DF702 Waste Bin Detector LoRaWAN

Data sheet

Version:V1.5

Date:2019-04-16

Change Notes

Version 1.5
V1.5 Modify the fall function information

Version 1.4
V1.4 update the application

Version 1.3
V1.3 modify the web and the mobile APP

Version 1.2
V1.2 DF702 Waste Bin Detector Battery cautions is more changed for the customer guide.

Version1.1
V1.1 DF702 Waste Bin Detector has protocol updated in new version from CNDingtek

Version1.0
V1.0 Initial DF702 Waste Bin Detector launched by CNDingtek Technology for the Smart project.

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Cautions

●The battery in the device is Non-Chargeable.

●Please Do Not recharge it.

●If it is Out of Power please order new battery from CNDingtek.

●The battery can not Work more then+85℃ Degree Temperature.

Disclaimer

CNDingtek ® keep own his best the solved manual should be accurate and very close to the configuration, protocol and installation process.The CNDingtek reserved all the rights to modify the hard ware software and specification, color, guide and package and other all about the devices of CNDingtek products.

Due to the manually photos of the products and printing reasons the photos in this documents maybe different from the real released products.Please use the released product as final reference.

1 Overview

The DF702 sensor is designed for waste bin (Trash Bin) status detection of waste Bin outside or inside used. It detect the following status for the customer of using place for the user

- Full

- Empty

- Flame risk

- Inclined (fall) or not(Advanced version)

1.1 Build-in Structure(LoRaWAN)

DF702 waste Bin detector is build through the LoRaWAN Module it can monitor the status given up for the user. Dear Customer can check its Trash Bin without visit place.

Through the built in with LoRaWAN it transmit the status via gateway to networks server and application server. User can monitor the status remotely.

It is optional for different frequency, such as 470Mhz (China), 868Mhz (Europe), 915Mhz(USA), 923Mhz (Australia,New Zealand).

Due to using of LoRaWAN Module it is very low power consumption for the uploading the data of monitor the device its internal battery life us more then 3 year. (at 4 hours interval upload interval).

2 Features

Following the features of DF702 Waste Bin LoRaWAN detector are given.

●Long lifetime, As it is with algorithm of low power consumption, the internal battery can work for more than 3 years.

●Easy to install, suitable for covered or uncovered trash cans.

●IP66 protection level, it can still work in the case of rain and other weather conditions

3 Application

With the application software user can assign the collector resource work plan and route plan. Analyze task performance and find out solution to improve the system. Finally the objective of high efficiency , good environment, and low cost are achieved.

It is easy to install the device on different styles of trash cans. For example, for a trash can with a lid, the device can be mounted on the top, and for a trash can without a lid, the device can be mounted on the side wall.

Of course, this sensor can also be used in other environments, such as measuring liquid level. We can also customize the software version if you have other needs.

4 Specification

The specification of the Device DF702 Waste bin Sensor is given with all details.

Overview	Dimension	115*115*50mm
	Net Weight	150g
	Color	Black
	Shell Material	ABS
Detector	Principle	Ultrasonic @ 112kHz
	Detection Range	200cm (vertical)
	Blind area	15cm
	Accuracy of height	3mm
	Accuracy of temperature	2℃
	Accuracy of angel	2° (optional)
Controller	MCU	STM32, 32bit ARM® core controller
Radio	LoRa Module	Semtech® 1276

	Sensitivity	-137dbm@292bps (RX),5~20dbm(Tx)
	Frequency	LoRaWAN® CN470/EU868/US915/AS923Mhz
	Working Mode	Class A
	Activation	OTAA(default) or ABP activation
	Communication Distance	3km in view sight
Power	Internal Battery	Non-recharged Lithium Battery 10500mAh @ 3.6V
	Lifetime for one charge	More than 3 years at 4 hours report interval.
Environment	Operating Temperature	-20 ~ +70℃
	Storage Temperature	-40 ~ +85℃
	Protection Level	IP66

