DF702 Waste Bin Detector LoRaWAN®

Datasheet

Distributed by:

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V2.5

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Change Notes

V2.5 Fix the web and App

V2.4 Adding disclaimer, update power consumption.

V2.3 Adding cautions.

V2.2 Adding demo with app software video.

V2.1 Adding web and app software.

V2.0 LoRaWAN protocol update.

V1.0 Initial for LoRaWAN version.

Index

Disclaimer

CNDingtek ® does their best to make this document as accurate, full, clear as possible. But CNDingtek® reserves the right to modify the hardware, software, housing, color, specification, guide, package and etc without further notice.

Due to the photoing and 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 for more than +85℃.

1 Overview

The DF702 sensor is designed for waste bin (trash bin) status detection. It detect full/empty, flame risk, inclined (fall) or not and etc.

With LoRaWAN® module, it transmit the status via gateway to networks server and application server. User can monitor the status remotely.

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

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

As it is with algorithm of low power consumption, the internal battery can work for more than 5 years (at 4 hours interval upload interval).

2 Features

Easily install at any waste bin

Widely compatible

ultrasonic detection, long lifetime

Inner battery work for 5 years

3 Application

For waste bin with or without cover.

4 Specification

	Dimension	115*115*50mm
Overview	Net Weight	150g
	Color	Black
	Shell Material	ABS
Detector	Principle	Ultrasonic @ 112kHz
	Detection Range	200cm (vertical)
	Accuracy of height	3mm
	Blind area	15cm
	Accuracy of temperature	2℃
	Accuracy of angel	2° (optional)
	MCU	STM32, 32bit ARM® core controller
	LoRa Module	Semtech® 1276
Controller	Sensitivity	"-137dbm@292bps (RX), 5~20dbm(Tx)
Radio	Frequency	LoRaWAN® CN470/EU868/US915/AS923Mhz,or
	Working Mode	Class A
	Activation	ABP/OTAA activation;

Power	Communication Distance	3km in view sight;
	Lifetime for one charge	5 years at 4 hours report interval.
	Internal Battery	ER18505M non-recharged Lithium Battery 7000mAh @ 3.6V,
	Current	<210mA@3.6V(uploading), <100mA@3.6V(normal),
Environment	Operating Temperature	-20 ~ +70℃
	Storage Temperature	-40 ~ +85℃
	Protection Level	IP66

5 LoRaWAN frequency and Countries/Regions

Frequency	Status	Countries/Regions
EU868	OK	Europe and other
AU915, AS923	OK	Australia
		New Zealand
		Brunei
		Cambodia
		Hongkong
		Indonesia
		Japan
		Laos
		Singapore
		Taiwan
		Thailand
		Vietnam
CN470	OK	China
US915	OK	USA
KR920	OK	Korea

6 Mechanical Size

115mm*115mm*50mm

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

7 Installation

After taking from the package, the battery is default without connection with the sensor. Open the cover of sensor, connect the power connector. The sensor will be powered on.

7.1 Mounting

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

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.

