Bluetooth USB
Serial Adaptor

HANTZ + PARTNER
The Upgrade Company! www.hantz.com

Model name: BM2001

User Manual ver 3.2

ABOUT BM2001

Class 1 / USB Interface
DIP switch is available for a second setting
4dBi Dipole Antenna provided

Contents

1. About BM2001 (Bluetooth USB Serial Adaptor)

Bluetooth USB Serial Adapter, BM2001 is a product that is developed, designed and produced by Firmtech Co, ltd. (formerly BTnetworks Inc.). It is for replacement of standard RS232 cable perfectly, with USB interface, so can be easily adopted for upcoming industrial machines which do not have legacy RS232 interface.

- Security of Bluetooth wireless communication is very strong because it use the frequency hopping and 128bit encryption in 2.4Ghz frequency range.

- Hardware setting is very easy and simple.
  - The maintenance is very convenience.
  - One pair of BM2001 will try to connect automatically whenever powered up.

- It needs an installation of the USB device driver.
  - Doesn't need to install the application software.

- You can choose various configuration with DIP Switch **(In DIP-Switch mode)**

  - Set Baud Rate (1,200 bps ~ 115,200 bps)
  - Set the Role as Master or Slave
  - Select Mode: DIP-Switch Configuration mode or PC configuration mode

- BM2001 does not required external power supply as it gets power from USB port.

<Fig.1.1 BM2001 with default Dipole (4dBi) antenna & DIP switch>

- **Configuartion by DIP switch or by PC software.**
  Users may do configuration either via DIP switch on the backside of BM2001, or via AT commands in Hyperterminal in PCs.

	By DIP switch	By PC software
Default Setting	Baud rate = 9600 bps Data Bit = 8 Bit Stop Bit =1 Bit Parity Bit =No Parity Bit Hardware flow Control = None Role = MASTER or SLAVE	Device Name = BTNetworks PIN Code = BTWIN Operating Mode = MODE1 Baud rate = 9600 bps Data Bit = 8 Bit Stop Bit =1 Bit Parity Bit =No Parity Bit Hardware flow Control = None ROLE = MASTER
Selectable Values	Set Baud rate Select Role - Master - Slave Select Mode - DIP Switch Mode - PC Configuration Mode	Set device name Set Pin Code View Local BD Address Set Remote BD Address Select Role (Master/ Slave) Search for bluetooth device and Connect new device Set Baud rate Set Stop bit Set Parity bit Set Hardware flow control

***NOTE: DIP witch mode is Default for configuration.**

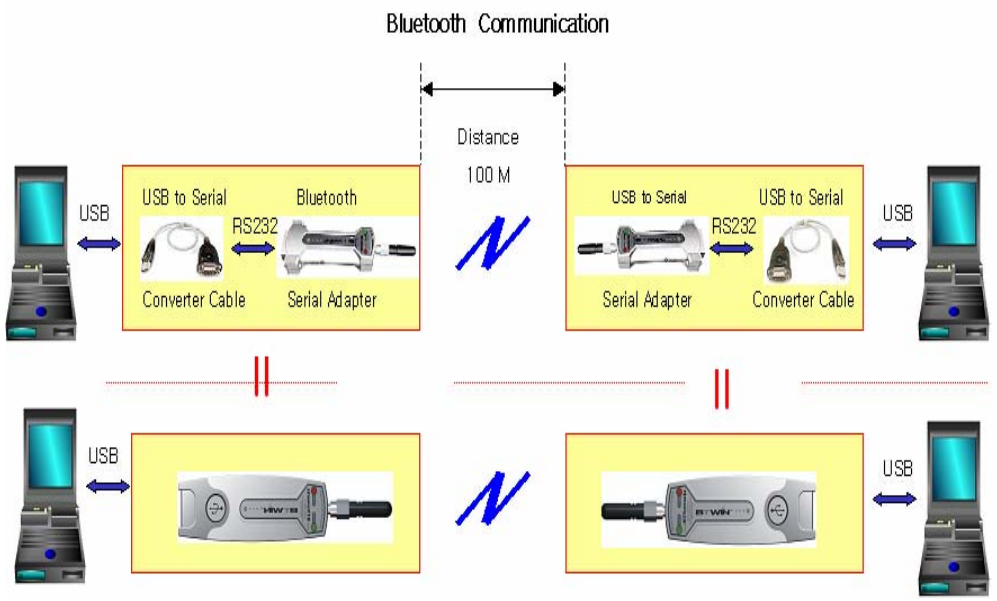
- **Package Constitution**

Model no.	Pictures	Q'ty	Ramarks
BM2001		1ea	**Default**
BM-DiANT	 **(4 dBi)**	1ea	
CD	BTWIN™ BM2001User's Guide CD	1ea	
BM-PANT	 **External Antenna (8 dBi)**		**Optional Buy**

2. Comparison with General Bluetooth USB dongle

Items	Bluetooth USB Serial Adapter (BM2001)	General Bluetooth USB Dongle
Limitation	-	***Works only with PC***
Hardware View	Included USB-to-Serial Convertion feature.	
Software View	***Included SPP firmware*** to act as Stand-alone Bluetooth Serial Adaptor.	Bluetooth Application software works on the PC.
Device driver	Requires	Requires
Application Software	***Does NOT require***	Requires
Bluetooth Profile	SPP	SPP, PAN, DUN, LAN, HID etc

As Bluetooth USB serial adaptor (BM2001) has USB-to-Serial conversion feature, users may simply plug in to the USB port of the machine with USB interface. BM2001 does not require application software like WIDCOMM stack.

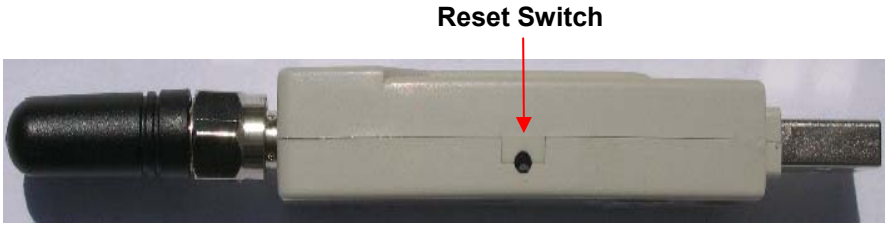


<Figure 2.1 Bluetooth communication by BM2001>

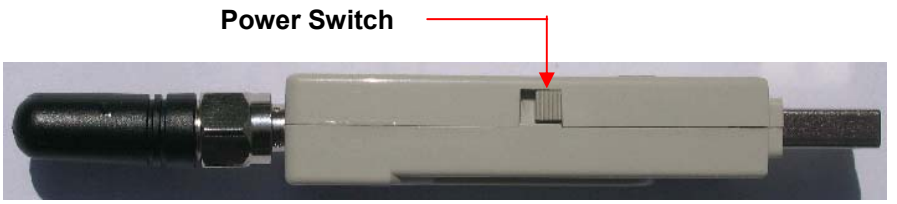
3. External View

<TOP View>

<Bottom View>

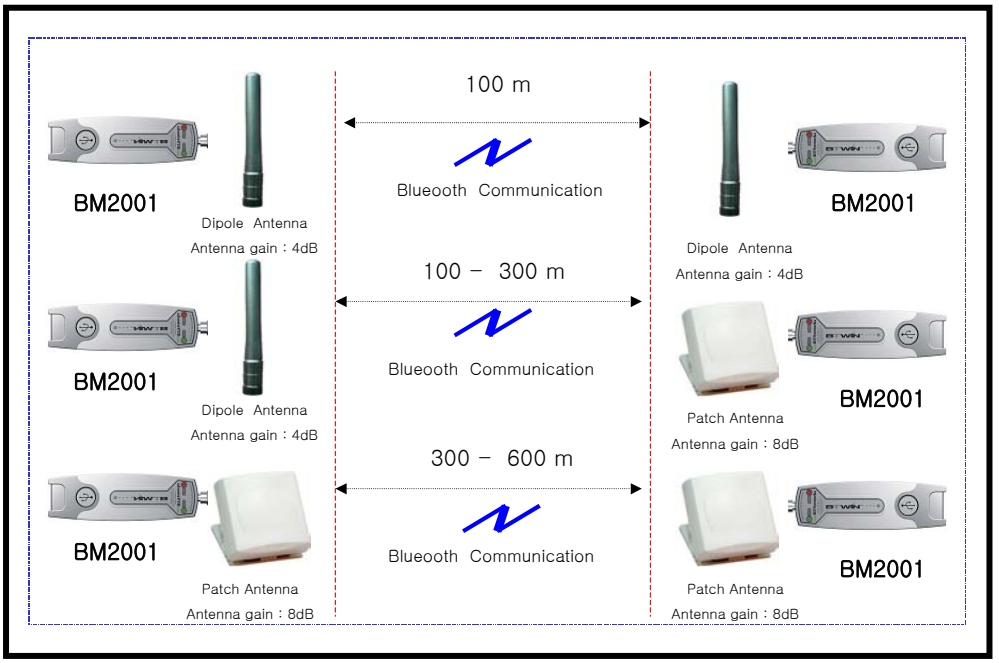


<Left View>



<Right View>

4. Range information with External Antennas



5. Specification & Power Consumption

Part	Specification
Bluetooth Spec.	Bluetooth Specification V1.2
Communication distance	100 M
Frequency Range	2.4 GHz ISM Band
Sensitivity	-83dBm (Typical)
Transmit Power	10dBm (Typical)
Size	66 * 31 mm
Support Bluetooth Profile	SPP
Input Power	4 - 15 V
Current Consumption	Maximum 100 mA
Operating Temperature	-10℃ ~ 70℃
Communication Speed	1,200bps ~ 115,200bps
Antenna	Dipole Antenna (4 dBi)
PC interface	USB

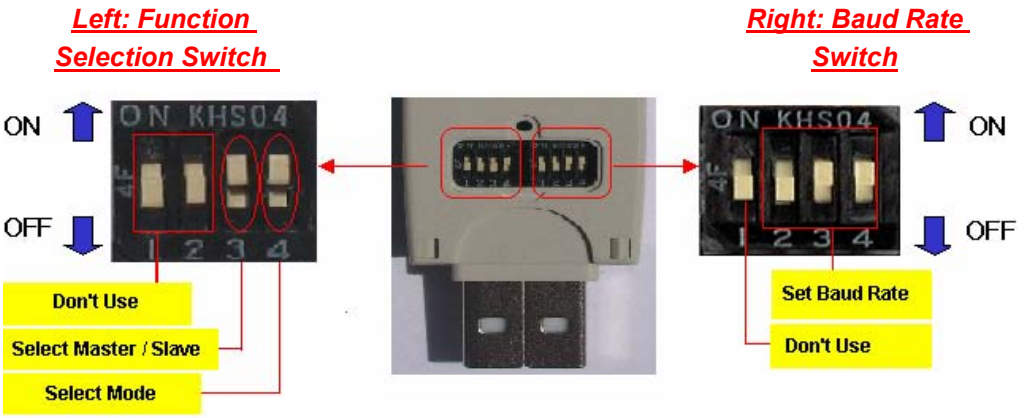
Power Consumption

Mode	Current	Remark
Standby	20 ㎃	Test Environment - Baud rate is 9600 bps - Input Voltage is 5V. Power consumption depends on communication speed and the environment.
Device Searching	73 ㎃	
Pairing	55 ㎃	
Before Connection	73 ㎃	
After Connection	50 - 55 ㎃	

6. Description on DIP Switch

<Bottom View>

Open the DIP-switch cover, and you can see the below picture.



