

Water Flow Monitoring

LoRa® APPLICATION BRIEF

DESCRIPTION

With the recent increase in extreme weather events, water is becoming scarcer and its usage is becoming a front page news topic. A great amount of water is being lost through leaks in the piping infrastructure. Water leakage and meter reading represent the two biggest operational costs for water utilities.

By implementing a smart water infrastructure, comprised of sensors, gateways, automated meter readers embedded with LoRa® Technology, and an intelligent low-power, wide area network based on the LoRaWAN™ protocol, utility companies can dramatically reduce their operational costs.

HOW A LoRaWAN-BASED WATER FLOW MONITORING SYSTEM WORKS

Semtech LoRa Technology enables connectivity, real-time analytics, reporting, and additional functions such as geolocation.

- 1 Multiple sensors embedded with LoRa Technology are placed on water pipes leading into homes or buildings
- 2 If sensors detect a leak, they send an alert to a LoRa-based gateway; meter readers can also send information to the gateway about irregular readings that may indicate a leak
- 3 Gateway sends information to the network where the data is analyzed by an application server
- 4 Application server generates a work order
- 5 Maintenance personnel receive work order via computer or mobile device, so that leak repairs can be scheduled and taken care of quickly

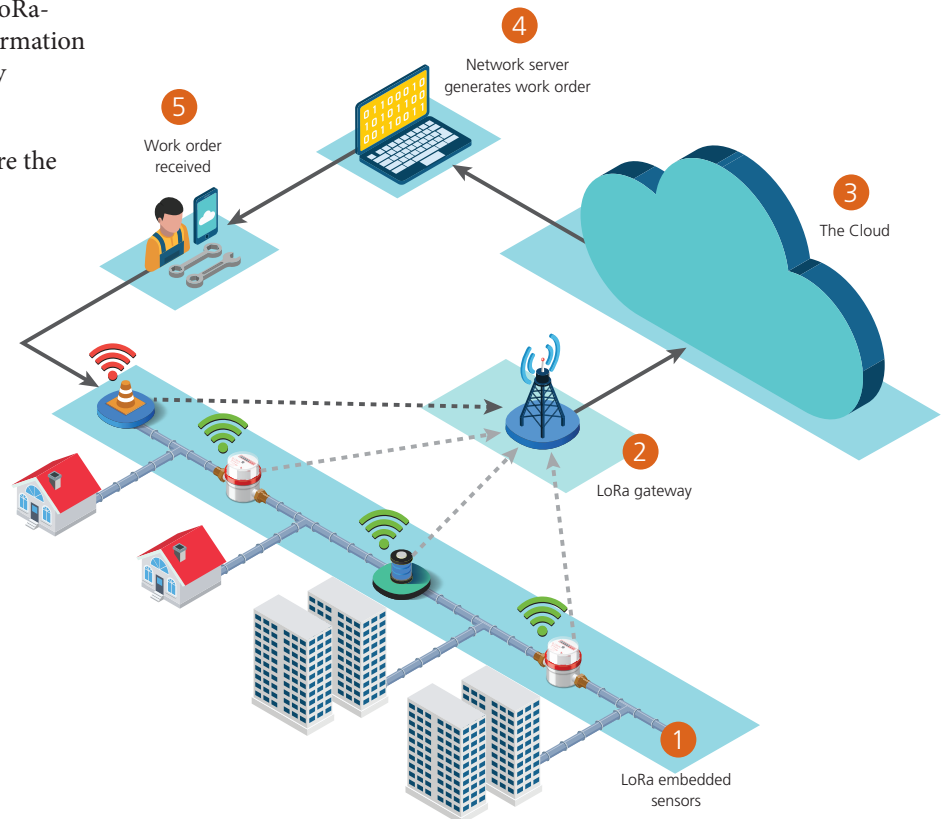
BENEFITS

- Reduce utility operational expenses with precise detection of water leaks through sensors and automated meter readers embedded with LoRa Technology
- Dramatically reduce service costs as low-power operation ensures sensor batteries can last up to 20 years
- Reliable RF communication link between sensing infrastructure and LoRaWAN-based network provides excellent underground coverage

APPLICATIONS

Utilities have a wide range of sensing solutions to monitor water flow, including:

- Leak detectors
- Smart water meters
- Fire hydrant monitors
- Automatic water valve shut off systems



Semtech Products used in this application:

- | | |
|----------------|----------|
| Sensors | Gateway |
| • SX1272/3 | • SX1301 |
| • SX1276/7/8/9 | |

All application elements (sensing modules, gateways, servers, software) are available through LoRa Alliance™ partners.



FIND YOUR IoT SOLUTION FROM SEMTECH'S LoRa ECOSYSTEM

MODULES & MODEMS

SENSORS

BASE STATIONS

NETWORK SERVERS

SYSTEM INTEGRATORS







For a full list of LoRa Ecosystem partners and services, visit our LoRa Community <https://semtech.force.com/lora>

KEY FEATURES OF SEMTECH'S LoRa WIRELESS RF TECHNOLOGY

- LONG RANGE** Penetrates in dense urban and deep indoor environments, connecting to sensors 15-30 miles away in rural areas
- LOW POWER** Enables multi-year battery lifetime of up to 20 years or more
- HIGH CAPACITY** Supports millions of messages per base station
- GEOLOCATION** Enables tracking applications without GPS or additional power consumption
- STANDARDIZED** LoRaWAN specification ensures interoperability among applications, IoT solution providers and telecom operators
- SECURE** Embedded end-to-end AES-128 encryption of data ensuring optimal privacy and protection
- LOW COST** Reduces upfront infrastructure investments, as well as operating and end-node costs

JUMP-START YOUR IoT DEVELOPMENT TODAY

Semtech offers several training options to help you get started:

-  Learn about Semtech's LoRa Technology platform: visit www.semtech.com/loT
-  Join the LoRa Community: <https://semtech.force.com/lora>
-  Become a member of the LoRa Alliance™: visit www.lora-alliance.org
-  Attend a LoRa Boot Camp for a full-day of training featuring LoRa Technology and real world applications: www.semtech.com/loT
-  Follow Semtech on [LinkedIn](#) and our [LoRa Showcase page](#)
-  To contact one of our global offices in North America, Europe and Asia, visit www.semtech.com/contact

