



# Hardware and Software Complex for Warehouses



# Hardware and Software Complex



## Hardware and Software Complex

Determine the status and control modes of remote equipment using TCP and MQTT data transfer protocols (receive, send, configure).

The device is polled with a full description of the protocol interactions and equipment scripts.

The device can poll the following interfaces:

- Ethernet up to 4 devices. Using additional devices
- RS-232 up to 4 devices. Using additional devices
- RS-485/CAN up to 10 devices. Using additional devices

Configuration options:

- Web—for a local connection
- Support for configuration commands via a communication channel
- SMS configuration
- Configuration import/export



# Hardware and Software Complex for Warehouses

## 1 On-Line Inventory (LoRaWAN and NB-IoT)



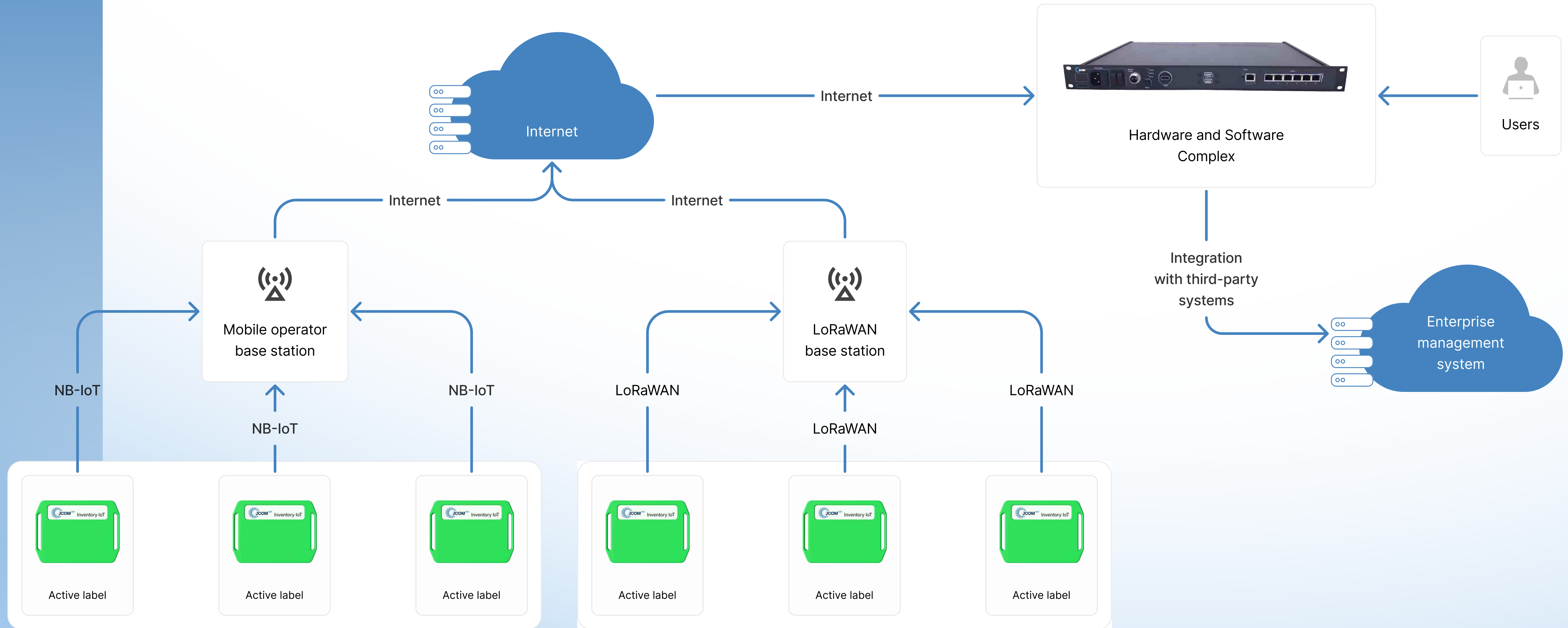
## 2 ELECTRONIC SEALS



## 3 CORN



# 1 On-Line Inventory (LoRaWAN and NB-IoT)



# Functional purpose of the system

Hardware and Software Complex for On-Line Inventory (LoRaWAN and NB-iot) - specialized software for working with active LoRaWAN and NB-iot tags.