<Fig. 6.1. Descripton of DIP switch>

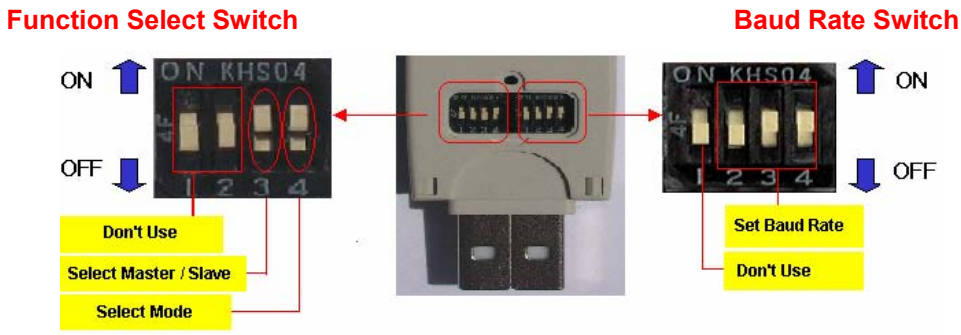
6.1 Function Selection Switch

Function selection switch is left side of the Fig. 6.1

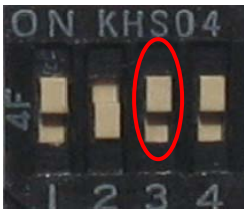
Pin no.	Description
Pin #1 and #2	N/A
Pin #3	For selection of Role (Master or Slave) - To be master: Switch should be upward - To be slave: Switch should be downward.
Pin #4	For selection of Configuration Mode - To use DIP switch: s/w should be up. - To use PC software: s/w should be down.

6.1.1 Selection of Role (Master / Slave)

In order to communicate between two BM2001, one should be a Master and another should be a Slave. You may set the role with pin#3 of the function select switch.

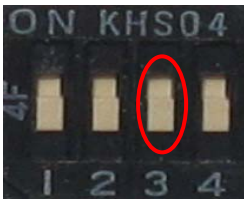


a) Set the Role as a MASTER



Move up the pin#3 of the function selection switch, to work as MASTER.

b) Set the Role as a SLAVE



Move down the pin #3 of the function selection switch, to work as SLAVE.

6.1.2 Selection of Configuration Method

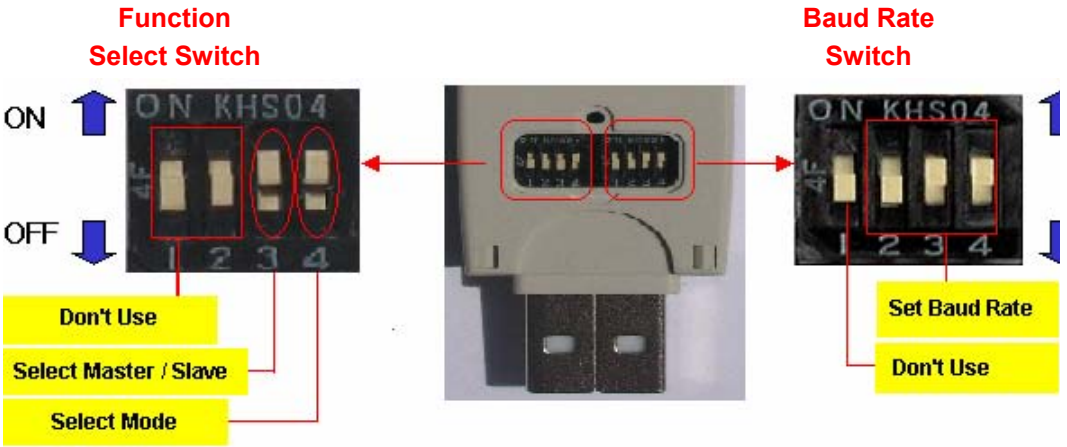
BM2001 provides two kinds of configuration methods. One way is using DIP switch on the back side of BM2001, and the other way is via HyperTemrinal in PC.
Users may choose one as prefer.

1) By DIP Switch

You may set the baud rate and Role with only DIP Switch.
If you want to set them, BM2001's mode must be a DIP Switch mode.

2) By PC software

You may set the various values with Hyperterminal of the windows. .
You can set every configuration values in PC configuration mode.

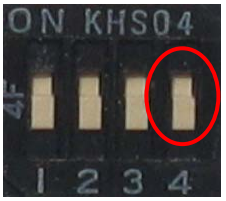


Set the Mode with pin #4 of Function Select Switch.

i) DIP Switch Mode

Move Up the pin#4 of the Function Select Switch, and the Mode is DIP Switch mode.

ii) PC Configuration Mode



Move down the pin#4 of the Function Select Switch, and the mode is PC Configuration mode.

6.2 Baud Rate Switch

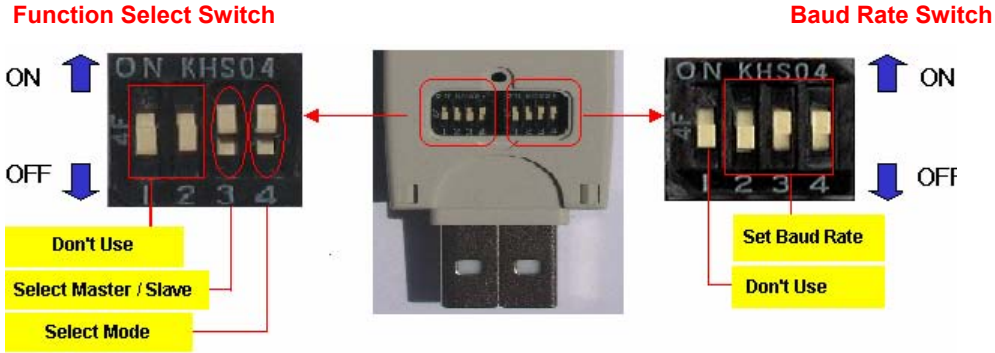
You may set the baud rate with this DIP Switch.
- Pin #2,3,and 4 are used to set the baud rate in boud rate switch.
- You can choose the baud rate from 1,200 bps to 115,200 bps.

*** Caution: If you want to set the baud rate with DIP Switch, pin #4 of the Function select switch must be up.**

6.2.1 Selection of Baud Rate

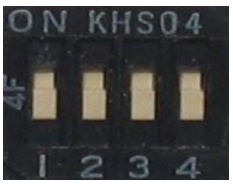
BM2001supports various communication speed from 1200 bps to 230,400 bps.
You can set the baud rate with DIP-Switch from 1,200 bps to 115,200 bps.

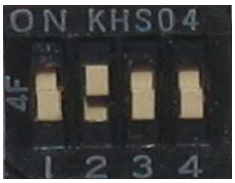
Check on the baud rate switch.



Setting the baud rate with the Baud Rate Switch.

Set the Baud Rate Switch

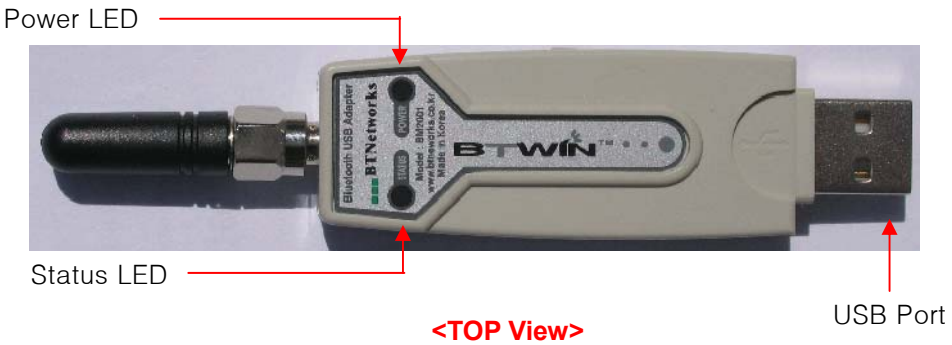
			
1200 bps	**2400 bps**	**4800 bps**	**9600 bps**

			
19200 bps	**38400 bps**	**57600 bps**	**115200 bps**

** Caution **

- Pin #1 of the Baud Rate Switch is no-working pin.
- Pin #4 of the Function Select Switch must be up (DIP Switch Mode).
- If you want higher speed than 115,200 bps, Use the PC configuration mode.

7. LED indication / Reset Switch



<TOP View>

7.1 LED indication

- Power indication LED / Status indication LED

You can find the status of BM2001 with Red and Green LED indicator.

LED	Status	Description
Power LED	Power ON	Red LED is On (Stable)
Status LED	Connecting	Green LED is flashing twice per second.
	Connection	Green LED is On (Stable)
	Connection Error	Red LED is flashing every 0.05-second.
	Enter Configuration Setting	Red LED is flashing twice per second.
	Configuration Setting	Red LED is flashing three times per second.

7.2 Reset Switch

Status LED	Result After Reset
Green is On	1) Current connection will be disconnected. 2) Releases the latest connection informs. 3) Try to reconnect
Red is flashing	1) Getting back to factory setting. 2) Reboot of BM2001

8. Installation of BM2001 device driver

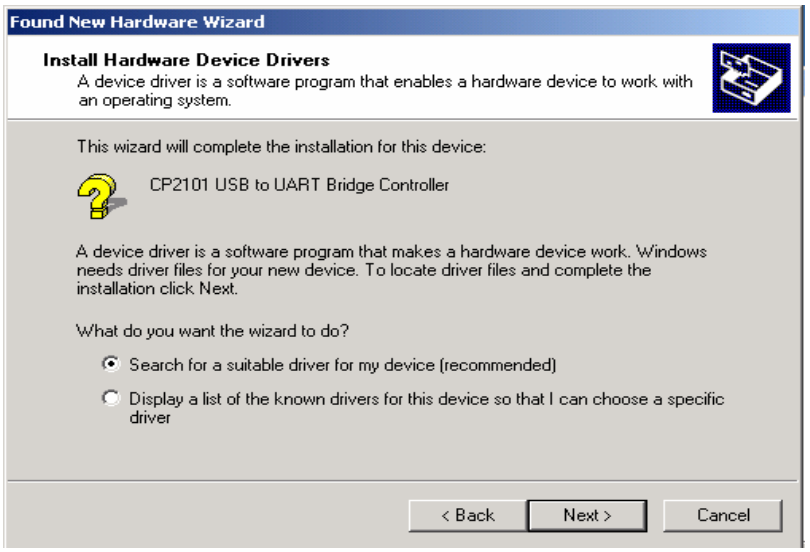
8.1 Installation of device driver

8.1.1 Windows 98 & Windows 2000

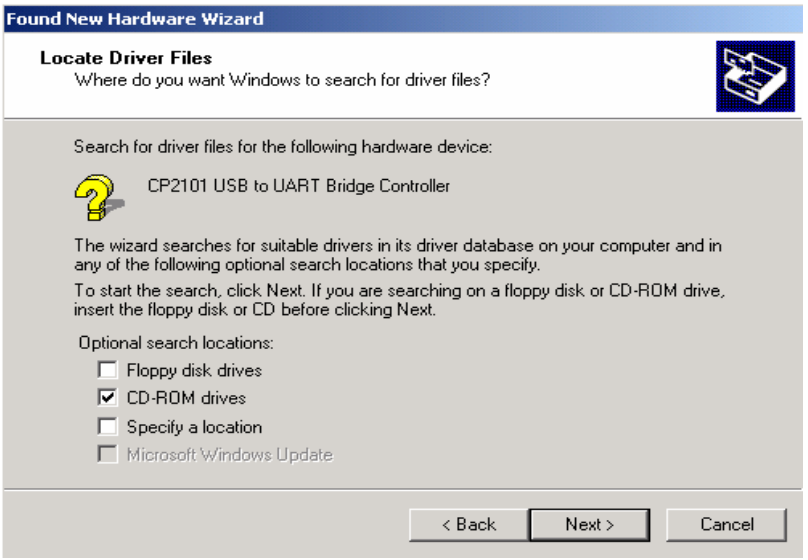
1) Attach BM2001 to USB port of PC and turn on the BM2001.

