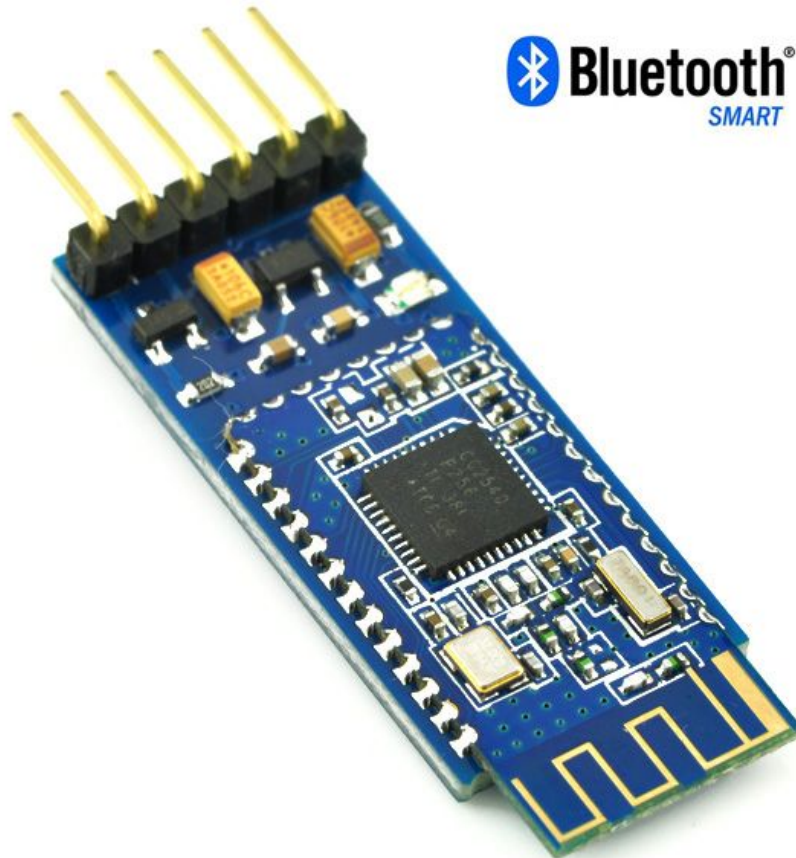




Model: HM-10

# Tinysine Bluetooth 4.0 BLE module

## User Manual



Tinysine Electronics @ 2015  
Version 1.1

## INTRODUCTION

The most complete, most convenient, the most stable of Bluetooth data transmission, remote control, PIO acquisition module

- Master and slave role in one
- Remote control without other MCU
- The PIO data acquisition without other MCU

## SPECIFICATIONS

- BT Version: Bluetooth Specification V4.0 BLE
- Send and receive no bytes limit
- Working frequency: 2.4GHz ISM band
- Modulation method: GFSK(Gaussian Frequency Shift Keying)
- RF Power: 0.01mw-5mw, can modify through AT Command AT+POWE
- Speed: Asynchronous: 6K Bytes, Synchronous: 6K Bytes
- Security: Authentication and encryption
- Service: Central & Peripheral UUID FFE0,FFE1
- Power: +3.3VDC 50mA
- Open space have 100 Meters with iphone4s
- Power: In sleep mode 400uA~1.5mA, Active mode 8.5mA.
- Working temperature:-5 ~ +65 Centigrade
- Dimension: 26.9mm x 13mm x 2.2mm

## Overview

## System function

### How to wake up module from sleep mode?

in sleep mode, you can send a long string (Length > 80 or more), that string can made module wake up, and you will receive "OK+WAKE" string through UART. That string can't include any AT commands.

### How to let module into sleep mode?

In discoverable mode, send “AT+SLEEP” string through UART, if all is okay, module will return “OK+SLEEP” string and into sleep mode.

## AT commands

### Factory default setting:

Name: HMSoft; Baud: 9600, N, 8, 1; Pin code: 000000; Peripheral Role; transmit mode.

### AT Command format:

Uppercase AT command format. string format, without any other symbol. (e.g. \r or \n).

On Transmit version: Only accept AT Command from UART interface when Bluetooth device is not connected with remote device.

On Remote version: Can accept AT Command from UART interface when Bluetooth Device is not connected with remote device, Also can accept AT Command from remote Bluetooth device when connected that.

On PIO collection version: Only accept AT Command from UART interface when Bluetooth device is not connected with remote device.

### 1. Test Command

| Send | Receive       | Parameter |
|------|---------------|-----------|
| AT   | OK<br>OK+LOST | None      |

If Module is not connected to remote device will receive: “OK”.

If Module has connected, module will disconnected from remote device, if “AT + NOTI” is setup to 1, will receive: “OK+LOST”.

### 2. Query ADC conversion value

| Send         | Receive     | Parameter                     |
|--------------|-------------|-------------------------------|
| AT+ADC[para] | OK+Get:0.00 | para: 3~B<br>Map to PIO3~PIO8 |

Reference voltage is 3.3V, only used in HM-10.

