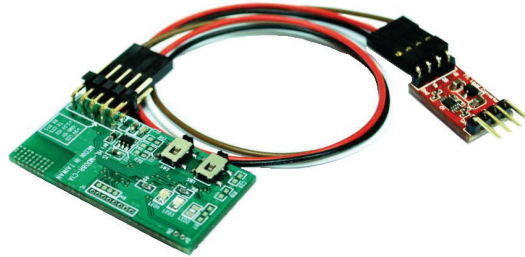# Innovati's Bluetooth 100M

Universal Wireless Bluetooth Module

Bluetooth 100M module is a simple to use Bluetooth module, command control through a simple UART Tx and Rx which are connected to other Bluetooth devices for data transmission and reception.

Application

It can be used for wireless transmission of data and as a remote control signal transmitter and receiver.

Features

- CSR BC04 chipset
- Support Bluetooth serial port connection (SPP).
- Provides a virtual RS232 instead of cable.
- Support Baud Rate 1.2k to 921.6k bps.
- Provide software tools for Windows systems.
- Support UART interface.
- Support CTS / RTS hardware flow control.
- Support Bluetooth SPP as a host or slave.
- Support automatic connection.
- Support up to 100 meters transmission distance when no obstacle

Connection

Connect the Universal Bluetooth module with the TTL Level Converter on the side of Vo pin as shown below, and the end of the 5Vi pin with the BASIC Commander. The 5Vi pin must be connected to the Vcc of the BASIC Commander.

