



## HC-05 BLUETOOTH AT COMMAND LIST

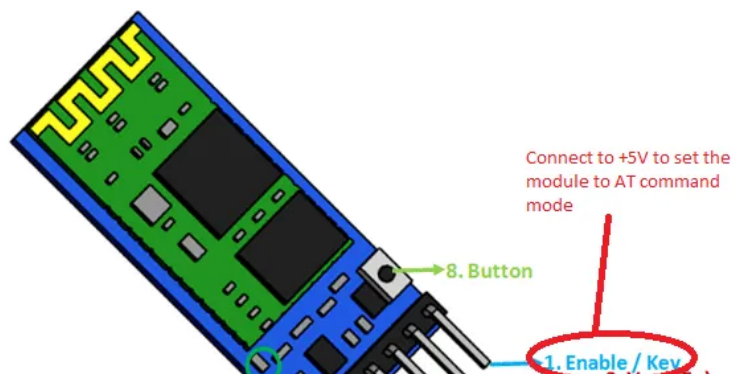
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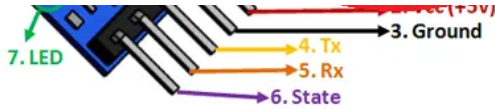
The HC-05 is a common Bluetooth module used in many microcontroller projects. Here's a compilation of all HC-05 Bluetooth AT Commands. For beginners, see [Arduino Bluetooth](#).

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### Setting HC-05 to AT Command Mode

By default, the HC-05 is configured in data mode. In this mode, the module acts like a serial bridge. To put into AT command mode the **KEY pin** must be set (high).





However, there are modules where the KEY pin is missing or is not wired to the actual KEY pin of the IC. To solve this, wire pin 34 of the IC to 3.3 V:



The HC-05 is now in command mode if the red LED flashes once every two seconds.

Test command

Command	Response	Parameter
AT	OK	-

Reset

Command	Response	Parameter
AT+RESET	OK	-

## Get firmware version

Command	Response	Parameter
<i>AT+VERSION?</i>	<i>+VERSION:&lt;Param&gt;</i> <i>OK</i>	Param : firmware version

Example:

```
1 AT+VERSION?
2 +VERSION:2.0-20100601
3 OK
```

## Restore default

Command	Response	Parameter
<i>AT+ORGL</i>	<i>OK</i>	-

Default state:

Slave mode, pin code :1234, device name: H-C-2010-06-01 ,Baud 38400bits/s.

## Get module address

Command	Response	Parameter
<i>AT+ADDR?</i>	<i>+ADDR:&lt;Param&gt; OK</i>	Param: address of Bluetooth module

Bluetooth address: NAP: UAP : LAP

Example:

```
1 AT+ADDR?
2 +ADDR:1234:56:abcdef
3 OK
```

## Set/Check module name:

Command	Response	Parameter
<i>AT+NAME=&lt;Param&gt;</i>	<i>OK</i>	Param: Bluetooth module name (Default :HC-05)
<i>AT+NAME?</i>	<i>+NAME:&lt;Param&gt;</i> <i>OK</i> or	

	<i>FAIL</i>	
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Example:

```
1 AT+NAME=HC-05      ;set the module name to "HC-05"
2 OK
3 AT+NAME?
4 +NAME: HC-05
5 OK
```

Get the Bluetooth device name:

Command	Response	Parameter
<i>AT+RNAME?&lt;Param1&gt;</i>	<i>+NAME:&lt;Param2&gt;</i>  <i>OK</i>  or  <i>FAIL</i>	Param1,Param 2 : the address of Bluetooth device

Example: (Device address 00:02:72:od:22:24, name: HC-05)

```
1 AT+RNAME? 0002, 72, od2224
2 +RNAME:HC-05
3 OK
```

Set/Check module mode:

Command	Response	Parameter
<i>AT+ROLE=&lt;Param&gt;</i>	<i>OK</i>	0 - Slave  1 - Master  2 - Slave-Loop
<i>AT+ ROLE?</i>	<i>+ROLE:&lt;Param&gt;</i>  <i>OK</i>	

Set/Check device class

Command	Response	Parameter
AT+CLASS=<Param>	OK	Param: Device Class
AT+CLASS?	+CLASS:<Param>  OK  or  FAIL	

Set/Check GIAC (General Inquire Access Code)

Command	Response	Parameter
AT+IAC=<Param>	OK  or  FAIL	Param: GIAC (Default : 9e8b33)
AT+IAC	+IAC:<Param>  OK	

Example:

```
1 AT+IAC=9e8b3f
2 OK
3 AT+IAC?
4 +IAC: 9e8b3f
5 OK
```

Set/Check -- Query access patterns

Command	Response	Parameter
AT+INQM=<Param>,<Param2>,<Param3>	OK  or  FAIL	Param:  0 -- inquiry_mode_standard  1 -- inquiry_mode_rssi Param2: Maximum number of Bluetooth devices to respond to  Param3:

		Timeout (1-48 : 1.28s to 61.44s)
<i>AT+ INQM?</i>	<i>+INQM : &lt;Param&gt;, &lt;Param2&gt;,  &lt;Param3&gt;  OK</i>	

