Serial Bluetooth 4.0 Smart Ready dual-mode module

User Manual
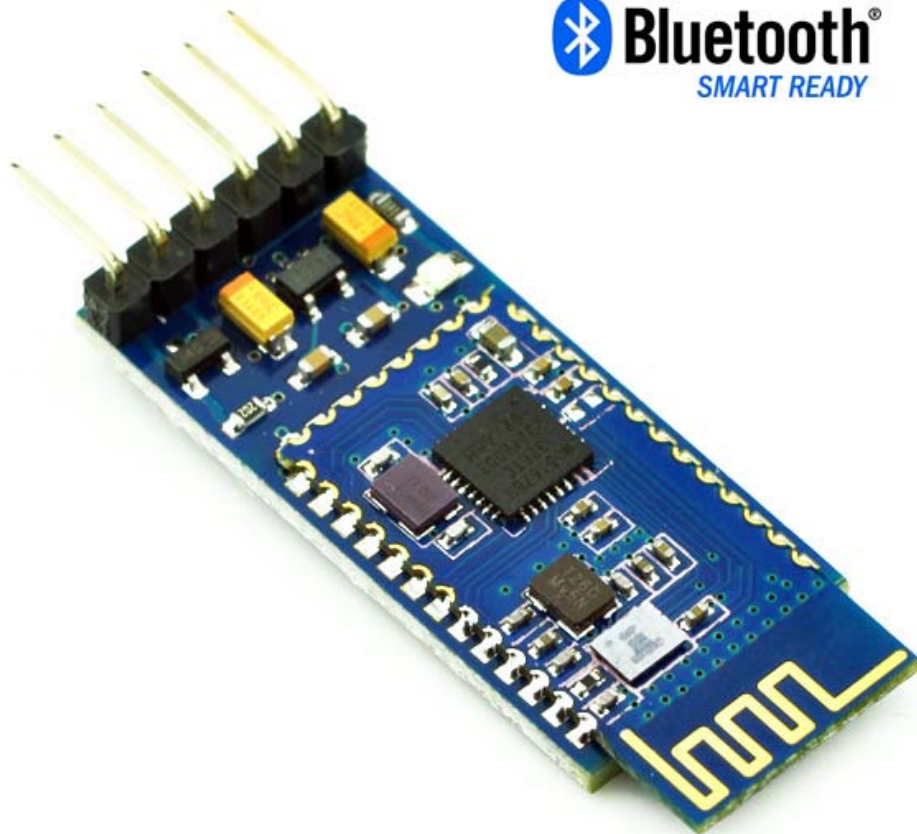
INTRODUCTION

Tinysine HM-12 Bluetooth 4.0 Smart Ready dual-mode module is a serial to Bluetooth

module which can execute digit transmission, remote control and data acquisition. It uses CSR dual mode Bluetooth chip, combined with Nuvoton ARM architecture single chip, support AT commands, the user can change roles (Master or Slaver mode) and the serial baud rate, device name, pairing password and other parameters.

It's a Bluetooth smart ready module. Can do data transparent transfer between any Bluetooth device (Andorid and IOS device all works fine). Very convenient to use.

SPECIFICATIONS

- BT Version: Bluetooth Specification V4.0 EDR and BLE
- Serial port send/receive maximum byte 90
- Working frequency: 2.4GHz ISM band
- sensitivity: ≤ -84dBm at 0.1% BER
- Modulation method: GFSK(Gaussian Frequency Shift Keying)
- Security: Authentication and encryption
- support services: L2CAP, SDP, RFCOMM, SPP.
- support services: ATT, GATT, LE, Service: 0xFFE0, Char: 0xFFE1
- Power: +3.3VDC 50mA
- Open space have 100 100 meters long distance communication with iphone5s
- Power Consumption: SPP 13mA in average, BLE 9.5mA in average ,Standby is about 10-17mA
- Working temperature:–5 ~ +65 Centigrade

Overview
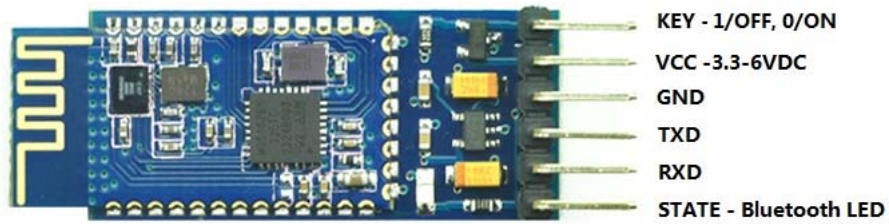
TinySine HM series Bluetooth module can works with 3.3V system directly. If you want it works with a 5V system. We suggest use 2 resistor dividing voltage to protect it.

