tBLE-720 Quick Start

Apr. 2017 Version 1.0

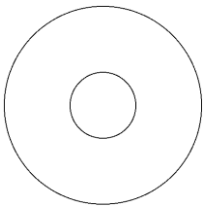
tBLE-720 - RS-232/422/485 to Bluetooth Low Energy Converter

Package Contents:

tBLE-720 x 1

CA-0910 x 1

Screwdriver x 1



CD x 1

Quick Start x 1

Note:

If any of these items are missed or damaged, contact the local distributors for more information. Save the shipping materials and cartons in case you want to ship in the future.

1. Installing Utility

i. Installing Utility

CD: Bluetooth\Utility

Web: **ftp://ftp.icpdas.com.tw/pub/cd/ble_cd/tble-720/software/utility/**

2. Basic Concept Introduction

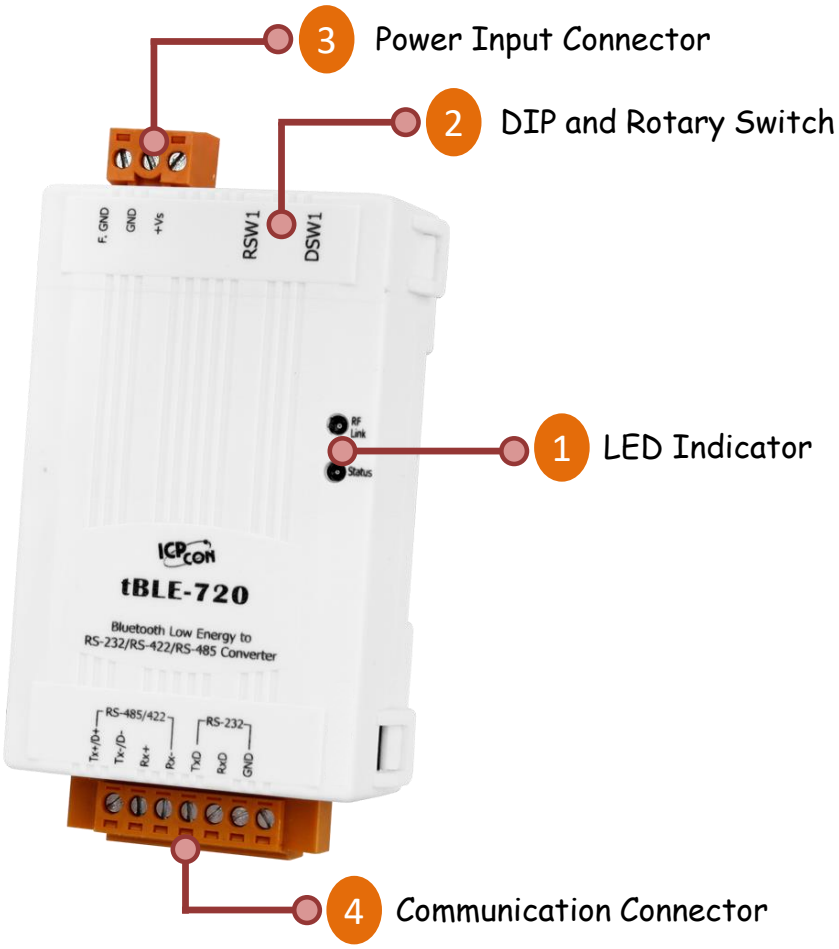
2.1 Broadcast mode

Broadcast mode is the new feature in the Bluetooth LE. The Broadcaster device broadcasts packets to every device around it. The Bluetooth LE Observer device can receive the information without connection. ***Broadcast mode is one-way data communication.***

2.2 Connection mode

In the connection mode, the Slave only can connect to a Master, but the Master can connect to three Slaves. The Slave will not send broadcast packet after link has been established. The Master and Slave could send data after a link has been established.

3. PIN Assignment



3.1 LED Indicator

LED Indicator	LED Color	Description
RF Link	Green	The connection status of Bluetooth LE
Status	Orange	The module status of tBLE-720

The LED had different pattern in the connection and broadcast mode. Refer to user manual for more detail (chapter 2.2.1).

3.2 DIP and Rotary Switch

The DIP switch can change the send mode (refer to user manual 1.3) and role (refer to user manual 1.5). The rotary switch is used to change the baud rate of RS-232/422/485 interface.

