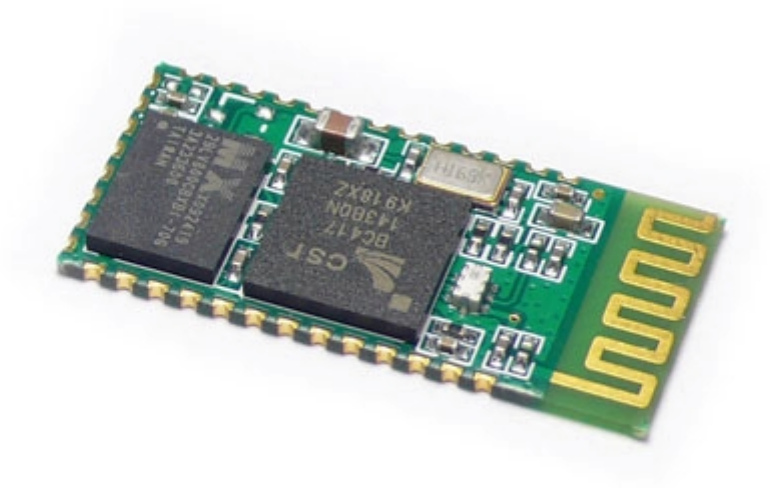
Bluetooth Module

Index

Overview



The module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup.

Serial port Bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. It uses CSR Bluecore 04-External single chip Bluetooth system with CMOS technology and with AFH(Adaptive Frequency Hopping Feature). It has the footprint as small as 12.7mmx27mm. Hope it will simplify your overall design/development cycle.

License

Specifications

Hardware features

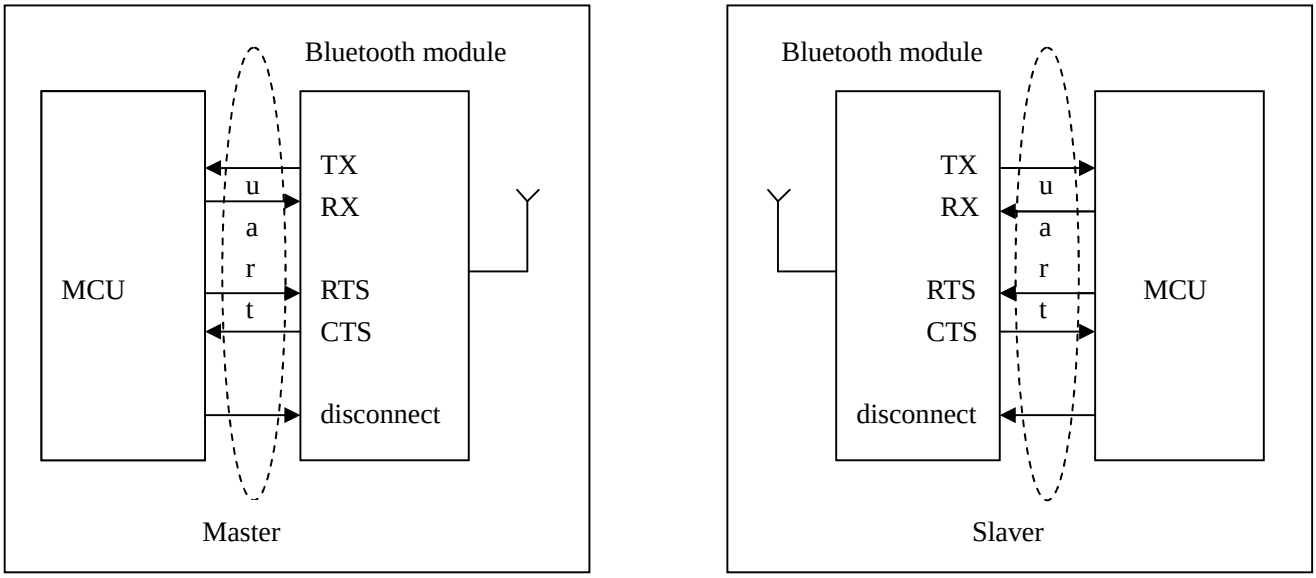
- Typical -80dBm sensitivity
- Up to +4dBm RF transmit power
- Low Power 1.8V Operation ,1.8 to 3.6V I/O
- PIO control
- UART interface with programmable baud rate
- With integrated antenna
- With edge connector

