INSTRUCTIONS FOR ASSEMBLY AND OPERATION

Flow pressure water heaters type POW 12, 18, 21, 24

Before using the heater please read the instructions carefully. In the future it will pay off in the form of failure-free operation for a long time. Flow water heaters series POW 12, 18, 21, 24 with two-degree hydraulic switch are designed for heating utility water. Warm water can provided to a couple of water drawing points located in different rooms. These heaters are equipped with heating spirals that are directly washed by water. This direct heating process prevents limescale from settling and ensures high efficiency and quick heating of water. Microprocessor system analyses the inlet water temperature and the temperature set by a user, as well as its consumption. Based on collected data, it increases or decreases heating power in such a way that the temperature of water at the outlet corresponded to the one set by the user. In addition, the electronic system of the heater is equipped with an air block sensors that decrease to the minimum the possibility of damaging immersion heaters due to air blocking of the water supply installation. POW heaters may heat up water that was initially heated, for example by the solar heating installation, which at the inlet of the heater cannot exceed 60^{O}C.

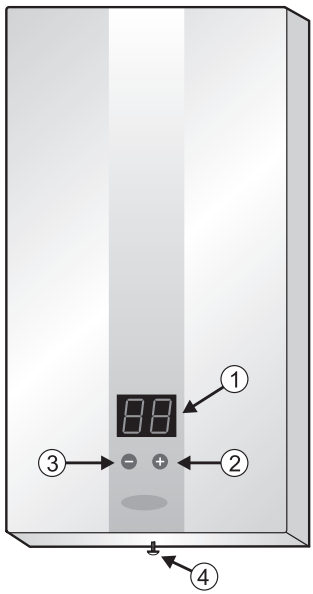
- **The device cannot be installed in rooms in which temperature may fall below 0°C, as well as in which there is a risk of explosion.**
- **This equipment is not designed to be used by persons (including children) of the limited physical, sensory or mental fitness, unless their use is supervised.**
- **Attention must be paid to children so that they would not play with the device.**

Instructions for assembly

Installation as well as start-up of the POW heater should be done by an authorized person in accordance with the instructions included in the Instructions. Any installation works should be done with disconnected power and water supply. Electric installation of the heater should be made pursuant to the binding regulations. The device should be permanently connected to an electrical installation with an earth terminal. Electrical installation should be equipped with a residual circuit breaker with the protection against electric shock, as well as a breaker ensuring the disconnecting of the device from the source of power supply in which the distance between contacts should be not less than 3 mm.

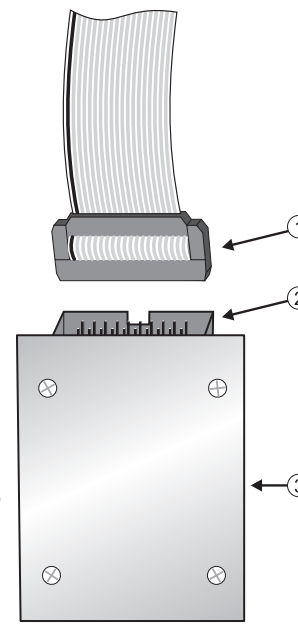
1. To the place in which the heater is to be installed, electrical as well as water installation should be supplied using the assembly template for that.
2. Drill holes and insert expansion plug.
3. After supplying cold water, install the control valve with a filter (pict. 3).
4. Unscrew the located at the bottom of the heater casing screw fastening the casing (pict. 1), take off the cover and disconnect the belt cable by taking out the plug from the socked marked “DISPLAY” (pict. 2).
5. Screw the heater to the wall with the fastening screws, having previously led the supply cable through the hole.
6. Check the turning on of the pressure switch.
7. Remove blanking plugs from water connections.

8. Connect the heater to water installation (pict. supply connection marked 14, outlet marked 15)
9. Switch on the water feeding the heater and check the watertightness of connections.
10. Connect the heater to the electrical installation as shown on pict. 4.
11. Connect the belt cable by plugging the plug to the socket “DISPLAY”(pict.2).
12. Place the casing and screw with the fastening screw.



