Manufacturer:

TMK sp.j. Września

Szosa Witkowska 105

tel./fax +48 61 437 97 60

www.tmk.com.pl

Microprocessor-based controller for pumps filling tap water (TW) container and central heating (CH) pumps

MTS 2P *Installation and Operation Manual*

Applications

MTS 2P is a controller designed for the control of two pumps: a CH and a TW container filling pump. The controller has a function of setting a priority for tap water and additionally protects the container and heaters from being cooled down by an excessively cold boiler. MTS 2P has two operations modes: SUMMER and WINTER. The controller dynamically divides the boiler capacity between both circulation systems, based on settings and user preferences. As a result, the temperature of tap water and heated rooms is maintained at an optimum level.

Technical specifications:

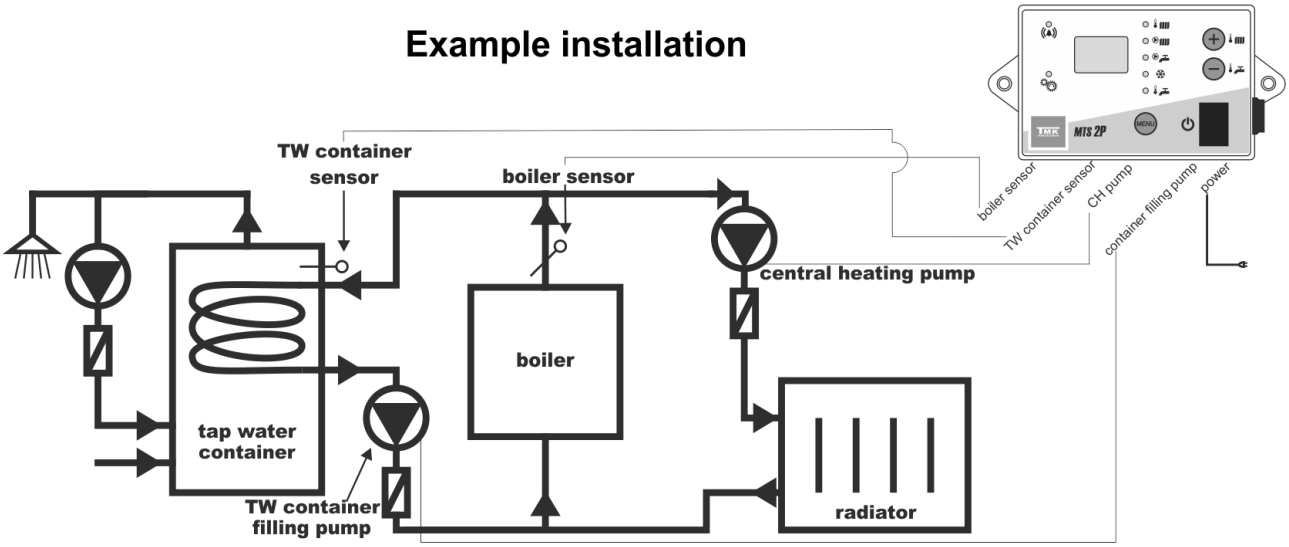
	Factory settings
- Supply voltage 230 V/50 Hz	
- Maximum pump output 2 x 100 VA	
- Temperature measurement range 0-99°C	
- Temperature of the TW container 10-90°C	45 °C
- Boiler temperature required for activation of the TW container filling pump 20-70°C	30 °C
- Boiler temperature required for activation of the CH pump 20-90°C	30 °C
- Alarm threshold for low boiler temperature from “inactive” to 50°C	8 °C
- Alarm threshold for high boiler temperature 60-99°C	92 °C
- TW container hysteresis 1-15°C	3 °C
- Adjustment range for container protection from cooling 0-15°C	5 °C
- Temperature of emergency CH pump activation in the SUMMER mode 60-99°C and “-”inactive	80 °C
- Pump hysteresis 1-15°C	2 °C
- Frequency of temperature display switching from “inactive” to 60 s	inactive

- “Anti-stop” function (pump protection against “jam-stopping”) – activation for 30 sec every 14 days.
- Reduced risk of system freeze – activation of CH pump below the alarm threshold

DESCRIPTION OF INDICATOR SYMBOLS – during controller operation

- display of current boiler temperature
- indication of CH pump activation
- indication of activation of TW container filling pump
- WINTER mode / blinking indicator represents the low temperature alarm
- display of current container temperature

INSTALLATION



1. Controller mounting
Mount the controller on a suitable wall using 6 mm wall plugs (the plugs complete with screws are a part of the delivery set).

2. Mounting of boiler temperature sensor
• Mount the sensor on a non-insulated pipe going out of the central heating boiler.
• Fasten the sensor to the pipe using two clamps (included in the delivery set) so that it adheres properly to the pipe.
• It is advisable to wrap the pipe with the sensor with a thermal insulation material.

3. Mounting of tank temperature sensor
Mount the sensor in a location recommended by the tank's manufacturer.

Note: The sensors are not suited for being used directly in the liquid!

4. Connection of the supply cable to the pump
• Connect the green-yellow wire (protective neutral conductor) of the 3-wire pump supply cable to the protective neutral terminal of the pump (marked with an appropriate symbol);
• Connect the brown and blue wires to the **L** and **N** terminals of the pump.

Note: Always ensure that regulator installation is performed by a properly qualified electrician.

5. Connection of the controller
Connect the supply cable to a **230 V, 50 Hz power outlet with an earth contact.** The ambient temperature in the controller mounting location may not exceed 40°C.