## Device Purpose

This is a comprehensive solution designed to visualize, collect, and store data obtained from active tags.

## Main Functions:

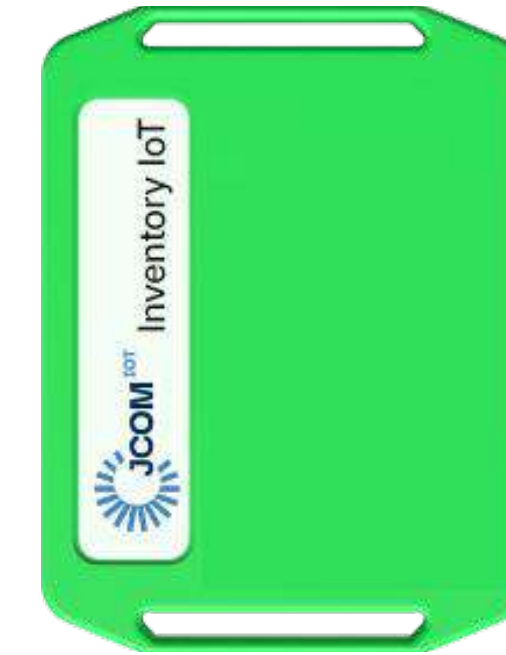
- Helps you easily conduct inventory processes;
- Improves data accounting accuracy and processing quality;
- Device Configuration;
- Remote Software Updates;
- NTP Time Synchronization;
- Launch Element Manager (USPD web interface);
- Data Export via API.