Pict. 1. Casing of the heater

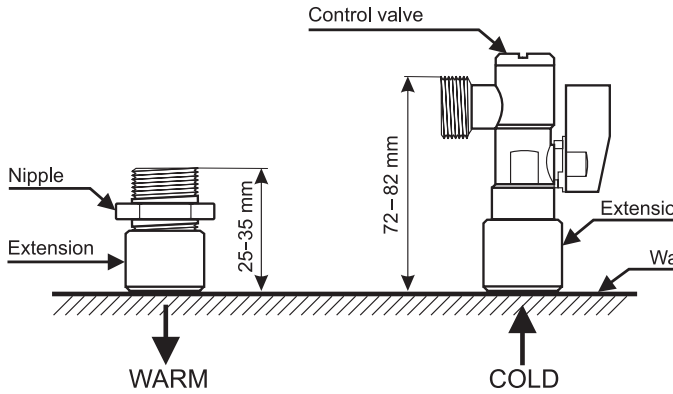
1. Display
2. Button increasing the set temperature
3. Button decreasing the set temperature
4. The screw fastening the casing



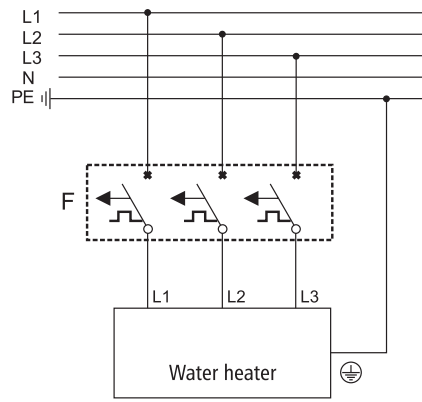
Pict. 2. Display plate with belt cable

1. Plug
2. “DISPLAY” socket
3. Display plate

Pict. 3.



Pict. 4. Diagram of electrical installation



Start-up

In order to remove air from the water installation and the heater prior to turning on electric power, open warm water valve for about 20 seconds. Then turn on the power. After turning on the heating, warm water valve should be opened again waiting till the moment (approx. 5 sec.) when the device will be in standby. A short sound signal and increased brightness of the display will signal the start of the water heating process. Close warm water valve. The heater will turn off heating signalling it with two short sound signals and the decreased brightness of the display. By means of “+” button, the desired temperature of water heating can be set.

Use

Setting the water temperature is done by pressing one of the buttons located under the display marked with "–" or "+" signs (pict. 1) in the range from 30°C to 60°C.
Detecting by the heating system bigger flow than the 2.9 l/min will result in switching it on what is signalled with brighter lighting of the display. The drop of the flow below the point of turning on will result in turning off signalled with decreasing of the brightness of the display. When the water flow through the heater is too strong in relation to the set temperature, the display will signal it displaying the "–" signs alternatively with the set heating temperature. In case when the inlet temperature exceeds 40°C, the heater will turn off to the moment when the feedwater temperature drops below 46°C.

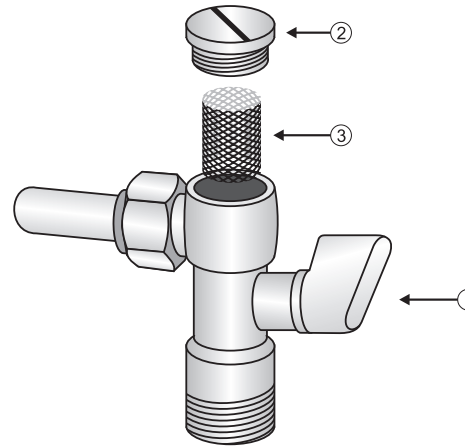
Efficiency of warm water depends on the temperature of inlet water.

Water temperature at the inlet	Water temperature at heater outlet 40°C				Water temperature at heater outlet 50°C			
	POW 12	POW 18	POW 21	POW 24	POW 12	POW 18	POW 21	POW 24
5°C	4,9	7,4	8,7	9.9	3,9	5,8	6,7	7,7
10°C	5,8	8,6	10	11,5	4,3	6,5	7,6	8,7
15°C	6,9	10,5	12,1	13,8	4,9	7,4	8,7	9,9

Cleaning the water filter

In a situation when the filter is partially or fully blocked, follow the steps:
1. Disconnect the power supply
2. Unscrew the fastening screw located at the bottom of the casing (pict. 1), then take the casing off holding it in such a distance from the heater so that the belt cable connecting the display with the heater was not stretched, and then disconnect the cable by taking out the plug from the socket marked "DISPLAY" (pict. 2).
3. Close the control valve (marked 1).
4. Open the plug of the control valve (marked 2).
5. Take out mesh filter (marked 3).
6. Remove dirt
7. Insert mesh filter
8. Close the valve plug.
9. Open the flow on the control valve and check the watertightness of connections.
10. Connect the belt cable to the display plate (pict. 2).
11. Close the casing
12. Perform the air relief of the heater, and then start it according to chapter "Start-up".

