



Submetering Systems Give Property Managers an Effective Utility Management Tool

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INTRODUCTION

Submetering technology provides property managers with granular insight into water, electricity, gas and BTU usage data. The most advanced wireless submetering systems feature monitoring and reporting capabilities that provide the necessary resources to dramatically increase energy and water use efficiency. To paraphrase a common business axiom, “management requires measurement.”

This paper describes how H2O Degree’s wireless submetering system helps property managers improve their building’s marketability by controlling rising utility costs, attaining LEED points and complying with water conservation mandates.

WHAT IS SUBMETERING?

Submetering is defined as monitoring utility consumption after the main utility meter coming

into a building. Submetering provides a variety of benefits including:

- Usage analysis and peak demand identification
- Time-of-use metering of electricity, gas, water, steam BTUs and other energy sources
- Cost allocation for tenant billing
- Water Flood Detection, alarming and remote water valve shut-off solutions
- Measurement, verification and benchmarking for energy initiatives, including LEED Energy & Atmosphere (EA) and Water Efficiency (WE) credits
- Load comparisons
- Threshold alarming & notification
- Multi-site load aggregation and real-time historical monitoring of energy consumption patterns for negotiating lower energy rates, etc.
- Leak detection based on daily reports enable maintenance staff to take proactive measures and avoid significant, and costly water loss.



H2O Degree's System can be Utilized on a Variety Plumbing Fixtures:

Energy Savings

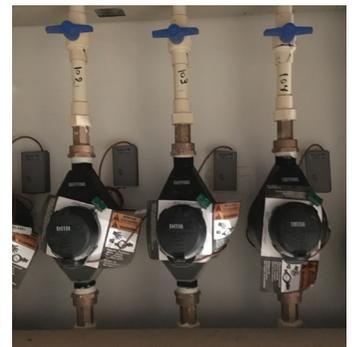


Energy submeters can be installed individually at the point of load to monitor chillers, HVAC, air handlers, pumps and so forth. Operational inefficiencies may thus be identified to reveal, for example, if two or more large loads are coming on at the same time, causing demand spikes. Diagnostic functions also include the ability to identify equipment that may be close to failure, as indicated by a larger than normal current draw with no corresponding productivity output. Early identification of potential problems allows facility engineers to schedule preventative maintenance before a costly failure occurs.

Water meters consist of individual (“sub”) meters that can be installed wirelessly in one of two ways to collect water-usage data: at individual point of use (POU) metering points where water is used, such as toilets and showers, or at each point of entry (POE) where water enters the office or apartment.



Left: H2O Degree Point of Use water meter installed on toilet.



Right: Point of Entry water meter installed on incoming lines into apartment or office.

- Hot Water Heaters
- Sinks
- Toilets
- Bathtubs

- Washing Machines
- HVAC Overflow Pans
- Aging or Frozen Pipes & Valves

- Hose-Fed Appliances
- Water Coolers
- Ice Machines
- Medical Equipment

Wireless Metering Technology



ADVANCES IN SUBMETERING

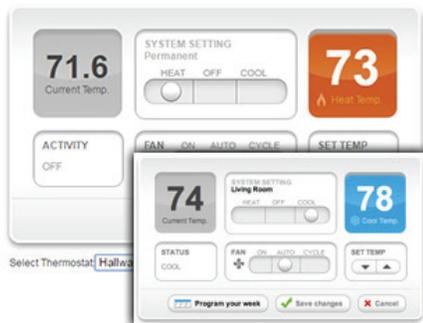
Since the introduction to the market in the early 1980s, submeters have evolved in terms of functionality and usefulness. Today's most advanced submeter combine wireless technologies and cloud-based monitoring to enable:

- Two-way wireless mesh submetering of utilities (water, electric, gas BTUs)
- Water leak detection and alarming
- Wireless thermostat control
- Utility consumption analysis and reporting

Today's most sophisticated submetering systems take a comprehensive approach to monitoring and conservation. H2O Degree's comprehensive submetering system, for example, employs a combination of two-way wireless mesh technology, water meters, electric meters, "smart" green thermostats as well as daily water meter usage and leak detection reporting.

