



Case Study

iPERL™ Customer Stories

Meet iPERL™: the data-driven smart water meter ensuring your networks run efficiently and accurately, whilst increasing your business intelligence in near-real time.

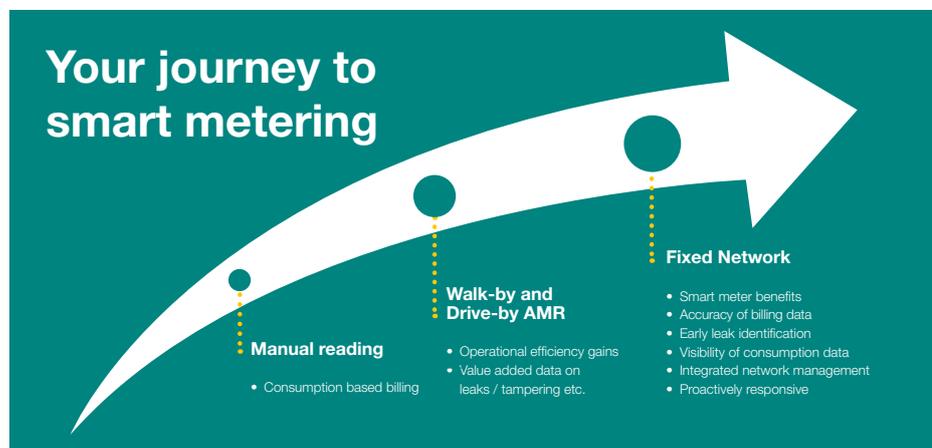
Think Sensus, think smarter.

Does your network run with unique, cutting edge technology that provides industry-leading accurate and near-real time data?

iPERL™ is a next generation, solid-state water meter with integrated bi-directional communications capabilities ensuring near-real time control anywhere in your network. The invaluable benefit of having a meter with no moving parts is seen with the flexibility it affords when considering installation locations; trapped air, dirty water and sand do not affect the high-performance of the iPERL™ at any stage of its service life.

How many other meters use innovative technology that guarantees sustained accurate data reads over their service life? This ensures you have up-to-date business intelligence, enabling optimum operational efficiency across your entire network and a wealth of data allowing you to conserve water, provide accurate billing to customers and to inform them about leaks, fraud or unusual usage patterns. Sounds pretty smart to us...

Read below to find out how companies around the world have benefited from the industry leading technology Sensus offers.



iPERL™'s key features

- **Low-flow measurement:** With a flow measurement down to 1 litre per hour, iPERL™ helps utilities to reduce undetected leakages due to next-generation sensors embedded in the endpoint. This technology also includes remnant magnetic field technology, which differs from solid state meters and provides a constant linear working flow range
- **A wealth of data:** The endpoints can be programmed to provide highly granular data at 15-second intervals. The embedded innovative communication enables the possibility of obtaining very detailed data from the meters, including the log of up to 2880 data points and alarms. The data collected helps water utilities to manage distribution networks more efficiently, to conserve water, to provide accurate billing to customers and to inform them about leaks, fraud or unusual usage patterns
- **Solid-state meter with no moving parts:** Unaffected by trapped air, sand or particles within the water, which ensures accurate readings from the beginning until the end of its service life, and subsequently preventing unplanned maintenance costs
- **15 year service life:** There's no need for meter re-calibration or replacement as the measurement accuracy of the meter is certified for life





The iPERL® water meter, combined with the Sensus FlexNet® System helped City of O’Fallon, Missouri, USA, save money and conserve water.

Challenge

The City of O’Fallon was suffering from 18% unaccounted for water loss, as well as aging water meters that were low at only 92% accuracy. This was resulting in huge wastage of precious natural resources and was costing the company an untold amount of money due to the old water infrastructure they had in place.

Solution

The city decided to install the FlexNet® communication network including the high-performance iPERL® lead-free water meters. The meters contain highly accurate data management software which allows for near-real time readings enabling utilities to detect leaks, increase operational efficiency and overall customer satisfaction. Betty Payne, Utility Billing Supervisor said: “It’s a little daunting at first because we’re switching from what we’ve been doing for years to a whole totally different system, but it really wasn’t that hard to learn...”.

Result

The City of O’Fallon saw unaccounted for water drop by almost half with the new system in place and the new meters dramatically increased the billable water by 10%, resulting in the water department being more efficient than ever.



The city of Satu Mare, Romania, installs 30,000 iPERL™ smart water meters and experiences increased operational efficiency, valuable business intelligence and a reduction in non-revenue water.