Software features

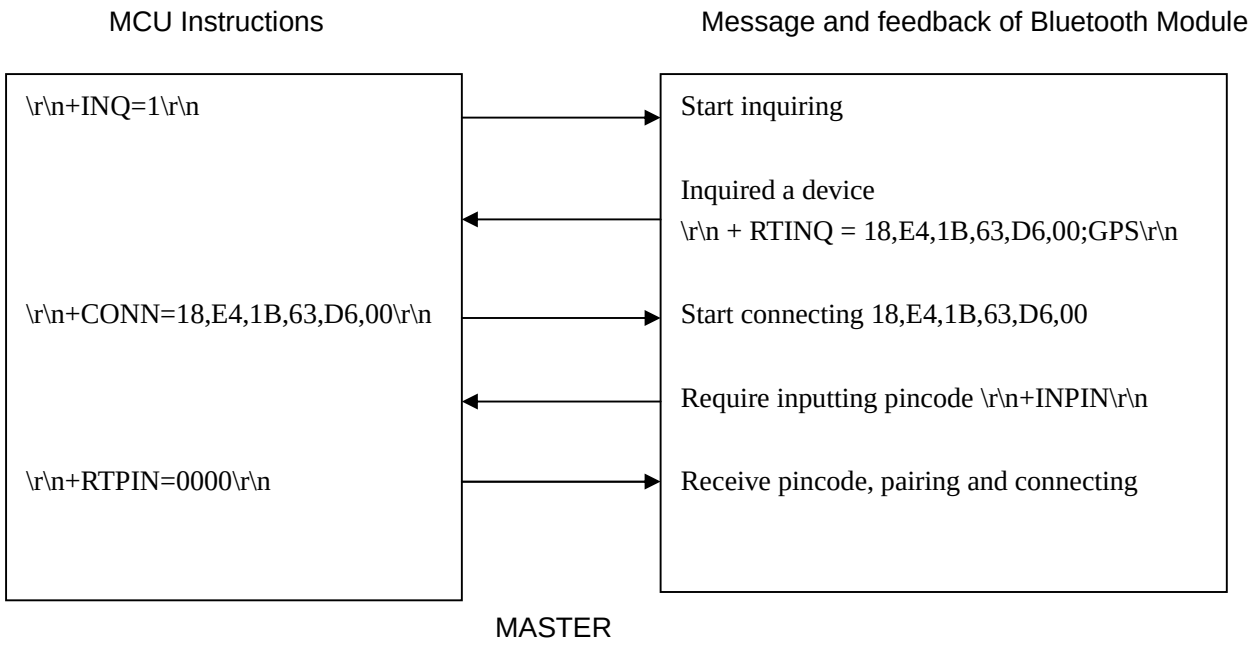
- Default Baud rate: **38400**, Data bits:8, Stop bit:1,Parity:No parity, Data control: has. Supported baud rate: 9600,19200,38400,57600,115200,230400,460800.
- Use CTS and RTS to control data stream.
- Given a rising pulse in PIO0, device will be disconnected.
- Status instruction port PIO1: low-disconnected, high-connected;
- PIO10 and PIO11 can be connected to red and blue led separately. When master and slave are paired, red and blue led blinks 1time/2s in interval, while disconnected only blue led blinks 2times/s.
- Auto-connect to the last device on power as default.
- Permit pairing device to connect as default.
- Auto-pairing PINCODE:"**0000**" as default
- Auto-reconnect in 30 min when disconnected as a result of beyond the range of connection.

