

Data communication solutions for remotely read meters NB-IoT, LoRaWAN and wM-Bus

The right technology for every site — from the meter to Korto, the Elering Data Warehouse and the management system.

Technologies

NB-IoT · LoRaWAN · Wireless M-Bus

Users

Apartment associations · Commercial real estate · Industry · Grid operators

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1. Introduction — why remote metering?

Remote metering is no longer a luxury but a practical tool for optimizing costs, monitoring energy use and automated reporting. While the main users used to be grid operators, today remotely read solutions are also needed by apartment associations, commercial property owners, industrial companies and managers of rental premises.

There are many different technologies on the market, but there is no universal solution. The right choice depends on the size of the site, the location of the buildings, the existing infrastructure and who will use the data.

The important question is not only how to get the data from the meter, but also where it goes, who manages it and how easy it is to forward it — for example to the Korto environment, the Elering Data Warehouse, accounting software or a property management system.

2. NB-IoT

NB-IoT (*Narrowband Internet of Things*) uses the mobile operator network. The meter or data transmitter contains a SIM card or e-SIM and sends the data directly to a cloud service without the need for local gateways.

Strengths

- does not require its own radio communication infrastructure at the site
- well suited to sites dispersed across Estonia
- very good coverage in underground rooms and technical floors
- easy to scale
- enables sending data directly to the cloud or to the client information system

Weaknesses

- each device adds a communication cost
- dependence on the mobile operator
- the client has no full control over data traffic and network management
- long-term operating cost may grow significantly with many devices

Suitable for

- sites dispersed across Estonia
- fuel stations
- small apartment buildings
- water intake points and pumping stations
- property owners who do not want a radio communication network

3. LoRaWAN

LoRaWAN is a low-power long-range radio communication technology that operates in Europe mainly in the 868 MHz frequency band. The network can be built yourself or you can use a public LoRa network.

Strengths

- no monthly SIM card fee
- the network owner controls the entire infrastructure
- one gateway can cover several kilometres
- very cost-effective with many measurement points
- battery-powered devices can have a service life exceeding 10 years

Weaknesses

- requires installing a gateway
- may require additional devices in large concrete buildings
- the owner is responsible for the operation of the network
- higher initial investment than NB-IoT

Suitable for

- apartment buildings
- business parks
- shopping centres
- industrial parks
- universities and campuses
- real estate portfolios with a large number of measurement points

4. Wireless M-Bus (wM-Bus)

wM-Bus is a European remote metering standard used especially in water, heat and gas meters. It is a very widely supported solution whose main advantage is cross-manufacturer compatibility.

Strengths

- European standard EN 13757
- very wide selection of devices
- meters are often compatible with devices from different manufacturers
- very low energy consumption
- well suited to apartment buildings

Weaknesses

- requires data loggers or gateways
- smaller coverage than LoRaWAN
- in large complexes it may require signal repeaters
- usually does not send data directly to the cloud

Suitable for

- apartment buildings
- compact office buildings
- hotels
- buildings where the measurement points are located close together

5. Manufacturers and devices

Below are the device manufacturers we use, their main devices and supported communication technologies, and their suitability for different sites.

5.1 Iskraemeco



Iskraemeco is one of the best-known European manufacturers of remotely read metering systems.

Solutions we use • electricity meters: IE-series smart meters • electricity meters: AMI-type grid meters • ultrasonic water meters	Supported communication • NB-IoT • LoRaWAN • wM-Bus
Strengths • very strong data exchange with electricity grids • suitable for projects integrating with the Elering Dathub • wide choice of communication technologies • European manufacturer with strong quality control	
Suitable for • grid operators • large property owners • smart building projects	

5.2 Algodue



An Italian manufacturer focusing on electrical energy measurement and sub-metering.

Main devices

- MID-certified electricity meters
- M-Bus energy meters
- Modbus energy meters
- Sub-metering solutions

Strengths

- very good price-to-quality ratio
- suitable for splitting the energy costs of rental premises
- easy to integrate into automation

Weaknesses

- additional modules are needed to create wireless communication

Suitable for

- office buildings
- shopping centres
- industrial companies
- managers of rental premises

5.3 DZG Metering



A German manufacturer whose strength is electricity meters and German smart metering standards.

Supported communication

- Wireless M-Bus
- LoRa modules
- Smart Meter Gateway solutions

Strengths

- German quality
- very strong cybersecurity focus
- suitable for electricity sub-metering

Suitable for

- industry
- commercial buildings
- detailed sub-metering of electrical energy

5.4 GWF



A Swiss manufacturer specializing in water metering.

Main devices

- sonico® NANO ultrasonic water meter
- UNICOe
- MTWe series

Supported communication

- LoRaWAN
- wM-Bus
- NFC
- OMS standard

Strengths

- very high measurement accuracy
- ultrasonic technology
- leak detection
- service life of up to 20 years

Suitable for

- apartment buildings
- water management
- premium-class real estate

5.5 Lansen

A Swedish manufacturer whose focus is wM-Bus infrastructure.

Main devices

- wM-Bus repeaters
- gateways
- pulse sensors
- communication converters

Strengths

- very good for improving radio coverage in large buildings
- OMS standard support
- allows existing systems to be expanded

Suitable for

- apartment buildings

- large-scale wM-Bus systems
- solving sites with problematic radio communication

6. Which solution to choose?

The table below gives a quick recommendation based on the client type and the nature of the site.

Client type	Recommendation
Sites dispersed across Estonia	NB-IoT (Iskraemeco)
Small apartment building	wM-Bus (Algodue + DZG + GWF)
Large apartment-building portfolio	LoRaWAN or fix Wireless M-BUS (Algodue + DZG + GWF)
Shopping centre	LoRaWAN or Wireless M-Bus (Algodue + DZG + GWF)
Industrial Park	LoRaWAN or NB-IoT (DZG + GWF)
Water utility company	LoRaWAN, NB-IoT or Wireless M-Bus (GWF)
Grid operator	NB-IoT (Iskraemeco)
Project related to the Elering Datahub	NB-IoT (Iskraemeco)
Apartment association wanting Korto integration	LoRaWAN or wM-Bus
Real estate fund with many sites	LoRaWAN or NB-IoT

7. Summary

If there are few measurement points and they are scattered across Estonia, the most sensible option is to use an NB-IoT solution. If there are many measurement points and they are located compactly in the same area, LoRaWAN usually proves to be the most cost-effective.

For apartment buildings and water and heat meters, the wM-Bus standard still holds a very strong position, and a large part of the European remotely read meter market has been built around it.

Iskraemeco, GWF, DZG, Algodue and Lansen together form a selection of devices and infrastructure from which it is possible to assemble a remotely read metering system suitable for practically any real estate property.