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Market Applications

- Water utility companies
- Facility management companies
- Smart cities
- Hospitality industry
- Industrial applications

Key Advantages

- Install & Play
- Ease of installation / replacement / maintenance
- Maintenance free
- Agile firmware architecture
- Integrated advanced data transfer limitation functions through compression
- Integrated advanced data reduction algorithms
- Configurable data throughput
- ~2 KB /Month /Water Meter
- Random connection per day algorithm
- Network signal level monitoring
- Dynamic connection to the base station antenna with the best signal level
- 10+ years of battery life

Sensor (edge computing) Notifications & Alerts

Notifications (on each connection):

- Battery level
- Network signal level

Alerts:

- Counter reset (pulse only)
- Cable cut (pulse only)
- Water leakage
- Pipe breakage
- Reverse flow
- Low battery

NB-IoT

Flow Sensor

Pulse / M-Bus ECO

Description

A highly sophisticated NB-IoT sensor designed to connect over wire to any type of water meter with pulse & M-Bus ECO output and broadcast water flow data over NB-IoT. With battery life of 10+ years this sensor can intrinsically provide water flow data and innovative value-added services, such as leakage identification and broken pipe alerting.

PULSE - Measurement Features

Pulse Detector	larger than 10ns
Measurement	Auto-triggered by pulse [Simultaneous measurement of up to two (2) water meters or devices with the same output.

M-BUS ECO - Measurement Features

Standard & Measurement	M-Bus ECO EN 13757-3 [Simultaneous measurement of up to two (2) water meters or devices with the same output.]
Compatible with	GWF M-Bus ECO water meters

Approvals

RoHS Compliant / CE*

Power

Battery	1 X SAFT LSH14 3.6v (Li-SOCl2) - (replaceable)
Expected Battery Life	10+ Years [or 8000+ Network Connections] (default measurement profile: every 15 minutes / 1 connection per 24 hours for the transmission of measurements, plus notifications/alerts) - (measurement profile configurable upon request)

Battery life depends on NB-IoT signal strength. The abovementioned prediction of expected battery life is made with NB-IoT signal strength of -80dBm RSSI (Received Signal Strength Indicator) and 150 SNR (Signal to Noise Ratio). The sensor automatically adjusts the transmitting (TX) power depending on the NB-IoT signal level. When the NB-IoT signal strength drops below -100dBm RSSI, a battery life reduction of up to 20% is expected. When the NB-IoT signal strength drops below -110dBm RSSI, battery life reduction can reach up to 30%.

Communication

NB-IoT Module	Quectel BC95-G
Sensitivity	-129dBm ±1dB
NB-IoT Frequency Bands	B28 @H-FDD: 700MHz / B20 @H-FDD: 800MHz / B8 @H-FDD: 900MHz / B5 @H-FDD: 850MHz / B3 @H-FDD: 1800MHz
Data Transmission Period	Once per day (configurable upon request)
SIM Formats	Nano-SIM (4FF) / eSIM*
NFC (Near Field Communication)	Retrieval of sensor data
	Trigger sensor connection to the NB-IoT network
	Configuration of sensor parameters*

Operational Features

Measurements Storage Capacity	1+ Year (default configuration)
Operational / Storage Temperature	-20°C to +75°C
Protocol	IPv4 - IPv6 / UDP / COAP* / LWM2M* / MQTT-SN*
Security	AES-ECC
Sensor Management	Bi-directional communication - Remote management of operating parameters (Device Management)
	Over The Air Firmware Upgrade. The upgrade can take place over IPv4 or IPv6 networks, it is transported encrypted and the integrity of the firmware is verified on the sensor prior to installation.

* Under Development / In Progress / In Planning

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NB-IoT

Water Flow Sensor

Pulse / M-Bus ECO

Physical Features

Dimensions	210mm x Φ60mm
Weight	≅140g + Battery 50g (Saft LSH14)
IP Enclosure	IP 67

Packing Contents

1 X	Pulse or M-Bus ECO Water Flow Sensor

Warranty

24 Months	From the activation date (which should not exceed 6 months beyond the date of shipment)

Installation Duration

10 - 25 minutes /Water meter (depending on the specifics of the installation site)

NFC communication, for ease of commissioning

Upon Request

Simultaneous measurement of up to four (4) water meters

Battery	1 X SAFT LSH14 3.6v (Li-SOCl2) - (replaceable)
NB-IoT Frequency Bands	B1 @H-FDD: 2100MHz
IP Enclosure	IP 68

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