



cool technology for hot water.



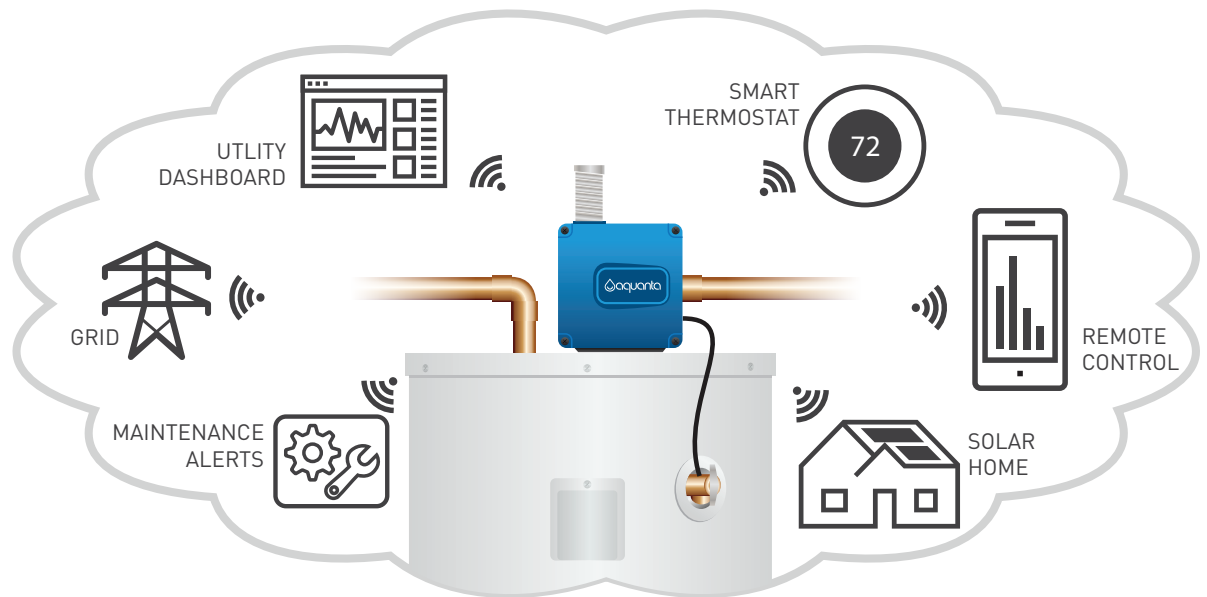
Introducing Aquanta: The Intelligent, Retrofittable Water Heater Controller

Aquanta is bringing the water heater into the 21st century. Designed from the ground up with the smart, networked home in mind, Aquanta brings an essential appliance into the modern energy ecosystem.

Finally, consumers as well as utilities with demand side management initiatives can embrace the benefits of intelligent water heating technology that's here today and ready for the future.

What If Water Heaters Were *Smart*?

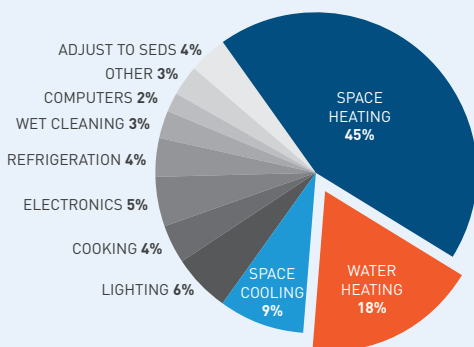
Water Heaters in the Smart Grid



An Untapped Opportunity: Imagine 100M+ Smart Water Heaters

Residential consumers in the United States spend \$33B annually on water heating energy, the 2nd largest load in the home. Of that, 20-50% of energy input is wasted via standby loss, and more from too-high setpoints.

Smart water heaters represent a major utility Demand Side Management resource that is largely overlooked. Rocky Mountain Institute estimates that smart residential load management can reduce grid costs by \$13B a year across the US, with water heating DSM representing a substantial portion (\$2-5B/year) of that value.*



Consumer Control and Automation

Intelligent Controls

- Autonomous learning function matches water heating with usage patterns
- Operation via remote dashboard or existing home automation network

Cost Savings

- Smart control of thermostat and heat cycling
- Energy savings suggestions
- Comparison to peers