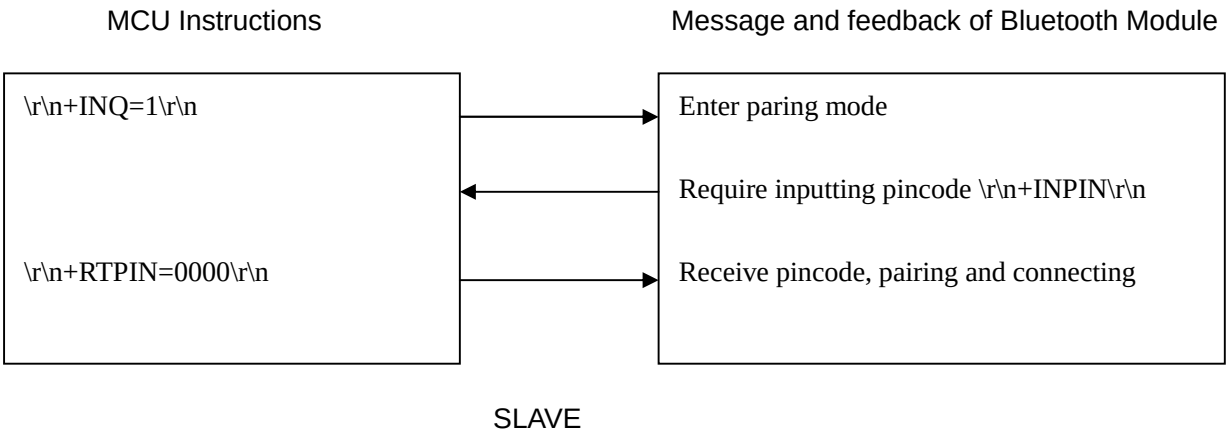
Software Instruction

Working Sketch Map



Flowchart





Attention: To use Uart port, you may need to change voltage level by RS232 or other IC.

Commands to change default settings

1. Set working MODE

\r\n+STWMOD=0\r\n Set device working as client (slave), Save and Rest
\r\n+STWMOD=1\r\n Set device working as server (master), Save and Rest

Note: **\r\n** is needed, and the value of which is 0x0D 0x0A in Hex, meaning return and next row,

2. Set BAUDRATE

\r\n+STBD=115200\r\n Set baudrate 115200, Save and Rest
Supported baudrate: 9600, 19200,38400,57600,115200,230400,460800.

3. Set Device NAME

\r\n+STNA=abcdefg Set device name “abcdefg”, Save and Rest

4. Auto-connect the last paired device on power

\r\n+STAUTO=0\r\n Forbidden, Save and Rest
\r\n+STAUTO=1\r\n Permit, Save and Rest

5. Permit Paired device to connect me

\r\n+STOAUT=0\r\n Forbidden, Save and Rest
\r\n+STOAUT=1\r\n Permit, Save and Rest

6. Set PINCODE

\r\n +STPIN=222\r\n Set pincode “2222”, Save and Rest

7. Delete PINCODE (input PINCODE by MCU)

\r\n+DLPIN\r\n Delete pincode, Save and Rest

8. Read local ADDRESS CODE

\r\n+RTADDR\r\n Return address of the device

9. Auto-reconnecting when master device is beyond the valid range (slave device will auto-reconnect in 30 min as it is beyond the valid range)

\r\n+LOSSRECONN=0\r\n Forbidden auto-reconnecting
\r\n+LOSSRECONN=1\r\n Permit auto-reconnecting

Commands for Normal Operation:

1. Inquire

a) Master
\r\n+INQ=0\r\n Stop Inquiring
\r\n+INQ=1\r\n Begin/Restart Inquiring
b) Slave
\r\n+INQ=0\r\n Disable been inquired
\r\n+INQ=1\r\n Enable been inquired

2. Bluetooth module returns inquiring result

\r\n+RTINQ=aa,bb,cc,dd,ee,ff;name\r\n A serial Bluetooth device with the address “aa,bb,cc,dd,ee,ff” and the name “name” is inquired

3. Connect device

\r\n+CONN=aa,bb,cc,dd,ee,ff\r\n Connect to a device with address of “aa,bb,cc,dd,ee,ff”