# Equipment



**LoRaWAN**

Active label

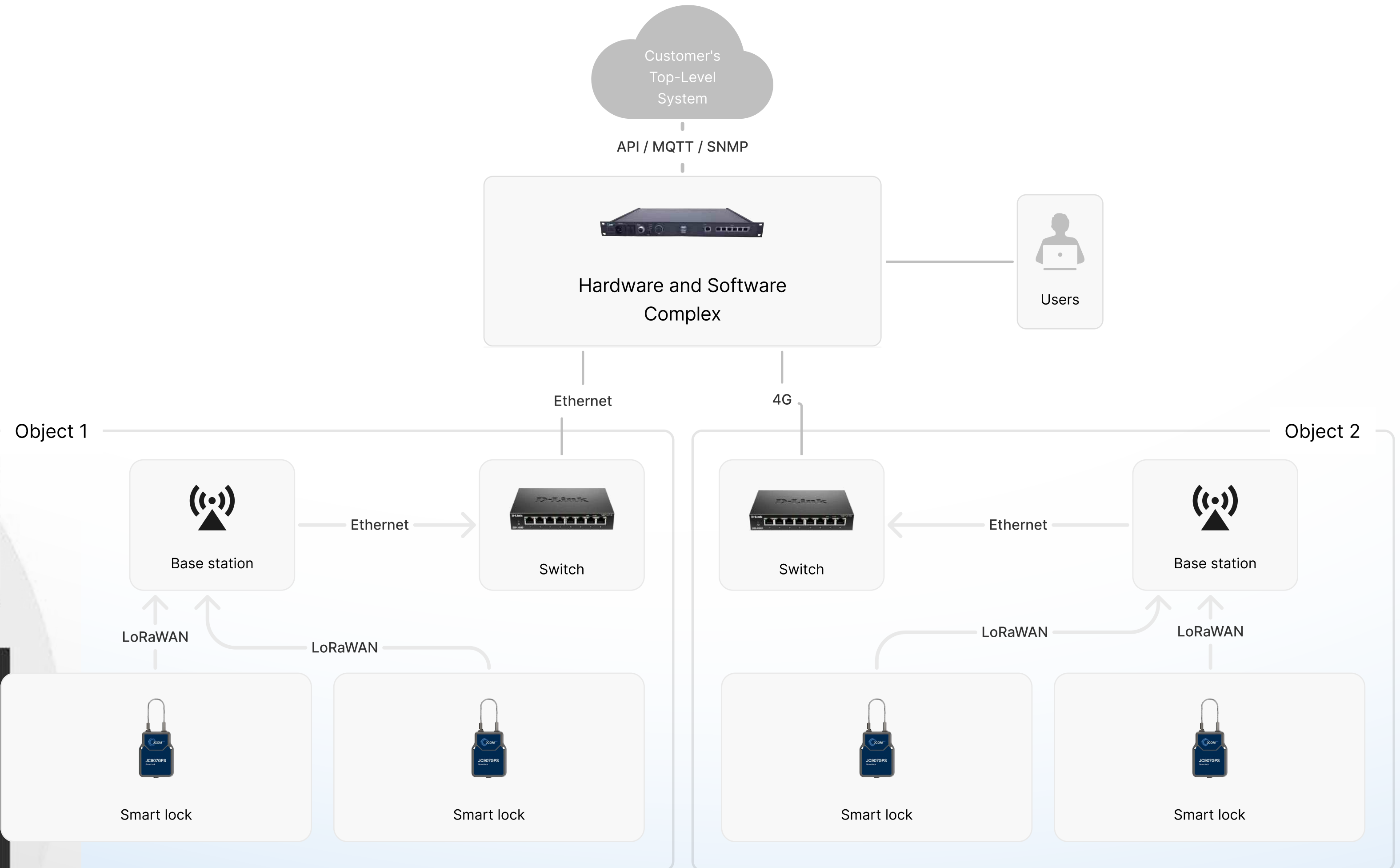
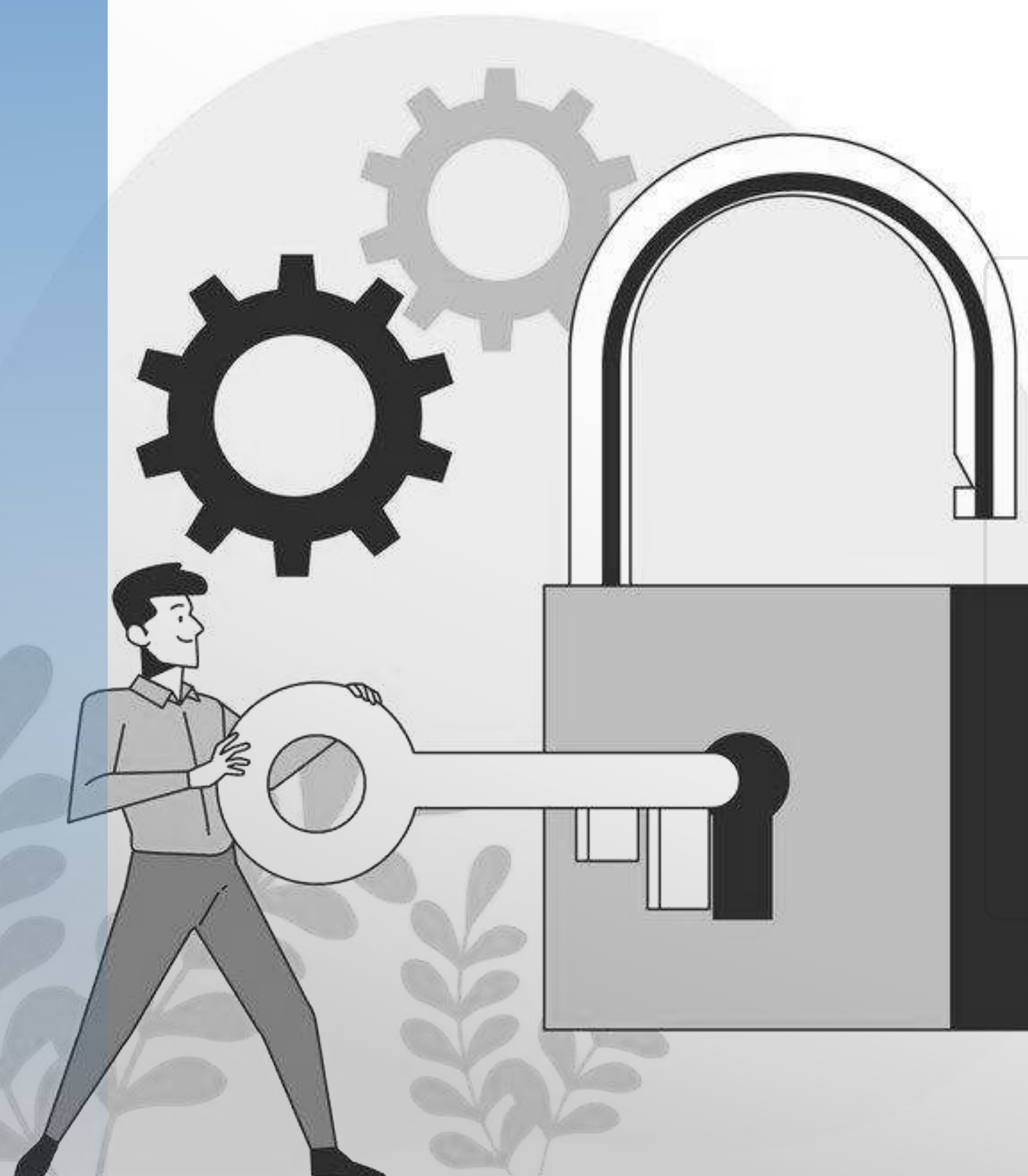