Example:

```
1 AT+INQM=1,9,48
2 OK
3 AT+INQM
4 +INQM:1, 9, 48
5 OK
```

Set/Check PIN code:

Command	Response	Parameter
<i>AT+PSWD=&lt;Param&gt;</i>	<i>OK</i>	Param: PIN code  (Default 1234)
<i>AT+PSWD?</i>	<i>+ PSWD : &lt;Param&gt;  OK</i>	

Set/Check serial parameter:

Command	Response	Parameter
<i>AT+UART=&lt;Param&gt;,&lt;Param2&gt;,&lt; Param3&gt;</i>	<i>OK</i>	Param1: Baud  Param2: Stop bit  Param3: Parity
	<i>+UART=&lt;Param&gt;,&lt;Param2&gt;,  &lt;Param3&gt;</i>	

	<i>OK</i>	
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Example:

```
1 AT+UART=115200,1,2,
2 OK
3 AT+UART?
4 +UART:115200,1,2
5 OK
```

Set/Check connect mode:

Command	Response	Parameter
<i>AT+CMODE=&lt;Param&gt;</i>	<i>OK</i>	Param:  0 - connect fixed address  1 - connect any address  2 - slave-Loop
	<i>+ CMODE:&lt;Param&gt;</i>  <i>OK</i>	

Set/Check fixed address:

Command	Response	Parameter
<i>AT+BIND=&lt;Param&gt;</i>	<i>OK</i>	Param: Fixed address  (Default  00:00:00:00:00:00)
<i>AT+BIND?</i>	<i>+ BIND:&lt;Param&gt;</i>  <i>OK</i>	

Example:

```
1 AT+BIND=1234,56,abcdef
```

```
2 OK
3 AT+BIND?
4 +BIND:1234:56:abcdef
5 OK
```

Set/Check LED I/O

Command	Response	Parameter
<i>AT+POLAR=&lt;Param1,&lt;Param2&gt;</i>	<i>OK</i>	Param1:  0- PIO8 low drive LED  1- PIO8 high drive LED  Param2:  0- PIO9 low drive LED  1- PIO9 high drive LED
	<i>+ POLAR=&lt;Param1&gt;,&lt;Param2&gt;</i>  <i>OK</i>	

Set PIO output

Command	Response	Parameter
<i>AT+PIO=&lt;Param1&gt;,&lt;Param2&gt;</i>	<i>OK</i>	Param1: PIO number  Param2: PIO level  0- low  1- high

Example:

```
1 ;PIO10 output high level
2 AT+PIO=10,1
3 OK
```

Set/Check – scan parameter



Command	Response	Parameter
<i>AT+IPSCAN=&lt;Param1&gt;,&lt;Param2&gt;,&lt;Param3&gt;,&lt;Param4&gt;</i>	<i>OK</i>	Param1: Query time interval Param2: Query duration Param3: Paging interval Param4: Call duration
<i>AT+IPSCAN?</i>	<i>+IPSCAN:&lt;Param1&gt;,&lt;Param2&gt;,&lt;Param3&gt;,&lt;Param4&gt;</i> <i>OK</i>	

Example:

```
1 AT+IPSCAN =1234,500,1200,250
2 OK
3 AT+IPSCAN?
4 +IPSCAN:1234,500,1200,250
```

Set/Check – SHIFF parameter

Command	Response	Parameter
<i>AT+SNIFF=&lt;Param1&gt;,&lt;Param2&gt;,&lt;Param3&gt;,&lt;Param4&gt;</i>	<i>OK</i>	Param1: Max time Param2: Min time Param3: Retry time Param4: Time out
<i>AT+SNIFF?</i>	<i>+SNIFF:&lt;Param1&gt;,&lt;Param2&gt;,&lt;Param3&gt;,&lt;Param4&gt;</i> <i>OK</i>	

Set/Check security mode

Command	Response	Parameter
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<i>AT+SENM=&lt;Param1&gt;,&lt;Param2&gt;</i>		Param1:
		0 --sec_mode0+off
		AT+ SENM? + SENM:<Param1>,<Param2> 1— sec_mode1+non_secure
	OK	2 -- sec_mode2_service
	or	3 -- sec_mode3_link
	FAIL	4 -- sec_mode_unknown
		Param2:
		0 -- hci_enc_mode_off
		1 -- hci_enc_mode_pt_to_pt
		2 -- hci_enc_mode_pt_to_pt_and_bcast

Delete Authenticated Device

Command	Response	Parameter
<i>AT+PMSAD=&lt;Param&gt;</i>	OK	Param:  Authenticated Device Address

Example:

1 AT+PMSAD =1234,56,abcdef
2 OK

Delete All Authenticated Device

Command	Response	Parameter
<i>AT+ RMAAD</i>	OK	

Search Authenticated Device

Command	Response	Parameter
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<i>AT+FSAD=&lt;Param&gt;</i>	<i>OK</i>	Param: Device address
	or	
	<i>FAIL</i>	

