



RFWORLD

Documents Version: 1.0

Document No. 2013-0231-E

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BLUETOOTH 4.0 UART RADIO MODULE (WMBLE40_02_SS)

USER GUIDE



Index

Documents Version: 1.2.....	1
1 introduction:	3
2 Pin Description	4
OP1, OP2 and OP3 (Configuration of UART Baud Rate).....	5
IO Feedback Output	5
SLEEP Contorl.....	6
The min work connector	6
Timer Sequence.....	6
Indictor :	7
BLE Broadcast Name.....	7
3 Interface of BLE4.0 Host:	8
3.1 UUID.....	8
3.2 Communication between BLE Module and Host	9
4 SIZE:	9
5 Ordering Information	10



1 introduction:



WMBLE40_02_SS is a Bluetooth 4.0 UART Radio Module which is easy to connect Bluetooth 4.0 Host (IPAD, IPHONE, etc) and the controller (such as blood press, weight scale, toy).

Data rate: 1200-115200 adjustable

Output power: 0dBm

Power consumption: 18.2mA(MAX)

Idle Mode: <1ua

The Distance: 20 meter

VOLTAGE: 2.0-3.3V

Antenna: External or PCB Antenna

Package: Both SMD and DIP are support

Work Mode: Transparency Transmitting (UART Interface)

Max Packet is 200 Bytes.

Definition:

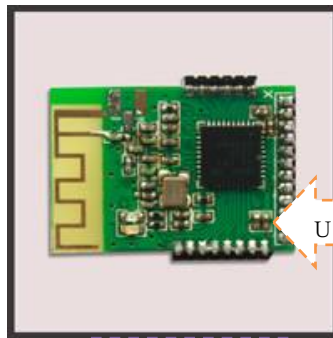
BLE HOST : IPHONE , IPAD , Mobile Phone (which have Bluetooth 4.0)

BLE MODULE: WMBLE40_1

CONTROLLER: The Device which want to exchange data with BLE HOST.



BLE HOST



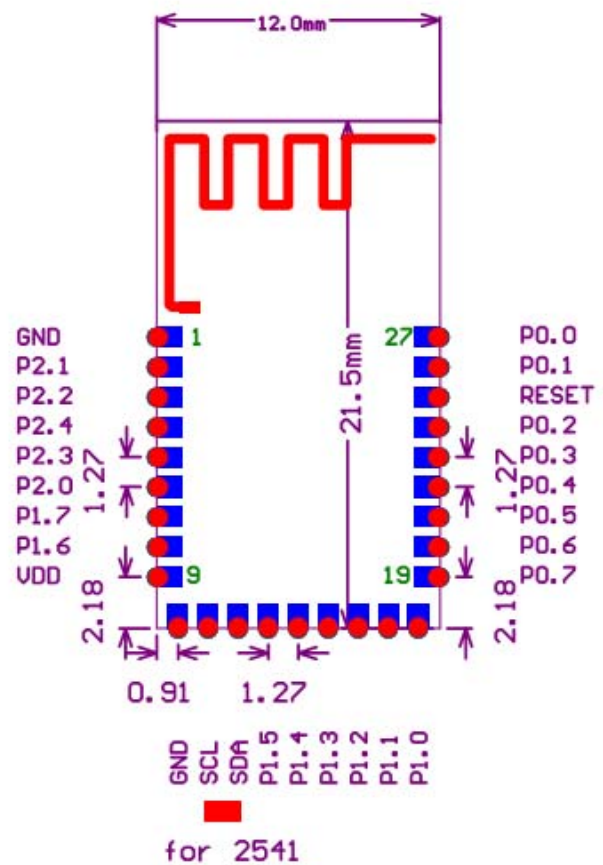
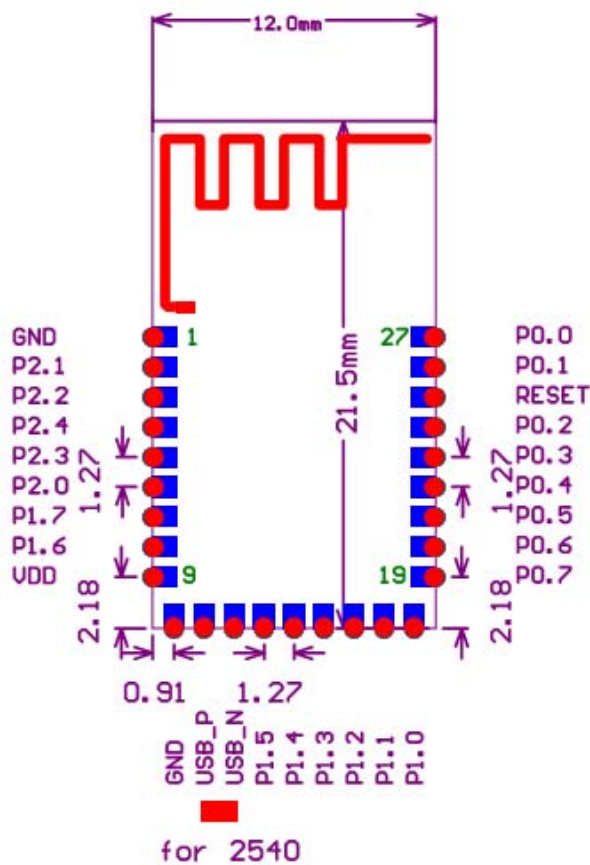
BLE Module