Installation Case
安装场景

Trash Bin Cover
垃圾桶盖

Sensor
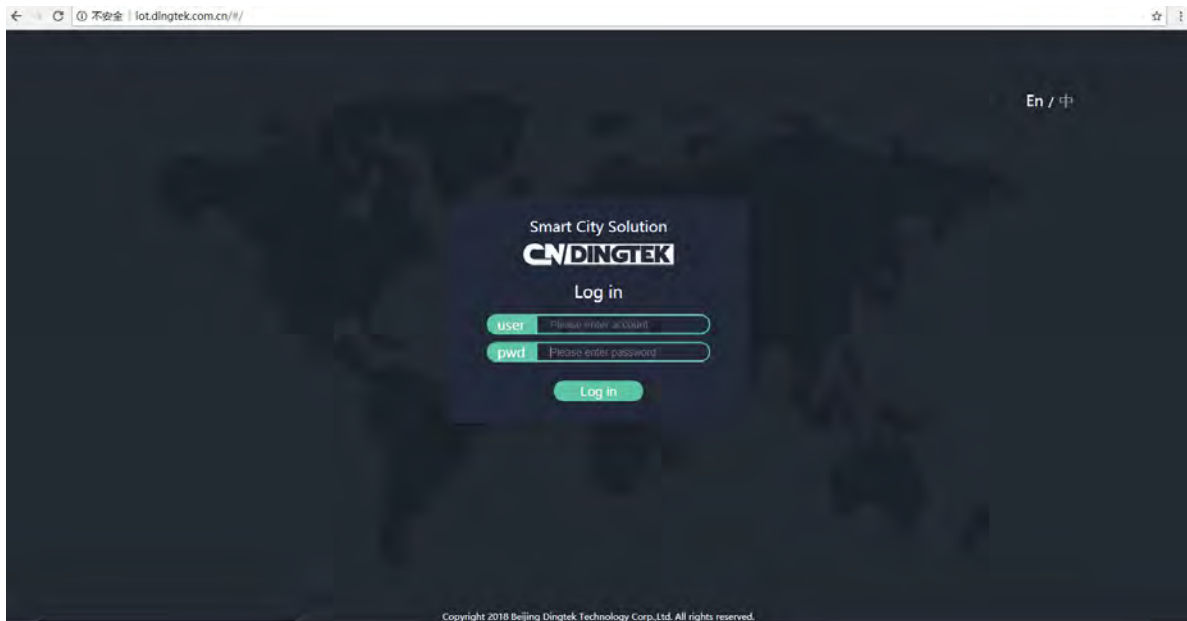传感器

Trash Bin
垃圾桶

Ground 地面

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.)
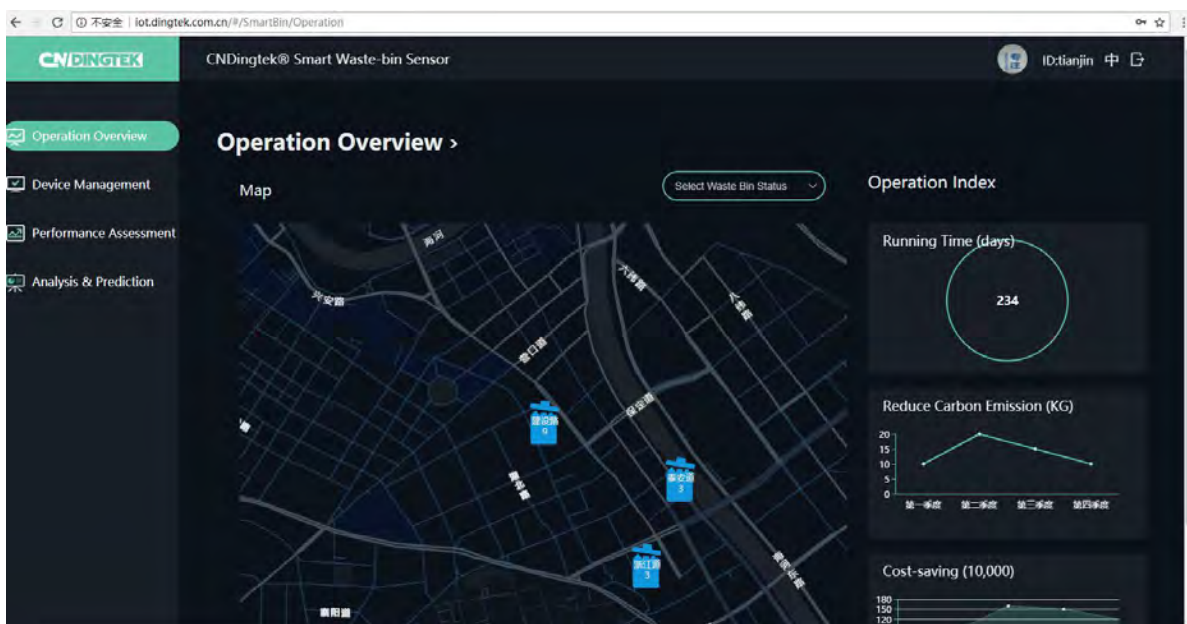
7.2 Checking/Monitoring the data on the web application platform/Mobile application

＊web application platform:

http://iot.dingtek.com.cn/#/

Log in

＊Mobile application

7.3 Monitoring by Customized Software

Customized version will be available based on customers requirements. (Not free).

Please contact with our sales team on this topics if you want the customized version. Contact email address is service@dingtek.com.

8 Protocol

The protocol is for the user who want to develop their own application by their engineer team. The protocol is disclosed only after NDA agreement is signed and order is placed. Please contact with our

sales team if you want to get the protocol.

If user do not want to (or can not) sign NDA, then only Dingtek platform is available

(not free). Please make serious consideration before place the order on this topic.
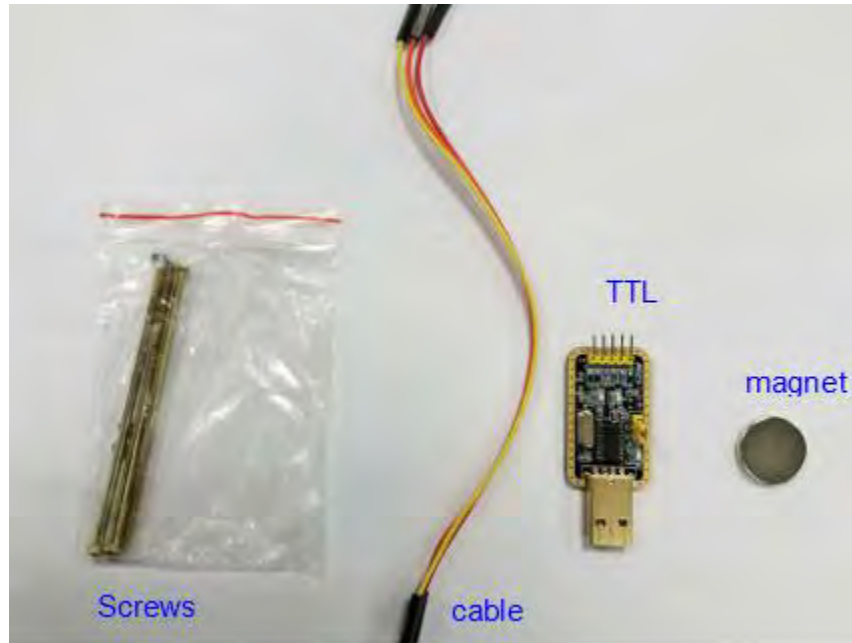
9 Package

Part List			
NO.	Item	Quantity	Remark
1	Smart Trash Bin Full Detection sensor	1	
2	Screw	3	Fasten on top
3	Manual	1	
4	TTL and cable	1	Use to debug the sensor

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

Inside the package

Parts

10 Video Link

DF702 Test Videohttps://youtu.be/86XVM0thJMY   DF702 demo on

covered bin https://youtu.be/GElBtjemcUg

DF702 installation on bin without cover https://youtu.be/LQbh4ugvxKE   DF702 smart

waste bin app demo https://youtu.be/tzl7IA0wPoI