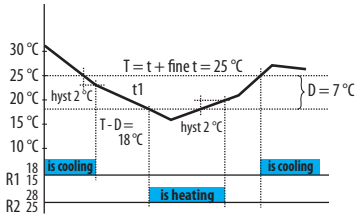
Function F5
Two-channel zone thermostat

T = 60 °C
D = 11 °C
t1 < T - D => R1 ON
t1 > T => R1 OFF
t2 < T - D => R2 ON
t2 > T => R2 OFF



Function F6
Thermostat is heating/cooling

T = 25 °C
D = 7 °C
t1 > T => R1 ON
t1 < T - 2 °C => R1 OFF
t1 < T - D => R2 ON
t1 > T - D + 2 °C => R2 OFF
T - D < t1 < T => R1, R2 OFF



Function F7
Service relay 1

Relay 1 switched on

Function F8
Service relay 2

Relay 2 switched on

Function F9
Service sensor 1

Re1 ⊗ Sensor without failure.

Re1 ⊗ Sensor interrupted.

Re1 ⊗ Sensor short-circuited.

Function F10
Service sensor 2

Re1 ⊗ Sensor without failure.

Re1 ⊗ Sensor interrupted.

Re1 ⊗ Sensor short-circuited.