



BTM-5 Bluetooth

Wireless TTL Master/Slave Transceiver Module

AT Command User Guide

Rev 1.1, Oct 2010

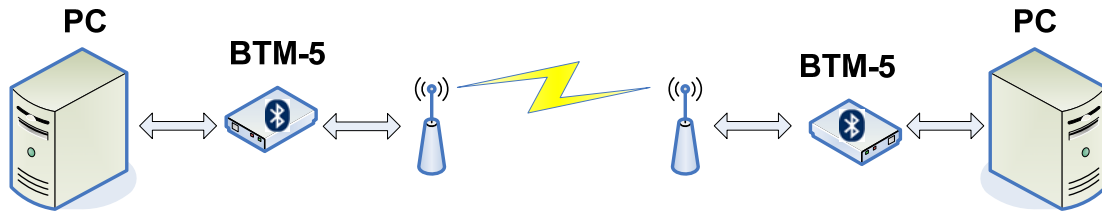


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1 Introduction

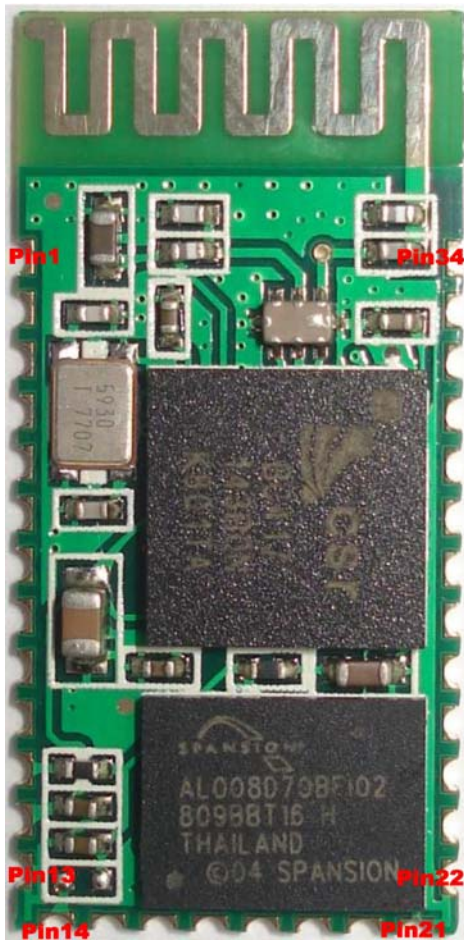


The BTM-5 Module has two operation modes, one is normal auto link mode, and the other is AT command mode. User can switch between two modes via pull the mode select pin PIO11 low and high respectively.

The normal auto link mode is the basic operation mode, each Master/Slave BTM-5 pair auto link with the default device address after power up. After link is established, user can transmit and receive data via the UART interface with each other. The transmission is almost transparent to user, it acts as tow UART connect with each other wirelessly.

The AT command mode is the advanced operation mode. User can use supported AT command to change the default configurations, such as device name, link password, UART baud rate and etc.

2 Hardware Connection



Pin	Description
1	UART_TXD
2	UART_RXD
3	UART_CTS
4	UART_RTS
9~11	NA
12	3.3V Supply input
13	GND
14~20	NA
21,22	GND
23	NA
24	NA
25	PIO2 Programmable IO port
26	PIO3 Programmable IO port
27	PIO4 Programmable IO port
28	PIO5 Programmable IO port
29	PIO6 Programmable IO port
30	PIO7 Programmable IO port
31	Operation Mode LED
32	Link Status LED
33	PIO10 Programmable IO port
34	PIO11 Programmable IO port

The pin PIO8 is the indicator for the operation mode, user can use a LED to connect to this pin. The LED starts to blink after power up, and the blink frequency subject to change between different operation modes.

The pin PIO9 is the indicator for the link status. It is high when the link established, user can use this pin to determine the link status of the BTM-5 module.

The pin PIO11 is the switch input to select two operation modes. When high it enter the AT command mode, when low it enter auto link mode. User can use this pin to change between tow modes in real time.

3 AT Command Set

Note: All AT commands (not case sensitive) should be ended up with \r\n characters.

3.1 TEST Command

Command	Response	Parameter
AT	OK	NULL
Example: Command : AT\r\n Response : OK		

3.2 RESET Command

Command	Response	Parameter
AT+RESET	OK	NULL
Example: Command : AT+RESET\r\n Response : OK		

3.3 Restore Default Setting Command

Command	Response	Parameter
AT+ORGL	OK	NULL
Default Setting is : 1. Device class: 0 2. Inquiry code: 0x009e8b33 3. Device mode: Slave mode 4. Binding mode: SPP 5. Serial port: 38400 bits/s; 1 stop bit, no parity 6. Pairing code: "1234" 7. Device name: H-C-2010-06-01 Example: Command : AT+ORGL \r\n Response : OK		

3.4 Get Firmware Version Command

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

Examples:

Command : AT+VERSION? \r\n

Response :

+VERSION:2.0-20100601

OK

3.5 Get Address

Command	Response	Parameter
AT+ADDR?	+ADDR:< Param > OK	Param: the Bluetooth address