H2O Degree's wireless water meters can also communicate via LoRaWAN open-protocol platforms — without requiring electrical connections. This advancement in submetering is proving to be an important operational management tool for large commercial and multi-family residential buildings.

Web-Enabled Thermostat Control





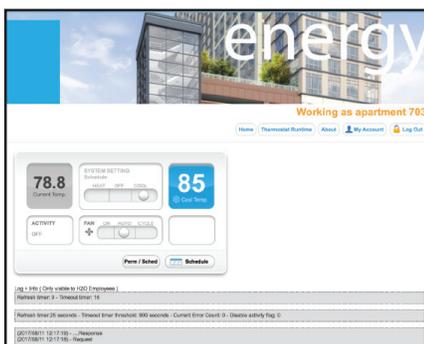
H2O Degree Systems enable both owners & tenants to better manage water usage.

Achieve Maximum Energy Efficiency

BENEFITS FOR PROPERTY MANAGERS

Building owners and managers of multi-family and commercial buildings are increasingly turning to sophisticated submetering systems that provide tenant billing, leak detection, utility conservation and building automation system integration. Typical submetering applications average a one-year payback period and water leak detection/thermostat control applications typically see a 2-3 year payback period, however inefficient buildings may see payback in under a year. Benefits for building owners and management include:

- Achieve maximum energy efficiency
- Reduce operating expenses
- Creating management and tenant behavior change
- Increase Net Operating Income (NOI)
- Improve property valuation



H2O Degree's cloud-based utility data portal

ACCESS TO ACTIONABLE DATA

The H2O Degree wireless submetering system provides insight into utility usage data by utilizing the company's cloud-based platform for reporting, billing and analysis. The system integrates easily with leading third-party RBC (Read, Bill, Collect) service providers to streamline the process of billing tenants for their utility consumption. Property managers gain actionable insight into the buildings water consumption with daily leak reporting and instantaneous water leak alarms determined by a variety of available water flood detection devices.



OWNERS

- Utility Allocation/Tenant Billing
- Flood Management
- Water Leak Detection

TENANTS

- Pay for Actual Water Usage
- Prevent Property Damage due to Flooding
- Water Conservation

Behavioral Change = Energy Savings

BENEFITS FOR TENANTS

Tenants, for their part, are encouraged to conserve since they are accountable for their own, individual energy and water use. H2O Degree's wireless submetering system offers a web portal where tenants can view their own consumption - which encourages them to take steps to reduce their future utility bills. They can also use a mobile app to adjust thermostat temperature and set-points to save costs on heating and cooling.

For their part, property managers with access to precise water consumption data can quickly locate and repair leaking toilets, which represents almost 70% of the water wasted in a multi-family building. In this scenario, managers receive daily water "leak reports" based on granular data collected by H2O Degree's battery-operated wireless water meters installed throughout the building. With visibility into increased "events" (i.e. toilet flushes), managers can drill down to the specific location and source of the problem - such as a broken flapper valve or cracked fill valve - and direct maintenance staff to repair the problem before significant amounts of water is wasted.



In a wireless submetering system, the H2O Degree battery-operated water meter is installed on an individual water fixture to monitor water consumption data.

LEED CERTIFICATION AND WATER EFFICIENCY MANDATES

Analysis of historical metering reports can lead to additional conservation opportunities that can improve property values. By reducing water and energy consumption, the wireless submetering system can help building managers earn valuable points towards LEED, the international standard that incentivises environmental building practices.

LEED v4 is the highest level of certification, the EA and WE credit areas specify which points require submeters and other data collection devices including:



- Building-Level Energy Metering
- Demand Response (DR)
- Building-Level water metering
- Advanced Energy Metering
- Water Metering

With their advanced functionality in monitoring and reporting water usage, H2O Degree’s water submeters are becoming essential for fulfilling the requirements of the Water Efficiency (WE) category under LEED v4.

LEED Credit Information
Home Design & Construction

WE Prerequisite: Water Efficiency
WE Credit: Total Water Use
EA Prerequisite: Minimum Energy Performance
EA Prerequisite: Energy Metering
EA Credit: Annual Energy Use
EA Credit: Advanced Utility Tracking
EA Credit: Space Heating & Cooling Equipment
EA Credit: Domestic Hot Water Equipment
EQ Credit: Balancing of Heating & Cooling Dist.