**NB-IoT**

Active label

Power specifications	Built-in lithium battery. Nominal voltage 3.7 V, capacity 500 mA	Built-in lithium battery. Nominal voltage 3.7 V, capacity 500 mA
Operating frequencies, MHz	864-868MHz; 868,7-869,2	Modem SIM7022 (SIMCOM) + eSIM B3/B8/B20 / B1/B2/B4/B5/B12/B13/B14/B17/B18/B19/B25/B26/B28/B66/B70/B85
Output power	no more than 25 mW (Class A)	no more than 23 dB
Specification compliance	LoRaWAN 1.0.2	Cat NB2
Maximum communication range	indoors - up to 300 m, line of sight - up to 1 km	Within the operator's coverage area
Factory unique identifier	Yes	Yes
Remote control	Yes, remote change of settings	Yes, remote change of settings
Geolocation	optional	optional
Maximum packet size	50 bytes (including service data)	50 bytes (including service data)
Battery charging interface	USB interface	USB interface
Button for out-of-sequence sending of a packet	Included	Included
Antenna	Built-in antenna	Built-in antenna
Operating temperature range	-40 до + 80°C	-40 до + 80°C
Overall dimensions	55×61×7 mm	55×61×7 mm
Service life	20 years (excluding battery)	20 years (excluding battery)

# ELECTRONIC SEALS



# Functional purpose of the system

Hardware and software complex for electronic seals - Provides a remote system for accounting of electronic seal locks.

## Main Functions:

- Capture data from existing electronic seals and transmit it via required protocols;
- Track cargo movement;
- Export data via API.

# Equipment



Smart lock  
JC907GPS

Built-in battery  
Rechargeable lithium battery 4500mAh, 3.7V

Charging port  
DC2.0 connector, charging current 1000mA

Operating temperature  
- 20°C ... +60°C

Storage temperature  
- 40°C ... ~+80°C

Relative humidity  
5% ... ~95%

Degree of protection of the shell  
IP67

Blind Spot Data Cache  
2000 data fragments

Average operating current  
(60-second update interval)  
2G: 34.6 mA  
4G: 57.6 mA



Smart lock  
JC107GPS

Size (L x W x H)  
195\*114\*37 (mm)

Length of the lock cable  
350 mm (can be changed)

Locking cable material  
stainless steel 304

Diameter of locking cable  
3.5 mm, outer rubber diameter 5 mm.

