



DX-CP29

Low Power

Bluetooth Beacon

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Update Record

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1. Introduction

1.1. Overview

DX-CP29 Bluetooth beacon card model is a low-power Bluetooth product created by Shenzhen Daxia Longque Technology Co., Ltd. for asset management, indoor positioning and advertising push. It complies with the Bluetooth BLE 5.1 specification and supports iBeacon and Eddystone. It adopts a card-shaped design and PC material shell, rechargeable lithium battery, long service life, SDK and technical services can be provided. OEM and ODM can be provided according to customer needs.

1.2. Features

- DIALOG 14531 main control chip
- ARM Cortex-M0 processor
- Bluetooth BLE 5.1 protocol +
- Low power consumption, low cost
- Working power consumption: 28.96 uA
- Battery life: 1 year
- Rechargeable lithium battery powered
- Low battery alarm function
- Open visual communication distance: 100-120 m
- Support iBeacon & Eddystone
- Support 6 UUID



1.3. Bluetooth Default Parameters

- Bluetooth name: CP29-XX (XX: the last two bytes of the MAC address)

- Transmit power: +2.5 dBm

- Broadcast interval: 500 ms

- Default iBeacon broadcast frame data:

UUID: E2C56DB5-DFFB-48D2-B060-D0F5A71096E0

MAJOR: 0

MINOR: 0

- Default Eddystone broadcast frame data:

UID: Namespace id : e5a4a7e5a48f31323334

Instance id: : 44584c29191a

URL : URL : http://www.szdx-smart

- Default restart password: dx1234

- Default factory reset password: 1234

Table 1: Basic parameter table

Parameter Name	Details	Parameter Name	Details
Chip Model	Da14531	Model	Dx-Cp29
Bluetooth Specifications	Ble 5.1	Protocol	Gatt, Ibeacon , Eddystone
Battery Model	303040	Broadcast Interval	100ms ~ 1000ms
Battery Level	300 Mah	Transmit Power	-19.5~+2.5dbm
Power Supply	Rechargeable Lithium Battery	Sensitivity	-94dbm@0.1%Ber
Modulation	Gfsk	Frequency Band	2.402Ghz -2.480Ghz Ism Band
Rf Input Impedance	50Ω	Frequency Hopping And Channels	1600 Hops/s 2Mhz Space 40 Channels
Antenna Interface	Onboard Antenna	Product Size	85mm * 53mm * 8mm
Operating Temperature	Min:-40°C Max:+85°C	Humidity	10%-95% Non-Condensing



