



Quick Start Guide

HF-LPB100 Rev1.0

High-Flying

www.hi-flying.com

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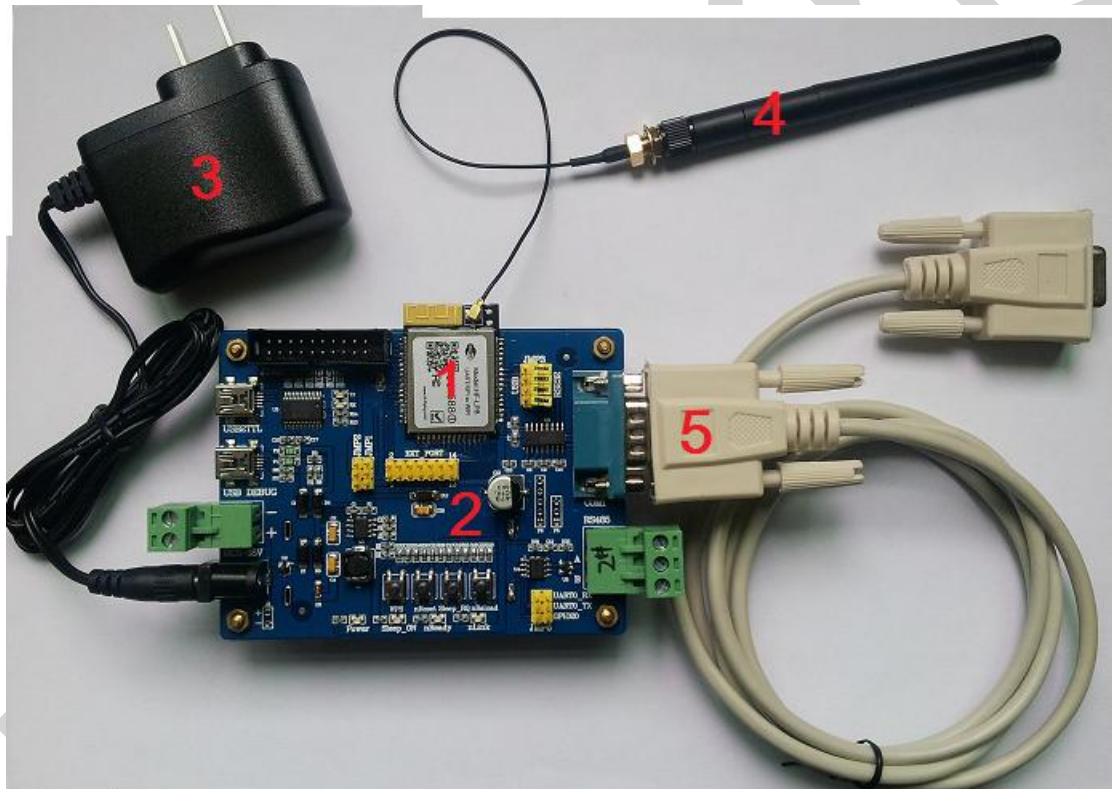
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1. Introduction of EVK

High-Flying provides evaluation kit for users to be familiar with the product and develop application quickly. The evaluation kit is shown as below, users can connect to HF-LPB100 module with the RS-232 UART, RS485, USB (Internal UART-USB convertor) or wireless interface (webpage) to configure the parameters, manage the module or do some functional tests.

EVK list:

- ① HF-LPB100 module: 1 Pcs
 - ② HF-LPB100 evaluation board: 1 Pcs
 - ③ Power Adapter (DC5V/1A): 1 Pcs
 - ④ Antenna (3dBi): 1 Pcs
 - ⑤ Serial Line: 1 Pcs
- or: USB line: 1 Pcs



2. Use Step

2.1 Connect Device

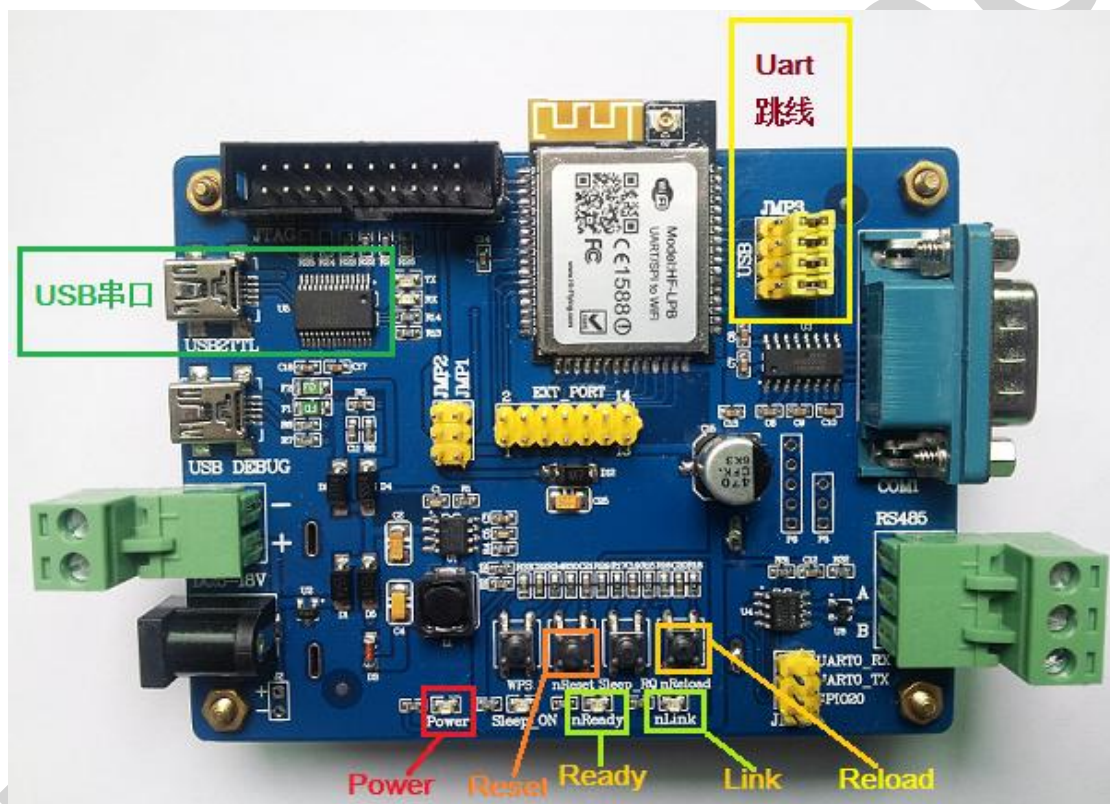
Power adapter③ connect to power, serial line⑤ connect to computer serial port.

After that, we can find that the “Power” LED is on, which indicates that the HF-LPB100 is power on.

After 2-3 seconds, the “nReady” LED light is on, which indicates that the module is launched successfully.

Notes:

Press down “nReload” key more than 3 seconds and loose, the yellow “nReady” LED is off; after 2-3 seconds, the “nReady” LED is on again, the module restore to factory default configuration)



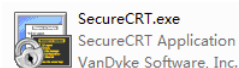
2.2 Serial setting:

2.2.1 Serial Tool: SecureCRT

Download site:

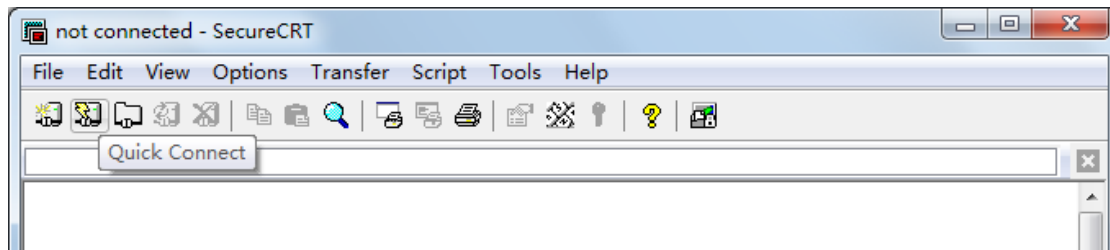
http://www.hi-flying.com/download_detail_dc/&downloadsId=cf2dd62e-abb8-48ed-9a12-36d393aac9ab&comp_stats=comp-FrontDownloads_list01-dc.html

Decompress the file folder, find “SecureCRT”,



, click to

open, Click on the button , create a connection.



2.2.2 Set Serial Parameter as follows:

protocol: Serial

port: computer port("My computer"->"device manager"->"port(COM and

LPT)" as the left photo shows. 

