



**SYMBIOT**Water  
Software Suite for  
Smart Water.

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**MEASURE  
EVERY DROP.**







**Iskraemeco provides a wide range of communication solutions that can be utilized for designing different meter reading systems:**

- **Automatic Meter Reading - AMR, utilizing mobile meter reading via wM-Bus (OMS).**
- **Advanced Metering Infrastructure - AMI, utilizing meter reading via low-power wide-area networks LoRaWAN™ or NB-IoT.**
- **A combination of the AMR and AMI meter reading approaches.**

Iskraemeco offers single-point management access to water, electricity, heat and gas meters, using the same infrastructure for multi-utility devices. This reduces costs per metering point and increases overall efficiency, providing our clients with a comprehensive data flow that aggregates data from smart water meters as well as data management and analytics systems.

## Symbiot Water consists of five applications:

- **Symbiot Smart Metering Platform.**
- **NB-IoT device management center.**
- **LoRaWAN™ network management center.**
- **Data visualization and analytics.**
- **Customer portal and app.**

Each app can be used as stand-alone or in combination with other products depending on the requirements (AMI or AMR).

The software suite and all its applications are designed to be used for meter installation, remote reading, maintenance and configuration of smart meters and other devices. The apps are compatible with all Iskraemeco meters. Seamless integration with third-party meters is possible through a powerful SDK (Software Development Kit) or API.

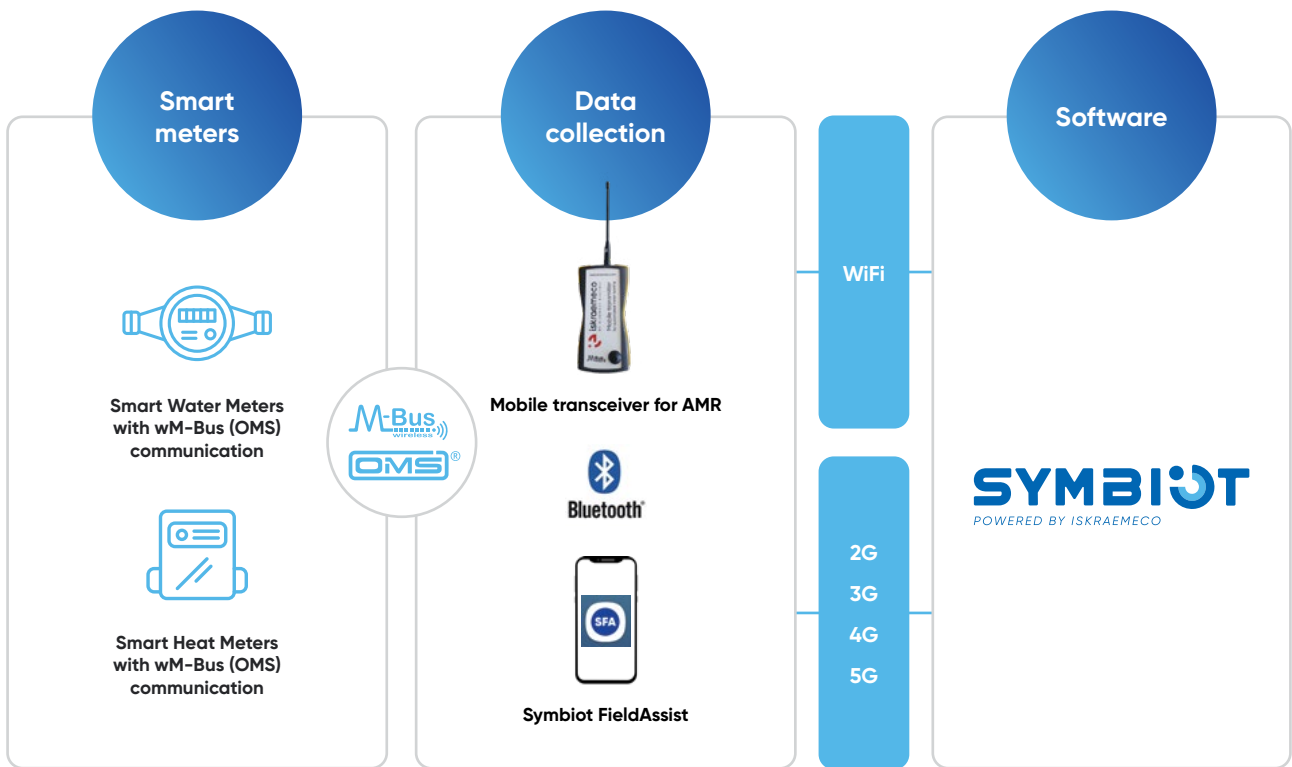
## Benefits.

