C8-V8R1 Product Instruction Manual

V1.0

Catalogue

1. Preface

Thank you very much for choosing C8 series products. Thank you very much for choosing the series C8 products of Locsmart.

In order to help you quickly understand and skillfully use C8 related products, we have compiled a ' C8 ' series of product instructions. Please be sure to read this instruction carefully before using the product. It will solve the common problems encountered in the process of use.

The C8 multi-function card Bluetooth beacon is designed with PC + ABS material shell and hanging hole card type. The thickness is only 4.9mm, small and exquisite, and easy to carry. Support BLE 5.1, up to more than 5 years of battery life, in addition，C8 can be equipped with ACC acceleration sensor function, which can alarm when the object moves or falls. in addition, C8 can also be equipped with 13.56 MHz RFID，which can not only realize the daily calling and check-in of employees, but also match the gateway. Through Bluetooth positioning, the position of the wearer can be quickly determined, and the personnel safety management and personnel trajectory tracking management can be realized. This not only helps enterprises to better realize employee management, work distribution and process optimization, but also collects data to help businesses achieve greater sales. In addition, it can better cope with the emergency treatment of emergency situations.

This manual mainly introduces C8 products, mainly including six major sections: product hardware parameters, instructions for use, phenomenon and fault analysis, product list, product after-sales. The functions, technical parameters, detailed operation instructions and after-sales support of each model of C8 product are introduced in detail, so as to solve your worries.

We do our best to cover all that you may want to know, but in the case of insurmountable problems, you can go through any of the following channels

Locsmart official website : www.locsmart.cn

Official service hotline : 0512-65296869

2．Note

<SE Writing: Describe and explain the precautions for using this product, scenarios and situations that may cause damage to the product itself and users themselves. For example, special instructions for explosion-proof scenarios>

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Disclaimer: Locsmart Technology (Suzhou) Co., Ltd. reserves the final right to interpret any discrepancies between this manual and the actual product. Choosing C8 products entitles you to standard after-sales service during the warranty period, mainly through repair or replacement. Our company does not assume responsibility for property or personal injury caused by customers' abnormal operations. Customers are requested to develop corresponding products according to the technical specifications and reference design in the manual. The company reserves the right to make the final decision on the handling method.

3．Product description

3.1 Product introduction
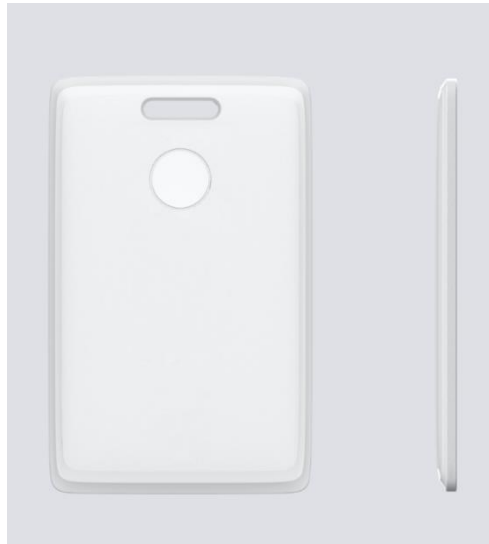
- Low cost and low power consumption
- IP66
- endurance more than 5 years
- Multiple frequency band RFID options
- Card type、wearable
- Transmission distance 120m
- Supporting acceleration sensors and action alarms
- Support the development of one click call for help function

Figure 1 Appearance of C8 Series Positioning Terminal

3.2 Function introduction

The C8 multifunctional card type positioning beacon developed by Locsmart is a low-power Bluetooth beacon used for personnel positioning and material management. Its thickness is only 4.9mm, and it has the characteristics of small size and long working time. The C8 adopts an ultra-low power chip, which is ultra long standby, charging free, easy to carry, and inexpensive. It is widely used in hospitals, shopping malls, exhibition halls, factories, enterprises, and other scenarios.

C8 supports RFID, which not only enables employees to clock in and sign in on a daily basis, but also cooperates with gateways to build a personnel tracking system to respond to emergency situations. In addition, C8 has added a switch on/off button, a shared one button call for help button, and can add an acceleration sensor. It supports action alarm function, dynamic and static judgment, and sends data to responsible personnel in emergency

situations to quickly make response plans. It is also possible to quickly determine the position of the wearer through Bluetooth positioning, achieving personnel safety management and personnel trajectory tracking management. This not only helps enterprises better achieve employee management, work allocation, and process optimization, but also collects data to help merchants achieve greater sales. In addition, it can better respond to emergency situations such as emergency response.