### 3. Query module MAC address

| Send     | Receive             | Parameter |
|----------|---------------------|-----------|
| AT+ADDR? | OK+ADDR:MAC Address | None      |

### 4. Query/Set Advertising type

| Send          | Receive       | Parameter   |
|---------------|---------------|---|
| AT+ADTY?      | OK+Get:[para] | None  |
| AT+ADTY[para] | OK+Set:[para] | para:0~3<br><br>0:Connect by any device<br><br>1:Allow to connect with last succeeded device(within 1.28s after power on)<br><br>2:Allow to broadcast and scanning<br><br>3:Only advertising<br><br>Default:0 |

Added since V519 version

### 5. Query/Set ANCS switch

| Send          | Receive       | Parameter                             |
|---------------|---------------|---------------------------------------|
| AT+ANCS?      | OK+Get:[para] | None                                  |
| AT+ANCS[para] | OK+Set:[para] | para: 0, 1<br><br>0: Off<br><br>1: On |

NOTE: 1. Must execute AT+TYPE3 first

2. Please send AT+RESET to restart module if you set value 1

3. Added in V524 version

### 6. Query/Set whitelist switch(only allow 3 mac address link to module)

| Send          | Receive       | Parameter   |
|---------------|---------------|---|
| AT+ALLO?      | OK+Get:[para] | None  |
| AT+ALLO[para] | OK+Set:[para] | para: 0, 1<br><br>0: Off<br><br>1: On<br><br>Default: 0 |

Added in V523 version

### 7. Query/Set whitelist MAC address

| Send                | Receive               | Parameter                                |
|---------------------|-----------------------|--|
| AT+AD[para1]??      | OK+AD[para1]?:[para2] | None                                     |
| AT+AD[para1][para2] | OK+AD[para1][para2]   | para1: 1, 2, 3<br><br>para2: MAC address |

e.g.

Query whitelist MAC address 1

Send: AT+AD1??

Receive: OK+AD1001122334455 (001122334455 is MAC address)

Set whitelist MAC address 2

Send: AT+AD2001122334455 (001122334455 is MAC address)

Receive: OK+AD2001122334455

### 8. Query/Set Advertising interval

| Send          | Receive        | Parameter  |
|---------------|----------------|--|
| AT+ADVI?      | OK+ Get:[para] | None   |
| AT+ADVI[para] | OK+ Set:[para] | para: 0 ~ F<br><br>0: 100ms<br><br>1: 152.5ms<br><br>2: 211.25ms |

|  |  |                     |
|--|--|---------------------|
|  |  | 3: 318.75ms         |
|  |  | 4: 417.5ms          |
|  |  | 5: 546.25ms         |
|  |  | 6: 760ms            |
|  |  | 7: 852.5ms          |
|  |  | 8: 1022.5ms         |
|  |  | 9: 1285ms           |
|  |  | A: 2000ms           |
|  |  | B: 3000ms           |
|  |  | C: 4000ms           |
|  |  | D: 5000ms           |
|  |  | E: 6000ms           |
|  |  | F: 7000ms           |
|  |  | Default: 0          |
|  |  | HMSoft Default: 0   |
|  |  | HMSensor Default: 9 |

The maximum 1285ms recommendations form the IOS system. That is to say, 1285ms is apple allowed, but in response to scan and connected all the time will be long.

Added since V515 version. V521 allows max value to be 9, V522 allows max value to be F.

### 9. Query/Set module PIO output state, after power supplied

| Send          | Receive        | Parameter                       |
|---------------|----------------|---------------------------------|
| AT+BEFC?      | OK+ Get:[para] | None                            |
| AT+BEFC[para] | OK+ Set:[para] | para: 000 ~ 3FF<br>Default: 000 |

Added in V527 Version.

3FF == 001111111111, from left to right, map to PIO0~PIOB, PIO0 and PIO1 is used by system. Only PIO2~PIOB is available.

e.g.

Set PIO2~PIOB all output high level after power supplied

Send: AT+BEFC3FF

Receive: OK+Set:3FF

When powered module next time, PIO2~PIOB will output high level

NOTE: 1. Query PIO pins current state, please send "AT+PIO??" command.

2. Please don't use this command when "AT+MODE1" is setup.

#### 10. Query/Set module PIO output state, after connection is established

| Send          | Receive        | Parameter                       |
|---------------|----------------|---------------------------------|
| AT+AFTC?      | OK+ Get:[para] | None                            |
| AT+AFTC[para] | OK+ Set:[para] | para: 000 ~ 3FF<br>Default: 000 |

Added in V527 Version.

3FF == 001111111111, from left to right, map to PIO0~PIOB, PIO0 and PIO1 is used by system. Only PIO2~PIOB is available, 0 is low level and 1 is high level.

e.g.

Set PIO2~PIOB all output high level after connection is established

Send: AT+ATFC3FF

Receive: OK+Set:3FF

When connection is established PIO2~PIOB will output high level

NOTE: 1. Query PIO pins current state, please send "AT+PIO??" command.

2. This command doesn't work when "AT+MODE1" is setup.

## 11. Query/Set battery monitor switch

| Send          | Receive        | Parameter  |
|---------------|----------------|--|
| AT+BATC?      | OK+ Get:[para] | None   |
| AT+BATC[para] | OK+ Set:[para] | para: 0 ~ 1<br><br>0: Off<br><br>1: On<br><br>Default: 0 |

Added in V520 version.