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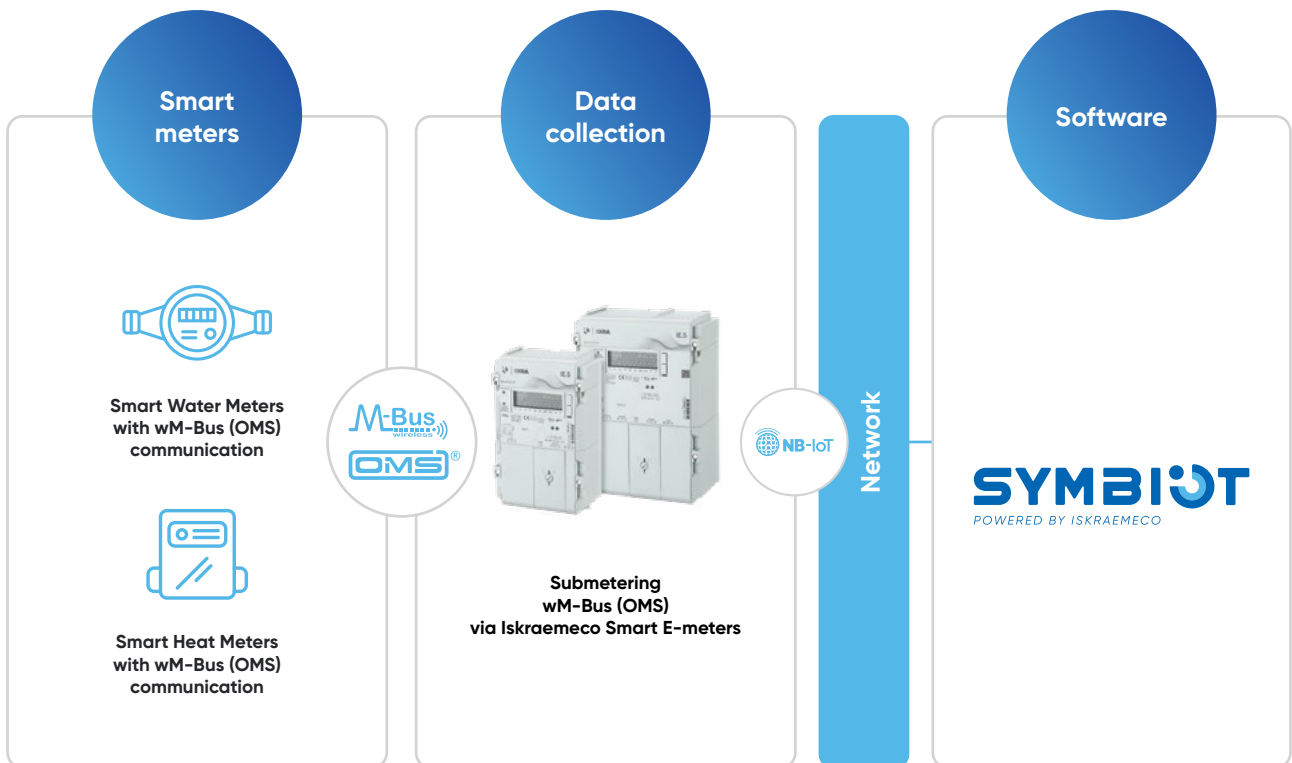
- Modularity and flexible licensing - the modular design of the SYMBIOT Software Suite allows you to customize your system by using only the modules you really need, thereby minimizing your system costs.
- The reliable and fully scalable platform provides you with a solution that not only meets your current needs but also the requirements that may arise in the future due to system expansions, changes in legislation and/or operational requirements.
- Open standards and technologies ensure effortless integration with existing legacy systems and minimize your custom development costs.
- The software suite provides instant notification of any exceptional condition on the water network, so you can dispatch maintenance personnel within seconds of a network issue.
- End-to-end security using the most advanced methods available. Sophisticated authentication and encryption methods are essential for secure data transmission between the smart meter and the head-end system.



