

HM-10/HM-11 DataSheet

If you have any questions, please contact us: dsdtech@163.com

1. Product Parameters

- BT Version: Bluetooth Specification V4.0 BLE
- Working frequency: 2.4GHz ISM band
- Modulation method: GFSK(Gaussian Frequency Shift Keying)
- RF Power: -23dbm, -6dbm, 0dbm, 6dbm
- Speed: Asynchronous: 2-6K Bytes
Synchronous: 2-6K Bytes
- Security: Authentication and encryption
- Service: 0xFFE0 (Modifiable use AT+UUID command)
- Characteristic: 0xFFE1 (Modifiable use AT+UUID command)
- Characteristic: Notify and Write (Modifiable use AT+UUID command)
- Power: +2.5V~3.3VDC 50mA
- Power: Active state 8.5mA; Sleep state 50~200uA
- Working temperature:-20 ~ +95 Centigrade
- Size: HM-10 27mm x 13mm x 2.2 mm
- Size: HM-11 18mm x 13mm x 2.2mm
- Size: HM-15 65mm x 32mm x 16mm

2. Product overview

First of all, Thank you for choose our Bluetooth products.

HM Bluetooth modules use CSR or TI CC254x or cypress chips, Master and slave roles in one, data transmission version and remote control version and PIO status acquisition version in one, Support the AT commands modify module parameters, Convenient and flexible.

Data Transmission version:

Before connect:

You can configure module parameters with AT Commands through UART

After connect:

1) Send and receive Bluetooth data through UART.

Remote Control version:

Before connect:

You can configure module parameters with AT Commands through

UART After connect:

1) Send and receive Bluetooth data through UART.

2) Remote device could configure module parameters with AT Commands

3) Remote device could control PIO2~PIO11 output low or high

PIO acquisition version:

Before connect

You can configure module parameters with AT Commands

After connect

1) Send and receive Bluetooth data through UART.

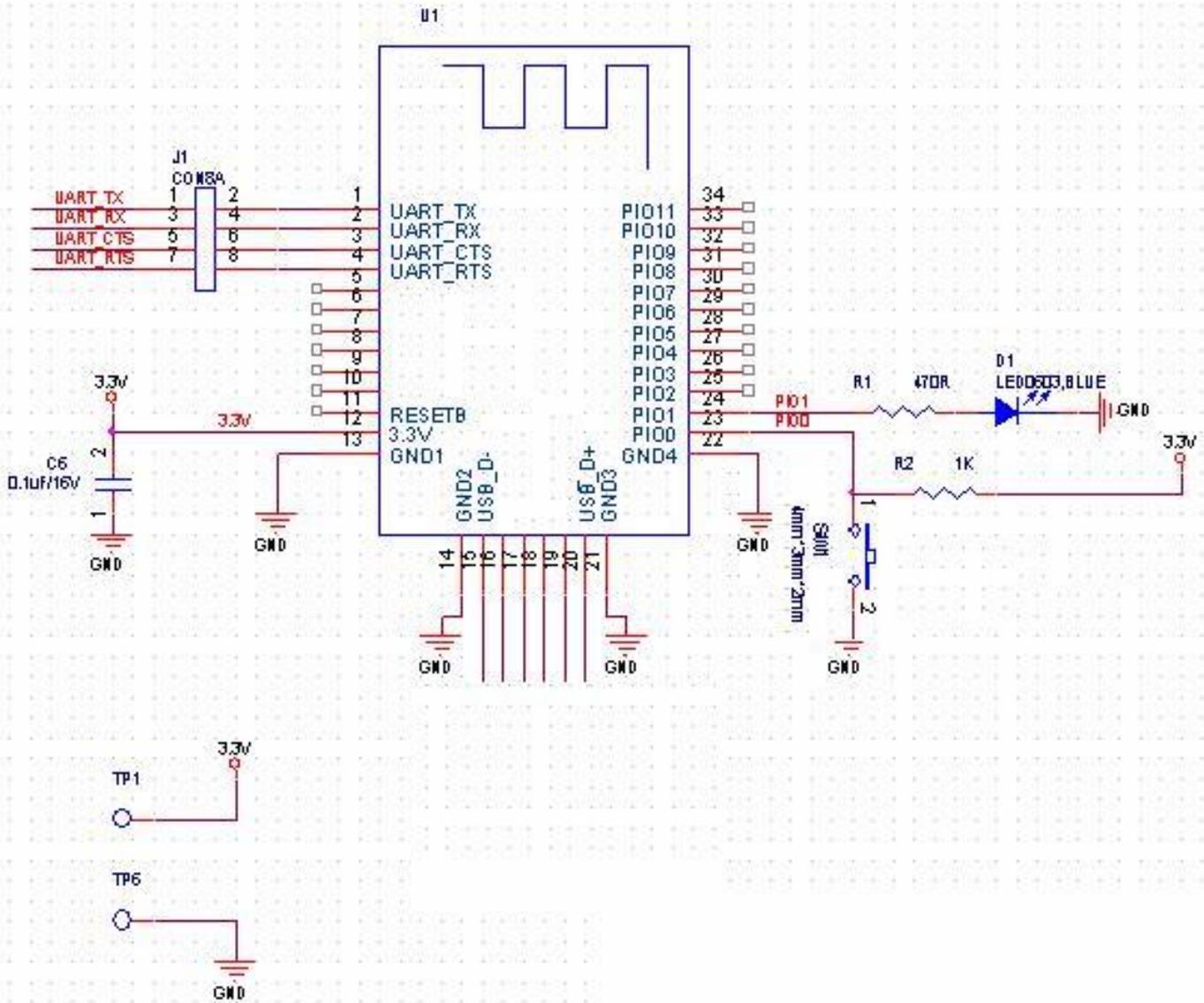
2) Remote device could configure module parameters with AT Commands