5 Mechanical Size

115mm*115mm*50mm

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

6 Software Platform
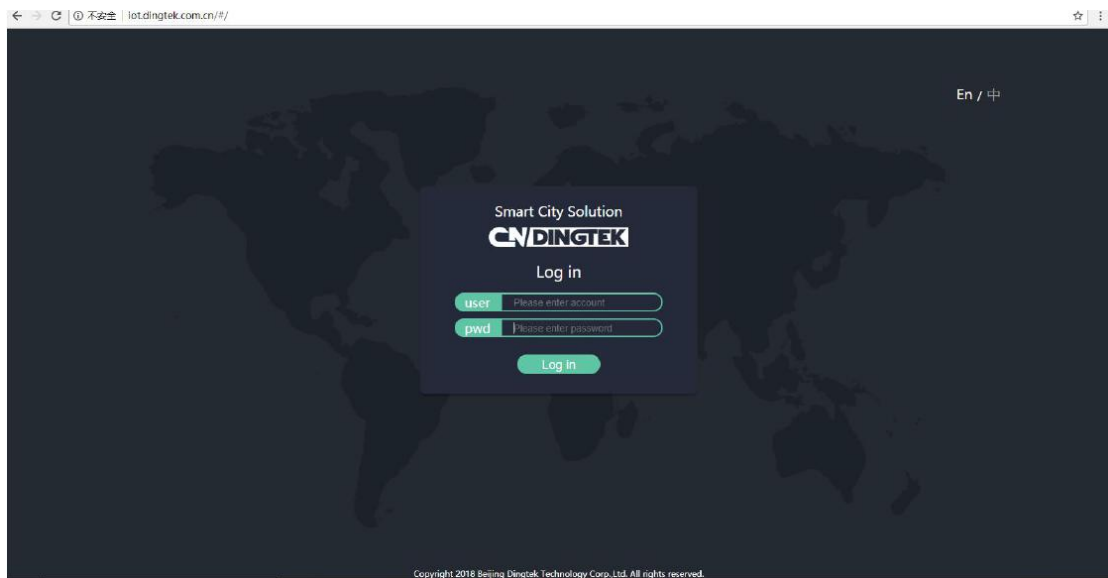
6.1 Network Diagram

The data about user of device will be collect from the DF702 smart bin sensors will be received to the gateway then the gateway send the data to LoRa network server through internet. After that the data from usage sensor of LoRa network will be transferred through the internet to the application server. So the user can monitor the trash bin status through web or mobile app.

6.2 Application Software

With the application software user can assign the collector resource work plan and route plan. Analyze task performance and find out solution to improve the system. Finally the objective of high efficiency , good environment, and low cost are achieved.
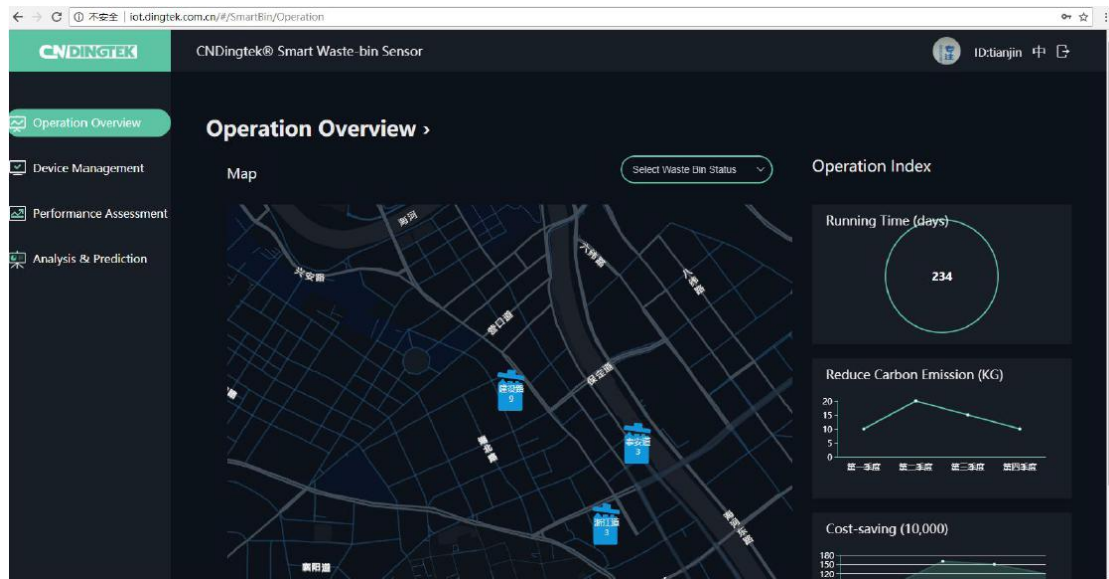
If you use a server for yourself, skip this item.

The links: iot.dingtek.com.cn

login interface

Application icon

Data interface

7 Protocol and API Interface

The communication protocol(API Interface) is confidential is only open for customer who has purchase the device and sign the NDA(non-disclosure agreement) file with CNDingtek and his own Company. Please contact our sales team service@dingtek.com if you want to integrate the protocol/API with your own system.

8 Installation & Test

8.1 Boot sensor

The device is not connected to the power supply by default. Open the case and connect the power before use, then start the test according to the instructions.

8.2 Installation

Use the screws provided to mount the unit on the top or side wall of the trash can. Need to be punched and installed.

For trash bin with top cover, please fix the sensor with screw to the top cover.The sensor will be downward (transducer face downward).

If trash bin is not with cover or not applicable to install at cover. Please try to install at side. Below is photo for side installation. (The stainless steel frame is not include in the standard package, it is additionally designed item to prevent the side wall transform of the trash bin.)

During the mounting, tool is necessary to drill hole and fasten the screw. Make sure the sensor is as vertical as possible.

If the space for installation it too small, please try to remove the top cover from the trash bin body and fasten it again. Then restore the top cover with the trash bin body.

9 Package

No.	Item	Quantity	Remarks
1	DF702 Smart Trash Bin Sensor	1	Complete Box
2	Screw	3	Fasten on
3	Magnetic Part	1	For Restart Sensor
4	Manual	1	Customer Guide
5	TTL	1	At least one per batch of equipment

25*21*8cm, weight 1kg, 5units in one box.

10 Video Link

DF702 Test Video https://youtu.be/86XVM0thJMY