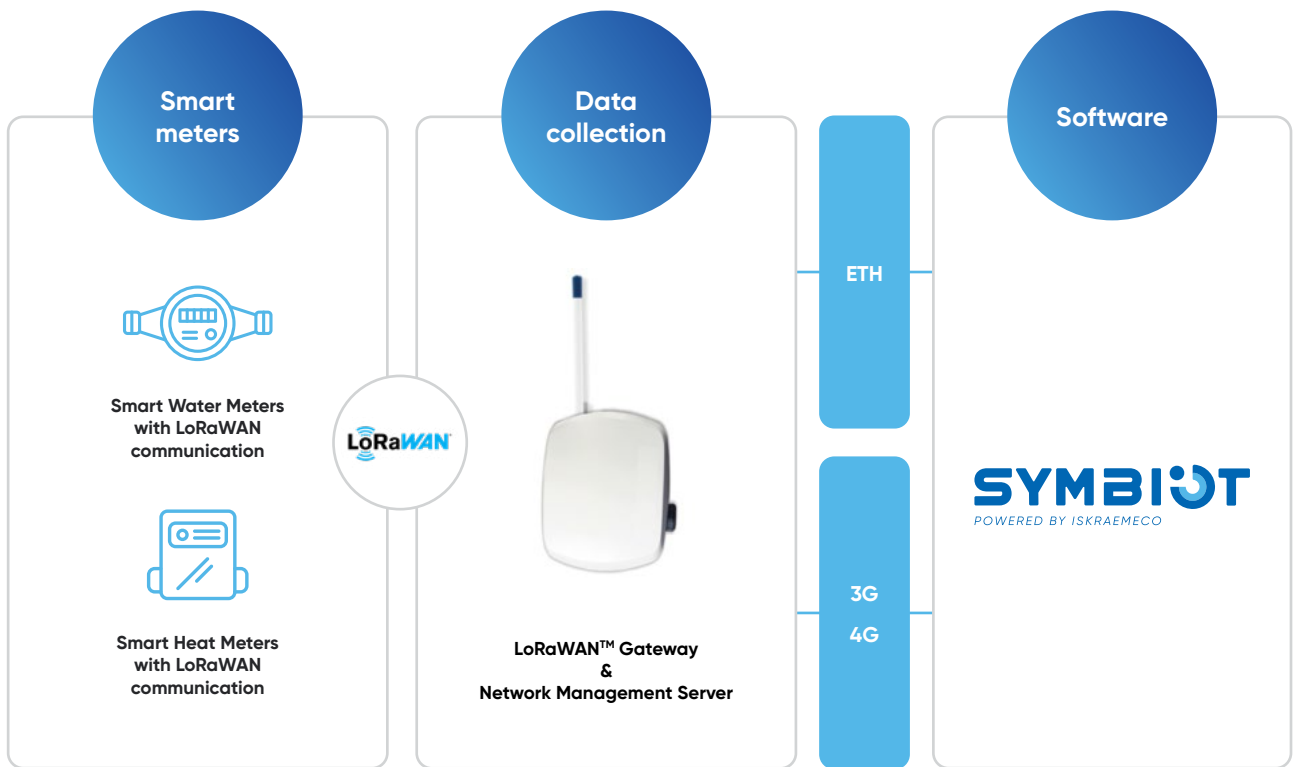
## wM-Bus Solution (walk-by/drive-by).