3) Remote device could control PIO2, 3 output low or high with AT Commands

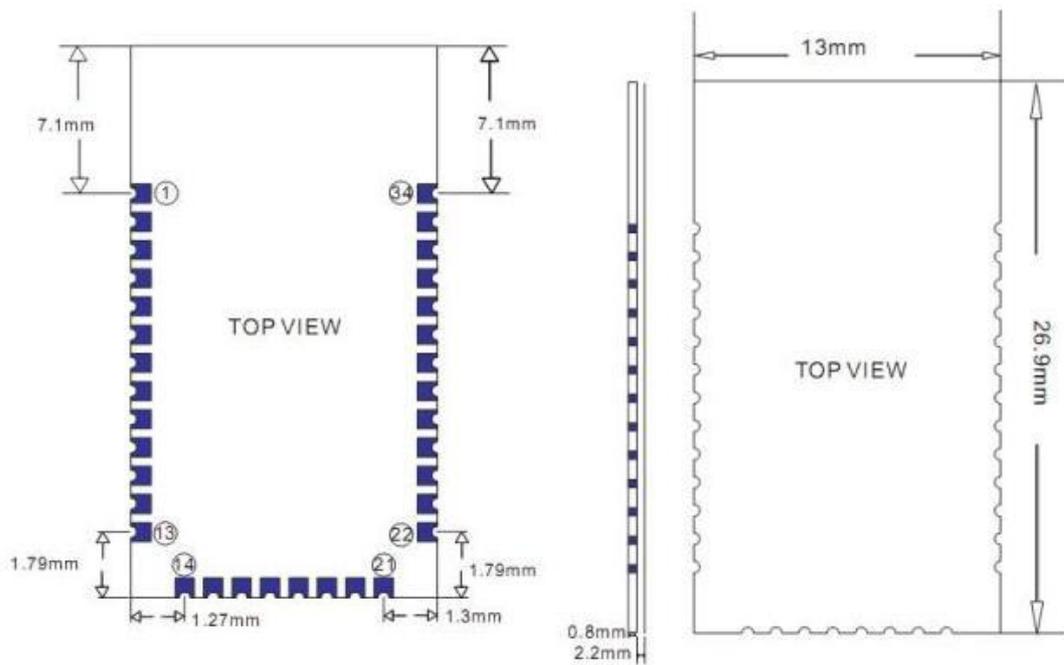
HM-11 has no this function

4) Remote device could get PIO4 ~ 11 input status with AT Commands

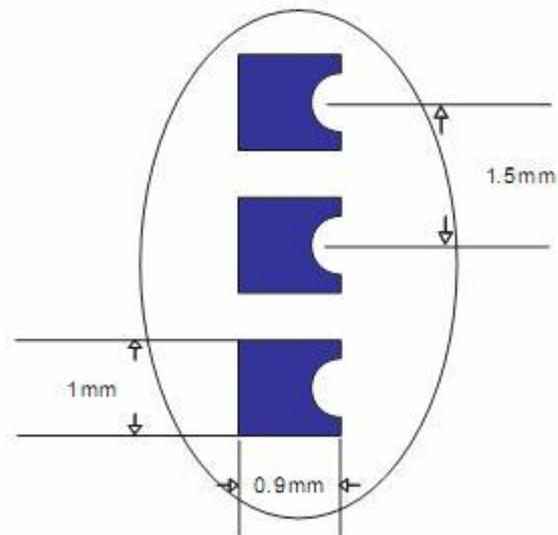
HM-11 only has PIO2 and PIO3.



6.2 HM-10 Size



6.3 HM-10 package information



6.4 HM-10 Device Terminal Functions

| HM-10S | HM-10C | Name | Description | CC254X |
|--------|--------|----------|----------------|--------|
| 1 | 1 | UART_TX | UART interface | P1_6 |
| 2 | 2 | UART_RX | UART interface | P1_7 |
| 3 | 3 | UART_CTS | UART interface | P1_4 |

| | | | | |
|----|----|----------|---|-------|
| 4 | 4 | UART_RTS | UART interface | P1_5 |
| 5 | 5 | NC | NC | |
| 6 | 6 | NC | NC | |
| 7 | 7 | NC | NC | P2_2 |
| 8 | 8 | NC | NC | P2_1 |
| 9 | 9 | NC | NC | P2_0 |
| 10 | 10 | NC | NC | |
| 11 | 11 | RESETB | Reset if low >100ms. | RESET |
| 12 | 12 | VCC | 3.3V | |
| 13 | 13 | GND | Ground | |
| 14 | X | GND | Ground HM-10C doesn't have this pin | |
| 15 | X | USB_D- | USB interface HM-10C doesn't have this pin | PIN3 |
| 16 | X | NC | NC HM-10C doesn't have this pin | |
| 17 | X | NC | NC HM-10C doesn't have this pin | |
| 18 | X | NC | NC HM-10C doesn't have this pin | |
| 19 | X | NC | NC HM-10C doesn't have this pin | |
| 20 | X | UB_D+ | USB interface HM-10C doesn't have this pin | PIN2 |
| 21 | X | GND | Ground HM-10C doesn't have this pin | GND |
| 22 | 22 | GND | Ground | GND |
| 23 | 23 | PIO0 | System Key | P1_3 |
| 24 | 24 | PIO1 | System LED | P1_2 |

| | | | | |
|----|----|-------|--|------|
| 25 | 25 | PIO2 | input/output pin. PWM output | P1_1 |
| 26 | 26 | PIO3 | input/output pin/ADC | P1_0 |
| 27 | 27 | PIO4 | input/output pin/ADC | P0_7 |
| 28 | 28 | PIO5 | input/output pin/ADC | P0_6 |
| 29 | 29 | PIO6 | input/output pin/ADC | P0_5 |
| 30 | 30 | PIO7 | input/output pin/ADC | P0_4 |
| 31 | 31 | PIO8 | input/output pin/ADC | P0_3 |
| 32 | 32 | PIO9 | input/output pin/ADC | P0_2 |
| 33 | 33 | PIO10 | input/output pin/ADC | P0_1 |
| 34 | 34 | PIO11 | input/output pin/ ADC/DS18B20/DHT11 | P0_0 |

. System function

How to wake up module from sleep mode?