3.3 Parameters

Model	C8							
Description	Card type label							
Version	w.c.h.s.d.x	w.c.u.s.d.x	w.c.l.s.d.x	w.c.n.s.d.x	w.c.n.n.d.x	w.c.u.n.d.x	w.c.h.n.d.x	w.c.l.n.d.x
Chipset	Dialog DA14*							
Support Protocol	BLE 5.1，iBeacon、Line、Eddystone (UID\URL\TLM) 、Two types of AOA protocol, ACC protocol, Infor protocol							
Measurement method	RSSI							
Power supply	850mAh lithium manganese							
Transmission distance	Up to 120m							
Battery life	5 years+(default parameter, ACC not enabled)							
Broadcast interval	Default 1000ms, can be configured with 100ms~3000ms							
Transmitting power	-19.5dbm~+2.5dbm can be configured, default to 0dm							
Broadcast frequency	Three broadcast channels 37、38、39，The corresponding center frequency is 2402MHz, 2426MHz，2480MHz							
Waterproof and dustproof	IP66							
Working temperature	-20℃~60℃							
Working humidity	≤90%							
Dimensions	85.5*54*4.9mm (L*W*H)， (Deviation ± 0.5mm)							
Weight	About 20 grams							
LED indication	Alarm indication, switch indication, low battery reminder							
Alarm function	One click call for help/one click alarm/one click warranty, low battery alarm, etc							
Sensor	Acceleration				N/A			

RFID	860~960MHz	13.56MHz	125K	N/A	N/A	860~960MHz	13.56MHz	125K
Security	Password protection, Tamper resistance							
Mobile APP	Support modifying UUID, Major, Minor, broadcast interval, broadcast power, setting Tamper resistance key, etc							
Other performance	Provide secondary development SDK							
Wearing method	Hang、3M adhesive							
Certification	CE, FCC, IP66							
Characteristic	Stable node signal, equipped with magnetic adsorption installation accessories, easy to install and maintain in the later stage! Powerful and user-friendly configuration tool APP							

*Calculation setting for battery life: at a broadcast interval of 1000ms, 0dBm power, 1 channel calculation, 23 ℃, ACC acceleration not enabled

4．Instructions for use

The iBeacon has the characteristics of strong battery life, fast installation and deployment, and high security (configured with encryption). At the same time, to effectively solve the problems faced in the promotion of iBeacon applications, it has added multi-protocol broadcasting, Android system compatibility extension, and Bluetooth gateway to achieve more applications. It can provide configuration tools and a complete set of developer SDKs.

4.1 Exquisite appearance

The C8 positioning beacon developed by Locsmart creates a brand new and exquisite appearance, making it wearable、beautiful and efficient，in addition occupying no space.

4.2 Strong endurance

Adopting advanced power consumption control technology and unique power supply design scheme, the battery life is increased by four times compared to similar products in the industry. It can be used for five years, solving problems such as frequent battery replacement and difficult system maintenance.

4.3 Anti scratch encryption

Locsmart provides two sets of ID dynamic encryption modes: broadcast key anti-counterfeiting encryption and time-based anti-counterfeiting encryption for nodes, allowing for dynamic changes in node IDs (Major, Minor), making it impossible for others in the network deployed by customers to use them. Among them, time-based

anti-counterfeiting encryption is currently the only encryption scheme that is unbreakable, does not affect the iBeacon protocol (does not occupy any fields in the iBeacon protocol), and has unlimited concurrent capacity.

Locsmart provides a broadcast connection password. Only by entering the correct password can the connection be successful. When entering the configuration interface, users can change or remove the password themselves, making it convenient to use. In the configuration interface, the beacon can be configured as a non connectable mode to prevent accidental operation by others.