4. Bluetooth module requests inputting PINCODE

\r\n+INPIN\r\n

5. Input PINCODE

\r\n+RTPIN=code\r\n
Example: RTPIN=0000 Input PINCODE which is four zero

6. Disconnect device

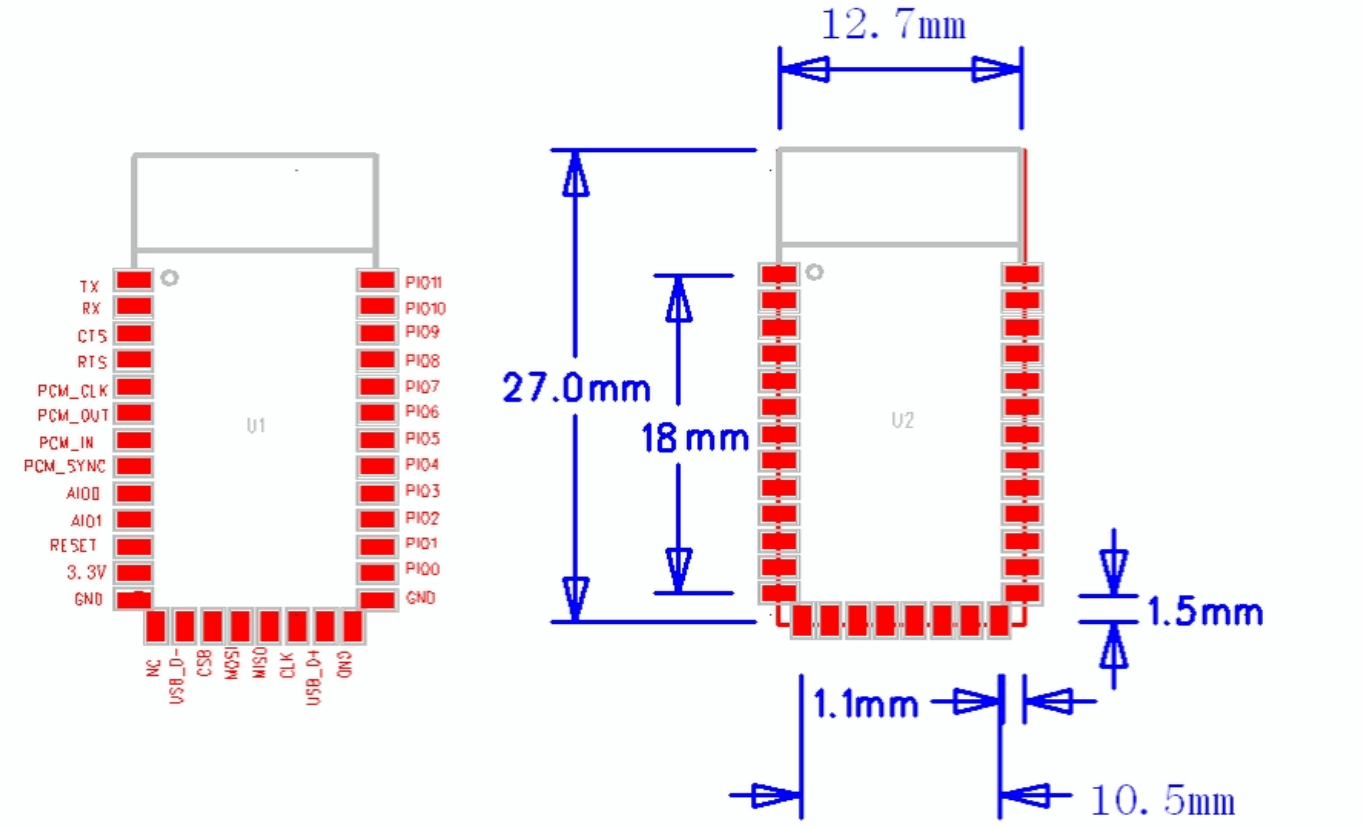
Pulling PIO0 high will disconnect current working Bluetooth device.