There are two ways to wake up module from sleep mode, if module was in sleep mode..

7.1 Send "I am iron man, I am iron man, I am iron man I am iron....." string.

Yes, that's a joke, 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 from UART. Note: That wake up string is better not include any AT commands.

7.2 Long press system KEY ≥ 1000 ms.

After wake up module, you can send and receive AT commands.

How to let module into sleep mode?

1. Send "AT+SLEEP" string through UART, if all is okay, module will return

- “OK+SLEEP” string and into sleep mode.
2. Execute “AT+PWRM1” command, Module will auto into sleep mode when power on or disconnect from remote device.

System advert packet

In iOS system you can't get model MAC address directly. So we put MAC address information into advert packet.

You can use CBAvertisementDataManufactureDataKey property to get it, MAC address information string format like follow:

Total length is 8 Bytes, First of two bytes is identify string, it always is 0x48 and 0x4D, the rest 6 bytes is MAC address string

For example: 0x48, 0x4D, 0xB4, 0x99, 0x4C, 0xXX, 0xXX, 0xXX

0x48 and 0x4D is “HM” string.

0xB4: 0x99: 0x4C: 0xXX: 0xXX: 0xXX is BLE MAC Address.

System KEY function (PIO0)

Press if Low > 1000ms:

7.3.1 If Module is in sleep mode

Module will wake up immediately, if AT+NOTI value is “1”, module will send “OK+WAKE” string through UART.

7.3.2 If Module has already connected to remote device

Module will disconnect from remote device.

7.3.3 If Module is standby mode

Module will reset to default configuration. Then restart.

System LED function (PIO1)

In sleep mode, LED has turned off.

If AT+PIO10 is setup

Unconnected status: Output High 500 ms, Low 500 ms

Connected status: Output High

If AT+PIO11 is setup

Unconnected status: Output Low.

Connected status: Output High.

System work Mode

A) Mode 0(Transmission mode):

Before connect, you can configure module parameters with AT Commands

After connect, you can send and receive Bluetooth data through UART.

B) Mode 1(PIO acquisition mode):

Before connect, you can configure module parameters with AT

Commands After connect

- 1) Send and receive Bluetooth data through UART.
- 2) Remote device could configure module parameters with AT Commands
- 3) Remote device could control PIO2 and PIO3 output low or high with AT

Commands

HM-11 has no this function

- 4) Remote device could get PIO4 ~ 11 input status with AT Commands

HM-11 only has PIO2 and PIO3.

C) Mode 2 (Remote control mode):

Before connect, you can configure module parameters with AT Commands

After connect:

- 1) Send and receive Bluetooth data through UART.
- 2) Remote device could configure module parameters with AT Commands
- 3) Remote device could control PIO2~11 output low or high

HM-11 only has PIO2 and PIO3.

8 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 or Disconnect Command

| Send | Receive | Parameter |
|------|---------------|-----------|
| AT | OK 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 module address

| Send | Receive | Parameter |
|-------------|-------------|---|
| AT+ADC[P1]? | OK+GET:0.00 | P1: 3,4,5,6,7,8,9,A,B map to PIO3~PIOB |

HM-11 has no this function.

Add since V526.

3. Query module address

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

3. Query/Set Advertising interval

| Send | Receive | Parameter |
|-------------|--------------|---|
| AT+ADVI? | OK+ Get:[P1] | None |
| AT+ADVI[P1] | OK+ Set:[P1] | P1: 0 ~ F 0: 100ms 1: 152.5 ms 2: 211.25 ms 3: 318.75 ms 4: 417.5 ms 5: 546.25 ms 6: 760 ms 7: 852.5 ms 8: 1022.5 ms 9: 1285 ms |

| | | |
|--|--|--|
| | | A: 2000ms B: 3000ms C: 4000ms D: 5000ms E: 6000ms F: 7000ms Default: 9 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.

This command is added since V517 version.

V522 allow max value F.

4. Query/Set Advertising Type

| Send | Receive | Parameter |
|-------------|--------------|--|
| AT+ADTY? | OK+ Get:[P1] | None |
| AT+ADTY[P1] | OK+ Set:[P1] | P1: 0 ~ 3 0: Advertising ScanResponse, Connectable 1: Only allow last device connect in 1.28 seconds 2: Only allow Advertising and ScanResponse. 3: Only allow Advertising Default: 0 |

Added since V519

5. Query/Set ANCS switch

| Send | Receive | Parameter |
|-------------|--------------|--|
| AT+ANCS? | OK+ Get:[P1] | None |
| AT+ANCS[P1] | OK+ Set:[P1] | P1: 0 ~ 1 0: Off 1: On Default: 0 |

Note1: This command added in V524.

Note2: Please send AT+RESET to restart module if you set value 1.

Note3: Must execute AT+TYPE3 first.

6. Query/Set white list switch

| Send | Receive | Parameter |
|-------------|--------------|--|
| AT+ALLO? | OK+ Get:[P1] | None |
| AT+ALLO[P1] | OK+ Set:[P1] | P1: 0 ~ 1 0: Off 1: On Default: 0 |

Note1: This command added in V523.

Note2: White List allows three MAC address link to module. Please use AT+AD command set white list MAC address.

7. Query/Set white list MAC address

| Send | Receive | Parameter |
|-----------------|--------------|---|
| AT+AD[P1]?? | OK+ Get:[P2] | None |
| AT+ALLO[P1][P2] | OK+ Set:[P2] | P1: 1, 2, 3 P2: MAC address P1 default: 0 |

Note1: This command added in V523.

E.g.

Send AT+ID1001122334455

Recv OK+Set:001122334455

8. Query/Set Module pin output state, After power supplied

| Send | Receive | Parameter |
|-------------|--------------|------------------------------|
| AT+BEFC? | OK+ Get:[P1] | None |
| AT+BEFC[P1] | OK+ Set:[P1] | P1: 000~ 3FF Default: 000 |

This command added in V527.

