

# **Quick Start Guide**

HF-LPB100 &HF-LPB120 Rev1.1

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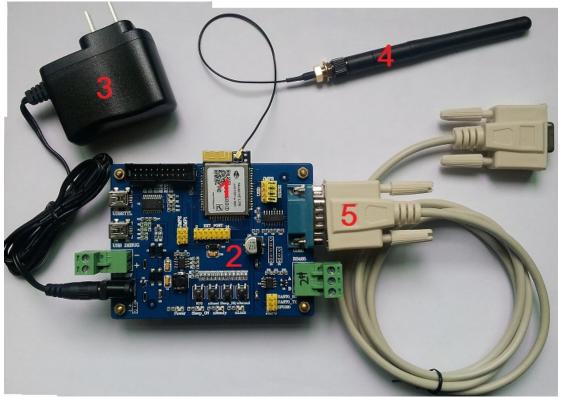
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## 1. Introduction of EVK

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 or HF-LPB120 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 or HF-LPB120 module: 1 Pcs
- 2 HF-LPB100 or 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

#### Notes:

The way to connect the module with the computer serial port is similar between HF-LPB100 and HF-LPB120. So in this case, we take HF-LPB100 as an example in this chapter.

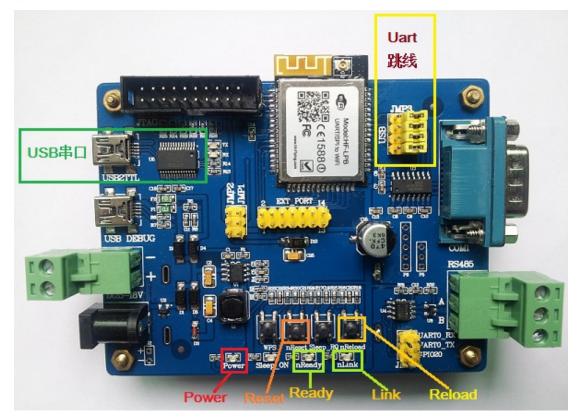
Power adapter ③ connect to power, serial line ⑤ connect to computer serial port.

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:

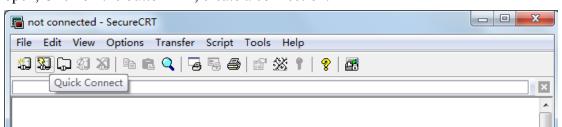
http://www.hi-flying.com/download\_detail\_dc/&downloadsId=cf2dd62e-abb8-48ed-9a12-36d393 aac9ab&comp\_stats=comp-FrontDownloads\_list01-dc.html

Decompress the file folder, find "SecureCRT",



www.hi-flying.com

open, Click on the button 3, create a connection.



### 2.2.2 Set Serial Parameter as follows:

protocol: Serial

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

▲ · 管 端口 (COM 和 LPT)

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)

Quick Connect		X
<u>P</u> rotocol: P <u>o</u> rt: <u>B</u> aud rate: <u>D</u> ata bits: P <u>a</u> rity: <u>S</u> top bits:	Serial   COM2	Flow Control DTR/DSR <u>RTS/CTS</u> <u>XON/XOFF</u>
🔲 Sho <u>w</u> quick	connect on star	✓ Saye session ○ Open in a tab Connect Cancel

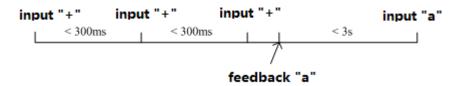
# 3. AT command configure

**3.1** UART input "+++", after module receive "+++", and feedback "a" as confirmation;

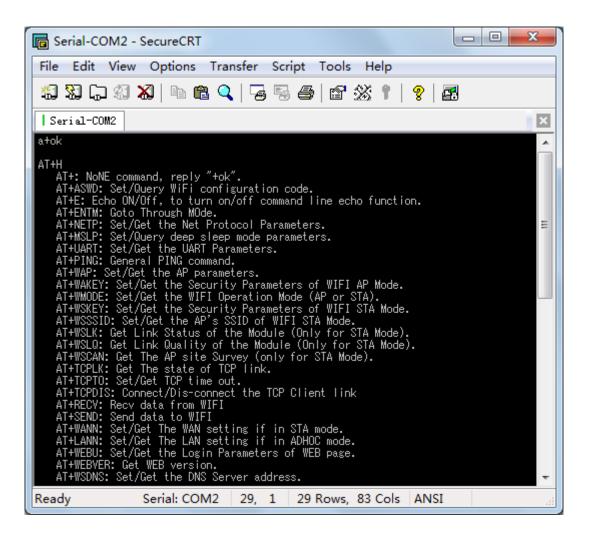
**3.2** UART input "a", after module receive "a" and feedback "+ok" to go into AT+ instruction set configuration mode.

