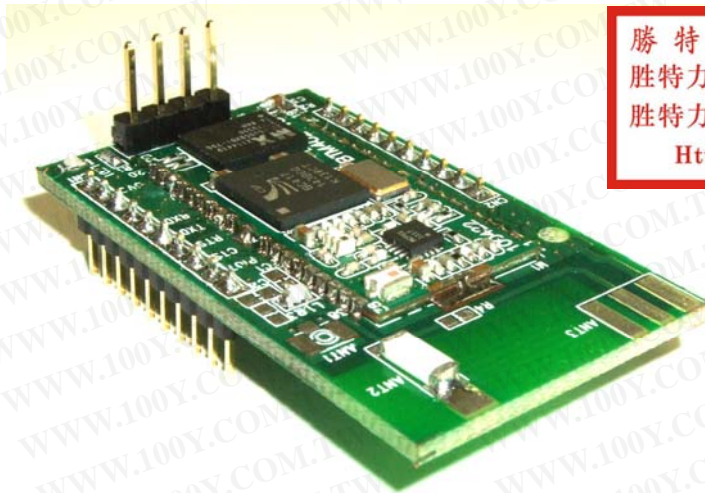


# Bluetooth Class 1 SPP Module with pin headers & Antenna

(Model: BTMB-C)



勝特力材料 886-3-5753170  
勝特力电子(上海) 86-21-34970699  
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[Http://www.100y.com.tw](http://www.100y.com.tw)

Based on the new High power Bluetooth serial modules the new low cost Bluetooth serial adapters allow for simple integration into microcontroller designs as well as providing for standalone use as cable replacement using Available with a 3.3 volt compatible interface and a TTL level interface, both available with onboard antenna or UFL connector.

## Features:

- Easy to use command set for communications and control
- Seamless connectivity with other Bluetooth devices
- Fully embedded solution with no Bluetooth host stack required
- Up to 250kbps of continuous data throughput
- Reference designs available at no additional cost
- Small size of 2.54mm 2x6 header for easy integration
- Easy to use command set for communications and control
- Available with 3.3V interface or TTL voltage level interface
- Easy Connect enabled for simple cable replacement
- Full design documentation available at no cost
- Four screw holes for solid mounting
- Directly connectable to standard USB serial cable for PC testing
- High power up to 18dBm
- Bluetooth V2.0 EDR Class 1 (100 meters)

## General Description:

Bluetooth serial adapters provide a highly integrated and easy to use Bluetooth solution designed for low cost and reliability. All components of the Bluetooth stack are implemented onboard so that additional host processor code is not required. Once a connection to another Bluetooth device has been established, the link has the appearance of a cabled serial connection eliminating the need for special wireless protocol knowledge.

Simple UART communication facilitates the interface between the host processor and the onboard radio. This UART interface may be used to discover, connect, and communicate with other Bluetooth devices through simple ASCII commands.

Easy Connect provides the option for a drop-in cable replacement solution without having to issue commands. The module integrates a simple push button and LED to provide all the control necessary to establish and maintain a wireless connection using this mechanism.

## Applications

- Medical Equipment
- POS Systems
- Telemetry Systems
- Industrial Automation
- Cable Replacement
- Barcode and RFID scanners
- Lighting Control
- Robotics

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## Specifications:

Transmit Power	+18dBm(max)
Receiver Sensitivity	-85dBm
Operating Temperature	-15° to 70°C
Supply Power	Logic level(3.3V version)
Current Consumption	125uA - 110mA
Antenna Connection	Chip ant or UFL
Bluetooth Support	Version 2.0+ EDR compliant with profiles SPP Profile