Controller: Weight scale,
Blood press , Toy, Industrial device

U A R T

2 Pin Description





OP1, OP2 and OP3 (Configuration of UART Baud Rate)

No	OP1 P1.1	OP2 P1.2	OP3 P1.3	Baud Rate
1	1	1	1	115200
2	0	1	1	57600
3	1	0	1	38400
4	0	0	1	19200
5	1	1	0	9600
6	0	1	0	4800
7	1	0	0	2400
8	0	0	0	1200

0: Connect to GND

1: Add 10k pull to VDD.

(It also be order to fix Baud rate or other special baud rate)

IO Feedback Output

(RT,P1.7) CONTROLLER can connect this pin and monitor if BLE module getting data from BLE HOST and Transmit to CONTROLLER.

No	P1.7 (RT)	STATUS
0	1	transmit buffer is empty
1	0	transmit buffer is not empty

(OT,P1.0)is use to indicate whether BLE Module is sending data to BLE HOST.

No	P1.0 (OT)	STATUS
0	1	Transmitting data to BLE HOST or ready to transmit data to BLE HOST.
1	0	Data have been transmitted to BLE HOST

SLEEP Control

It enters sleep status when SLEEP Pin connects to ground; otherwise, it is in work mode.

No	SLEEP PIN (P1.6)	WORK MODE
0	0	Working mode
1	1	Power Down Mode

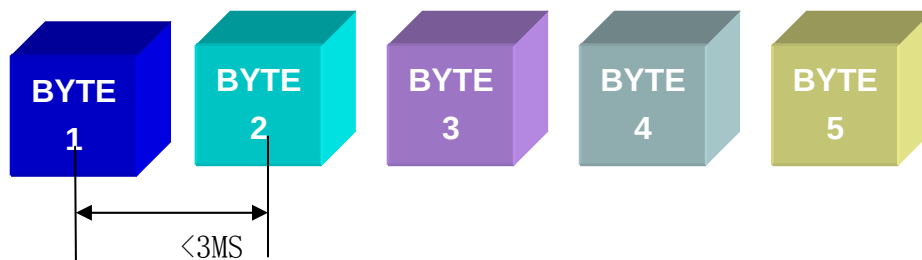
The minimum work connector

No	PINS	Description
1	VCC	2.7-3.6V
2	TX(P1.5)	Connect to CONTROLLER RX (Output Pin TTL)
3	RX(P1.4)	Connect to CONTROLLER TX (Input Pin TTL)
4	GND	GND

Please reduce the ripple of VCC in order to increase distance.