<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.



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".

# 4. Test Case

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

Notes:

In Case 1, HF-LPB100 and HF-LPB120 are the same in using such function. Therefore, we test HF-LPB100 in this example.

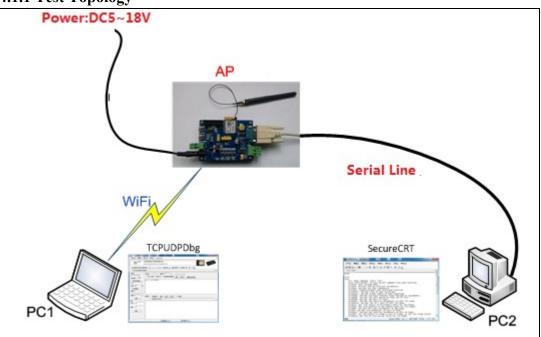
Prepare: Install TCP/UDP test tool: TCPUDPDbg Download site:

http://www.hi-flying.com/download\_detail\_dc/&downloadsId=0eb97afc-ea80-4f58-acd6-b34fc01 0207d&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-9a12-36d393 aac9ab&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.

无线网络连接		^	
HF-LPB100	已连接	•	
DLink_Liu		IÌ	
Tenda_305BF8		I	÷
打开网络和共享	中心		

The SSID of module HF-LPB120 is HF-LPB120 under AP mode. It is shown as follows:

HF_yanshi	lle.	-
onePlus	100.	
Banana	1860 -	
TL-WR703N_5C4E	1000	
123	lite.	
HF-LPB120	311	
UPGRADE-AP-mxj		
UPGRADE-AP-EX	信号强度:非常好 安全类型:不安全	
E5B7B2E6ACA0E8	无线电类型: 802.11g SSID: HF-LPB120	=
jmdg		
ChinaNet	Sail	
HF-I PT120	C. I	-
打开网	络和共享中心	

## 4.1.3 TCPUDP Test Tool Configure

Decompress "TCPUDPDbg", select create a TCP connect, configure as follow:

, open TCPUDP and

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".

**TCPUDPDbg.exe** TCPUDPDbg Microsoft 基础类..

1.0.3.2

Create Connection	×			
Type: TCP 💌				
DestIP: 10.10.100.254 Po	rt: 8899			
LocalPort 🕞 Auto 🔿 Spe	cia 4001			
🗍 AutoConn: Eve	0 s			
Send When Conn: Eve	ms			
Create Cano	el			
, Д		a		
✔ ★ TCP&UDP测试工具 - [10.10.100.254	1-88001			- • <b>• ×</b>
		😤 Connect 🧝 🗟 DisconnAll 🛛 💥 DeleteCor		
Operate( <u>O</u> ) View( <u>V</u> ) Windows( <u>V</u> )				×
Properties <b>P</b> ×	10.10.100.254:88	99		4 Þ ×
• 10.10.100.254:8899 Server Mode	DestIP: 10.10.100.254 DestPort: 8899 LocalPort 4001 Type TCP AtuoConn Eve 0 Second Eve 0 Type Connect Connect Count 29	Send AtuoSend Eve 100 ms Send Hex Send File Send Received Hi-flying HF-A11 Test 0123abc	Send Stop Clear Option	BroadOption
	Recv 0			

#### 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)

Quick Connect		×
<u>P</u> rotocol: P <u>o</u> rt: <u>B</u> aud rate: <u>D</u> ata bits: P <u>a</u> rity: <u>S</u> top bits:	Serial     •       COM2     •       115200     •       8     •       None     •       1     •	Flow Control DTR/DSR <u>RTS/CTS</u> XON/XOFF
🔲 Sho <u>w</u> quick	connect on star	☑Saye session □Open in a <u>t</u> ab Connect Cancel