2) The pop up window will appear for new hardware device.

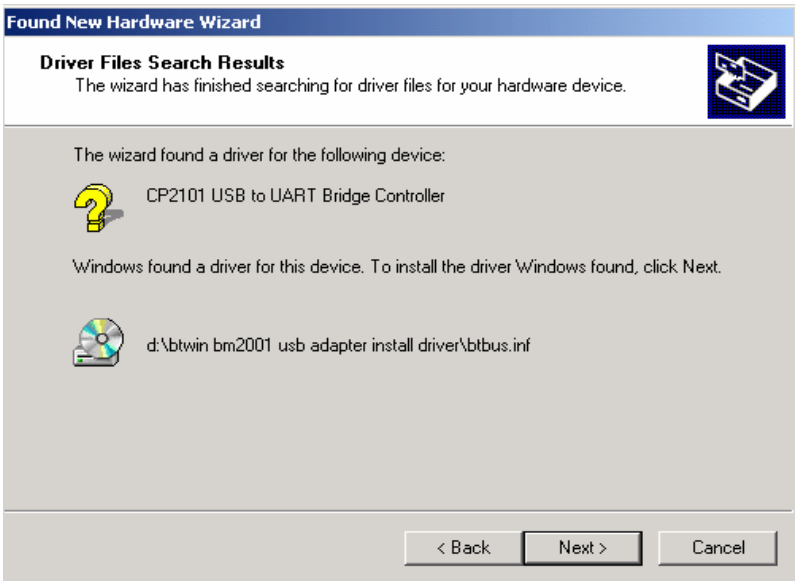
3) Click Next button.



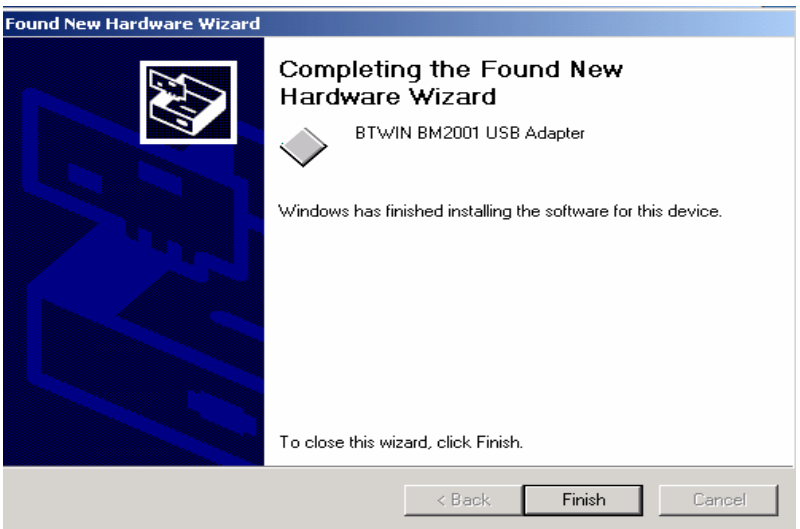
4) Select “Search for a suitable driver for my device [recommended]” and click Next button.



5) Select "CD-ROM drivers" and click Next button.

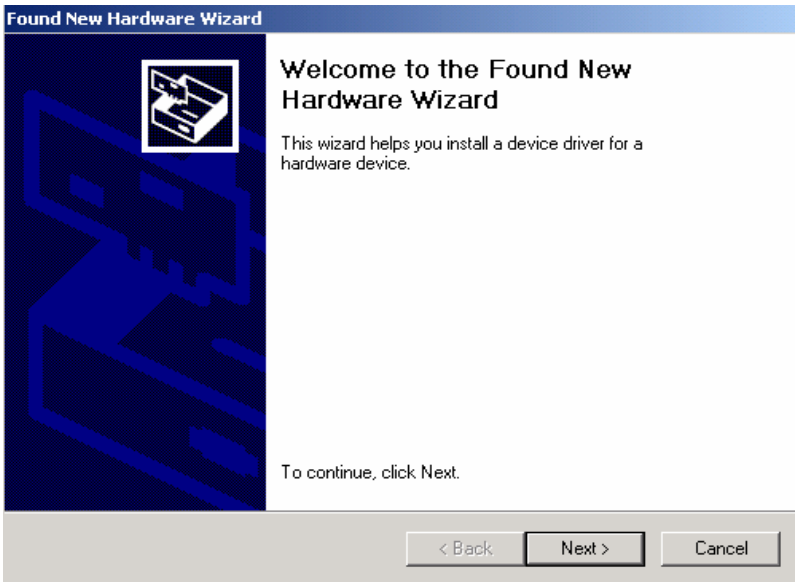


6) Windows found a driver for BM2001. Click Next button.



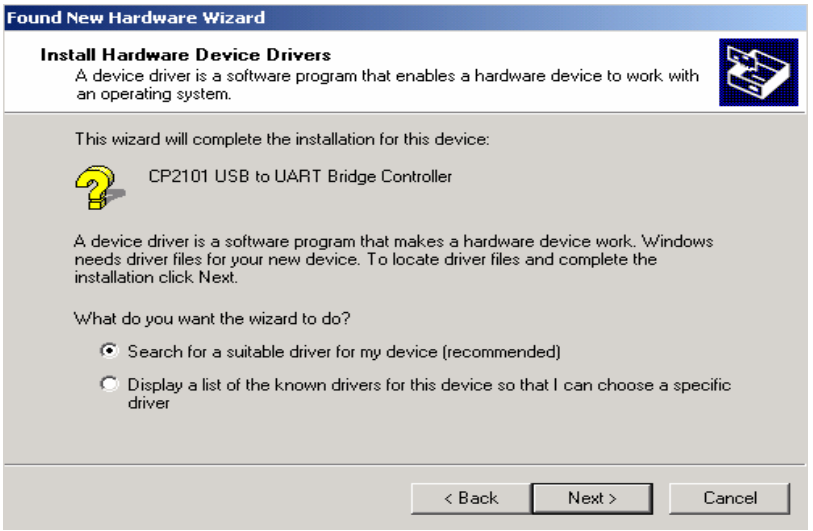
7) First driver Installing procedure has finished. Click Finish button.

* You should do driver installing procedure one more time

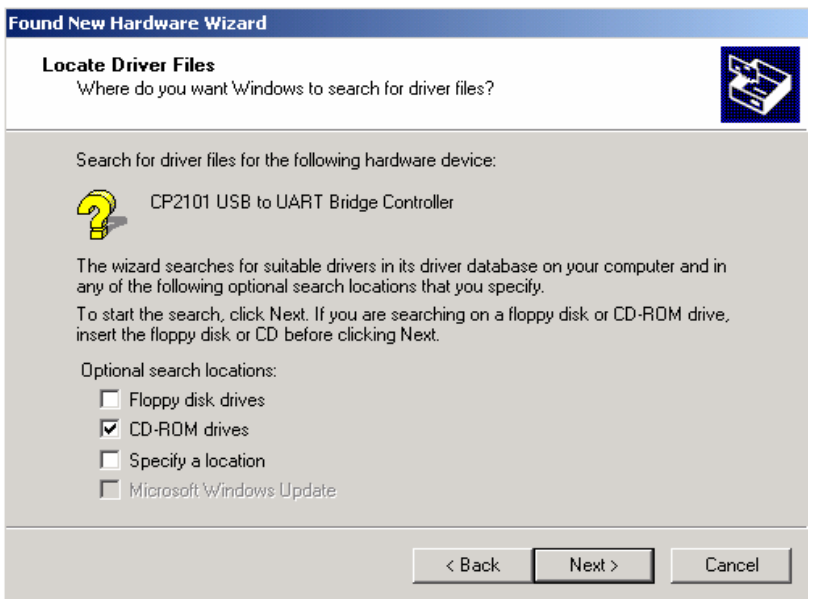


8) You may see new pop up window.

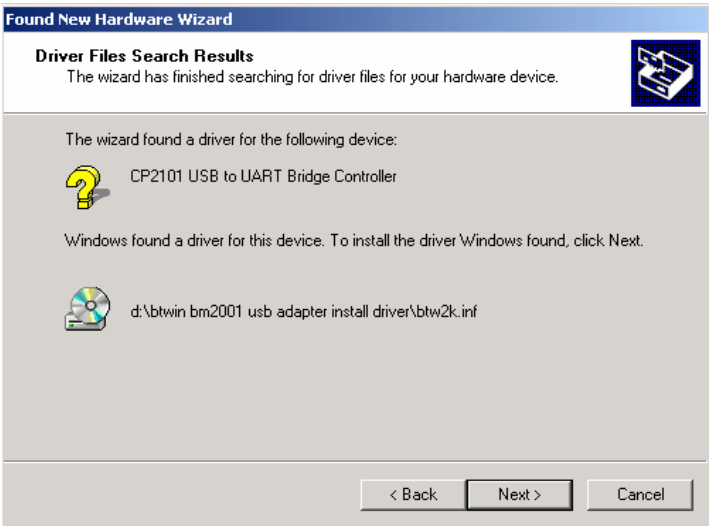
Click Next button.



Select “Search for a suitable driver for my device [recommended]” and click Next button.



5) Select “CD-ROM drivers” and click Next button.



6) Windows found a driver for BM2001. Click Next button.

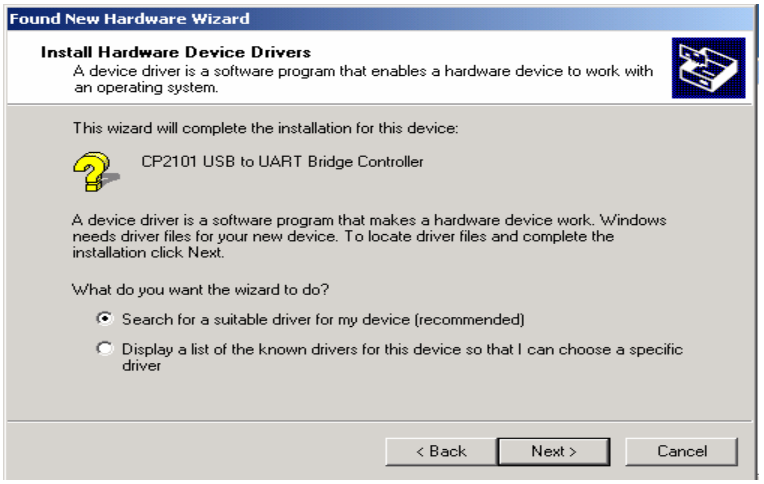
7) All driver Installing procedure has finished. Click Finish button.

If you have any troubles installiong the driver, you may try another way. Here is another way you may follow.

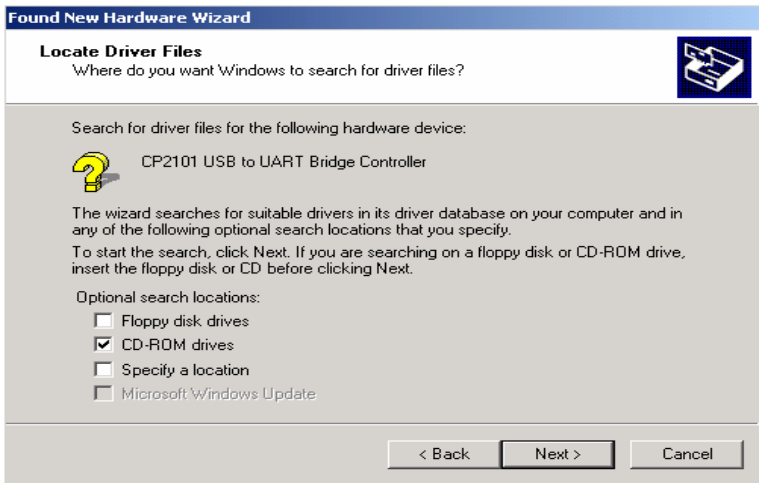
1) Attached BM2001 to USB port of PC and turn on the BM2001.

