THERMIS

MĚŘÍCÍ A REGULAČNÍ TECHNIKA

INSTRUCTION MANUAL
THPOV, THPOVR - water flow heater

Specification:

Water flow heaters are made in two models: with regulation (THPOVR) and without regulation (THPOV).
Water flow heater is designed for direct fluid heating. For fluid heating is used innovative technology: printed heating element. This technology provides even heating of medium, where heat transfer is delivered straight by water flow heater coat. This way of heating provides much better physical and chemical resistance in comparison with standard flow heaters. Flow heater THPOVR is equiped with control unit, which provides linear regulation of output heat. Flow heater THPOV is designed for installation of system with external regulation. Both designs of flow heaters are equiped with thermal fuse, which protects heating element from overheting.

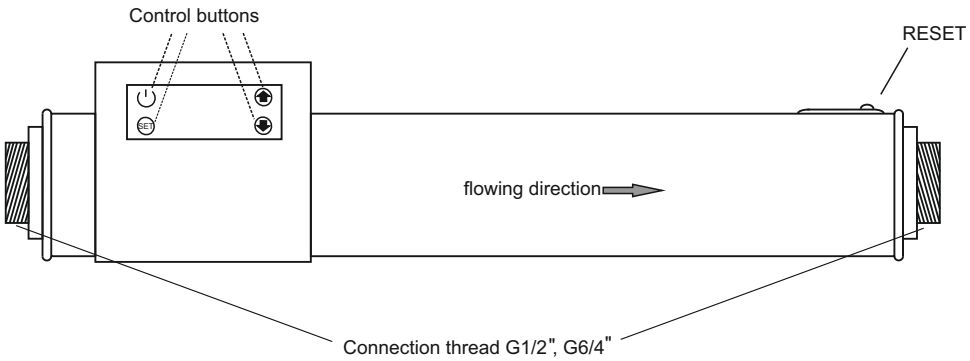
Description:

Heating element is comprised of two basic parts:
1.Heating part - it is pipe printed with heating element,which is isolated with very resistant and effective isolation.
2.Terminal board with contacts or regulatory terminal board - regulatory terminal board is equiped with digital thermostat with wide range of settings, see operating instructions.

Every heating element is equiped with thermal fuse, standard setting for temperature 120°C.Thermal fuse provides protection against overheating for heating element. For operation of heating element is necessary to ensure permanent flow of liquid. Heating element could be damaged at „dry" operation. On the grounds of this is necessary to equip flow measurement systems or level sensors.

Installation:

Mechanical - heating element has connection thread G1/2" or G6/4". Installation is done by connecting this threads. When installing and fastening threads, it is necessary to fasten it with connection thread hexagon, never with rotating whole heating element.
Electrical - heating element is equiped with male plug (connection straight to the socket - 1F heating element) or with attached cable assembly (3F heating element), which is able to connect to power distribution.
Only qualified person can do installation and connection of heating element.



Operating instructions:

Technical parameters

Temperature range	0°C - 99°C
Power supply	230V
Energy use	max. 5 W
Temperature difference	1°C - 16°C
Tmax surrounding	60°C
Thermostat delay	0 - 9 min
Accuracy	1°C
Installation placing	Common environment
Contact load	10A/250V

Description of buttons and pilot lights:

⏻ Device on or off.

SET Enter to programming menu and set demanded values.

⬆ Display assigned value in Display mode. In Programmable menu mode it is used for moving in function list and for rising demanded value.

⬇ Display adjusted difference in Display mode. In Programmable menu mode it is used for moving in function list and for lowering demanded value.

Pilot lights:

WORK: light on = contact switch-on
light off = contact switch-off

SET: light on = user setting or setting of Programmable menu is in progress.

Display status desription:

- **Display mode**: Default display projection. Displays actual temperature of sensor.
- **Demanded values setting mode:** Setting on/off value.
- **Programmable menu mode:** Choosing and setting of demanded function.

Display mode

Displays actual temperature of sensor. Usage of buttons ⬆ ⬇ see description of buttons and pilot lights.

Demanded values setting mode

Hold SET button longer than 3 s for enter. Pilot light SET glows in this status. Set new value with arrows. Newly adjusted value can be saved by holding SET button longer than 3 s or automatically after 20 s.

Programmable menu mode

Press SET button and ⬆ for 3 s for entering the menu. With arrows choose demanded function, which you want to change (1 - 6). Confirm by pressing SET button. Set new value with arrows. Press SET button for 3 s and new value will be saved and you will be returned to Programmable menu mode. Press SET button for 3 s again for saving adjusted parameters and returning to Display mode.

Symbol	Function	Adjustable range	Default settings
F1	Temperature difference	1°C - 16°C	2°C
F2	Thermostat delay	0 - 9 min	0 min
F3	Min. demanded values	-50°C - required temp.	0°C
F4	Max. demanded values	required temp. - 99°C	99°C
F5	Function	1.cooling, 2.heating, 3.alarm	2
F6	Temperature correction	-5°C - 5°C	0°C

WARNING!!!

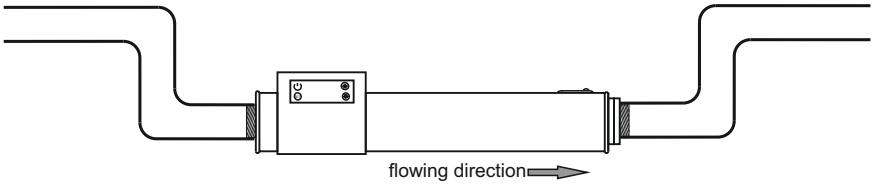
Thermal fuse is sufficient protection against excessive heat after installation, for example when heating element dries. But thermal fuse can not protect against „dry" operation. To this purpose is necessary to install protection systems, for example liquid level sensors etc. Switch-off value of thermostat is defaulted on 15°C because of prevention of spontaneous activation of heating element. When setting switching-off temperature you must consider adjusted differnetion which gives real switch-off temperature of thermostat. For example: with adjusted temperature 60°C and differention 2°C will be switching-off temperature of thermostat 62°C.

Safety:

- Safety valves must be set so that pressure in tank does not exceed more than 1 bar of nominal value.
- In close water heating it is necessery to folow arrangement of armatures and protection devices.
- In open water tank must be outfalls set so that pressure in tank does not exceed nominal value.
- Mounting is horizontal.
- At installation it is necessary to disconnect every pole from power supply with opening contacts at least for 3 mm by one pole. It can be done for example with electrical switch.
- It is necessary to find out if there is water or another fluid in tank before first switch on.
- Heating element must be always submerged in liquid.
- Screw-in heating element has verified resistance to 10 bar of stationary pressure.
- In case of fuse turning off it is possible to turn on the fuse again (RESET) by pressing the red button of fuse which is placed in logo of producer.

Possible installation of water flow heater THPOV, THPOVR:

1. into the piping



2. for tank heating