The Innovati's BASIC Commander uses I / O with 5V signal input / output. However, the universal Bluetooth module receives signal with 3.3V. Therefore, a TTL Level Converter from 5V to 3.3V must be used to convert the signal to prevent data error.
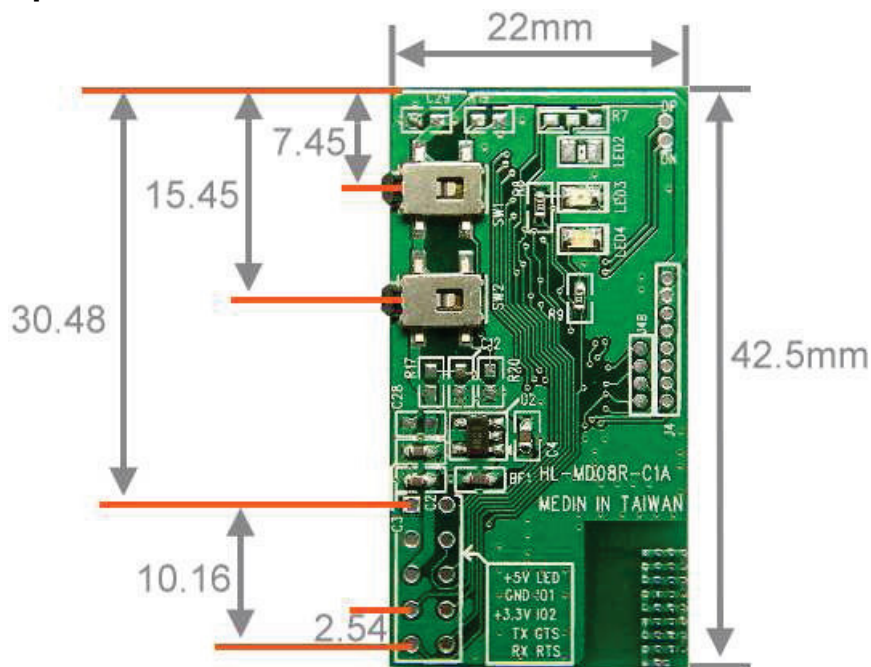
If you use a computer for data transfer with 3.3, you do not need to use TTL Level Converter Module. You can connect directly to the Bluetooth universal module.
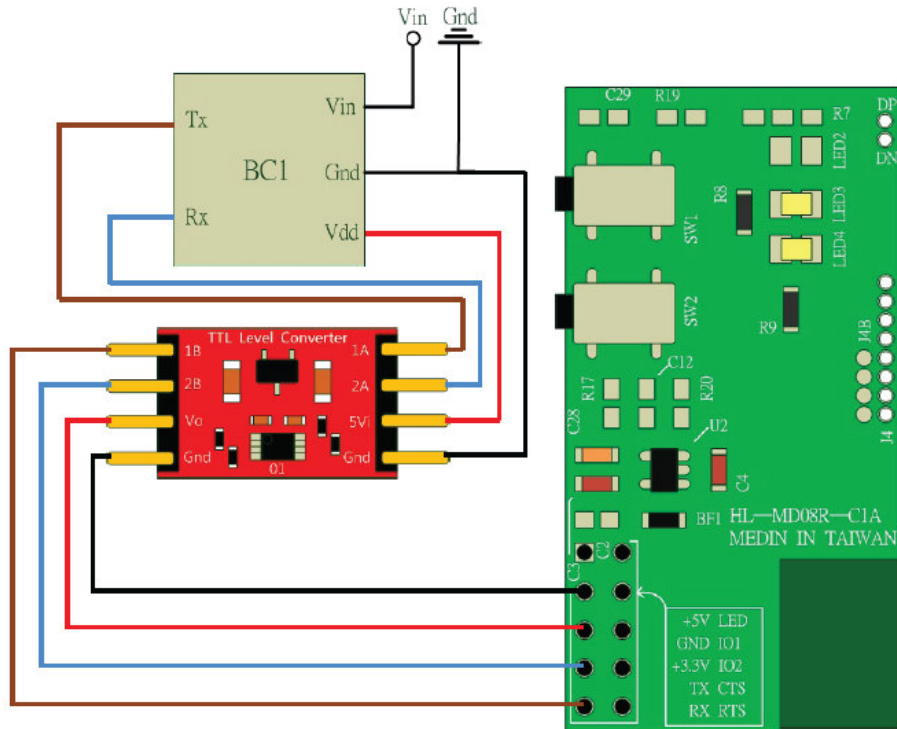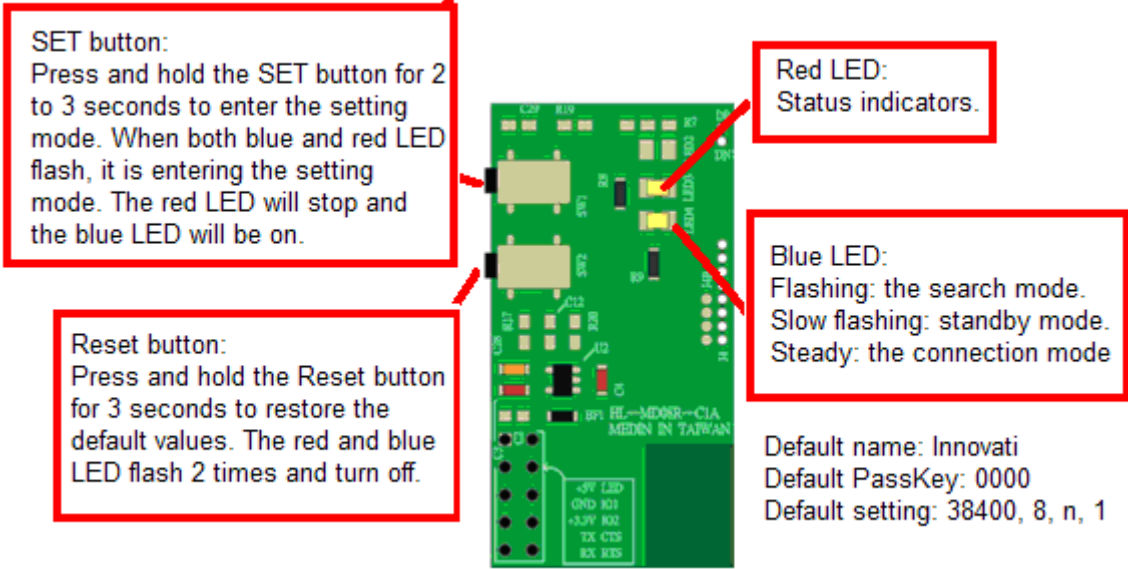
When connecting to other devices, make sure the TX and RX pin is connected correctly for data sending and receiving respectively.

