NB IoT BOX LITE

Compact NB-IoT data logger for remote reading of pulse and encoder meters – battery-powered, without a gateway

VERAUT

NB-IOT · LTE CAT-NB2 | BATTERY OPERATION 10+ YEARS | 1 × PULSE + 1 × ENCODER | MQTT · COAP | AES-128/256 PAYLOAD | NO GATEWAY | ATEX ZONE 1 OPTIONAL

One meter, one device, straight into the back office

The **NB IoT BOX LITE** is a battery-powered data logger with integrated NB-IoT communication. It is mounted directly on the meter, reads its pulse or encoder output and transmits the values over the licensed mobile network to the backend – with no gateway, no concentrator and no radio infrastructure of your own.

The electronics are built for a single purpose: reading one meter reliably and frugally. The device is therefore designed for **more than ten years on one battery** – reference figure at hourly transmission – in a form factor that fits into chambers and meter niches.

Cat-NB2 reaches 164 dB MCL, around 20 dB more coupling loss than GSM – reception where conventional cellular devices give up. Should the link drop all the same, the device buffers the values and retransmits them with their time stamp.



10+ years

Designed for more than ten years on one battery – reference figure at hourly transmission and good reception.

164 dB

Maximum coupling loss under Cat-NB2 – around 20 dB of margin over GSM, in cellars and chambers too.

2 inputs

One pulse input and one absolute encoder input – manufacturer-independent, configurable per meter type.

No gateway

Direct transmission to the backend over the licensed mobile network, with no radio infrastructure of your own.

Product features

- Direct connection of pulse and encoder meters, manufacturer-independent
- 1 digital input for pulse, reed or S0
- 1 encoder input for absolute encoders (SCR and SCR+)
- NB-IoT to LTE Cat-NB2 (3GPP Rel. 13/14), licensed spectrum
- Transmission via MQTT or CoAP straight into a backend or cloud
- Send interval freely configurable, hourly by default
- Local data buffer with automatic retransmission including time stamp
- Additional encryption of the payload with AES-128 or AES-256
- Adaptive energy management: transmit power and sleep cycles follow signal quality
- Three-stage watchdog supervision of meter reading, device and radio link
- Compact form factor for retrofitting to existing meters

Typical applications

- **Water supply** – domestic and bulk water meters with pulse or encoder output
- **Gas supply** – domestic and commercial meters with an encoder
- **Energy meters** – electricity and heat meters with a pulse output
- **Submetering** – service charge accounting in residential and commercial property
- **Smart metering rollouts** – area-wide, without radio infrastructure of your own
- **Meter niches and chambers** – measuring points with difficult reception
- **Retrofit** – make existing meters remotely readable without replacing them
- **Billing** – meter readings at a given date, automatically into the billing system

WORKS WITH VERILOG web portal – analysis, alarms, export · NB IoT BOX MINI – logger for volume converters · NB IoT BOX LITE PRESSURE – pressure measurement · VUSWM – ultrasonic water meter · HES, MDM and ERP systems – data handover

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Subject to technical change. The information describes the product status at the time of preparation and does not constitute warranted characteristics in a legal sense. For use in hazardous areas the type examination certificate and the operating instructions apply; binding delivery characteristics are given in the order confirmation.

01 Inputs and meter connection

Digital input	1 × pulse, reed or S0
Encoder input	1 × absolute encoder SCR and SCR+
Meter types	Water, gas, electricity and heat meters, manufacturer-independent
Configuration	Parameterised per meter type (pulse value, initial value, number of digits)
Mounting	Directly on the meter, retrofit without replacing the meter

02 Data acquisition and transmission

Send interval	Hourly by default, freely configurable
Buffering	Local memory with automatic retransmission including time stamp
Values transmitted	Meter reading, consumption, device status, battery and signal quality
Evaluation	VERILOG web portal or your own backend

03 Security and availability

Payload encryption	Additional encryption of the payload with AES-128 or AES-256
Resilience	Three-stage watchdog supervision: meter reading, internal processes and the NB-IoT link, with automatic recovery
Network coverage	Transmission in the licensed mobile network
Data storage	Servers of VERAUT GmbH in Linz, Austria, GDPR compliant

04 Communication

Technology	NB-IoT to LTE Cat-NB2 (3GPP Rel. 13/14)
Link budget	164 dB MCL – around 20 dB of margin over GSM
Protocols	MQTT or CoAP; VERILOG or your own interface
Gateway	Not required, direct transmission to the backend
Antenna	Integrated or external outdoor antenna

05 Power and operation

Power supply	Lithium primary cell, no mains connection
Battery life	Reference figure of more than 10 years at hourly transmission and good reception (ECL 0); shorter send intervals, weak reception and low temperatures shorten it
Energy management	Adaptive transmit power and sleep cycles following signal quality
Operating mode	Autonomous, no maintenance between battery changes

06 Approval and environment

ATEX	Optional – version for Zone 1
Installation site	Meter niches, cellars, chambers and outdoor mounting

07 The NB IoT Box family

All variants share the same communication and backend core; they differ in their interfaces and form factor.

VARIANT	INTERFACES AND CHARACTERISTICS	TYPICAL USE
LITE	1 × pulse, 1 × absolute encoder (SCR/SCR+)	Pulse and encoder meters, standard rollouts
MINI	4 × digital, 3 × analogue, 2 × outputs, RS232/RS485, encoder	Volume converters, metering stations, Modbus
MICRO	OEM module for integration into the meter, TTL 3 V, IP68	Factory-fitted in the VUSWM, retrofit of pulse meters
GPS	GNSS (GPS/GLONASS), motion sensor, geofencing, IP68	Mobile vessels, equipment, logistics
PRESSURE	2 × absolute pressure sensors 0 – 100 bar, Ex II 3G Ex ic IIC T4 Gc	Pressure measurement in gas and drinking water networks

08 Platform, data retention and support

Operation	Servers of VERAUT GmbH in Linz, Austria, GDPR compliant; no public cloud
Tenant separation	Every customer sees only their own data
Data retention	5 years as standard, longer retention optional
Backup	Daily automatic backups, restore at system and data level
Onward delivery	Export to HES, MDM, ERP and billing systems; CSV, XLS and JSON
Support	German, English and Hungarian; response within 3 working days

09 Mounting on the meter

The NB IoT BOX LITE (ATEX) is mounted directly on the meter and connected to its pulse or encoder output. The meter does not have to be replaced – existing meters become remotely readable as they are.

Parameterisation follows the meter type: pulse value, initial value and number of digits are entered once. Once mounted, the device registers on the network by itself and transmits from the configured interval onwards.



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