DSW1 –DIP Switch for role and connection mode setting		
Pin No.	Description	Location
1	Role	ON – Master/Broadcaster OFF – Slave/Observer
2	Connection mode	ON – Advertisement mode OFF – Connection mode

RSW1 – Rotary Switch for Baud rate setting					
Location	Baud Rate	Location	Baud Rate	Location	Baud Rate
0	115200	2	38400	4	9600
1	57600	3	19200	5~F	-

3.3 Power Input Connector

Pin Assignment	Description
+Vs	+10 ~ +30 VDC
GND	Power GND
F.GND	Frame Ground

3.4 Communication Connector

Pin Assignment	Interface	Note
Tx+/D+	RS-422/RS-485	***Only one of RS-232, RS-422 or RS-485 ports can be used at the same time.***
Tx-/D-		
Rx+	RS-422	
Rx-		
TxD	RS-232	
RxD		
GND		

4. Testing Communications

The utility supports two types for the module test. The “connection Mode” is used to test module in the connection mode. The “Broadcast Mode” is used to test the module in the broadcast mode. Refer to user manual for more detail (chapter 4.3).

Connect both the BLE-USB and tBLE-720 to the Host PC via the USB and RS-232. You may need to use two serial port tools to simulate the data transmission.

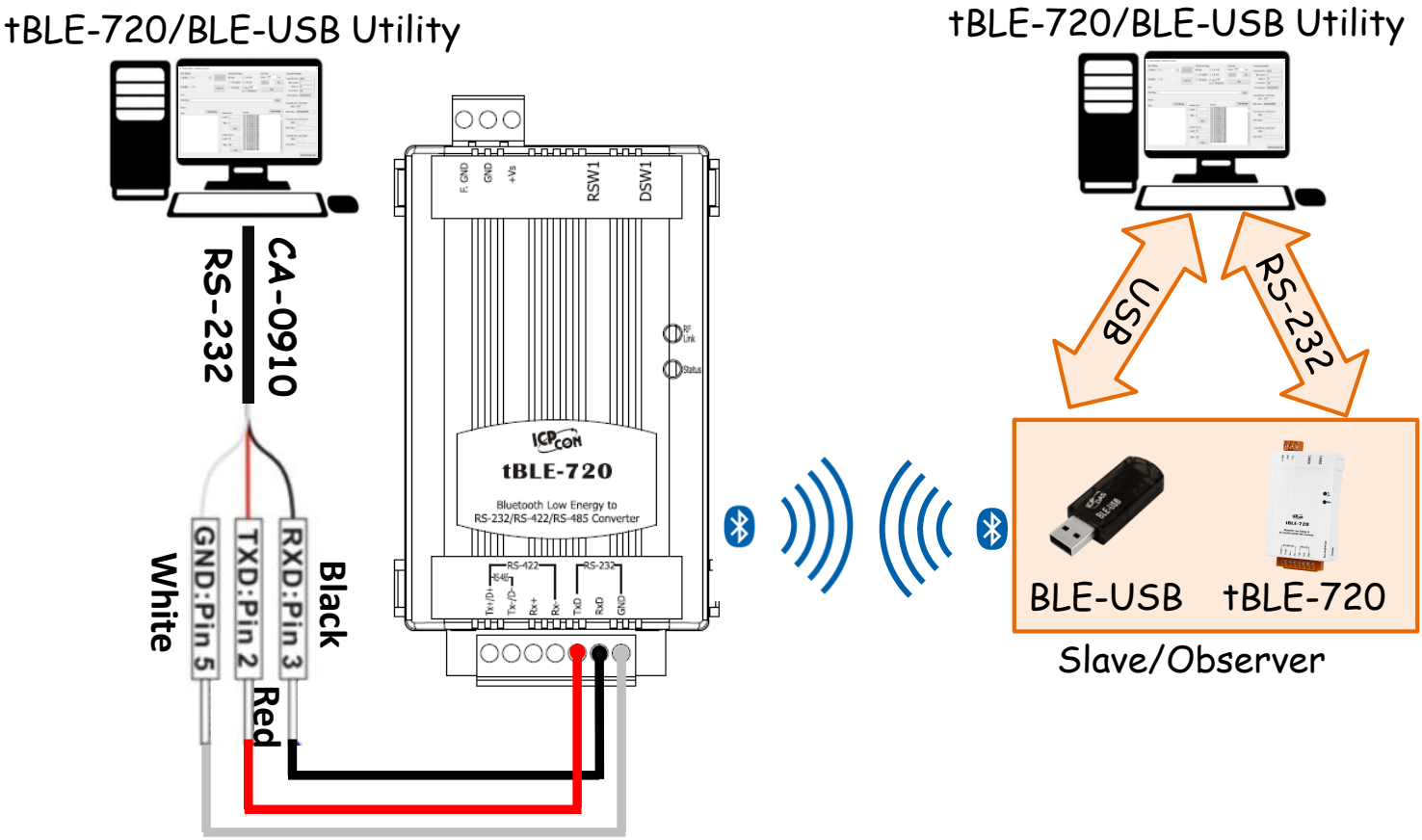


Figure 4-4-1 the architecture of test

4.1 Connection Mode

It needs two devices in the test. One is the Master; the others are slaves. Make sure the Group ID is same. **The device send the data after the link has been established.**

The tBLE-720 needs setting before the test. Please follow the procedure below:

Step1: The DIP switch can change the role and connection mode by dip switch. It needs one Master and one slave in the test. The baud rate can change by rotary switch.

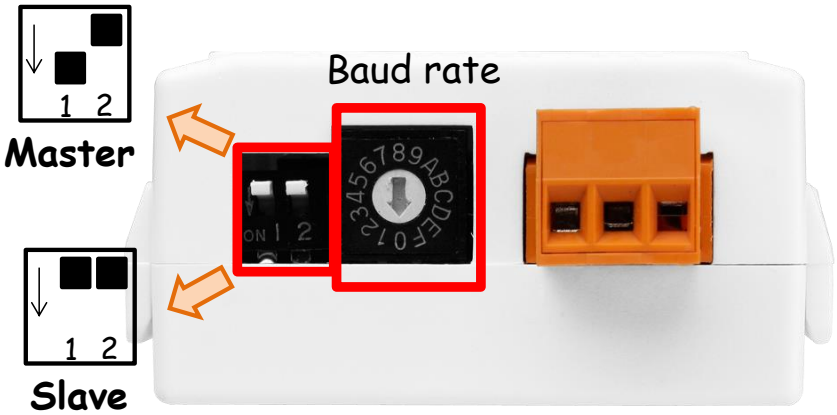


Figure 4-2 change the role, connection mode and baud rate

Step2: Change other parameters by the utility in the "Basic Parameter Setting Page"**(Optional)**. The description of each parameter refers to the user manual (4.2.1).

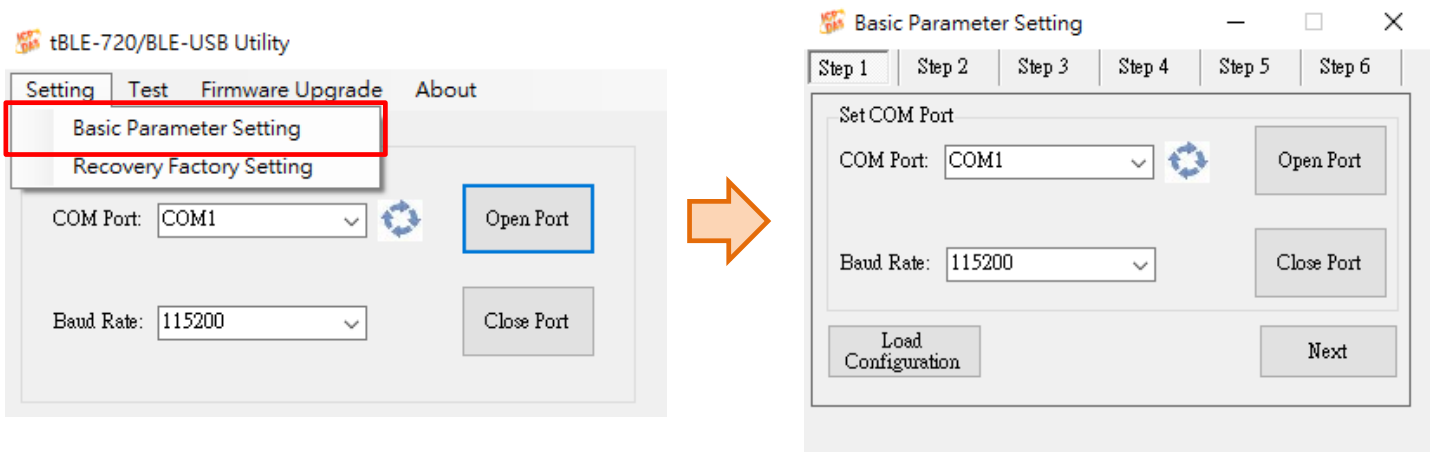


Figure 4-3 change other parameters **(Optional)**

Step3: open ”Connection Mode” page, and choose a COM port and Baud rate.

