

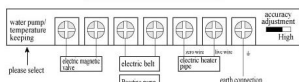
TK-7 instruction manual

4. ASSEMBLY

1. Installation

1. open the junction box under the controller
2. put the water temperature sensor plug to the pin which is green mark, be tight and put them to the channel be fastness
3. put the bracket on the place no water drenching and easy to be observed, fastness by screw
4. put the controller on the bracket, connect the line of the solenoid valve, boost pump, heater belt and heat tube to the junction based on the hookup. No wrong connection, otherwise, will damage the equipment. Please choose the keep temperature or pump
5. the connection line can come out from three position on the right and left. Then cover the box, after checking no wrong, put on the power for self checking.

CONNECTION DRAWING

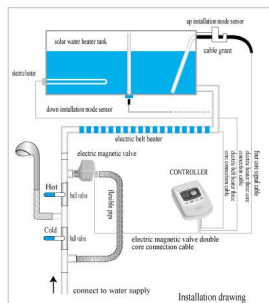


2. The water level and temperature sensors assembly

1. Fix the cable grant into the over fall pipe and then put the sensor into the over fall pipe and draw the cable slightly to get connect to the entrance and then push the cable to the over fall pipe about 1 cm. Then fix the cable by pressure plate.
 2. Lead the cable to the room, and tight the cable out side to prevent the broken.
 3. the sensor do not too close near the electric heater or touched.
 4. Never drench the plug or to be wet when assembling
- * There is the bottom sensor, the sensor install under the bottom of the tank.(see the installation drawing)

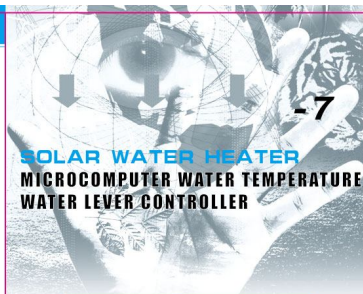
3. The solenoid valve install

1. Assembly direction: the water in and out is different, the side with filter is the water in, the arrowhead show the water direction
2. the cable connect with the solenoid valve, and the cable could be longer, the thick cable is better.
3. The solenoid valve of the -7 has the check valve, it is no need to install the check valve again.
4. Please choose the soft or easy take off pipe to connect the side water come in for the cleaning the filter.



-7 CONTROLLER GUARATEE CARO

USER NAME: _____ TELEPHONE: _____
 USE ADDRESS: _____ PURCHASE DATE: _____
 PRODUCT MODEL: _____
 EXPORT DATE: _____
 REFERENCE NO: _____ SIGNATURE OF FACTORY: _____



Installation and Use Instruction



- Power off memory
- Water temperature preset
- Intelligent heating
- Water insufficient alert
- Leakage protection
- Constant heating
- Pipe warm keeping
- Water lever preset
- Intelligent water loading
- Auto water loading
- Low pressure water loading
- Constant water level loading
- Manual control
- All-weather water supply
- Auto control boosting pump

* Before use this machine,pls read carefully this manual

Dear User:

Thanks for using our product. The -7 solar water heater micro computer controller is design for solar water which has the new SCM technology and colorful display for water level and temperature, auto water loading, design for human personality, temperature and water level preset, low water level alert, water leaking prevent, leakage protect, manual control, all-weather water supply, low water pressure loading, constant temperature heating and constant water level loading, pressure pump auto control and pipeline heating could be chosen for the large quantity hot water consumption user. It is featured by easy control, safety and practicality.

1. TECHNICAL DATA

1. Power: 220V AC, Power loss: <5 W
2. Temperature detect tolerance: $\pm 2^{\circ}\text{C}$
3. Temperature detect range: $0\sim 99^{\circ}\text{C}$
4. Temperature control precision: $\pm 0.2^{\circ}\text{C}$
5. Water level: 4 level
6. Electric heating belt and water pump power: <500 W
7. Electric heater power: <2000 W
8. Electric leakage cut off current: <10mA/0.1s
9. Solenoid Valve: DC12V for pressurized and non pressurized valves
 Pressurized working pressure: 0.02MPa-0.3MPa, for direct water supply, non pressurized working pressure: 0.00MPa, for water tank supply and low pressure water supply

2. FUNCTION

1. Start self checking: when you start the controller with a "DI" sound, shows the controller in normal well working.
2. Water level preset: 50%, 75%, 100% can be presetted
3. Water temperature preset: The preset range from $30\sim 80^{\circ}\text{C}$. If no need of electric heating, set the temperature 00°C to switch off this function.
4. Water temperature display: display the water temperature in the solar water heater.
5. Water level display: display the water level in the solar water heater
6. water insufficient alert: when the water level come down and become sufficient, the buzzer will alert and 25% water level will shining at the same time.
7. Auto water loading: When the water level come down and become sufficient, the controller will auto loading the water to the level which is preset. 30 minutes later
8. Manual water loading: If the water level is lower than the preset, press the "water load/water level" button, it can load the water to the level which is presetted. If the water level is reached the presetted level, it will be one more level than before. If the water level is 100%, press the "water load/water level" button will stop the loading.
9. Manual heating: When the temperature lower than the presetted, press the "heat up/water temperature" button will stop automatically when it reach the preset temperature. If press the button again, it will stop electric heating.
10. Intelligent load and heating: If the controller at no setting condition, the controller will automatically start by itself for loading water and start the electric heater according to the sunlight, hot water volume consumption, preset temperature, water level, weather and the user's custom.
11. All-weather water supply: The mode for the large quantity hot water consumption user. The function of all the day auto loading and

heating water, will supply the water about 50°C in the morning and load the water in the day time heating by the sunlight. If the sunlight can not reach the temperature presetted. The controller will start the electric heater automatically to reach the preset temperature, continually pressing on the "preset" button will cancel the all day water supply function, there will be no hot water water supply in the morning.