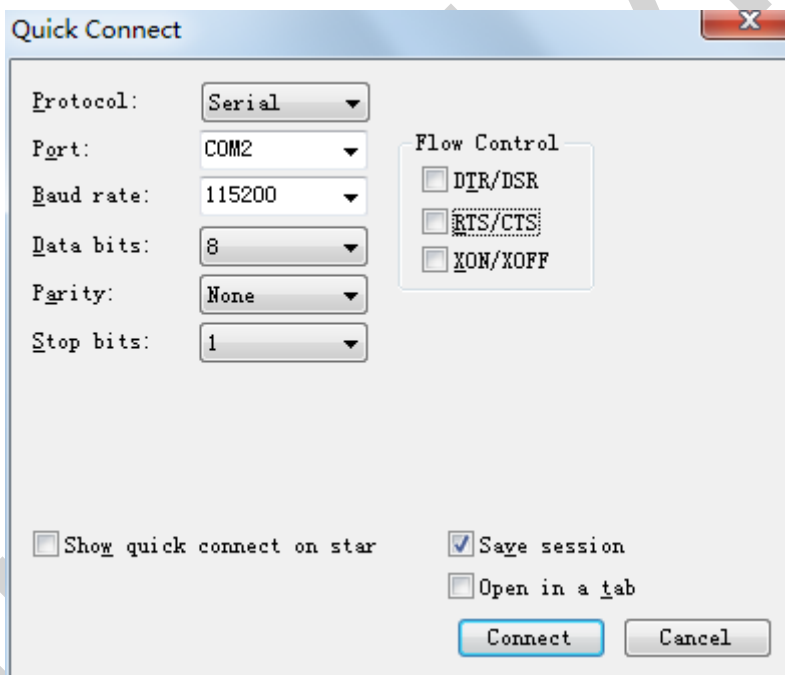
Baud rate: 115200 (HF-LPB100 default 115200)

Data bit: 8

Parity check: None

Stop bit: 1

Flow control: NONE(Please remove "√" in front of RTS/CTS)



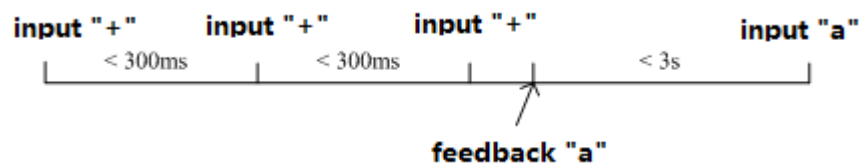
3. AT command configure

3.1 UART input “+++”, after module receive “+++”, and feedback “a” as confirmation;

3.2 UART input “a”, after module receive “a” and feedback “+ok” to go into AT+ instruction set configuration mode.

<Notes>:

- When user input “+++” (No “Enter” key required), the UART port will display feedback information “a”, and not display input information “+++” as above UART display.
- Any other input or wrong step to UART port will cause the module still works as original mode (transparent transmission).



After entering command mode through serial tool, input “AT+H” and enter, will display all AT+ command as follow. Detail info please check “HF-LPB100 user Manuel” chapter 4 “AT command description.

The screenshot shows a SecureCRT window titled 'Serial-COM2'. The terminal displays the command 'at+ok' followed by 'AT+H'. The response is a list of AT commands and their functions:

```
AT+H
AT+: NoNE command, reply "+ok".
AT+ASWD: Set/Query WiFi configuration code.
AT+E: Echo ON/Off, to turn on/off command line echo function.
AT+ENTM: Goto Through M0de.
AT+NETP: Set/Get the Net Protocol Parameters.
AT+MSLP: Set/Query deep sleep mode parameters.
AT+UART: Set/Get the UART Parameters.
AT+PING: General PING command.
AT+WAP: Set/Get the AP parameters.
AT+WKEY: Set/Get the Security Parameters of WIFI AP Mode.
AT+WMODE: Set/Get the WIFI Operation Mode (AP or STA).
AT+WSKEY: Set/Get the Security Parameters of WIFI STA Mode.
AT+WSSSID: Set/Get the AP's SSID of WIFI STA Mode.
AT+WSLK: Get Link Status of the Module (Only for STA Mode).
AT+WSLQ: Get Link Quality of the Module (Only for STA Mode).
AT+WSCAN: Get The AP site Survey (only for STA Mode).
AT+TCPK: Get The state of TCP link.
AT+TCPTO: Set/Get TCP time out.
AT+TCPDIS: Connect/Dis-connect the TCP Client link
AT+RECV: Recv data from WIFI
AT+SEND: Send data to WIFI
AT+WANN: Set/Get The WAN setting if in STA mode.
AT+LANN: Set/Get The LAN setting if in ADHOC mode.
AT+WEBU: Set/Get the Login Parameters of WEB page.
AT+WEBVER: Get WEB version.
AT+WSDNS: Set/Get the DNS Server address.
```

The status bar at the bottom of the window shows 'Ready', 'Serial: COM2', '29, 1', '29 Rows, 83 Cols', and 'ANSI'.

Note:

■ When input “+++” (No “Enter” key required), the UART port will display feedback information “a”, but not “+++”; then input another “a”, will display feedback “+OK”, enter into command mode

If did not enter into command mode at first time, probably the space time is wrong when input, please try again by input “+++” and “a”.

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4. Test Case

4.1 Test Case 1: Under AP mode, transparent transmit between UART and Wi-Fi

Prepare:

Install TCP/UDP test tool: TCPUDPDbg

Download site:

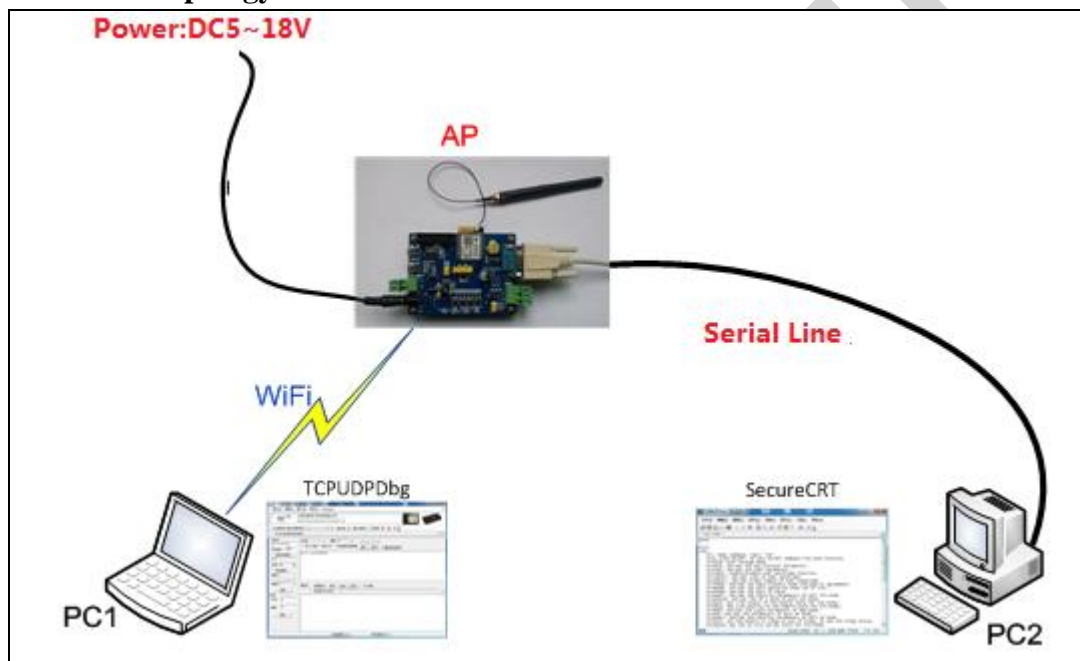
http://www.hi-flying.com/download_detail_dc/&downloadsId=0eb97afc-ea80-4f58-acd6-b34fc010207d&comp_stats=comp-FrontDownloads_list01-dc.html

Install serial tool: SecureCRT

Download site:

http://www.hi-flying.com/download_detail_dc/&downloadsId=cf2dd62e-abb8-48ed-9a12-36d393aac9ab&comp_stats=comp-FrontDownloads_list01-dc.html

