



# HT288

## BLE5.0 Bluetooth Module

### User manual

#### Version information

version	Date	Author	Description
V1.0	Apr 20,2024	Rong wang	Create the document
V1.1	Jul 15,2024	Xiaofei Zhou	Add module package description

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# 1.Descriptions

## 1.1、 Image of the module



Fig. 1: Image of HT228

## 1.2、 Function Description

HT228 is a low-power Bluetooth 5.0 integrated module, based on the M0 core, which can support master-slave switching. It includes full function Bluetooth 5.0 / 5.1. It Can develop a variety of applications based on 32-bit high-performance .

This module has rich peripherals, such as UART, SPI, IIC, GPIO, ADC, PWM, and so on. HT228 has many features, such as easy to develop, BLE connection stability.

Certification information: **BQB FCC ID ROHS SRRC**

## 1.3、 Basic parameter

### 1.3.1、 Bluetooth 5.0 / 5.1

Support 125Kbps/500Kbps/1Mbps/2Mbps/

Receiving sensitivity: -99dbm @1Mbps

Transmit power: Max:+12dBm

Link Gain: 117dB@125Kbps (Max)

Bluetooth mesh: Support SIG Mesh, Private mesh, Through transmission

### 1.3.2、 MCU core

ARM 32-bit Cortex-M0 CPU

Highest frequency: 64MHz

Max Data SRAM: 64KB

Maximum Data Flash storage: 512KB

RX mode: 4.5mA @3.3V

TX mode: 4.3mA @3.3V 0dBm

SLEEP mode: 1uA

One broadcast for 1s in standby: 36uA

## 2、 Hardware application

Table 2.1 Recommended operating conditions

Rating	Min	Typ	Max	Unit	Remarks
Operating temperature	-40	20	85	℃	
VDD	2.4	3.3	3.6	V	
Operating current	-	8	-	mA	VDD: 3.3V

### 3、 Size

Fig 3.1 Package size chart (The overall maximum thickness of the module is 2.6mm)  
Please find the corresponding business interface to provide the package information of the corresponding backplane of the module.

thickness

## 4、Pin definition

Fig 4.1 Pin DiagramTable 4.1 Description of pin definition

1	GND	GND	
2	PA15	PA15	
3	PA14	PA14	
4	PB05	PB05	
5	PB06	PB06	
6	PA07	PA07	
7	NC	NC	
8	PB00	PB00	
9	PB01	PB01	
10	VDD	VDD	
11	PA00	PA00	
12	PA13	PA13	
13	PB14	PB14	
14	PA08	PA08	
15	PA09	PA09	
16	NC	PB11	
17	NC	PB08	
18	NC	PB09	
19	RESET	NRST	
20	GND	GND	

Notice: The red mark is the programming pin. When designing, it is recommended to reserve a burning point.

## 5、Module MOQ and packaging information

Name	MOQ(PCS)	Packing
HT288	1600	tray

## 6、Sales and technical support information

If you need to consult or purchase this product, please call Bestcore during office hours.

Office hours: Monday to Friday

morning: 08:30-12:00, afternoon: 13:30-18:00

Address:

Room605-609, Area B, Huachuangda Qianhai Maker Innovation Base, 38 District,  
Baoan District, Shenzhen

Phone Num: 0755-23201496

Room 1011, 10F, ShuMao Building, 6 Xiangxing Road, Torch Development  
District ,Zhongshan

Phone Num: 0760-85288175

### Radiation Exposure Statement

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.

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.

### **Radiation e Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The module is limited to OEM installation only The OEM integrator is responsible for ensuring that the end-user has no manual instructions to remove or install module If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: Contains Transmitter Module **FCC ID: 2BHMW-HT288**

When the module is installed inside another device, the user manual of the host must contain below warning statements;

#### **1.1 List of applicable FCC rules**

FCC Part 15 Subpart C 15.247 & 15.209

#### **1.2 Specific operational use conditions**

The module is a BLE Module

BLE Module	Operation Frequency	Number of Channel	Modulation	Antenna Spec.
		BLE	BLE	BLE
BLE 1M	2402-2480MHz	40	GFSK	PCB printed antenna with – 2.31dBi gain (Max. )
BLE 2M	2402-2480MHz	40	GFSK	PCB printed antenna with – 2.31dBi gain (Max. )

The module can be used for mobile applications with antennas up to 1dBi. The host manufacturer installing this module into their product must ensure that the final composite product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules, including the transmitter operation. The host manufacturer has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as shown in this manual.

1.3 Limited module procedures Not applicable. The module is a Single module and complies with the requirement of FCC Part 15.212.

#### 1.4 Trace antenna designs

Not applicable. The module has its own antenna, and doesn't need a host's printed board microstrip trace antenna etc.

#### 1.5 RF exposure considerations

The module must be installed in the host equipment such that at least 20cm is maintained between the antenna and users' body; and if RF exposure statement or module layout is changed, then the host product manufacturer required to take responsibility of the module through a change in FCC ID or new application. The FCC ID of the module cannot be used on the final product. In these circumstances, the host manufacturer will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

#### 1.6 Antennas

Antenna Specification are as follows:

Type: Single External antenna Gain: -2.31dBi .

This device is intended only for host manufacturers under the following conditions: The transmitter module may not be co-located with any other transmitter or antenna; The module shall be only used with the internal antenna(s) that has been originally tested and certified with this module. The antenna must be either permanently attached or employ a 'unique' antenna coupler. As long as the conditions above are met, further transmitter test will not be required. However, the host manufacturer is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

#### 1.7 Label and compliance information

Host product manufacturers need to provide a physical or e-label stating "Contains **FCC ID: 2BHMW-HT288**" with their finished product.

#### 1.8 Information on test modes and additional testing requirements

Operation Frequency: 2402-2480MHz

Number of Channel: 40

Modulation: GFSK

Host manufacturer must perform test of radiated & conducted emission and spurious emission, etc according to the actual test modes for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product. Only when all the test results of test modes comply with FCC requirements, then the end product can be sold legally.

1.9 Additional testing, Part 15 Subpart B disclaimer The modular transmitter is only FCC authorized for FCC Part 15 Subpart C 15.247 & 15.209 and that the host product manufacturer

is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuitry), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

