

# GENERAL INFORMATION



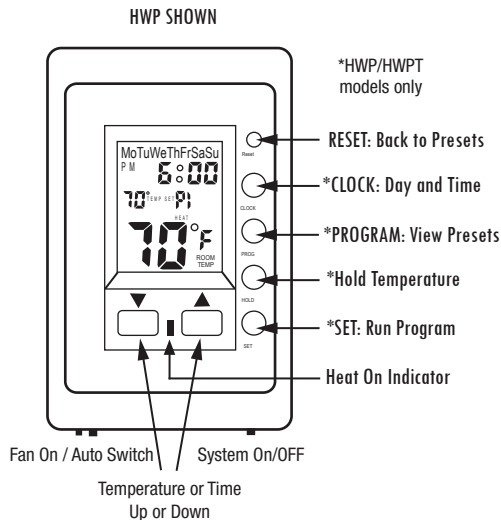
Smart Heating Solutions

## HW-FS, HWP-FS, HWPT-FS 120V Series

DANGER

ELECTRIC SHOCK OR FIRE HAZARD

READ ALL WIRE SIZING, VOLTAGE REQUIREMENTS AND SAFETY DATA TO AVOID PROPERTY DAMAGE AND PERSONAL INJURY



### SPECIFICATIONS (HW, P/T 120):

*Purpose of Control: Operating Control*  
*Construction of Control: Independently Mounted for Junction Box Mounting*  
*Temperature Range: 44° to 93°F (HWP &T)*  
*40° to 95°F (HW)*  
*Temperature Default: Program Temperatures*  
*Display Format: Liquid Crystal Display (LCD)*  
*Display Size: Large Format*  
*Simple Rate: Every 60 Seconds*  
*Delay ON or OFF - 1st Relay: 3 minutes*  
*Delay ON 2nd Relay: 1 minute from 1st Relay*  
*Illumination: Blue LED*  
*Heat Indicator: Red LED*  
*Type 1 Action*  
*Pollution Degree: 2*  
*Impulse Voltage: 2500V*  
*Relays Rating: 12.5A Resistive or 1/2HP*  
*Accuracy: ± 1.2°F*  
*Total Combined Load: 15 Amps Max Resistive or Inductive with Both Relays Energized.*  
*Maximum Watts: Total Combined Load not to Exceed 1800 Watts HW/P/T.*  
*Minimum Watts: None*  
*Power Supply: 120V (HW/P/T 120)*

**GENERAL INFORMATION:** These thermostats are designed to provide temperature control for residential or commercial heating systems with a combination of resistive, inductive and/or motor loads. There thermostats are rated for 120V. 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 240V, which is not compatible. A single pole, or single wide breaker, would indicate a 120 Volt circuit which is required for these thermostats. There are some exceptions to this rule so checking with a voltmeter is the only way to know for sure.

**Be Safe & Smart! Electricity Can Cause Severe Injury or Death If Not Treated with Respect and Caution.** If you are not knowledge about electrical wiring please hire an electrician for his project. This 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 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. This is the electronics operating and also helps provide air currents across the face of the sensor that better help it determine room temperature. The thermostat may display a temperature that is at least 3° off from a room thermometer placed next to it. This is normal and is an offset for heat generated inside the thermostat.

### OPERATION:

This precision electronic thermostat will sense the room air at the bottom of the thermostat by a thermistor. This very sensitive thermistor will send information on 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 built in and a 1 minute delay on the second fan relay to verify if heat is really required and to reduce any undesirable fast on/off cycles. This saves energy and provides the best temperature control of a space. This thermostat does not require batteries and has a back-up for the program if the power goes out.

**HW only:** The HW series is a non-programmable thermostat providing simple control of your system.

**HWP - HWPT only:** The default setting is 62°F set back, 70°F set up and a standard work week timing in memory, easily changed by tapping the SET and PROG buttons at the same time on the inside of the thermostat cover. Day and time of day can be adjusted by selecting the CLOCK button and using the arrow keys. For an override, the Up arrow increases temperature and the Down arrow reduces temperature when needing to readjust the temperature.

**HWPT only:** This model adds a timer for the pump. As you connect the wires the timer is activated turning the pump on in 12 hours for 15 minutes. After this it will turn the pump on for 15 minutes every 12 hours to flush the system's lines. Backlighting is provided and can be turned off/on by a small switch under the left corner of the thermostat. This light allows the thermostat to be seen in low light or at night. The thermostat may take a few hours to temperature stabilize the room temperature; Do not be alarmed when the thermostat does not show the correct temperature immediately after installation. A system switch is located under the right corner.

### 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 Phillips head mounting screws are provided.

Mount the thermostat in an open area about 5 feet above the floor. A good rule of thumb is to place the thermostat above the wall switch for that room. This works well for most bedrooms, making it very convenient to turn the heat lower upon leaving. Avoid mounting the thermostat where there may be plumbing pipes in the wall, or placing a lamp or TV too close to the thermostat. Heat from such items negatively affects the thermostat's performance.

