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DHI

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NY Blue Tech

DANISH CLEANTECH HUB

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IoT in smart water metering

Make it the internet of your things

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Water metering by Kamstrup

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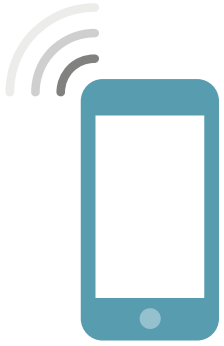
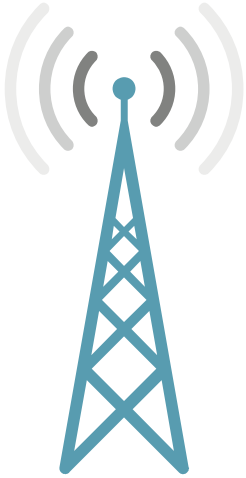
Meter reading

Manual reading



Drive-by



AMI

IoT

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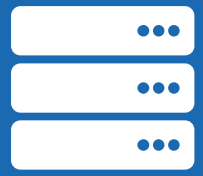
AMI



Data amount with 16 years lifetime

Reach

One-way communication

Unlicensed band / Own infrastructure

AMI offers full control and low operational costs

AMI

AMI technologies are designed specifically for smart metering to match the utility's need for quality of service and analysis without compromising on battery lifetime. An AMI solution requires utilities to build, maintain and invest in their own infrastructure and excels in distribution areas that mainly consist of urban areas.

Choose this solution if:

- You need advanced near real time analysis of e.g. water loss and pressure
- You want full control to avoid dependance on a 3rd party supplier
- You want lower operational costs for reading your meters
- Your distribution area mainly consists of urban areas

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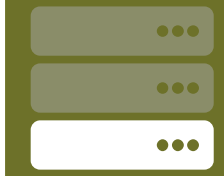
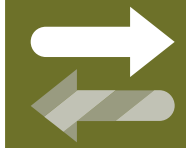
Sigfox



Data amount with 16 years lifetime

Reach



Two-way communication

Unlicensed band / Subscription

Sigfox is remote reading and already here

Sigfox
Sigfox is the most mature and widespread IoT technology. It enables smart devices to remotely connect to meters and transfer data using ultra-narrow band (UNB) technology. The Sigfox technology is a relevant option if you want to avoid installing and operating your own network and if daily values are sufficient to meet your data requirements.

Choose this solution if:

- You only need data for billing and are looking for long battery lifetime
- You do not want to invest in, and own, your own infrastructure
- Your distribution network area contains rural areas
- You need to communicate with devices, such as valves, to control the water flow

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A smart water meter designed for Sigfox

With a new version of the MULTICAL® 21, Kamstrup presents the first smart meter available in Europe to combine the pin-point accuracy of ultrasonic metering technology with state of the art Sigfox-based communication.

The new meter will be of interest to the many utilities who are looking to base their smart metering strategy on an IoT infrastructure – either because of their business needs or as a part of an overall Smart City strategy.

Developed for a large project for Antwerp water utility, Water Link, the new MULTICAL® 21 represents a new and innovative but tried and tested solution that takes IoT within smart water metering from theory to concrete reality.

Sigfox was the perfect fit for Antwerp, Belgium

Having the power to control their own network, reduce their costs and improve the customer service was the keys for Water-link, Antwerp as they made the decision to upgrade to a next-generation IoT-based water metering solution powered by Sigfox, Hydroko and Kamstrup.

"Because we are combining the meters with a smart valve, we were convinced that SIGFOX would work best for us. Kamstrup is a frontrunner in IoT solutions for intelligent water metering and they are providing us with the flexibility and interoperability we need." Kurt De Nies, Project Leader at Water-link.

"When we were calculating the financial business case for this investment, the benefits of the Kamstrup meter became more and more important. At low flows, the Kamstrup meter is very accurate so the water we will save became an important factor in the return on investment calculation," explains De Nies.

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NB-IoT

Data amount with 16 years lifetime

Reach

Two-way communication

Licensed band / Subscription

NB-IoT provides strong coverage on an existing infrastructure

Narrowband Internet of Things (NB-IoT)
The NB-IoT infrastructure is the telecommunication industry's response to the IoT market. NB-IoT uses an existing infrastructure of antenna sites that are already being used for mobile communication (LTE) today. NB-IoT is optimised for good coverage and very small data amounts. This makes NB-IoT relevant for remote reading of smart water meters, which are often installed underground in pits, basements or other locations that are not optimal for data communication.

Choose this solution if:

- You need two-way communication for firmware uploads or to send commands to other devices such as valves in order to control the water flow
- You do not want to invest in, and own, your own infrastructure
- Your distribution network area contains rural areas
- You want to minimise the risk of interference from other devices
- You do not neccesarily need 16 years of battery lifetime

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NB-IoT trial in Chile

In collaboration with Huawei and Telefónica, we are conducting the first NB-IoT trial in Latin America for the Chilean utility Essbio.

The goal of the trial is to allow clients to know their day-to-day use, facilitate actual invoicing, avoiding consumption estimations and to detect leaks and other irregularities.

NB-IoT trials in Spain

Together with Vodafone, we are conducting a NB-IoT field test for Spanish water utility Global Omnium, Aguas de Valencia Group, in Valencia.

The meters used in this trial are MULTICAL® 21 and flowIQ® 2103 water meters featuring a NB-IoT bridge. The meters are read automatically through the NB-IoT network powered by Vodafone and the data handled by Kamstrup's Meter Data Management system, READy Manager.

