

Modular devices



SUMMARY OF MODELS

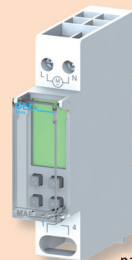
Timers
switch according to internal program in real time



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| Type | MAE-A | MAN-A | MAE-D | MAN-D | MAA-D |
|-------------------------|----------|-----------|---------------|--|----------|
| Design | analog | analog | digital | digital | digital |
| Arrangement of contacts | 001, 100 | 001, 100 | 001, 002, 100 | 001, 002 | 001, 002 |
| Permanent ON/OFF | yes | yes | yes | yes | yes |
| Run reserve | - | 100 hours | 3 years | 5 years | 5 years |
| Menu language | - | - | EN | CS, EN, DE, PL, RU, IT, FR, ES, PT, NL, DA, FI, NO, SV, TR | |
| Number of programs | - | - | 28 | 56 | 56 |
| Program test | - | - | yes | yes | yes |
| Holiday mode | - | - | - | yes | yes |
| Random switching mode | - | - | - | yes | yes |
| PIN code protection | - | - | - | yes | yes |
| Astro function | - | - | - | - | yes |

Monitoring relays
switch depending on monitored physical quantity



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| Type | MMR-U3 MMR-X3 | MMR-P | 5SV8 | MMR-HL | MMR-T1 | MMR-T2, MMR-TD |
|------------------------------|---|--|---|--|---|---|
| Rated voltage U_c | AC 230 V | AC 230 V | AC 230 V | AC 230 V | AC 230 V | AC 230 V |
| Arrangement of contacts | 001 | 001 | 001, 002, 40 | 001 | 001 | 200 |
| Operating voltage of contact | AC 250 V | AC 250 V | AC 230 V | AC 250 V | AC 250 V | AC 250 V |
| Operating current of contact | 8 A | 16 A | 6 A | 16 A | 8 A | 16 A |
| Monitored quantity | Voltage | Current | Residual current | Level | Temperature | Temperature |
| Function | - overvoltage - undervoltage - phase failure - phase sequence ^{*)} - asymmetry ^{*)} | - indication at reach of: 0.1 ÷ 1 A 0.5 ÷ 5 A 2.5 ÷ 25 A (adjustable) | - indication at reach of: 0.03 ÷ 30 A (adjustable) | - liquid drawing off - liquid filling | - motor protection - local reset - remote reset - auto reset | - from -25 °C - up to +95 °C - 2 channels |

^{*)} It is only available for version X3.

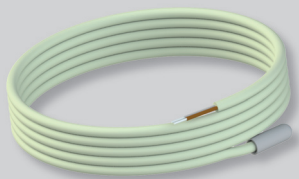
THERMOSTATS MMR-T2, MMR-TD



MMR-T2-200-A230



MMR-TD-200-A230



OD-MMR-T3N

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 |

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.
- Used element: NTC 640 3k3

| Type | Order code | Inlet cable length | Weight [kg] | Package [pcs] |
|------------|------------|--------------------|-------------|---------------|
| OD-MMR-T3N | OEZ:43725 | 3 m | 0.05 | 1 |
| OD-MMR-T3S | OEZ:43726 | 3 m | 0.05 | 1 |

THERMOSTATS MMR-T2, MMR-TD

Description MMR-T2

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 L and N for connection of supply voltage

- U_c: AC 230V.

Terminals T1, T2 and C for probe connection

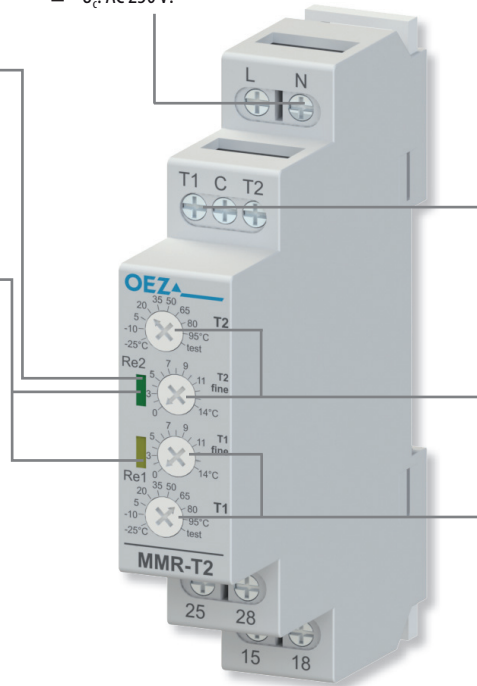
- OD-MMR-T3N ... up to 100 °C.
- OD-MMR-T3S ... up to 150 °C.