4.4 Multi-protocol broadcasting

IBeacon supports multi protocol signal broadcasting, so that the same iBeacon node can simultaneously support multiple applications such as " Wechat Shake", " Alipay Discovery", "indoor positioning navigation", "LINE preferential information push" and "AOA positioning". In terms of technology, influenced by the Bluetooth reading mechanism of the protocol mobile phone system, conventional iBeacon directly broadcasts signals from multiple protocols, which will make it difficult for the phone to stably scan the broadcast protocols at the same time. Therefore, iBeacon has carried out unique technical processing to ensure that multiple protocol signals simultaneously broadcast by iBeacon can be received by the phone at the same time. In terms of functionality, multi-protocol broadcasting enables beacons to support functions such as dynamic and static detection, drop detection, broadcast counting, time recording, web page push, and custom names.

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The parameters and functional descriptions of the C8 protocol are as follows:

Type (Channel)	Project	Configuration Scope	Function Description
ibeacon	UUID(16byte)	-	1. Apple's standard iBeacon protocol; 2. The response data of the broadcast includes the device name and battery level
	Major(2byte)	0 ~ 65535	
	Minor(2byte)	0 ~ 65535	
	Calibration distance	-100dBm ~ 0dBm	
	Broadcast power	-19.5dbm ~ +2.5dbm (Configurable, default to 0dm)	
	Broadcast interval	100ms ~ 3000ms	
UID	Instance ID	0~9/a~f/A~F	1. Google's open-source beacon format; 2. Broadcast beacon ID
	Namespace ID	0~9/a~f/A~F	
	Calibration distance	-100dBm ~ 0dBm	
	Broadcast power	-19.5dbm ~ +2.5dbm (Configurable, default to 0dm)	
	Broadcast interval	100ms ~ 3000ms	
URL	URL	Numbers, letters, and special characters	1. Google's open-source beacon format; 2. The broadcast website can be viewed through Bluetooth website
	Calibration distance	-100dBm ~ 0dBm	
	Broadcast power	-19.5dbm ~ +2.5dbm (Configurable, default to 0dm)	
	Broadcast interval	100ms ~ 3000ms	
TLM	Voltage mV	0mV ~ 3000mV	1. Google's open-source beacon format; 2. Some condition data of the broadcast beacon itself
	Start-up time	System built-in	
	Number of PDU packets	System built-in	
	Calibration distance	-100dBm ~ 0dBm	
	Broadcast	-19.5dbm ~ +2.5dbm (Configurable,	

	power	default to 0dm)	
	Broadcast interval	100ms ~ 3000ms	
ACC	Calibration distance	-100dBm ~ 0dBm	1. Broadcast motion sensor data; 2. Radio beacon power
	Broadcast power	-19.5dbm ~ +2.5dbm (Configurable, default to 0dm)	
	Broadcast interval	100ms ~ 3000ms	
INFO	Name	Numbers, letters, and special characters	1. Name of broadcasting equipment; 2. The triggering state of the broadcast trigger; 3. Radio beacon power
	Calibration distance	-100dBm ~ 0dBm	
	Broadcast power	-19.5dbm ~ +2.5dbm (Configurable, default to 0dm)	
	Broadcast interval	100ms ~ 3000ms	
LINE	Hwid	0~9/a~f/A~F	1. Security verification messages can be generated based on configuration; 2. You can view the battery level and startup time in the broadcast data; 3. Adapt to LINE APP related functions
	Vend_key	0~9/a~f/A~F	
	Lot_key	0~9/a~f/A~F	
	Calibration distance	-100dBm ~ 0dBm	
	Broadcast power	-19.5dbm ~ +2.5dbm (Configurable, default to 0dm)	
	Broadcast interval	100ms ~ 3000ms	
Coreaiot AOA	Calibration distance	-100dBm ~ 0dBm	Adapt to Coreaiot's AOA platform
	Broadcast power	-19.5dbm ~ +2.5dbm (Configurable, default to 0dm)	
	Broadcast interval	100ms ~ 3000ms	
Quuppa AOA	Calibration distance	-100dBm ~ 0dBm	Adapt to Quuppa's AOA platform
	Broadcast power	-19.5dbm ~ +2.5dbm (Configurable, default to 0dm)	

	Broadcast interval	100ms ~ 3000ms	

4.5 Provide tools and developer SDK

The configuration tool APP is provided, which can configure important parameters such as ID, transmission power, transmission interval, etc. at any time, and is protected by a perfect Tamper resistance mechanism to prevent illegal modification. Provide a complete set of developer SDKs for customers to easily achieve secondary development.