4.1.1 Test Topology




4.1.2 PC1 Connect to HF-LPB100 Module by Wireless

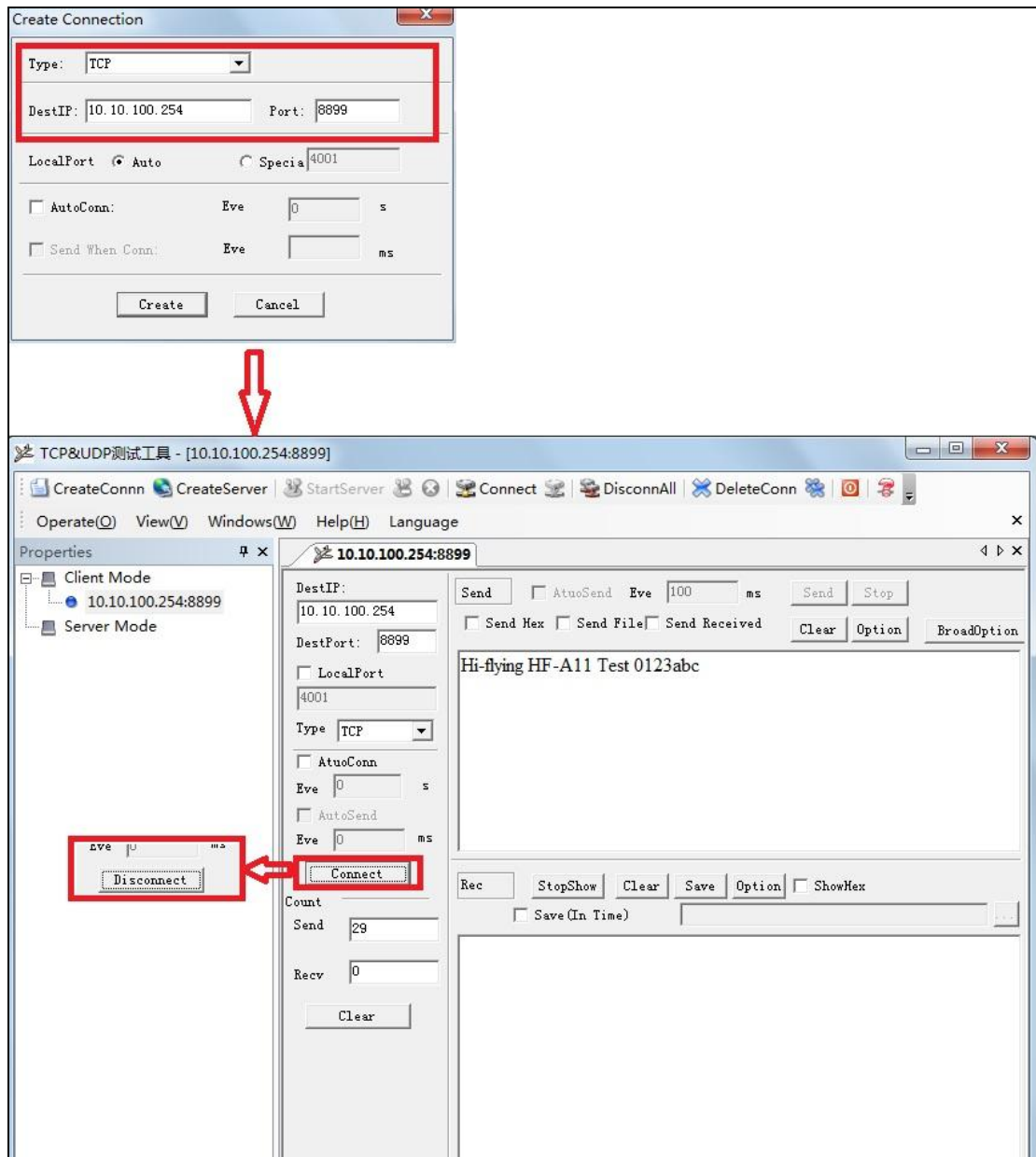
Configure the module by wireless (require a notebook with WIFI). Power up HF-LPB100 EVK, after 3 seconds, the Ready LED light turn on. At this time, user can search “HF-LPB” SSID through notebook. After connection, the Link Led light will turn on.



4.1.3 TCPUDP Test Tool Configure

Decompress “TCPUDPDbg”, select  TCPUDPDbg.exe, open TCPUDP and create a TCP connect, configure as follow:

Press “create connection” and select “TCP”, target IP: 10.10.100.254, Port 8899. After connection, press “Connect”, input the data in the send area, such as “Hi-flying HF-A11 Test 0123abc”.



4.1.4 PC2 Serial Tool Configure

PC2 connect to HF-LPB100 through serial line, click “SecureCRT” to create a connection, detail setting as follow:

Protocol: Serial

Port: computer COM port

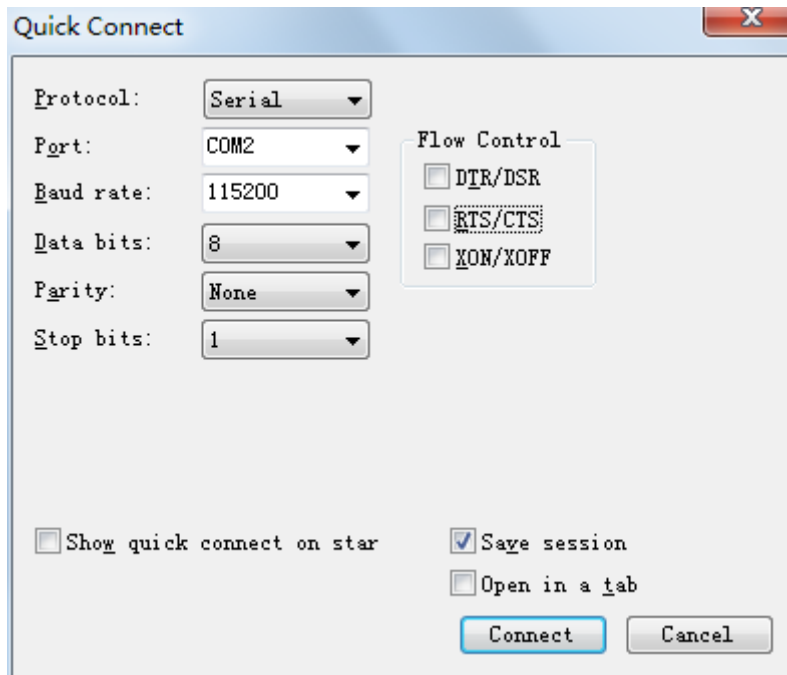
Baud rate: 115200

Data bit: 8

Parity check: None

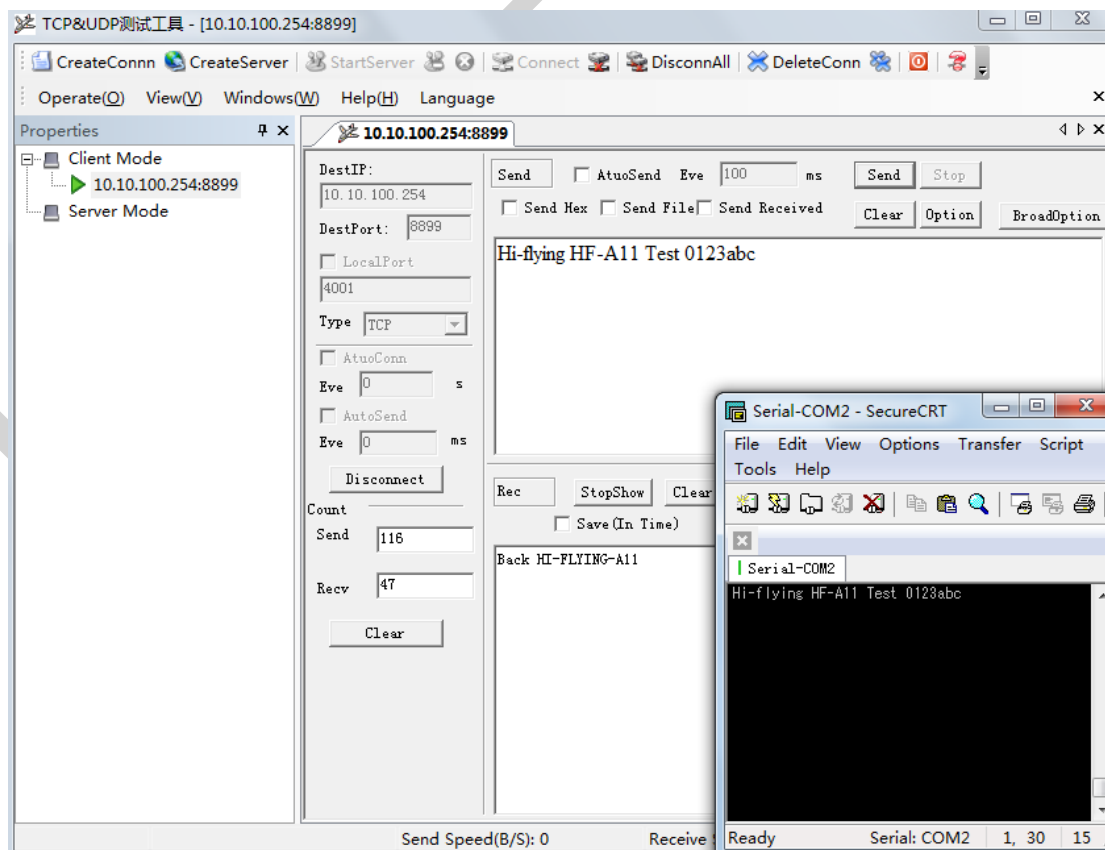
Stop bit: 1

Flow control: none (Please remove “√” in front of RTS/CTS)



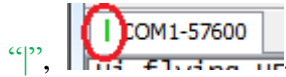
4.1.5 Data Transparent Transmit

After connect with COM port, enter into transparent transmit mode. Then user can run data transmit test. As below photo, press “send” on TCPUCP test tool interface, the data will be transmitted directly to COM port. Meanwhile, input message in COM port tool, the message will be transmitted to TCPUCP receive area directly, such as “Back HI-FLYING-A11”