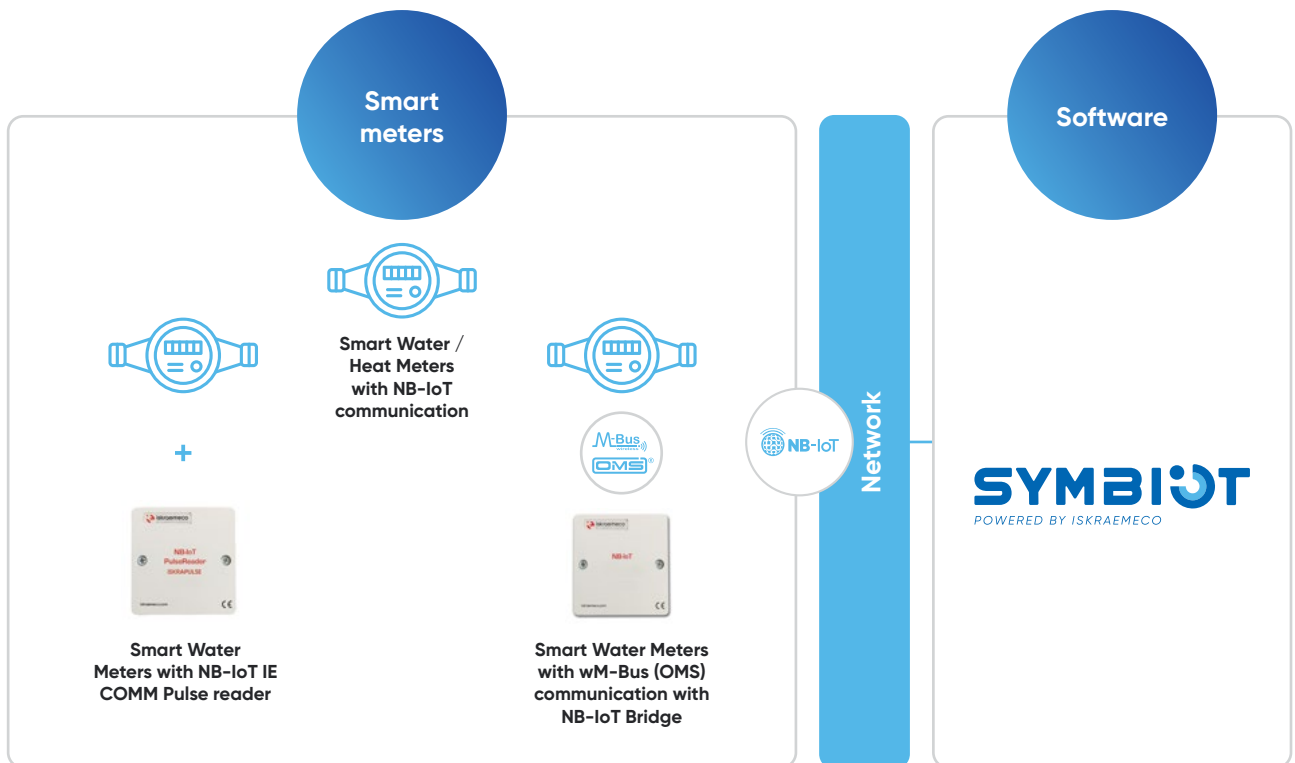
## wM-Bus Solution (over E-meter).