## 12. Query battery information

| Send     | Receive        | Parameter     |
|----------|----------------|---------------|
| AT+BATT? | OK+BATT:[para] | para: 000~100 |

Only works when power module with battery. 100% = 3V, 0% = 2V.

There are three ways to get battery information:

A. Before establishing a connection, send “AT+BATT?” through UART.

B. After established a connection, In Mode 1/2, remote side send “AT+BATT?”

C. Battery information has included in scan response data package, one hour update once. You can use Android or IOS discovery module, when module has been discovered, you can get it from scan result array. Data format is 4 bytes: 0x02, 0x16, 0x00, 0xB0, [FLAG], [temperature], [humidity], [battery].

## 13. Query/Set Bit format

| Send          | Receive       | Parameter  |
|---------------|---------------|--|
| AT+BIT7?      | OK+Get:[para] | para: bit7 switch.                                       |
| AT+BIT7[para] | OK+Set:[para] | 0: Not compatible<br><br>1: Compatible<br><br>Default: 0 |

This command is used only for compatible uses 7 data bits, 2 stop bit device.



#### 14. Query/Set baud rate

| Send          | Receive       | Parameter  |
|---------------|---------------|--|
| AT+BAUD?      | OK+Get:[para] | para: 0~8  |
| AT+BAUD[para] | OK+Set:[para] | 0: 9600<br>1: 19200<br>2: 38400<br>3: 57600<br>4: 115200<br>5: 4800<br>6: 2400<br>7: 1200<br>8: 230400<br>Default: 0(9600) |

Need to re-power module.

e.g.

Query baud rate:

Send: AT+BAUD?

Receive: OK+Get:0

Set baud rate to 19200:

Send: AT+BAUD1

Receive: OK+Set:1

Note: If set baud rate to 7(1200), after next power on, module will not support any AT commands, until PIO0 is pressed, then module will change baud rate to 9600.

### 15. Query/Set Minimum Link Layer connection interval

| Send          | Receive                              | Parameter   |
|---------------|--------------------------------------|---|
| AT+COMI[para] | OK+ Get:[para]<br><br>OK+ Set:[para] | para: ?, 0 ~ 9<br><br>?: Query;    0: 7.5ms<br><br>1: 10ms;    2: 15ms<br><br>3: 20ms;    4: 25ms<br><br>5: 30ms;    6: 35ms<br><br>7: 40ms;    8: 45ms<br><br>9: 4seconds;    Default: 3 |
|               |                                      |   |

Added since V538 version.

NOTE: Only used in central role, peripheral role can only ask central role to change.

### 16. Query/Set Maximum Link Layer connection interval

| Send          | Receive                              | Parameter   |
|---------------|--------------------------------------|---|
| AT+COMA[para] | OK+ Get:[para]<br><br>OK+ Set:[para] | para: ?, 0 ~ 9<br><br>?: Query;    0: 7.5ms<br><br>1: 10ms;    2: 15ms<br><br>3: 20ms;    4: 25ms<br><br>5: 30ms;    6: 35ms<br><br>7: 40ms;    8: 45ms<br><br>9: 4seconds;    Default: 7 |
|               |                                      |   |

Added since V538 version.

NOTE: 1. Only used in central role, peripheral role can only ask central role to change.

2. Minimum Link Layer connection interval can not less than Maximum Link Layer connection interval, or it won't works.

### 17. Query/Set Link Layer connection slave latency

| Send          | Receive                              | Parameter   |
|---------------|--------------------------------------|---|
| AT+COLA[para] | OK+ Get:[para]<br><br>OK+ Set:[para] | para: ?, 0 ~ 4<br><br>?: Query<br><br>0: No latency<br><br>Default: 0 |
|               |                                      |   |

Added since V538 version.

NOTE: Only used in central role, peripheral role can only ask central role to change.

### 18. Query/Set Maximum Link Layer connection supervision timeout

| Send          | Receive                              | Parameter  |
|---------------|--------------------------------------|--|
| AT+COSU[para] | OK+ Get:[para]<br><br>OK+ Set:[para] | para: ?, 0 ~ 9<br><br>?: Query;    0: 100ms<br><br>1: 1000ms;    2: 2000ms<br><br>3: 3000ms;    4: 4000ms<br><br>5: 5000ms;    6: 6000ms<br><br>Default: 6 |
|               |                                      |  |

Added since V538 version

NOTE: Only used in central role, peripheral role can only ask central role to change.

### 19. Query/Set Maximum Link Layer connection interval

| Send          | Receive                              | Parameter  |
|---------------|--------------------------------------|--|
| AT+COUP[para] | OK+ Get:[para]<br><br>OK+ Set:[para] | para: ?, 0, 1<br><br>?: Query<br><br>0: Don't update |
|               |                                      |  |

|  |  |                            |
|--|--|----------------------------|
|  |  | 1:Update<br><br>Default: 1 |
|--|--|----------------------------|

Added since V538 version

NOTE: Only used in peripheral role.