Weight  
About 700 g (including cable)

Body material  
Plastic

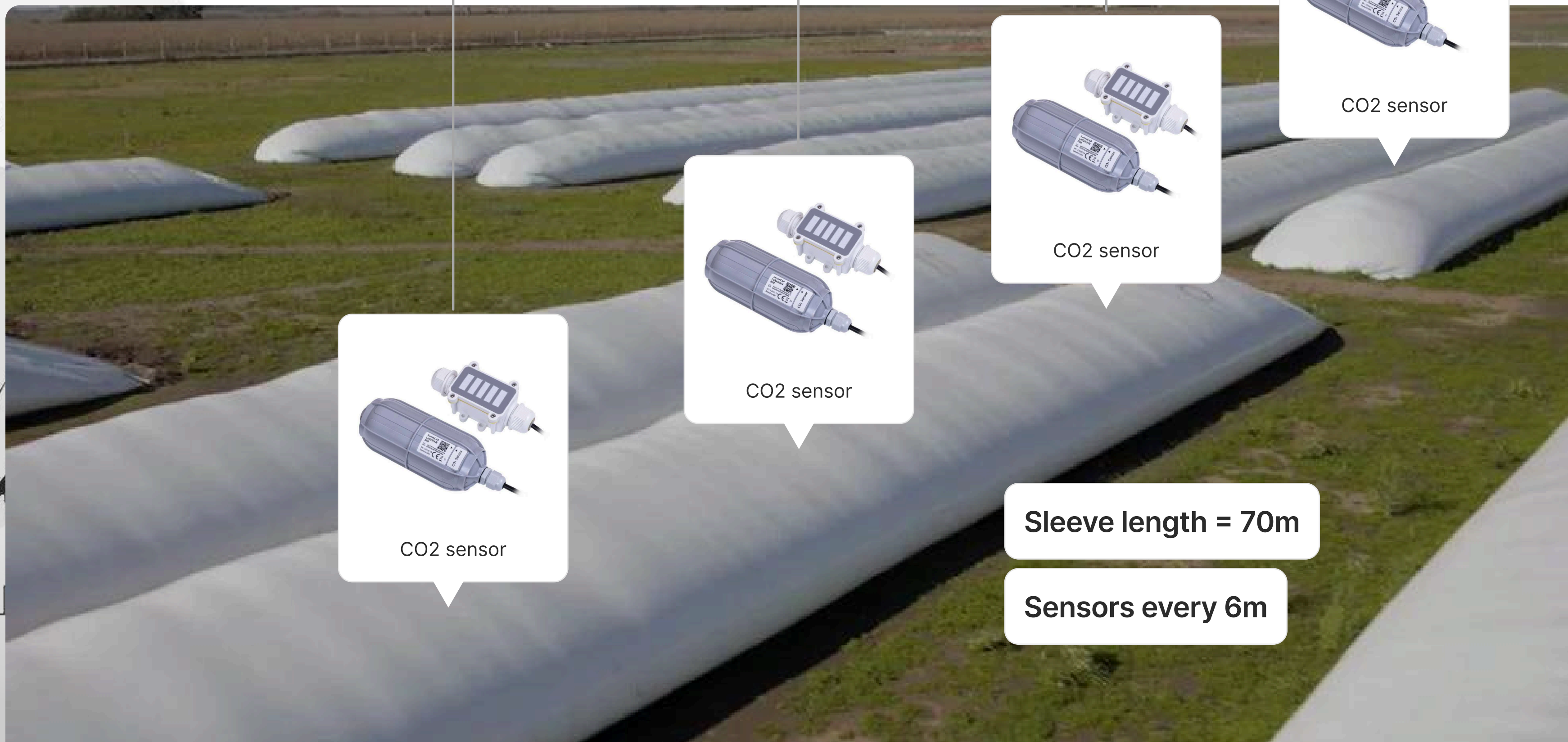
Built-in battery  
Rechargeable lithium battery 15000mAh.