# LoRaWAN™ Solution.



# NB-IoT Solution.





# Symbiot Smart Metering Platform.

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The Symbiot Smart Metering Platform includes HES, MDM, KMS, integration, meter reading and optical reading functionalities for electricity, heat, and water meters. It is a modular, service-oriented, scalable head-end system solution. It is based on an open architecture and industry-proven standards, such as 3GPP release 13 and COSEM/DLMS on WAN, IEC 61968-9 (CIM) on enterprise connectivity, and KMIP 1.4 on security including key-management systems (KMS). The solution enables access and analyses of massive amounts of data, thereby offering insight, facilitating data-driven decisions and improving the satisfaction of utility operators and end-users.

**The platform performs Meter Unit setup, health checks, firmware updates, load disconnection and reconnection, and encryption key management. Additionally, it receives events and alarms from the Meter Units and handles and forwards them to target systems e.g. the MDM. The Symbiot Smart Metering Platform stores data, performs limited data validation and ensures secure delivery of relevant data to the MDM and third-party systems.**

## Symbiot MDM

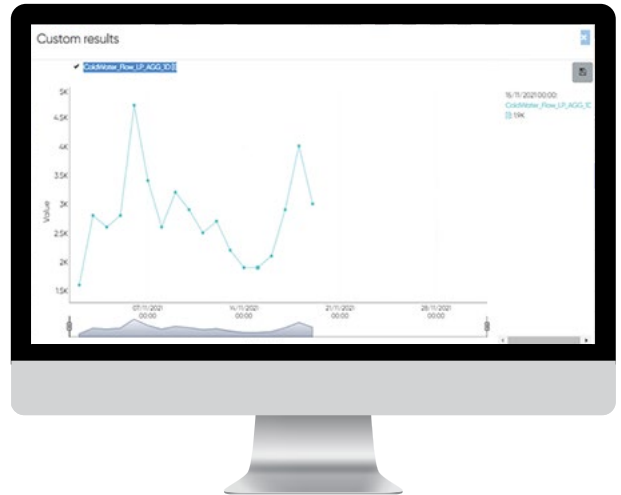
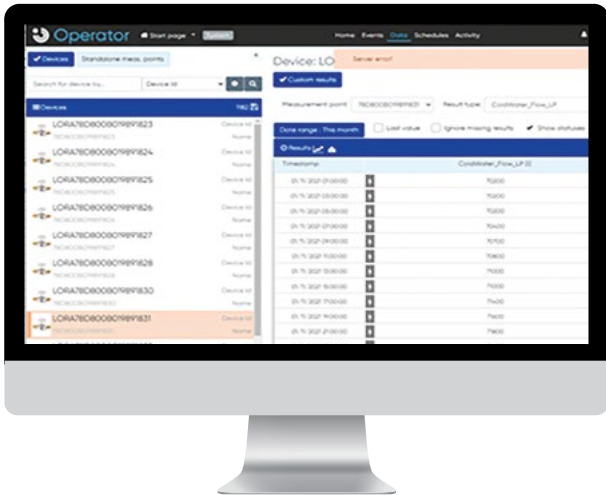
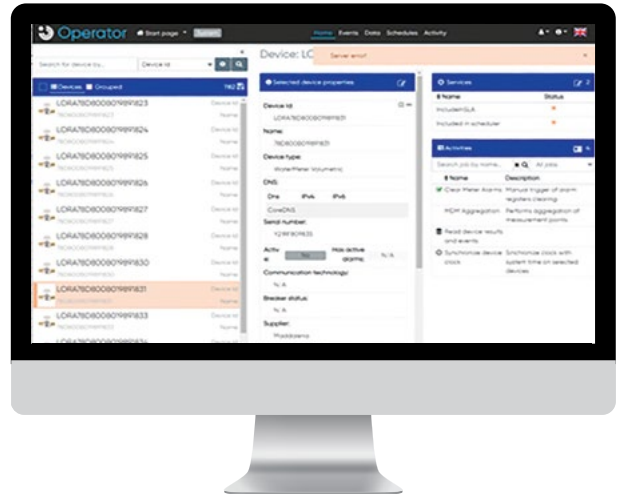
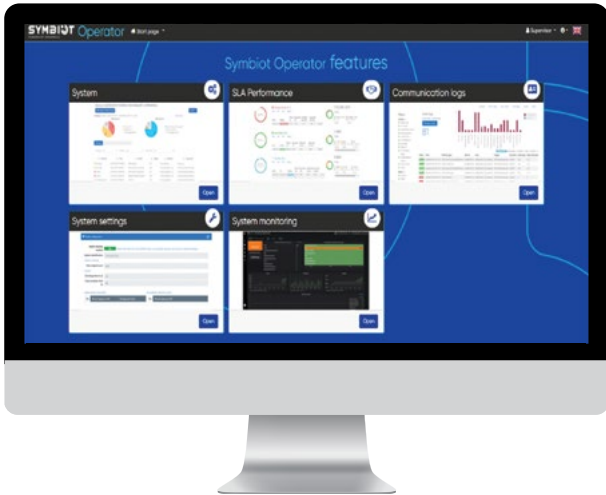
The MDM System is responsible for processing, storing, archiving, validating, estimating and analyzing the meter data, as well as ensuring secure delivery of relevant data to target systems (such as billing, customer portal, CRM, BI, and analytics).





