

Installation and Maintenance



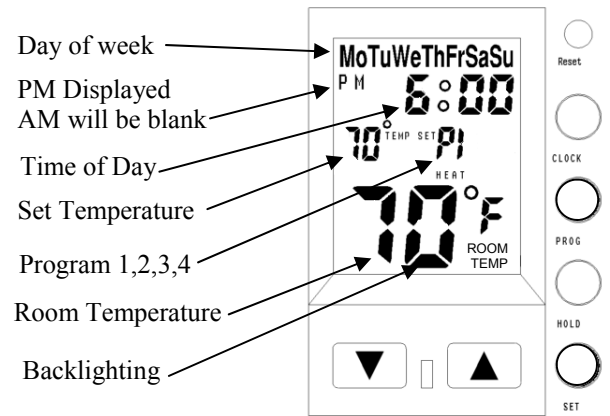
This thermostat is intended to be used as a 2 circuit thermostat controlling a circulation pump and a fan coil on a hydronic heating system, though could have other uses needing 2 circuit control.

HWP120 and HWP230

⚠ DANGER ⚠

ELECTRIC SHOCK OR FIRE HAZARD

Read all wire sizing, voltage requirements and safety data to avoid property damage and personal injury



⚠ WARNING ⚠

Display Legend

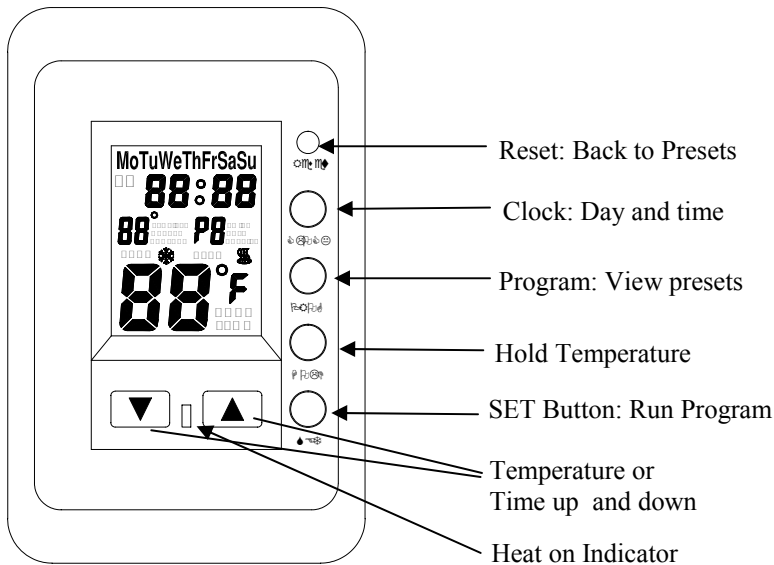
Read Carefully - These instructions are written to help you prevent difficulties that might arise during installation of thermostat. Studying the instructions first may save you considerable time and money later. Observe the following procedures will cut your installation time to a minimum. Save These instructions for future use.

Thank you for buying this King Thermostat. It should provide years of service and comfort to your home. Inspect the package you have received: Thermostat (with its cover) and two screws to attach it to a wall box.

1. Check the total load of the items you are connecting to the thermostat. The maximum wattage at 240 volt is 2880 watts. If you have the 120 volt version maximum is 1500 watts per switch. You need to stay below this total wattage connected to the thermostat. The lower the wattage the longer the life of the contacts in the relay.
2. To wire the thermostat determine which pair of wires are coming from the breaker panel and which pair lead to the heater.
3. Attach with wire nuts the Blue wire (White wire on 120Volt model HWP120) into the pair of white wires in the Junction box.
4. Take a black lead from the Circuit Breaker panel and attach it to the Black lead on the thermostat. This will provide power to the thermostat LCD display, backlighting, and control relays.
5. Take the Black lead that goes to the heater and attach it to the Yellow Lead on the Thermostat. This will provide power to the heater when the thermostat calls for heat after a 1 minute delay.
6. Take the Black lead to the Pump and attach the Red lead from the thermostat.
7. Remove cover of thermostat by holding back of thermostat and with a finger and thumb on the top and bottom of the thermostat pull cover towards you evenly to remove cover and expose mounting holes and buttons.
8. Push the wires carefully into the junction box making sure no wires are pinched or will get in the way of the screws mounting the thermostat. Now attaching the thermostat to the wall with the #6-32 screws provided.
9. Hold thermostat into wall box and place screws in top and bottom mounting hole and screw to wall box.
10. Turn on power and test by increasing set point to higher than room temperature by tapping the up button. There will be up to a 3 minute delay in turning on the pump. The indicator light will turn on and you will hear a small click and at the same time and the pump should be on. One minute later the heater in that room will turn on. Turn the thermostat down by tapping on the down arrow.
11. To turn on backlighting under the bottom left of the thermostat you will feel a small switch moving one way will turn on the light and the other will turn off the backlight. You have now verified that the thermostat is in perfect working order and ready for years of trouble free operation.
12. **Mounting location tips.** Make sure there is not anything that could affect the average room temperature sensing of the thermostat, like, plumbing pipes in the wall, a lamp close by, direct Sunshine, Cold drafts from a door opening. The best location is on inside walls above the light switch for that room.
13. **Cleaning.** A damp cloth will clean the plastic case surface of finger prints and dust. Strong spray cleaners may damage plastic case or remove writing or arrows printed on case. Blow out any dust that may accumulate on air vents on top or bottom, good air circulation is key to long life and accurate operation.

