

Smart Recirculation Control

Installation instructions

7/23/2015

Congratulations on purchasing the most advanced, micro processor controlled, hot water recirculation pump control made. This system is designed to run the recirculation pump only when you need it thus saving both water and energy. It is designed and built with pride in the USA to provide years of service and savings. The unit comes set from the factory so that it should work in most environments.

Contents:

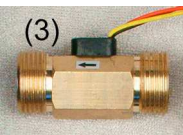
- 1 Smart Recirculation Control unit (1)



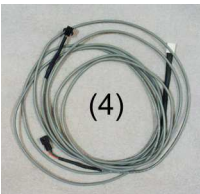
- 2 Temperature Sensors (connected together) (2)



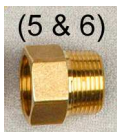
- 1 G 3/4" Flow Sensor (3)



- 1 Wiring Harness (4)



- 1 G 3/4" to 3/4" NPT adapter with Rubber Washer (5 & 6)



Needed:

The following items are needed for the installation, but are not included.

Electrical Tape

PTFE (Teflon) Tape

Wire fasteners for securing wiring to the wall

Specifications:

Input: 110V/60Hz

Output: 110V/60Hz

Max pump size: 3/4 hp

Please read over the following instructions. If you are not comfortable with any part of them please contact a licensed plumber to perform the installation.

1. Note setting of water heater thermostat and then set to lowest temperature setting (do not turn off the pilot light).
2. Shut-off the cold water supply to the water heater.
3. Open the closest hot water faucet to the water heater. This helps drain the pressure from the heater and empty some of the water from the tank. Close the faucet when the line begins to sputter.
4. Lift the small lever on top of the pressure relief valve to release any pressure left in the tank. You can find the relief valve on the top of the tank or along the side.
5. Disconnect cold water supply line from water heater. Be careful not to bend and crease the supply line when manipulating it. Be prepared with some towels as some water will flow out, but you shouldn't have to drain the tank and/or the hot water loop.
6. Connect the G $\frac{3}{4}$ to $\frac{3}{4}$ NPT adapter to the output side of the flow meter (see arrow on flow meter for flow direction) using the included rubber washer. Do not use PTFE tape. Hand tighten and turn it $\frac{1}{4}$ turn more.



7. Connect the flow meter to cold water input of water heater using PTFE tape.
8. Connect the cold water supply line to the input side of the flow meter. The supply line is typically $\frac{3}{4}$ NPT, but uses a rubber washer to seal instead of PTFE tape. This rubber washer will seal to the inflow of the flow meter. Hand tighten and turn an additional $\frac{1}{4}$ turn. Do not use PTFE tape connecting the supply line to the flow meter.



9. Turn on cold water supply to water heater and inspect for any leaks.

10. Turn water heater thermostat back to its original temperature setting.
11. Locate the recirculation pump.
12. Place either temperature sensor against the recirculation loop return pipe immediately before or after the pump, whichever is more convenient. Note: Temperature sensor MUST be placed before the one-way valve. The temperature sensor should be taped in place against the return pipe underneath the insulation that is covering the pipe. The temperature sensor must be installed underneath pipe insulation.



13. Place the other temperature sensor against the hot water outflow pipe of the water heater underneath the insulation that is covering the pipe. The temperature sensor must be installed underneath pipe insulation.



14. Connect the the flow sensor and the temperature sensors to the wiring harness. The ends on the sensors are such that they can only plug in one way.
15. Secure the wires to the wall away from the water heater.

16. Plug the wiring harness into the Smart Recirculation Control unit. The plug can only install in one direction when connecting the harness to the Smart Recirculation Control unit.



17. Plug the Smart Recirculation Control unit into an electrical outlet.

18. Plug the recirculation pump into the Smart Recirculation Control unit.



19. The red LED on the left side of the unit will blink for approximately 5 seconds. If it doesn't turn off please see Trouble Shooting item 1.
20. Go to a faucet and turn the hot water on and then off. This should trigger the recirculation pump to turn on and run until the recirculation loop is hot. If the recirculation pump doesn't turn on, turn on the hot water for a bit longer and then turn it off again. If it still doesn't turn on see Advanced Setup. The red LED turns on while the pump is running.
21. You will have hot water at the faucet before the pump turns off depending on the location of the faucet in the recirculation loop. Once the water temperature leaving the water heater is within tolerance of the water temperature returning to the water heater, the pump will shut off.