# Symbiot HES

Focused on multi-source data collection, SymbiotHES uses a meter-agnostic approach with the ability to process any device data (electricity, water, gas, heat meters). The solution is designed to simplify the management of the meter readout process. The application is available through the web portal (web server).



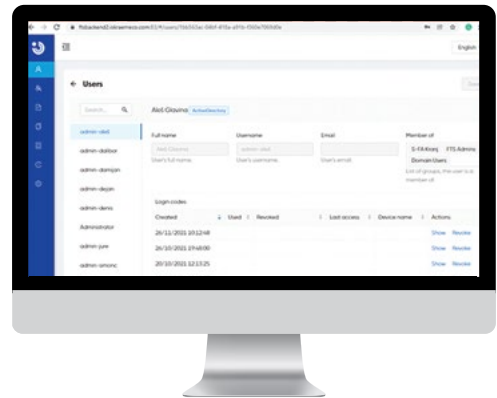
# Symbiot FieldAssist

The solution is designed to simplify field work and give field workers a clear overview of the tasks they need to complete each day. It provides the ability to configure field work and import work orders, and enables drive-by and walk-by solutions for battery-powered meter data collection.

Consumption data can be recorded by field teams using mobile transmitters and mobile reading devices (Android tablet or smartphone). The reading device is then synchronized with the Symbiot software suite. Configuration profiles can be centrally planned, managed, and sent to various mobile devices. Encrypted communication is used between the central data management software and mobile reading devices.

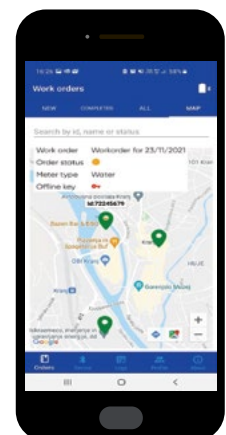
## WEB access (Back-end server)

- Assignment of multiple work orders to meter readers.
- Management of mobile meter readers and workload.
- Tracking of meter reading status.
- Export of meter readings to the MDM.
- Overview of reports of executed operations.
- Customization and configuration of settings.
- Overview of communication log.



## Mobile field device (Android tablet/mobile phone)

- Overview of work orders for execution.
- Automatic meter reads or manual entries.
- Fast Mode or Full Data Mode.
- Map view with route navigation.
- Overview of events and meter details.
- Camera and barcode scanner support.
- Online or offline working mode.
- Security mode: all operations are executed in a secure mode.



