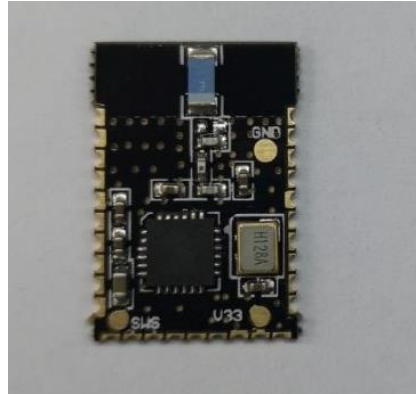# Operation Manual

Product Name: BLE Pass-through Module
Document Versiont: V01.

I. **Functions**

This module is a BLE Pass-through Module based on the Bluetooth Low Energy standard released by the Bluetooth SIG. This module can be controlled by the serial port and MODE_CTL pin, and be wirelessly controlled through the host. Users can develop standard low-power Bluetooth (BLE) products in a short period of time and don't have to worry about complex Bluetooth protocol application software. After the connection is established through the serial port control, bidirectional data transmission can be realized between the BLE master and the slave.

Function Overview:

1. Support pure pass-through mode and command mode: In pure pass-through mode, the data received by the serial port will be transmitted to the host as it is, and the data received from the host, it will be transmitted to the user MCU as it is. In command mode, the user MCU can configure and obtain the parameters of the module through corresponding commands.

2. Can be switched between pure pass-through mode and command mode through IO port, and can also be configured through the host;

3. Design of common serial port. The baud rate can be configured through the serial port or the host, which makes it easy to adapt different MCU resources but the default is 9600bps, with low-power data preservation;

4. The Bluetooth broadcast period and the Bluetooth connection interval can be configured through the serial port or the Host, which is easy for reasonable control of Bluetooth power consumption and low-power data preservation;

5. Configure the Bluetooth device name through the serial port or the Host to facilitate device differentiation in actual applications and low-power data preservation.

6. The Bluetooth pairing code can be configured through the serial port or the host, and can be set enabled or not;

7. Reset module through the serial port or the host

8. Factory reset can be restored through the serial port or the host;

9. The Bluetooth MAC address (physical address) of the module can be obtained through the serial port.

10. The Bluetooth transmit power of the module can be set through the serial port or the host to reasonably control the communication distance and the power consumption.