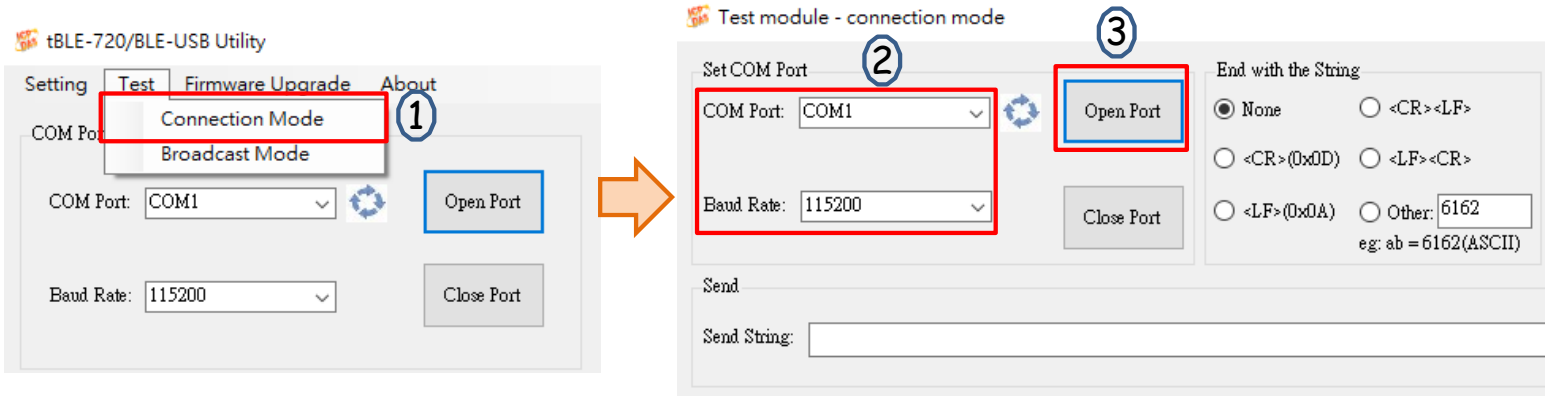


Figure 4-4 Choose the COM port and baud rate

Step4: send the data on the textbox. The peer device will receive the data and print to the textbox (As shown in the Figure **4-6**).