2)"Found new hardware device" message will be displayed.

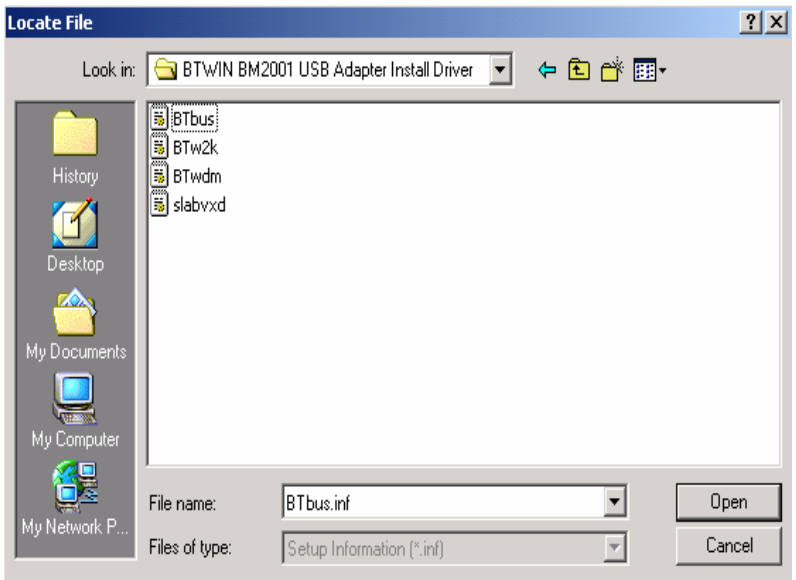
3) Click next button.



4) Select “Search for a suitable driver for my device [recommended]” and click Next button.

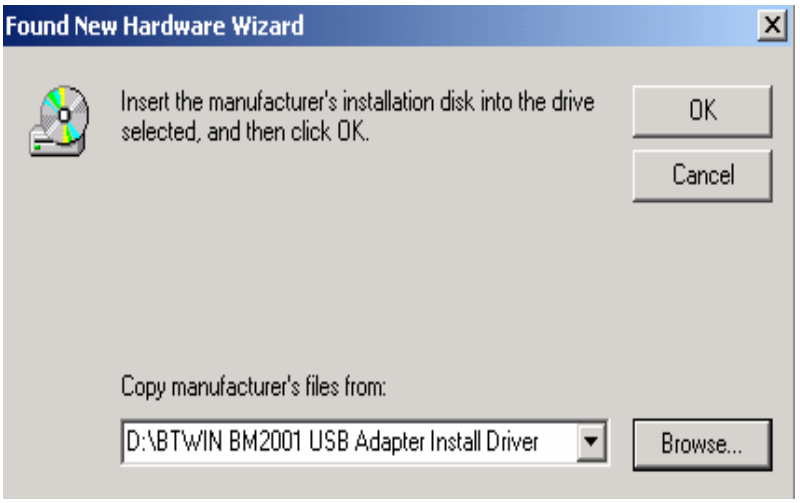


5) Select “Specify a location” and click Next button.



6) Move to CD-ROM’s BTWIN BM2001 USB Adapter install driver.

7) Select “Btbus” file and click “Open” button.



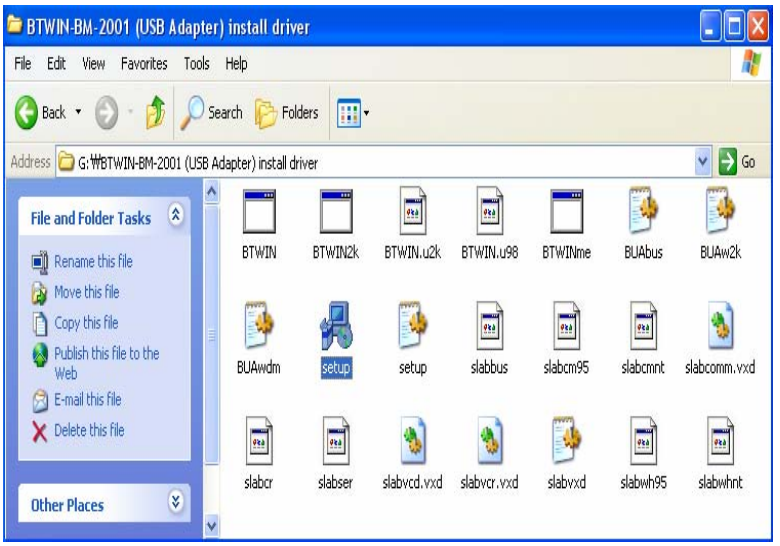
8) Windows found a driver for BM2001.
Click Next button

.

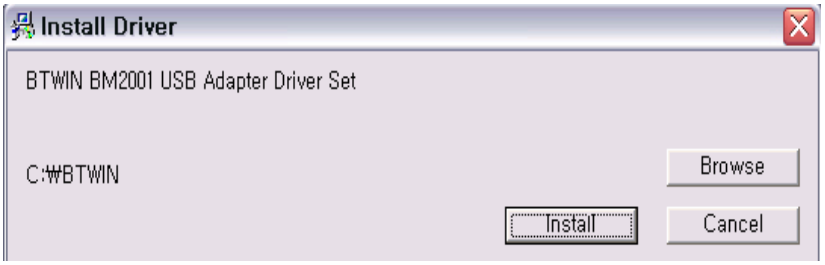
9) Driver installing has finished. Click Finish button.

8.1.2 Windows XP

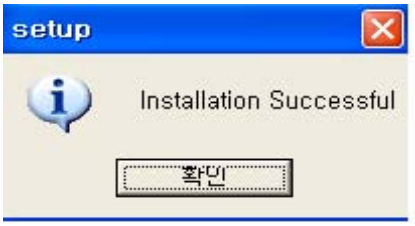
Before set up the device driver, turn off the BM2001's power switch.
The device driver install procedures are separated two steps.
The first step is making the driver folder in the Windows.
[1] Move to "BTWIN BM2001 USB Adapter driver " folder on CD be provided,
and you can see below window.
[My Computer]➔[CD Rom Drive]➔[BTWIN BM2001 USB Adapter driver]



[2] Double click the “Setup” icon, and the pop-up window will appear.



[3] Click the "install" button, and installing procedure will start.



[4] Ok, first step has finished. Open the C drive of your computer, and you can find “BTWIN” folder.

[5] Now, the installing procedure will begin from here for the BM2001’s device driver. Turn on the power switch of BM2001.

[6] The windows shall find the new device and you will see the pop-up window.

[7] Select “Install the software automatically [Recommended]” and press “Next” button.

[8] If your OS is a Windows XP, you will see the below windows.

But you can ignore that massage, click “Continue Anyway” button.

[9] Click “Finish” button, and window will disappear.

[10] The first installation procedure has been finished.

[11] New windows will appear, but it is not a problem. You will do one more same procedure for the driver installing.

[11] Select “Install the software automatically [Recommended]” and press “Next” button.

[12] If your OS is a Windows XP, you will see the below windows.

But you can ignore that massage, click “Continue Anyway” button.

[13] Click “Finish” button, and window will disappear.
All installations have been finished.

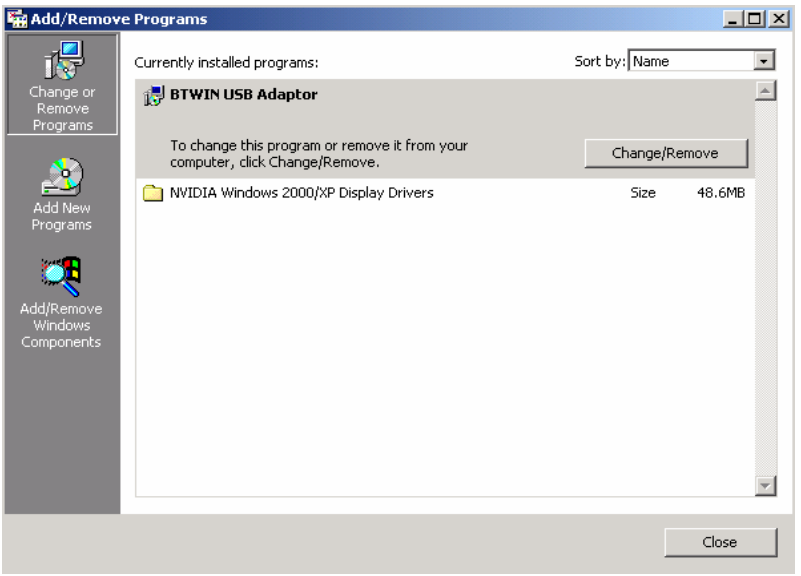
8.2 Uninstallation of device driver

(Windows 98, Windows 2000 and Windows XP)

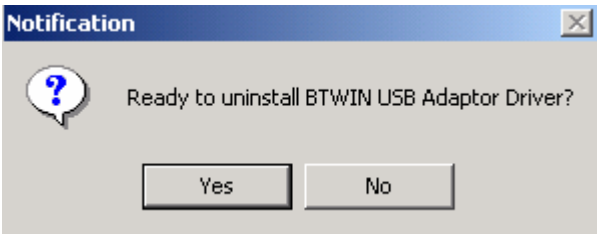
1) Move to [My computer]➔[Control Panel]➔[Add/Remove programs]

2) You may see “BTWIN USB Adapter”.

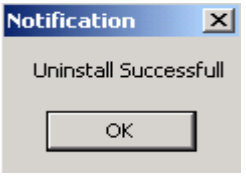
3) Select that and click “Change/Remove”



4) Click “Yes” button.

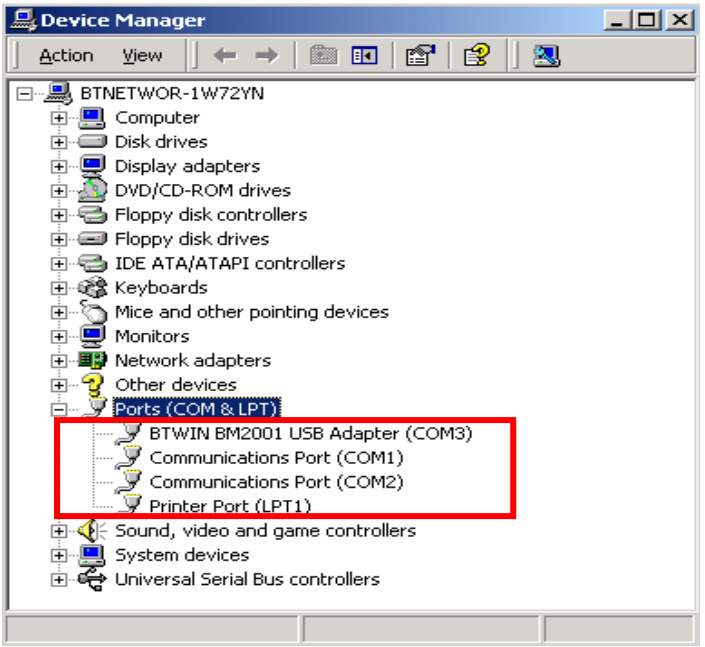


5) Click “OK” button.