2. Product Diagram

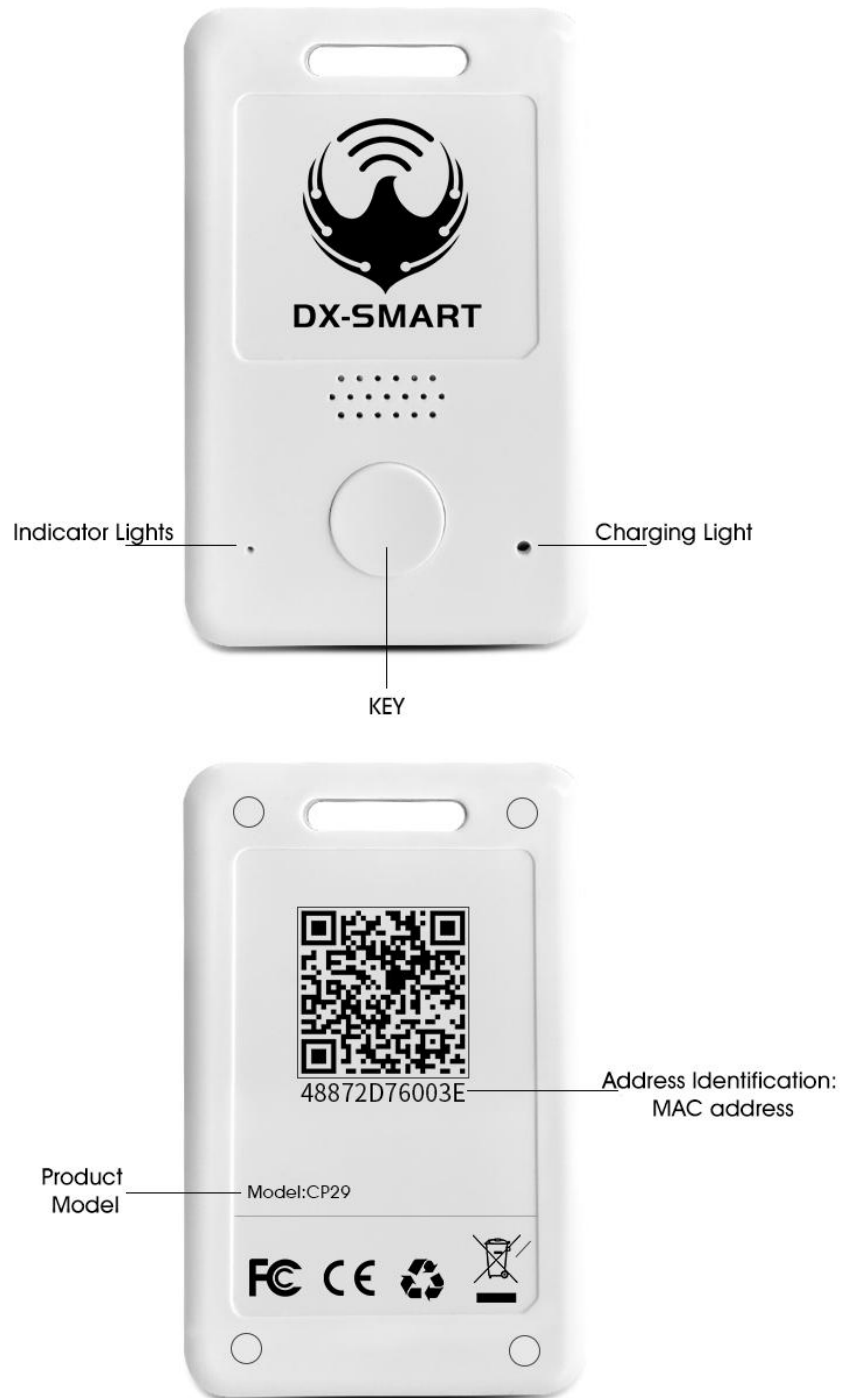


Figure 1: CP29 product diagram



3. ADC Detection Function

Table 2: ADC function definition

ADC	Phenomenon
Power detection function	The ADC detection will be turned on for 5 seconds every half an hour If the battery level drops below 15%, the low battery alarm will be triggered.
Low battery alarm function	The blue light flashes 15 times and then turns off, then flashes again after 20 seconds

4. Hardware Construction Description

4.1. KEY

Table 3: KEY function definition

Operation Method	Result
Long press the KEY for at least 6 seconds and then release it	Power off
Click the KEY for 1S and then release it	Power on

Remark:

Default low power mode when powering on

4.2. Indicator light (blue light)

- Indicator light: Off when not connected, blue light on during connection, off after successful connection
- Low battery alarm: The blue light flashes continuously and then turns off, then flashes again after 20 seconds
- After powering on/starting up, the indicator light flashes once
- After powering off, the indicator light flashes twice

4.3. Charging light (red light)

- Charging light: Off when not charging, the red light is always on when charging, off when fully charged



5. Electrical Characteristics And Reliability

5.1. Operating and storage temperature

Table 4: Operating and storage temperature table

Parameter	Minimum	Typical	Maximum	Unit
Normal operating temperature	-40	-	40	°C
Storage temperature	-50	-	150	°C

5.2. Current consumption

Table 5: Power consumption table

Model	Current	Unit
Closed status	6.37	uA
Working status	28.96	uA

Remark

The power consumption in the above table is the result of testing at a transmit power of +2.5dBm and a broadcast interval of 500ms .

