

DC400 Smart Manhole Detector

NB-IoT_Datasheet



V2.5
Date 2020-9-28

Change Notes

V2.5 Update application information.

V2.4 Update battery parameters.

V2.3 Update battery life time.

V2.2 Update battery info and cautions.

V2.1 Add app demo video.

V2.0 Add APP software.

V1.0 Initial NB-IoT version.

Index

Disclaimer.....	4
Cautions.....	5
1 Overview.....	6
2 Features.....	6
3 Application.....	6
4 Specification.....	7
5 Mechanical Size.....	8
6 Network Diagram.....	8
7 Monitoring.....	9
8 Installation.....	9
9 Device List.....	10
10 Package.....	10

Disclaimer

CNDingtek® Keep own best to solved the manuals should be accurate very close to the configuration, protocol operation and installation. But **CNDingtek**® reserves the right to modify the hardware, software,color, specification, guide, package without further notice.

Due to the manually photos of products and after its printing reasons, the photos in this document maybe different from the real released product, please use the released product as the final reference.

Cautions

- The battery in this device is non-recharged type.
- Please **DO NOT** recharge it.
- If out of power, please replace with new battery from CNDingtek®.
- The battery can not work Temperature more than +85°C .



1 Overview

The DC400 smart manhole Sensor is specially designed for the detection of well covers such as electrical and sewage system. When the well cover shift, open, or other abnormal situation appears, the device can timely alarm output to the user to indicate the current situation or status.

Through the built-in NB-IoT module, the detector can pass status information to the NB-IoT base station, network server, then the application server. Users can remotely monitor the manhole status, whether moved after installation or not. This equipment can be widely used in smart city projects.

Based on low-power algorithm, internal battery can work for more than 5 years. The IP68 waterproof level can meet stringent requirements for use and make it for use long life.

2 Features

- Internal battery can work for more than 5 years
- Low-power and wireless technology NB-IoT
- IP68 waterproof protection Level
- Sensitivity can be adjusted online
- Water level detection function
- Move detection function

3 Application



- Manhole movement detection.

4 Specification

Overviwer	Dimension	115*115*50mm
	Net weight	150g
	color	Black
	Shell material	ABS
Detector	Principle	Accelerating detection; Ultrasonic level detection
	Accuracy rate	Can be adjusted on line
Controller	MCU	STM32, 32bit ARM® core controller
	Accuracy of angle	2°
Radio	Wireless	NB-IoT
	Frequency	B1,B3,B5,B8,B20,B28 and so on
Power	Internal battery	No rechargeable lithium battery 8000mAh@3.6V
	Battery life	If you upload data 4 times a day, the battery life is more than 3 years
	Power consume	<120mA@3.6V(upload), <40ua @3.6V (sleep)
Environment	Operation temperature	-20 ~ +70°C
	Storage temperature	-40 ~ +85°C
	Protection level	IP68

5 Mechanical Size



115mm*115mm*50mm

(Notes: only for reference, real product update frequency without notification)

6 Network Diagram

The network diagram work model of manhole sensor from DC400 NB-IoT module to user. Collect the device-related data from the DC400 smart manhole Sensor, send it to the NB-IoT base station, and then the base station sends the data to the NB-IoT network server through the Internet. After that, the NB-IoT network server transmits the data to the application server.

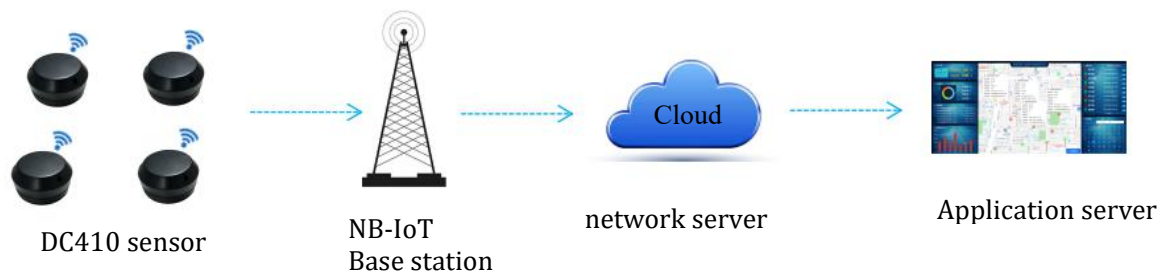


Figure6.1 Network diagram

7 Monitoring

Web has been build by CNDingtek Technical Staff through this Web you can monitor your device and check status any where any time. Through the manager pltfm you can also change the sensitivity of device.

Web monitoring platform:



Figure 7.1



Figure 7.2

8 Installation

8.1 Activating Power of Device

Remove the packing of device from the package and the default built-in battery is not connected; Please open the sensor ,insert NB-IoT simcard and connect the battery with the sensor. The light on the sensor circuit board will be on, which indicates that the device starts. Then you can start testing the sensor according to manual.

8.2 Installation

The device is recommended to fix the device to the well cover. You need to prepare the drilling tool to punch holes, then screw the device with the well cover firmly. Please make sure the hole location is close to the hole cover to facilitate so that the wireless signals can be send or receive easily.

9 Device List

Device List:			
Number	Accessories	QTY	Remark
1	Smart manhole detector	1	
2	Bolt	3	Used for installation
3	Catalogue	1	
4	TTL	1	Used to debug
5	Magnet	1	Used to initializeDC400 device;1 per batch of equipment

10 Package



18.7*18.7*10cm, Only for 1unit;