Charging port  
DC2.0 connector, charging current 1000mA

Operating temperature  
- 20°C ... +60°C

# CORN

Grain storage facility



Hardware and Software Complex



LoRaWAN base station



CO2 sensor



CO2 sensor



CO2 sensor



CO2 sensor

Sleeve length = 70m

Sensors every 6m



# Functional purpose of the system

Hardware and Software Complex for grain crops – a system for collecting and analyzing data from environmental sensors installed in grain bags. It allows for a 75% increase in the shelf life of grain crops.

## Device Purpose

This is a comprehensive solution designed to monitor, collect, process, and visualize various parameters collected from environmental sensors:

- Air temperature;
- Humidity;
- Carbon dioxide (CO<sub>2</sub>) concentration;
- Noise level;
- Illumination level;
- Sensor movement, etc.

## Main Functions:

- Monitoring and collecting data from environmental sensors;
- Visualization of information collected from environmental sensors (readings, graphs, reports, associated documentation);
- Data storage;
- Device configuration;
- Remote software updates;
- Report generation.

# Equipment



JC300-03 CO2 concentration sensor (room)

Range (concentration)  
0-2000 ppm m., 0-5000 h.n. m., 0-10000 h.n. m.

Accuracy  
±3%FS@25°C

Power supply  
12-24 V

Output power  
4-20 mA, 0-5 V, RS485

Power consumption  
Max: 200 mA, average: 85 mA

Warm-up time  
3 min.

Response time  
<90 sec

Temperature drift  
≤0.2%FS/°C

Stability  
<±2%FS



JC300-03 CO2 concentration sensor (external)

Range (concentration)  
0-5000ppm, 0-10000ppm

Accuracy  
±50ppm +2% of reading at 25°C

Power supply  
5-30 VDC, solar panel optional

Output signal  
4-20 mA, 0-5 V, RS485

Power consumption  
<0.25W

Warm-up time  
3 minutes

Response time  
<20 sec

Temperature drift  
≤0.2% FS/°C

Stability  
<±40ppm/year



CO2 sensor

Environmental Requirements  
Protection class IP66 (Sensor Node)/IP65 (Sensor Probe).  
Operating temperature: 0 to +50°C, humidity: up to 95% RH (non-condensing)

Wireless transmission power  
16dBm

Data transfer methods  
wireless

Measured parameters  
carbon dioxide (CO2) concentration

Weight  
total weight 319 g.

Delivery set  
sensor, mounting kit, instructions

Operating range  
up to 10 km with direct visibility, up to 2 km in urban conditions

Dimensions  
153 × 56 × 56 mm and 109 × 55 × 30 mm

# We are ready to help from the idea to serial production

## Types of electronic equipment development:

### 1. Device hardware development:

Changing the number of ports, adding new interfaces, connectors, channels, electrical characteristics, changing dimensions, and materials.

### 2. Firmware development:

Changing or adding new software features to the device's firmware.

## Additional device protection for harsh operating conditions:

- Design of an enclosure with the required IP rating;
- External and internal connectors with locking mechanism for use in high-vibration environments;
- Various types of enclosure mechanical modifications for installation in hard-to-reach locations;
- Additional testing and vibration resistance and electromagnetic compatibility testing according to customer-specified conditions in a climatic chamber.

## How we work:

1. You send us the technical specifications for the product you need.
2. Identification of development requirements, quantity of equipment in the batch and project deadlines.
3. Preparation of a commercial proposal.
4. The process of developing customization or new equipment.
5. Verification. Testing and trialing of the equipment according to the customer's specifications.
6. The process of selling and shipping the developed equipment to the end customer.

# Contacts



**Write to us in messengers**

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