Pict. 5. Control valve with a filter



1. Control valve knob (position: flow closed)
2. Valve plug
3. Mesh filter

Mulfunctioning of the heater

Removing the given below causes of mulfunctioning of the heater is not included in manufacturer's warranty. In case when none of the causes occurs, please contact a service point.

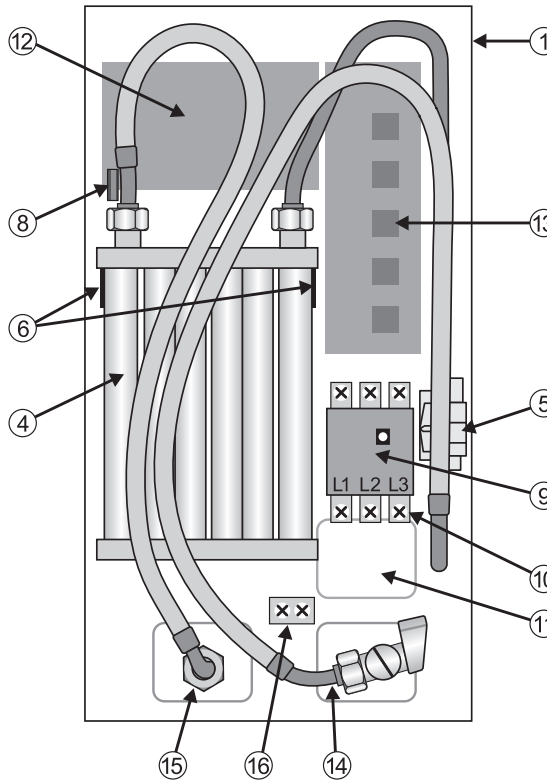
Display does not light:
- not connected belt cable connecting driver plate with the display (pict. 2)
- defect of the power supply installation of the heater.

Too low water flow:
- blocked water filter
- too low water pressure
- control valve closed too much
- not fully opened main valve. The heater does not heat or barely heats.
- wrong hydraulic assembly, defect of the electric installation powering the heater

The heater does not heat water to the set temperature:
- too large drop of mains voltage after turning on of the heater.
- too large flow of water (see point "Use").

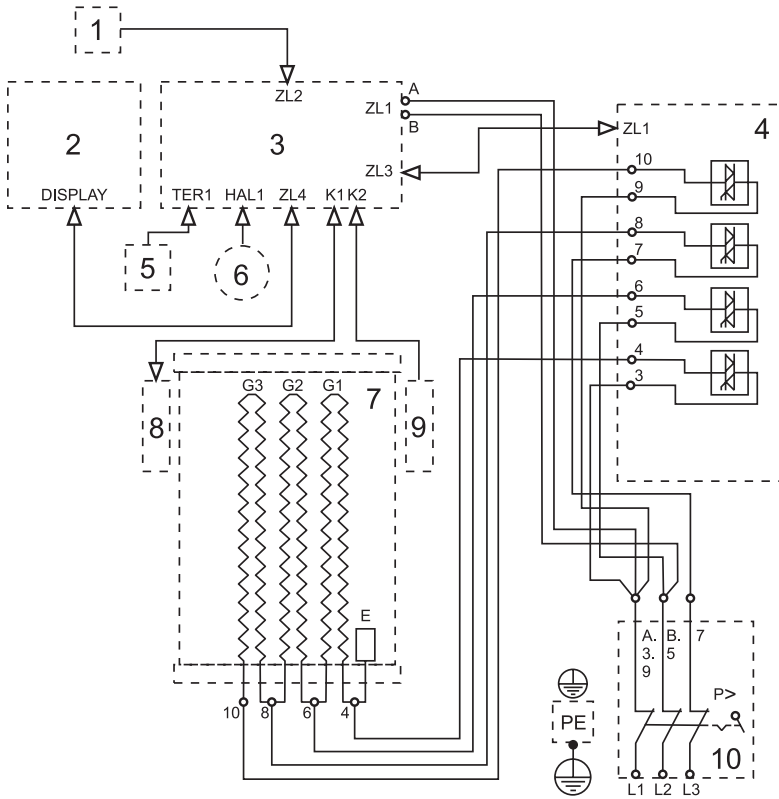
Internal structure of the device

Pict. 6.