8.3 Setting-up COM Port for BM2001

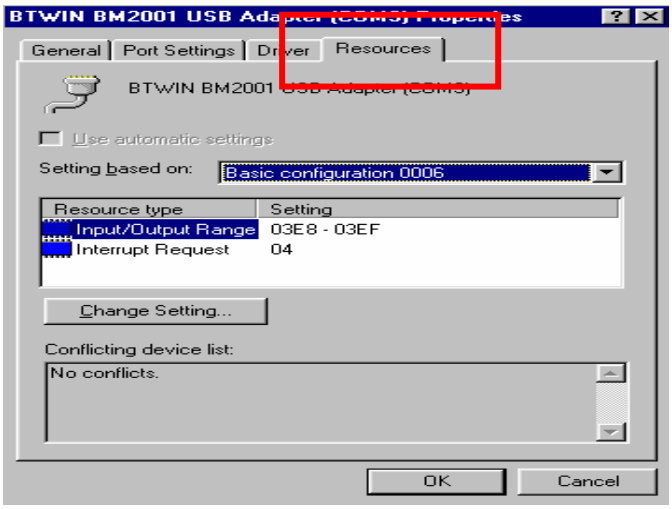
8.3.1 Windows 98



[1] Move to [My computer] ➔[Control Panel]➔[System] ➔[Hardware] ➔[Device Manager]

[2] Click Port, and you may see “BTWIN BM2001 USB Adapter”

[3] Double click BM2001 to see its property.



[3] Select the Resources Tab.

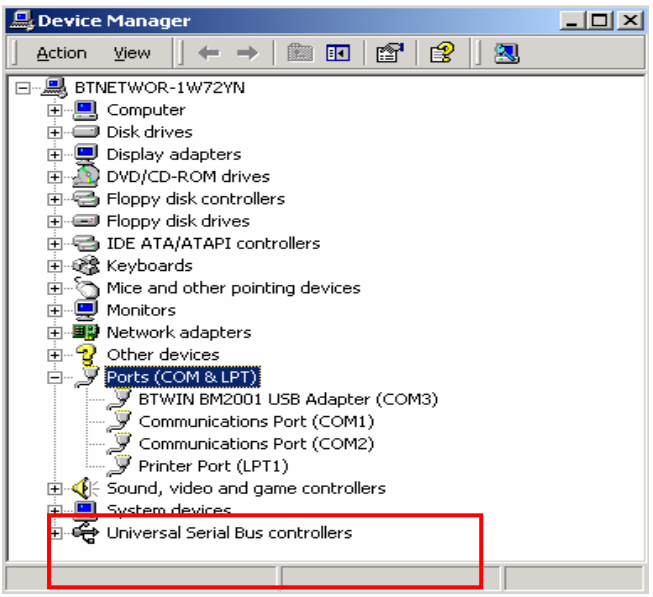
[4] If you want to change COM port for BM2001, you should change the Setting based on.

[5] Please refer to below table.

COM Port No	Input / Output Range
COM 1	03F8 – 03FF
COM 2	02F8 – 02FF
COM 3	03E8 – 03EF
COM 4	02E8 – 02EF

COM port Number is assigned by Input / Output Range.

8.3.2 Windows 2000 & Windows XP



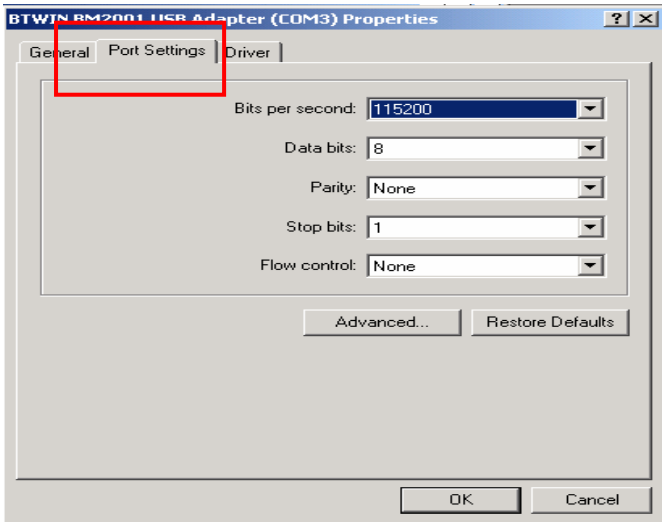
[1] Move to [My computer]
➔[Control Panel]
➔[System]
➔[Hardware]
➔[Device Manager]

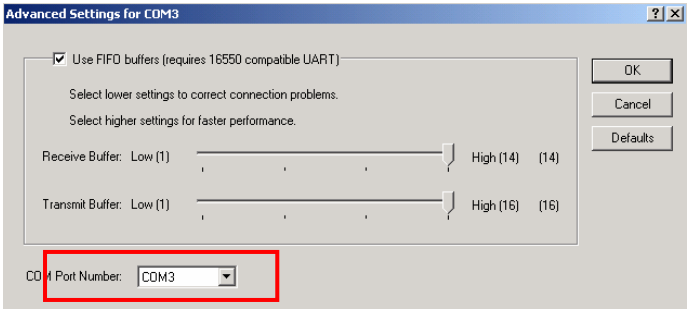
[2] Click Port, and you may see “BTWIN BM2001 USB Adapter”

[3] Double click BM2001 to see its property.

[4] Select “Port Setting” Tab.

[5] Click “Advanced” button.





[6] Set COM port No.

9. Configuration of BM2001

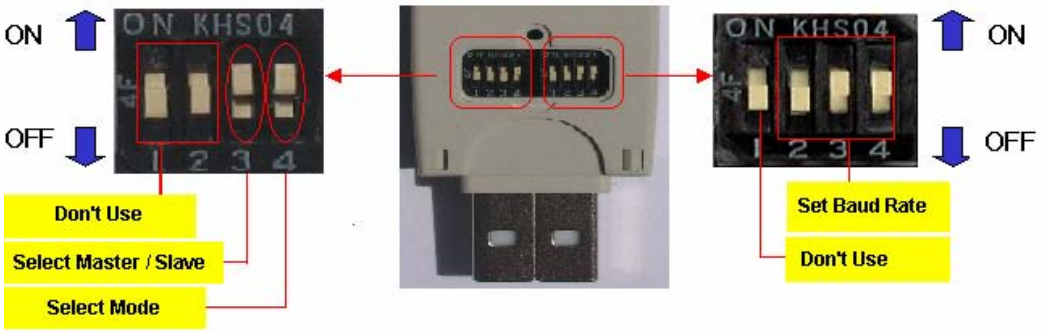
9.1 Configuration By DIP Switch

NOTE: Check on default setting before testing BM2001

1) If there are two BM2001s. One should be a Master and opposite side should be a Slave. * BM2001 is set either master or slave at factory.
2) Mode selection should be DIP-Switch Configuration mode.
3) Baud rate is 9600 bps

.

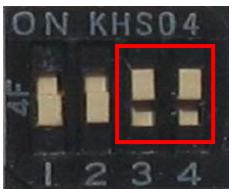
Function Select Switch **Baud Rate Switch**



Let's set the DIP Switch

i) Set as a MASTER

Function Select Switch



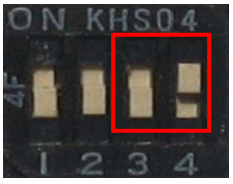
Baud Rate Switch

Setting

Role: Master
bps: 9600 bps
Mode: DIP Switch Configuration Mode

ii) Set as a SLAVE

Function Select Switch

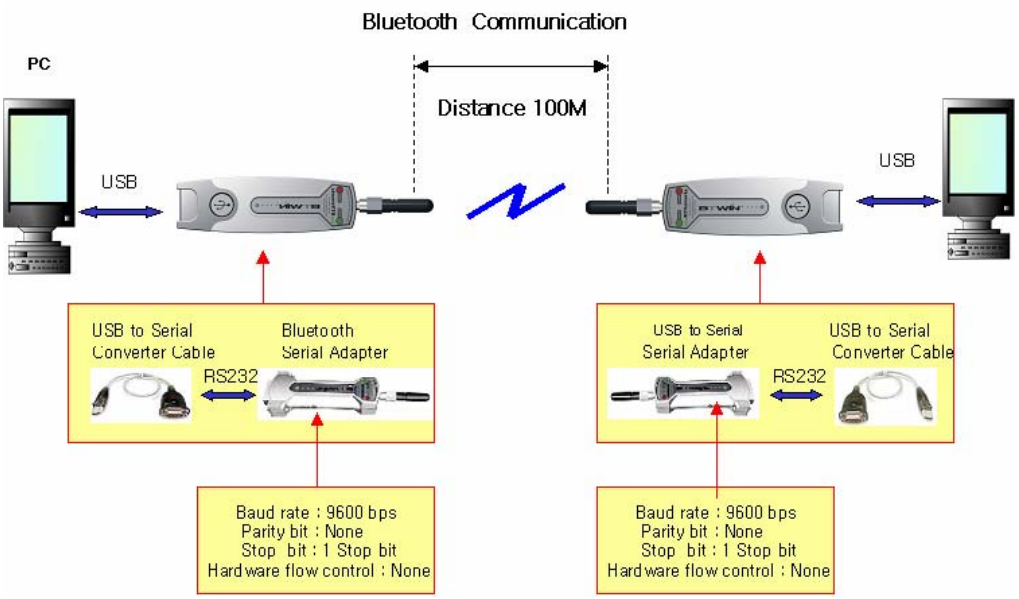


Baud Rate Switch

Setting

Role: Slave
bps: 9600 bps
Mode: DIP Switch Configuration Mode

9.1.1 Communication Test at 9600bps (default setting)



Ex.)

Part	Description		
Equipment	PC: 2 ea BM2001: 2 ea		
Test Environment	PC is power on and OS is the Windows. Use USB port of each PC.		
Setting Values	**Part**	**Default (Before change)**	**User Select (After Change)**
	External Power Select	Don't Use	Don't Use
	Select RI Signal Line	Don't Use	Don't Use
	Master/Slave Select	Master or Slave	Master or Slave
	Mode Select	Dip switch Configuration mode	Dip switch Configuration mode
	Baud rate	9600 bps	9600 bps
	Parity	None	None
	Stop bit	1 bit	1 bit
	Hardware flow control	None	None
* If use Default setting, You don't have to change the setting.			

Follow these procedures.

[1] Attach BM2001 to USB port of each PC.

[2] Turn on the power switch.

♦ Whenever turn on the power switch, BM2001will start working.

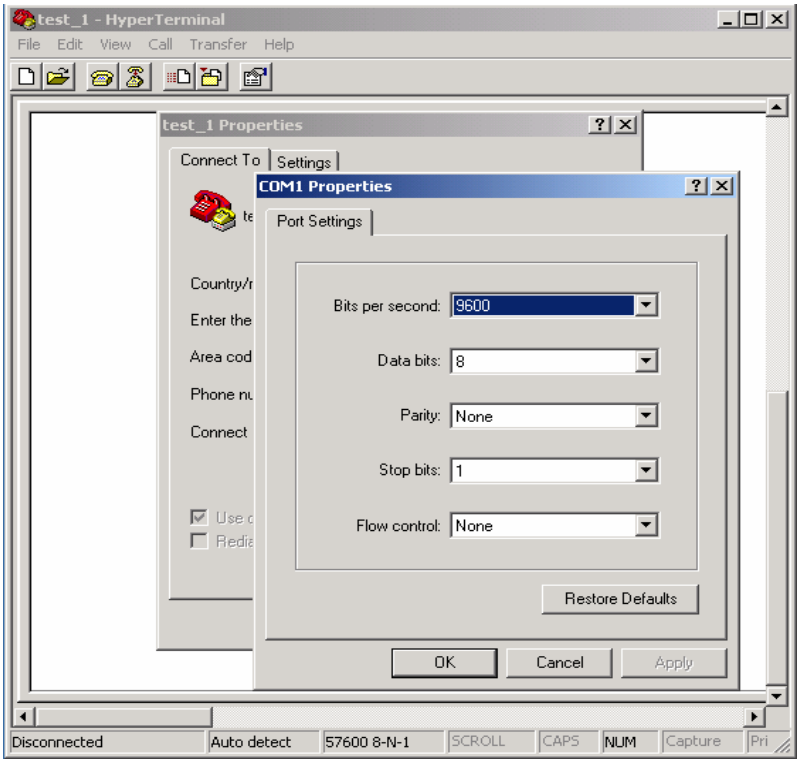
[3] Check on the power LED color is red.

