



# ENTEGA AG optimise their water management with iPERL

UTILITY USES IPERL AND SENSUSRF FOR DEVELOPING A SMART WATER NETWORK

ENTEGA is based in Darmstadt and responsible for the water management of 240,000 people in South Germany



## CHALLENGE

*Developing a smart water network solution and reducing costs for billing services*

## SOLUTION

*Smart water meter iPERL with SensusRF walk-by / drive-by*

## REACH FARTHER

*Costs saving for meters and a fast billing services for end customers*

The energy and infrastructure services provider ENTEGA, based in Darmstadt, has set the scene for a future-proof and sustainable solution which will deploy 40,000 smart water meters from Sensus. By 2025 their complete service network, which supplies around 241,000 people, will be equipped with smart meters. The aim is to reduce the costs for reading and replacing meters, to simplify metering operations in general and to improve leakage monitoring. Their customers will also be made more aware that water is a scarce resource and be encouraged to use it more responsibly.

The area which ENTEGA AG Darmstadt supplies with water ranges from Biblis in the south to Erzhausen in the north of Darmstadt. More than 46,000 domestic connections supply 241,000 people with fresh water every day. Their network of water pipes has a total length of 926 km and on average is around 39 years old. Losses due to leaks amount to around 4 percent. Company policy and its overall mission aims at supplying sustainable and environmentally friendly energy and water. That is also why they put intelligent water meters and systemsolutions to



the test in practice, to help them achieve the targets they have set themselves as soon as possible.

### iPERL from Sensus – convincing performance

“In our water supply network we have 300 meters for potable water in shafts which are very difficult to access”, explains Martin Grüger, who is responsible for potable water measurements at ENTEGA. “According to the employers’ insurance association safety regulations, we always have to send at least two specialist staff down these shafts at a time. The high personnel costs for reading and exchanging these meters were another trigger for us to look for more modern and efficient solutions.” The costs for reading a new meter amount to about 45 Euros according to ENTEGA’s estimates, and exchanging a meter costs around 150 Euros per shaft. “There are only a few digital water meters on the German market which are suitable for shaft systems and we found iPERL from Sensus was particularly convincing.”

The technical advantages that the iPERL from Sensus provides are apparent when we look at its metrological properties: the measuring device is not sensitive to foreign matter at all, due to the static measuring principle that is used. “iPERL is one of the meters on the market which has no moveable meter parts or other elements in the measurement tube”, Grüger continues. iPERL also delivers the most accurate measurements, an important factor when it comes to recording low flow volumes due to

leakages. The measuring device works with remanent magnetic field technology, which is a decisive factor when it comes to accuracy and long service life. The integrated data communication which transmits status and alarm messages as well as consumption details, complete the technical concept. In addition to the technical advantages which open up new business fields and enable add-on services, the purchase price for modern measuring devices was another significant factor for ENTEGA. “Digital meters are more expensive to buy than mechanical ones, but the life-cycle costs of iPERL, thanks to its possible operating life of around twelve years, are lower than the costs for mechanical meters in the long run”, explains Grüger. The longer lifecycle of iPERL reduces the costs for office and field staff as well as for exchanging and fitting meters.

### Recording consumption precisely helps people to use water responsibly

The technical features offered by iPERL, especially for data storage and communication, open up new options in customer service, as Martin Grüger explains: “If we receive customer complaints now we have iPERL, we can immediately check the datalogger to see exactly what additional consumption there might have been. In the past, we had to replace the metres and send them in to our test facility to be examined. This new level of accuracy is good for both us and the consumer”. In future ENTEGA is also planning to extend its range of services: “When faults such as leaks occur



in a network, we can address consumers proactively to make them aware of such problems. And it helps us to achieve our aim of having a sustainable and resource-friendly water supply.”

That is also why ENTEGA wants to introduce another consumer service during the course of the year. This sees the company putting another iPERL feature to use: in addition to the proprietary transmission protocol, which is optimized for long distance readings, it also transmits the open OMS standard wMBus T1. “Consumers in a new housing estate will have their water meters connected up with OMS-capable electricity meters as well, so both meter readings can be transmitted to the suppliers together”, says Gröger.

### Digitalisation in water management

ENTEKA wants to deploy over 40,000 smart iPERL in households over the next few years. “By 2021, all of our domestic connections will be equipped with iPERL devices”, Gröger tells us. “By 2025, we plan to change over completely to remote radio transmitted readings for our water supplies.”

Metering operations are also being digitalised: “The process of periodically replacing meters can now be supported via smartphones and be completely paperless. Meter readings or faults can be recorded and sent in easily and are then saved in our documentation system”, Gröger explains. Going digital also makes the specialist staff’s daily work much easier. And potential errors can be avoided in the documentation, too.

The modern data architecture of iPERL

is beneficial for both the supplier and the consumers. ENTEKA is committed to simplifying how they monitor minimum night flows for their drinking water network. “When iPERL are installed throughout a whole area, it is much easier to measure consumption for different districts so we can react much faster to low flow volume from cracked pipes.”

### Drive-by reduces reading costs by 75 percent

From 2018, ENTEKA intends to take the readings from the intelligent water meters using a drive-by solution with a specially equipped vehicle. The reading software shows the location of all the water meters which have not been read yet. Sensus enables measurement details to be read quickly, simply and error free, as Martin Gröger confirms: “Reading the meters with the help of radio transmission technology means we can read 46,000 meters in just one week. From the year 2021 onwards, this will reduce our costs down to a tenth of what they have been so far.”

Sensus works with very low transmission power outputs of just 25 milliwatt – compare that to modern smartphones which transmit at up to 2,000 milliwatt. In spite of such low transmission power and transmission times of less than two milliseconds, reading meters is still so simple and reliable, and the transmitters are certainly strong enough to reach the receiver. The supplier can also adapt the iPERL communications options to suit their needs. Alarm and status message transfer can also be adjusted at any time. The supplier doesn’t need to physically access



the meter to activate or deactivate radio transmission. That saves a lot of time as it is not necessary to make appointments with the customers, who then don't need to be available on site anymore.

iPERL fulfils all the data protection requirements set by both state and federal data protection laws and thus guarantees that consumption data is secure. Data is transmitted according to previously set AES encryption and corresponds to the guidelines set out in the BSI guideline TR-03116-3 which defines the security requirements for use with cryptographic processes in the infrastructure of intelligent metering systems in the energy sector. The alarm and status messages from iPERL also include protection against manipulation. Every attempt to manipulate them is recorded together with the latest timestamp.

## At a glance: why ENTEGA has chosen smart meters

By deploying iPERL from Sensus, ENTEGA expects to save at least two million euro within the next twelve years. The company's extended service package also enables them to deliver information proactively which can lower water consumption levels and improve their complaints management at the same time. Their optimized meter replacement and meter reading processes mean consumers do not have to wait at home for service staff to visit and error-prone self-readings can be avoided as well. The solution also ensures the network is monitored effectively and that losses from leaks are detected and recorded. This means the proportion of costly water losses due to faults in the network will be reduced even further.

### ABOUT SENSUS

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*Sensus, a Xylem brand, helps water utilities, energy providers and cities do more with their infrastructure to improve quality of life in their communities. We enable our customers to reach farther by responding to evolving business needs with innovation in communications technologies, advanced metrology, data analytics and services.*