## 20. Try to connect to last succeeded device

| Send     | Receive       | Parameter   |
|----------|---------------|---|
| AT+CONNL | OK+CONN[para] | para: L, E, F, N<br><br>L: Connecting<br><br>E: Connect error<br><br>F: Connect Fail<br><br>N: No Address |

NOTE: Only central role is used. Module must setup AT+ROLE1, AT+IMME1 first.

If remote device has already connected to other device or shut down, "OK+CONN" will received after about 10 seconds.

## 21. Try to connect to device with given address

| Send           | Receive        | Parameter  |
|----------------|----------------|--|
| AT+CONN[para1] | OK+CONN[para2] | para1: 0~5<br><br>para2: A, E, F<br><br>A: Connecting<br><br>E: Connect error<br><br>F: Connect Fail |

Notice: Only central role is used. Module must setup AT+ROLE1, AT+IMME1, AT+DISC? first.

If remote device has already connected to other device or shut down, "OK+CONN" will received after about 10 Seconds.

para1: Before V535, module can only return 6 discovered devices stand for 0~5; since V535, no limit. Please refer to AT+DISC? command.

e.g.

Try to connect an device which MAC address is 00:17:EA:09:09:09

Send: AT+CON0017EA090909

May receive a reply:

|          |       |                                 |
|----------|-------|---------------------------------|
| OK+CONNA | ===== | Accept request, connecting      |
| OK+CONNE | ===== | Connect error                   |
| OK+CONN  | ===== | Connected, if AT+NOTI1 is setup |

## 22. Try to connect a MAC address

| Send              | Receive             | Parameter   |
|-------------------|---------------------|---|
| AT+CO[p0][p1][p2] | OK+CONN[p0][p1][p2] | <p>p0: N, 1</p> <p>N: Normal address</p> <p>1: Dual module address</p> <p>p1: MAC address</p> <p>Like: 0017EA090909</p> <p>p2: A , E, F</p> <p>A: Connecting</p> <p>E: Connect error</p> <p>F: Connect Fail</p> |

NOTE: Only central role is used. Module must setup AT+IMM1, AT+ROLE1 first.

If remote device has already connected to other device or shut down, "OK+CONN" will received after about 10 Seconds.

### 23. Query PIO04~PIO11 input(output) state

| Send     | Receive        | Parameter   |
|----------|----------------|-------------|
| AT+COL?? | OK+ Col:[para] | para: 00~FF |

para is a byte, has 8 bits, bit 7 ~ bit 0 is map to PIO4 ~ PIO11.

Added since V515 version.

### 24. Clear last connected device address

| Send     | Receive  | Parameter |
|----------|----------|-----------|
| AT+CLEAR | OK+CLEAR | None      |

Notice: Only central role is used.

### 25. Query/Set PIO collection rate

| Send         | Receive        | Parameter  |
|--------------|----------------|--|
| AT+CYC??     | OK+ Get:[para] | para: 00~99<br><br>Unit: second<br><br>Default: 10 |
| AT+CYC[para] | OK+ Set:[para] |  |

In mode 1, when PIO state changed, module will send OK+Col:[xx] to UART or remote side. This command is set send interval.

Added since V515 version.

### 26. Query/Set Characteristic

| Send          | Receive       | Parameter                                    |
|---------------|---------------|--|
| AT+CHAR?      | OK+Get:[para] | para: 0x0001~0xFFFFE<br><br>Default: 0x FFE1 |
| AT+CHAR[para] | OK+Set:[para] |  |

Added since V518 version. Need to re-power module.

e.g.

Change characteristic value to 0xAAA0

Send: AT+CHAR0xAAA0

Receive: OK+Set:0xAAA0

## 27. Query/Set iBeacon deploy mode

| Send     | Receive                                       | Parameter   |
|----------|---|---|
| AT+DISC? | OK+DISCS<br>OK+DIS[para1]:[para2]<br>OK+DISCE | para1: C; 0~2<br>C: Common String<br>0~2: Address type<br>para2: S, E, [MAC String]<br>S: Start discovery<br>E: End discovery<br>MAC String:<br>Device MAC String |

NOTE: Module must set AT+ROLE1, AT+IMME1 first.

e.g

Send: AT+DISC?

Receive: OK+DISCS

Receive: OK+DIS[para1]: 123456789012(discovered device address information)

If AT+SHOW1 is setup, you will receive name information as follows:

Receive: OK+NAME: XXX

After send name value, will send 2 extra “\r\n” value ASCII byte.

Receive: OK+NAME: XXX

After send name value, will send 2 extra “\r\n” value ASCII byte.

.....(Before V535, max results is 6; since V535, no limit)

Receive: OK+DISCE

Connect use array index:

Connect to a discovered device: AT+CONN0.....AT+CONN5

Connect use MAC String:

AT+CON[MAC String]

### 28. Start a iBeacon device discovery scan

| Send     | Receive   | Parameter   |
|----------|---|---|
| AT+DISI? | OK+DISCS<br>OK+DISC: [p1:p2:p3:p4:p5]<br>OK+DISCE | p1: Factory ID<br>p2: iBeacon ID<br>p3: Major Value<br>Minor Value<br>Measured Power<br>p4: MAC<br>p5: RSSI |

Added since V309 version.

