



Wireless Water Submetering System Helps New-Construction Luxury Apartment Complex Control Utility Costs

H2O Degree's LoRaWAN-enabled water submetering system installed at a multi-building apartment complex wirelessly collects and reports each tenant's water usage data. Results are the precise allocation of water utility billing and improved bottom-line property expenses.



Figure 1. A multi-building luxury complex in Pennsylvania, offers residents a “livable and accessible community.”

INTRODUCTION

Owners of affordable multi-family housing units are naturally incentivized to improved water efficiency to keep utility costs as low as possible since they typically pay their tenant's utility bills. In many low-income and public housing, utility expenses are included in the contract rent, which is calculated by combining a tenant's estimated energy use-- gas, electric and water-- plus their income. In the case of LIHTC (low-income tax credit) properties, tenants typically pay for their own gas and electric use, but the property owner is almost always responsible for the water utility bill.

New affordable housing communities are promoting themselves as “up-and-coming urban developments” with upscale features and green amenities. This application note provides an example of a wireless water submetering system installed in a complex's first two multi-unit apartment buildings and discusses the benefits of water submetering for helping building owners and managers control water utility costs.

INTRODUCTION (Continued)

Even a moderate-sized leak in a multi-family building can add up to significant amounts of wasted water. For example, a typical 100-unit building consumes 100 gallons a day per unit (which is the average daily water usage for a two-bedroom apartment.) A medium-sized leak increases one unit's water consumption from 100 to up to 1,000 gallons of water a day. So, in a 100-unit building, just 10 units with a moderate leak would consume 10,000 gallons a day – compared to the 9,000 gallons per day of the other 90 units combined. (See Fig 1.)

THE BENEFITS OF WATER SUBMETERING

Advanced wireless water submetering systems are increasingly being utilized to help building owners attain LEED certification and comply with sustainability initiatives – while also saving up to 50% in water utility expenses.

The unique features of the H2O Degree system provide insight into water-usage data by utilizing a 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. It also offers optional functions that enable managers to handle the billing themselves. Unlike products that connect over proprietary protocols, LoRaWAN-based systems like the one installed at North Cornwall Commons do not require a dedicated PC or software.

WATER SUBMETERING INSTALLATION

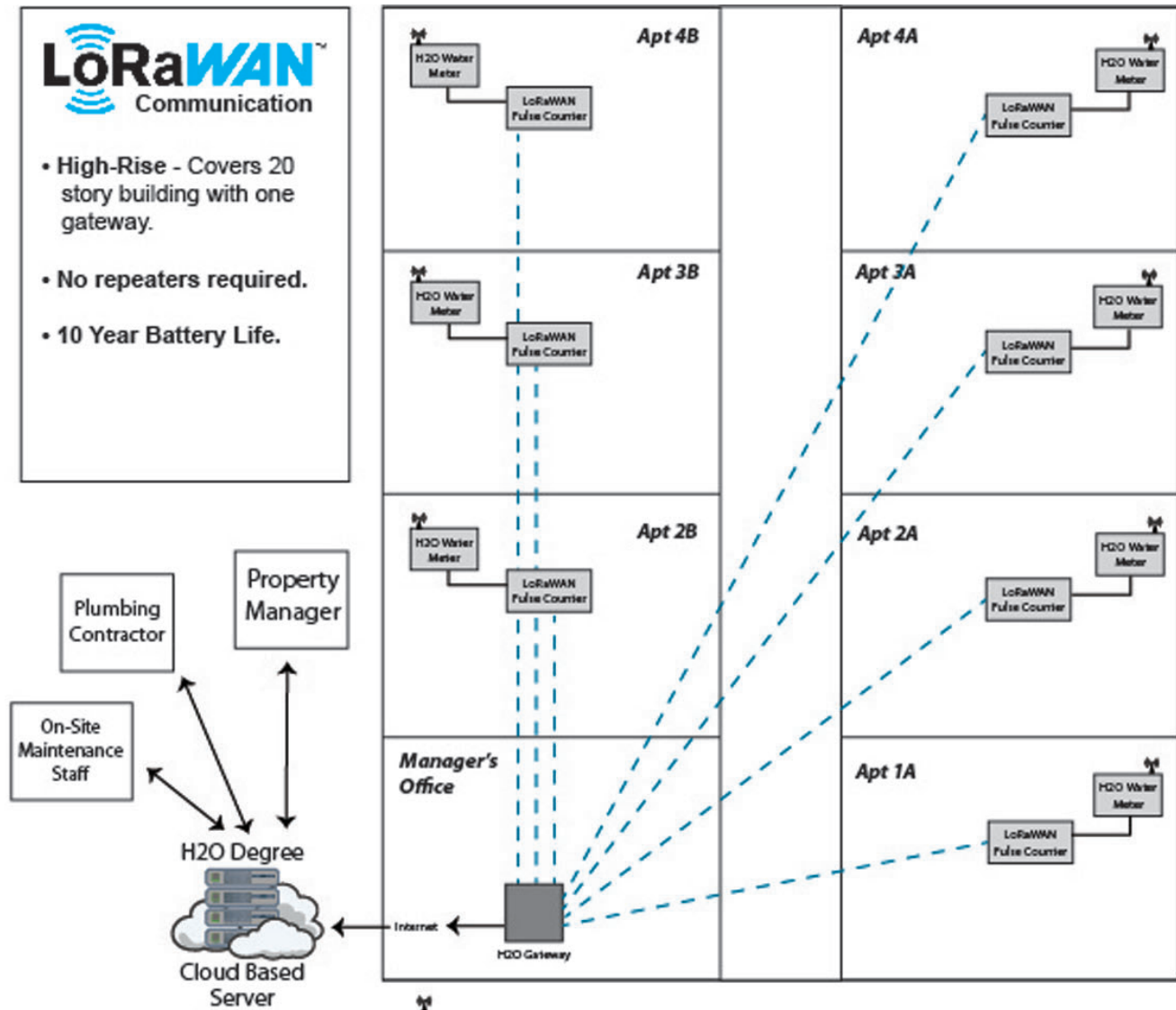
The first two apartment buildings completed at this complex contain 250 apartment units. Each building has a traditional “master” water meter where water enters the building from the utility.

