aquanta®

Smart Water Heater Controller Installation Instructions

For Electric Water Heaters
Model: AQ-CA-E100-ESL
Version 2.2e

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Introduction

Congratulations on the purchase of your Aquanta Smart Water Heater Controller!

The Aquanta water heater controller works with your new or existing electric water heater to bring it out of the basement and put it into the palm of your hand. It heats water only when you need it, offering cost savings and intelligent controls.

This manual describes the physical installation of the Aquanta Controller and associated sensors. It can easily be installed by most homeowners or a certified electrician.

First, install the Aquanta Controller on the top of the water heater and connect the sensors. Then, apply power to the Aquanta Controller, connect it to your home Wi-Fi network, register with the Aquanta Portal and you have a smart water heater!

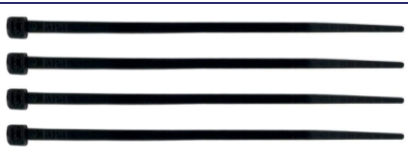
The Aquanta Controller contains a Wi-Fi transmitter module FCC ID: VPYLBYD. This device complies with Part 15 of FCC Rules and Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

FCC CAUTION
Changes or modifications not expressly approved by Aquanta Inc. could void the user's authority to operate the equipment. This transmitter must not be co-located or operated in conjunction with any other antenna or

Tools Needed:

- Phillips and Flathead screwdrivers
- Needle nose pliers
- Smart phone, tablet or laptop with wifi
- Voltage tester (optional)

Parts Included:

1. Aquanta Controller	
2. Temperature Sensors (2)	
3. Leak Sensor (Optional)	
4. Cable Ties for retaining the Temperature Sensors (4)	
5. Cable Management Clips (4)	

Aquanta Controller Installation

The Aquanta Controller is the brain of the system, containing the electronics, sensor connections and Wi-Fi communications module.

CAUTION: Turn the electricity to the water heater off by switching the circuit breaker to the “OFF” position. For electric water heaters, this is typically a double breaker.

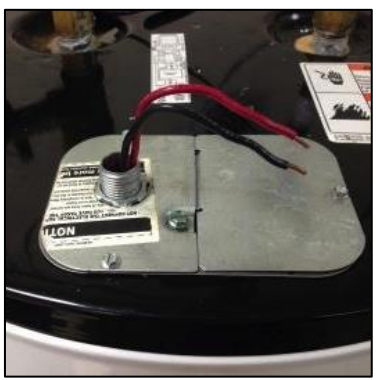
TIP: It is recommended to test that the electricity is off at the water heater using a voltage tester.

1. Using a screwdriver, remove the electrical cover plate from the top of the water heater. Remove the wire nuts from the wires and separate the wires. Remove the ground wire from the ground screw. Loosen and remove the cable clamp from the electrical cover plate by loosening the nut on the underside of the cover plate. Remove the cover plate from the cable clamp and the AC Mains supply wires.

2. Open the Aquanta Controller by removing the 4 Philips-head screws to remove the front cover.

3. Mount the electrical cover plate from the water heater onto the conduit fitting on the bottom of the Aquanta Controller. Orient the Controller to face the desired direction and then tighten the nut on the conduit fitting. Lower the Controller, with cover plate, over the 2 wires coming from the water heater and then secure the cover plate onto the water heater using the original screws. The Controller is now mounted on the water heater and the ground contact is established.

Alternative mounting: For some water heaters it may be necessary to mount the electrical cover plate to the water heater prior to fastening it to the Aquanta Controller. In this case, remove the supplied conduit fittings from the bottom of the Aquanta Controller. Place a washer onto the conduit nipple and then slide the conduit nipple up through the hole in the cover plate. Secure the conduit nipple to the cover plate using one of the conduit nuts. Slide the wires from the water heater through the conduit nipple and attach the cover plate to the to the water heater using the original screws. Slide the Aquanta Controller over the conduit nipple, place the grounding bracket (supplied with the Aquanta Controller) over the conduit nipple and secure everything in place using a conduit nut.



4. Connect the wires from the water heater to the lower terminal block (marked HTR) inside the Aquanta Controller. Bend and trim the wires to length as shown with ¼" of bare wire exposed on the ends. There is no strict polarity, but we recommend following the wire colors as shown.

Note: Before inserting a wire into a terminal block, **ensure that the terminal block screw is fully open** by turning it counterclockwise 8 full turns. Insert the wire into the opening on the side of the terminal block and tighten the screw by turning it clockwise until the screw is just snug against the wire. Then turn an additional quarter (¼) turn. **Do not overtighten the terminal block screws.**

5. Install the original cable clamp for the AC Mains supply wire in the hole at the top of the Aquanta Controller.

6. Straighten the AC Mains supply wires and pull them down through the cable clamp. Ensure that there is sufficient ground wire to reach the ground screw at the bottom of the Aquanta unit, and sufficient black and white wire to reach the upper terminal block (marked Line), then secure the wire in the cable clamp. Bend and trim the wires to length as shown with ¼" of bare wire exposed on the ends.