Representation of the address: NAP:UAP:LAP (HEX)

Examples:

The address of the Bluetooth device is: 10:7:180004

Command : At+ ADDR? \r\n

Response :

+ADDR:10:7:180004

OK

3.6 Get the Device Name

Command	Response	Parameter
AT+NAME?	OK	NULL

Examples:

Command : AT+NAME? \r\n

Response :

+NAME:HC05S

OK

3.7 Set the Device Name

Command	Response	Parameter
AT+RNAME=<Param>	OK	Param: bluetooth device name

Examples:

Command : AT+RNAME=BTM-5 \r\n

Response :

OK

3.8 Set / Get Role

Command	Response	Parameter
AT+ROLE=<Param>	OK	Param
AT+ROLE?	+ ROLE:< Param > OK	0: Slave (be connected by other device) 1: Master (Actively poll the nearby device and initialize binding to other devices) 2: Slave-loopback (be connected by other device, receive and send back whatever received) Default:0

Examples:

Command : AT+ROLE?\r\n

Response :

+ROLE:0

OK

3.9 Get Device Type

Command	Response	Parameter
AT+CLASS?	+ CLASS:< Param > OK	Param: device type Device type is a 32-bit parameter. It is used to indicate the device class and the service it supports Default: 0 The actual meaning is explained in appendix 1.

Examples:

Command : AT+CLASS?\r\n

Response :

+CLASS:0

OK

3.10 Set / Get Password

Command	Response	Parameter
AT+PSWD=<Param>	OK	Param : link password
AT+ PSWD?	+ PSWD:< Param > OK	Default : 1234

3.11 Set / Get Baudrate

Command	Response	Parameter
AT+UART= <Param1>,<Param2>,<Param3>	OK	Param 1:baudrate (bps) 4800
AT+ UART?	+UART: <Param1>,<Param2>,<Param3> OK	9600 19200 38400 57600 115200 230400 460800 921600 1382400 Param2: Stop bit 0: 1bit 1: 2bit Param3: Parity 0: None 1: Odd

		2: Even Default:38400,0,0
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3.12 Set / Get Link Mode

Command	Response	Parameter
AT+CMODE=<Param>	OK	Param
AT+ CMODE?	+ CMODE:< Param > OK	0: Specify bluetooth link address 1: Any bluetooth link address 2: Slave-Loopback Default : 0

3.13 Set / Get Bind Bluetooth Address

Command	Response	Parameter
AT+BIND=<Param>	OK	Param : Bluetooth address to be bind
AT+ BIND?	+ BIND:< Param > OK	Default : 00:00:00:00:00:00

3.14 Set Single PIO Output

Command	Response	Parameter
AT+PIO=<Param1>,<Param2>	OK	Param1: PIO port number (decimal) Param2L PIO port output 0- Low voltage 1- High voltage
<p>Examples:</p> <p>Set the PIO10 outputs high Command : AT+PIO=10,1\r\n Response : OK</p> <p>Set the PIO10 outputs low Command : AT+PIO=10,0\r\n Response : OK</p>		

3.15 Set Multiple PIO Output

Command	Response	Parameter
AT+MPIO=<Param>	OK	Param: PIO port number mask combination (hex)
<p>The useable port is PIO2- PIO7 and PIO10. PIO port mask = (1 << port number) PIO port mask combination = (PIO port mask 1 PIO port mask 2 PIO port mask 3 ···) Example: PIO2 mask= (1<<2)=0x004 PIO10 mask = (1<<10)=0x400 PIO port mask combination= (0x004 0x400)=0x404</p>		

PIO 2 and PIO 10 output high:
 Command : AT+MPIO=404\r\n
 Response : OK

3.16 Get Multiple PIO Input

Command	Response	Parameter
AT+MPIO?	+MPIO: <Param> OK	Param- PIO port value (16bits) Param[0]=PIO0 Param[1]=PIO1 Param[2]=PIO2 ... Param[10]=PIO10 Param[11]=PIO11
Example: Command : AT+MPIO?\r\n Response : +MPIO:E04 OK		

4 Appendix A: AT command error code reference

Error code (hex)	Description
0	AT command error
1	The result is default value
2	PSKEY write error
3	Device name is too long (more than 32 bytes)
4	Device name is 0 byte
5	Bluetooth address: NAP is too long
6	Bluetooth address: UAP is too long
7	Bluetooth address: LAP is too long
8	PIO port mask length is 0
9	Invalid PIO port
A	Device class is 0 byte
B	Device class is too long
C	Inquire Access Code length is 0
D	Inquire Access Code is too long
E	Invalid Inquire Access Code
F	Pairing password is 0
10	Pairing password is too long (more than 16 bytes)
11	Role of module is invalid
12	Baud rate is invalid
13	Stop bit is invalid
14	Parity bit is invalid
15	No device in the pairing list
16	SPP is not initialized
17	SPP is repeatedly initialized
18	Invalid inquiry mode
19	Inquiry timeout
1A	Address is 0
1B	Invalid security mode
1C	Invalid encryption mode