Note: The connection cable of the regulator may only be replaced by the manufacturer.

Note: MTS controller is only able to operate when the system is filled with water. If the system is empty, the controller must be disconnected from the mains supply. Otherwise the pump may become damaged.

CHANGE OF DISPLAYED TEMPERATURE

The controller makes it possible to monitor temperatures of the boiler or the TW container.
Pressing the ⊕ button displays the current temperature of the boiler –
indicator is lit
Pressing the ⊖ button displays the current temperature of the container –
indicator is lit

It is also possible to activate automatic switching between displayed temperatures – see the *F7* function.

CONTROLLER OPERATION

The controller has two operation modes: **WINTER** and **SUMMER** (*P2*). If the ❄ indicator is lit, the **WINTER mode** is active. If the indicator is out, the **SUMMER mode** is active.
The **SUMMER mode** is used when the boiler only supplies the TW system.
In the **SUMMER mode** the CH pump remains inactive – with the exception of emergency situations (*F3*).
In the **WINTER mode** both systems are used, and the user is able to either set a type of **tap water (TW) priority** or switch it off (*F5*).
If the priority is inactive (*F5*=0), both pumps operate independently. If the priority is active (*F5*=1), the CH pump is switched off for a period necessary for heating the TW container. If the conditional priority is active (*F5*=2), the CH pump remains active as the container is heated – provided that the boiler temperature does not drop.
The pump filling the TW container switches on when the set **container temperature** (*P1*) has not been reached and the boiler temperature is higher than the container temperature by the value of the *F2* parameter (container protection from freeze).

BASIC PARAMETERS MENU

Pressing and holding the **MENU** button for 1 second displays the *P1* symbol on the screen.
To change parameter number, use the ⊕ and ⊖ symbols. To edit a selected parameter, use the **MENU** button. The following parameters are available:

- *P1* – temperature of the TW container (10-80°C)
- *P2* – season of the year: *LO* – SUMMER, *2A* – WINTER (factory setting)
- *P3* – temperature of the boiler required for TW pump activation (20-70°C)
- *P4* – temperature of the boiler required for CH pump activation (20-90°C)
- *P5* – alarm threshold for low boiler temperature – ANTI-FREEZE PROTECTION (from inactive "-" to 50°C) – the indicator is blinking
- *P6* – alarm threshold for high boiler temperature (60-99°C)
- - - – exit from the **MENU** with saving of changes

To change parameter values, use the ⊕ and ⊖ buttons.
Pressing the **MENU** button during the editing of a parameter causes the display to return to the number of the edited parameter.
The controller exits the **MENU** and saves any changes that have been made if no other button is pressed during the following 60 seconds.

SERVICE FUNCTIONS MENU

In order to edit SERVICE FUNCTIONS, disconnect the controller from the mains supply ⏻, press the **MENU** button and – without releasing it – switch on the controller. The screen displays *F1*.
Menu functions are the same as in the **BASIC PARAMETERS MENU**.

- *F1* – hysteresis of the TW container (1-15°C)
- *F2* – TW container protection from cooling (0-15°C)
- *F3* – temperature of emergency CH pump activation in the SUMMER mode (60-99°C and "-"inactive - NOTE: SETTING THE PARAMETER ABOVE 90°C OR TO „INACTIVE" IS ONLY ALLOWED WHEN THE BOILER IS ADDITIONALLY PROTECTED FROM BOILING OVER !)
- *F4* – hysteresis of the CH pump (1-15°C)
- *F 5*– tank priority: *0* – priority inactive (factory setting), *1* – priority active, *2* – conditional priority
- *F6* – CH pump operation below the low temperature alarm threshold: 1-YES, 0-NO (PROTECTION INACTIVE)
- *F7* – frequency of automatic switching of displayed temperatures (from inactive "-" to 60 seconds)
- *F8* – controller software version number (read-only)
- - - – exit from the **MENU** with saving of changes

RESTORATION OF FACTORY SETTINGS

In order to restore factory settings, disconnect the controller from the mains supply ⏻, press the ⊕ button and – without releasing it – switch on the controller.

DELIVERY SET

- controller
- clamps (2 pcs.)
- 6 mm wall plugs (2 pcs.)

SAFETY DEVICES

The controller and pumps are protected by means of a 1.25 A fuse which blows up in emergency situations (e.g. short-circuit in the pump or in the controller).

WARRANTY

TMK sp.j. grants the user a warranty for the MTS 2P controller. The warranty period is 3 years from the date of purchase of the device, however not longer than 4 years from the date of manufacture.

WARRANTY TERMS AND CONDITIONS

Warranty claims shall be accepted provided that the terms and conditions of warranty, and general rules of operation of electronic devices, are complied with as required. TMK sp.j. guarantees appropriate workmanship, high quality and reliable operation of the controller. In the event of any faults in the controller's operation, or defects which can be attributed to the manufacturer, TMK sp.j. shall repair or replace the faulty controller with a defect-free device within 14 working days from the date of returning the controller (in person or through post). The warranty scheme explicitly excludes all defects arising due to the user's fault and, particularly, defects caused by mechanical damage, faulty mounting, water ingress or operation of the device contrary to the general rules of operation of electronic devices.

The warranty is only valid with a proof of purchase.

DATE OF SALE: .....
day, month, year

MANUFACTURER:
TMK sp.j.
62-300 Września
Szosa Witkowska 105
tel./fax +48 61 437 97 60
www.tmk.com.pl

.....
Seller's stamp and signature

.....
DATE OF MANUFACTURE