Notes:

- Use “SecureCRT” serial tool, after connection with COM port, there is a green sign



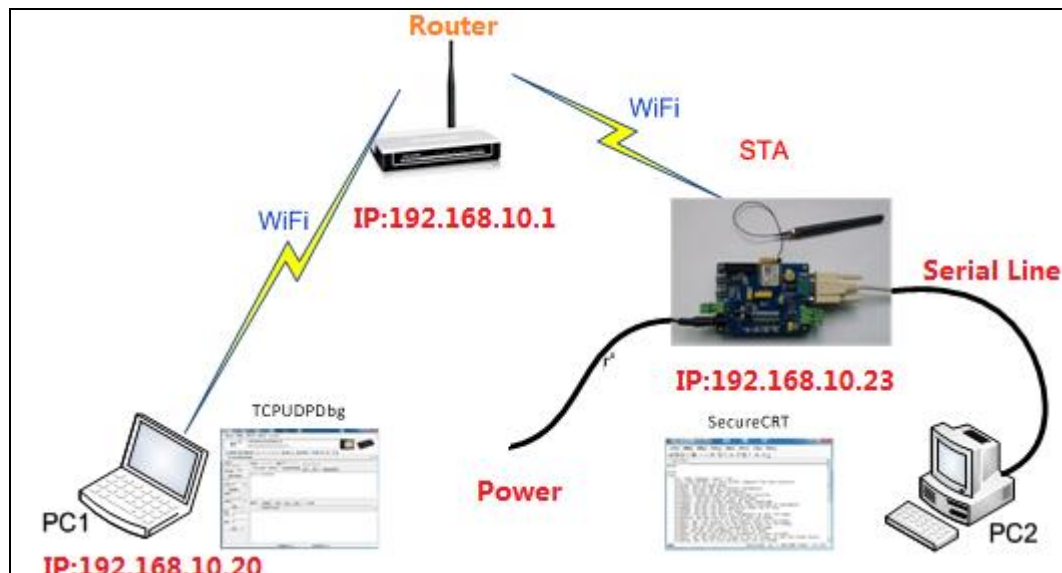
- If it is red, it indicates that the COM port is disconnect
- When transmit, the message inputted in “SecureCRT” will not display in SecureCRT interface, but transmitted to receive area in “TCPUCP test tool interface”
- If “SecureCRT” already enters into command mode, input “AT+ENTM” and enter into transparent transmit mode, or press Reset to enter into transparent transmit mode
- When module work in AP mode, it allows max 2 STA device connecting.

4.2 Test Case 2:

HF-LPB100 as STA mode, connect with router, transparent transmit between UART and Wi-Fi

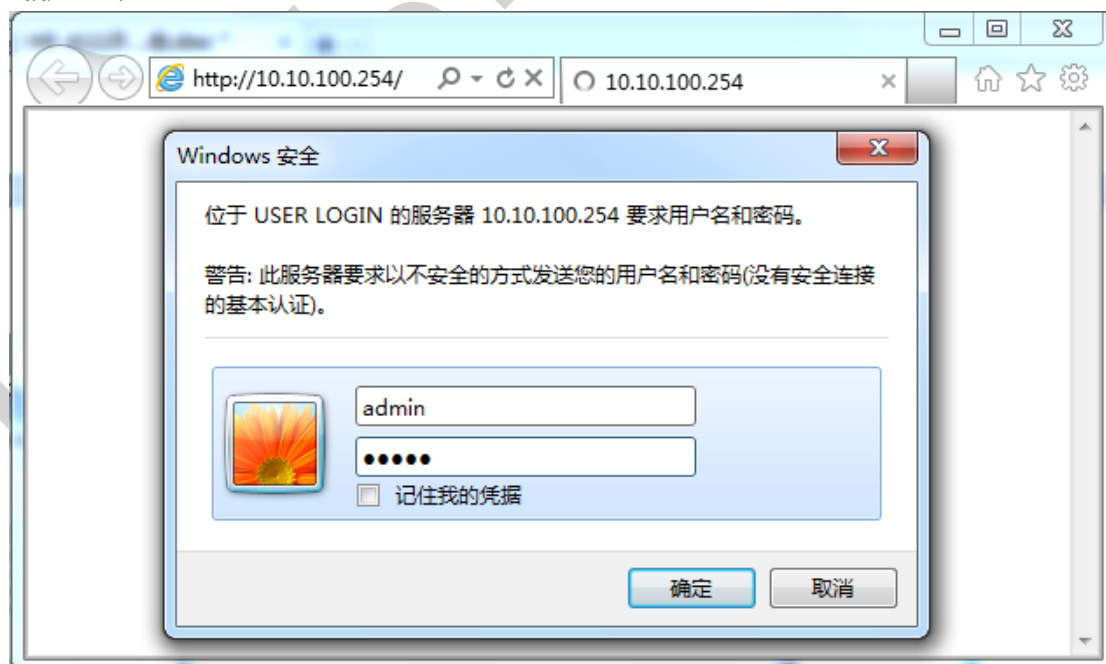
Please install “SecureCRT” and TCP/IPD” test tool before test.

4.2.1 Test Topology:



4.2.2 HF-LPB100 work mode configuration

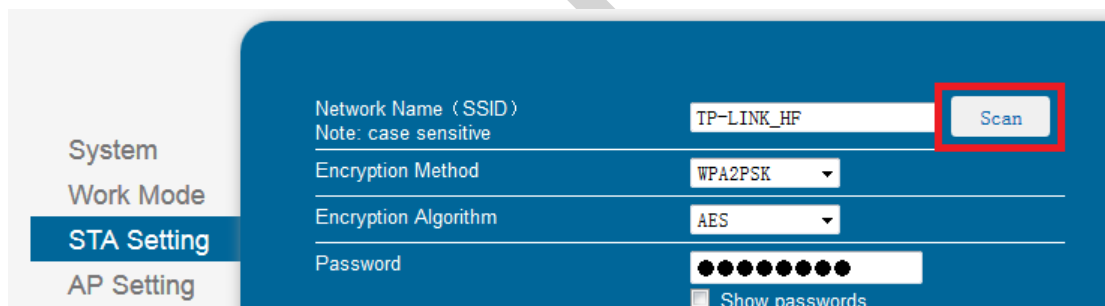
At first, HF-LPB100 work under AP mode, PC1 connect to HF-LPB100 by wireless. Input <http://10.10.100.254>, then input user and password, both of them are “admin”.



Second, enter “mode setting” menu, change setting as follow: select STA mode and reserve.



Third, enter STA setting menu, click “Search” button. The AP list will be displayed, select the wireless network, press confirm and input password of router. (If did not find the target AP when search, please refresh or move HF-LPB100 module to a place near to router)



System
Work Mode
STA Setting
AP Setting
BRM Setting
Other Setting
Account
Upgrade SW
Restart
Restore

Please select your current wireless network

Site Survey

	SSID	BSSID	RSSI	Channel
<input type="radio"/>	HuiWei_HG532d	5C:7D:5E:E1:6:64	74	1
<input type="radio"/>	HF-LPB100	AC:CF:23:5:F6:39	88	1
<input type="radio"/>	TP-LINK_HF	A8:15:4D:FF:49:B5	49	1
<input type="radio"/>	A20120522-1619	B2:6E:5A:DA:C1:58	40	1
<input type="radio"/>	GoodWe-HF	AC:CF:23:21:22:4	74	1
<input checked="" type="radio"/>	BUF_Liu	10:6F:3F:64:DE:45	96	1
<input type="radio"/>	Kevin-3G	78:52:62:D:C6:E8	72	2
<input type="radio"/>	HF-LPB100	AC:CF:23:21:39:59	61	1
<input type="radio"/>	HF-LPB100	AC:CF:23:21:1C:51	61	1
<input type="radio"/>	HF-LPB200	AC:CF:23:20:F3:DB	74	3
<input type="radio"/>	HF-LPB200	AC:CF:23:20:F6:A3	64	3
<input type="radio"/>	TP-LINK_B000	6C:E8:73:B0:0:DE	88	4
<input type="radio"/>	HF-LPB100	AC:CF:23:21:1C:1	54	4

OK Refresh

System
Work Mode
STA Setting
AP Setting
BRM Setting
Other Setting
Account
Upgrade SW
Restart
Restore

Network Name (SSID) Scan

Note: case sensitive

Encryption Method

Encryption Algorithm

Password ☐ Show passwords

☐ Obtain an IP address automatically

IP Address

Subnet Mask

Gateway Address

DNS Server Address

Set DHCP or Static IP Address, Subnet Mask, Gateway Address and DNS

Save

When connect to router as STA, in order to find IP address of HF-LPB100 correctly, user can set static IP manually.

Forth, serial and network parameter setting.

If not specific demand, can apply default setting to run the rest.