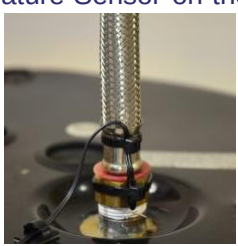
7. Connect the two AC Mains supply wires to the top terminal block (there is no polarity). Then, attach the ground wire to the green grounding screw. Ensure that the bare ground wire does not contact the terminal block or the printed circuit board by keeping it straight and trimmed to length as show.

8. Attach the cover to the Aquanta Controller using the four Phillips-head screws.

Sensor Connections

1. Attach one of the supplied Temperature Sensors to the Temperature & Pressure Relief Valve (T&P Valve) on the water heater using one of the supplied Cable Ties. Wrap the Cable Tie around the T&P valve and then slide the narrow end of the tie through the slot. Position the tip of the Temperature Sensor as close to the water heater as possible and pull the Cable Tie as tight as possible over the bead of the Temperature Sensor. Ensure that the Temperature Sensor is in contact with the metal body of the T&P Valve, but does not interfere with the operation of the T&P Valve. Clip off the excess length of the Cable Tie. If there is another plumbing fitting between the T&P Valve and the water heater, fasten the Temperature Sensor to that fitting as close to the water heater as possible. Plug this sensor into the “Hot Water Sensor” connector on the side of the Aquanta Controller (see Step 4 on page 8).

2. Attach the second Temperature Sensor to the cold water inlet pipe using two of the supplied Cable Ties. Attachment to four types of water inlet pipes are shown below. Wrap one of the Cable Ties around the cold water pipe and slide the narrow end through the slot. Position the Temperature Sensor on the cold water pipe **as**



close as possible to the water heater and under the Cable Tie, then pull the Cable Tie as tight as possible. Place a second Cable Tie around the Temperature Sensor wire and water pipe as a strain relief. Clip off the excess length of the Cable Ties. Plug this Temperature Sensor into the “Cold Water Sensor” connector on the side of the Aquanta Controller (see Step 4 below).

3. If you purchased the Optional Leak Sensor, peel the paper backing off of the double-sided tape on the Leak Sensor. Place the leak sensor on the side of the water heater near bottom, preferably directly below the T&P valve, such that the gold-plated contacts extend into the drip pan beneath the water heater. Plug the Leak Sensor into the “Leak Sensor” connector on the side of the Aquanta Controller (see Step 4 below).

4. Connect the sensors to the Aquanta Controller as shown.

5. Four Cable Management Clips are included with the Aquanta unit. Use these clips to organize the routing of the wires on the water heater. Placing two of the clips on the back of the Aquanta Controller is a convenient way of retaining the excess sensor wire.

6. Turn the electricity “ON” at the circuit breaker. The LED should illuminate on the Aquanta Controller; it will blink indicating that a network connection still needs to be established.

Wi-Fi Setup

The Aquanta Controller has built-in Wi-Fi capability for communications with you home Wi-Fi network. Follow the steps below to establish a connection between the Aquanta Controller and your home network:

1. Verify that the Aquanta Controller is powered ON and ready to connect, as shown by a blinking green light.

2. On a smart phone or other connected device, find your “Wi-Fi Networks” icon (as if you were at a coffee shop logging onto a new network), and select the network called “Aquanta xxxxxxxx”.

3. On many devices (including iOS devices), a web page automatically appears with the available Wi-Fi networks. If the web page to the right does NOT appear, open an internet browser, type **192.168.0.1** in the web address bar, and you will see this web page. Select your home Wi-Fi network by clicking “Connect.”

4. When prompted, enter the password for your home Wi-Fi network. Aquanta will save this password and use it to connect to your Wi-Fi network. Once connected, the LED on the front of the Aquanta Controller should turn solid green, indicating that it is connected and in monitoring mode. The Green LED means that the water heater is activated/powered.

   Note: your phone or laptop should return to your home Wi-Fi network once the Aquanta Controller reboots. If for some reason it does not, disconnect from the Aquanta Wi-Fi network or reboot your computer.

5. You have now completed the Aquanta installation!

6. Next go to the Aquanta portal to register a user account and connect to the Aquanta unit at: https://portal.aquanta.io/signUp

7. To login to your account, go to: https://portal.aquanta.io/login

LED and Audible Indications

LED Color	Indication
Green	Normal operation with AC power applied to the hot water cylinder.
Red	AC power is not being applied to the hot water cylinder.
Aqua, Blue, Purple	Intelligent Mode Operation: Aqua – AC Power OFF Blue or Purple - AC Power ON
LED Blinking	Wi-Fi or Internet connection to the server is not available.
Beeping	Leak Sensor has detected a water leak.

Tips

1. If your home Wi-Fi network has changed, such as a new router, SSID or Password, the Wi-Fi Setup procedure for the Aquanta Controller must be redone. First, the Aquanta Controller must be put into the Wi-Fi reconfiguration mode (aka AP-mode) by pressing and holding the button on the right side of the controller for 10 seconds until the LED begins to blink.

2. You can force the Aquanta Controller to activate your hot water cylinder permanently by first putting it in Wi-Fi reconfiguration mode, as described above, and then cycling power to the Controller by switching the circuit breaker OFF and back ON. The LED will be blinking green.

Thank you and enjoy your Aquanta unit!

aquanta
Cool Technology for Hot Water

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