SEMTECH CORPORATION
LoRa Devices
SMART UTILITIES REAL WORLD SOLUTIONS

LoRa®

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LoRa® Devices
USE CASE COLLECTION

Dear IoT Innovators,

Globally, the number of smart meters and utility applications connected via low power wide-area networking (LPWAN) technologies are projected to reach over 300 million by 2023*. IHS Markit forecasts over 100 million* smart meter connectivity integrated circuits (ICs) will ship globally in 2023, a number more than six times its size in 2017. Factors driving the adoption of smart metering include better billing with the automated collection of meter data, cost savings through the reduction of leaks and improved efficiency in utility networks.

In the last decade, a number of utility service providers have adopted Automated Meter Reading (AMR) solutions leveraging the walk by/drive by data collection method to benefit from the short-range data transferring capabilities of these connected meters. Today, market demand for increased efficiency is pushing data collection beyond these systems to fixed network connectivity via Advanced Metering Infrastructure (AMI) based on Internet of Things (IoT) technologies for long range data transfer to the utility providers themselves – no manual reading necessary.

IoT solutions leveraging non-cellular, LPWAN technologies, such as Semtech’s LoRa devices and the LoRaWAN® open protocol, are expected to represent up to 20 percent of all smart meters deployed by 2026, according to ABI Research**.

With hundreds of known use cases (and growing), and over 105 million devices deployed on every inhabited continent and orbiting the globe via satellite, LoRa-based devices and LoRaWAN networks are quickly becoming the de facto choice for IoT connectivity today. Smart metering is one of LoRa devices’ most successful market applications due to its unique long range and low power capabilities that offer several advantages for battery-powered meters. Leading market applications in North America, Europe and China include electricity and water monitoring, oil and gas control, power management, and smart grid solutions.

By implementing a LoRa-based smart utilities infrastructure comprised of sensors and gateways, utility and metering companies can collect data remotely and use personnel more efficiently to streamline operations and reduce cost. Utility applications leveraging LoRa devices and the LoRaWAN protocol offer customers strong business value, with documented use cases reducing waste and increasing efficiency to consistently deliver quick return on investment (ROI).

Regards,

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*Information based on IHS Markit, Technology Group, Market Insight – 2019. **Information based on ABI Research, LoRa Alliance® White Paper – 2018. Information is not an endorsement of Semtech Corporation. Any reliance on these results is at the third party’s own risk.
FEATURED APPLICATIONS

Water Grid Transformation - Birdz

Energy Management & Smart Lighting - OrionM2M

Nationwide Smart Metering - CRA

Creating Energy-Efficient Buildings - Kaifa Metering

Birdz
A wholly owned subsidiary of Nova Veolia, Birdz, a pioneer in remote water meter reading, deploys its unique expertise at the service of the smart city. Birdz offers a very large ecosystem of solutions to manage city utilities and preserve the quality of the urban environment.

birdz.com

Orion System LLC (OrionM2M)
OrionM2M is a fully integrated turnkey Internet solution provider and a manufacturer of a full range of hardware and software for LoRaWAN® networks. OrionM2M develops all products in-house according to the specifications of the LoRa Alliance®.

orion-m2m.com/en

Czech Radiocommunications (CRA)
CRA is a leader in providing digital infrastructure. In addition to broadcast services, the company focuses on connecting the world of television, radio and the Internet. The company also provides commercial Internet of Things (IoT) services to businesses, and has deployed a nationwide LoRaWAN-based network.

cra.cz

Shenzhen Kaifa Technology (Chengdu) Co., Ltd. (Kaifa Metering)
Kaifa Metering is committed to providing customers with complete sets of solutions and supporting services for electricity, water, gas, and heat metering, and has more than 20 years experience of independent R&D.

kaifametering.com
REAL USE CASE SOLUTION

In 2015, Eau du Grand Lyon, France implemented a smart water network using LoRa®-based sensors (meters and noise correlators) from Birdz, a subsidiary of Nova Veolia. The new water management approach generated significant benefits such as the identification, geolocation and faster repair of 1,200 water leaks in the distribution network. The solutions also save one million cubic meters of water annually in production due to the improved performance of the distribution network. Overall, there was an eight percent increase in water network efficiency in four years, from 77 percent in 2014 to 85.2 percent in 2018. By implementing a smart metering infrastructure comprised of LoRa-based sensors and gateways, utility companies can more efficiently collect data and streamline operations to cut cost.

FLEXIBLE DEPLOYMENT

LoRa-based metering sensors deploy into existing infrastructure either outdoors or indoors and offer strong connectivity in dense city settings. Birdz offers the ability to integrate IoT services and devices in the network, such as water leak detectors, fire hydrant monitors and water quality probes.

TWO-WAY COMMUNICATION

The LoRaWAN® protocol supports two-way communication, allowing the system’s sensors and gateways to send and receive data messages simultaneously. System-to-sensor communication enables managers to automatically detect leaks and other anomalies, and automatically shut down problem areas for maintenance.

RELIABLE DATA COLLECTION

Implementing a smart metering infrastructure based on LoRa allows utility companies to collect data faster and more efficiently, streamlining the deployment of smarter, more sustainable solutions.

“Semtech’s LoRa devices are perfectly suited for smart water metering solutions due to their deep indoor and long range performance, and low power consumption.”