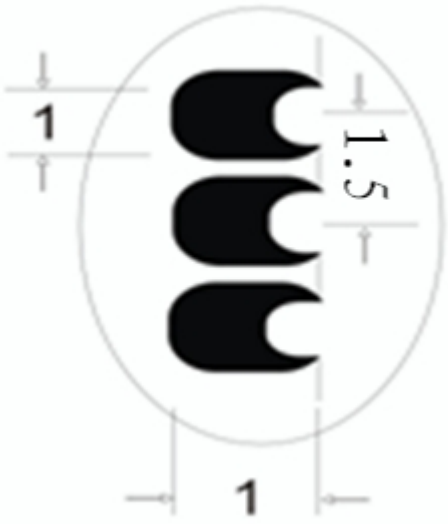
7. Return status

\r\n+RTSTA:xx\r\n
xx status:
0: Initializing; 1: Ready; 2: Inquiring; 3: Connecting; 4: Connected;
(Note: This is not a command, but the information returning from the module)

More information about how to setup connections between Bluetooth in seeedstudio forum:
http://www.seeedstudio.com/forum/viewtopic.php?f=4&t=687

Pinout


12.7mm
27.0mm
18mm
1.5mm
1.1mm
10.5mm
U1
U2
TX
RX
CTS
RTS
PCM_CLK
PCM_OUT
PCM_IN
PCM_SYNC
AIO0
AIO1
RESET
3.3V
GND
PIO11
PIO10
PIO9
PIO8
PIO7
PIO6
PIO5
PIO4
PIO3
PIO2
PIO1
PIO0
GND
NC
USB_D-
CSB
MOSI
MISO
CLK
USB_D+
GND


1
1.5
1

Pin Function

PIN Name	PIN #	Pad type	Description	Note
GND	13 21 22	VSS	Ground pot	
3.3 VCC	12	3.3V	Integrated 3.3V (+) supply with On-chip linear regulator output within 3.15-3.3V	
AIO0	9	Bi-Directional	Programmable input/output line	
AIO1	10	Bi-Directional	Programmable input/output line	
PIO0	23	Bi-Directional RX EN	Programmable input/output line, control output for LNA(if fitted)	
PIO1	24	Bi-Directional TX EN	Programmable input/output line, control output for PA(if fitted)	
PIO2	25	Bi-Directional	Programmable input/output line	
PIO3	26	Bi-Directional	Programmable input/output line	
PIO4	27	Bi-Directional	Programmable input/output line	
PIO5	28	Bi-Directional	Programmable input/output line	
PIO6	29	Bi-Directional	Programmable input/output line	
PIO7	30	Bi-Directional	Programmable input/output line	
PIO8	31	Bi-Directional	Programmable input/output line	
PIO9	32	Bi-Directional	Programmable input/output line	
PIO10	33	Bi-Directional	Programmable input/output line	
PIO11	34	Bi-Directional	Programmable input/output line	

RESETB	**11**	CMOS input with weak internal pull-up	Reset if low.input debouncde so must be low for >5MS to cause a reset	
UART_RTS	**4**	**CMOS output, tri-stable with weak internal pull-up**	**UART request to send, active low**	
UART_CTS	**3**	**CMOS input with weak internal pull-down**	**UART clear to send, active low**	
UART_RX	**2**	**CMOS input with weak internal pull-down**	**UART Data input**	
UART_TX	**1**	**CMOS output, Tri-stable with weak internal pull-up**	**UART Data output**	
SPI_MOSI	**17**	**CMOS input with weak internal pull-down**	**Serial peripheral interface data input**	
SPI_CSB	**16**	**CMOS input with weak internal pull-up**	**Chip select for serial peripheral interface, active low**	
SPI_CLK	**19**	**CMOS input with weak internal pull-down**	**Serial peripheral interface clock**	
SPI_MISO	**18**	**CMOS input with weak internal pull-down**	**Serial peripheral interface data Output**	
USB_-	**15**	**Bi-Directional**		

USB_+	20	Bi-Directional		
NC	14			
PCM_CLK	5	Bi-Directional	Synchronous PCM data clock	
PCM_OUT	6	CMOS output	Synchronous PCM data output	
PCM_IN	7	CMOS Input	Synchronous PCM data input	
PCM_SYNC	8	Bi-Directional	Synchronous PCM data strobe	

Revision History

Rev.	Descriptions	Release date
V1.0	Initial version	2010/01/08
V1.1	Modify some command, hardware and software features	2010/04/07
V1.2	Update the profile, add the return status, delete ECHO command.	2010/04/21