The main advantages of fixed meter reading using LoRaWAN™ and NB-IoT are:

- Automatic remote water meter readings.
- Higher frequency of data collection (e.g. twice per day).
- Higher resolution of consumption data (e.g. every 2 hours).
- In-depth analytics based on collected data.
- Quick detection of leakage and tamper alarms.
- Security of data transfer.
- Possibility to predict consumption and make forecasts on a daily or weekly basis.
- Predictive maintenance – better organization of the working process (a smaller team is needed to manage water meters).

## NB-IoT device management center.

NB-IoT device management center is a web-based platform for remote device configuration for multiple tenancies and users.

**The main function is device administration:**

- Remote configuration.
- OTA FW upgrade.
- Locations.
- Mass commands.

**Features include:**

- Multiple tenancies.
- Different user roles.
- Subscriber data delivery via http post json/xml, email Json/text, webapi http get, mqtt.
- 3 months sensor data log.
- Device communication log.





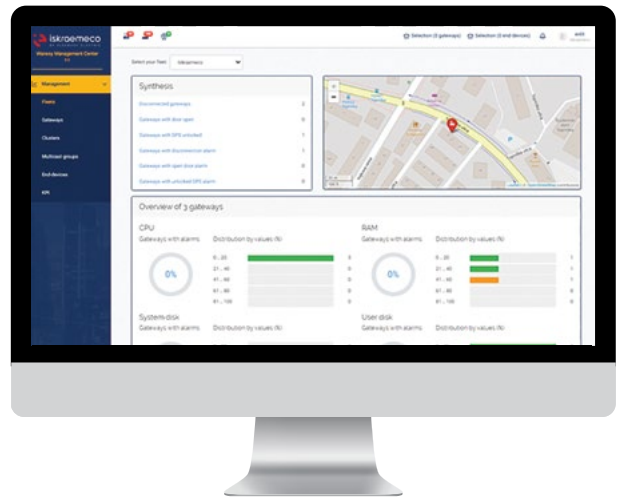
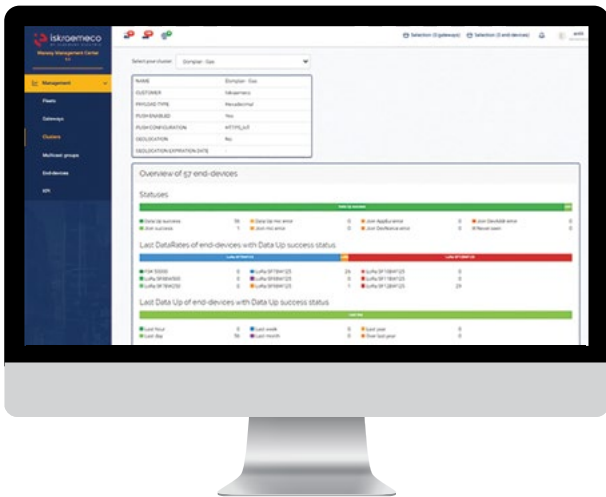
# LoRaWAN™ network management center

Our meter reading solution is designed to transmit the consumption data from water meters to a software platform by using LoRaWAN™ technology. Data reading is performed over a public or private LoRaWAN™ network. The data collection process is automated, manual readings are eliminated. Collected data provide a deep insight into the residential, commercial and industrial water consumption.

Iskraemeco offers a private LoRaWAN™ network supported by the management center.

## The main features of the LoRaWAN™ management center include:

- Multi-tenant architecture.
- LoRaWAN™ gateways management:
  - Insight into gateway KPIs.
  - Incident alerts (e.g. power lost, connection lost, high temperature).
  - Alarm and event logging.
  - Remote configuration (e.g. radio, backhaul).
  - Remote SW upgrade.
- End-device (water meter) management:
  - Bulk mass import.
  - Geolocation.
  - Detailed insight into communication (e.g. payload, RSSI, SNR, seen gateways).
- Push or pull payload retrieval.