General Specifications

HWP230 and HWP120



Specifications: For HWP230 / HWP120

Temperature range: 40 to 95
Temperature Default: Program temps
Display Format: Liquid Crystal Display (LCD)
Display size: Large Format
Sample Rate: Every 60 seconds
Delay on or off, first relay: 3 minutes
Delay on 2nd relay: 1 minute from first relay.
Illumination: Green LED
Heat indicator: Red LED
Relays Rating: 16 amps before de-rating
Accuracy: + or- 1.2 Degrees F
Maximum Amps: 12.5 resistive continues
Maximum Watts: 3000 HWP230 Per contact
1500 HWP120
Minimum Watts: 0
Power Supply: 120 volt HWP120
208/240 volt HWP230

General information:

This thermostat is designed to give you the best temperature control for residential hot water fan heating. A 120, and a 208/240 volt version is available. Most fan forced hot water systems are 120 volt. It is very rare to find a 240 volt hot water installation. Check your voltage to make sure you have the right thermostat for your heater voltage. A 2 pole or double wide circuit breaker at the panel would indicate that you should use the 240 volt model, a single pole or single wide breaker would indicate a 120volt circuit. There are some exceptions to this rule so checking with a voltmeter is the only way to know for sure. Be safe and smart, electricity can kill you if not treated with respect and caution. If your not comfortable hire an electrician for this project.

The thermostat will provide years of comfort control for your family for Small Fan driven hot water circulation or electric heaters, Baseboards, Radiant ceiling or wall panel heaters, cove heaters, or any line voltage resistance heating systems that do not have an electric motor over 1/8 hp. The thermostat will be warm to the touch on top. It is the electronics operating, it also helps provides air currents across the face of the sensor that help it determine room temperature better.

Operation.

This precision electronic thermostat will sense the room air at the bottom of the thermostat by an Thermistor. This very sensitive sensor will send information to the microprocessor . As the temperature drops the information sent will indicate if heat is needed. The Processor has a 2 to 3 minute delay on and off pump cycle built in, and 1 minute delay on the second fan relay to reduce any undesirable fast on off cycles and to verify heat is really needed. This saves energy and provides the best control of a space. This thermostat will not require batteries and has a back up, the default program setting is 62 F set back and 70 F set up and a standard work week timing in memory. The Program is easily changed by tapping the **SET and PROG buttons** at the same time on the inside of the thermostat cover. The day and time of day can be adjusted by pressing the **clock button** and using the **arrow keys**. For an override, the Up arrow increases temperature and down arrow reduces temperature without needing to re-adjust the program.. Back lighting is provided on some models and can be turned off or on by a small switch under the left corner of the thermostat. This will allow you to see the thermostat in low light or at night. The thermostat may take a few hours to temperature stabilize in your room so don't be alarmed when the thermostat is not telling the right temperature immediately after installing..

Installation:

This line voltage device should be installed and serviced by a qualified electrician. The thermostat has been designed to mount to a standard 2"x 4" electrical outlet box. Leveling of the thermostat is not required. #6-32 mounting screws are provided. Mount the thermostat about five feet above the floor in an open area. A good rule of thumb is to place the thermostat above the wall switch for that room. This works well for most bedroom and makes it very convenient to turn the heat lower when leaving the room. Avoid mounting the thermostat where there may be plumbing pipes in the wall or placing a lamp or TV too close to the thermostat . The heat from these items affects the thermostats performance.

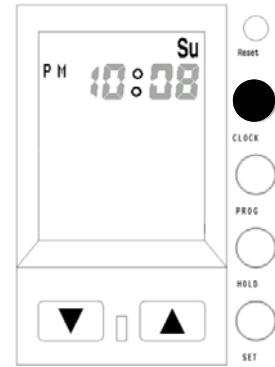
HWP Programming instructions



Thermostat display will be flashing on initial start up.
Tap one arrow key to stop the flashing.



Set today's Day :
Touch the **CLOCK** button, the day will flash, press the arrow key to set today's day.



To set today's time:
Touch the **CLOCK** button and the hour will flash. Use Arrow keys to set hour. Touch **CLOCK** button again to set minute with arrow keys.
To Exit press **SET** button.

Number 1
View Presets



Number 3
Changing Pre-



To View the preset program

1. Press the **PROG** Button to view the P1 temperature or Program 1 setting for that day.

push the **PROG** Button again you will see presets for P2,P3,P4.