Default Baud Rate: 9600,8,1,n.   Slaver mode

LED states:
Standby mode: 2Hz blink
Connected: ON

AT commands

1. Test Command

Command	Response	Parameter
AT	OK ER	None

If module is in standby state normally, the serial port will return: "OK"

If module is in an error state, it will return "ER", this error indicates Bluetooth chip is not working properly, you may need to reset the module or set a correct parameters.

2. Query the EDR MAC address

Command	Response	Parameter
AT+ADDE?	OK+Get:MAC address	None

3. Query the BLE MAC address

Command	Response	Parameter
AT+ADDB?	OK+Get:MAC address	None

4. Query&set the baud rate

Command	Response	Parameter
Query: AT+BAUD?	OK+Get:[para1]	Para1:1~7 1-4800;
Set: AT+BAUD[para1]	OK+Set:[para1]	2-9600; 3-19200; 4:38400; 5-57600; 6-115200; 7-230400; Default:2(9600)

Example: set the baud rate to 9600:

Send: AT+BAUD2

Returns: OK+Set:2

Note: Need to re-power the module to let the new parameters to take effect.

5. Clear the pairing information

Command	response	note
AT+BONDE	OK+BONDE	Clear EDR pairing information
AT+BONDB	OK+BONDB	Clear BLE pairing information

6. Query\set the iBeacon Minor value

command	response	parameter
Query:A T+MINO?	OK+ Get:[para]	Para: 0x0001 ~ 0xFFFE
Set: AT+MINO[para]	OK+Set:[para]	Default: 0xFFE1

Example: Set Minor as 0x0102

Send: A T+MINO0x0102

Recv: OK+Set:0x0102 ,if fail to set the parameter ,there has no response.

7. Set module working mode

command	response	parameter
Query:AT+MODE?	OK+Get:[para]	Para: 0 ~ 1
Set: AT+MODE[para]	OK+Set:[para]	0: dual-mode transceiver 1: only single transceiver Default: 0

Note: dual-mode transceiver means BLE/EDR can send and receive data at the same time,working at standby mode .

Note: the single-mode transceiver refers to one mode of connection, another mode automatically shut down.

8. set whether to report host link state

command	response	parameter
Query:AT+NOTI?	OK+ Get:[para]	None
Set:AT+NOTI[para]	OK+Set:[para]	Para: 0 ~ 1 0:do not notify the host PC when connected 1:notify the host PC when connected Default: 0

Note: If the Para value is set as 1, when the module connected with a remote module successfully, it will report "OK+CONE" or "OK+CONB" through the serial port. It will report "OK+LOSE" or "OK+CONB" when it disconnected.

9. Query&set the EDR device name

command	response	parameter
Query: AT+NAME?	OK+Get[para1]	Device name

Set: AT+NAME[para1]	OK+Set[para1]	

Para1: Device name, Maximum legth 11 byte (can only be numbers or letters)

Example:

Send: AT+NAMEtinysine

Returns: OK+Set:tinysine

Now ,the Bluetooth module name changed to tinysine.

Note: Need to re-power the module to let the new parameters to take effect.

10. Query&set the BLE device name

command	response	parameter
Query:AT+NAMB?	OK+Get[para1]	Device name
Set: AT+NAMB[para1]	OK+Set[para1]	

Para1: Device name, Maximum legth 11 byte (can only be numbers or letters)

11 .Query&set the EDR pairing password

command	response	parameter
Query:AT+PINE?	OK+Get:[para1]	Para1:numbers or letters within 8 byte
Set: AT+PINE[para1]	OK+Set:[para1]	

Example:

Send: AT+PINE008888

Return: OK+Set:008888

The pairing password is changed to 008888, Default EDR pairing password of this module is "1234".

12 .Query&set the BLE pairing password

command	response	parameter
Query: AT+PINB?	OK+Get:[para1]	Para1:numbers or letters within 6 byte
Set: AT+PINB[para1]	OK+Set:[para1]	

Note: BLE connection don't support password until now.

13. Reset to factory settings (Renew)

command	response	parameter
A T+RENEW	OK+RENEW	None

When recovery module factory default settings, all settings of the module will be reset , namely restore it to factory condition. After restoring factory settings, the module will restarting after 500ms delay. If not necessary, please do not do it .

14. module reset, restart(Reset)

command	response	parameter
A T+RESET	OK+RESET	None

After the instruction execution, the module will restarting after 500ms delay.

15. Query software version

command	response	parameter
Query: AT+VERS?	Version information	None

Query: AT+VER??		