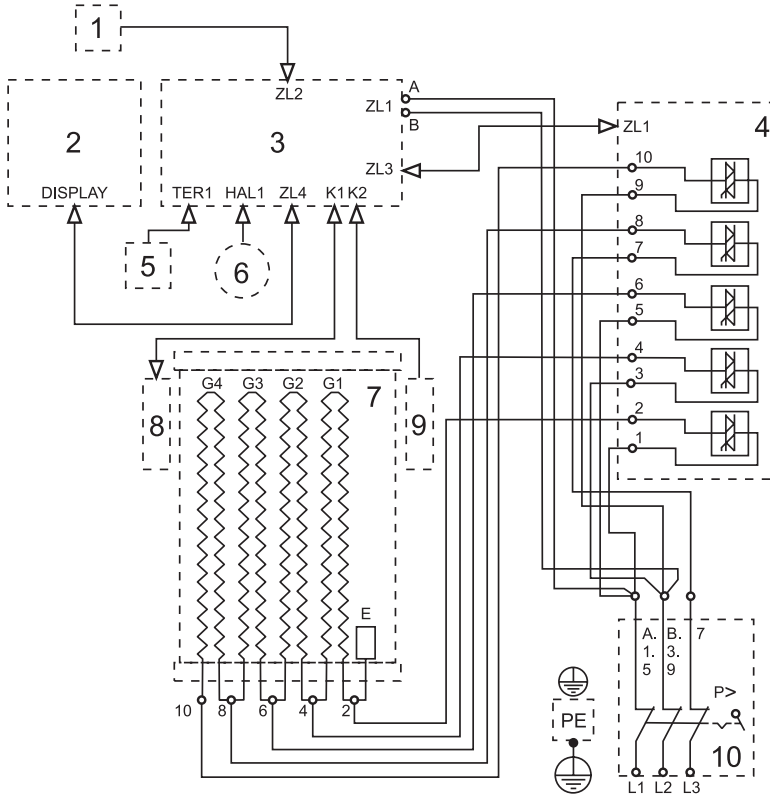
1. Lower casing
2. Upper casing
3. Display plate with a keyboard.
4. Heating unit
5. Flow sensor.
6. Air block sensors.
7. Inlet water temperature sensor.
8. Thermal switch
9. Pressure switch
10. Network terminals being parts of the pressure switch
11. Hole for inserting the supply cable
12. Driver plate.
13. Power plate.
14. Connection of feedwater (cold)
15. Connection of feedwater (warm)
16. Terminal of the protective cable

Pict. 7. Schematic diagram POW 12



1 - thermal switch
2 - display and keyboard plate
3 - driver plate
4 - power plate
5 - temperature sensor
6 - flow sensor
7 - heating unit
8, 9 - air block and flow sensors
10 - pressure switch
PE - terminal of the protective cable
E - electrode
G1, G2, G3, G4 - immersion heaters

Pict. 8. Schematic diagram POW 18, 21, 24



Technical data

POW heater		12	18	21	24
Rated power	kW	12	18	21	24
Supply voltage	400 V 3~				
Frequency	Hz	50			
Maximum power consumption	A	17,3	26	30,3	34,6
Minimum cross-section of connection cables	mm^2	4 x 2,5	4 x 4	4 x 4	4 x 6
Maximum cross-section of connection cables	mm^2	4 x 10			
Rated current of the circuit breaker	A	25	32	40	40
Minimum electrical resistivity of water at 15°C	Ωcm	1300			
Pressure of feedwater	MPa	0,1 – 0,6			
Minimum turning on flow	l/min	2,9			
Maximum temperature of feedwater	°C	60			
Water connection	G ½”				
Dimensions (height x width x depth)	mm	447 x 235 x 104			
Mass	kg	3,8			

Contents of the packaging

POW heater	1 pcs.
Control valve	1 pcs.
Fastening screws with expansion plugs	3 pcs.
Gaskets	2 pcs.
Template	1 pcs.
Instructions manual	1 pcs.
Warranty card	1 pcs.