The Locsmart Configuration Tool APP and SDK are used to configure iBeacon node parameters and view iBeacon signal strength. They are powerful, easy to operate, and support Android versions. The Intelligent IoT Configuration Tool APP and SDK support batch configuration of node IDs, suitable for customers to change node IDs themselves. The APP function consists of two major functional groups: query and configuration, as shown in the table below:

Table 2 APP Function List

Query Function Group		Configuration Function Group	
Parameter Query	Display basic parameters of node broadcasting	**UUID**	Compatible
Electricity inquiry	Display the remaining power of the node	**Major**	Configurable, automatically incremented during batch configuration
RSSI sorting	Sort based on signal strength during display	**Minor**	Configurable, automatically incremented during batch configuration
MAC sorting	Sort based on the MAC sequence number of the beacon during display	Broadcast interval	Can be configured, with a parameter range of 100ms to 3000ms

RSSI filtering	Display nodes within the specified beacon strength range	Broadcast power	-Available from 19.5dBm to 2.5dBm
Battery sorting	Sort according to the battery level of the beacon during display	Measure power calibration	One click calibration at a distance of one meter from iBeacon
Name filtering	Display nodes with specified keywords in their names	Configure Ciphers	Only when the password is correct can it be configured to prevent malicious tampering
MAC filtering	Display nodes within the specified MAC range	Batch configuration	You can select all or select some nodes for batch parameter configuration
Interface locking	Lock the display interface (do not change the node display order based on changes in signal strength)	Connection mode	Can the device be connected
Scanning level	Can set the speed of the APP scanning interface	Factory reset	After clicking, restore to factory settings
Continuous scanning	Is the app a continuous scan	Shutdown	Control beacon shutdown through APP
Modify Secret Key	Set a new password	Trigger response time	Set the response time for button triggering
Remove key	After removal, no password is required for the next device connection		

4.6 Indicator light information

Funtion	Analysis
APP saves data	Yellow LED flashes once
APP connection	Yellow LED flashes twice
APP disconnected	Yellow LED flashes three times
Trigger corresponding trigger	Double click the button, the yellow LED flashes twice; Three clicks on the button, the yellow LED flashes three times
Power on	Long press the button for three seconds, and the yellow and red

	LED lights remain on for three seconds
Shutdown	Yellow LED flashes five times
Low battery	The red LED light remains on for ten seconds
Factory reset	Press and hold the button for ten seconds, and the red LED remains on for three seconds

5．Product list

Model	Name	Quantity	Remark
C8	iBeacon	1	
	3M VHB™ glue	1	
	Certificate of conformity	1	

Note: The product list is for reference only, and no further notice will be given in case of any changes. The actual product shall prevail.

6．After Sales

If the product experiences performance faults that are not caused by human factors, after after-sales testing, it is determined that the product can enjoy a warranty period of one year if it is normal, and a warranty period of three months for product accessories. In addition, we provide one-year extended product warranty service and separate battery purchase service. If necessary, you can contact sales or customer service personnel for more information.

When you have the following needs, you can contact customer service personnel:

(1) Product malfunction

(2) Handling returns and exchanges

(3) Warranty service

7．Certification：

FCC ID: 2A9XB-C8

CE ⌧
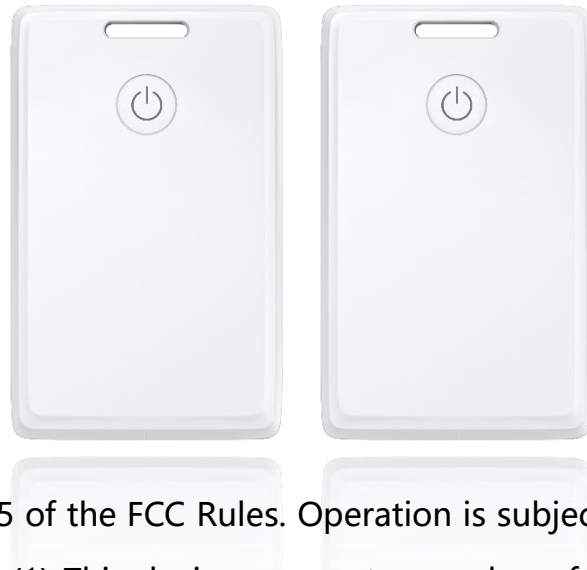
FCC Warning：

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more

of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

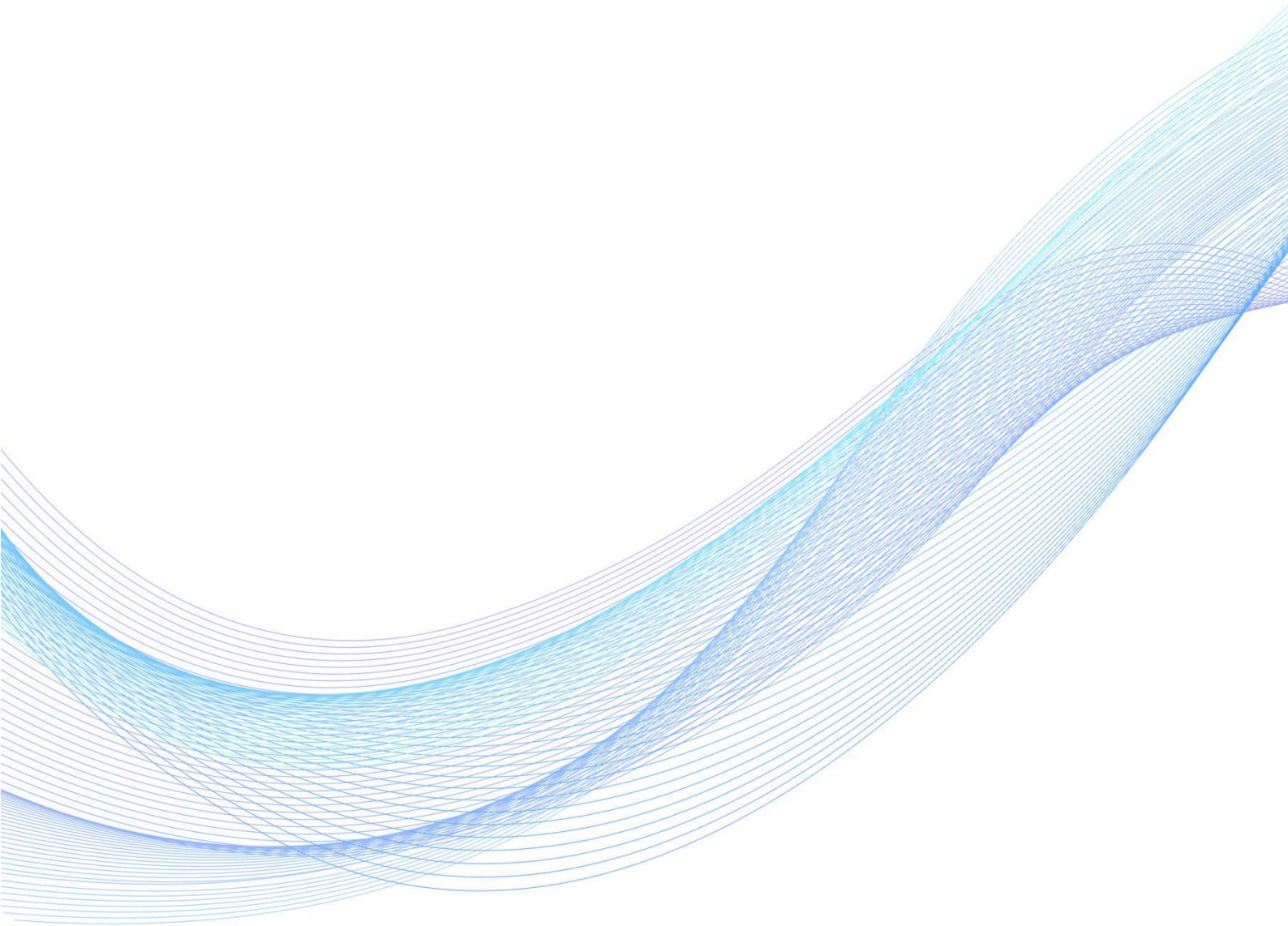- Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

Contact Us:

Manufacturer：Locsmart IoT Technology (Suzhou) Co., Ltd

TEL：0512-67267292

Add：Building 16,Creative Industry park,No,328 xinghu street,Suzhou Industrial Park