# DO201 Parking Occupation Sensor User's Manual_NB-IoT

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**Version: V1.0**

## Index

# 1 Overview

This document will help you better understand the DO201 Smart Parking Occupation Sensor, please read this document before you use the device. The following are introduced separately:

- Default Parameter
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# 2 Default Parameter

## Default Parameter Settings

| Parameter | Setting default | Remark |
|---|---|---|
| Upload time | 24h | Report heartbeat data every 24hours |
| Cycle detection time | 30min | Detect every 30 minutes without other triggering conditions |
| Geomagnetic detection threshold | 60mGs | When magnet change is more than 60mGs, the sensor will be waken to up and start to measure parking status. |
| Height threshold | 60cm | Height<60cm, ultra status is 1.<br>Height>60cm, ultra status is 0. |
| low battery alarm threshold | 20% | Low battery alarm when battery is lower than 20% |

# 3 DO201 Function Introduction

This DO201 sensor adopts the method of ultrasonic+magnet to detect whether the parking space is occupied, which greatly improves the accuracy, and also measure the air temperature and humidity. The following describes the default parameters, working mechanism, principle of this product.

## 3.1 Detection Parking Status

When magnet change is more than 60mGs, the DO201 sensor will be waken up and start to measure magnet status and ultra status. If the parking status has changed, it will report the data right now. If not changes, it will not report.

## 3.2 Air Temperature and Humidity Detection

The DO201 sensor measure the air temperature and humidity value when waken up. And it reports the temperature and humidity value when reporting.

## 3.3 Buzzer

After 10 seconds of restarting, the buzzer will beep, indicating that the device has been successfully restarted.

# 4 Hardware Interface Definition


① The sim card slot
② Connector for battery
③ Battery
④ Battery connector
⑤ Reset/Initialization position
⑥ Magnet; Used to reset/Initialization (only 1pcs for one batch)
⑦ Mounting screws ( 2pcs for each sensor)
⑧ Bluetooth tool; Debug tool, please refer to the configuration manual (only 1pcs for one batch)

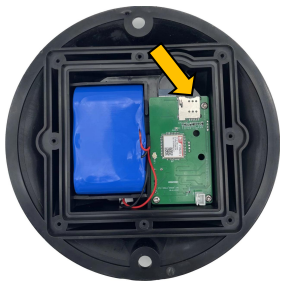
## 5 Install SIM card

**SIM card size**: MICRO card;

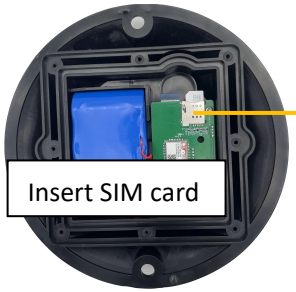
SIM card band: The band of the SIM card must support the DO201 sensor.

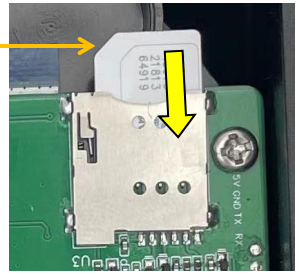
**Install the SIM card**: This DO201 sensor uses a self-elastic card slot. Please insert the SIM card as the following picture.

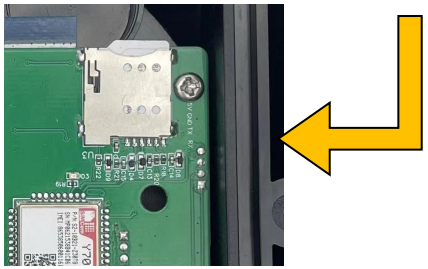
**Note:** When installing, please pay attention to the position and direction of the card.



The SIM card slot



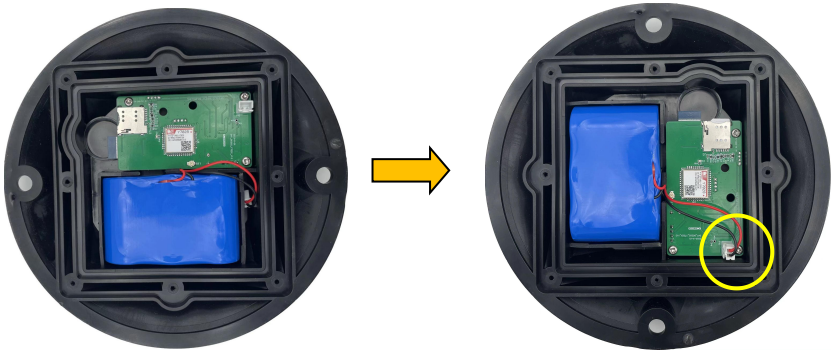





Note: SIM card missing corner position facing outward.