Xavier Mathieu
CEO, Birdz

1,200 water leaks identified, located and repaired

1,000,000 one million cubic meters of water saved annually

8% increase in water network efficiency
REAL USE CASE SOLUTION

Orion System LLC (OrionM2M), one of the first Kazakhstani developers and manufacturers of LoRa®-based wireless data transmission systems for IoT, integrated Semtech’s LoRa devices and the LoRaWAN® protocol into its smart meters, OrionMeter, and luminaire controllers, OrionLighting, to utilize embedded Cloud connectivity via public LoRaWAN-based networks and gateways. Reliable data transmission reduces overhead cost and creates a more efficient system of utility and city light management. OrionM2M’s LoRa-based solutions bring operations management and service reliability, with an up to 30 percent reduction of technical losses, higher SLA and more accurate billing.

LOW OPERATING COST

LoRa-enabled smart meters offer minimal downtime and maintenance cost due to the system’s low power operation. Meter readings are completed remotely, reducing labor costs associated with the manual reading of meters.

LONG RANGE

LoRa is uniquely suited to handle the complex challenges of smart metering, smart city connectivity and smart lighting solutions, offering long range connectivity up to 15km in open terrain and deep indoor signal penetration in cities.

HIGH CAPACITY

Each of OrionM2M’s LoRa-based smart meters support the transfer of millions of utility usage data points. This consistent, high volume of data meets the needs of consumers for tracking their use rates, and utility providers for more accurate billing.

HOW IT WORKS

Solutions enable up to 30 percent reduction in technical losses, higher SLA and more accurate billing.

“Our meters leverage LoRa devices and the LoRaWAN protocol to eliminate human error in data collection with direct, real-time uploads to the Cloud for analysis. These metering solutions are highly scalable by the number of devices, meaning utility providers can easily grow or expand their networks.”

Denis Fedorov
CEO and Co-Founder, OrionM2M
REAL USE CASE SOLUTION

Czech Radiocommunications (CRA), a Czech telecommunications company, has been providing commercial IoT services to businesses since 2016. Its LoRaWAN®-based network currently covers 75 percent of the country’s population with plans for continued deployment in low density areas. CRA has partnered with VisionQ, a technology start-up, to develop a unique energy control system based on Semtech’s LoRa® devices. The end device connects to household or business electricity meters and collects accurate, real-time electrical consumption data. Users evaluate their usage data through CRA’s management application. By addressing wasteful habits, end users are able to reduce their usage and save up to 30 percent on utilities.

SCALABILITY

Smart utility metering networks built on LoRa-based solutions are scalable by number of gateway. Each gateway offers connectivity to thousands of potential end nodes, allowing networks to grow quickly and easily. IoT.Water, a water metering solution provider and CRA's largest customer, has 8,000 active metering devices deployed across the country with plans to increase this number to 20,000 by the end of 2019.

DURABILITY

LoRa-based end devices are engineered with longevity in mind. LoRa-based sensors feature batteries built to last 10 years or longer.

STANDARDS-BASED

The LoRaWAN protocol is a globally approved standard and the number of total LoRaWAN network operators continues to grow yearly. The steady growth of network operators is a promising trend for the proliferation of LoRa-based utility metering technology with assured global interoperability.

“We chose Semtech’s LoRa devices and the LoRaWAN protocol for their open ecosystem and the flexibility they provide for IoT applications. There is a strong push in the country to replace manual utility metering with an Internet-based, Cloud-enabled solution.”

Jan Skabrada
IoT Partnership Manager, CRA

75% of the Czech Republic covered by LoRaWAN network

20,000 water metering solutions to deploy by the end of 2019

Up to 30% savings on utility cost by customers
REAL USE CASE SOLUTION

Shenzhen Kaifa Technology Co., Ltd. (Kaifa Metering), a Chengdu, China-based semiconductor and IoT solution developer, incorporated Semtech’s LoRa® devices and the LoRaWAN® protocol into its smart utility metering products for more accurate energy monitoring in buildings. Kaifa Metering's LoRa-enabled meters offer the ability to monitor a building's utility usage in real time. Data collected by sensors is analyzed for trends. Building owners and managers receive usage reports through smartphones and other connected devices, and changes are made to reduce wasteful consumption. As a result, Kaifa Metering customers have seen savings up to 25 percent on monthly utility bills following deployment.

SIMPLE INSTALLATION

LoRa-based sensors are small, wireless and install simply into existing piping and infrastructure. Deployment of LoRa-based solutions often takes only a few minutes before sensors are operational and transmitting data.

COST-EFFICIENT

By providing insight into use rates, building managers and owners can reduce usage in problem areas. Reduced waste results in greater savings on monthly bills and a quick ROI.

WIRELESS COMMUNICATION

Public and private LoRaWAN networks offer consistent, reliable and penetrating connectivity to sensors deployed in dense urban settings. For Kaifa Metering, LoRaWAN connectivity provided the ideal combination of advantages for metering devices throughout China’s many large metropolises.

“Semtech’s LoRa devices and the LoRaWAN protocol allow our sensors to connect to both private and public networks, so our customers can track their real-time utility usage. Our sensors are easily added to existing meters, meaning the creation of a smart meter is easy to deploy and easy to use.”

Letao He
Technical Director, Kaifa Metering

Dense Connectivity
LoRaWAN networks reliably connect sensors in the densest cities

24/7
Real-time utility use monitoring via smartphone and connected devices

Up to 25% savings on monthly utility bills by customers
LoRa devices and the LoRaWAN® protocol are supported by a diverse group of over 500 manufacturers, software designers, network providers, and industry associations.

Visit the Semtech website today to explore the LoRa-based products catalog and learn more about the innovative sensor, gateway, network, and software solutions offered by the ecosystem.

semtech.com/LoRa/ecosystem