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

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 L and N for connection of supply voltage

- U_c: AC 230V.

Terminals T1, T2 and C for probe connection

- OD-MMR-T3N ... up to 100 °C.
- OD-MMR-T3S ... up to 150 °C.

Functions selection

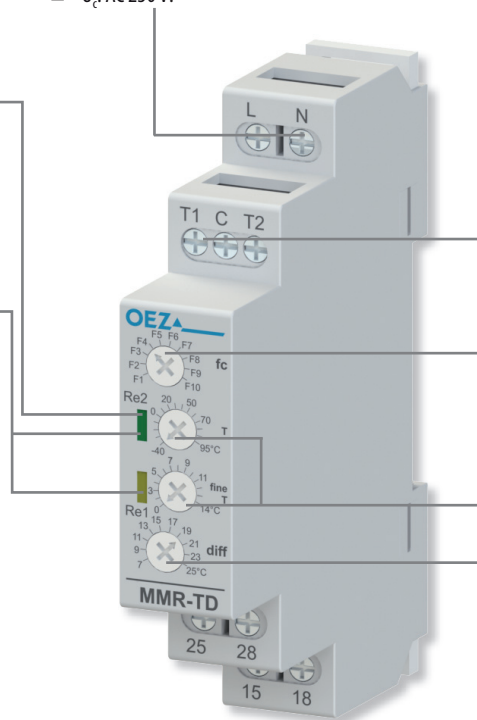
- F1 ... F6 thermal functions.
- F7 ... F10 service functions.

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

| | | | | | |
|-----------------|--|-----------------------------------|-----------------|--|----------------------------------|
| Re2 is blinking | | Indication of device switched on. | Re1 is blinking | | } Failure of one of the sensors. |
| Re2 is lighting | | Relay R2 switched on. | Re2 is blinking | | |
| Re1 is lighting | | Relay R1 switched on. | | | |

THERMOSTATS MMR-T2, MMR-TD

Specifications

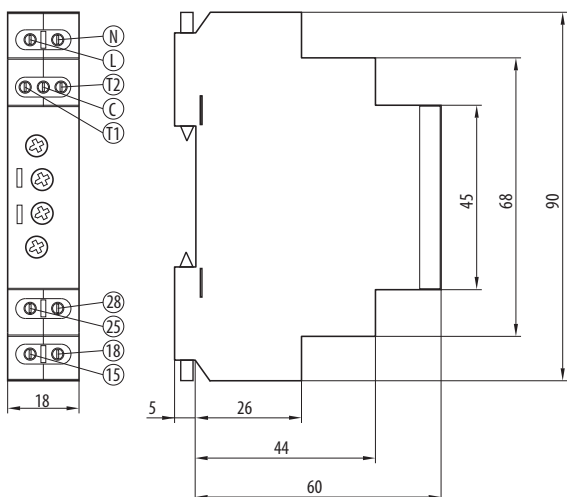
| Type | | MMR-T2 | MMR-TD |
|---|---------------|---------------------------------------|----------------------------------|
| Standards | | EN 60255-1 IEC 60255-1 | EN 60255-1 IEC 60255-1 |
| Approval marks | | | |
| Main circuit (contact) | | | |
| Arrangement of contacts ¹⁾ | | 200 | 200 |
| Rated 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 |
| | | AC 400 V | AC 400 V |
| Indication of contact state | | green/yellow LED | green/yellow LED |
| Connection – Cu 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 | 50/60 Hz | 50/60 Hz |
| Connection – Cu 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 |
| Temperature measuring range | | -25 ÷ +109 °C ²⁾ | -25 ÷ +109 °C ²⁾ |
| Method of setting | | control knobs on the front panel | control knobs on the front panel |
| Connection – Cu 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.

²⁾ 95 °C basic setting + 14 °C fine setting.

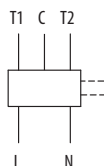
Dimensions

MMR-T2-...
MMR-TD

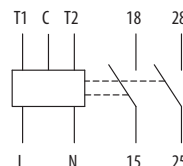


Diagram

MMR-T2-...

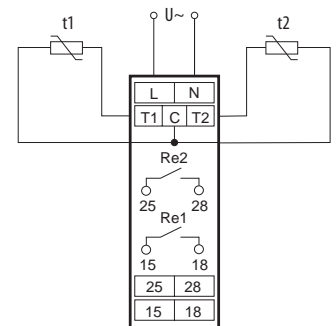


MMR-TD-...