♦ It means B2001 is supplied power stable.

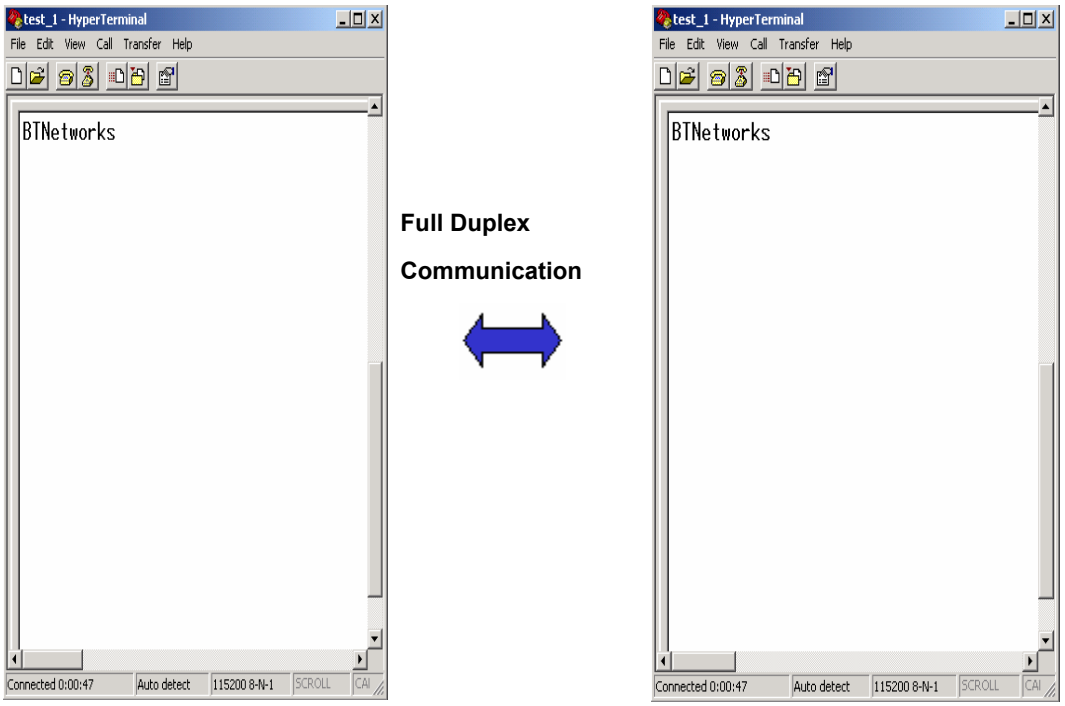
[4] Check on status LED color is green.

♦ When Status LED is green, it means is established connection between two BM2001s.

[5] Run the hyper terminal at each PC. And then set the parameters as below picture.



[6] Enter the characters via keyboard at each PC in order to transmit the data between two PCs.



PC1

PC2

[7] If users may see the characters on both windows, it means data communication both way through BM2001s and setup is successful.

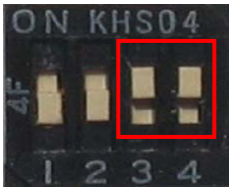
9.1.2 Communication Test at 115,200bps (buad rate change)

Change the baud rate switch as 115200 bps. Pin 2,3 and 4 are up before test. After change, please try with HyperTerminal to confirm the successful data communication with changed buad rate.

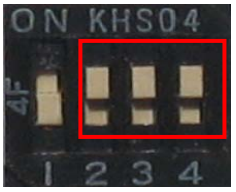
♦ BM2001 should be either master or slave. If one is a master, another should be a slave.

I) Set as a MASTER

Function Select Switch



Baud Rate Switch

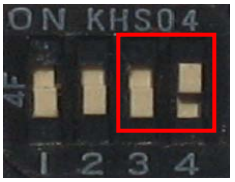


Setting

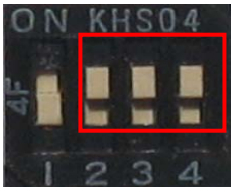
Role: Master
Bps: 115200 bps
Mode: DIP Switch Configuration Mode

ii) Set as a SLAVE

Function Select Switch



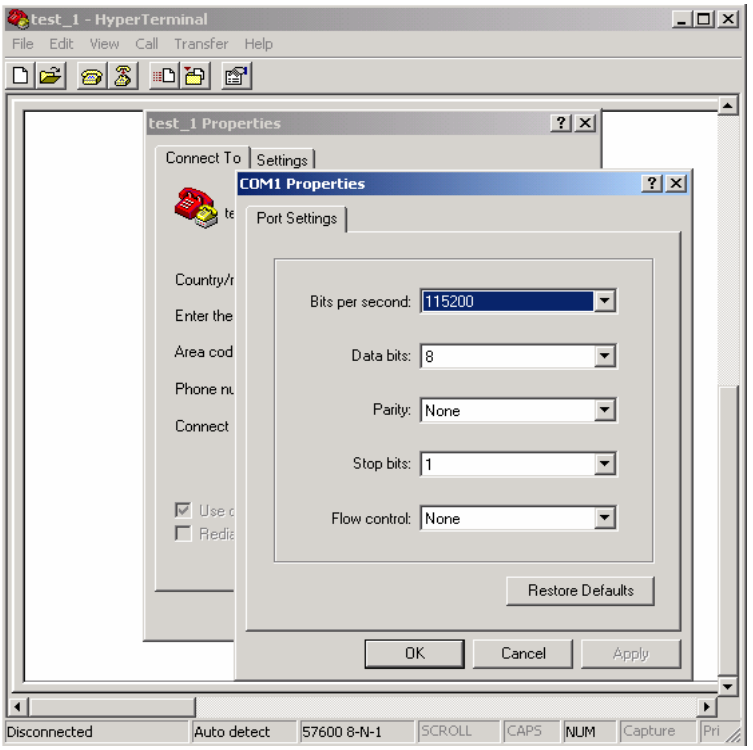
Baud Rate Switch



Setting

Role: Slave
Bps: 115200 bps
Mode: DIP Switch Configuration Mode

After the change of DIP switch to use 115.2Kbps, please test with Hyperteminal with Port settings with new baud rate as in below.



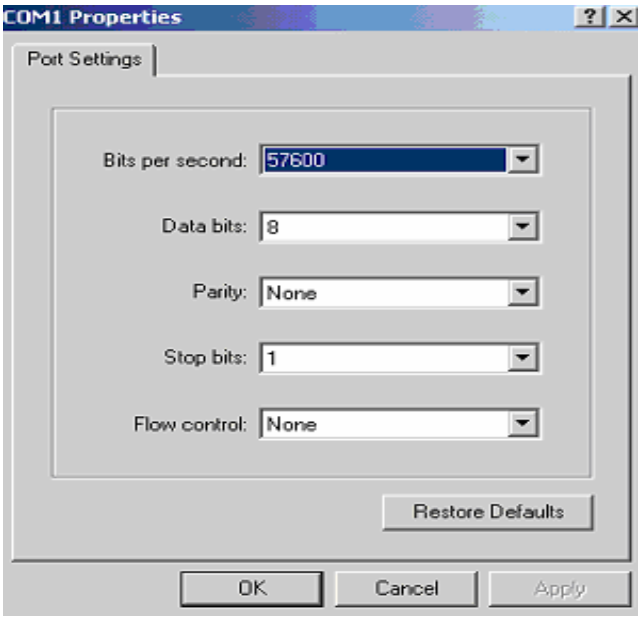
9.2 Configuration By PC Software

9.2.1 Pre-setting

You should below procedures in order to use the PC Configuration mode before turn on the BM2001.
[1] In order to use PC Configuration Mode, you need the serial communication software.
Here we explain the usage scenario with HyperTerminal of Windows.

[2] Run the Hyper Terminal and then disconnect current connection.

[3] Open the menu [File➔Property➔Configuration] at Menu Bar.

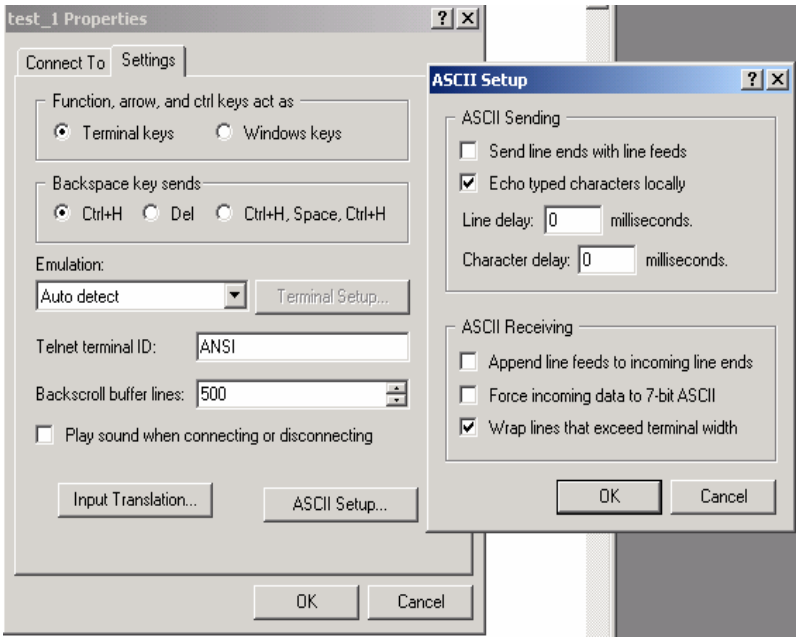


Port Setting

Communication Speed: Should be matched to DIP switch setting if setted. Default: 9600bps.

Data Bit: 8

Parity Bit: None Parity
Stop Bit: 1
Flow Control: None



Click to “ASCII Setup” button of Setup tab in the properties to into ASCII setup mode.

Check the “Echo typed characters locally” box in the ASCII Sending.

[4] Afterward above set up, turn on the BM2001 and then click the connect button.

It will appear the message like left picture then it will start the count down.

```
|=============== BTWIN ==============|
|        Model name : BM1001         |
|        Version    : 3.0            |
|====================================|
Press the enter key > 5
BTWIN Setting Start


==================== TOP MENU ====================
0 => Device Name          : BTNetworks
1 => Authentication       : Enable PINCODE[BTWIN]
2 => Local BD Address     : 0011b1a10c71
3 => Remote BD Address    : 0011b1a10c7c
4 => Role                 : SLAVE
5 => Connection Mode      : MODE1
6 => RS-232(Baud Rate)    : 9600bps
7 => RS-232(Stop Bit)     : 1 bit
8 => RS-232(Parity Bit)   : None
9 => RS-232(Flow Control) : ON
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu       x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > _
```

[5] Press the enter key within 5 seconds, and appear the TOP menu to configure.

[6] If you do not press the enter key within 5 seconds, BM2001 will try to communicate at default setting.

[7] If you need more detail information for PC Configuration Mode, refer below documents.