3FF == 001111111111, left to right side is map to PIO0~PIOB, PIO0 and Plo1 is used by system. Only Pio2~PIOB pins is available.

e.g. Set PIO2~PIOB all output high after power supplied.

Send: AT+BEFC3FF

Recv:OK+Set:3FF

When next time power on, module PIO2~PIOB will output high. Note:

Query PIO pins current state please use AT+PIO?? Command. Note:

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

9. Query/Set Module pin output state, After connection is established

| Send | Receive | Parameter |
|-------------|--------------|------------------------------|
| AT+AFTC? | OK+ Get:[P1] | None |
| AT+AFTC[P1] | OK+ Set:[P1] | P1: 000~ 3FF Default: 000 |

This command added in V527.

3FF == 001111111111, Left to right side is map to PIO0~PIOB, PIO0 and Plo1 is used by system. Only Pio2~PIOB pins is available.

e.g. Set PIO2~PIOB all output high when connection is established.

Send: AT+AFTC3FF

Recv: OK+Set:3FF

When Bluetooth connection is established, module PIO2~PIOB will output high.

Note: Query PIO pins current state please use "AT+PIO??" command.

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

10. Query/Set battery monitor switch

| Send | Receive | Parameter |
|-------------|--------------|--|
| AT+BATC? | OK+ Get:[P1] | None |
| AT+BATC[P1] | OK+ Set:[P1] | P1: 0 ~ 1 0: Off 1: On Default: 0 |

This command added in V520

11. Query battery information

| Send | Receive | Parameter |
|----------|--------------|-------------|
| AT+BATT? | OK+BATT:[P1] | P1: 000~100 |

There has three ways to get battery information:

- a. Before establishing a connection, Send “AT+BATT?” through UART.
- b. After established a connection, In Mode 1 or 2, remote side send “AT+BATT?”

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 0x02, 0x16, 0x00, 0xB0, [FLAG], [temperature], [humidity], [battery].

Android:

Included in OnLeScan function result array, you can see it direct.

```
private BluetoothAdapter.LeScanCallback mLeScanCallback = new BluetoothAdapter.LeScanCallback()
{
    @Override
    public void onLeScan(final BluetoothDevice device, int rssi,
        byte[] scanRecord) {
        .....<Other code>.....
        String sBatt = ""; //Battery
        String sTemp = ""; //Temperature
        String sHumi = ""; //Humidity
        for(int i = 0; i < scanRecord.length; i++)
        {
```

```

        if(i + 7 < scanRecord.length)
        {
            //Since V522

            if(scanRecord[i] == 0x07 && scanRecord[i + 1] == 0x16

                && scanRecord[i + 2] == 0x00 && scanRecord[i + 3] == 0xB0)
            {
                if(scanRecord[i + 7] > 0)

                    sBatt = String.valueOf(scanRecord[i + 7]);

                if(scanRecord[i + 5] > 0)

                    sTemp = String.valueOf(scanRecord[i + 5]);

                if(scanRecord[i + 6] > 0)

                    sHumi = String.valueOf(scanRecord[i + 6]);

            }

        }

    }

    .....<Other code>.....

}

};

```

iOS:

- c. Included in LeScan function result NSDictionary struct, service id is 0xB000.

12. Set battery information byte in advertising data

| Send | Receive | Parameter |
|-------------|-------------|----------------------------------|
| AT+BATT[P1] | OK+Set:[P1] | P1: 0x00~0xFF Not include '?' |

This command is used to set battery information byte in advertising data when you doesn't want to use battery function buy want to use as AT+FLAG command.

13. Query/Set Bit format

| Send | Receive | Parameter |
|-------------|-------------|--|
| AT+BIT7? | OK+Get:[P1] | P1: bit7 switch. |
| AT+BIT7[P1] | OK+Set:[P1] | 0-----Not compatible 1-----Compatible 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:[P1] | P1: Baud rate No. |
| AT+BAUD[P1] | OK+Set:[P1] | 0-----9600 1-----19200 2-----38400 3-----57600 4-----115200 5-----4800 6-----2400 7-----1200 8-----230400 Default: 0(9600) |

e.g.

Query baud:

Send: AT+BAUD?

Receive: OK+Get:0

Setup baud:

Send: AT+BAUD1

Receive: OK+Set:1

Note: If setup to Value 7, After next power on, module will not support any AT Commands, until PIO0 is pressed, Module will change Baud to 9600.

15. Query/Set Minimum Link Layer connection interval

| Send | Receive | Parameter |
|-------------|-------------|------------------|
| AT+COMI? | OK+Get:[P1] | P1: 0 ~ 9 |
| AT+COMI[P1] | OK+Set:[P1] | Default: 3(20ms) |

P1 Value: 0: 7.5ms; 1: 10ms; 2: 15ms; 3: 20ms; 4: 25ms; 5: 30ms; 6: 35ms; 7: 40ms;
8: 45ms; 9: 4000ms

Note: This command is added since V538

16. Query/Set Maximum Link Layer connection interval

| Send | Receive | Parameter |
|-------------|-------------|------------------|
| AT+COMA? | OK+Get:[P1] | P1: 0 ~ 9 |
| AT+COMA[P1] | OK+Set:[P1] | Default: 7(40ms) |

P1 Value: 0: 7.5ms; 1: 10ms; 2: 15ms; 3: 20ms; 4: 25ms; 5: 30ms; 6: 35ms; 7: 40ms;
8: 45ms; 9: 4000ms

Note: This command is added since V538

17. Query/Set Link Layer connection slave latency

| Send | Receive | Parameter |
|-------------|-------------|------------|
| AT+COLA? | OK+Get:[P1] | P1: 0 ~ 4 |
| AT+COLA[P1] | OK+Set:[P1] | Default: 0 |

Note: This command is added since V538

18. Query/Set connection supervision timeout

| Send | Receive | Parameter |
|-------------|-------------|--------------------|
| AT+COSU? | OK+Get:[P1] | P1: 0 ~ 6 |
| AT+COSU[P1] | OK+Set:[P1] | Default: 6(6000ms) |

P1 Value: 0: 100ms; 1: 1000ms; 2: 2000ms; 3: 3000ms; 4: 4000ms; 5: 5000ms; 6:
6000ms;

Note: This command is added since V538

19. Query/Set The Switch of update connection Parameter

| Send | Receive | Parameter |
|-------------|-------------|-----------------|
| AT+COUP? | OK+Get:[P1] | P1: 0 ~ 1 |
| AT+COUP[P1] | OK+Set:[P1] | 0: Don't update |

| | | |
|--|--|---------------------------------|
| | | 1: Update Default: 1(update) |
|--|--|---------------------------------|

This command is only use when module is in slave role.