Timer Sequence

NOTE :



The packet data must be transmitted continuously. The data transmission time between each byte of a packet cannot be greater than 3ms. If the gap between data bytes exceeds 3ms, the receiving end will treat it as the end of a data packet and will send it out.



The Min interval time between Packages and Packages is a connecting time. The connecting time is setting by Host (Ipad ,Iphone, Andrios Mobilie, PAD).

Indictor :

LED1 Power ON Indictor:

No	(P0.0) LED1	
0	0 Work	OPEN LED
1	1 No work	CLOSE LED

LED2 Connecting to BLE Host(Iphone,Ipad..etc) Indictor:

No	(P0.1) LED2	
0	0 Connecting	OPEN LED
1	1 Disconnect	CLOSE LED

BLE Broadcast Name

Chose broadcast Name:

NO	P0.7	
1	0	Setting broadcast Name by User
2	1	Default: (WWW.MCURF.COM)

How to Setting broadcast Name

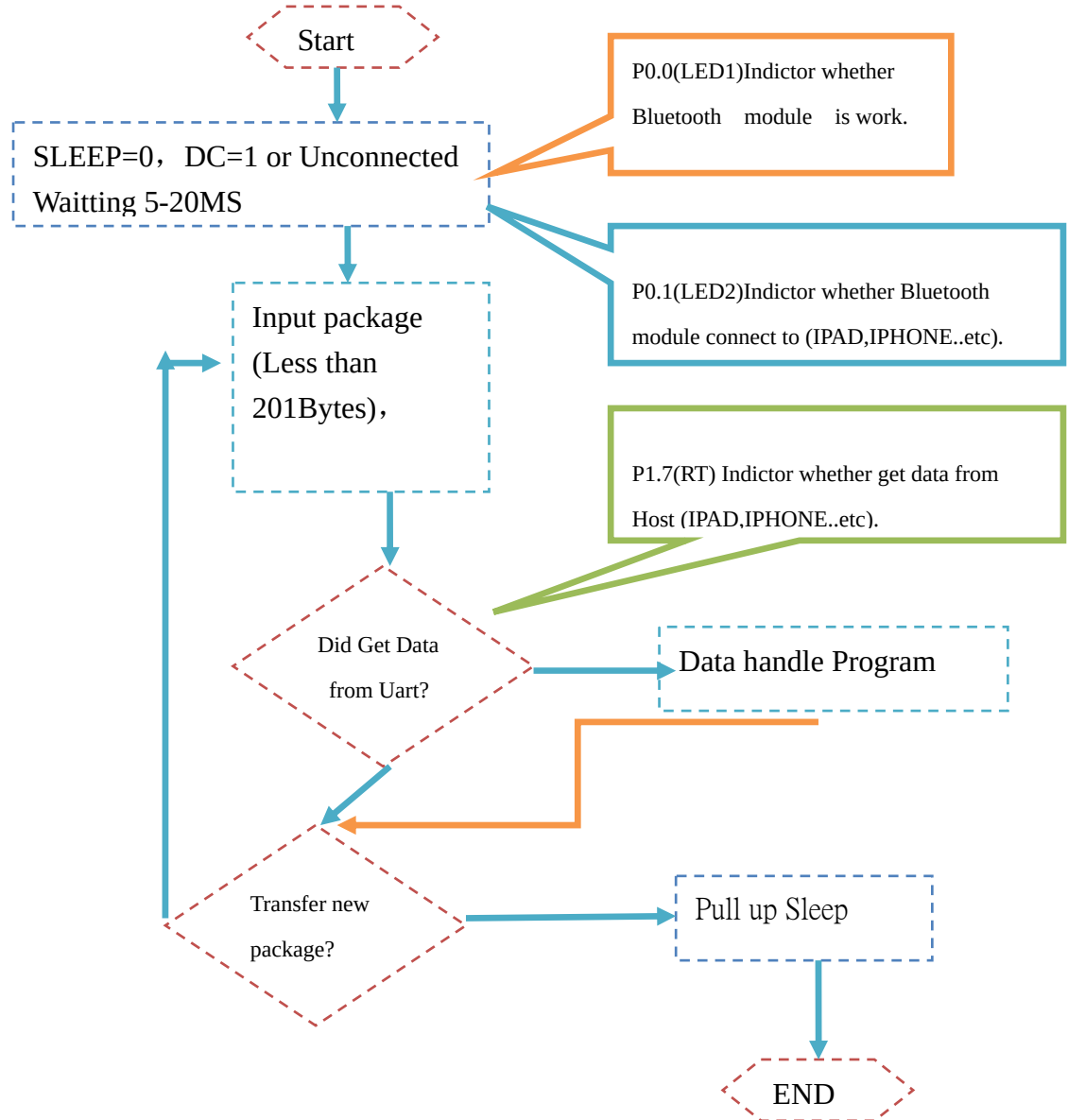
NO	P0.6(D/C)	
1	0	Broadcast Name setting by RX of UART
2	1	Data Transfer by RX of UART