NOTE: Must set AT+ROLE1 and AT+IMME1 first.

p1 length is 8; p2 length is 32; p3 length is 10; p4 length is 12; p5 length is 4.

p3: Major Value(length 4); Minor Value(length 4); Measured Power(length 2).

If device not enable iBeacon function, p1, p2, p3 will fill with '0'.

### 29. Query/Set iBeacon deploy mode

| Send          | Receive       | Parameter  |
|---------------|---------------|--|
| AT+DELO[para] | OK+DELO[para] | para:1~2<br>1: Allowed to broadcast and scanning<br>2: Only allowed to broadcast<br>Default: 0 |

Added since V521 version to replace AT+BUSHU command.



### 30. Remove bond information

| Send     | Receive  | Parameter |
|----------|----------|-----------|
| AT+ERASE | OK+ERASE | None      |

Added since V524 version.

### 31. Query/Set advertising data flag byte

| Send          | Receive       | Parameter             |
|---------------|---------------|-----------------------|
| AT+FLAG[para] | OK+Set:[para] | Para: 00~FF(one byte) |

Added since V530 version. Please refer to AT+BATT?

### 32. Query/Set filter of HM modules

| Send          | Receive        | Parameter   |
|---------------|----------------|---|
| AT+FILT?      | OK+ Get:[para] | para: 0, 1  |
| AT+FILT[para] | OK+ Set:[para] | 1: Only find HM Modules<br>0: Will find all BLE modules<br>Default: 1 |

Removed since V530 version.

### 33. Query/Set module RX gain

| Send          | Receive       | Parameter                                      |
|---------------|---------------|--|
| AT+GAIN?      | OK+Get:[para] | para: 0, 1                                     |
| AT+GAIN[para] | OK+Set:[para] | 0: No RX gain<br>1: Open RX gain<br>Default: 0 |

Added since V535 version.

### 34. Query/Set flow control switch

| Send          | Receive       | Parameter  |
|---------------|---------------|------------|
| AT+FLOW?      | OK+Get:[para] | para: 0, 1 |
| AT+FLOW[para] | OK+Set:[para] |            |

|  |  |                               |
|--|--|-------------------------------|
|  |  | 0: Off<br>1: On<br>Default: 0 |
|--|--|-------------------------------|

### 35. System Help Information

| Send     | Receive          | Parameter |
|----------|------------------|-----------|
| AT+HELP? | Help Information | None      |

### 36. Query/Set Module work type

| Send          | Receive       | Parameter   |
|---------------|---------------|---|
| AT+IMME?      | OK+Get:[para] | para: 0, 1<br>1: When module is powered on, only respond the AT Command, don't do anything until AT + START is received, or can use AT+CON,AT+CONNL<br>0: When power on, work immediately<br>Default: 0 |
| AT+IMME[para] | OK+Set:[para] |   |

NOTE: Only used for central role. Need to re-power module.

### 37. Query/Set Module iBeacon switch

| Send          | Receive       | Parameter   |
|---------------|---------------|---|
| AT+IBEA?      | OK+Get:[para] | para: 0, 1<br>0: Turn off iBeacon<br>1: Turn on iBeacon<br>Default: 0 |
| AT+IBEA[para] | OK+Set:[para] |   |

Added since V517 version.

iBeacon UUID is: 74278BDA-B644-4520-8F0C-720EAF059935. Works only in peripheral role.

### 38. Query/Set iBeacon UUID

| Send          | Receive       | Parameter                        |
|---------------|---------------|----------------------------------|
| AT+IBE0?      | OK+Get:[para] | para: 0x00000001~                |
| AT+IBE0[para] | OK+Set:[para] | 0xFFFFFFFFE<br>Default: 74278BDA |

Added since V520 version.

iBeacon UUID is: **74278BDA-B644-4520-8F0C-720E**AF059935.

This command can change red color string in iBeacon UUID.

e.g.

Send: AT+IBE012345678

Change iBeacon UUID red color string to "12345678".

### 39. Query/Set iBeacon UUID

| Send          | Receive       | Parameter                        |
|---------------|---------------|----------------------------------|
| AT+IBE1?      | OK+Get:[para] | para: 0x00000001~                |
| AT+IBE1[para] | OK+Set:[para] | 0xFFFFFFFFE<br>Default: B6444520 |

Added since V520 version.

iBeacon UU ID is: **74278BDA-B644-4520-8F0C-720E**AF059935.

This command can change green color string in iBeacon UUID.

e.g.

Send: AT+IBE112345678

Change iBeacon UUID green color string to "12345678".

### 40. Query/Set iBeacon UUID

| Send          | Receive       | Parameter                        |
|---------------|---------------|----------------------------------|
| AT+IBE2?      | OK+Get:[para] | para: 0x00000001~                |
| AT+IBE2[para] | OK+Set:[para] | 0xFFFFFFFFE<br>Default: 8F0C720E |

Added since V520 version.

iBeacon UU ID is: **74278BDA-B644-4520-8F0C-720E**AF059935.