Convenience, Comfort and Safety

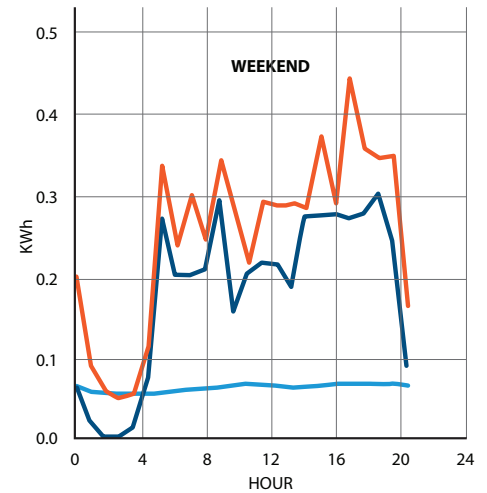
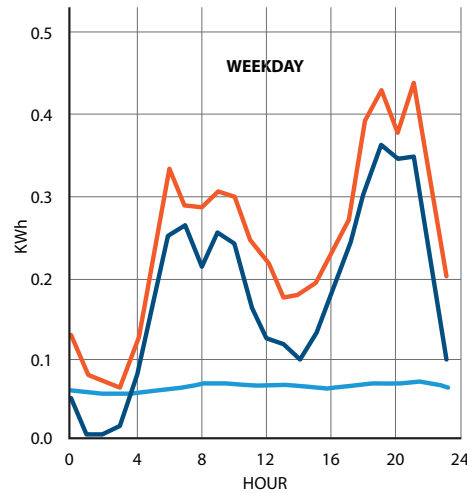
- Measures hot water availability
- Remote turn off feature
- Maintenance alerts, including leak detection
- Automatic overheating shutoff

* http://www.rmi.org/electricity_demand_flexibility



Aquanta: Cool Technology for Hot Water

Aquanta is the first “learning” water heater controller that easily installs on existing water heaters, enabling monitoring and control of hot water energy use by energy providers and consumers alike.



— ENERGY IN
— ENERGY USE
— ENERGY LOSS

The Aquanta Difference

Networked, Smart Home Enabled

- 2 way, cloud-cloud connectivity to other platforms

Unique Analytic Capabilities

- Proprietary “Enthalpy Sensor” discerns local and fleet usage patterns that enable powerful data analysis and control functions

Electric and Gas Water Heater Versions

- Retrofittable to 60-85% of water heater installed base

Easy Installation

- <60 minute install; trades not required

Utility Value Proposition

Meet EE Mandates

- Device auto-control and manual scheduling settings
- Identify related saving opportunities
- Peer comparisons for behavioral management

Demand Side Management Capability

- Peak shave, load shift and DG load balancing
- Enable Time of Use and other variable pricing
- Leverage water heater thermal storage potential

Real-Time and Predictive Analytics

- Increase value of water heaters as dispatchable resource
- Correlate water heating load with grid needs

Accelerating the Adoption of Water Heaters as a Ubiquitous, Valuable Demand Side Management Resource



cool technology for hot water.



Aquanta Features

Installation

- Near universal retrofit in electric and most gas water heaters
- Integrated junction box and relay
- Only basic plumbing knowledge, equipment required
- <60 minute installation time

Communications Platform

- Wi-Fi 802.11n through local site broadband, with other communications protocols optional
- Over-the-air firmware upgradability
- Web-based user and "fleet" dashboards
- APIs for cloud to cloud data integrations
- OpenADR2.0 compatible (pending)
- Wireless Security: AES-128, SSL/TLS, WEP, WPA/WPA2

Data Outputs

- Energy in, energy out (load), standby loss (all in kWh/BTU); tank top temperature (F/C); hot water usage (gallons/liters)
- Multicolor system status LED
- Current sensing (on/off)
- Leak detection (optional)
- Cold water inlet temperature (optional)

Product Specifications

Dimensions:

4.95" x 4.95" x 2.61" (125.9mm x 125.9mm x 66.4mm)

Weight:

8.5oz (241g)

Housing:

Injection molded polycarbonate/ABS plastic

Operating Temperature Range:

32°F to 113°F (0°C to 45°C)

Humidity Range:

5 - 95% relative humidity, non-condensing

Electrical Input:

Electric Water Heater: 208/240 VAC, 50/60 Hz
Gas Water Heater: 120 VAC, 50/60 Hz

Power Consumption:

5W

Relay Rating/Cycles:

On-board 240VAC, 23A, minimum 100,000 cycles

Agency (pending):

UL 916; CSA C22.2 No. 205-12; FCC Part 15, Subpart B



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