# WIRING INSTRUCTIONS



Smart Heating Solutions

## HW-FS, HWP-FS, HWPT-FS 120V Series

**⚠ DANGER ⚠**

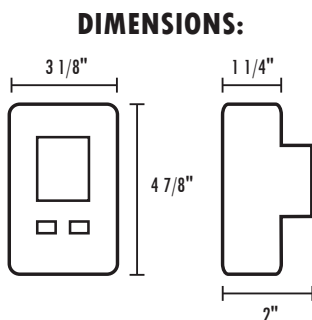
**ELECTRIC SHOCK OR FIRE HAZARD**

READ ALL WIRE SIZING, VOLTAGE REQUIREMENTS AND SAFETY DATA TO AVOID PROPERTY DAMAGE AND PERSONAL INJURY

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 the white wire on 120Volt model with wire nuts into the pair of white wires in the junction box (the neutral).
3. 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 both relays. (line power)
4. Take the black lead that goes to the heater, or motor 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 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, exposing 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. Attach the thermostat to the wall with the #6-32 screws provided.
8. Hold thermostat into wallbox and place screws in top and bottom mounting holes. Attach to wallbox.
9. Turn on power. 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. You will hear a small click and an indicator light will come on; the circulation pump should now be on. After one minute the second relay will turn on and operate the heater fan. Both relays will shut off when the temperature is satisfied. Turn the thermostat down by tapping the down arrow.

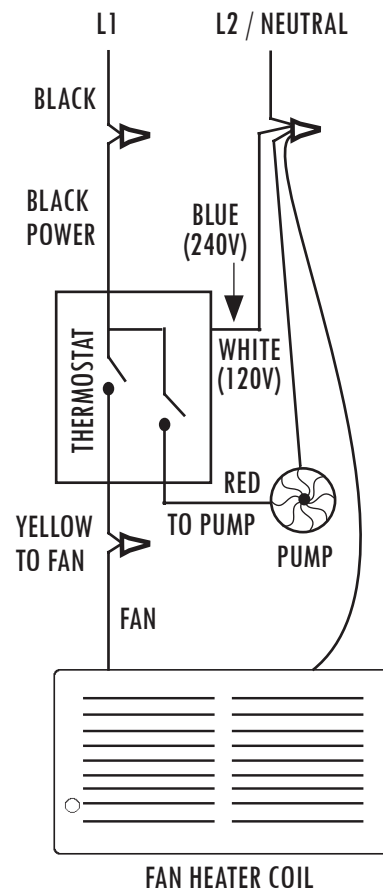
### HWPT - Timer for pump circuit

On initial power-up the pump cycle timer turns on 12 hours for 15 minutes. After the first 12 hour cycle timing the pump will cycle on every 12 hours for 15 minutes to flush the pipes.



**DISPLAY CHANGE**

**Fahrenheit to Celsius:**  
There are air vents in the bottom edge of the thermostat. In the vent on the left side, just behind the illumination switch, there is a larger opening with a pin collector attached. With needle nose pliers, pull the connector off. The thermostat will now be in metric Celsius mode.



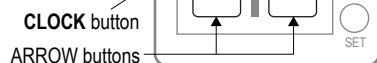


# HWP-FS & HWPT-FS Models Only PROGRAMMING INSTRUCTIONS

## 1 Set Date

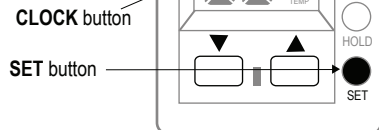
Upon initial power-up, the thermostat display will be flashing.

- Press the ARROW buttons to stop flashing.
- Press the "CLOCK" button, a day will flash. Press the ARROW buttons to set today's date.



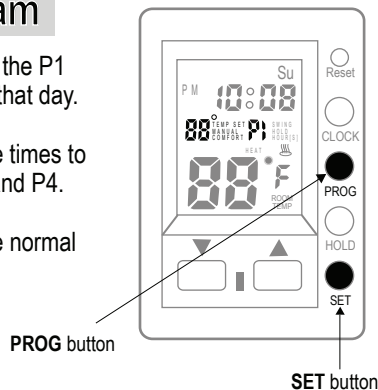
## 2 Set Time

- Press the "CLOCK" button, the hour will flash. Press the ARROW buttons to set the hour.
- Press the "CLOCK" button again to set the minutes with the arrow buttons.
- To exit, press the "SET" button.



## 3a Current Program

- Press the "PROG" button to view the P1 temperature / Preset 1 setting for that day.
- Press the "PROG" button multiple times to scroll through presets for P2, P3 and P4.
- Press the "SET" button to resume normal operation.