The screenshot shows a configuration interface with a sidebar on the left and a main content area. The sidebar includes options: System, Work Mode, STA Setting, AP Setting, BRM Setting, Other Setting (highlighted), Account, Upgrade SW, Restart, and Restore. The main content area has two sections: 'Serial Port Parameters Setting' and 'Network Parameters setting'. The 'Serial Port Parameters Setting' section includes fields for Baud Rate (115200), Data Bit (8), Parity Bit (None), Stop Bit (1), and CTSRTS (Disable), with a 'Save' button. The 'Network Parameters setting' section includes fields for Protocol (TCP-Server), Port ID (8899), Server Address (1), and TCP Time Out Setting (300), also with a 'Save' button.

Serial Port Parameters Setting	
Baud Rate	115200
Data Bit	8
Parity Bit	None
Stop Bit	1
CTSRTS	Disable
<input type="button" value="Save"/>	

Network Parameters setting	
Protocol	TCP-Server
Port ID	8899
Server Address	1
TCP Time Out Setting	300
<input type="button" value="Save"/>	

If connect to serial port of device directly, requires to configure the matched serial parameter; if connect to server, requires to configure the matched network parameter.

Fifth, after all parameter is configured, enter “restart” menu and press “ok” button, the module will restart.

The screenshot shows a 'Restart Device' dialog box. It contains an 'Important notice' section with the text: 'After restart, you will need to re-login the configuration interface. It is recommended to restart after completing all configurations. Restart will interrupt the network for a very short period, are you sure to restart now?'. At the bottom, there are two buttons: 'OK' and 'Back'.

Restart Device

Important notice:

After restart, you will need to re-login the configuration interface. It is recommended to restart after completing all configurations. Restart will interrupt the network for a very short period, are you sure to restart now?

After restart, when the “Link” LED light turn on, it indicates the module already connected to router.

4.2.3 PC2 serial configuration and check

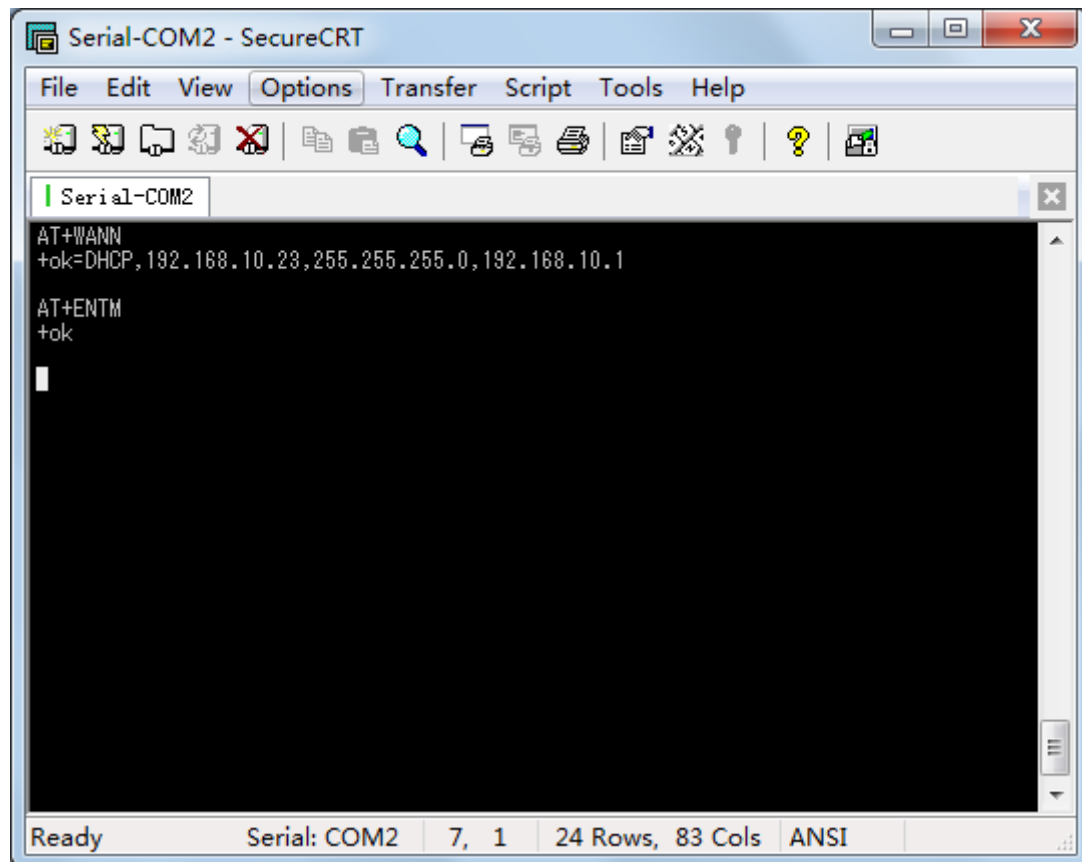
Check the IP address of HF-LPB100 which connected to router, this IP address can set static or automatically acquire from router.

(1) Static set: in STA setting. Disable “acquire IP address automatically”, then you can set IP address manually

(2) Acquire IP address automatic: PC2 connect to HF-LPB100 through serial port, and enter command mode, input “AT+WANN”, the feedback message is the IP

address, for example. “+ok=DHCP,192.168.10.23,255.255.255.0,192.168.10.1”, then the IP address of HF-LPB100 is “192.168.10.23”, please remember this IP address

Then input “AT+ENTM” enters into transparent transmit



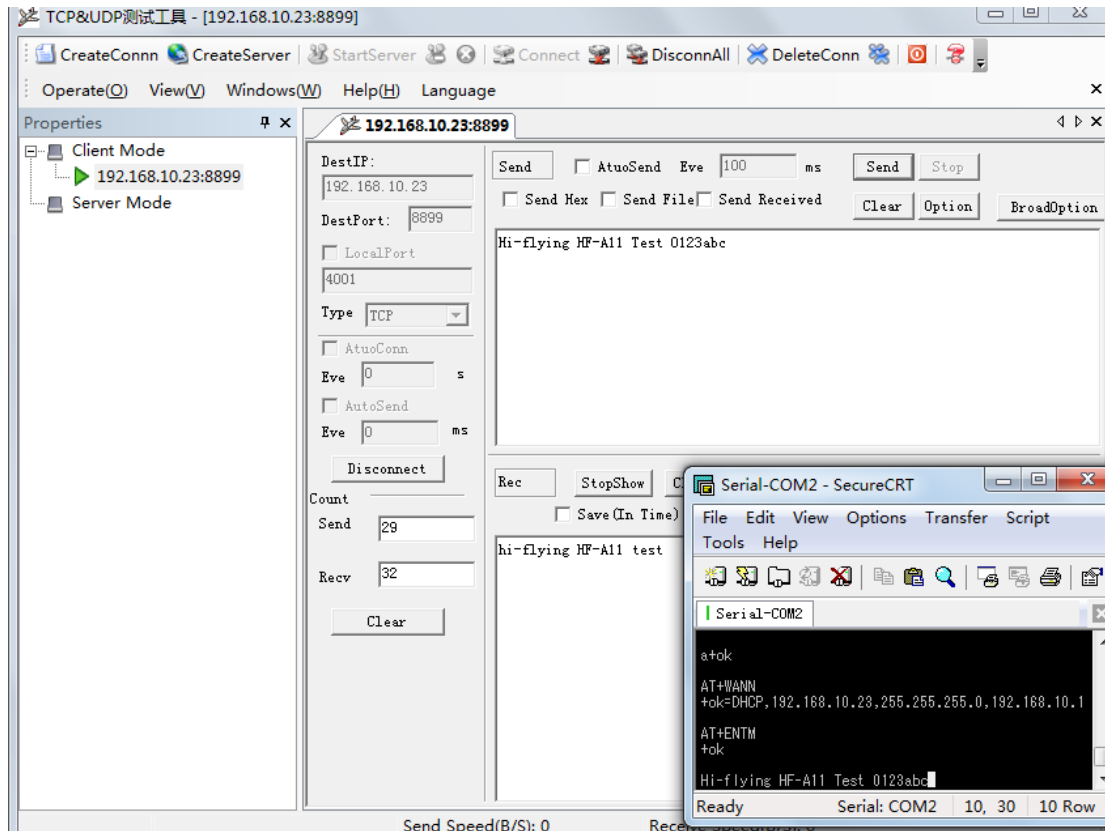
4.2.4 TCPUDP test tool configuration

PC1 connect to “wireless router”, open TCPUDP and create a TCP connect, details set as follow:

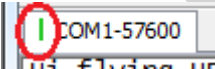
Press “create connect” and select TCP, target IP:192.168.10.23 (This IP is acquired automatically) port: 8899

4.2.5 Data Transparent Transmit

After TCPUDP finished the connection, press “connect” button, input message in send area, such as “Hi-flying HF-LPB100 Test 0123abc”. Under the condition of COM connected, user can run the data transparent transmit test. As below photo shows: press send on TCPUDP interface, the message will be transparent transmitted directly to COM; meanwhile, input message on COM port tool, the message will be transparent transmitted directly to TCPUDP, such as “hi-flying HF-A11 test”