12. Constant heating: If the water tank temperature 3°C lower than preset, it will automatically heating to the presetted temperature to keep the temperature constant. If the water level lower than 50%, the controller will automatic loading the water to the presetted level and then heating. This is for preventing the dry heating.
13. Constant water level loading: If the water level lower than 75%, it will load to full after 30 minutes. This function is only in the water level preset at 100%.
14. Impulsive loading water: When the sensor has problem, press the "load water/water level" button to fill the water while the controller will beep one minute to alarm for if the water full or not. After 8 minutes, it will stop automatically.
15. Low pressure water loading: when you fill the water to the tank and if the water supply stop or water pressure too low, the controller will shift to low pressure water loading mode. The "all day water supply" button will lighting and alarm disable for the all day water supply. In this mode, the controller will start every 30 minutes to load the water. If after 30 minutes the water still not go up to one level, then stop for another 30 minutes to make a circulation and detect the water tank over temperature until the water level go up to 75% or full. This is design to prevent for: 1. solenoid valve and pump empty running to be broken. 2. if it is leaking because of the solar vacuum tube broken or others, the controller will nonstop load water and the tank will glide all the time, and the same the roof. 3. The solar vacuum tube will be broken if the tube under the sunlight long time no water and the water come up suddenly. The thermo shock will break the tube.
16. Auto control boosting pump: when the water supply at low pressure, you can choose the boosting function to start the boosting pump to increase the water supply pressure, when the tank is full, the pump will stop automatically also with the solenoid valve.
17. Power off memory: If the power off, the controller will keep the memory of the preset.
18. Pipe warm keeping: during the winter time, the outside temperature is low. You can press the "pipeline warming keep" to electric heating belt show in the screen with highlighted drawing. If press again, it will stop.

3. OPERATION

- The water loading and the electric heater back up start automatically and intelligently, the users do not need do any operation. If you want to change the preset water level and temperature or other loading heating mode. The operation as follows:
1. water temperature and water level set: press "set" button to preset the temperature at 50°C , and preset water level 100% to make it shifting. Then press "load water/Water level" to make water to preset the water level. Press the "electric heating/water temperature" button to preset the water temperature. We suggest do not set over 60°C to save the energy.
 2. constant water level loading: Press the "Loading/Water level" button about 3 seconds when you hear the "di" sound shortly, then release

it, the constant water level loading is setted, the "O" icon of the tank will shining quickly show the set is ok. Press the "Loading/Water level" button again about 3 seconds when you hear the "di" sound shortly, then release it, the "O" icon of the tank stop shining, the constant water level loading is cancelled.

3. Constant temperature heating: Press the "heating/Water temperature" button about 3 seconds when you hear the "di" sound shortly, then release it, the "C" icon of the temperature will shining quickly show the set is ok. Press the "heating/Water temperature" button again about 3 seconds when you hear the "di" sound shortly, the "C" icon of the temperature stop shining. The function cancelled. If you want to cancel all the set, cut off the power and press the "set" button not release, then power on again, it will go back to the original preset: 50°C water temperature, 100% water level, all automatically running as preset, all day water supply. The controller will load the water to 100% when power on.

4. MAINTENANCE

1. Do not scour the controller at any time.
2. Check all the lines in correct connected
3. If long time use and water quality is not good will cause the sensor accuracy down, the water tank is full while the display show 100%. You can open the controller and adjust the sensor accuracy to be high.

5. ATTENTION

1. The tank can not be empty for long time, to protect the components because of the hot come from the sunlight.
2. The solar water heater and the solenoid valve must build in the place will not leak to the room and not hurt because of the insulflation if wrong operation, abnormal power supply, or control components failed caused the overflow. The lightning conductor is necessary, and cut off the power when lightning, stop using the solar to be safe.
3. The detect component has the electric leakage protection, just press the "heating/Water temperature" button to stop heating and wait for the icon wink off when use the water.

6. GUARANTEE

We guarantee for one year if it is not damaged by user and maintenance for life time.

Normal trouble shoot

| Trouble | Reason | Solution |
|---|---|--|
| No start checking, no display or wrong display | Low power or not good connection | Check the power voltage and power on again |
| Display $\sim 0^{\circ}\text{C}$, 25% level 100%/level icon all work | No good connection or lightning strike, plug in wrong way | Check the green mark and plug again, or change to maintenance, or change the controller |
| Slow water loading or the water loading icon off on the screen | The solenoid valve stuck or the water pressure low, no water or solar tube broken, solenoid valve not cut | Rinse the water supply, clean the solenoid valve or wait the water coming or change the solar tube, check the line |
| Electric heating low light and the temperature not get up or not continuously | Electric heater has temperature control or the heater is broken | Down the preset temperature and change the heater pipe |
| Display LD | Electric leakage protection | Check the electricity line |