

# BTBee Pro

## Overview



BTBee Pro is a serial port Bluetooth module which can be compatible with the shields with XBee sockets. It's designed for Bluetooth wireless transfer. It support Slave and Master mode, can be plug into XBee socket and using the UART for transparent transmission. This module supports Bluetooth Wireless Program as well.

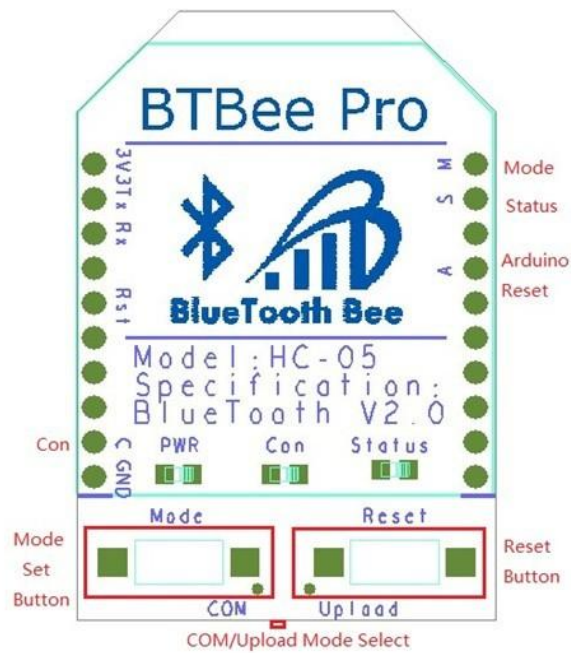
## Specifications

Microprocessor	CSR BC417
PCB size	35mm X 24mm X 1.6mm
Power supply	3.3V
Communication Protocol	UART/Bluetooth 2.0

## Electrical Characteristics

Specification	Min	Type	Max	Unit
Power Voltage	3.0	3.3	3.6	VDC
Input Voltage VH	3.0	3.3	3.6	V
Input Voltage VL	-0.3	0	0.5	V
Current Consumption	-	20	40	mA

# Hardware



Number	BTBee Pro PIN	Arduino PIN	Arduino MEGA PIN
1	VCC	3.3V	3.3V
2	DOUT	D0	D0
3	DIN	D1	D1
4	-	-	
5	RESET	XBEE_RST	D49
6	-	-	-
7	-	-	-
8	-	-	-
9	PAIR	-	-
10	GND	GND	GND
11	-	-	-
12	-	-	-
13	-	-	-
14	-	-	-
15	-	-	-
16	-	-	-
17	Arduino_RST	RST#	RST#
18	-	-	-
19	STATUS	-	-
20	MODE	-	-

## Indicator and switch description

### Button:

- Mode button (MODE) : Keep pressing this button, the BTBee Pro module will enter AT command mode; Release this button, the BTBee Pro module will return data mode.
- Reset button (RESET): Press the button to reset the BTBee Pro module

### Switch:

- Data or Program Switch: When this switch be set to "COM" site, the BTBee Pro module is in data mode, and can be used for Bluetooth communication. When the switch be set to "Upload" site, the BTBee Pro module is in program mode, and can be used to upload program to Arduino.

### LED:

- Status light: Without any data transmission, the flicker frequency of the light is 106ms; during the data transmission, the light blinks twice in 106ms frequency, and stops for two seconds, then goes on blinking as before until the transmission is complete.
- Linking status light (Con): The LED will be on if the BTBee Pro module not connect with any device; The LED will be off when the BTBee Pro module connect to some device.
- Power light (PWR): The light is on when power on.

## AT command

### 1. Test command:

Command	Respond	Parameter
AT	OK	-

### 2. Reset

Command	Respond	Parameter
AT+RESET	OK	-

### 3. Get firmware version

Command	Respond	Parameter
AT+VERSION?	+VERSION:<Param> OK	Param : firmware version

### Example:

```
AT+VERSION?\r\n
+VERSION:2.0-20100601
OK
```

## 4. Restore default

Command	Respond	Parameter
AT+ORGL	OK	-

Default state:

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

## 5. Get module address

Command	Respond	Parameter
AT+ADDR?	+ADDR:<Param> OK	Param: address of Bluetooth module

Bluetooth address: NAP: UAP : LAP

Example:

AT+ADDR?\r\n

+ADDR:1234:56:abcdef

OK

## 6. Set/Check module name:

Command	Respond	Parameter
AT+NAME=<Param>	OK	Param: Bluetooth module name (Default :HC-05)
AT+NAME?	+NAME:<Param> OK (/FAIL)	

Example:

AT+NAME=HC-05\r\n set the module name to "HC-05"

OK

AT+NAME=ITeadStudio\r\n

OK

AT+NAME?\r\n

+NAME: ITeadStudio

OK

## 7. Get the Bluetooth device name:

Command	Respond	Parameter
AT+RNAME?<Param1>	1. +NAME:<Param2> OK 2. FAIL	Param1,Param 2 : the address of Bluetooth device

Example: (Device address 00:02:72:od:22:24, name: ITead)

AT+RNAME? 0002, 72, od2224\r\n

+RNAME:ITead

OK

## 8. Set/Check module mode:

Command	Respond	Parameter
AT+ROLE=<Param>	OK	Param: 0- Slave 1-Master 2-Slave-Loop
AT+ ROLE?	+ROLE:<Param> OK	

## 9. Set/Check device class

Command	Respond	Parameter
AT+CLASS=<Param>	OK	Param: Device Class
AT+ CLASS?	1. +CLASS:<Param> OK 2. FAIL	

## 10. Set/Check GIAC (General Inquire Access Code)

Command	Respond	Parameter
AT+IAC=<Param>	1.OK 2. FAIL	Param: GIAC (Default : 9e8b33)
AT+IAC	+IAC:<Param> OK	

Example:

```
AT+IAC=9e8b3f\r\n
```

```
OK
```

```
AT+IAC?\r\n
```

```
+IAC: 9e8b3f
```

```
OK
```

## 11. Set/Check -- Query access patterns

Command	Respond	Parameter
AT+INQM=<Param>,<Param2>,<Param3>	1.OK 2. 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)
AT+ INQM?	+INQM : <Param>,<Param2>,<Param3> OK	

Example:

```

AT+INQM=1,9,48\r\n
OK
AT+INQM\r\n
+INQM:1, 9, 48
OK

```

#### 12. Set/Check PIN code:

Command	Respond	Parameter
AT+PSWD=<Param>	OK	Param: PIN code (Default 1234)
AT+ PSWD?	+ PSWD : <Param> OK	

#### 13. Set/Check serial parameter:

Command	Respond	Parameter
AT+UART=<Param>,<Param2>,<Param3>	OK	Param1: Baud Param2: Stop bit
AT+ UART?	+UART=<Param>,<Param2>,<Param3> OK	Param3: Parity

Example:

```

AT+UART=115200, 1,2,\r\n
OK
AT+UART?
+UART:115200,1,2
OK

```

#### 14. Set/Check connect mode:

Command	Respond	Parameter
AT+CMODE=<Param>	OK	Param: 0 - connect fixed address 1 - connect any address 2 - slave-Loop
AT+ CMODE?	+ CMODE:<Param> OK	

#### 15. Set/Check fixed address:

Command	Respond	Parameter
AT+BIND=<Param>	OK	Param: Fixed address (Default 00:00:00:00:00:00)
AT+ BIND?	+ BIND:<Param> OK	

Example:

```

AT+BIND=1234, 56, abcdef\r\n
OK
AT+BIND?\r\n
+BIND:1234:56:abcdef
OK

```

## 16. Set/Check LED I/O

Command	Respond	Parameter
AT+POLAR=<Param1,<Param2>	OK	Param1: 0- PIO8 low drive LED 1- PIO8 high drive LED Param2: 0- PIO9 low drive LED 1- PIO9 high drive LED
AT+ POLAR?	+ POLAR=<Param1>,<Param2> OK	

## 17. Set PIO output

Command	Respond	Parameter
AT+PIO=<Param1>,<Param2>	OK	Param1: PIO number Param2: PIO level 0- low 1- high

Example:

1. PIO10 output high level

AT+PIO=10, 1\r\n

OK

## 18. Set/Check – scan parameter

Command	Respond	Parameter
AT+IPSCAN=<Param1>,<Param2>,<Param3>,<Param4>	OK	Param1: Query time interval
AT+IPSCAN?	+IPSCAN:<Param1>,<Param2>,<Param3>,<Param4> OK	Param2: Query duration Param3: Paging interval Param4: Call duration

Example:

AT+IPSCAN =1234,500,1200,250\r\n

OK

AT+IPSCAN?