Wiring diagram

MMR-T2, MMR-TD

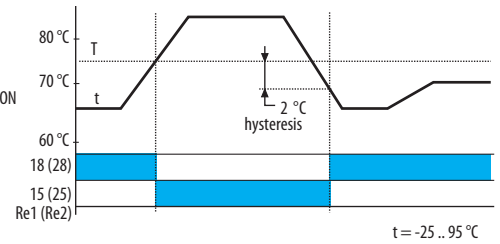


THERMOSTATS MMR-T2, MMR-TD

Graphs of functions

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

T = 75 °C
 t < T => Re1 ON
 t ≥ T => Re1 OFF
 t - 2 °C ≤ T => Re1 ON

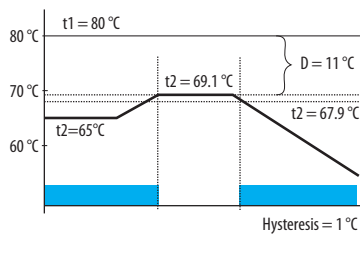


The function of the differential thermostat MMR-TD-200-A230

**Function F1
Differential thermostat**

T = -40 °C
 t1 - t2 > D + 1 °C => Re1 ON
 t1 - t2 < D => Re1 OFF
 t2 - t1 > D + 1 °C => Re2 ON
 t2 - t1 < D => Re2 OFF

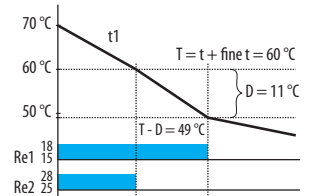
T ≠ -40 °C (T = 68 °C)
 t1 - t2 > D + 1 °C } => Re1 ON
 t2 < T



t1 - t2 < D °C => Re1 OFF
 t2 > T + 1 °C => Re1 OFF

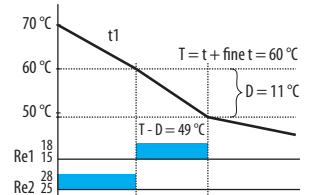
**Function F2
Two-stage thermostat**

T = 60 °C
 D = 11 °C
 t1 > T => Re1, Re2 ON
 T - D < t1 < T => Re1 ON, Re2 OFF
 t1 < T - D => Re1, Re2 OFF



**Function F3
Two-stage thermostat**

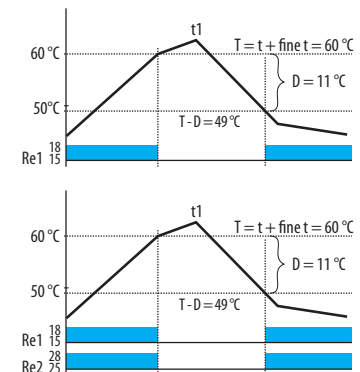
T = 60 °C
 D = 11 °C
 t1 > T => Re1 OFF, Re2 ON
 T - D < t1 < T => Re1 ON, Re2 OFF
 t1 < T - D => Re1, Re2 OFF



**Function F4
Single-channel zone thermostat**

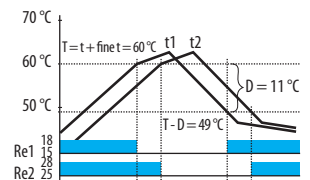
T = 60 °C
 D = 11 °C
 t1 < T - D => Re1 ON
 t1 > T => Re1 OFF

T = 60 °C
 D = 11 °C
 t1 < T - D => Re1, Re2 ON
 t1 > T => Re1, Re2 OFF



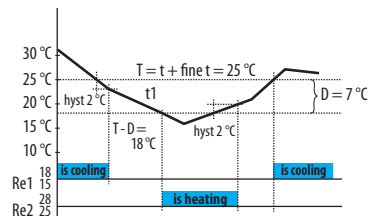
**Function F5
Two-channel zone thermostat**

T = 60 °C
 D = 11 °C
 t1 < T - D => Re1 ON
 t1 > T => Re1 OFF
 t2 < T - D => Re2 ON
 t2 > T => Re2 OFF



**Function F6
Thermostat is heating/cooling**

T = 25 °C
 D = 7 °C
 t1 > T => Re1 ON
 t1 < T - 2 °C => Re1 OFF
 t1 < T - D => Re2 ON
 t1 > T - D + 2 °C => Re2 OFF
 T - D < t1 < T => Re1, Re2 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.

▶ **OEZ s.r.o.**
Šedivská 339
561 51 Letohrad
Czech Republic
tel.: +420 465 672 111
+420 465 672 101
fax: +420 465 672 398
+420 465 672 151
e-mail: oeztrade.cz@oez.com
www.oez.com



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