The 5Vi pin must provide a 5V power supply, you can use the Vdd or Vcc pin on the Basic Commander.

Specification

SET button:
Press and hold the SET button for 2 to 3 seconds to enter the setting mode. When both blue and red LED flash, it is entering the setting mode. The red LED will stop and the blue LED will be on.

Reset button:
Press and hold the Reset button for 3 seconds to restore the default values. The red and blue LED flash 2 times and turn off.

Red LED:
Status indicators.

Blue LED:
Flashing: the search mode.
Slow flashing: standby mode.
Steady: the connection mode

Default name: Innovati
Default PassKey: 0000
Default setting: 38400, 8, n, 1

Model Name	HL-MD08R-C1A
Bluetooth Profile	Series Port Profile (Bluetooth SPP)
Standard	Bluetooth specification version 2.1+EDR
Frequency	2.402GHz ~ 2.480GHz unlicensed ISM band
Hopping	1,600/sec, 1 MHz channel space
Modulation Method	GFSK for 1Mbps; Π/4-DQPSK for 2Mbps; 8-DPSK for 3Mbps
Transfer rates (Max)	Max UART baud rates of 3Mbps
Spread Spectrum	Frequency Hopping Spread Spectrum (FHSS)
Signal	TxD, RxD, GND, CTS, and RTS
Transfer Baud Rate	Supports 1.2/2.4/4.8/9.6/19.2/38.4/57.6/115.2/230.4/460.8/921.6kbps
Flow Control	CTS / RTS
Data Bit	8
Stop Bit	1 , 2
Parity	None , Odd , Even
RF Output Power	Class 1
Tx Power	Max.17 +/-2 dBm
Rx Sensitivity	-80 dBm typical
Antenna	PCB Printed Antenna
Coverage	Up to 100 meter
Current Consumption	Max. 85 mA
Input Power	DC 3.3V or 5.0V
Operating Temperature	0 ~ +60℃
Storage Temperature	-10 ~ +70℃
Dimensions	42.5*22.5*6.6(H)mm

Setting

Cable mode:
1. Connect the TTL232 of the module to RS232 (can refer to the MAX232 IC).
2. Connect RS232 to your computer's COM PORT, such as COM1.
3. Stop all other active Bluetooth devices.
4. Disconnect the power supply.
5. Press and hold the Set button for 2 to 3 seconds. Turn on the power supply then release the button.
6. The blue LED1 and red LED2 flash alternatively to indicate you are in the setting mode.
7. Refresh or re-connect the Bluetooth module with your PC after power is on.
8. Take note on the COM PORT.
9. Open the Bluetooth module setup program (DeviceConfigure.exe).

Wireless mode:
1. Connect and pair your computer with the Bluetooth module to have a virtual COM Port, such as COM5. The default pass key is 0000.
2. Disconnect the power supply.
3. Press and hold the Set button for 2 to 3 seconds. Turn on the power supply then release the button.
4. The blue and red LED flash alternatively to indicate you are in the setting mode.
5. Refresh or re-connect the Bluetooth module with your PC after power is on.
6. Take note on the COM PORT.
7. Open the Bluetooth module setup program (DeviceConfigure.exe).
8. The PC COM Port is set to a virtual COM Port, such as COM5.
9. Click the OPEN PORT button to open more options and other settings.
10. If that fails, please press the RESET button to reset to its default value and then try again.