## 6 Power On

Due to transportation and other reasons, the battery is not connected by default when shipped. Please connect the battery firstly, as shown below,



# 7 Initialization/Rest

User have to initialize the DO201 sensor after installation before testing.

It can be initialized through a magnet. First place the magnet on the " Ⓜ ", keep for 3s, then remove the magnet.
After 10 seconds of restarting, the buzzer will beep, indicating that the device has been successfully restarted.

Note:

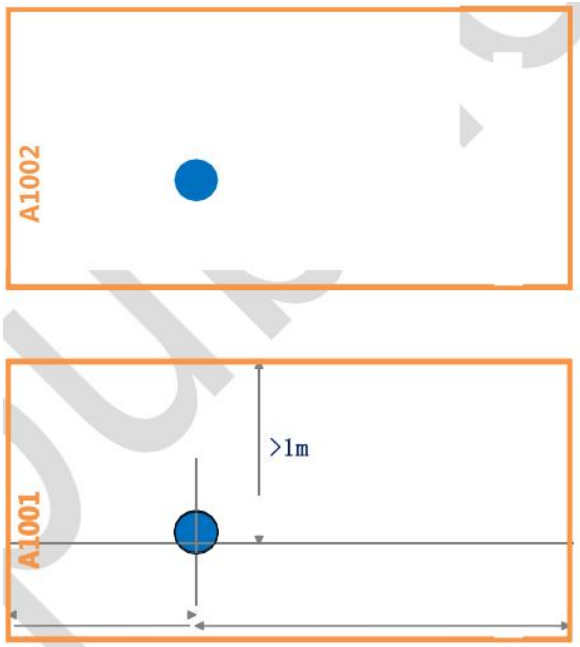
1. please remove the magnet right now after initialization. And do not move the sensor.

2. Ensure that there are no cars and no other magnetic objects on the parking space before initialization.

# 8 Installation

## 8.1 Installation Location

As shown in Figure8.1 below, the DO201 sensor should be installed 1/3 away from the entrance and exit, and at the same time ensure a distance of more than 1 meter from the adjacent parking space.




1/3 away from the entrance and exit

Figure 8.1 Schematic diagram of sensor installation

**Note:**
(1) The sensor should be installed 1/3 of the entrance and exit, not the center of
the parking space or near the non-entrance site.

(2) The sensor should be installed at a distance of more than 1m from the adjacent parking space. Below this distance, excessive interference from neighboring vehicles will result in false alarms and omissions.

## 8.2 Installation

Fix the DO201 sensor on the parking space through expansion screws.

# 9 Quick Start

Step1: Open the DO201 sensor casing, and install the SIM card.
Step2: Connect the battery.
Step3: Set the APN by bluetooth. Please refer to the configuration manual.
Step4: Restart sensor by magnet, then check if data is received.
Step5: Actual parking space test

**Actual parking space test:**

a. Install the DO201 sensor on the parking space; please refer to the part8.
b. Initialize it by magnet; check whether the initialized data is received on the platform. If yes, then continue with the steps below.
c. Drive into the car, view the data on the platform.
d. Wait at least 30s or more.
e. Drive out the car, view the data on the platform.

The above c~e steps can be repeated for testing.

# 10 Integration or protocol

The communication protocol is confidential and is only open for customer who has purchase the DO201 sensor.

User can use our application directly, or integrate DO201 sensors into your own server/application.

Please contact our sales, or team service@dingtek.com, if you want to integrate the protocol with your own system or have any other problem.

# 11 FAQ

**Q1 The DO201 sensor is not online.**

**A1: The SIM card dose not support the DO201 sensor.**
For example, the DO201 NB-IoT sensor must use the NB-IoT SIM card.

**A2: Insert SIM card wrong;**
Please the check if insert the sim card correctly.

**A3:The APN is wrong;**
Please confirm the correct APN with SIM operator.

**A4:The server IP is limited;**
Some supplier limit the server IP. Please check it with operator.

**Q2 Can we modify the IP and the APN?**
yes, you can change the IP and the APN through serial port. Please refer to the
Configuration manual.

**Q3 Where to view the data?**

- Use our application directly.
- Integrate DO201 sensors into your own server/application.