This command can change blue color string in iBeacon UUID.

e.g.

Send: AT+IBE112345678

Change iBeacon UUID blue color string to "12345678".

#### 41. Query/Set iBeacon UUID

| Send          | Receive       | Parameter   |
|---------------|---------------|---|
| AT+IBE3?      | OK+Get:[para] | para: 0x00000001~<br><br>0xFFFFFFFFE<br><br>Default: AF059935 |
| AT+IBE3[para] | OK+Set:[para] |   |

Added since V520 version.

iBeacon UU ID is: **74278BDA-B644-4520-8F0C-720E**AF059935.

This command can change black color string in iBeacon UUID.

e.g.

Send: AT+IBE112345678

Change iBeacon UUID black color string to "12345678".

#### 42. Query/Set Module iBeacon Marjor version

| Send          | Receive       | Parameter                                     |
|---------------|---------------|---|
| AT+MARJ?      | OK+Get:[para] | para: 0x0001~ 0xFFFFE<br><br>Default: 0x FFE0 |
| AT+MARJ[para] | OK+Set:[para] |   |

Added since V517 version.

e.g.

Set Marjor to 0x0102

Send: AT+MARJ0x0102

If all is okay, module will send back OK+Set:0x0102

#### 43. Query/Set Module iBeacon minor

| Send          | Receive       | Parameter                                   |
|---------------|---------------|---|
| AT+MINO?      | OK+Get:[para] | para: 0x0001~0xFFFE<br><br>Default: 0x FFE1 |
| AT+MINO[para] | OK+Set:[para] |   |

Added since V517 version.

e.g.

Set Minor to 0x0102

Send: AT+MINO0x0102

If all is okay, module will send back OK+Set:0x0102

#### 44. Query/Set Module iBeacon Measured power

| Send         | Receive       | Parameter                            |
|--------------|---------------|--------------------------------------|
| AT+MEA??     | OK+Get:[para] | para: 0x00~0xFF<br><br>Default: 0xC5 |
| AT+MEA[para] | OK+Set:[para] |                                      |

Added since V519 version.

#### 45. Query/Set Module Work Mode

| Send          | Receive       | Parameter  |
|---------------|---------------|--|
| AT+MODE?      | OK+Get:[para] | para: 0, 1, 2<br><br>0: Transmission Mode<br><br>1: Transmission Mode +<br>PIO Collection Mode<br><br>2: Transmission Mode +<br>Remote Control<br><br>Default: 0 |
| AT+MODE[para] | OK+Set:[para] |  |

Mode 0:

Before establishing a connection, you can use the AT command configuration module through UART.

After established a connection, you can send data to remote side from each other.

Mode 1:

Before establishing a connection, you can use the AT command configuration module through UART.

After established a connection, you can send data to remote side. Remote side can do fellows:

- A. Send AT command configuration module.
- B. Collect PIO04 to the PIO11 pins input state of HM-10.
- C. Collect PIO03 pins input state of HM-11.
- D. Remote control PIO2, PIO3 pins output state of HM-10.
- E. Remote control PIO2 pin output state of HM-11.
- F. Send data to module UART port (not include any AT command and per package must less than 20 bytes).

Mode 2:

Before establishing a connection, you can use the AT command configuration module through UART.

After established a connection, you can send data to remote side. Remote side can do fellows:

- A. Send AT command configuration module.
- B. Remote control PIO2 to PIO11 pins output state of HM-10.
- C. Remote control PIO2, PIO3 pins output state of HM-11.
- D. Send data to module UART port (not include any AT command and per package must less than 20 bytes).

#### 46. Query/Set Notify information

| Send          | Receive       | Parameter                                   |
|---------------|---------------|---|
| AT+NOTI?      | OK+Get:[para] | para: 0, 1                                  |
| AT+NOTI[para] | OK+Set:[para] | 0: Don' t Notify<br>1: Notify<br>Default: 0 |

If this value is set to 1, when link ESTABLISHED or LOSTED, module will send OK+CONN or OK+LOST string through UART.

#### 47. Query/Set Notify mode

| Send          | Receive       | Parameter   |
|---------------|---------------|---|
| AT+NOTP?      | OK+Get:[para] | para:0, 1   |
| AT+NOTP[para] | OK+Set:[para] | 0: Without address<br>1: With address<br>Default: 0 |

Added since V534 version.

If this value is set to 1, when module is connected to remote device, UART will send "OK+CONN:001122334455", "001122334455" is central role's mac address.

#### 48. Query/Set Module name

| Send          | Receive       | Parameter   |
|---------------|---------------|---|
| AT+NAME?      | OK+NAME[para] | para: module name, Max length is 11.<br><br>Default: HMSoft |
| AT+NAME[para] | OK+Set[para]  |   |

e.g.

Change module name to bill\_gates

Send: AT+NAMEbill\_gates

Receive: OK+Set:bill\_gates

#### 49. Query/Set Parity bit

| Send               | Receive       | Parameter  |
|--------------------|---------------|--|
| Query: AT+PARI?    | OK+Get:[para] | None   |
| Set: AT+PARI[para] | OK+Set:[para] | para: 0,1,2<br><br>0:None<br><br>1:EVEN<br><br>2:ODD<br><br>Default: 0 |

Need to re-power module.