Get Authenticated Device Count

Command	Response	Parameter
<i>AT+ADCN?</i>	<i>+ADCN: &lt;Param&gt;</i>	Param: Device Count
	<i>OK</i>	

Most Recently Used Authenticated Device

Command	Respond	Parameter
<i>AT+MRAD?</i>	<i>+ MRAD: &lt;Param&gt;</i>	Param: Recently Authenticated Device Address
	<i>OK</i>	

Get the module working state

Command	Response	Parameter
<i>AT+ STATE?</i>	<i>+ STATE: &lt;Param&gt;</i>  <i>OK</i>	Param:
		"INITIALIZED"
		"READY"
		"PAIRABLE"
		"PAIRED"
		"INQUIRING"
		"CONNECTING" "CONNECTED"

		"DISCONNECTED"
		"NUKNOW"

Initialize the SPP profile lib

Command	Response	Parameter
AT+INIT	OK  or  FAIL	-

Inquiry Bluetooth Device

Command	Response	Parameter
AT+INQ	+INQ: <Param1>, <Param2>, <Param3>  ....  OK	Param1: Address  Param2: Device Class  Param3: RSSI Signal strength

Example:

```
1 AT+INIT
2 OK
3 AT+IAC=9e8b33
4 OK
5 AT+CLASS=0
6 AT+INQM=1,9,48
7 AT+INQ
8 +INQ:2:72:D2224,3E0104,FFBC
9 +INQ:1234:56:0,1F1F,FFC1
10 +INQ:1234:56:0,1F1F,FFC0
11 +INQ:1234:56:0,1F1F,FFC1
12 +INQ:2:72:D2224,3F0104,FFAD
13 +INQ:1234:56:0,1F1F,FFBE
14 +INQ:1234:56:0,1F1F,FFC2
15 +INQ:1234:56:0,1F1F,FFBE
16 +INQ:2:72:D2224,3F0104,FFBC OK
```

Cancel Inquiring Bluetooth Device

Command	Response	Parameter
AT+ INQC	OK	-

### Equipment Matching

Command	Response	Parameter
<i>AT+PAIR=&lt;Param1&gt;,&lt;Param2&gt;</i>	<i>OK</i>	Param1: Device Address
	or	Param2: Time out
	<i>FAIL</i>	

### Connect Device

Command	Response	Parameter
<i>AT+LINK=&lt;Param&gt;</i>	<i>OK</i>	Param: Device Address
	or	
	<i>FAIL</i>	

Example:

```
1 AT+FSAD=1234,56,abcdef
2 OK
3 AT+LINK=1234,56,abcdef
4 OK
```

### Disconnect

Command	Response	Parameter
<i>AT+DISC</i>	<i>+DISC:SUCCESS</i>	Param: Device Address
	<i>OK</i>	
	or	
	<i>+DISC:LINK_LOSS</i>	
	<i>OK</i>	
	or	
	<i>+DISC:NO_SLC</i>	

	<i>OK</i>	
	or	
	<i>+DISC:TIMEOUT</i>	
	<i>OK</i>	
	or	
	<i>+DISC:ERROR</i>	
	<i>OK</i>	

Energy-saving mode

Command	Response	Parameter
<i>AT+ENSNIFF=&lt;Param&gt;</i>	<i>OK</i>	<i>Param: Device Address</i>

Exerts Energy-saving mode

Command	Response	Parameter
<i>AT+ EXSNIFF =&lt;Param&gt;</i>	<i>OK</i>	Param: Device Address

Pairing Two HC-05 Modules

Use an [FTDI USB to Serial converter](#) to configure the bluetooth module once it's in command mode ([how to set in command mode](#)). Then use Arduino's serial monitor to send out commands. The default baud rate for command mode is 38400. One module is the master device while the other is the slave device. Pairing configuration is done through the master device.

Step 1: Check if the HC-05 master is in command mode:

```
1 AT
2 > OK
```

Step 2: Reset the configurations to its default values:

```
1 AT+ORGL
2 > OK
```

Step 3: Set the module to master:

```
1 AT+ROLE=1
```

```
2 > OK
```

Step 4: Reset the module:

```
1 AT+RESET
2 > OK
```

Step 5: Wait, then initialize:

```
1 AT+INIT
2 > OK
```

Step 6: Forget all the previous connections:

```
1 AT+RMAAD
2 > OK
```

Step 7: Determine MAC address of slave device. Set slave device to command mode and issue command:

```
1 AT+INQ
2 > +INQ:98D3:31:FC20A9,1F00,7FFF
```

Here, it shows that the slave device has a MAC address of 98D3:31:FC20A9. The 1F00 is the device class while the 7FFF is the received signal strength indicator (RSSI).

Step 8: Back to master module; pair with the slave device:

```
1 AT+PAIR=98D3,31,FC20A9,20
2 > OK
```

After pairing, the LED on the master module will start flashing with about two seconds of pause.

Step 9: Bind the master and slave devices:

```
1 AT+BIND=98D3,31,FC20A9
2 > OK
```

Step 10: Link the two devices:

```
1 AT+LINK=98D3,31,FC20A9
2 > OK
```

If successful, both the master and slave device's LED will now blink twice followed by about two seconds of pause.

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