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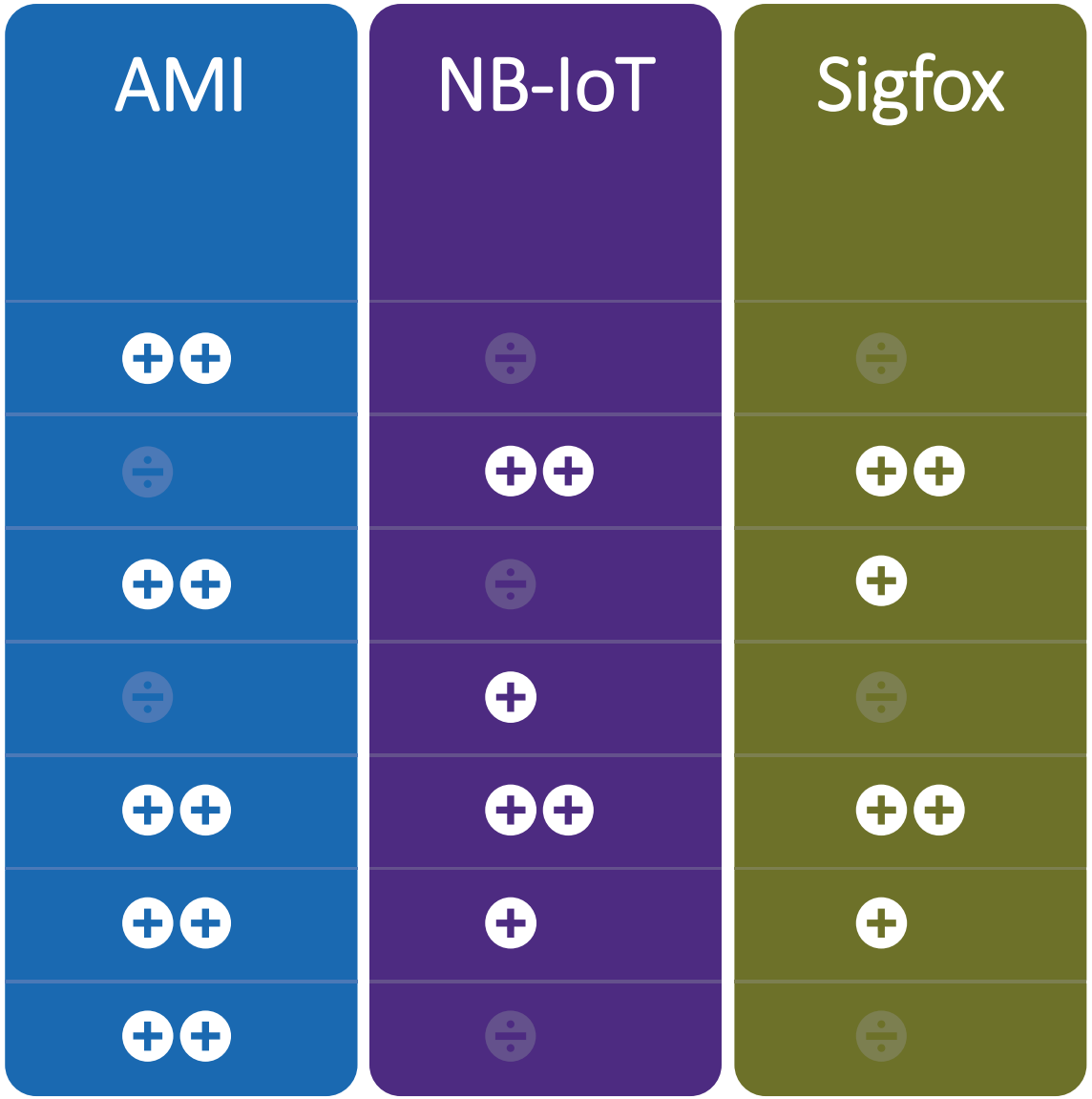
Smart water metering relative comparison*

* In the context of our battery powered water meters with 16 years liftime



NB-IoT vs. LoRa vs. Sigfox

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NB-IOT:

The coverage would be very good. NB-IoT devices rely on 4G coverage, so they would work well indoors and in dense urban areas. It has faster response times than LoRa and can guarantee a better quality of service. NB-IoT is best suited for primarily static assets, like meters and sensors in a fixed location.

LoRa

A good alternative to WiFi for low power devices that need to be connected throughout a building, like a factory or a hospital. Setting up your own gateway creates a completely separate and secure network. LoRa seems to be the only option capable of being used as a "do-it yourself" technology; any company can build and use their own connected device wherever they can put up the gateway.
And a good option for bidirectional command-and-control functionality. LoRa devices have longer battery life than NB-IoT devices.

Sigfox

It consumes a low amount of power. It works well for simple devices that transmit infrequently, because it sends very small amounts of data very slowly, and supports a wide coverage area in the areas where it is located.

5 questions to ask himself before going IoT

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1) Which data is necessary for you?
   Nice to have, need to have…

2) In which resolution do you need your data?
   Hourly, daily, monthly, yearly…

3) What data do you need now and in the future?
   Integration of other smart devices…

4) What are your expectations to battery lifetime?

5) Do you want to control the infrastructure or outsource the responsibility?
   TCO; low investment/ high operation cost, high investment/ low operation cost

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Q&A

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