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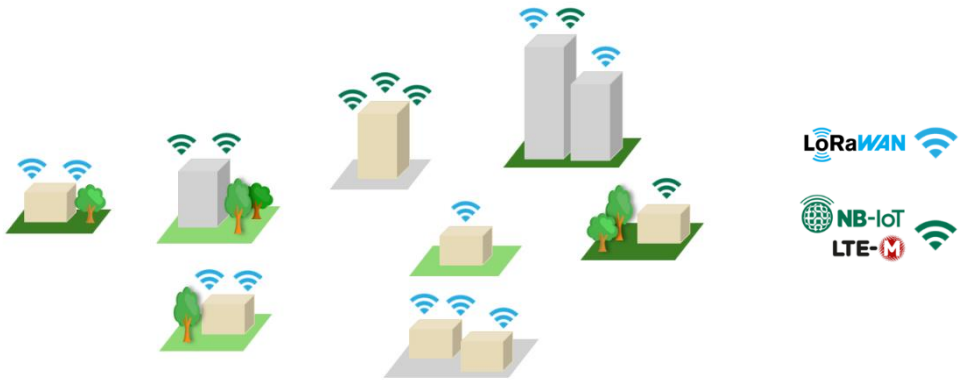
Hello,
Fludia Newsletter is back with quite a few topics: Concrete examples highlighting the complementarity between LoRaWAN and NB-IoT/LTE-M, details on how to access data from Tagawatt, and additional information on the optical reading of gas and water meters. Enjoy your reading!

Complementarity of LoRaWAN and NB-IoT/LTE-M

Accurate monitoring of energy consumption has become a major issue, not only to comply with environmental reporting requirements, but also to detect abnormal situations and quickly achieve real energy and financial savings.
In this context, collecting consumption data directly from existing meters—particularly for electricity and gas—helps standardize and secure the data, provided that the complementary strengths of LoRaWAN and NB-IoT/LTE-M technologies are leveraged effectively.

Through two examples, the complementarity of these IoT solutions is highlighted:

1. **Deployment in 50 bank branches of a fleet of optical sensors for electricity and gas meters using operated networks:** combining LoRaWAN and NB-IoT/LTE-M optical sensors, with subscriptions from both LoRaWAN operators and telecom operators, makes it possible to choose the right option on-site and thus avoid time-consuming steps (remote antenna installation, etc.) and blocking situations (complete lack of coverage near a meter).



2. **Deployment of 20 LoRaWAN sensors in a shopping mall:** installation of a private LoRaWAN gateway to receive messages from most meters equipped with optical sensors, but use of NB-IoT sensors for 3 meters located out of the gateway's range. This option is often preferable to installing a second gateway.

tagawatt, more information on data retrieval

All Tagawatt systems are natively **multi-protocol**: LoRaWAN and NB-IoT/LTE-M. They include both a Semtech LoRa transceiver and a Quectel NB-IoT/LTE-M modem, and can be configured to use one of the many possible options:

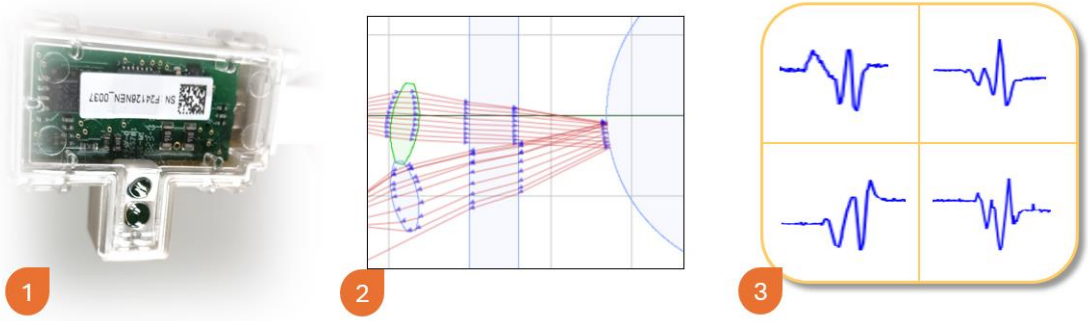
- **LoRaWAN** to an operated or private gateway
- **NB-IoT or LTE-M** using the supplied 1nce SIM card or any other SIM compatible with these protocols
- **Point-to-point LoRa** to an NB-IoT/LTE-M bridge or a WiFi/Ethernet/ModBus bridge

Regarding data retrieval, here is a quick overview of the technical possibilities:

- NB-IoT/LTE-M => SIM card => telecom network => Fludia MQTT broker => data server => API
  Data can be retrieved using the API or downloaded from the console.
- NB-IoT/LTE-M => SIM card => telecom network => Fludia MQTT broker
  Data can be retrieved by subscribing to the appropriate topic on the broker.
- NB-IoT/LTE-M => SIM card => telecom network => third-party MQTT broker
  The device can be configured to send data to a third-party broker.
- LoRaWAN => gateway => LNS => decoders
  The supplied LoRaWAN keys allow you to receive raw payloads. The provided decoders (or those pre-integrated in the LNS) allow you to obtain useful data.
- Point-to-point LoRa => NB-IoT/LTE-M bridge => MQTT broker
- Point-to-point LoRa => WiFi/Ethernet bridge => data server => API

tagawatt

Optical reading of gas and water meters - how does it work?



1. The optical head includes a microcontroller, a light emitter, a light receiver, and a **pair of lenses**.
2. The light beam is reflected by the index cylinder, and **the reflection is captured** by the light receiver.
3. When the digit moves, the reflected signal changes. These variations are analyzed by a **dedicated algorithm** that detects digit increments. The processing is shared between the microcontroller in the optical head and the one in the radio box.

Fludia Smart Energy Components

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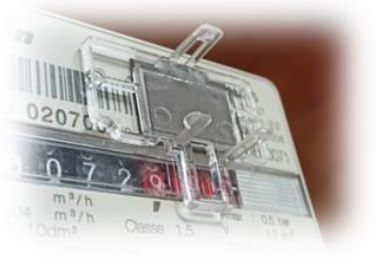
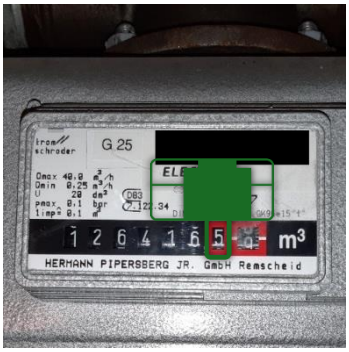
Gas/Water - positioning the optical head



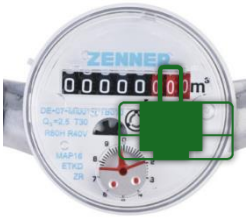
Gas meters can vary greatly from one model to another, and the same is true for water meters. Fludia's optical reading heads have been designed to adapt to most situations, provided a few principles are kept in mind:

1. **Never** position the sensor on the **last digit**.
2. Preferably select the second-to-last digit (see photos below) to achieve the **best accuracy**.
3. The sensor can be installed either **'right-side up' or 'upside down**, but the plastic mount must always be positioned very precisely, otherwise the measurement may be inaccurate.

Examples shown on gas meters



Examples shown on water meters



Fludia wishes you a happy holiday season!

December means end-of-year celebrations! We would like to take this opportunity to wish all of you **a wonderful holiday season**. In the meantime, our team remains at your disposal for handling your inquiries, quotes, and orders.