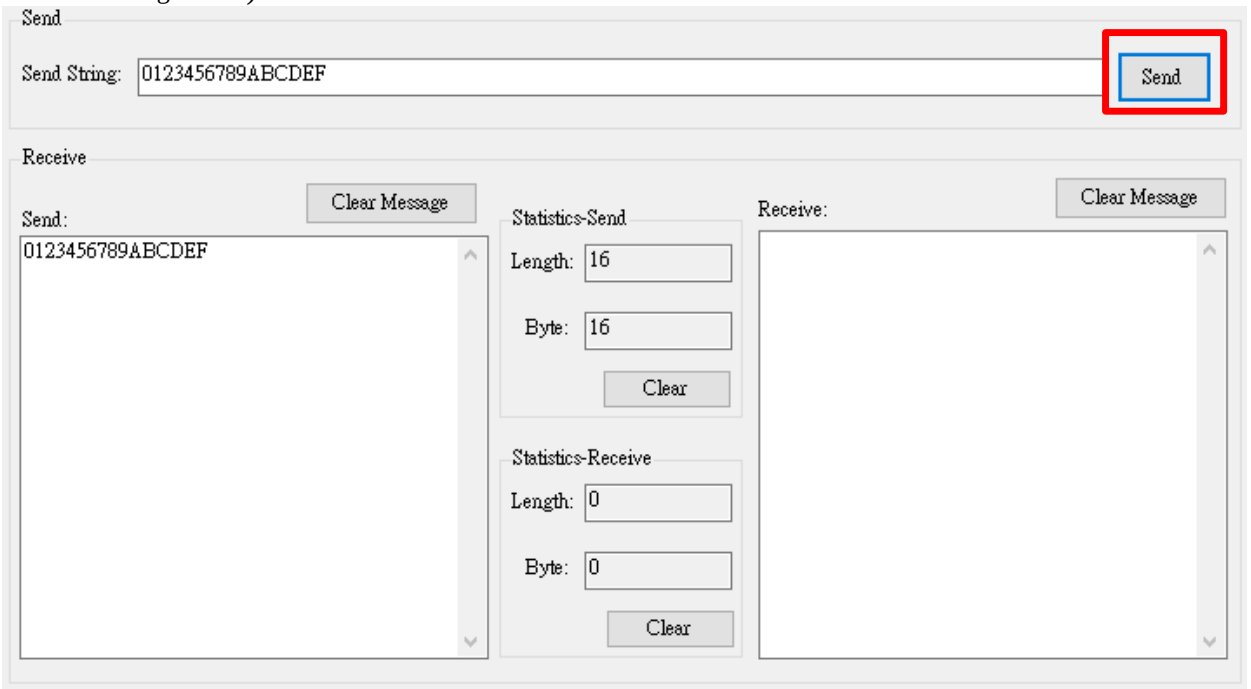


Figure 4-5 Send the data to the peer device

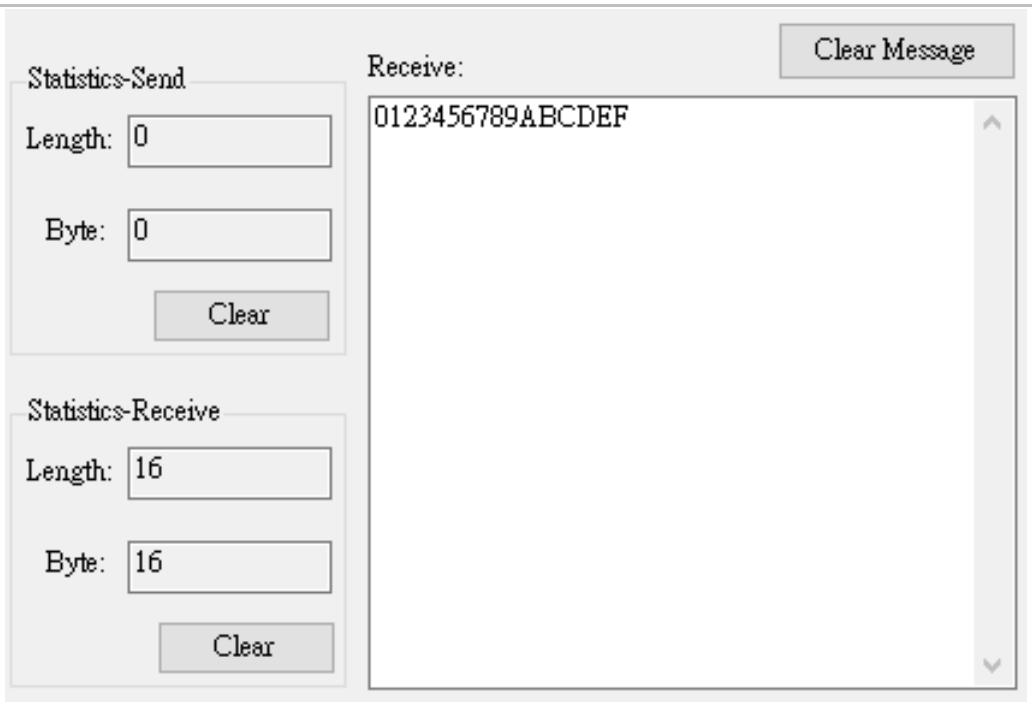


Figure 4-6 receive the data form peer device

4.2 Broadcast Mode

It needs two devices in the broadcast test. One is the Broadcaster; the others are Observers. Make sure the Group ID is same. **Broadcast mode is one-way data communication.** The Broadcaster sends the advertisement packet, and the Observer receives the advertisement packet.

The tBLE-720 needs setting before the test. Please follow the procedure below:

Step1: The DIP switch can change the role and connection mode by dip switch. . It needs one Broadcaster and one Observer in the test.