H2O Degree Products Utilized

Water Meters, Leak Detection Reports & Usage Reports
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Water, Electric, Gas & BTU Meters, Leak Detection & Usage Reports
Water, Electric, Gas & BTU Meters, Usage Reports
Water, Electric, Gas & BTU Meters, Leak Detection & Usage Reports
Water, Electric, Gas & BTU Meters, Leak Detection & Usage Reports
Thermostats and Usage/Validation Reports
Water Meters, Leak Detection Reports & Usage/Validation Reports
Thermostats & Water Meters

Existing Buildings: Building Operations & Maintenance
And Building Design & Construction

WE Prerequisite: Indoor Water Use Reduction
WE Prerequisite: Building-Level Water Metering
WE Credit: Outdoor Water Use Reduction
WE Credit: Indoor Water Use Reduction
WE Credit: Water Metering
EA Prerequisite: Energy Efficient Best Practices
EA Prerequisite: Minimum Energy Performance
EA Prerequisite: Building-Level Energy Metering
EA Credit: Existing Building Commissioning-Analysis
EA Credit: Existing Building Comm.-Implementation
EA Credit: Ongoing Commissioning
EA Credit: Optimize Energy Performance
EA Credit: Advanced Energy Metering
EA Credit: Demand Response
EQ Credit: Thermal Comfort

H2O Degree Products Utilized

Water Meters, Leak Detection Reports & Usage/Validation Reports
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Water, Electric, Gas & BTU Meters, Leak Detection & Usage/Validation Reports
Thermostat, Usage/Validation Reporting

** This list is subject to change without notice. Visit www.usgbc.org for complete details and LEED credit requirements for your particular application.

For a FREE site evaluation visit www.h2odegree.com/sitesurvey, call (215) 788-8485 or email info@h2odegree.com.



www.H2ODegree.com

ENERGY CONSERVATION MANDATES

CALIFORNIA SB7 SETS THE STANDARD FOR SUBMETERING



CALIFORNIA'S SB7 SUBMETERING MANDATE

H2O Degree's wireless submetering system provides the perfect solution for property managers in California who need to comply with SB7. California SB7 is the landmark law that mandates water meters and submeters be installed in all new apartment and other multi-family residential buildings constructed after January 1, 2018.

Owners and managers of these rental properties must provide residents with accurate information about the volume and cost of their water use through their own individual submeters. The law also requires resident billing for water based on actual usage rather than by estimation or other methodology.

Even in states that do not mandate water conservation, H2O Degree's water submetering system is a smart water conservation investment. As mentioned, water leakage is the main cause of wasted water in multi-family and commercial facilities. The system's water leak reporting feature can lead a reduction in a building's average daily consumption (ADC) by as much as 50 percent.

SUBMETERING SYSTEMS GIVE PROPERTY MANAGERS AN EFFECTIVE UTILITY MANAGEMENT TOOL

SUBMETERING RESULTS

The H2O Degree wireless submetering system offers property managers a more precise approach to monitoring utility consumption and allocating costs in multi-family and commercial buildings.

Access to real-time submetering data allows owners to bill tenants more accurately, and analyzing water leak reports helps them identify and fix problems proactively. They can encourage tenants to use less energy and water by viewing individualized usage online, and incentivise them to conserve.

By utilizing H2O Degree submetering and water leak detection systems, property owners & managers now have access to cost effective tools that support energy conservation and cost reduction, while supporting conservation programs such as LEED and also comply with energy mandates such as SB7.

H2O Degree systems have been the chosen tool for utility management for 25+ years. To learn more about H2O Degree systems, visit www.H2ODegree.com or request a free site survey via email at info@h2odegree.com.





OVER 100,000 METERS INSTALLED




WIRELESS TECHNOLOGY

- No repeaters in high-rise or garden style apartments
- Open protocol to integrate with smart apartments

WIRELESS SMART PLUMBING



Utility Submetering



UMCA
MEMBER



Toilet Leak Detection



Flood Alarms



Remote Valve Shut-Off



Thermostat Control



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