Challenge

The city of Satu Mare, Romania, had a water network that was riddled with problems, one of which was a discrepancy between sub-meters and the main meters in a house or apartment building. This was commonly seen when using mechanical meters, resulting in 20-25% difference in readings from the sub-meters and the main meters. This left the city with the challenge of having to either bill the customer individually or not at all. Another issue the city suffered was that of meter fraud with consumers turning the meter the wrong way to create a reverse flow. Overall, the city’s levels of sustainability.

Solution

After conducting research into the types of technologies that could help, Satu Mare discovered that the iPERL™ smart meter was well suited to put an end to inaccurate readings, lack of data and fraud as the meters come fitted with alarms to alert the utility of any tampering.

The city decided to install 30,000 iPERL™ meters in 7,040 homes and 22,960 in apartment buildings. The devices were rolled out in a very short time frame and set up for walk-by/drive-by readout, which would help increase the utility’s operational efficiency and costs.

Result

The drive-by readings were so efficient that the water utility was able to reduce meter read-out times of 2,500 devices that would usually require 10 people over seven days, to two people over a mere two hours and 30 minutes. With the high-performance meters, they were able to detect an increase in consumption, with peaks over time which lead the utility to investigate and discover a consumer leak.

The city of Satu Mare was pleased with the results that the data from the smart meters provided, as well as the benefits that having a meter reading at a distance provided the employees with. Now the utility can look forward to increasing operational efficiency, accurate data and conserving water.

“...we are trying to do our due diligence in conserving water and trying to operate as cost effectively as possible because every drop of water we save is less chemicals that are needed to treat it and less electricity needed to pump it.”

Dan Scherer, Water and Sewer Manager.

How can your smart water grid benefit from being connected at every point?

- Reduce non-revenue water through accurate data
- Improve operational efficiency and customer service with bi-directional radio communication
- Performance uninterrupted by installation due to no moving parts
- Flexible meter reading solutions with either handheld devices or walk-by/drive-by or fixed network options



Cortlandville, New York, USA guarantees clean, safe water to residents by installing smart water meters that deliver valuable and accurate data.

Challenge

Cortlandville wanted to guarantee its citizens the availability of sanitary drinking water, whilst also decreasing leaks in order to improve operational efficiency. They also wanted to increase their business intelligence through the use of accurate data.

Peter Alteri Jr, Chief Water Operator, wanted to implement a smart water network that was automated, reliable and resilient. He knew that a two-way communication system with meters would provide benefits for years to come, including the reduction of trucks on the road and carbon emissions in the air.

Solution

When looking for a solution that would work with their existing system, they researched Sensus' technology and found the following: "We wanted to stay with Sensus for their customer service, so we were pleased that their meters and technology met our expectations," said Alteri.

To meet their objectives, Cortlandville selected a comprehensive solution including 1,400 Sensus iPERL[®] residential smart water meters and 100 OMNI[™] commercial meters. For the communications network, they chose the Sensus FlexNet[®] SmartPoint M2, a radio transceiver that boasts inbound and outbound access to water measurement and additional device diagnostics via a two-way radio signal.

Result

The town's old water meters needed replacing and so they selected the iPERL[®], an industry leader. These meters are more sensitive to flow changes, less susceptible to temperature changes and provide accurate reads for the life of the product. Also, the iPERL[®] and commercial OMNI meters from Sensus exceed regulatory compliance with their zero lead composite construction.

The new meters are highly reliable, resulting in customers' bills being accurate. By migrating to the FlexNet[®] communications solution in conjunction with the iPERL[®] smart water meters, Cortlandville is able to collect accurate meter reads at any time without stepping outside of the office. "We can now quickly and accurately answer questions with a simple click of a mouse. The smart water network also helps us to detect leaks before they become costly to our town and environment," said Alteri.

With their smart water network in place, Cortlandville is living its mission by providing clean, safe, water to its citizens.



The market town of Dießen, Germany, relies on economical, ecological and future-proof iPERL[™] metering solution from Sensus to install regulation-compliant lead-free meters.

Challenge

Dießen, Germany, needed to future-proof their water meter network after the German Drinking Water Ordinance introduced a stricter threshold for the amount of lead allowed in drinking water. It was changed to a maximum of 10 µg/l which serves to encourage water utilities to modernise their drinking water installations.

Solution

To ensure they comply with the regulations in future, the town of Dießen has made a conscious decision to install lead-free meters like the iPERL[™]. Michael Deininger, the Technical Director of the Dießen water utility, said "When choosing our new water meters, it was important for the materials to comply with the permissible values, but also ensure our decision is future-proof."

The iPERL[™] smart water meter consists of composite materials and is 100% lead-free, so water utilities can confidently rely on iPERL[™] to ensure they are on the safe side even if threshold values for lead are lowered or if environmental safety regulations become stricter.