Advanced Setup:

Unless the pump doesn't turn on when you turn on the hot water at a faucet, we recommend that you use the Smart Recirculation Control unit with the factory settings for a few days to get used to how it works.



To enter Advanced Setup, unplug the Smart Recirculation Control unit from the wall outlet and, with a small screwdriver, move the small switch on the right side of the Smart Recirculation Control unit to the UP position and plug the unit back into the wall outlet. The Smart Recirculation Control unit is now in Advanced Setup mode and will turn on for 10 seconds when triggered by turning on hot water at a faucet regardless of the temperature sensor readings.

On the left side of the Smart Recirculation Control unit are 2 openings; the bottom one contains the red LED and the top one contains a small adjustment trimmer. The sensitivity of the Smart Recirculation Control unit can be adjusted by turning the small trimmer.

1. SYMPTOM: Pump not turning on when hot water is turned on at a faucet.

ISSUE: This is because the flow sensor requires a greater hot water flow to trigger the unit to turn on than the faucet is drawing.

RESOLUTION: Turning the screw on the adjustment trimmer clockwise will increase the sensitivity causing the Smart Recirculation Control unit to turn on with less hot water flow. The red LED will flash for 5 seconds when you make an adjustment. The faster the light flashes the higher the sensitivity and the less hot water flow is required to trigger the Smart Recirculation Control unit.

2. SYMPTOM: Pump turns on when no hot water is being run.

ISSUE: This is because the flow sensor is too sensitive and pressure spikes from valves in the cold water feed closing abruptly (like when a toilet fills) or surges from the water supply (due to pumps turning on and off) are triggering the Smart Recirculation Control unit to turn on.

RESOLUTION: Turning the screw on the adjustment trimmer counter-clockwise will decrease the sensitivity causing the Smart Recirculation Control unit to require more hot water flow to turn on. The red LED will flash for 5 seconds when you make an adjustment. The slower the light flashes the lower the sensitivity the more hot water flow is required to trigger the Smart Recirculation Control unit.

3. Once the adjustments have been made be sure to flip the Advanced Setup switch back to the DOWN position to put the Smart Recirculation Control unit back into normal run mode.

Trouble Shooting:

1. SYMPTOM: Red LED flashes quickly for more than 5 seconds after it is plugged in and never stops.

ISSUE: The Smart Recirculation Control unit is not able to get temperature information from the temperature sensors.

RESOLUTION: Unplug the Smart Recirculation Control unit from the wall, disconnect the connection to the temperature sensors, disconnect the wiring harness from the bottom of the Smart Recirculation Control unit. Reconnect the temperature sensors ensuring they are firmly connected and snapped together. Plug the wiring harness back into the bottoms of the Smart Recirculation Control unit. Plug the Smart Recirculation Control unit back into the wall outlet.

2. SYMPTOM: Pump won't turn on when hot water is drawn from a faucet.

ISSUE: Water in the loop is already hot.

RESOLUTION: Unplug the Smart Recirculation Control unit from the wall outlet, wait 10 seconds and plug it back in. Go to the faucet and turn on the hot water and see if the pump turns on and then off. If it does, then the unit is functioning correctly. If it doesn't, then the sensitivity of the Smart Recirculation Control unit needs to be adjusted up. Please see Advanced Setup.

3. SYMPTOM: Pump turns on when no hot water is being drawn.

ISSUE: Pressure spikes in the cold water supply line caused by abrupt turning off of the cold water as what happens when a toilet fills and turns off, or caused by fluctuations in the feed from the utility company can cause the Smart Recirculation Control unit to trigger the hot water recirculation pump to turn on.

RESOLUTION: The sensitivity of the Smart Recirculation Control unit should be adjusted down. Please see Advanced Setup.

4. SYMPTOM: Pump turns on when hot water is drawn, but it only runs for 5 seconds and then shuts off.

ISSUE: The Smart Recirculation Control unit is in Advanced Setup mode.

RESOLUTION: There is a small switch on the right side of the Smart Recirculation Control unit. This switch needs to be in the down position in order to be in normal run mode. Unplug the Smart Recirculation Control unit and use a small screwdriver to move the switch to the DOWN position. Plug the Smart Recirculation Control unit back in.

If you need further support please contact:

support@smartrecirculationcontrol.com
or call 831-761-8659