## Factory Settings for COM port and Bluetooth:

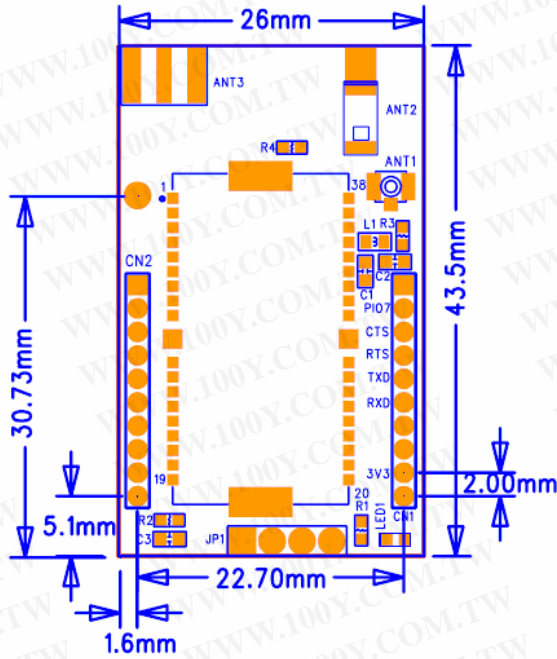
- Baud rate: 19200 bps
- Data bit: 8
- Parity: none
- Stop bit: 1
- Flow control: H/W or none
- Bluetooth PIN code is "1234"

Bluetooth default setting: Please refer to setup command sets table.

## LED definition:

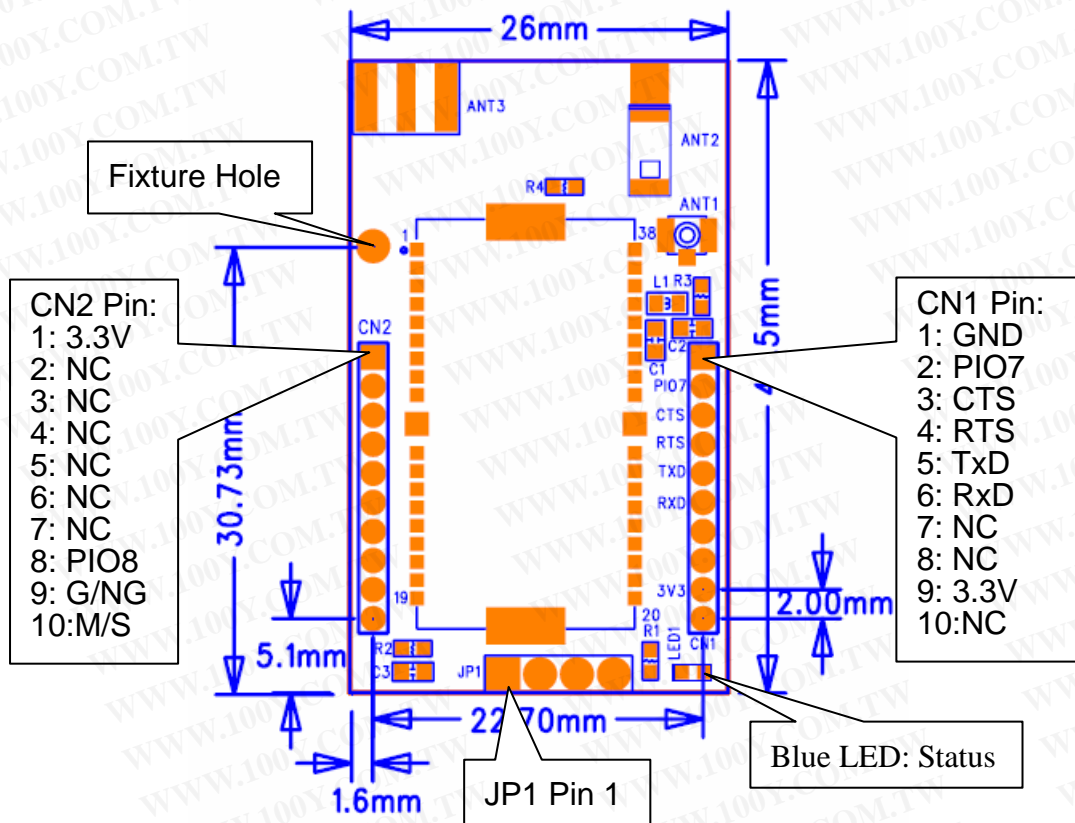
- Blinking: not connection
- Always on: Bluetooth link

## Layout guide:



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## Pin definition:



## Jump definition: (Pitch: 2.54 mm)

	Pin 1-2	Pin 3-4
Open	Master	Group Enable
Short	Slave	Group Disable

## Command set:

Command	Value	Description
<<<		Set the local adapter change the data mode into command mode. The command will be unavailable if the data pass through within 1 second when after set the command.
<<<		Switch the data mode to the command. The time interval between each character will be more than the time: [500ms] "<" [500ms] "<" [500ms] "<" [1500ms]
<<<=	?	Inquire the current setting.
	Y	Turn on the "<<<" command
(Default)	N	Turn off the "<<<" command
>>>		Set the remote adapter change the data mode into command mode from the local adapter in connecting status. The command is available after 500 ms when data transferring finished.
>>>		Switch the remote adapter from the data mode to the command. The time interval between each character will be more than the time: [1 sec] "<" [1 sec] "<" [1 sec] "<" [2 sec]
>>>=	?	Inquire the setting status of the ">>>" command.
	Y	Turn on the ">>>" command
(Default)	N	Turn off the ">>>" command
ADDRESS=		This command is used to display the Bluetooth address of the local adaptor.
	?	Inquire the Bluetooth address of the local adaptor.
AT		Check the connection status between control terminal and the RS-232 adapter. Response: "OK" when the connection is ok. Response: "ERROR" when the connection is not ok.
AT		Test the RS-232 status when first connect the adapter with the controller.
AUTO=		This command is used to enable/disable auto-connection feature. It is available only when the adaptor is in the master role. The command is available when DIP=N. The system will not re-start after change.
	Y	The Master role adapter will connect the latest paired Bluetooth device automatically.
(Default)	N	The user will connect the Bluetooth device manually.
	?	Inquire the current setting.
BAUD=		This command is used to specify the baud rate of COM port. The command will need 200 ms delay.
	1200	1200 bps
	2400	2400 bps
	4800	4800 bps
	9600	9600 bps
(Default)	19200	19200 bps
	38400	38400 bps

	57600	57600 bps
	115200	115200 bps
	230400	230400 bps
	460800	460800 bps
	921600	921600 bps
	R	Restore the default settings. (Baud rate =19200 bps)
	?	Inquire the current baud rate.
<b>CONNECT=</b>		This command is used to establish a connection manually. It is available only when the adaptor is in the master role.
	DEVICE	Connect the adaptor to a specified Bluetooth device manually. It is available only when "DEVICE=xxxxxxxxxxxx" is executed.
	1~8	Connect the adaptor to a Bluetooth device in the neighborhood found through "SEARCH=?"
	xxxxxxxxxxxx	Connect the remote adapter by type the MAC address directly without searching.
	?	Display the MAC address of the latest paired device.
	Y	Recover the latest connection in the command mode.
	N	Disconnect the two adapters in the command mode
	P	Connect the previous connected adapter.
<b>DEFAULT=</b>		This command is used to restore the default settings and originate a warm start.
	Y	Restore the default settings (e.g. 19200 bps). The command will re-start the system for 1 second.
<b>DETECT=</b>		The command is used to detect the voltage of the power supply and set the alert value of low power.
(Default)	N	Disable the voltage detection
	Y	Enable the voltage detection
	R	Restore the default value (3.5 Volt)
	x.x	Setup the range of voltage detection from 3.0 to 3.7 Volt. The "x" indicate the number.
	?	Inquire the setting ststus
<b>DEVICE=</b>		For security purpose, this command is used to specify a unique remote Bluetooth serial adaptor to be connected. In the master role, the adaptor pairs and connects with the designated remote slave address. If the adaptor is in the slave mode, this command is a filter condition to accept the inquiry of the master device.
	xxxxxxxxxxxx	"xxxxxxxxxxxx" is a string of 12 hexadecimal digits.
	R	Restore the status in which the adaptor can connect with any remote address.
	?	Inquiry the designated address that can be paired and connected.
<b>DFU=</b>		Device Firmware Upgrade
	Y	
<b>DIP=</b>		Set the DIP switch function.
	?	Inquire the setting status of the DIP switch function.
(Default)	Y	Turn on the function of the DIP switch. The "ROLE" and "AUTO" command are not available to set the "Master" or "Slave".