Note: This command is added since V538

20. Query/Set Characteristic

| Send | Receive | Parameter |
|-------------|-------------|-------------------|
| AT+CHAR? | OK+Get:[P1] | P1: 0x0001~0xFFFE |
| AT+CHAR[P1] | OK+Set:[P1] | Default: 0xFFE1 |

e.g. change characteristic value to 0xAAA0

Send: AT+CHAR0xAAA0

Recv: OK+Set:0xAAA0

21. Clear Last Connected device address

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

Notice: Only Central role is used.

22. Try connect to last succeeded device

| Send | Receive | Parameter |
|----------|-------------|---|
| AT+CONNL | OK+CONN[P1] | P1: L, E, F, N L: Connecting E: Connect error F: Connect Fail N: No Address |

Notice: Only Central role is used. Must set up AT+IMME1 and AT+ROLE1 first.

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

23. Try connect an address

| Send | Receive | Parameter |
|---------------|-------------------|-------------------------------------|
| AT+CO[P0][P1] | OK+CO[P0][P0][P2] | P0: N, 0, 1, 2 N: Normal Address |

| | | |
|--|--|--|
| | | 0: Static MAC 1: Static random MAC 2: Random MAC P1: Address Like: 0017EA090909 P2: A, E, F A: Connecting E: Connect error F: Connect Fail |
|--|--|--|

Notice: Only central role is used. Must set up AT+IMME1 and AT+ROLE1 first.
 If remote device has already connected to other device or shut down, "OK+CONN" will received after about 10 Seconds.

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
- OK+CONNF ===== Connect Failed, After 10 seconds

24. Query PIO04~PIO11 input(output) state

| Send | Receive | Parameter |
|----------|--------------|---------------|
| AT+COL?? | OK+ Col:[P1] | P1: 0x00~0xFF |

P1 is a byte, has 8 bits, bit 7 ~ bit 0 is map to the PIO4 ~ PIO11.

This command is added since V515 version.

25. Query/Set PIO collection rate

| Send | Receive | Parameter |
|------------|--------------|---------------|
| AT+CYC?? | OK+ Get:[P1] | P1: 00~99 |
| AT+CYC[P1] | OK+ Set:[P1] | Unit: seconds |

| | | |
|--|--|-------------|
| | | Default: 10 |
|--|--|-------------|

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

This command is added since V515 version.

26. Query/Set The switch of study function

| Send | Receive | Parameter |
|-------------|--------------|---------------------------------------|
| AT+COMP? | OK+ Get:[P1] | P1: 0, 1, ? |
| AT+COMP[P1] | OK+ Set:[P1] | ?: Query; 0: Off; 1: On Default: 0 |

Please reference <How_To_Use_HM-1x_Study_function.pdf>

This command is added since V542 version.

27. Start a device discovery scan

| Send | Receive | Parameter |
|----------|----------------|---|
| AT+DISC? | OK+DIS[P0][P1] | P0: C,0, 1, 2 C: Common string 0~2: Address type P1: S, E, [MAC String] S: Start discovery E: End discovery MAC String : Device MAC string |

Please set AT+ROLE1 and AT+IMME1 first.

e.g.

Send: AT+DISC?

Recv: OK+DISCS

Recv: OK+DIS[P0]:123456789012 (discovered device address information)

If AT+SHOW1 is setup, you will receive then Name information as follow

Recv: OK+NAME: xxx

After send Name value, will send two extra “\r\n” value ASCII byte

Recv: OK+DIS[P0]:234567890123

Recv: OK+NAME: xxx

After send Name value, will send two extra “\r\n” value ASCII byte
(Before V535 max results is 6, Since V535 not limit)

Recv: OK+DISCE

Connect use array index:

Connect to a discovered device: AT+CONN0, AT+CONN1.....AT+CONN5

Connect use MAC string: AT+CON[MAC String]

28. Start a iBeacon device discovery scan

| Send | Receive | Parameter |
|----------|-------------------------|---|
| AT+DISI? | OK+DISC[P0:P1:P2:P3:P4] | P0: Factory ID P1: iBeacon UUID P2: Major Value Minor Value Measured Power P3: MAC P4: RSSI |

Please set AT+ROLE1 and AT+IMME1 first.

e.g.

Send: AT+DISC?

Recv: OK+DISCS (Scan start)

Recv: OK+DIS[P0:P1:P2:P3:P4] (if have one device)

Recv: OK+DIS[P0:P1:P2:P3] (if have two devices)

.....

Recv: OK+DISCE (Scan end)

P0 length is 8; P1 length is 32; P2 length is 10; P3 length is 12, P4 length is 4

P2 include Major Value (length 4);

 Minor Value (length 4);

 Measured Power (length 2)

If the device not enable iBeacon function, P0, P1, P2 will use '0' fill.

Note: Added since V539

29. Connect to an Discovery device

| Send | Receive | Parameter |
|-------------|-------------|--|
| AT+CONN[P1] | OK+CONN[P2] | P1: 0~5 P2: E, F, 0~5 E: Link error F: Link failed 0~5: Try to connect |

This command is use after execute AT+DISC?

This command will clear all discovery data.

30. Query/Set iBeacon deploy mode

| Send | Receive | Parameter |
|-------------|-------------|---|
| AT+DELO[P1] | OK+DELO[P1] | P1: 1, 2 1: Allowed to broadcast and scanning 2: Only allow broadcast |

After receive OK+DELO[P1], module will reset after 500ms.