Broadcast Name setting format:

Length+09+(Broadcast Name of Bytes) : The Max length of Broadcast name is 29 bytes.

Length	Fix Value	Broadcast Name of Bytes
1 byte	0x09	Is equal Length

Operation Flow



3 Interface of BLE4.0 Host :

3.1 UUID

0x1910 , UUID Services ;

0xFFFF4 , UUDI that BLE4.0 Module send data to BLE Host.

0xFFFF2 , UUDI that BLE4.0 Module get data from BLE Host.



3.2 Communication between BLE Module and Host

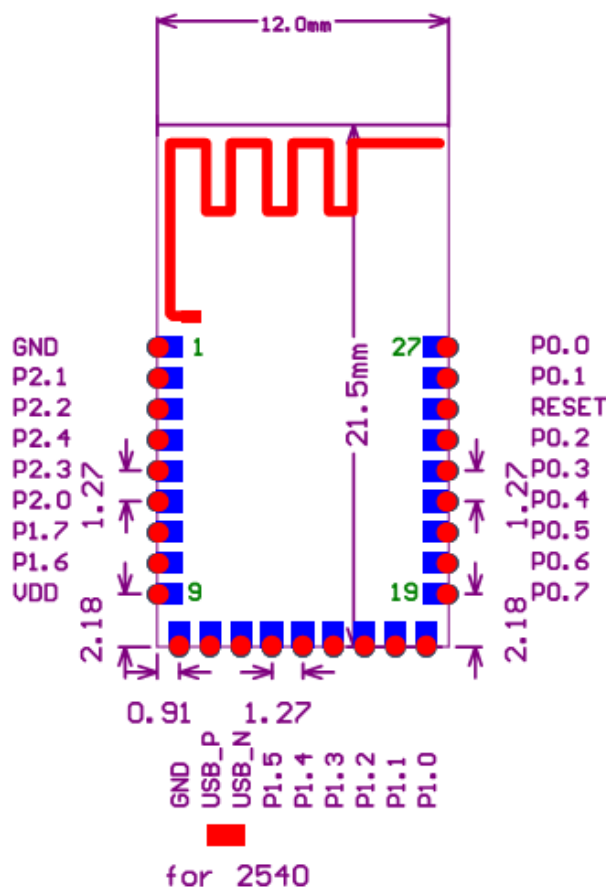
BLE4.0 Module can store 200 Bytes in buffer and send it to host according to BLE4.0 Protocol. The Interval time is decided by connecting time which is set by BLE Host. (Max connecting time is 4000 ms, Min Connecting time is 7.5ms)

The connecting Time is T (unit is MS). Transmit the total package time is V_t (Unit ms), The length of Package is L (unit is BYTE)

$$V_t = (L / 80) * T + T$$

Remark: if $(L/80)$ is not integer, the value add 1. For example: L is 200, $(L/80)$ is equal 3.

4 SIZE:





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5 Ordering Information

Part Number=module type——package type

WMBLE40-02-SS