Reset

1. Stop all other active Bluetooth devices.
2. Disconnect the power supply.
3. Press and hold the Reset button for 2 to 3 seconds.
4. Turn on the power supply then release the button.
5. The blue and red LED1 LED2 flash at the same to indicate you are in the setting mode.
6. Repeat the Settings step to configure the module again.

Module configuration software:

1. Open the module configuration software DevicConfigure.exe.

2. Enter the settings page, as shown on the right. Select the Port number.
3. Click the Open port button.

4. The right column options will show to provide more settings.

5. After Setup is complete, click Update to save the settings and turn off the power and on again for the changes to take into effect.

Introduction to set options

INFO Settings –
Bluetooth Information Set

Device name:
Set the local device name

PIN code:
to Pair with other Bluetooth device

UART Settings –
UART parameter

Baud rate:
baud rate setting,
Basic Commander supports up to
80000 bps for data sending and 40000
bps for data receiving.

Parity bit:
bit check; use parity check to avoid data
transmission errors, the use of parity check is required in the calculation of operator Baudmode with
8192 (a parity check bit (bit 13)).

None: do not use the bit check.
Odd: odd parity checking.
Even: Even parity check.
Stop bit: the end bit; end of the bit to check the number of bits, it can make a better device
synchronization, but it might slow down the transmission speed, it is recommended to set to 1.
Flow control: Flow control;
Disable: turn off flow control
Enable: turn on flow control

Mode Settings - connection mode setting

Standard SPP Slave Mode:
host - the standard model for application of passive connections waiting for the search by other
devices connected.
Discoverable: Set to show or hide the device name.

Slave Mode Connect last connected device:
host - active mode, it will automatically remember and connect to the previous device.
Device address: destination address.
Reconnect times: the number of automatic connection, 0 for unlimited number of times.

Master Mode Connect Specified Device:
host - the specified device active connection, for active connections.
Device address: connection destination address.
Reconnect times: the number of automatic connection, 0 for unlimited number of times.

Auto Reconnect: Automatically connect option.
Connect nothing: no automatic connection.
Connect disconnected device: automatic link is not connected device.

Quick Connect settings:

1. Connect two Bluetooth modules to power supply.
2. Select one of them and press the SET button. The blue and red LED flashes to indicate it is in the search mode.
3. If the blue LED flashes, it means that the connection is successful, this will be the Master station, in active mode, the other will be the Slave in passive mode. Next time when both modules start, they will be connected automatically.
4. If this fails, restore the default values and try again.

Example program:
In this example, the 1A pin of the TTL Level Converter is connected to Pin 14, the 2A pin is connected Pin 15. The Baudrate set to 38400 bps.

Sending Data

```
Dim TxPin As Byte
Dim Baudmode As Word
Dim Data As String * 1
Dim x As Byte

Sub main()
    #DEFINE Baudrate 38400                      'Set default Baudrate to 38400bps
    TxPin = 14                                  ' set RxPin to Pin 15
    Baudmode = (4096 - (2000000\Baudrate))      ' Set Baud Mode to 38400bps
    x = 0

    Do
        Keyin Data
        Debug C
    Loop
End Sub
```

Receiving Data

```
Dim RxPin As Byte
Dim Baudmode As Word
Dim Data As String * 1
Dim x As Byte

Sub main()
    #DEFINE Baudrate 38400                      'Set default Baudrate to 38400bps

    RxPin = 15                                  ' set RxPin to Pin 15
    Baudmode = (4096 - (2000000\Baudrate))      ' Set Baud Mode to 38400bps
    x = 0

    Do
        Serin RxPin,Baudmode,[Data]             'transfer info from RxPin to Data
        Debug Data                              'show data on Debug window
        x = x + 1

        If x > 20 Then                          'add carriage return after receiving 20 times
            Debug CR
            x = 0
        End If
    Loop
End Sub
```