For reference only.

The power consumption of CP29 varies with different transmission powers and broadcast intervals. The specific power consumption is subject to actual conditions.

5.3. RF characteristics

Table 6: RF characteristics

Function	Value
BLE Transmit Power	-19.5 ~2.5 dBm
BLE sensitivity	-94 dBm@0.1%BER

5.4. Distance measurement

Table 7: Distance measurement

Test Model	Connection Device	Connection Distance	Broadcast Distance	Unit
CP29	iPad	67.2	122.2	m
	Onepuls ACE 2 Pro	67.2	146.2	m



Remark

Test default parameters: (transmit power: +2.5dBm broadcast interval: 500ms)

5.5. Electrostatic protection

In product applications, static electricity generated by factors such as human body static, electrostatic friction between microelectronics, etc., may discharge through various channels to the module, potentially causing some damage to the module. Therefore, ESD protection should be given due attention. ESD protection measures should be taken throughout the process of research and development, production assembly, and testing, especially in product design. For example, anti-static protection should be added at circuit design interfaces and points that are susceptible to damage or interference from electrostatic discharge, and anti-static gloves should be worn during production.

Table 8: ESD withstand voltage of module pins

Test Interface	Contact Discharge	Air Discharge	Unit
VBAT and GND	+ 2	+ 4	kV
Main antenna interface	+2	+4	kV

6. APP Usage

6.1. The method of modify device parameters on mobile APP

6.1.1. Android APP

1. Download and install DX-SMART.apk from en.szdx-smart.com on your Android phone
2. Open DX-SMART APP and open the Beacon interface to search for connections ;
3. After searching for the Bluetooth name, click on the name to connect;
4. After connecting, you can modify the iBeacon parameters;
5. After modifying the format and range according to the specification, click Restart, enter the restart password, and complete the modification;(Android APP interface as shown in Figure 2)



Version:V2.3

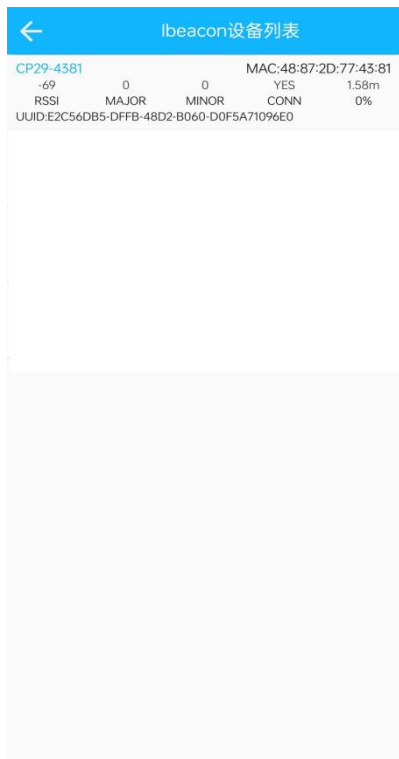
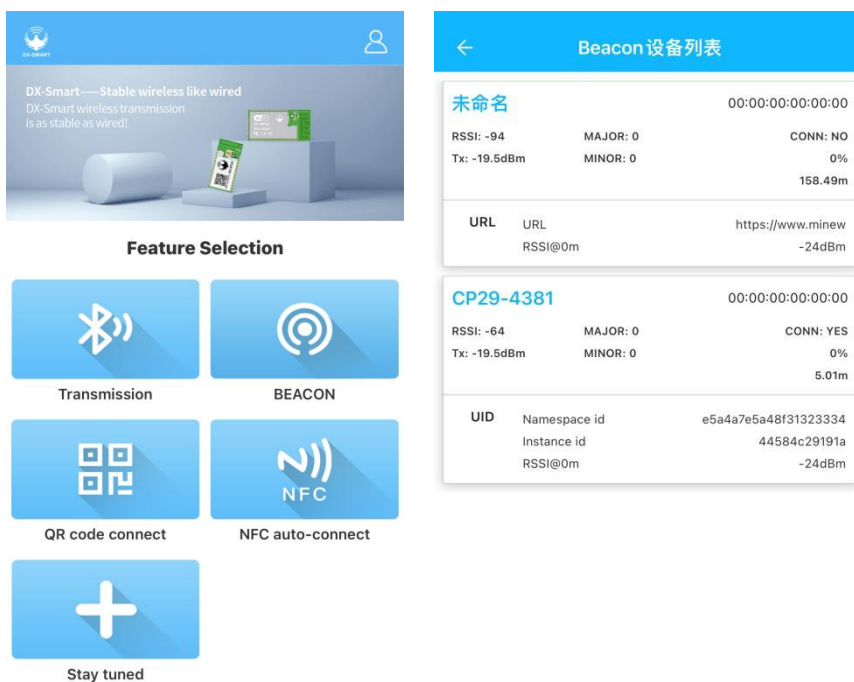


