APPLICATION NOTE

Sensata Technologies

REDUCING NON-REVENUE WATER WITH INTEGRATED METER PRESSURE SENSING

Challenge

The availability of water resources are a continual source of concern around the world. According to data from the World Bank, 2.5 billion people worldwide lack access to improved sanitation facilities, and almost 1 billion people use unsafe drinking water sources.

It's also a trend which has only become more prominent due to climate change, with severe droughts affecting many parts of the world.

As countries everywhere look to reduce climate change, it has also put a focus on the overall water supply network, and its supporting infrastructure in place around the world. One of the core aspects of the water dynamics involved is the impact of non-revenue water on utilities.

Non-revenue water is a general term which applies to all water that is produced but is lost before it reaches the consumer. These losses can be caused by leaks within the network, billing inaccuracies, or other root causes. Studies have found that net revenue equates to roughly 346 million cubic meters per day – equating roughly 30 percent of the water system volumes worldwide. In the United States and Canada, those losses equate to 119 liters per capita per day.

With the scope of the problem clear, utilities are looking at a variety of solutions across their infrastructure. But one of the most direct is better monitoring usage at the meter itself.

Solution

As the last link in the water infrastructure chain outside of the home, the water meter is ideally positioned to help serve as a monitoring station to help avoid non-revenue water.

Because many meters already have wireless communication features in terms of billing, they are also ideally positioned as a smart technology solution – which has driven smart metering regulations in a variety of European countries.

Pressure sensing technology integrated into a meter can identify potential leaks, monitor usage to prevent overconsumption due to leakage, and provide real-time intelligence regarding the distribution network by measuring the flow of water into each individual home. Mapping these demand signals can help optimize water supply pump usage and create other operational efficiencies.

However, placing a pressure sensor inside a water meter also creates challenges.

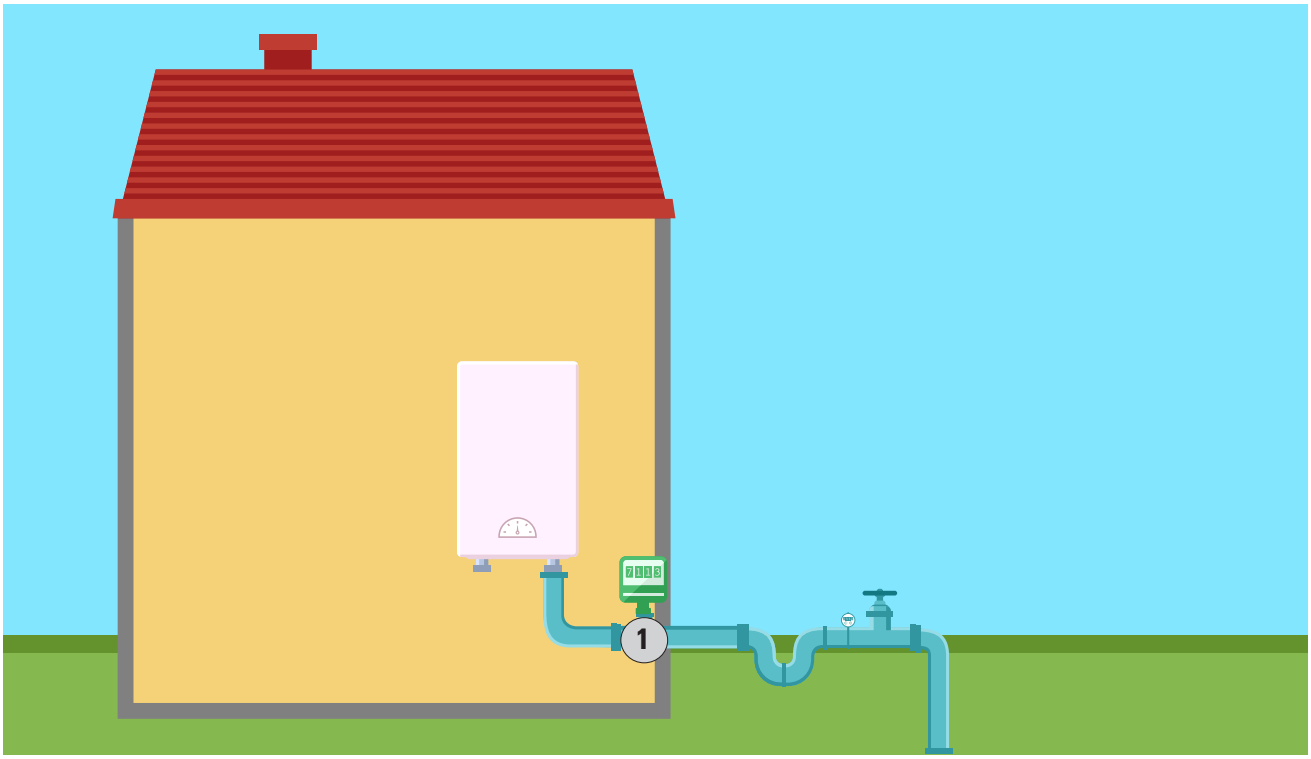
Sensata's 129CP pressure sensor is designed to meet the requirements for water meter, which demand a sensor which is compact and delivers extremely low power consumption to help optimize battery life. The sense element and construction are also extremely durable - lasting 10 to 15 years in high condensing environments where water hammer shock impacts are frequent – with easy integration into the meter's PCB.

As smart water meters continue to enter the market, these capabilities will help utilities reduce the impact of non-revenue water on the environment and their own operations.

RECOMMENDED PRODUCTS

Reference on Diagram	Product	Features	Function
1	 129CP Smart Water Pressure Sensor	• 0-232 psi (0-16 bar) psi sealed gauge pressure range • Digital I²C output • Very low power consumption • IP67 Rating	Monitors pressure of water flow to help minimize non-revenue water

DOMESTIC WATER METER INSTALLATION



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