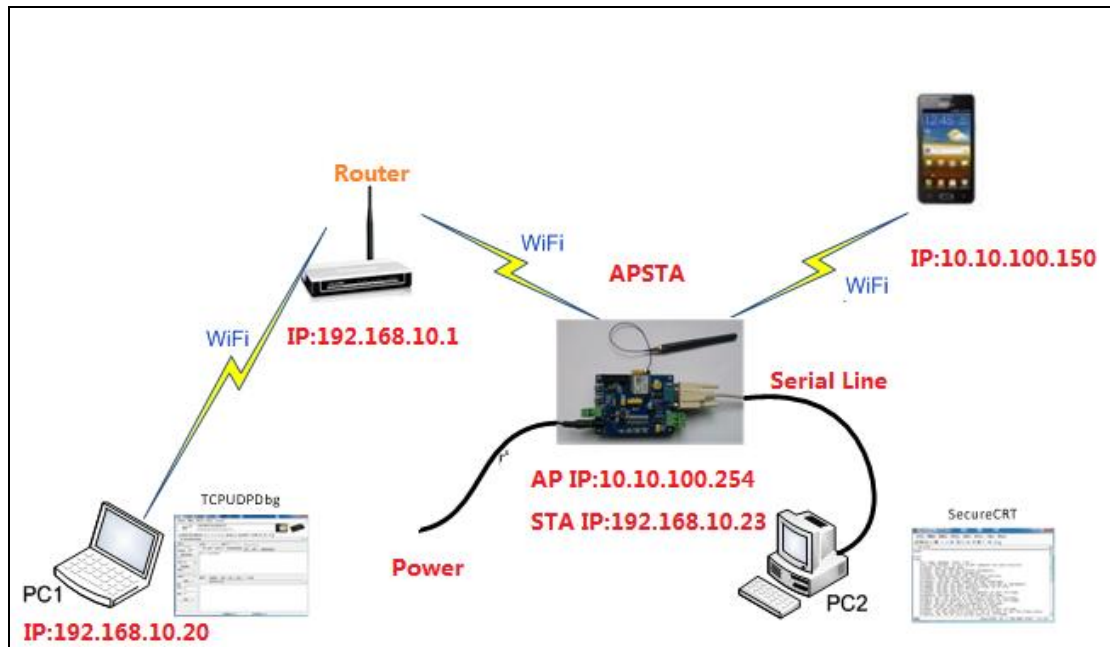
Notes:

- when use “SecureCRT” serial tool, and once connected with COM port successfully ,there will be a green “|” sign, as , if it shows red, then it indicates COM port disconnected.
- When transparent transmit through serial, the message inputted in “SecureCRT” will not displayed in “SecureCRT” interface, but displayed in “TCPUDP” receiving area.
- If already input “+++” and enter command mode by “SecureCRT” serial tool, then user can input “AT+ENTM” switch to transparent transmit mode, or press Reset button to enter transparent transmit mode.
- The target IP address in TCPUDP test tool is the IP address module acquired from wireless router, can check the IP address by input “AT+WANN”.

4.3 Test Case 3: HF-LPB100 work under AP+STA mode, STA connect with wireless router, phone connect with LPB100 AP, and realize double socket communication

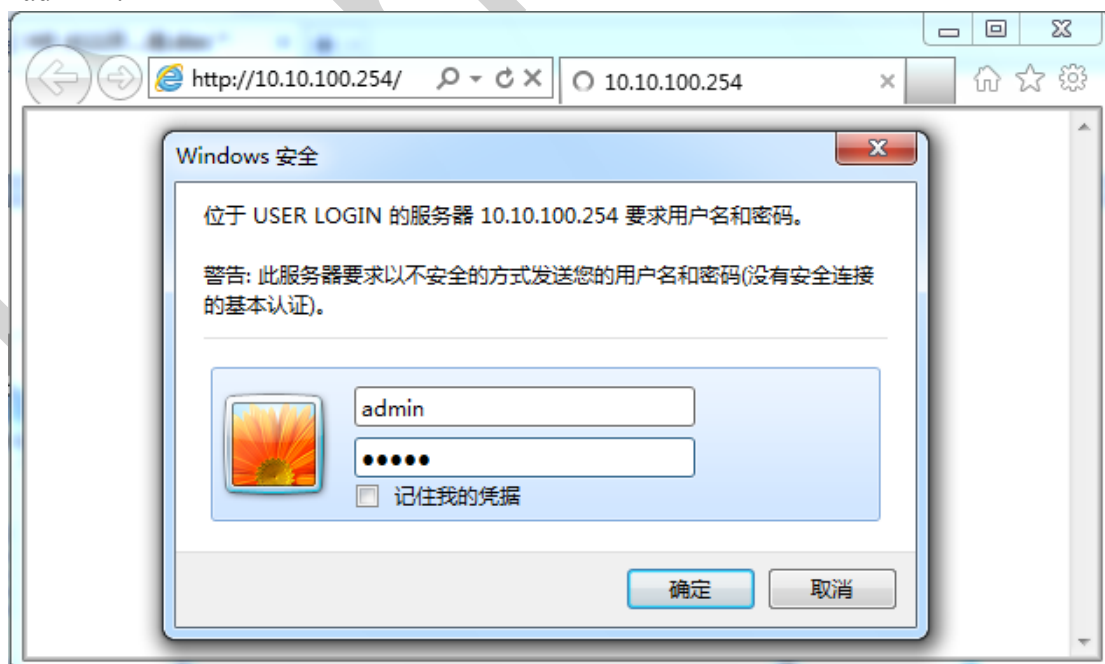
Please install “SecureCRT” serial test tool as Test Case 1.

4.3.1 Test Topology:



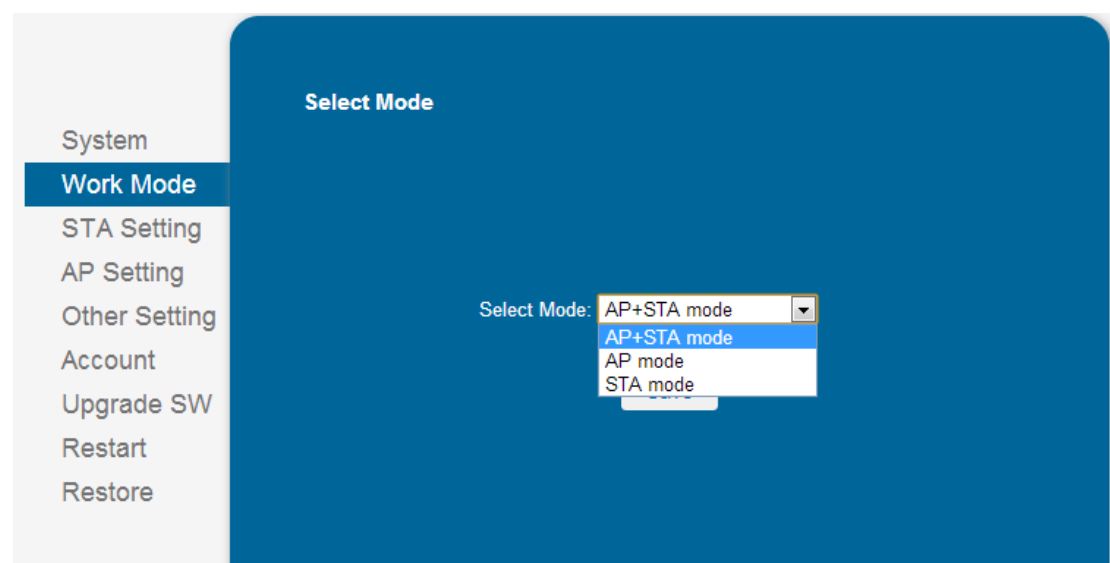
4.3.2 HF-LPB100 work mode configuration

At first, HF-LPB100 work under AP mode, PC1 connect to HF-LPB100 by wireless. Input <http://10.10.100.254>, then input user and password, both of them are “admin”.