Figure 2: Android APP interface



6.1.2. IOS APP

1. Download "DX-SMART" APP from App Store;
2. Open the Beacon interface to search for connections and modify parameters;
3. After searching for the Bluetooth name, click on the name to connect;
4. After connecting, you can modify the iBeacon and Eddystone parameters;
5. After modifying the format and range according to the specification, click Restart, enter the restart password, and complete the modification;(IOS APP interface is shown in Figure 3)



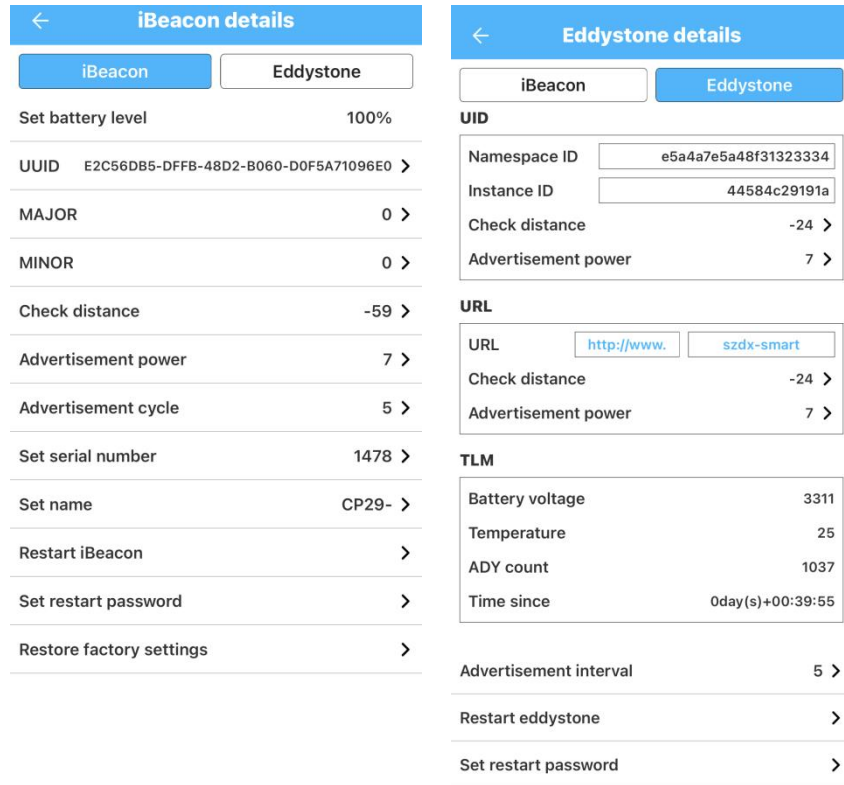


Figure 3: IOS APP interface

7. Attention

- Avoid external force squeezing the product
- Use in room temperature indoor and outdoor environments
- Do not use in humid or watery environments
- Non-professionals are not allowed to disassemble and repair by themselves