The H2O water submetering system is installed in every apartment unit in the 250-unit building. Each unit has one water meter (WM-1100C) and one LoRaWAN-based battery-powered pulse counter (L54215) installed in the drop ceiling of the apartment to measure water flow (hot or cold) at the service entrance.

In each building, one LoRaWAN-compatible gateway (LIT1005) communicates the monitoring data to the H2O Degree cloud-based server where it is viewable on a user-friendly dashboard.

Figure 2 illustrates an example of the building layout of H2O Degree's networked submetering system.

Figure 2. The building configuration of the water submetering system.



SUBMETERING EQUIPMENT

The WM-1100 pulse-equipped water meter (Figure 3a) used in the apartment installation is the most versatile multi-jet type water meter available for submetering applications. It can be placed in a horizontal position while adhering to AWWA C708 accuracies. Along with its compact design (3/4" x 7 1/2" lay length), its removable register allows for pressure tests and line flush-outs without damaging the internal components.

Also installed in every apartment unit is the L54215 LoRaWAN-enabled pulse counter (Figure 3b). The battery-powered one-channel pulse counter interfaces with the individual WM-1100 pulse meters to remotely collect water utility consumption data.

SUBMETERING EQUIPMENT

The heart of the H2O Degree wireless network used at the property is the LIT1005 LoRaWAN compatible gateway (Figure 3c). Its long-range wide area network protocol compatibility makes the gateway ideal for this immense property since it is capable of covering 70 acres and 20-story buildings without the use of repeaters. The line-powered gateway connects to the network servers to enable remote monitoring and control of the water meters and pulse counters.



Figure 3a. The WM-1100 pulse-equipped water meter



Figure 3b. L54215 LoRaWAN-enabled pulse counter.



Figure 3c. LIT1005 LoRaWAN compatible gateway.

SUBMETERING RESULTS

Combining H2O Degree water meters, battery-powered pulse-counters and the LoRaWAN-enabled gateway, the wireless system at the property can continually monitor each unit's water usage in real-time. This gives the landlord the ability to track water consumption at the property and easily send the information to the billing company.

The submetering system is now being utilized in the first two completed buildings at the ongoing project (Figure 4) – and will be installed in the additional buildings as construction is completed.

Apartment complexes of this size typically employ a water ADC – or average daily consumption estimate – of approximately 90-130 gallons for each apartment unit in buildings of their size. Phase 1 of this project was a building comprising 111 apartments, and had an extremely low ADC report of 46.95 gallons from Oct. 2022 to Oct. 2023.

CONCLUSION

By using submetering to access each unit's water consumption data, a building's property manager can see if any unit is using an inordinate amount of water. Armed with this information, they can then address possible broken fixtures, leaks or over occupancy issues that might be wasting water. At multifamily properties like this, the landlord can bypass the conventional billing approach of relying on each building's single utility meter to estimate its overall water usage and then rely on guesswork to charge each tenant a monthly bill.

For more information visit www.H2ODegree.com, email info@H2ODegree.com or call (215) 788-8485.

CONCLUSION (continued)

The H2O Degree wireless water submetering system makes water monitoring and reporting timely and accurate. In contrast to traditional water metering, it allows building owners and managers to hold tenants accountable for their actual individual water usage. This more equitable data-based approach encourages tenants to conserve water to lower their water bills – which, in turn, leads to bottom-line cost savings for the entire property.

Additionally, they can also interface with leading RBC (Read, Bill, Collect) companies to manage their tenant billing and collection activities.

To learn more about H2O Degree's wireless solutions for utility management, submetering, water leak & flood detection and thermostat control, visit www.H2ODegree.com or email info@h2odegree.com.

Figure 4. A map of the planned 4-phase project. Two apartment buildings, now complete, have wireless water submetering system installed.





H2O Degree

With over 250,000 meters installed nationwide, H2O Degree has been the leading supplier of utility management products for multi-family facilities for more than 15 years. H2O Degree has enabled building owners and managers to recover and reduce utility costs with their facilities creating increased net operating income and boosting property value while reducing energy consumption costs.

H2O DEGREE SOLUTIONS

- *Utility submetering for tenant billing — water, electric, gas & BTU*
- *Water leak detection, flood alarming & reporting*
- *Thermostat control and management*
- *Water & energy conservation, identification, analysis & M & V reporting*



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