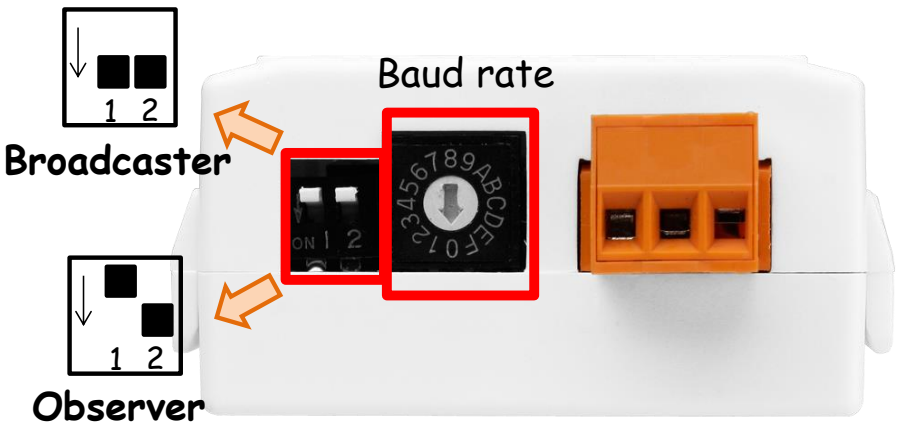


Figure 4-7 change the role, connection mode and baud rate

Step2: Change other parameters by the utility in the "Basic Parameter Setting Page"**(Optional)**. The description of each parameter refers to the user manual (4.2.1).

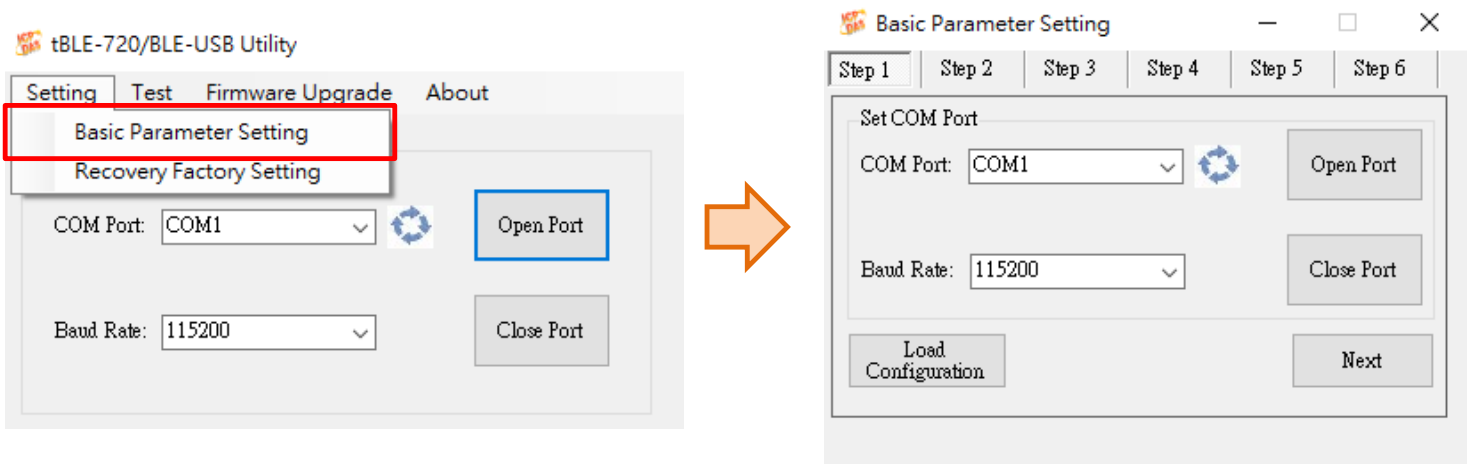


Figure 4-8 change other parameters **(Optional)**

Step3: open ”Broadcast Mode” page, and choose a COM port and Baud rate.