2. To advance day:

Tap **ARROW** Key, All the days are set the same and ready for your adjustment .

To make Program adjustments:

3. Press the **SET** Button and the **PROG** Button at the same time. This puts it into Program mode and the days will be flashing,

Tap the arrow keys to select all seven days or one day at a time to program.

Tap the **PROG** key to highlight the time.

Tap the **ARROW** keys to adjust,

Tap the **PROG** key again to set the temperature for that time,

Repeat these Steps for all Presets, P1,P2,P3,P4.

When you reach P1 again:

Tap the **ARROW** key to change the Day and repeat Programming.

If all days are the same for that temperature select all seven days for that P Number.

Permanent Hold



Days of hold



To vacation hold a temperature for a preset number of days.

1. Press **HOLD** button.
2. Tap **ARROW** Keys to set temperature.
3. Press the **HOLD** button until d:01 displays in the time window.
4. Tap the **ARROW** keys until the number of days desired is achieved. Up to 99 day hold can be achieved.

To stop hold function

Push **SET** button and normal program is resumed.

To Permanently hold Temperature

Press **HOLD** button

Tap **ARROW** Keys to set temperature.

To resume program and stop hold function

Push **SET** button.

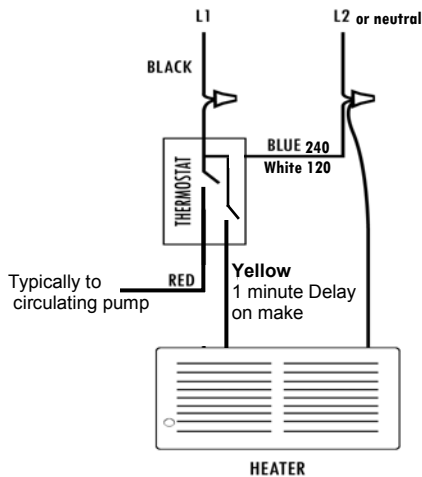
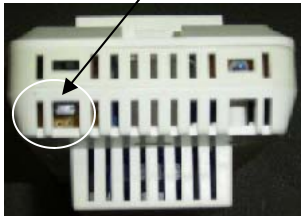
Wiring for HWP120 and HWP230

Hot Water System Programmable Thermostat

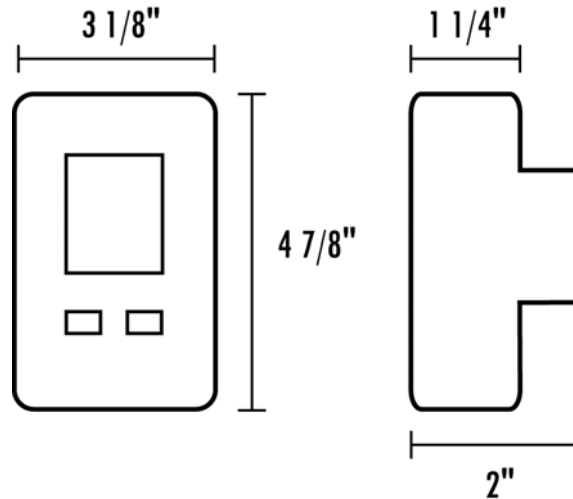
Display Change

Fahrenheit to Celsius

On the bottom edge of the thermostat there are air vents. One of the vents on the left side just behind the illumination switch there is a larger opening with a pin connector attached. With a needle nose pliers pull the connector off. This will put the thermostat into the metric Celsius Mode.



Two Circuit Control



Wiring Instructions

1. To wire the thermostat determine which pair of wires are coming from the breaker panel and which pair lead to the heater and pump.
2. Attach with wire nuts the **Blue lead (White lead on 120Volt model HWP120)** into the pair of white wires in the Junction box.
3. Take a black wire from the circuit breaker panel and attach it to the **Black lead** on the thermostat. This will provide power to the thermostats, LCD display, backlighting and both relay.
4. Take the **Black wire** that goes to the heater and attach it to the **Yellow lead** on the thermostat. This will provide a one minute delay of power to the fan heater when the thermostat is calling for heat.
5. Take the black wire to the circulating pump and attach it to the **Red lead** on the thermostat. This lead has a no delay.
6. Remove cover of thermostat by holding back of thermostat and with a finger and thumb on the top and bottom of the thermostat pull cover towards you evenly to remove cover and expose mounting holes and buttons.
7. Push the wires carefully into the junction box making sure no wires are pinched or will get in the way of the screws mounting the thermostat. Now attaching the thermostat to the wall with the #6-32 screws provided.
8. Hold thermostat into wall box and place screws in top and bottom mounting hole and attach to wall box.
9. Turn on power and test by increasing set point to higher than room temperature by tapping the up arrow keys. There will be up to a 3 minute delay in turning on circulation pump. The indicator light will turn on and you will hear a small click and at the same time the circulation pump should be on. After one minute the second relay will turn on and operate the heaters fan. Both relays will shut off when temperature is satisfied. Turn the thermostat down by tapping on the down arrow keys.