#### 50. Query/Set PIO output driver power

| Send           | Receive       | Parameter   |
|----------------|---------------|---|
| AT+PCTL?       | OK+Get:[para] | None  |
| AT+ PCTL[para] | OK+Set:[para] | para: 0, 1<br><br>0: Normal power output<br><br>1: Max power output<br><br>Default: 1 |

Added since V527 version. Need to re-power module.

**51. Query/Set PIO1 output status (System LED)**

| Send           | Receive       | Parameter  |
|----------------|---------------|--|
| AT+PIO1?       | OK+Get:[para] | para: 0, 1   |
| AT+ PIO1[para] | OK+Set:[para] | 0: Unconnected Output<br>500ms High 500ms<br>Low,Connected output<br>High.<br><br>1: Unconnected output Low,<br>Connected output High.<br><br>Default: 0 |

Need to re-power module.

**52. Query/Set PIO pins output high or low (Only this time, when module next power on, this value is not be used)**

| Send                 | Receive               | Parameter   |
|----------------------|-----------------------|---|
| AT+PIO[para1]?       | OK+PIO[para1]:[para2] | para1: 2~B  |
| AT+PIO[para1][para2] | OK+PIO[para1]:[para2] | para2: 0, 1<br><br>HM-11 only has 4 pins.<br><br>para1 is which PIO<br>pin you want to Query/Set<br><br>Value: 2~B.<br><br>para2 is Query/Set<br>value.<br><br>0 is low and 1 is high |

e.g.

Query PIO2

Send: AT+PIO2?

Set PIO2 output high level



Send: AT+PIO21

Receive: OK+PIO2:1

HM-10 HMSensor version: para1 is 2~A

HM-10 HMSoft version: para1 is 2~B

V525 version added PIO2 with PWM function, para2 is 0~9.

0: Output low level

1: Output high level

2: Output 100ms PWM

.....

9: Output 800ms PWM

V527 version added AT+PIO?? to query all pins output state.

### 53. Query/Set Pin Code

| Send           | Receive       | Parameter             |
|----------------|---------------|-----------------------|
| AT+PASS?       | OK+Get:[para] | para :000000~999999 . |
| AT+ PASS[para] | OK+Set:[para] | Default: 000000       |

e.g.

Query Pin Code

Send: AT+ PASS?

Receive: OK+Get:000000

Setup Pin Code to 008888

Send: AT+PASS008888

Receive: OK+Set:008888

### 54. Query/Set Module sleep type

| Send          | Receive       | Parameter   |
|---------------|---------------|---|
| AT+PWRM?      | OK+Get:[para] | None  |
| AT+PWRM[para] | OK+Set:[para] | para: 0~1<br><br>0: Auto sleep<br><br>1: Don't auto sleep |

|  |  |            |
|--|--|------------|
|  |  | Default: 1 |
|--|--|------------|

Only support peripheral role.

### 55. Query/Set Module Power

| Send           | Receive       | Parameter  |
|----------------|---------------|--|
| AT+POWE?       | OK+Get:[para] | None   |
| AT+POWE [para] | OK+Set:[para] | para: 0 ~ 3<br>0: -23dbm<br>1: -6dbm<br>2: 0dbm<br>3: 6dbm<br>Default: 2 |

### 56. Query/Set reliable advertising mode

| Send          | Receive       | Parameter  |
|---------------|---------------|--|
| AT+RELI?      | OK+Get:[para] | None   |
| AT+RELI[para] | OK+Set:[para] | para: 0, 1<br>0: Normal advertising<br>1: Reliable advertising |

Added since V530 version.

### 57. Query/Set Module Sensor collection rate

| Send         | Receive       | Parameter                         |
|--------------|---------------|-----------------------------------|
| AT+RAT??     | OK+Get:[para] | para: 00~99                       |
| AT+RAT[para] | OK+Set:[para] | Unit: minute<br>Default: 1 minute |

Note: Only use for HMSensor

**58. Restore all setup value to factory setup**

| Send     | Receive  | Parameter |
|----------|----------|-----------|
| AT+RENEW | OK+RENEW | None .    |

**59. Restart module**

| Send     | Receive  | Parameter |
|----------|----------|-----------|
| AT+RESET | OK+RESET | None      |

**60. Query/Set Master and Slaver Role**

| Send          | Receive       | Parameter                                 |
|---------------|---------------|---|
| AT+ROLE?      | OK+Get:[para] | para: 0, 1                                |
| AT+ROLE[para] | OK+Set:[para] | 0: Peripheral<br>1: Central<br>Default: 0 |

**61. Query RSSI Value**

| Send     | Receive        | Parameter |
|----------|----------------|-----------|
| AT+RSSI? | OK+RSSI:[para] | None      |

Must setup AT+MODE1 or AT+MODE2. This command only used by Remote device query when connected.