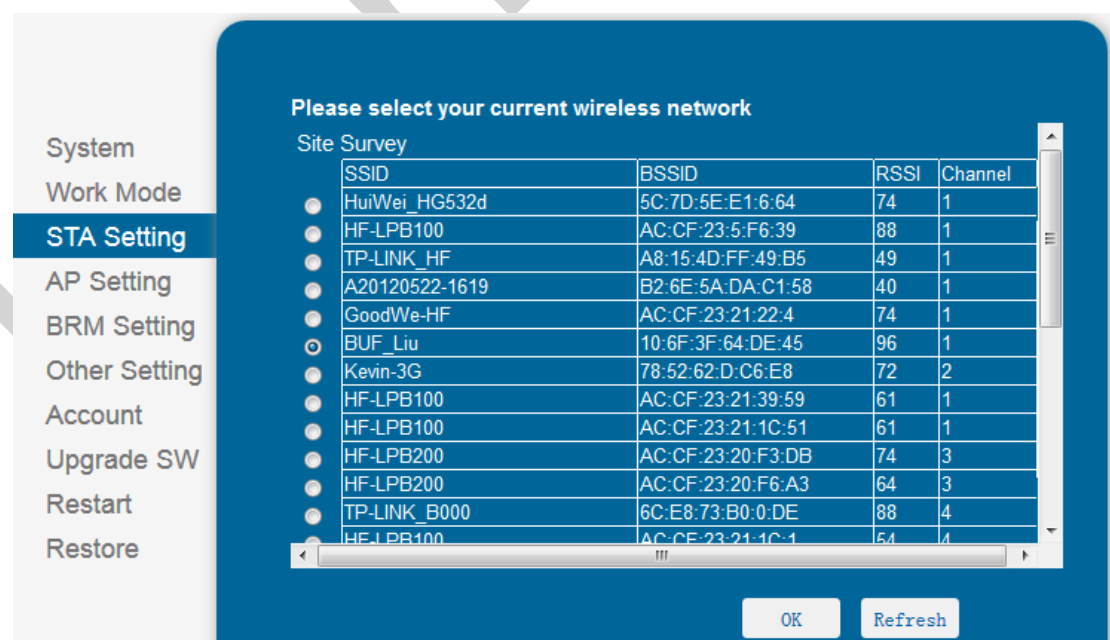
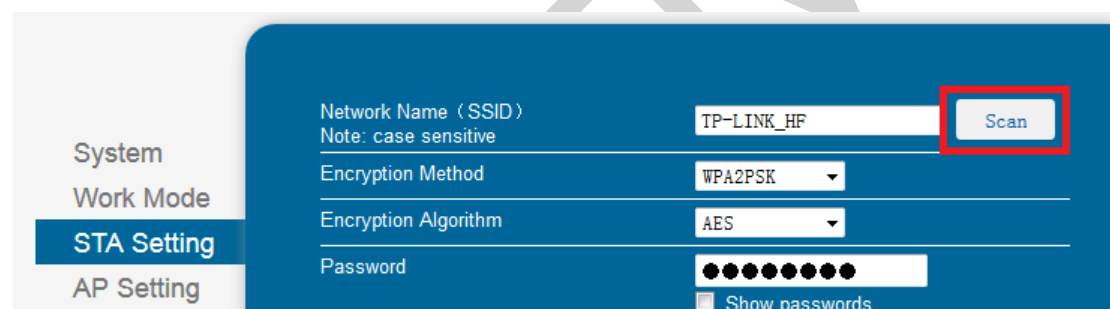


Second, enter “mode setting” menu, change setting as follow: select APSTA

mode and reserve.



Third, enter STA setting menu, click “Search” button. The AP list will be displayed, select the wireless network, press confirm and input password of router. (If did not find the target AP when search, please refresh or move HF-LPB100 module to a place near to router)



System
Work Mode
STA Setting
AP Setting
BRM Setting
Other Setting
Account
Upgrade SW
Restart
Restore

Network Name (SSID)
Note: case sensitive
TP-LINK_HF
Scan

Encryption Method
WPA2PSK

Encryption Algorithm
AES

Password
●●●●●●●●
☐ Show passwords

Obtain an IP address automatically
Disable

IP Address
0.0.0.0

Subnet Mask
0.0.0.0

Gateway Address
0.0.0.0

DNS Server Address
10.10.100.254

**Set DHCP or Static IP Address,
Subnet Mask, Gateway Address
and DNS**

Save

When connect to router as STA, in order to find IP address of HF-LPB100 correctly, user can set static IP manually.

Forth, serial and network parameter setting.

If not specific demand, can apply default setting to run the rest.

System
Work Mode
STA Setting
AP Setting
BRM Setting
Other Setting
Account
Upgrade SW
Restart
Restore

Serial Port Parameters Setting

Baud Rate
115200

Data Bit
8

Parity Bit
None

Stop Bit
1

CTSRTS
Disable

Save

Network Parameters setting

Protocol
TCP-Server

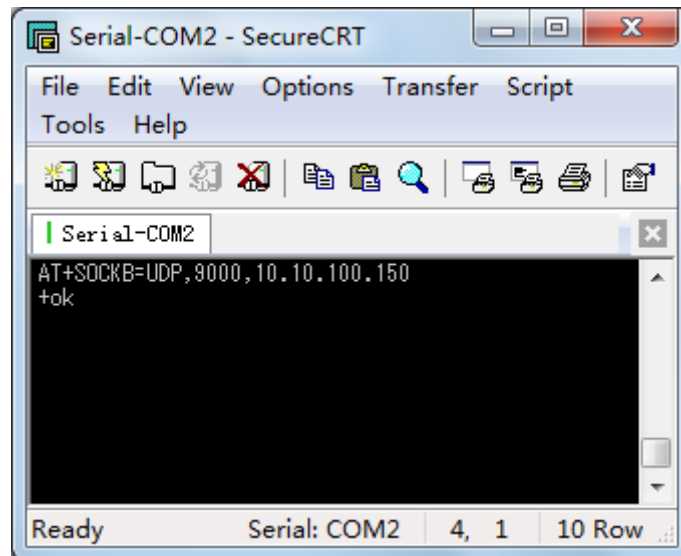
Port ID
8899

Server Address
1

TCP Time Out Setting
300

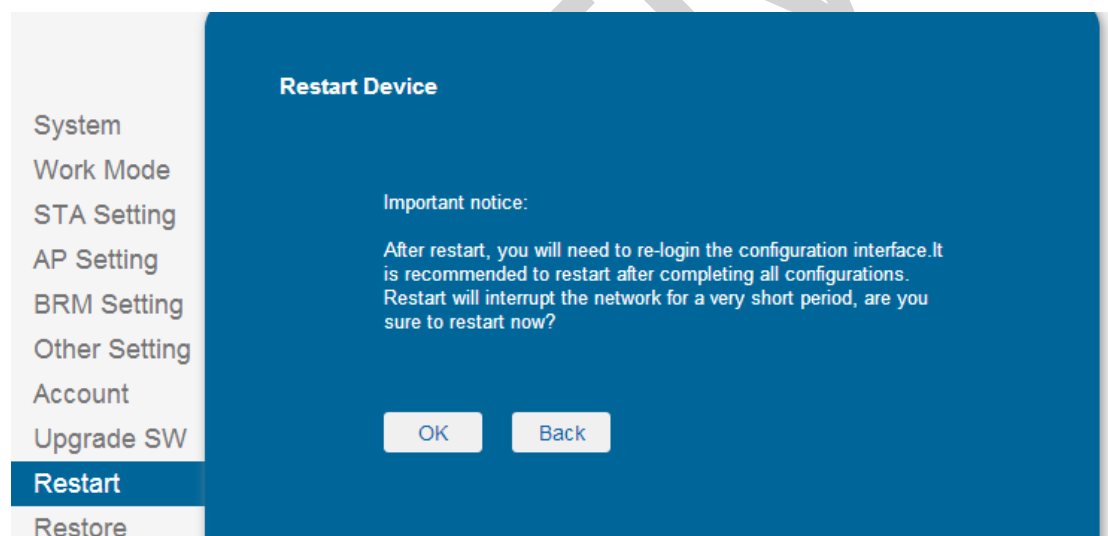
Save

Enable the Socket B function via serial tool. “AT+SOCKB=UDP,9000,10.10.100.150” to enable Socket B work as UDP protocol, source and destination port: 9000, destination IP:10.10.100.150



If connect to serial port of device directly, requires to configure the matched serial parameter; if connect to server, requires to configure the matched network parameter.

Fifth, after all parameter is configured, enter “restart” menu and press “ok” button, the module will restart.