## 3b Energy Saving Schedule

- P1 Morning wake-up program.
- P2 Daily away from home program.
- P3 Evening home program.
- P4 Nightly sleep program.

default schedule

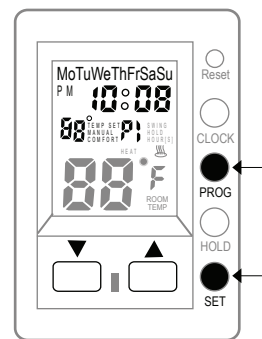
Program	Temp.	Mo-Su
P1	70°	6:00am
P2	62°	8:00am
P3	70°	6:00pm
P4	62°	10:00pm

your customized schedule

Program	Temp.	Mo	Tu	We	Th	Fr	Sa	Su
P1								
P2								
P3								
P4								

## 4 Program Adjustments

- Press the "SET" button and the "PROG" simultaneously. This begins the program mode. The days will be flashing.
- Press the ARROW buttons to select all seven days or one at a time.
- Press the "PROG" button to highlight the time.
- Press the ARROW buttons to adjust time.
- Press the "PROG" button again to set the temperature for that specified time.
- Repeat the above steps for all presets (1, 2, 3 and 4).
- When you reach P1 again, press an ARROW button to change the day and repeat programming.
- If all presets are identical, select all seven days for that preset number.
- Press the "SET" button to resume normal operation.

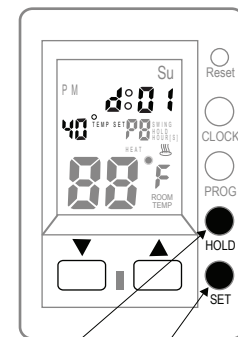


Press PROG button and SET button simultaneously to begin programming

## 5 Vacation Hold

For extended days of absence:

- Press the ARROW buttons to set temperature.
- Press the "HOLD" button until d:01 displays in the time window.
- Press the ARROW buttons until your number of days on vacation is displayed. Up to 99 days can be programmed.
- To stop vacation hold press "SET" button and normal operation is resumed.



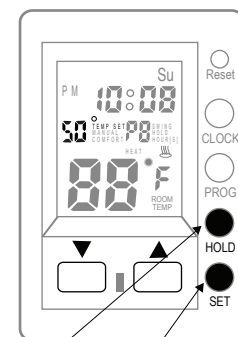
HOLD button

SET button

## 6 Permanent Hold

To permanently hold the temperature:

- Press "HOLD" button.
- Press ARROW buttons to set temperature.
- To stop permanent hold press "SET" button and normal operation is resumed.



HOLD button

SET button

# INSTALLATION AND MAINTENANCE



Smart Heating Solutions

## HW-FS, HWP-FS, HWPT-FS 120V Series



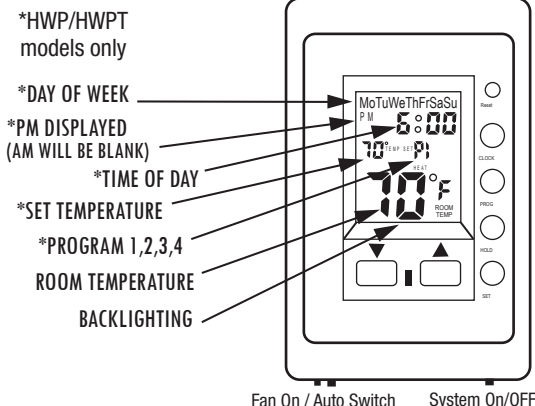
**DANGER**



**ELECTRIC SHOCK OR FIRE HAZARD**

READ ALL WIRE SIZING, VOLTAGE REQUIREMENTS AND SAFETY DATA TO AVOID PROPERTY DAMAGE AND PERSONAL INJURY

### DISPLAY LEGEND



**NOTE:** Temperatures displayed by this thermostat may differ from a thermometer placed next to it by up to 3°. Heat generated by the thermostat and a built-in compensation have an affect on this. Set the thermostat to a number that is comfortable regardless of temperature display setting.

These thermostats are 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.

## WARNING

1. Mounting tips: Make sure nothing is nearby (plumbing pipes in the wall, a lamp close by, direct sunlight, a T.V. set, and/or cold drafts from a door opening) that could affect the average room temperature sensing of the thermostat. Typically the best, most convenient location is on inside walls above the light switch for that room.
2. Cleaning: Canned compressed air works great to clear any dust accumulation, while a damp cloth will additionally clean the plastic case surface of finger prints. Strong spray cleaners may damage the plastic case or remove writing or arrows screen-printed on case. Blow out any dust that may accumulate on top or bottom air vents. Good air circulation is key to long life and accurate operation.
3. Humid locations: Mildly humid location like bathrooms may reduce life due to corrosion on the contact and lint from towels getting into thermostat air vents. To extend life blow out vent regularly and mount thermostat away from shower locations.

### End of Life Disposable Requirements:

CAUTION -RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE  
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

1. The backup battery must be removed from the CONTROL before it is scrapped.
2. The CONTROL must be disconnected from the supply mains when removing the battery.
3. The battery is to be disposed of safely.