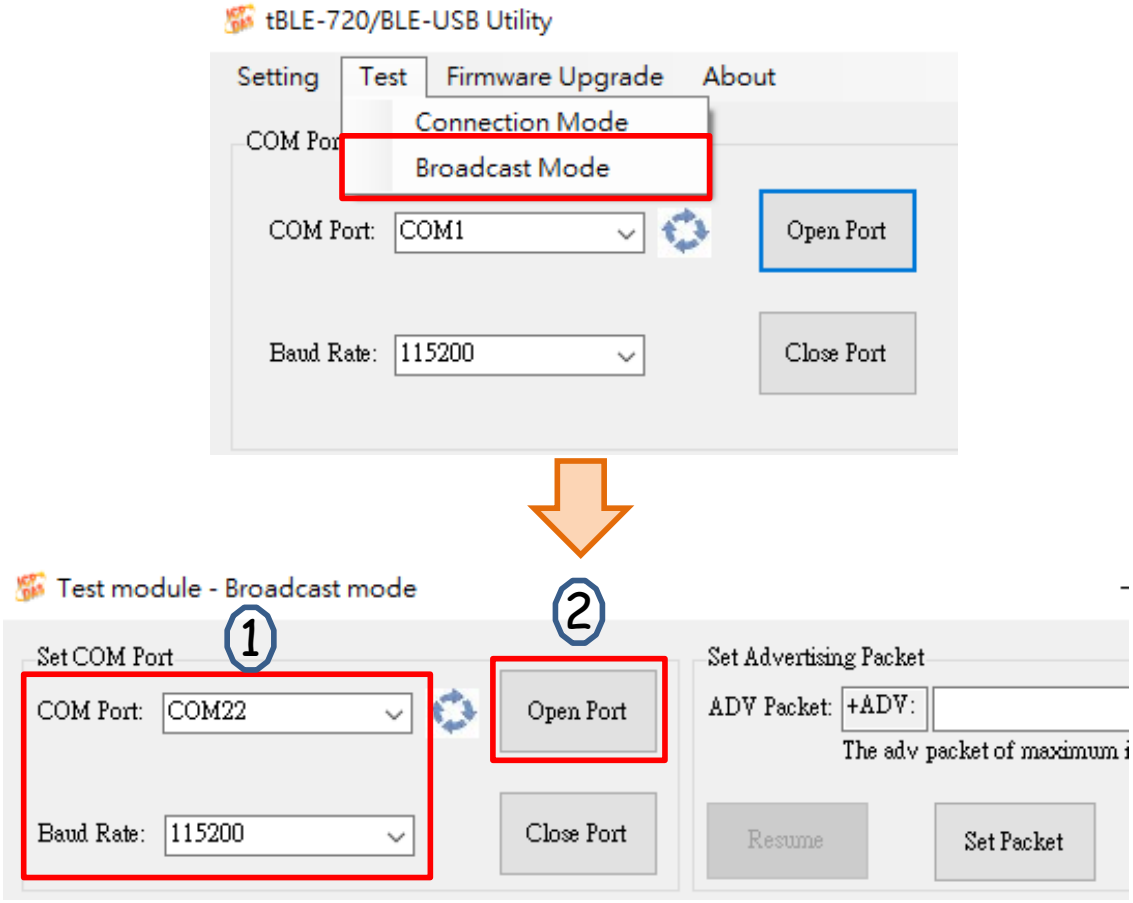


Figure 4-9 Choose the COM port and baud rate

Step4: The Broadcaster can set the advertisement packet as show in the **Figure 4-10**. The max length of advertisement packet is 21 Bytes. The Observer will receive the data after the Broadcaster set the advertisement packet. The Observer will show the advertisement packet in the utility as show in the Figure **4-11**.

The broadcast interval can change by the “Basic Parameter Setting” page (Refer to the step2).

