



Article

Leaks Happen. Water Flow Monitoring Systems Find Them In Real Time.

Every property will experience both indoor and outdoor water leaks as plumbing naturally ages. Fixtures and fittings are particularly susceptible to leaking, and excessive water pressure can cause pipes to burst or leak over time. Identifying the existence of leaks using only monthly water bills means that non-visible leaks will go undiscovered for long periods of time – or if leaks are small enough, may never be discovered. Unrepaired leaks not only waste a lot of water, but they also can damage property which can be even more expensive than the wasted water.

Nobody wants to waste water, especially fresh drinking water. But in many parts of the U.S. where water rates are rising, and water scarcity is becoming an issue, water leaks have financial ramifications.

The Cost of Water Leaks – Big and Small

A single mainline break can exceed a company's annual water budget.

“You could be doing amazing against budget and then suddenly the mainline breaks,” said Rachel Baker, environmental stewardship manager for Kaiser Permanente. “If you don't know about it for a period of time, then you're not doing amazing. Water use at one of our best performing service areas shot up 40% for that year as a result of a mainline break.”

Even hidden, slow leaks can cost a lot of money over time. A high-end retail mall operator recently conducted a flow monitoring system pilot at two of their properties and discovered hidden leaks at 9 of the 21 meters being monitored. While the cost associated with each individual water leak was small, when viewed at a portfolio level, fixing them would save five million gallons of water in one year.

With a real-time water flow monitoring system, leaks are easily and automatically detected. These systems send real-time alerts to staff so that repairs can be made immediately, saving both water and money. Some of these systems will also automatically shut down portions of the hydraulic system, preventing catastrophic damage.



How Real-Time Water Flow Monitoring Works

Real-time flow monitoring uses hardware to measure flow and software to analyze consumption data and detect leaks. Measurement of water flow is accomplished with flow meter hardware, which measures and totals water flow. All flow meters include a flow sensor. Some sensors have a paddle wheel or impeller inside the flow meter that sends electrical pulses as it measures water flow. Mag and ultrasonic meters use more advanced technology to more accurately detect very small amounts of flow.

Flow meters integrated with a master valve are called hydrometers. Hydrometers can shut down a portion of the hydraulic system if it detects a burst pipe. These solutions require cutting into the pipe for installation.

The latest generation of flow monitoring hardware simply clamps onto the existing water meter and doesn't require cutting into the pipe infrastructure. These non-invasive flow monitors record flow through magnetically-coupled sensors or by applying sonar technology that measures the water flow.

Flow monitoring hardware works with flow monitoring software for data analysis. The software compares the actual flow data to normal baselines and thresholds. If unexpected use is detected, the system sends out an alert in real time. If the flow measurement hardware is connected to a smart irrigation controller, a portion of the system can be shut down to prevent further water waste or damage.

What "real time" means can differ from product to product. For example, a smart irrigation system like WeatherTRAK® updates and analyzes flow data every second, while Baseline® smart irrigation controllers update every 15 seconds and analyze the data every minute, triggering alerts if needed. WaterCompass®, a flow monitoring service offered by HydroPoint®, analyzes data for catastrophic leaks every 4 minutes. It also analyzes data hourly to identify slow, continuous leaks and provides warnings when flow is high for the whole day.

Water flow monitoring solutions are starting to be integrated with building management software so that software that tracks energy use can also track water use and detect leaks.

HydroPoint Offers a Range of Real-Time Water Flow Monitoring Solutions

HydroPoint Data Systems offers outdoor, smart irrigation systems branded as WeatherTRAK and Baseline. The water flow monitoring solutions that work with those irrigation systems are described below.

Irrigation System	Flow Hardware Type	Product Name
WeatherTRAK	Irrigation flow sensor + flow meter	Flow HD
	Irrigation hydrometer	Flow 3
Baseline	Irrigation flow sensor + flow meter	PFS series and BFS series
	Irrigation flow sensor + flow meter	BFM series
	Irrigation hydrometer	BHM series



HydroPoint also offers clamp-on water flow monitoring solutions, which can be used indoors or as a non-invasive alternative for the outdoor monitoring solutions listed above.

Product Name	Pricing Structure
WaterCompass	Low cost annual subscription. Battery operated.
IDFS Indoor Flow Sensor	Moderately priced one-time purchase. Integrates with Baseline.



Baseline indoor and outdoor flow monitoring hardware can be integrated into some commonly used building management systems using [BACnet Manager](#). BACnet Manager translates Baseline data and supports BACnet communication protocols for alert reporting and analysis of water consumption.

Data from WeatherTRAK and WaterCompass systems can also be integrated with building management systems through open API, an open, publicly available, standard programming interface that provides access to proprietary software applications.

Learn more about Baseline irrigation and water flow management solutions.

[Learn More >](#)

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