Result

"The exceptionally long service life was yet another reason for us to choose iPERL[™]", Deininger explains. "Longer deployment cycles mean we can reduce the costs which arise from exchanging meters and we can then invest the money this saves in additional state-of-the-art, durable meters." The added features the meter brings like contactless data reads and magnetic-inductive flow measurements ensure reliable meter performance throughout iPERL[™]'s long and unrivalled service life. Also, process steps such as venting or flushing meters can be dispensed with which eliminates the risk of faulty installation or implementation. These are important economic advantages and have a positive effect upon a utility's operations.

If you can't measure, you can't manage

The data captured by a Sensus iPERL[™] smart water meter provides your business with the accurate information to identify and help manage network issues proactively and efficiently. It also helps you address regulatory and environmental challenges whilst improving customer service, security of supply and operational efficiencies.

"We are absolutely convinced that, by choosing iPERL[™], we have made an economic and future-proof decision", Michael Deininger, Technical Director of the Dießen water utility summarises, "And this also means that we are now in a position to offer an optimised service which will help us to increase customer satisfaction."



Borough of Monaca, a town in Pennsylvania, USA, adds another brick in its road to sustainability by deploying a smart water network. The new solution has enabled them to save money, renew an old, leaking system and conserve water.

Challenge

The Borough had a leak-prone, aging system and knew it not only needed an upgrade, but also had to use technology that was new and sustainable which simultaneously would help increase productivity, improve billing accuracy, save water and money.

Solution

The Borough began by upgrading about 20,000 feet of water lines in an attempt to reduce breaks and improve water quality and pressure, as well as incorporating a smart water network solution from Sensus. This involved replacing 2,438 water meters and deploying a fixed base communication network with an advanced metering infrastructure (AMI) system. The Sensus multi-application FlexNet® system, coupled with Permalog leak detection, was connected to SR11 and iPERL® water meters.

Result

From the moment the meters were installed, to 2026, the new water lines and smart water network were expected to save the Borough \$2.6 million.

Another discovery the utility made upon installing the smart meters, was that a landmark and waterfall was in fact a long-standing rupture buried underground and not a natural spring! Sensus FlexNet® with Permalog leak detection alerted the Borough to this leak and eight others within days of being deployed.

The leak was fixed and water was saved but the spring was just one of the first steps the community took towards becoming more sustainable and saving money.



The Bad König municipal utility company in Germany installed 2,700 iPERL™ smart water meters in 2014, increasing their operational efficiency and reducing water loss.

Challenge

The Bad König municipal utility company wanted to be the pioneering water utility in Germany moving away from traditional mechanical meters to smart meters, in order to function in a sustainable manner and increase operational efficiency.

They investigated several suppliers to see who would be able to supply them with the best solution: "When we went to see the Sensus plant in Ludwigshafen with its highly sophisticated test labs, we were totally convinced by the manufacturer's expertise," says Markus Kunkelmann, Head of Technical Operations at Bad König's municipal utilities.

Solution

They began their pioneering project by installing quality metrology with its low start-up threshold of just one litre per hour and noted: "We were really surprised with the difference iPERL™ makes in comparison to the more traditional impeller wheels and oscillating piston meters," says Kunkelmann. The technical support provided by Sensus played a key role in achieving such positive results in Bad König.

Result

Following the installation of 2,700 meters, the time of data transfer was reduced from a staggering 960 hours to 51. Not to mention, one million litres of drinking water saved in the first year following the installation of iPERL™ meters.

The economic benefits of iPERL™ also become apparent when reading the consumption data. Before they deployed iPERL™, four members of staff needed 30 days to send the water consumption details to the accounts department. However, with walk-by readings the complete supply network can be read and all the data sent to the billing department without any errors in just over two days. They have optimised their operating results, reduced water loss, improved their customer relationships and are helping to protect the environment as well.

Did you know?

- The iPERL™ has the Widest working-flow range on the market
- It can withstand temperatures as low as -20°C
- The iPERL™ is made from sustainable endpoint material
- It has a unique power supply design
- Only the water in the supply is measured so air does not add to the volume recorded

About Sensus

Sensus helps water utilities, energy providers and cities do more with their infrastructure to improve the quality of life in their communities. We enable our customers to reach further through the application of technology and data-driven insights that deliver efficiency and responsiveness. We partner with them to anticipate and respond to evolving business needs with innovation in communications technologies, advanced metrology, data analytics and services.



E: ContactEMEA@sensus.com www.sensus.com
Follow [@SensusGlobal](#) on Facebook, LinkedIn and Twitter.