9.2.2 How to do PC configuration

```
7 => RS-232(Stop Bit)     : 1 bit
8 => RS-232(Parity Bit)   : None
9 => RS-232(Flow Control) : ON
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu       x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > t
==================== TOP MENU ====================
0 => Device Name          : BTNetworks
1 => Authentication       : Enable PINCODE[BTWIN]
2 => Local BD Address     : 0011b1a10c71
3 => Remote BD Address    : 0011b1a10c7c
4 => Role                 : SLAVE
5 => Connection Mode      : MODE1
6 => RS-232(Baud Rate)    : 9600bps
7 => RS-232(Stop Bit)     : 1 bit
8 => RS-232(Parity Bit)   : None
9 => RS-232(Flow Control) : ON
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu       x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > _
```

1) After enter the character, Press the enter key.

2) Small "**t**" always moves to TOP MENU.

3) Small "**x**" closes the PC configuration utility.

3) To move to other menu you should input the left first number of menus.

4) To cancel current input character use the "←" Back Space key and "**ESC**" key.

```
BTWIN Setting Start


=================== TOP MENU ===================
0 => Device Name           : BTNetworks
1 => Authentication        : Enable PINCODE[BTWIN]
2 => Local BD Address      : 0011b1a10c71
3 => Remote BD Address     : 0011b1a10c7c
4 => Role                  : SLAVE
5 => Connection Mode       : MODE1
6 => RS-232(Baud Rate)     : 9600bps
7 => RS-232(Stop Bit)      : 1 bit
8 => RS-232(Parity Bit)    : None
9 => RS-232(Flow Control) : ON
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu        x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > x
/************ BTWIN Setting complete! ************/


BTWIN Slave mode start
_
```

5) If the entered character is wrong, “**Retry >** “ message will be displayed.

6) You can enter the character until maximum 12 characters.

If the entered characters exceed than 12 characters, it will display “**Overflow buffer**” message.

And then it will display “**Retry >** “ message.

```
9 => RS-232(Flow Control) : ON
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu        x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > f
Retry Select(0~9) >
```

* *Explanation on menu of the PC configuration interface*

[1] Device Name: Bluetooth device's name

[1-1] You can change the device name within 12 characters.

[1-2] Afterward input the name then press the enter key.

Appear "Change Complete!!" message and then move to TOP MENU.

```
[ t : Move top menu          x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > f
Retry Select(0~9) > 0
Change Device name
Within 12 character > BTtest
Change complete !!

==================== TOP MENU ==========
0 => Device Name           : BTtest
1 => Authentication        : Enable PINCODE[BTWIN]
2 => Local BD Address      : 0011b1a10c71
3 => Remote BD Address     : 0011b1a10c7c
4 => Role                  : SLAVE
5 => Connection Mode       : MODE1
6 => RS-232(Baud Rate)     : 9600bps
7 => RS-232(Stop Bit)      : 1 bit
8 => RS-232(Parity Bit)    : None
9 => RS-232(Flow Control)  : ON
================================================
[ Back Spcae : Input data Cancel                 ]
[ t : Move top menu          x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > _
```

The device name is changed from BTNetworks to BTtest.

[1-3] You can see the changed device name at TOP menu.

[2] Authentication

To connect other bluetooth devices it needs an authentication, pin code, encryption. User may set them in this menu.

```
1 => Authentication        : Enable
2 => Pin Code              : BTWIN
3 => Encryption            : Enable
================================================
[ Back Spcae : Input data Cancel                 ]
[ t : Move top menu                              ]
================================================
Select Menu(1~3) > t
==================== TOP MENU ==========
0 => Device Name           : BTtest
1 => Authentication        : Enable PINCODE[BTWIN]
2 => Local BD Address      : 0011b1a10c71
3 => Remote BD Address     : 0011b1a10c7c
4 => Role                  : SLAVE
5 => Connection Mode       : MODE1
6 => RS-232(Baud Rate)     : 9600bps
7 => RS-232(Stop Bit)      : 1 bit
8 => RS-232(Parity Bit)    : None
9 => RS-232(Flow Control)  : ON
================================================
[ Back Spcae : Input data Cancel                 ]
[ t : Move top menu          x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > _
```

Authentication is set as enable

Pin Code is set as BTWIN

[2-1] Authentication

[2-1-1] User may set to request the authentication procedure.

[2-1-2] When it is disable, the encryption feature is disable too.

[2-1-3] The default setting is enable.

```
1 => Authentication       : Enable PINCODE[BTWIN]
2 => Local BD Address     : 0011b1a10c71
3 => Remote BD Address    : 0011b1a10c7c
4 => Role                 : SLAVE
5 => Connection Mode      : MODE1
6 => RS-232(Baud Rate)    : 9600bps
7 => RS-232(Stop Bit)     : 1 bit
8 => RS-232(Parity Bit)   : None
9 => RS-232(Flow Control) : ON
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu        x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > 1

============ AUTHENTICATION SUB MENU ============
1 => Authentication       : Enable
2 => Pin Code             : BTWIN
3 => Encryption           : Enable
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu                             ]
================================================
Select Menu(1~3) >
```

[2-2] Pin Code

[2-2-1] It is like a password.

[2-2-2] To connect between two devices, they have to have a same pin code.

[2-2-3] You can enter the pin code within 12 characters.

[2-2-4] After enter the pin code, “Change complete !!” message will be displayed.
And then move to AUTHENTICATION SUB MENU.

```
============ AUTHENTICATION SUB MENU ============
1 => Authentication       : Enable
2 => Pin Code             : BTWIN
3 => Encryption           : Enable
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu                             ]
================================================
Select Menu(1~3) > 2
================================================
Change Pin Code
Within 12 character > TEST
Change complete !!

============ AUTHENTICATION SUB MENU ============
1 => Authentication       : Enable
2 => Pin Code             : TEST
3 => Encryption           : Enable
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu                             ]
================================================
Select Menu(1~3) >
```

Pin code is changed.

[2-3] Encryption

[2-3-1] This encrypt the data between two bluetooth devices.

[2-3-2] The default setting is enable.

[2-3-3] If the authentication is disable, this is disable too.

```
1 => Authentication       : Enable PINCODE[BTWIN]
2 => Local BD Address     : 0011b1a10c71
3 => Remote BD Address    : 0011b1a10c7c
4 => Role                 : SLAVE
5 => Connection Mode      : MODE1
6 => RS-232(Baud Rate)    : 9600bps
7 => RS-232(Stop Bit)     : 1 bit
8 => RS-232(Parity Bit)   : None
9 => RS-232(Flow Control) : ON
================================================
[ Back Spcae : Input data Cancel               ]
[ t : Move top menu       x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > 1

============ AUTHENTICATION SUB MENU ============
1 => Authentication       : Enable
2 => Pin Code             : BTWIN
3 => Encryption           : Enable
================================================
[ Back Spcae : Input data Cancel               ]
[ t : Move top menu                            ]
================================================
Select Menu(1~3) >
```

[3] Local BD Address:

[3-1] This is a MAC address of Bluetooth Device. It is fixed parameter. You can't change it.

[3-2] If you choice this menu, "No change local BD address" message will be displayed and then move to Top menu automatically.

[4] Remote BD Address

[4-1] This is the latest paired bluetooth device address.

[4-2] If you want to connect new bluetooth device, delete the latest paired bluetooth device address and then enter new bluetooth address.

```
==================== TOP MENU ====================
0 => Device Name          : BTtest
1 => Authentication       : Enable PINCODE[TEST]
2 => Local BD Address     : 0011b1a10c71
3 => Remote BD Address    : 0011b1a10c7c
4 => Role                 : MASTER
5 => Connection Mode      : MODE3
6 => RS-232(Baud Rate)    : 9600bps
7 => RS-232(Stop Bit)     : 1 bit
8 => RS-232(Parity Bit)   : None
9 => RS-232(Flow Control) : ON
================================================
[ Back Spcae : Input data Cancel               ]
[ t : Move top menu       x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > 3
Change Remote BD address
Hexa type 12 character > 000b2435fdcc
```

1) To use this feature enter "3" and then press the enter key at menu select status.
2) Input the new bluetooth device address in a hexadecimal that you want to connect it.
3) It will be displayed "Change complete!!" and then move to Top menu automatically.
4) You can see the changed Remote BD address.

```
[ Back Spcae : Input data Cancel                  ]
[ t : Move top menu        x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > 3
Change Remote BD address
Hexa type 12 character > 000b2435fdcc
Change complete !!

=================== TOP MENU ===================
0 => Device Name          : BTtest
1 => Authentication       : Enable PINCODE[TEST]
2 => Local BD Address     : 0011b1a10c71
3 => Remote BD Address    : 000b2435fdcc
4 => Role                 : MASTER
5 => Connection Mode      : MODE3
6 => RS-232(Baud Rate)    : 9600bps
7 => RS-232(Stop Bit)     : 1 bit
8 => RS-232(Parity Bit)   : None
9 => RS-232(Flow Control) : ON
================================================
[ Back Spcae : Input data Cancel                  ]
[ t : Move top menu        x : EXIT(In top menu) ]
================================================
Select Menu(0~9) >
```

[4-3] When you want to delete the Remote BD address, input twelve zeros “000000000000”
If you delete the Remote BD address, it is able to connect the first bluetooth device has same PIN code in MODE1.

[4-4] BM1001 must have a Remote BD address in MODE3.

[5] Role
[5-1] Bluetooth device has to be an either master or slave.
[5-2] In order to connect between two bluetooth devices one has to be a master and another has to be a slave.

```
=================== TOP MENU ===================
0 => Device Name          : BTtest
1 => Authentication       : Enable PINCODE[TEST]
2 => Local BD Address     : 0011b1a10c71
3 => Remote BD Address    : 000b2435fdcc
4 => Role                 : MASTER
5 => Connection Mode      : MODE3
6 => RS-232(Baud Rate)    : 9600bps
7 => RS-232(Stop Bit)     : 1 bit
8 => RS-232(Parity Bit)   : None
9 => RS-232(Flow Control) : ON
================================================
[ Back Spcae : Input data Cancel                  ]
[ t : Move top menu        x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > 4
Change Role  :
1 : MASTER      2 : SLAVE
Select(1~2) > _
```

[5-3] Select menu 4 at TOP MENU, and you can select the role.
MASTER is 1 and SLAVE is 2.

[5-4] Select the role and press the enter key.

```
[ t : Move top menu        x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > 4
Change Role  :
1 : MASTER      2 : SLAVE
Select(1~2) > 2
Change complete !!

==================== TOP MENU ====================
0 => Device Name           : BTtest
1 => Authentication        : Enable PINCODE[TEST]
2 => Local BD Address      : 0011b1a10c71
3 => Remote BD Address     : 000b2435fdcc
4 => Role                  : SLAVE
5 => Connection Mode       : MODE3
6 => RS-232(Baud Rate)     : 9600bps
7 => RS-232(Stop Bit)      : 1 bit
8 => RS-232(Parity Bit)    : None
9 => RS-232(Flow Control)  : ON
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu        x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > _
```

*** You can see the changed Role.**

[6] Connection Mode

There are three connection modes. You may select connection mode.

1) Select menu 5 at TOP MENU.