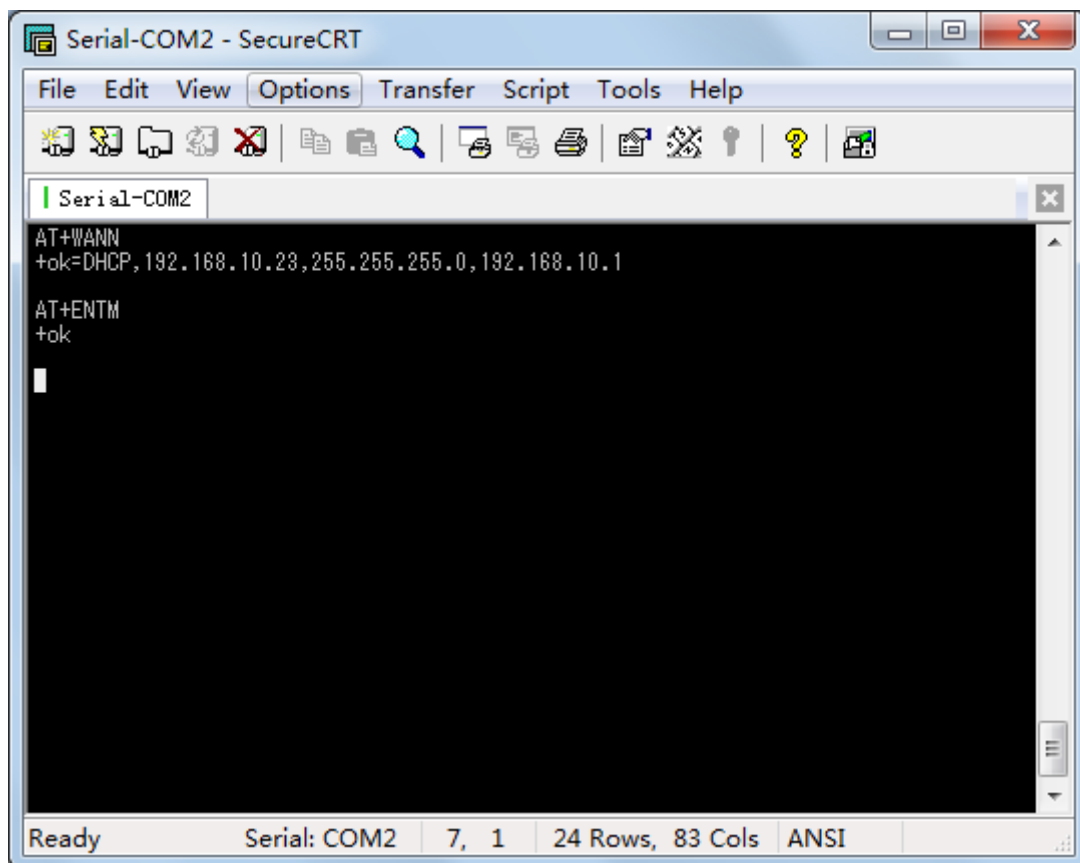
After restart, when the “Link” LED light turn on, it indicates the module already connected to router.

4.2.3 PC2 serial configuration and check

Check the IP address of HF-LPB100 which connected to router, this IP address can set static or automatically acquire from router.

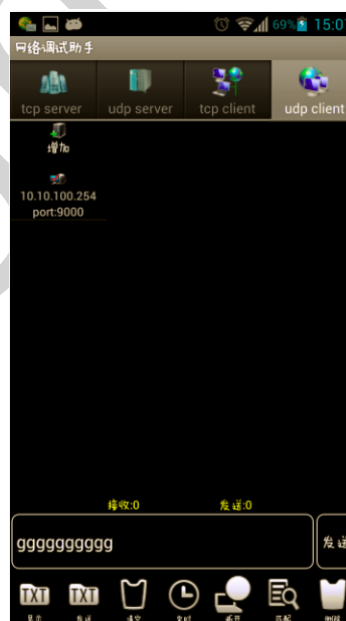
- (1) Static set: in STA setting. Disable “acquire IP address automatically”, then you can set IP address manually
- (2) Acquire IP address automatic: PC2 connect to HF-LPB100 through serial port, and enter command mode, input “AT+WANN”, the feedback message is the IP address, for example. “+ok=DHCP,192.168.10.23,255.255.255.0,192.168.10.1”, then the IP address of HF-LPB100 is “192.168.10.23”, please remember this IP address

Then input “AT+ENTM” enters into transparent transmit



4.3.4 Smart Phone Configure

Install Network Debug Assistant APP and create a UDP socket like the following picture.



4.3.5 TCPUDP Test Tool Configure

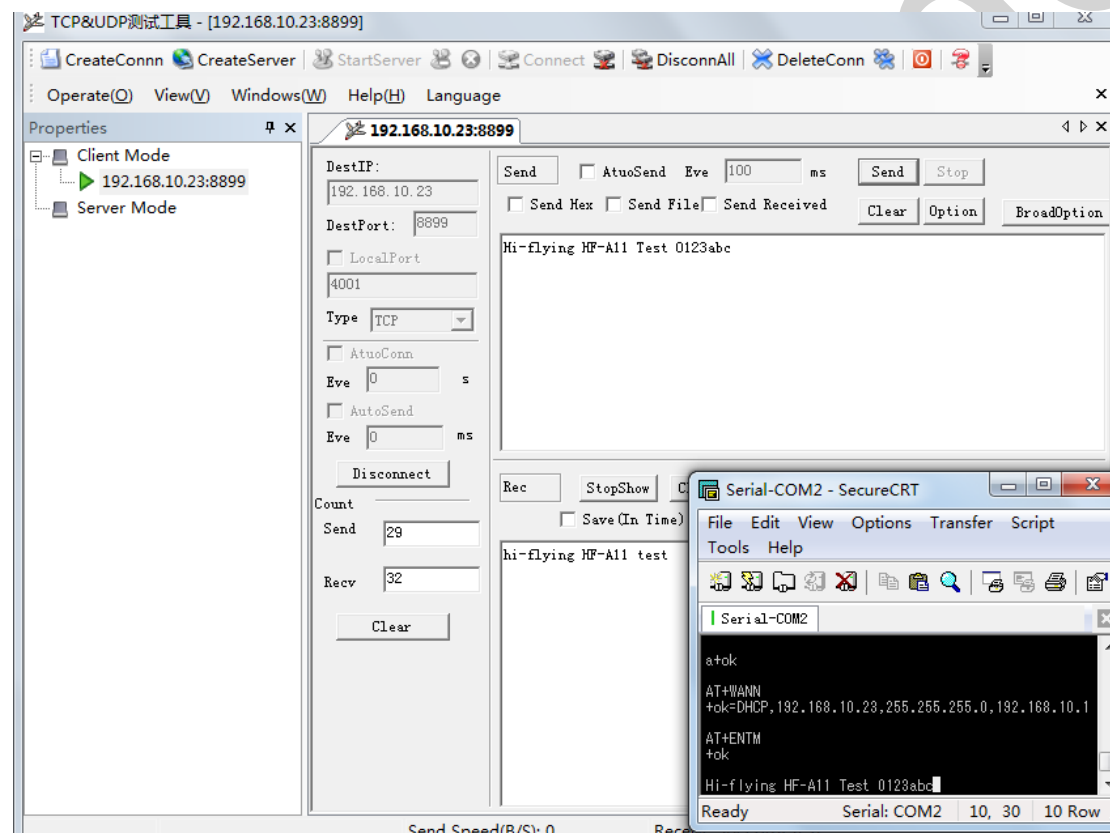
PC1 connect to “wireless router”, open TCPUDP and create a TCP connect, details set as

follow:

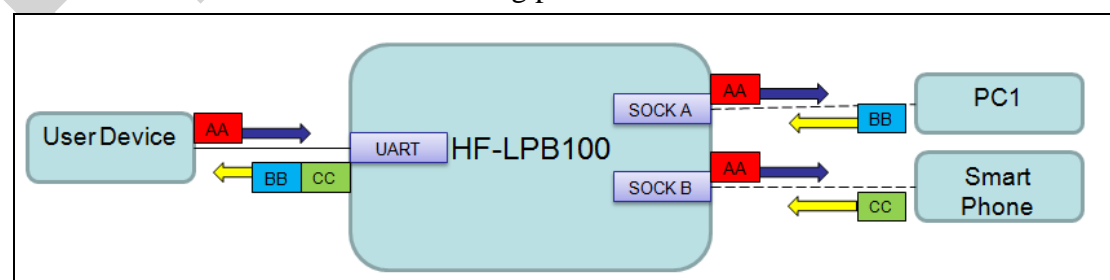
Press “create connect” and select TCP, target IP:192.168.10.23 (This IP is acquired automatically) port: 8899

4.3.6 Data Transparent Transmit

After TCPUDP finished the connection, press “connect” button, input message in send area, such as “Hi-flying HF-LPB100 Test 0123abc”. Under the condition of COM connected, user can run the data transparent transmit test. As below photo shows: press send on TCPUDP interface, any message from PC1 via TCP protocol or from Smart Phone via UDP protocol will be transparent transmitted directly to COM; meanwhile, input message on COM port tool, the message will be transparent transmitted directly to TCPUDP(PC1) and UDP(Smart Phone), such as “hi-flying HF-A11 test”

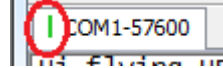


The data flow chart is the following picture:



Notes:

- when use “SecureCRT” serial tool, and once connected with COM port

successfully ,there will be a green “|” sign, as  if it shows red, then it indicates COM port disconnected.

■ When transparent transmit through serial, the message inputted in “SecureCRT” will not displayed in “SecureCRT” interface, but displayed in “TCPUDP” receiving area.

■ If already input “+++” and enter command mode by “SecureCRT” serial tool, then user can input “AT+ENTM” switch to transparent transmit mode, or press Reset button to enter transparent transmit mode.

■ The target IP address in TCPUDP test tool is the IP address module acquired from wireless router, can check the IP address by input “AT+WANN”.

■ When module work in “APSTA” mode, it allows only one STA device connecting to it's AP.

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