This command will let module into non-connectable status until next power on.

31. Remove bond information

| Send | Receive | Parameter |
|----------|----------|-----------|
| AT+ERASE | OK+ERASE | |

Note: Added in V524 version.

32. Set advertising data FLAG byte

| Send | Receive | Parameter |
|-------------|--------------|---------------------|
| AT+FLAG[P1] | OK+ Set:[P1] | P1: 0~FF (one byte) |

Note: This command added in V530. Please ref to AT+BATT? Command.

33. Query/Set filter of HM modules

| Send | Receive | Parameter |
|------|---------|-----------|
| | | |

| | | |
|-------------|--------------|---|
| AT+FILT? | OK+ Get:[P1] | P1: 0, 1 |
| AT+FILT[P1] | OK+ Set:[P1] | 0: Will find all BLE modules 1: Only find HM Modules Default: 1 |

Note: This command is removed since V530

34. Query/Set flow control switch

| Send | Receive | Parameter |
|-------------|--------------|-------------------------------|
| AT+FIOW? | OK+ Get:[P1] | P1: 0, 1 |
| AT+FIOW[P1] | OK+ Set:[P1] | 0: Off 1: On Default: 0 |

35. Query/Set module RX gain

| Send | Receive | Parameter |
|-------------|--------------|--|
| AT+GAIN? | OK+ Get:[P1] | P1: 0, 1 |
| AT+GAIN[P1] | OK+ Set:[P1] | 0: No RX gain 1: Open RX gain Default: 0 |

Note: This command is added since V535

36. System Help Information

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

37. Set Humi information byte in advertising data

| Send | Receive | Parameter |
|-------------|-------------|---------------|
| AT+HUMI[P1] | OK+Set:[P1] | P1: 0x00~0xFF |

This command is used to set humi information byte in advertising data when you doesn't want to use humi function buy want to use as AT+FLAG command.

Added in V544

38. Query/Set Module work type

| Send | Receive | Parameter |
|------|---------|-----------|
|------|---------|-----------|

| | | |
|-------------|--------------|--|
| AT+IMME? | OK+ Get:[P1] | P1: 0, 1 |
| AT+IMME[P1] | OK+ Set:[P1] | 1: When module is powered on, only respond the AT Command, don't do anything. Until AT + START, AT+CON, AT+CONNL commands is received. 0: When power on, module will start work immediately Default: 0 |

This command is only used for Central role.

39. Query/Set Module iBeacon switch

| Send | Receive | Parameter |
|-------------|-------------|---|
| AT+IBEA? | OK+Get:[P1] | P1: 0, 1 |
| AT+IBEA[P1] | OK+Set:[P1] | 0: Turn off iBeacon 1: Turn on iBeacon Default: 0 |

iBeacon UUID is: 74278BDA-B644-4520-8F0C-720EAF059935.

This command is added since V517 version.

40. Query/Set iBeacon UUID

| Send | Receive | Parameter |
|-------------|-------------|--------------------------------|
| AT+IBE0? | OK+Get:[P1] | P1: 00000001~ |
| AT+IBE0[P1] | OK+Set:[P1] | FFFFFFFFE Default: 74278BDA |

iBeacon UUID is: **74278BDA**-B644-4520-8F0C-720EAF059935.

This command can change red color string in iBeacon UUID.

This command is added since V520 version.

e.g.: Send: AT+IBE012345678 change iBeacon UUID red color string to "12345678"

41. Query/Set iBeacon UUID

| Send | Receive | Parameter |
|-------------|-------------|-------------------------------|
| AT+IBE1? | OK+Get:[P1] | P1: 00000001~ |
| AT+IBE1[P1] | OK+Set:[P1] | FFFFFFFE Default: B6444520 |

iBeacon UUID is: 74278BDA-B644-4520-8F0C-720EAF059935.

This command can change red color string in iBeacon UUID.

This command is added since V520 version.

e.g.: Send: AT+IBE112345678 change iBeacon UUID red color string to “12345678”

42. Query/Set iBeacon UUID

| Send | Receive | Parameter |
|-------------|-------------|-------------------------------|
| AT+IBE2? | OK+Get:[P1] | P1: 00000001~ |
| AT+IBE2[P1] | OK+Set:[P1] | FFFFFFFE Default: 8F0C720E |

iBeacon UUID is: 74278BDA-B644-4520-8F0C-720EAF059935.

This command can change red color string in iBeacon UUID.

This command is added since V520 version.

e.g.: Send: AT+IBE112345678 change iBeacon UUID red color string to “12345678”

43. Query/Set iBeacon UUID

| Send | Receive | Parameter |
|-------------|-------------|-------------------------------|
| AT+IBE3? | OK+Get:[P1] | P1: 00000001~ |
| AT+IBE3[P1] | OK+Set:[P1] | FFFFFFFE Default: AF059935 |

iBeacon UUID is: 74278BDA-B644-4520-8F0C-720EAF059935.

This command can change red color string in iBeacon UUID.

This command is added since V520 version.

e.g.: Send: AT+IBE112345678 change iBeacon UUID red color string to

“12345678”

44. Query/Set Module iBeacon Major version

| Send | Receive | Parameter |
|-------------|-------------|--------------------|
| AT+MARJ? | OK+Get:[P1] | P1: 0x0001, 0xFFFE |
| AT+MARJ[P1] | OK+Set:[P1] | Default: 0xFFE0 |

E.g. Change major version to 0x0102

Send: AT+MARJ0x0102, if all is okay, module will send back OK+Set:

0x0102 This command is added since V517 version.

45. Query/Set Module iBeacon minor

| Send | Receive | Parameter |
|-------------|-------------|--------------------|
| AT+MINO? | OK+Get:[P1] | P1: 0x0001, 0xFFFE |
| AT+MINO[P1] | OK+Set:[P1] | Default: 0xFFE1 |

This command is added since V517 version.