+IPSCAN:1234,500,1200,250

## 19. Set/Check – SHIFF parameter

Command	Respond	Parameter
AT+SNIFF=<Param1>,<Param2>,<Param3>,<Param4>	OK	Param1: Max time Param2: Min time
AT+ SNIFF?	+SNIFF:<Param1>,<Param2>,<Param3>	Param3: Retry time

	am3>,<Param4> OK	Param4: Time out
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#### 20. Set/Check security mode

Command	Respond	Parameter
AT+SENM=<Param1>,<Param2>	1. OK 2. FAIL	Param1: 0—sec_mode0+off
AT+ SENM?	+ SENM:<Param1>,<Param2> OK	1—sec_mode1+non_secure 2—sec_mode2_service 3—sec_mode3_link 4—sec_mode_unknown Param2: 0—hci_enc_mode_off 1—hci_enc_mode_pt_t o_pt 2—hci_enc_mode_pt_t o_pt_and_bcast

#### 21. Delete Authenticated Device

Command	Respond	Parameter
AT+PMSAD=<Param>	OK	Param: Authenticated Device Address

Example:

```
AT+PMSAD =1234,56,abcdef\r\n
```

```
OK
```

#### 22. Delete All Authenticated Device

Command	Respond	Parameter
AT+ RMAAD	OK	-

#### 23. Search Authenticated Device

Command	Respond	Parameter
AT+FSAD=<Param>	1. OK 2. FAIL	Param: Device address

#### 24. Get Authenticated Device Count

Command	Respond	Parameter
AT+ADCN?	+ADCN: <Param> OK	Param: Device Count



## 25. Most Recently Used Authenticated Device

Command	Respond	Parameter
AT+MRAD?	+ MRAD: <Param> OK	Param: Recently Authenticated Device Address

## 26. Get the module working state

Command	Respond	Parameter
AT+ STATE?	+ STATE: <Param> OK	Param: "INITIALIZED" "READY" "PAIRABLE" "PAIRED" "INQUIRING" "CONNECTING" "CONNECTED" "DISCONNECTED" "NUKNOW"

## 27. Initialize the SPP profile lib

Command	Respond	Parameter
AT+INIT	1. OK 2. FAIL	-

## 28. Inquiry Bluetooth Device

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

Example:

```
AT+INIT\r\n
OK
AT+IAC=9e8b33\r\n
OK
AT+CLASS=0\r\n
AT+INQM=1,9,48\r\n
At+INQ\r\n
+INQ:2:72:D2224,3E0104,FFBC
+INQ:1234:56:0,1F1F,FFC1
+INQ:1234:56:0,1F1F,FFC0
+INQ:1234:56:0,1F1F,FFC1
+INQ:2:72:D2224,3F0104,FFAD
```

```

+INQ:1234:56:0,1F1F,FFBE
+INQ:1234:56:0,1F1F,FFC2
+INQ:1234:56:0,1F1F,FFBE
+INQ:2:72:D2224,3F0104,FFBC
OK

```

#### 28. Cancel Inquiring Bluetooth Device

Command	Respond	Parameter
AT+ INQC	OK	-

#### 29. Equipment Matching

Command	Respond	Parameter
AT+PAIR=<Param1>,<Param2>	1. OK 2. FAIL	Param1: Device Address Param2: Time out

#### 30. Connect Device

Command	Respond	Parameter
AT+LINK=<Param>	1. OK 2. FAIL	Param: Device Address

Example:

```

AT+FSAD=1234,56,abcdef\r\n
OK
AT+LINK=1234,56,abcdef\r\n
OK

```

#### 31. Disconnect

Command	Respond	Parameter
AT+DISC	1. +DISC:SUCCESS OK 2. +DISC:LINK_LOSS OK 3. +DISC:NO_SLC OK 4. +DISC:TIMEOUT OK 5. +DISC:ERROR OK	Param: Device Address

#### 32. Energy-saving mode

Command	Respond	Parameter
AT+ENSNIFF=<Param>	OK	Param: Device Address

#### 33. Exerts Energy-saving mode

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Command	Respond	Parameter
AT+ EXSNIFF =<Param>	OK	Param: Device Address

## Revision History

Rev.	Description	Release date
v1.0	Initial version	2012-12-18