	N	Turn off the function of the DIP switch. The “ROLE” and “AUTO” command are available when the DIP=N.
DISCOVER=		This command is used to specify whether the adaptor can be discovered or connected by remote devices. This command is available only when the adaptor is in the slave role.
	N	The adaptor enters the undiscoverable mode. If a pair has been made, the original connection can be resumed. But other remote master device cannot discover this adaptor.
(Default)	Y	The adaptor enters the discoverable mode.
	?	Inquire the current setting.
ECHO=		This command is used to specify whether the adaptor echoes characters received from the UART back to the DTE/DCE.
	N	Command characters received from the UART are not echoed back to the DTE/DCE.
(Default)	Y	Command characters received from the UART are echoed back to the DTE/DCE.
	?	Inquire the current setting.
FLOW=		This command enable or disable flow control signals (CTS/RTS) of the UART port. Note, the setting is not affected by DEFAULT. The command will need 1 second delay.
(Default)	N	Disable flow control.
	Y	Enable flow control.
	?	Inquire the current setting
NAME=		This command is used to specify a name for the adaptor. You can specify a friendly name using 0 to 9, A to Z, a to z, space and -, which are all valid characters. Note that “first space or -, last space or - isn’t permitted”. The default name is “Serial Adaptor”.
(Default)	Serial Adaptor	Default device name
	xx....xx	“xx....xx” is a character string with the length from 2 to 30.
	R	Restore the default settings name=“Serial Adaptor”.
	?	Inquire the name of the local adaptor.
PARITY=		This command is used to specify parity bit setting of COM port. The command will need 200 ms delay.
(Default)	N	None parity bit
	O	Odd parity
	E	Even parity
	?	Inquire the current setting.
PIN=		This command is used to specify a PIN. The default PIN is “1234”. Paired adaptors should have a same PIN. This command is used to specify a PIN. The default PIN is “1234” and the length is not smaller than 4. Paired adaptors should have a same PIN. The PIN code includes the numeral and English characters.
(Default)	1234	
	xx....xx	“xx....xx” is a 4~16 digit string or English character (in capital or lower case)
	N	Cancel authentication by PIN.

	R	Restore the default settings PIN="1234".
	?	Inquire the current PIN.
PROMPT=		The command is used to decide whether result messages are prompted when Setup commands are executed. The result messages are: OK/ERROR for command execution, or CONNECT/DISCONNECT/Try Connect Device for connection status.
(Default)	Y	Prompt result messages.
	N	Not prompt result messages.
	?	Inquire the current setting.
RECONNECT=		The command is used to re-connect the lost link for the Master adapter.
	?	Inquire the current setting.
(Default)	Y	Re-connect is disable
	N	Re-connect is Enable
ROLE=		This command is used to specify whether the adaptor is in the master or slave role. If the device role is changed, the adaptor will reboot and all paired addresses will be cleared. The command is available when the adaptor is in DIP=N status. The command will need 1 second delay.
	M	Set the adaptor to the master role.
(Default)	S	Set the adaptor to the slave role.
	?	Inquire the current role of the adaptor.
RSSI=		Received signal strength indication
	?	Display the Received signal strength indication in command mode when connected. 1. Strong: RSSI>-9 2. Medium: -9>RSSI>-20 3. Weak: RSSI<-20
SEARCH=		This command is used to search for any Bluetooth device in the neighborhood within one minute. If any device is found, its name and its 12-digit-address will be listed. The search ends with a message "Inquiry ends. xx device(s) found." This command is available only when the adaptor is in the master role by manual.
	?	Inquire Bluetooth devices in the neighborhood, listing 8 devices the maximum
STATUS=		Inquire all the current setting of the adapter.
	T	Inquire the inner temperature of the IC in centigrade
	?	Display the current setting of the adapter
STOP=		This command is used to specify one or two stop bits of COM port. The command will need 200ms delay.
(Default)	1	One stop bit.
	2	Two stop bits.
	?	Inquire the current setting.
VERSION=		This command is used to inquire the firmware version.
	?	Inquire the version codes.

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Command is not available in the status:

Item	Command	Not available command in the conditions
1	ROLE=S	SEARCH=? , CONNECT=? , CONNECT=P , CONNECT=xxxxxxxxxxxx , CONNECT=DEVICE
2	AUTO=Y	SEARCH=? , CONNECT=? , CONNECT=P , CONNECT=xxxxxxxxxxxx , CONNECT=DEVICE
3	DIP=Y	ROLE=M, ROLE=S , AUTO=Y , AUTO=N ,DISCOVER=Y,DISCOVER=N
4	<<<	SEARCH=? , CONNECT=? , CONNECT=P , CONNECT=xxxxxxxxxxxx , CONNECT=DEVICE , DFU=Y
5	>>>	SEARCH=? , CONNECT=? , CONNECT=P , CONNECT=xxxxxxxxxxxx , CONNECT=DEVICE , DFU=Y
6	Not connection	RSSI=? , CONNECT=Y , CONNECT=N

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