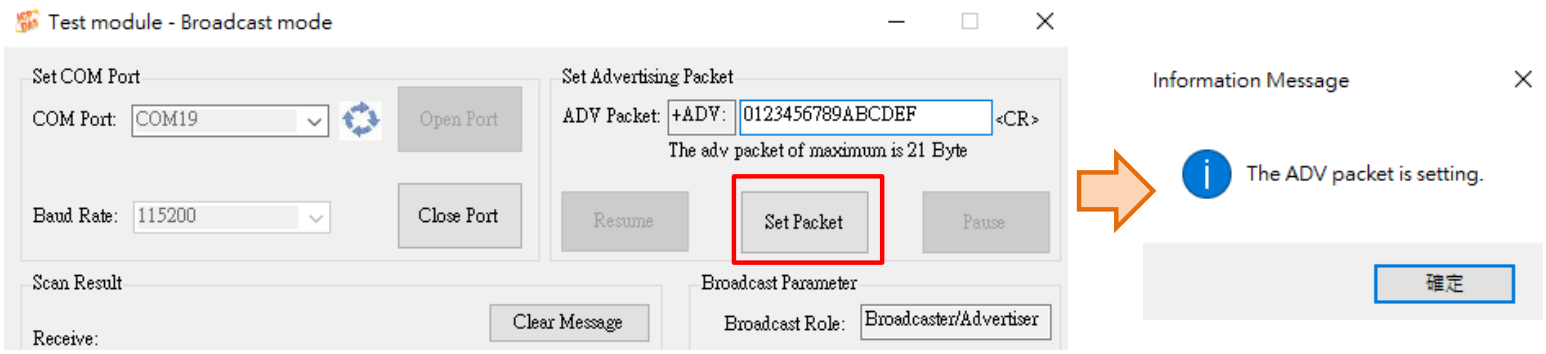


Figure 4-10 set the advertisement packet

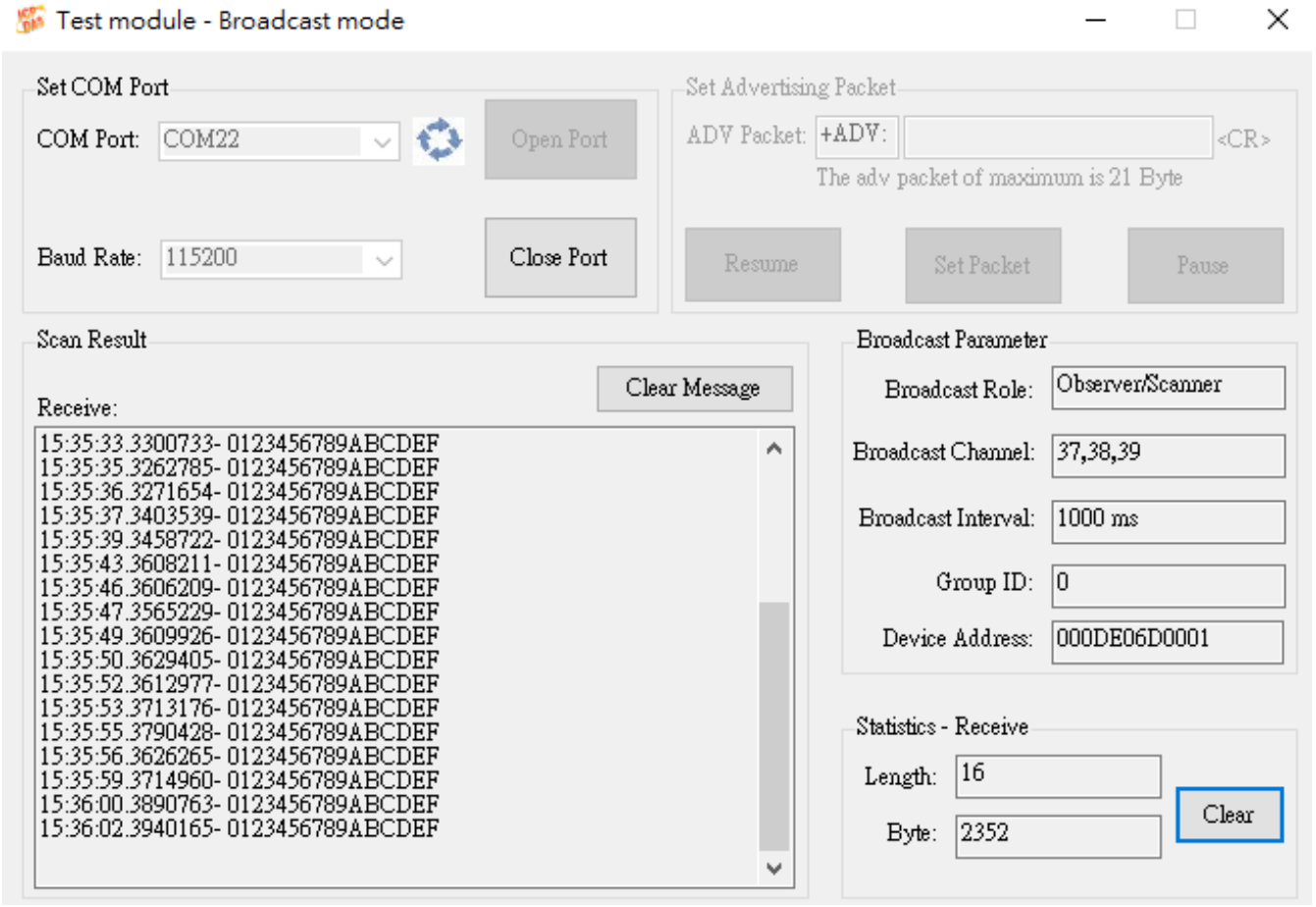


Figure 4-11 receive the advertisement packet

5. Support

Please contact us if you have any questions about products.

ICP DAS website: http://www.icpdas.com
Email: service@icpdas.com