46. Query/Set Module iBeacon Measured power

| Send | Receive | Parameter |
|-------------|-------------|----------------|
| AT+MEAS? | OK+Get:[P1] | P1: 0x01~ 0xFF |
| AT+MEAS[P1] | OK+Set:[P1] | Default: 0xC5 |

This command is added since V519 version.

47. Query/Set Module Work Mode

| Send | Receive | Parameter |
|-------------|-------------|--|
| AT+MODE? | OK+Get:[P1] | P1: 0, 1, 2 |
| AT+MODE[P1] | OK+Set:[P1] | 0: Transmission Mode 1: PIO collection Mode + Mode 0 2: Remote Control Mode + Mode 0 Default: 0 |

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:

Send AT command configuration module.

Collect PIO04 to the PIO11 pins input state of HM-10.

Collect PIO03 pins input state of HM-11.

Remote control PIO2, PIO3 pins output state of HM-10.

Remote control PIO2 pin output state of HM-11.

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:

Send AT command configuration module.

Remote control PIO2 to PIO11 pins output state of HM-10.

Remote control PIO2, PIO3 pins output state of HM-11.

Send data to module UART port (not include any AT command and per package must less than 20 bytes).

48. Query/Set Notify information

| Send | Receive | Parameter |
|-------------|-------------|-----------------|
| AT+NOTI? | OK+Get:[P1] | P1: 0, 1 |
| AT+NOTI[P1] | OK+Set:[P1] | 0: Don't Notify |

| | | |
|--|--|-------------------------|
| | | 1: Notify 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.

49. Query/Set notify mode

| Send | Receive | Parameter |
|----------------|-------------|---------------------------------------|
| Q: AT+NOTP? | OK+ Get[P1] | P1: 0, 1; default: 0 |
| Q: AT+NOTP[P1] | OK+ Set[P1] | 0: without address 1: with address |

This command must work with “AT+NOTI1”, if this switch is open, when the module connect to disconnect, the prompt string will include the remote address.

OK+CONN:001122334455 String “001122334455” is the MAC address string

Added since V534

50. Query/Set Module name

| Send | Receive | Parameter |
|-------------|-------------|---|
| AT+NAME? | OK+NAME[P1] | P1: module name, Max length is 12. Default: HMSOft |
| AT+NAME[P1] | OK+Set[P1] | |

e.g.

change module name to bill_gates

Send: AT+NAMEbill_gates

Receive: OK+SetName:bill_gates

51. Query/Set output driver power

| Send | Receive | Parameter |
|------------------|-------------|--|
| Query: AT+PCTL? | OK+Get:[P1] | None |
| Set: AT+PCTL[P1] | OK+Set:[P1] | P1: 0,1 0:Normal power output 1:Max power output Default: 1 |

Noted: Added in V527

52. Query/Set Parity bit

| Send | Receive | Parameter |
|------------------|-------------|---|
| Query: AT+PARI? | OK+Get:[P1] | None |
| Set: AT+PARI[P1] | OK+Set:[P1] | P1: 0,1,2 0:None 1:EVEN 2:ODD Default: 0 (None) |

53. Query/Set PIO1 output status (System LED)

| Send | Receive | Parameter |
|---------------|-------------|---|
| AT+PIO1? | OK+Get:[P1] | P1: 0, 1 |
| AT+ PIO1 [P1] | OK+Set:[P1] | 0: Unconnected Output 500ms High 500ms Low, Connected output High. 1: Unconnected output Low, Connected output High. Default: 0 |

54. 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[P1]? | OK+PIO:[P1][P2] | P1: 2~B, ? |
| AT+PIO[P1][P2] | OK+PIO:[P1][P2] | P2: 0, 1, ? HM-11 only has 4 pins. P1 is which PIO pin you want to Query/Set Value: 2,3,4,5,6,7,8,9,A,B. |

| | | |
|--|--|---|
| | | <p>P2 is Query or setup value.</p> <p>“0” is low and “1” is high and “?” is query</p> |
|--|--|---|

e.g.

Query PIO2

Send: AT+PIO2?

Setup PIO2 output high

Send: AT+PIO21

Receive: OK+PIO21

HM-10 HMSensor version: P1 value is 2~A

HM-10 HMSoft version: P1 value is 2~B

HM-11 HMSensor version: P1 value is 2

HM-11 HMSoft version: P1 value is 2, 3

V525 added PIO2 PWM function, P2 value is 0~9

0: output low

1: output high

2: output 100ms PWM

3: output 200ms PWM

.....

9: output 800ms PWM

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

55. Query/Set Pin Code

| Send | Receive | Parameter |
|---------------|-------------|--|
| AT+PASS? | OK+Get:[P1] | P1isPinCode, 000000~999999 Default: 000000 |
| AT+ PASS[P1] | OK+Set:[P1] | |

e.g.

Query Pin Code

Send: AT+PASS?

Receive: OK+PIN:000000

Setup Pin Code 008888

Send: AT+PASS 00 8 888

Receive: OK+Set:008888

56. Query/Set Module Power

| Send | Receive | Parameter |
|---------------|-------------|--|
| AT+POWE? | OK+Get:[P1] | None |
| AT+ POWE [P1] | OK+Set:[P1] | P1: 0 ~ 3 0: -23dbm 1: -6dbm 2: 0dbm 3: 6dbm Default: 2 |

57. Query/Set Module sleep type

| Send | Receive | Parameter |
|-------------|-------------|---|
| AT+PWRM? | OK+Get:[P1] | None |
| AT+PWRM[P1] | OK+Set:[P1] | P1: 0~1 0:Auto sleep 1:don't auto sleep Default: 1 |

Only support peripheral role.

58. Query/Set reliable advertising mode

| Send | Receive | Parameter |
|-------------|--------------|--|
| AT+RELI? | OK+ Get:[P1] | P1: 0, 1 |
| AT+RELI[P1] | OK+ Set:[P1] | 0: Normal advertising 1: Reliable advertising Default: 0 |

Note: This command is added since V530

59. Restore all setup value to factory setup

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

60. Restart module

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

61. Query/Set Master and Slaver Role

| Send | Receive | Parameter |
|-------------|-------------|---|
| AT+ROLE? | OK+Get:[P1] | P1: 0, 1 |
| AT+ROLE[P1] | OK+Set:[P1] | 0: Peripheral 1: Central Default: 0 |

62. Query RSSI Value

| Send | Receive | Parameter |
|----------|--------------|-----------|
| AT+RSSI? | OK+RSSI:[P1] | None |

Require: AT+MODE value > 0

This command only used by Remote device query after connected.

