User Manual

High-Flying Electronics Technology Co., Ltd.
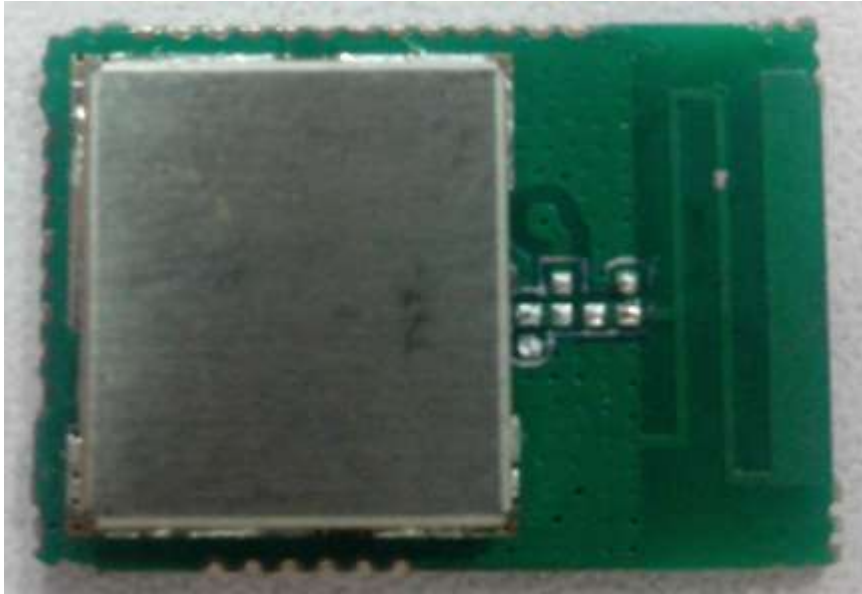
Specification

			Model :HF-Z100C	
Design	**Hewei**	2014-03-12	Description : ZigBee Module	
Verify	Wanghuanming	2014-03-12	**Document No.:** F20140312	**Version :** 1.0
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1 .Photo

2 Product Description

HF-Z100C

HF-Z100C is a wireless communication device based on the latest IEEE802.15.4 standard and Zigbee wireless communication protocol. When compared with the Bluetooth technology, it comes with the advantages of low complexity, low power, low cost, self-organizing, and so on. Since it is based on IEEE802.15.4 standard, it allows smooth connections among thousands of tiny sensors that demand information exchange through radio waves between any two sensors, with very little energy and high communication efficiency.

Application HF-Z100C module is widely applied to commercial building automation, home automation control (including smart lighting, sensor, gateway etc that is used in smart home) and instrument control as the focus. Commercial building can be completed automatically controlled through HF-Z100C, administrators can effectively manage air conditioning, lighting, fire detection systems, the switch control system, leading to cost reduction of energy consumption, as well as labor cost. For the consumer, if the family has installed HF-Z100C module system can easily monitor the overall operation of the home, effectively control   electricity, water, gas usage outside, they can have security features, for example, to install a wireless home sensors to monitor a variety of different situations, once the investigation into the abnormal automatically issue a warning.

3. Product Features:

➢ Low power consumption in low-power standby mode, the standby time is more than 10 times the Bluetooth communication devices

➢ Low cost, by dramatically simplifying the protocol (less than Bluetooth 1/10), reducing the requirement for communication controller, suitable for large-scale construction applications

➢ Variable data rates, HF-Z100C works in the 2.4GHz band, providing 250 kbps raw data rate using standard mode, or up to 2Mbps using Marvell proprietary mode, to meet the application needs of various rates towards data transmission.

➢ close quarters, the transmission range is generally between 10 ~ 100m indoor, and up to 2km outdoor. After increasing the transmission power, the distance can be further increased. This is the distance between adjacent nodes. If the route and through the inter-node communication relay transmission distance will be farther

➢ short delay, faster response speed HF-Z100C, generally from sleep into working condition just 15ms, nodes are connected into the network just 30ms, further saving energy. Comparison, Bluetooth requires 3 ~ 10s, WiFi need 3 s

➢ high security, HF-Z100C provides three security modes, including no security settings, using access control lists (Access Control List, ACL) to prevent illegal access to data and the use of the Advanced Encryption Standard (AES 128) symmetric password to flexibly determine their security attributes.

➢ wide range of applications for home and building networks, industrial control, wireless meter reading, medical equipment, agricultural control and other occasions

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4.Product Specification

Model	HF-Z100C
Chipset	88MZ100
Wireless Standard	IEEE802.15.4
Radio Data Rate	250Kbps
Channel	16
Sensitivity @250kbps（dBm）	-104dBm(Min)
Frequency Range	2.405~2.480GHz
Interface	Refer to Section 5
Antenna Type	Onboard 2dBi（Max）PCB antenna
Input Voltage（V）	DVDD 2.0V-3.6V(Typical DC 3.3V)
Max Current on 9dBm TX power（mA)	＜60mA
Sleep Current（uA)	＜3uA
Communication Distance	Indoor≥ 50m,Outdoor≥ 300m
Environment	Operating Temperature: -40℃~85℃ Storage Temperature: -40℃~125℃ Operating Humidity: 10%~90% non-condensing Storage Humidity: 10%~90% non-condensing
Dimensions （mm）	22.2mm*15.4mm*3.0mm

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5. Interface Pin Definition

The module pin reference definition is referred to the table like below. The GPIO assignment is ONLY reference for the full application on lighting. For some specified application, please refer to the PINMUX of 88MZ100 datasheet for the flexible GPIO assignment.

Pin Number	Signal Assignment	Reference GPIO Assignment for Lighting
Pin1-2	GND	Ground
Pin3	GPIO12	PWM output-1(Timer1)
Pin4	GPIO13	PWM output-2(Timer1)
Pin5	GPIO14	SWD Clock
Pin6	GPIO15	SWD Data
Pin7	GPIO16	IIC SDA
Pin8	VIO	The IO power
Pin9	GPIO17	IIC CLK
Pin10	GPIO18	PWM output-3(Timer1)
Pin11-13	GND	Ground
Pin14	GPIO21	UART2 TXD
Pin15	GPIO22	UART2 RXD
Pin16	GPIO23	PWM output-4(Timer1)
Pin17	GND	Ground
Pin18	VBAT	The main power
Pin19	GND	Ground
Pin20	GPIO29	Reserve
Pin21	GPIO28	Reserve
Pin22	GND	Ground
Pin23	RESET_N	The reset signal
Pin24	GPIO4	ADCx3 or ADCx1 and Wakeup INTx2
Pin25	GPIO5	
Pin26	GPIO6	
Pin27	GND	Ground
Pin28	The under GND	Ground

6. FCC Statement:

Federal Communication Commission Interference Statement

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

USER MANUAL OF THE END PRODUCT:

In the user manual of the end product, the end user has to be informed that the equipment complies with FCC radio-frequency exposure guidelines set forth for an uncontrolled environment.

The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the user manual: This device complies with Part 15 of 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.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following" Contains TX FCC ID: 2ACSV-HF-Z100C ". If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of 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.

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IC warning statements:

-English Warning Statement:

"This device complies with Industry Canada licence-exempt RSS standard(s).
Operation is subject to the following two conditions: (1) this device may not
cause interference, and (2) this device must accept any interference, including
interference that may cause undesired operation of the device."

-French Warning Statement:

"Le présent appareil est conforme aux CNR d'Industrie Canada applicables
aux appareils radio exempts de licence. L'exploitation est autorisée aux deux
conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2)
l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même
si le brouillage est susceptible d'en compromettre le fonctionnement."

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