



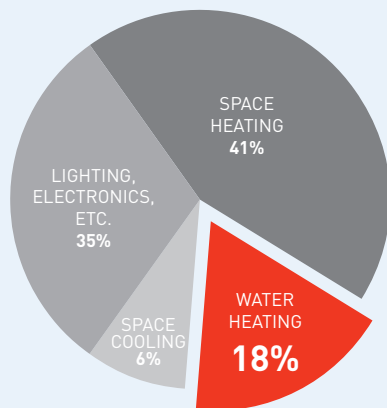
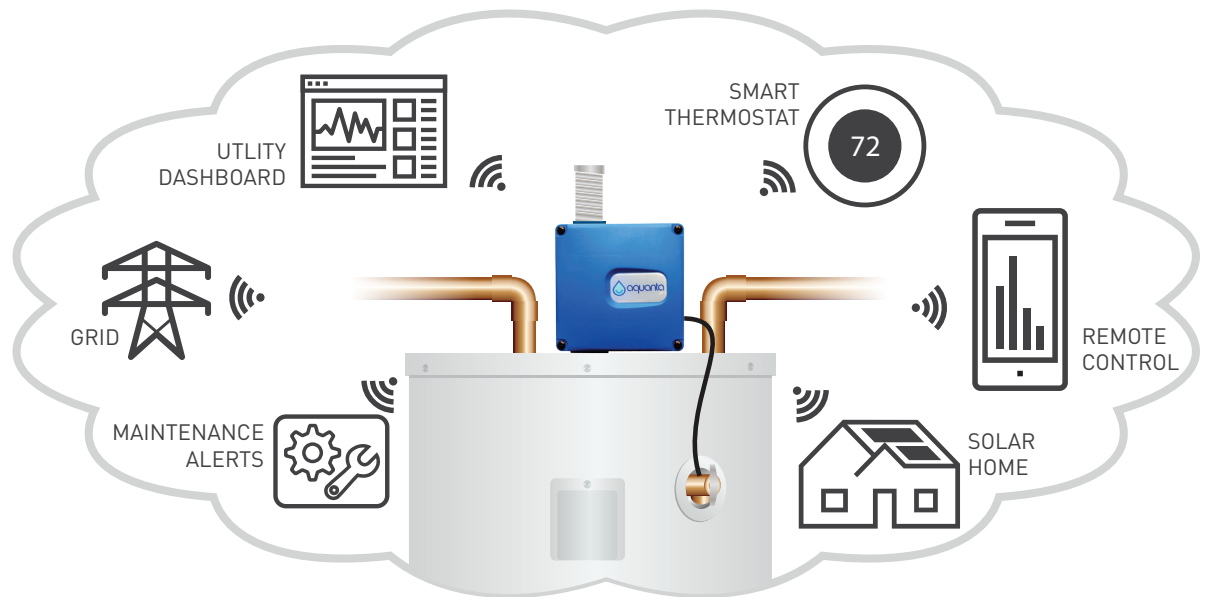
## Introducing Aqunta: The Intelligent, Retrofittable Water Heater Controller

**Aqunta** is bringing the water heater into the 21st century. Designed from the ground up with the smart, networked home in mind, **Aqunta** 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 \$32B 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

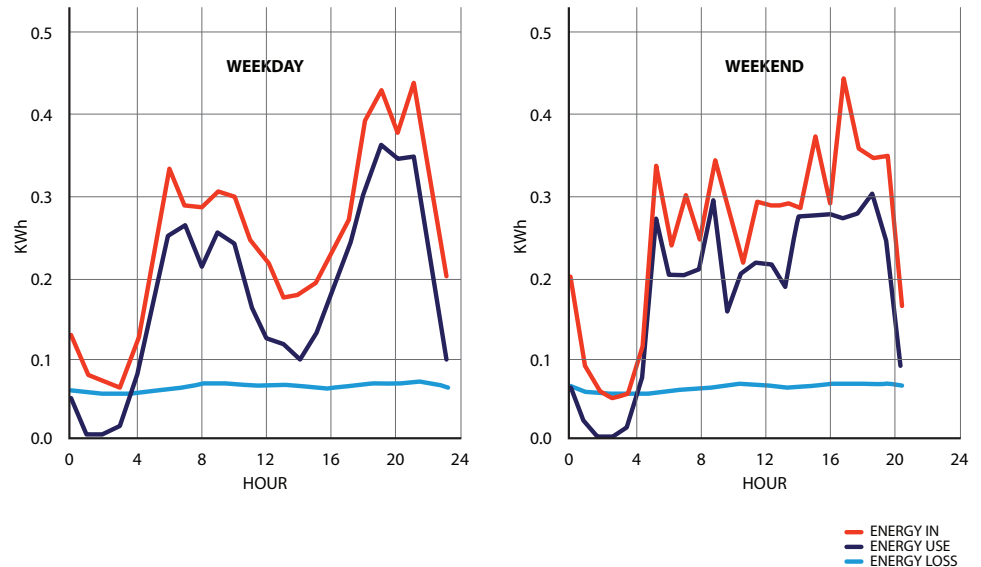
- Measures hot water availability
- Remote turn off feature
- Maintenance alerts, including leak detection
- Automatic overheating shutoff

\* [http://www.rmi.org/electricity\\_demand\\_flexibility](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.



## The Aquanta Difference

### Networked, Smart Home Enabled

- 2-way communications with OTA software update capability
- Cloud-cloud data exchange via APIs

### Electric and Gas Water Heater Versions

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

### Unique Analytic Capabilities

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

### Easy Installation

- <60 minute install

## 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*





## 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 Polyethylene Terephthalate (PET) 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:

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



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