63. Query Last Connected Device Address

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

64. Query/Set Module Sensor work interval

| Send | Receive | Parameter |
|------------|-------------|---|
| AT+RAT?? | OK+Get:[P1] | P1: 00~99 |
| AT+RAT[P1] | OK+Set:[P1] | 0:Save when connected 1:Don't Save Default: 0 Unit: minute |

Note: This command is only use for HMSensor

65. Query/Set Stop bit

| Send | Receive | Parameter |
|-------------|-------------|--|
| AT+STOP? | OK+Get:[P1] | None |
| AT+STOP[P1] | OK+Set:[P1] | P1:0, 1 0: One stop bit 1: Two stop bit Default: 0 (One stop bit) |

66. Work immediately (Switch to auto work state)

| 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 information

| Send | Receive | Parameter |
|-------------|-------------|--|
| AT+SAVE? | OK+Get:[P1] | None |
| AT+SAVE[P1] | OK+Set:[P1] | P1: 0~1 0:Save when connected 1:Don't Save Default: 0 |

Note: After power on, if module checked this information, module will try to connect it until AT+TCON command setting timeout or AT+CLEAR command to clear this information, then module will into discovery mode.

69. Query/Set Module discovery time when module in master role

| Send | Receive | Parameter |
|-------------|-------------|---------------------------|
| AT+SCAN? | OK+Get:[P1] | None |
| AT+SCAN[P1] | OK+Set:[P1] | P1: 1 ~ 9 Unit: Second |

| | | |
|--|--|--------------------|
| | | Default: 3 Seconds |
|--|--|--------------------|

Note: Add in V543

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

| Send | Receive | Parameter |
|-------------|-------------|---|
| AT+SENS? | OK+Get:[P1] | P1: 0, 1, 2 |
| AT+SENS[P1] | OK+Set:[P1] | 0: None 1: DHT11 2: DS18B20 Default: 0 |

Note: This command is use for HMSensor.

71. Query/Set if show device name when discovery

| Send | Receive | Parameter |
|-------------|-------------|---|
| AT+SHOW? | OK+Get:[P1] | None |
| AT+SHOW[P1] | OK+Set:[P1] | P1: 0~1 0:Don't show name 1:Show name Default: 0 |

If AT+SHOW1 is setup, AT+DISC? Command will show the device name information included into scan result package.

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

| Send | Receive | Parameter |
|----------|-----------------|----------------------------|
| AT+TEHU? | OK+Get:[P1][P2] | P1: 000~120 P2: 000~100 |

Note: This command is only use for HMSensor version.

This value is added into scan response data package.

Data format is 0x02, 0x16, 0x00, 0xB0, [reserved], [temperature], [humidity], [battery].

Android:

Included in OnLeScan function result array, you can see it direct.

iOS:

Included in LeScan function result NSDictionary struct, service id is 0xB000.

73. Query DS18B20 Sensor or IC temperature

| Send | Receive | Parameter |
|----------|-------------|------------------------|
| AT+TEMP? | OK+Get:[P1] | P1: 000.000~255.000 |

Note1: if not setup AT+SENS value, will get IC temperature.

Note2: Added in V523 version, Modified at V544.

74. Set temperature information byte in advertising data

| Send | Receive | Parameter |
|-------------|-------------|----------------------------------|
| AT+TEMP[P1] | OK+Set:[P1] | P1: 0x00~0xFF Not include '?' |

This command is used to set temperature information byte in advertising data when you doesn't want to use temperature function buy want to use as AT+FLAG command.

Added in V544

75. Query/Set module connect remote device timeout value

| Send | Receive | Parameter |
|-------------|-------------|---|
| AT+TCON? | OK+Get:[P1] | None |
| AT+TCON[P1] | OK+Set:[P1] | P1 is timeout value. When time is up, module will not connect this address anymore, then enter search mode. P1 allowed value: 000000~999999 Unit is ms. Default: 000000 Connect forever |

This value is only used for Central Role, when module has Last Connected address.

76. Query/Set Module Bond Mode

| Send | Receive | Parameter |
|-------------|-------------|---|
| AT+TYPE? | OK+Get:[P1] | None |
| AT+TYPE[P1] | OK+Set:[P1] | P1: 0~2 0:Not need PIN Code 1:Auth not need PIN 2:Auth with PIN 3:Auth and bond Default: 0 |

Important: If your module version is less than V515, please don't use this command.

Under android 4.3 AT+TYPE1 is same to AT+TYPE2.

Note: Value 3 is added in V524.

77. Query/Set service UUID

| Send | Receive | Parameter |
|-------------|-------------|-------------------|
| AT+UUID? | OK+Get:[P1] | P1: 0x0001~0xFFFE |
| AT+UUID[P1] | OK+Set:[P1] | Default: 0xFFE0 |

e.g. Change UUID value to 0xAAA0

Send: AT+UUID0xAAA0

Recv: OK+Set:0xAAA0

78. Query/Set UART sleep type

| Send | Receive | Parameter |
|-------------|-------------|--|
| AT+UART? | OK+Get:[P1] | P1: 0~1 |
| AT+UART[P1] | OK+Set:[P1] | 0: When module into sleep mode, you can wake up module through UART. |

| | | |
|--|--|---|
| | | <p>1: When module into sleep mode, also shutdown UART.</p> <p>Default: 0xFFE0</p> |
|--|--|---|

Note: This command is only use for HMSensor version.

79. Query Software Version

| Send | Receive | Parameter |
|---------------------------------|---------------------|-----------|
| <p>AT+VERR?</p> <p>AT+VERS?</p> | Version Information | None |