2) Choice the mode. And press the enter key.

```
==================== TOP MENU ====================
0 => Device Name           : BTtest
1 => Authentication        : Enable PINCODE[TEST]
2 => Local BD Address      : 0011b1a10c71
3 => Remote BD Address     : 000b2435fdcc
4 => Role                  : SLAVE
5 => Connection Mode       : MODE3
6 => RS-232(Baud Rate)     : 9600bps
7 => RS-232(Stop Bit)      : 1 bit
8 => RS-232(Parity Bit)    : None
9 => RS-232(Flow Control)  : ON
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu        x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > 5
Change Connection mode  :
1 : MODE1       2 : MODE2       3 : MODE3
Select(1~3) > _
```

3) You can see the changed mode.

```
[ t : Move top menu        x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > 5
Change Connection mode  :
1 : MODE1       2 : MODE2       3 : MODE3
Select(1~3) > 2
Change complete !!

==================== TOP MENU ====================
0 => Device Name           : BTtest
1 => Authentication        : Enable PINCODE[TEST]
2 => Local BD Address      : 0011b1a10c71
3 => Remote BD Address     : 000b2435fdcc
4 => Role                  : SLAVE
5 => Connection Mode       : MODE2
6 => RS-232(Baud Rate)     : 9600bps
7 => RS-232(Stop Bit)      : 1 bit
8 => RS-232(Parity Bit)    : None
9 => RS-232(Flow Control)  : ON
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu        x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > _
```

About the modes

MODE 1

In this mode, BM2001 always connect the latest paired bluetooth device.
If BM2001 has not the Remote BD address, try to connect the first bluetooth device is searched.
At this time, two bluetooth devices must have same PIN code.

MODE 2

1) In MASTER Case
You can search the bluetooth devices have same PIN code round it.
And the bluetooth devices list will be displayed.
You can select one among the bluetooth devices list.

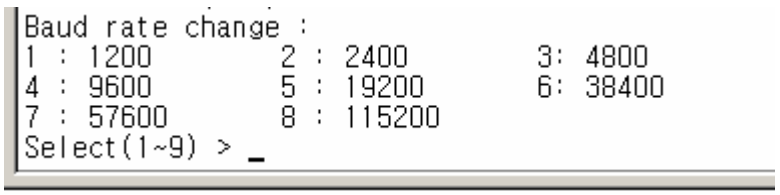
2) In SLAVE case
when it received the connection request from the Master has same PIN code, it connect the master.

MODE 3

If you know the Remote BD address, you can change the Remote BD address in Mode3.
Enter the BD address of Remote device to “Remote BD Address”.
***Caution: BM2001 must have a Remote BD Address in mode3.**

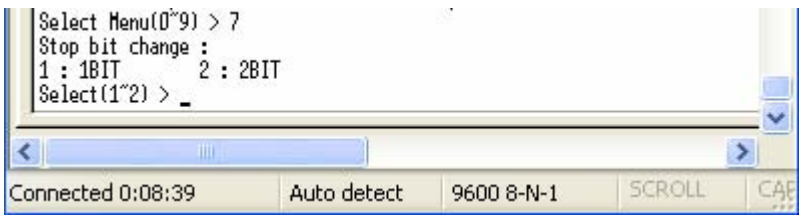
[7] RS-232 (Baud Rate)

[7-1] It is UART communication speed.
[7-2] BM2001 supports Baud Rate from 1,200 until 230,400 bps.



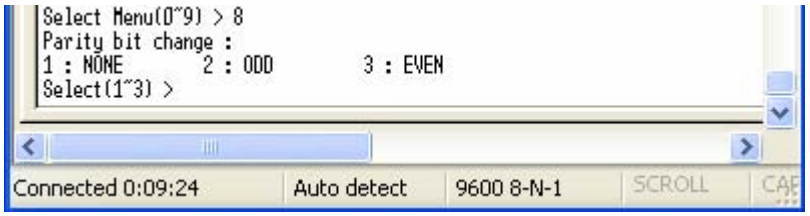
[8] RS-232 (Stop Bit)

STOP Bit is 1 Bit and 2 Bit.



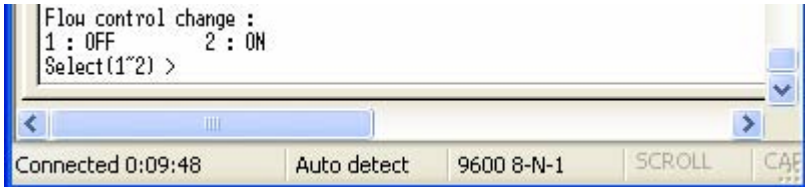
[9] RS-232 (Parity Bit)

Parity Bit is NONE, ODD and EVEN.



[10] RS-232 (Flow control)

BM2001 supports Hardware Flow control. Default setting is OFF.



Appendix: Bluetooth Operation Mode of BM series

MODE 1 (Default Mode)

This is the default seeting.

Before user change the connection mode, BM2001 use this mode always.

[1] it communicates with the latest paired bluetooth device.

- The latest paired bluetooth device address is memorized to the Remote BD Address.

[2] If it has not the Remote BD Address,

Master: It tries to connect the first bluetooth device is searched.

At this time, remote device should be a SLAVE mode and must have same PIN code.

SLAVE: When it received the connection request from the Master has same PIN code, it connect the master.

MODE 2

If you want to connect the new bluetooth device, use this mode.

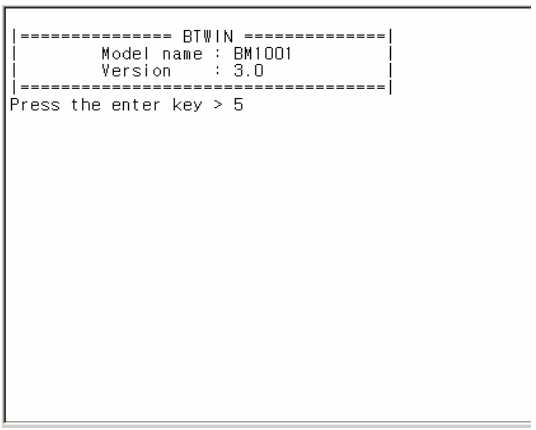
Using method

[1] Turn off BM2001 and move down the pin#4 of the function select switch. Then BM2001 will be a PC configuration Mode.

[2] Run the Hyperterminal program of the windows. Refter to "**PC Configuration Mode".**

[3] Turn on BM2001, you will find the below picture at your monitor.

[4] Press the Enter key within 5 seconds.



[5] It will enter the PC configuration Mode.

[6] Select No.5 Connection Mode in the menu. And then press the Enter key.

[7] Select No.2 MODE2 in the connectin mode menu. And then press the Enter key.

[8] Turn off BM2001.

[9] Move up the pin#4 of the function select switch. It will ba DIP Switch Mode.

[10] Turn on BM2001.

```
=================== TOP MENU ===================
0 => Device Name          : BTtest
1 => Authentication       : Enable PINCODE[TEST]
2 => Local BD Address     : 0011bla10c71
3 => Remote BD Address    : 000b2435fdcc
4 => Role                 : SLAVE
5 => Connection Mode      : MODE3
6 => RS-232(Baud Rate)    : 9600bps
7 => RS-232(Stop Bit)     : 1 bit
8 => RS-232(Parity Bit)   : None
9 => RS-232(Flow Control) : ON
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu       x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > 5
Change Connection mode  :
1 : MODE1       2 : MODE2       3 : MODE3
Select(1~3) > _
```

In Master Case

[11] You can see the below picture.

- BM2001 will find the bluetooth devices with same PIN code.

```
9 => RS-232(Flow Control) : ON
================================================
[ Back Spcae : Input data Cancel                ]
[ t : Move top menu       x : EXIT(In top menu) ]
================================================
Select Menu(0~9) > x
/************ BTWIN Setting complete! ************/


BTWIN Master mode start

Start Inquiry....
=========== Key Operation ===========
[ 1~7 : Choice  slave device        ]
[ s   : Stop inquiry                ]
[ r   : Restart inquiry             ]
[ Back space : Input Cancle         ]
=====================================
Num  BD ADDRESS    LOCALNAME             CoD
 1   0005c9500de2  SPP_CLIENT           000104
 2   0011bla10c80  BTNetworks           001f00
 3   000a3a541933  CWP_DONGLE           000000
=============================================
Choice slave device >
```

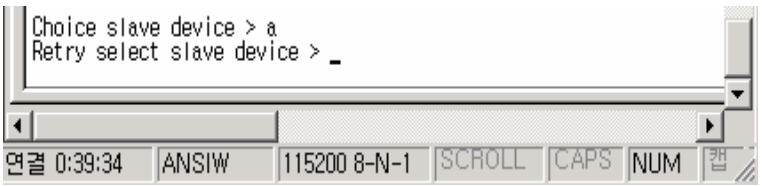
- The searching will be kept on until look for 7 slaves.

- Some keys have a function while searching.

■ “r” : Retry searching

■ “←” Back space key : Cancel the entered data

■ “s” : Stop searching



Select one slave device of the list, and master will connect to that.

- If connection is fail, “The slave device is not connectable!!” message will be displayed.
- And retry search for bluetooth devices.

```
====================================
Num   BD ADDRESS     LOCALNAME             CoD
 1    0005c9500de2   SPP_CLIENT            000104
 2    0011b1a10c80   BTNetworks            001f00
 3    000a3a541933   CWP_DONGLE            000000
============================================
Choice slave device > 1
Connect Start : SLAVE BD ADDR(0005c9500de2)
The selected device is not connectable !

Start Inquiry....
========== Key Operation ==========
[ 1~7 : Choice  slave device        ]
[ s   : Stop inquiry                ]
[ r   : Restart inquiry             ]
[ Back space : Input Cancle         ]
====================================
Num   BD ADDRESS     LOCALNAME             CoD
 1    0011b1a10c80   BTNetworks            001f00
 2    000a3a541933   CWP_DONGLE            120104
 3    0005c9500de2   SPP_CLIENT            000104
 4    0011b1a10c6e   BTNetworks            001f00
============================================
Choice slave device >
```

When the connection is successful, it will be displayed “CONNECTION OK”.

```
 2    0011b1a10c80   BTNetworks            001f00
 3    000a3a541933   CWP_DONGLE            000000
============================================
Choice slave device > 1
Connect Start : SLAVE BD ADDR(0005c9500de2)
The selected device is not connectable !

Start Inquiry....
========== Key Operation ==========
[ 1~7 : Choice  slave device        ]
[ s   : Stop inquiry                ]
[ r   : Restart inquiry             ]
[ Back space : Input Cancle         ]
====================================
Num   BD ADDRESS     LOCALNAME             CoD
 1    0011b1a10c80   BTNetworks            001f00
 2    000a3a541933   CWP_DONGLE            120104
 3    0005c9500de2   SPP_CLIENT            000104
 4    0011b1a10c6e   BTNetworks            001f00
============================================
Choice slave device > 4
Connect Start : SLAVE BD ADDR(0011b1a10c6e)
BTNetworksCONNECTION OK
```

In Slave case

When slave device receive the connection request from the master device has same PIN code, it will connect with master device.

After Pairing with new bluetooth device, BM2001 must retrun to MODE1.
If you don’t do it, whenever turn on BM2001 it will be find the new bluetooth devices.

Back to Mode1

[1] Turn off BM2001. And move down the pin#4 of the function switch to be PC configuration Mode.

[2] Turn on BM2001. And change the connection mode as MODE1 at the main menu.

[3] Turn on BM2001. And move up the pin#4 of the function switch to be DIP Switch Mode.

MODE 3

You can change the remote bluetooth device's address directly.

[1]Enter the PC configuration Mode with BM2001.
[2] Select No.5 Connection Mode at the main menu.
[3] Select MODE3 in the connection mode menu.
[4] Go back main menu.
[5] Select No.3 Remote BD address at the main menu.
[6] Input the Remote device's address.
[7] Input "x", and then BM2001 will try to connect with new device what you want to connect.
[8]Wait until "Connection Ok" message will be displayed.
[9] Restart BM2001.
[8]Change the connection mode as MODE1 at the main menu.
[9] Turn off BM2001, and then move up pin#4 of the function switch to be DIP Swtich mode.