

Bluetooth Module

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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



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Specifications

Hardware features

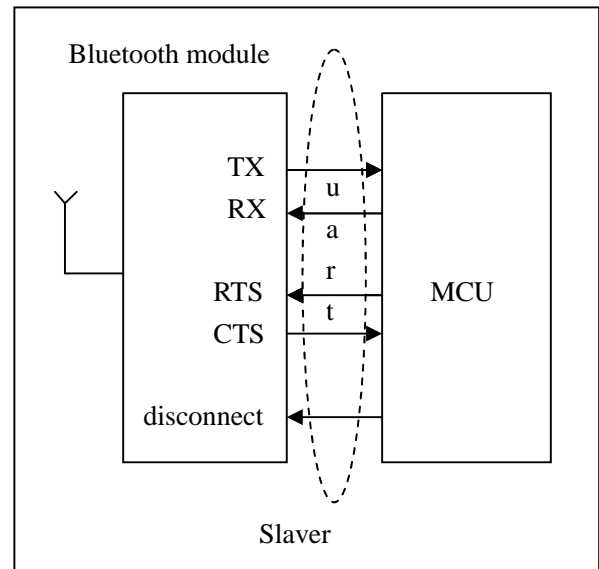
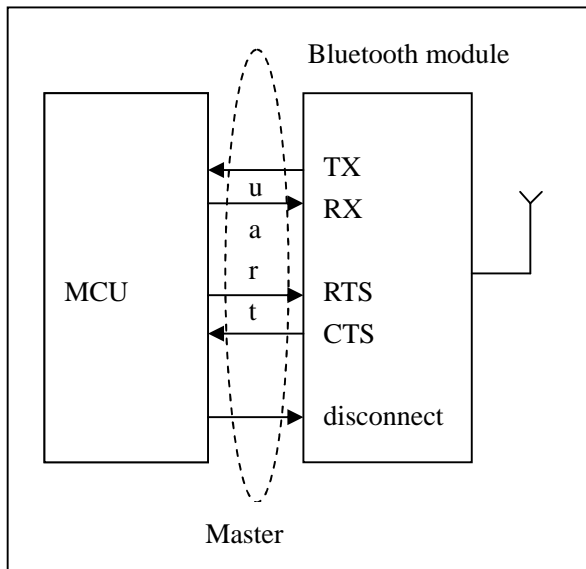
- I Typical -80dBm sensitivity
- I Up to +4dBm RF transmit power
- I Low Power 1.8V Operation ,1.8 to 3.6V I/O
- I PIO control
- I UART interface with programmable baud rate
- I With integrated antenna
- I With edge connector