**62. Query Last Connected Device Address**

| Send     | Receive             | Parameter |
|----------|---------------------|-----------|
| AT+RADD? | OK+RADD:MAC Address | None      |

**63. Query/Set discovery parameter**

| Send          | Receive       | Parameter  |
|---------------|---------------|--|
| AT+SHOW?      | OK+Get:[para] | None   |
| AT+SHOW[para] | OK+Set:[para] | Para: 0, 1<br>0: Don't show name<br>1: Show name |

|  |  |            |
|--|--|------------|
|  |  | Default: 0 |
|--|--|------------|

Added since V521 version. Please execute AT+FILT0 first.

#### 64. Query/Set sensor type on module PIO11(HM- 11 is PIO3)

| Send          | Receive       | Parameter                                       |
|---------------|---------------|---|
| AT+SENS?      | OK+Get:[para] | para: 0, 1, 2                                   |
| AT+SENS[para] | OK+Set:[para] | 0: None<br>1: DHT11<br>2: DS18B20<br>Default: 0 |

Note: This command is only used for HMSensor.

#### 65. Query/Set Stop bit

| Send          | Receive       | Parameter   |
|---------------|---------------|---|
| AT+STOP?      | OK+Get:[para] | None  |
| AT+STOP[para] | OK+Set:[para] | para:0, 1<br>0: One stop bit<br>1: Two stop bit<br>Default: 0 |

Need to re-power module.

#### 66. Work immediately

| Send     | Receive  | Parameter |
|----------|----------|-----------|
| AT+START | OK+START | None      |

This command is only used when AT+IMME1 is setup.

#### 67. Query Module into sleep mode

| Send     | Receive  | Parameter |
|----------|----------|-----------|
| AT+SLEEP | OK+SLEEP | None      |

Only support Peripheral role.

### 68. Query/Set Module save connected address parameter

| Send          | Receive       | Parameter  |
|---------------|---------------|--|
| AT+SAVE?      | OK+Get:[para] | None   |
| AT+SAVE[para] | OK+Set:[para] | para: 0~1<br><br>0: Save when connected<br><br>1: Don't Save<br><br>Default: 0 |

### 69. Query/Set module connect remote device timeout value

| Send          | Receive        | Parameter                       |
|---------------|----------------|---------------------------------|
| AT+TCON?      | OK+TCON:[para] | None                            |
| AT+TCON[para] | OK+Set:[para]  | para: 000000~009999<br>Unit: ms |

This value is only used for central role. When module has last connected address, it will try to connect to this address automatically after power on, once beyond the value you set, module starts to scanning devices, 000000 means keep trying to connect. The value should not be too small.

### 70. Query/Set Module Sensor Temperature and humidity(if has a sensor)

| Send     | Receive               | Parameter                            |
|----------|-----------------------|--------------------------------------|
| AT+TEHU? | OK+Get:[para1][para2] | para1: 000~120<br><br>para2: 000~100 |

Note: This command is use for HMSensor.

This value is added into scan response data package.

Dataformat is 0x02, 0x17, 0x18, 0xB7, [reserved], [temperature], [humidity], [battery], you can add this into your program.

### 71. Query DS18B20 Sensor or IC temperature

| Send     | Receive       | Parameter     |
|----------|---------------|---------------|
| AT+TEMP? | OK+Get:[para] | para: 000.000 |

Note: 1. If not setup AT+SENS value, it will get IC temperature.

2. Added in V523 version, modified in V526 version.

## 72. Query/Set Module Bond Mode

| Send          | Receive       | Parameter   |
|---------------|---------------|---|
| AT+TYPE?      | OK+Get:[para] | None  |
| AT+TYPE[para] | OK+Set:[para] | para: 0~2<br><br>0: Not need PIN Code<br><br>1: Pair not need PIN<br><br>2: Pair with PIN<br><br>3: Pair and bond<br><br>Default: 0 |

NOTE: If your module version is less than V515, please don't use this command. Under android 4.3 AT+TYPE1 is same as AT+TYPE2. TYPE3 is added in V524 version.

## 73. Query/Set service UUID

| Send          | Receive       | Parameter                                  |
|---------------|---------------|--|
| AT+UUID?      | OK+Get:[para] | Para: 0x0001~0xFFFE<br><br>Default: 0xFFE0 |
| AT+UUID[para] | OK+Set:[para] |  |

Added since V518 version. Need to re-power module.

e.g.

Change UUID value to 0xAAA0

Send: AT+UUID0xAAA0

Receive: OK+Set:0xAAA0

## 74. Query/Set UART sleep type

| Send          | Receive       | Parameter   |
|---------------|---------------|---|
| AT+UART?      | OK+Get:[para] | para: 0, 1<br><br>0: When module goes into sleep mode, you can wake up module through UART.<br><br>1: When module goes into |
| AT+UART[para] | OK+Set:[para] |   |

|  |  |   |
|--|--|---|
|  |  | sleep mode, shutdown<br>UART too.<br><br>Default: 1 |
|--|--|---|

Note: Only use for HMSensor.

Added since V518 version

### 75. Query Software Version

| Send     | Receive             | Parameter |
|----------|---------------------|-----------|
| AT+VERR? | Version Information | None      |
| AT+VERS? |                     |           |