11. Support the simpliest development, that is, in the case of simple functional requirements, only need to connect to the serial port for product development. For example, the mode control pin will be kept in low level when no control is needed, saving the I/O resources of the MCU.
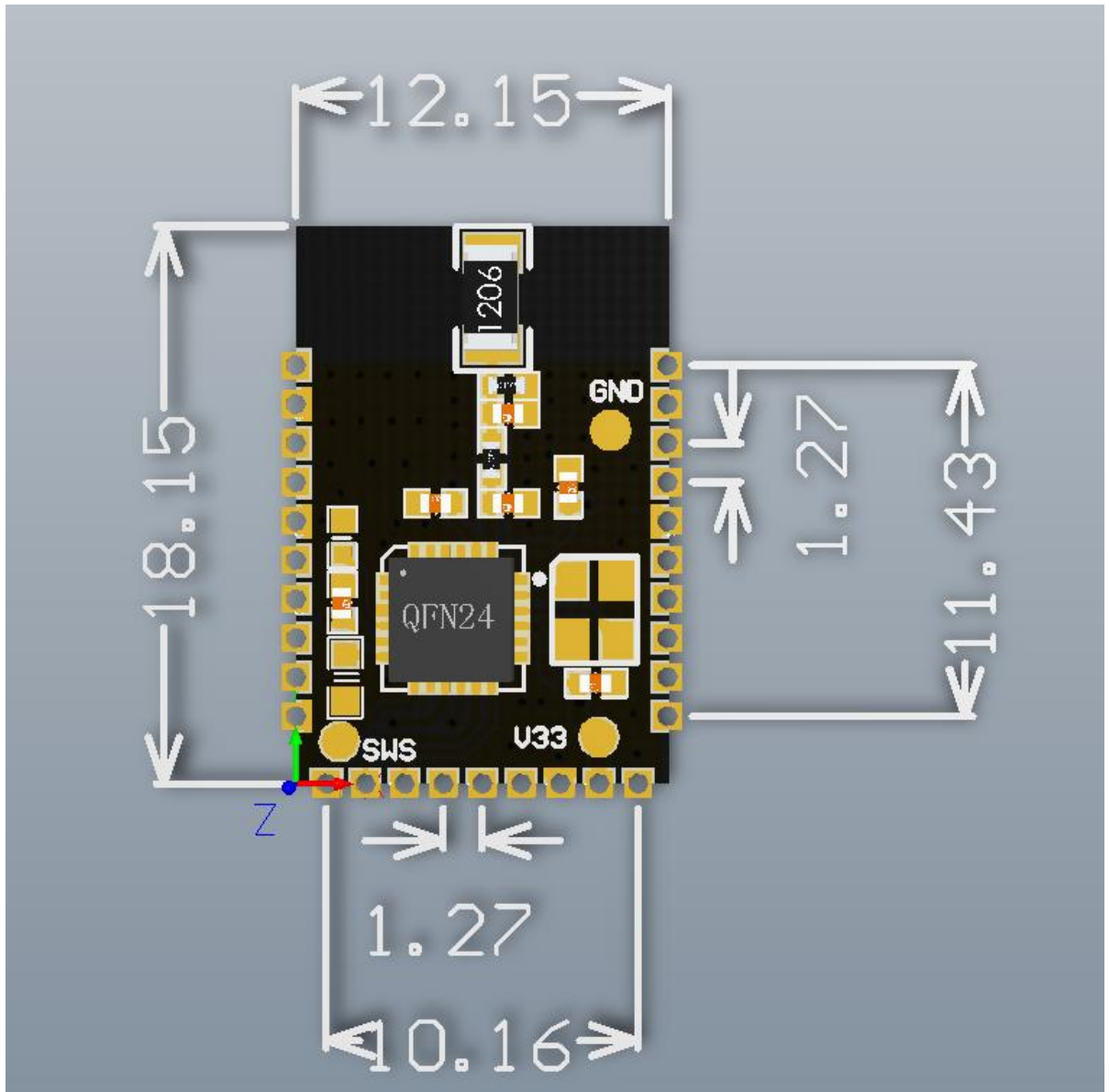
II. Product Dimension

（PAD Size: 0.9mm*0.9mm）

Fig.1   Packaging Drawing

表2-1　BLE 模块管脚说明

Pin No.	Ports	Function	Direction	Remarks
P Series Module				
18	/	VCC	/	Typical 3.3V
2、5、10、17、25	/	GND	/	All grounding terminals need to be grounded
13	PC3	UART_RX	I	Modular Serial Port Receiver
12	PC2	UART_TX	O	Module Serial Port Transmitter
15	PB7	MODE_CTL	I	Module mode switching with internal pull-up resistance（**10K**） 0：Serial port is instruction mode 1：Serial port is pass-through mode
7	PB6	CONN_STAT	O	Connection status indication 0：Modules are not connected to the host 1：Modules are connected to the host
Other I/O	/	NC	/	No connection

Remarks:
1. The MODE_CTL pin can be directly suspended to set the module as the pass-through mode, or can be connected to the IO port of the MCU for control.

FCC 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.

FCC Radiation Exposure Statement
This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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: N4Z-NB4 Or Contains FCC ID: N4Z-NB4"

When the module is installed inside another device, the user manual of the host must contain below warning statements;
1. 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.
(2) This device must accept any interference received, including interference that may cause undesired operation.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.
Any company of the host device which install this modular with limit modular approval should perform the test of radiated emission and spurious emission according to FCC part 15C : 15.247 and 15.209 requirement,Only if the test result comply with FCC part 15C : 15.247 and 15.209 requirement，then the host can be sold legally.