Software features

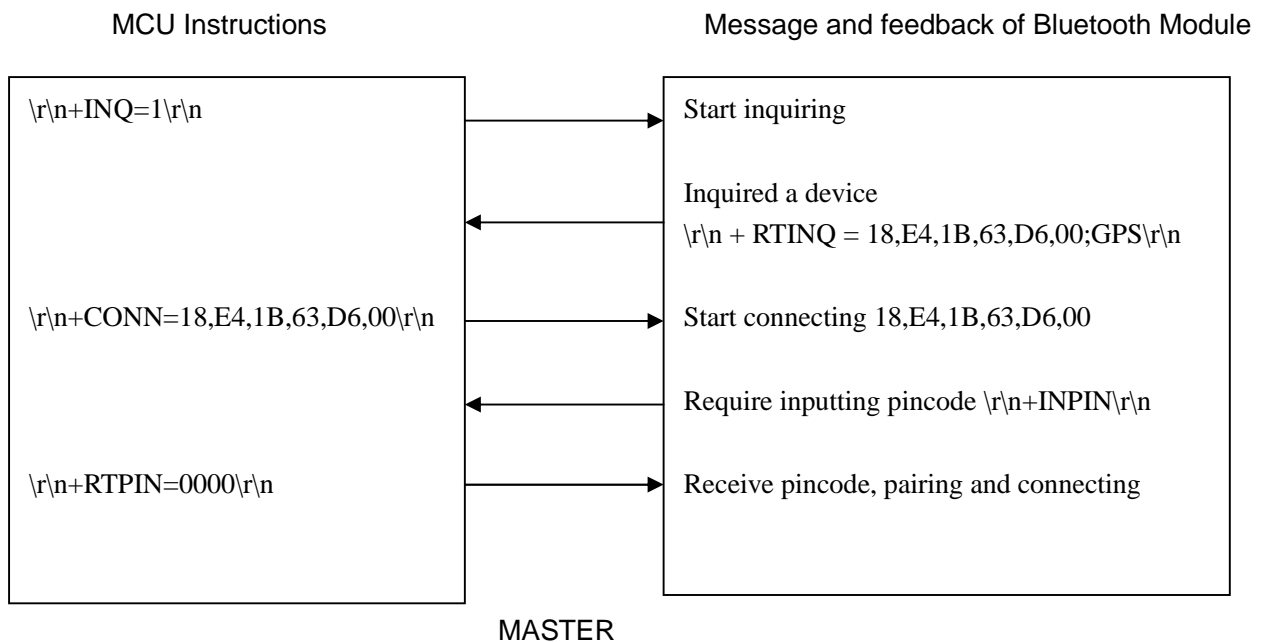
- I Default Baud rate: **38400**, Data bits:8, Stop bit:1,Parity:No parity, Data control: has. Supported baud rate: 9600,19200,38400,57600,115200,230400,460800.
- I Use CTS and RTS to control data stream.
- I Given a rising pulse in PIO0, device will be disconnected.
- I Status instruction port PIO1: low-disconnected, high-connected;
- I 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.
- I Auto-connect to the last device on power as default.
- I Permit pairing device to connect as default.
- I Auto-pairing PINCODE:"**0000**" as default
- I Auto-reconnect in 30 min when disconnected as a result of beyond the range of connection.

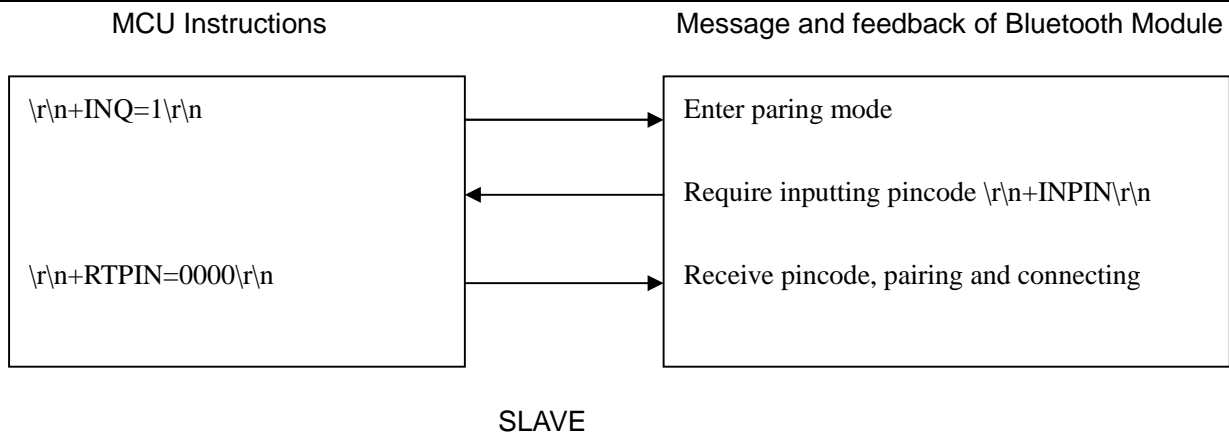
Software Instruction

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:

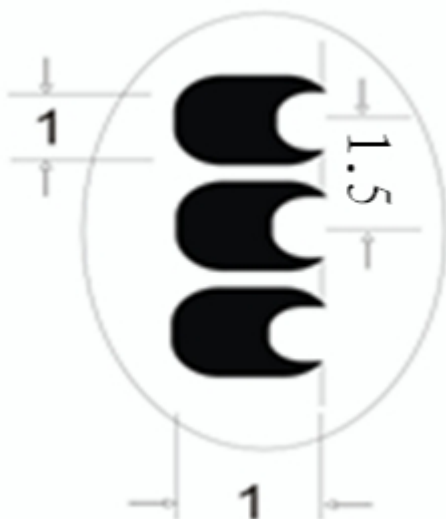
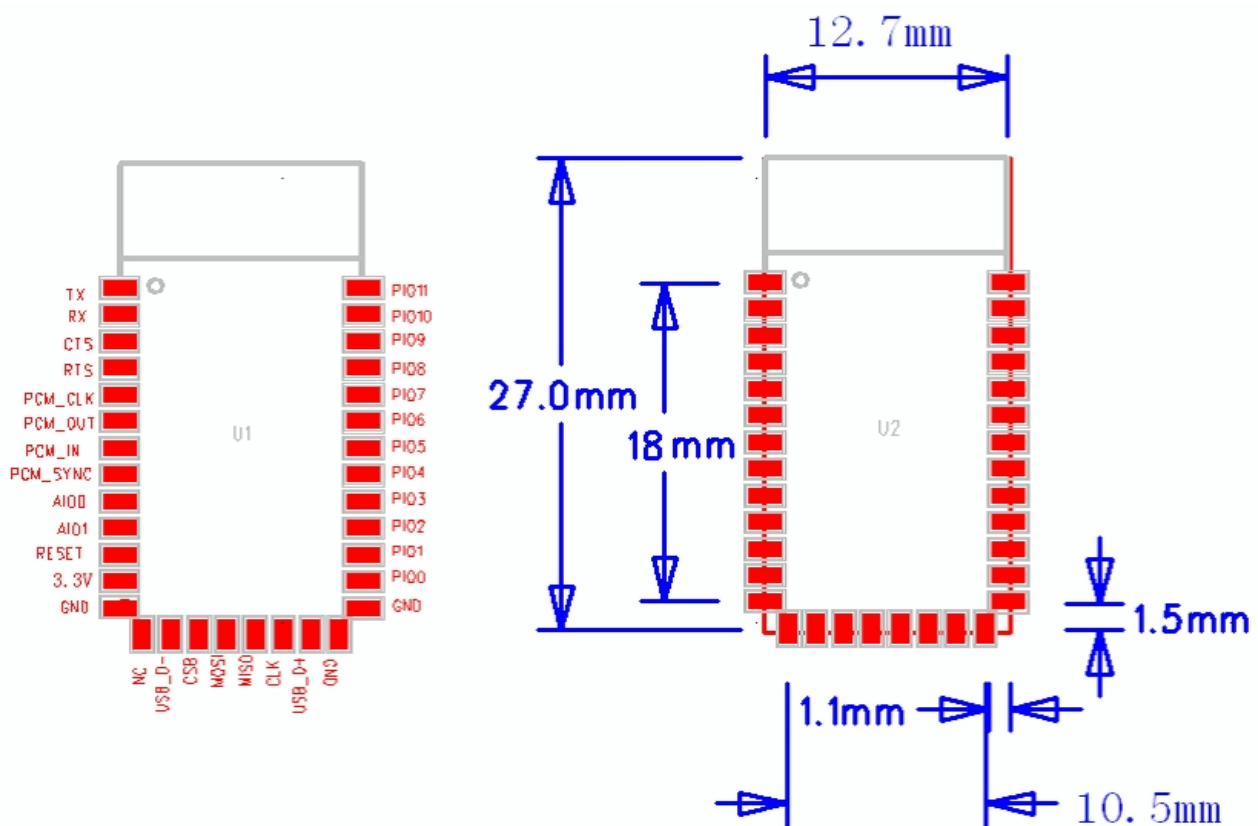
0: Initializing; 1: Ready; 2: Inquiring; 3: Connecting; 4: Connected;

(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



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 debounced 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