# Data visualization and analytics.

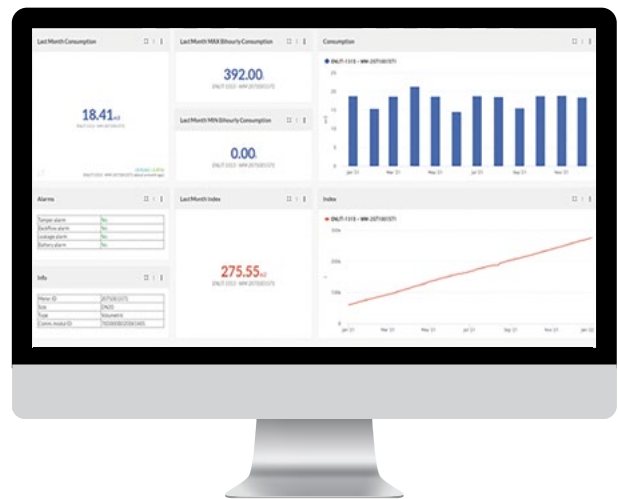
Analytics aggregates data from different systems within the utility. It delivers reports and KPIs to different levels of employees in the company to enable them to make the right decisions and perform tasks efficiently.

## The data generated by the analytics is represented as:

- Easily configurable dashboards.
- Key performance indicators.
- Automatically generated reports sent to emails.
- Tables and charts.
- Maps.

## Analytics covers different areas of utilities' operations:

- Water meter data collection.
- Leakage detection.
- Asset management.
- Non-revenue water reduction.



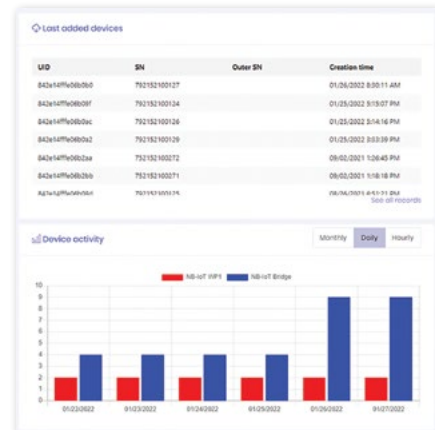
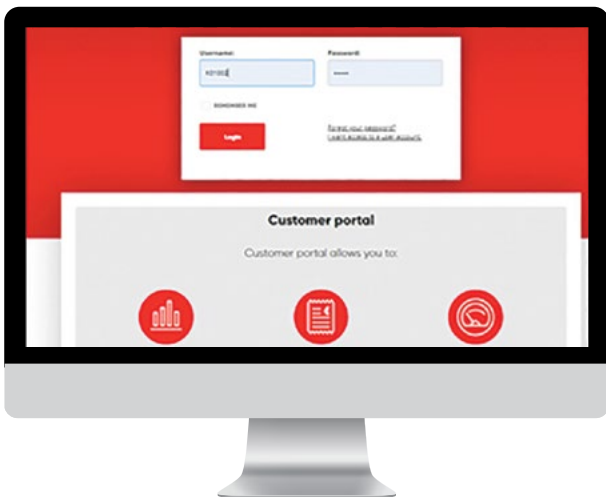
# Customer portal and application.

Our web-based user-friendly application is designed to enable utility customers to check everything they need to know about their water consumption, see and resolve all water use-related issues, create easy-to-understand water consumption profiles with various charts/graphs and take more informed decisions about their future use of resources.

Able to access the portal at any time, users also benefit from fully customized dashboards that ensure detailed control over water use and may potentially lead to consumption and cost reduction, as well as long-term behavioral change.

## Features

- Customized, utility-branded interface.
- One-stop portal for user consumption profiling (usage water profile information, meter readings).
- Consumption and payment history overview.
- Customer engagement and communication channel with a utility service provider.
- Email or text alerts about important account information.
- Useful information, e.g. cost-saving tips.









[www.iskraemeco.com](http://www.iskraemeco.com)

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