#### 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"

CreateConn       CreateServer       StartServer       Connect       Disconnall       DeleteConn       Connect       X         Properties       # ×       Image: Server Mode       Image: Server Mode <th>✗ TCP&amp;UDP测试工具 - [10.10.100.25]</th> <th>4:8899]</th> <th></th> <th></th>	✗ TCP&UDP测试工具 - [10.10.100.25]	4:8899]		
Clear	CreateConnn CreateServer	StartServer       Solution         Whelp(H)       Language         Language       Language         Image: StartServer       Solution         DestIP:       10.10.100.254:84         Image: StartServer       Solution         Image: StartServer       Solution<	B39 Send AtuoSend Eve Send Hex Send File Hi-flying HF-A11 Test 012 Rec StopShow Clear Save (In Time)	All & DeleteConn & O & X All & DeleteConn & O & X 100 ms Send Stop Send Received Clear Option BroadOption BroadOption BroadOption BroadOption BroadOption Clear Option BroadOption Clear Option Clear Option BroadOption Clear Option BroadOp
Send Speed(B/S): 0 Receive Ready Serial: COM2 1, 30 15		Count Send 116 Recv 47 Clear	Save (In Time) Back HI-FLYING-A11	<pre>% % Construction for the second second</pre>

Notes:

""

Use"SecureCRT"serial tool, after connection with COM port, there is a green sign 100001-57600

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.

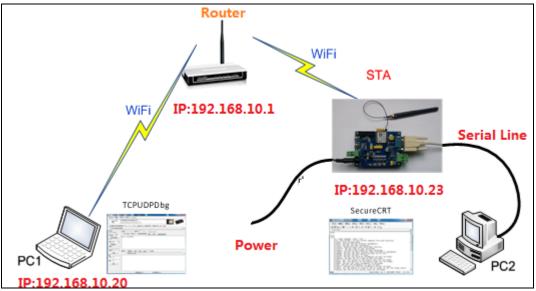
#### 4.2 Test Case 2:

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

When compares to HF-LPB100, HF-LPB120 does not support webpage configuration, so please pay attention.

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 <u>http://10.10.100.254</u>, then input user and password, both of them are "admin".

	and the second se			23
$( \Leftrightarrow ) \bigcirc [$			6 r	\$ 1
	Windows 安全			^
	位于 USER LOGIN 的服务器 10.10.100.254 要求用户名和密码。	L		
	警告:此服务器要求以不安全的方式发送您的用户名和密码(没有安全连接的基本认证)。	L		
	admin ••••• 回 记住我的凭据			
	确定取消	J		Ŧ

Second, enter "mode setting" menu, change setting as follow: select STA mode

#### and reserve.

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

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)

Custom	Network Name(SSID) Note: case sensitive	TP-LINK_HF Scan
System	Encryption Method	WPA2PSK 👻
Work Mode	Encryption Algorithm	AES 👻
STA Setting	Password	•••••
AP Setting		Show passwords

System	Site	e Survey				1
-		SSID	BSSID	RSSI	Channel	
Nork Mode	0	HuiWei_HG532d	5C:7D:5E:E1:6:64	74	1	
STA Setting	0	HF-LPB100	AC:CF:23:5:F6:39	88	1	
	0	TP-LINK_HF	A8:15:4D:FF:49:B5	49	1	
AP Setting	0	A20120522-1619	B2:6E:5A:DA:C1:58	40	1	
BRM Setting	0	GoodWe-HF	AC:CF:23:21:22:4	74	1	Ц
Ű,	0	BUF_Liu	10:6F:3F:64:DE:45	96	1	
Other Setting	0	Kevin-3G	78:52:62:D:C6:E8	72	2	
Account	0	HF-LPB100	AC:CF:23:21:39:59	61	1	
	0	HF-LPB100	AC:CF:23:21:1C:51	61	1	
Jpgrade SW	0	HF-LPB200	AC:CF:23:20:F3:DB	74	3	
Restart	0	HF-LPB200	AC:CF:23:20:F6:A3	64	3	
	0	TP-LINK_B000	6C:E8:73:B0:0:DE	88 54	4	۰.,
Restore	री	IHE PRIN		15/1		

Sustem	Network Name(SSID) Note: case sensitive	TP-LINK_HF	Scan
System Work Mode	Encryption Method Encryption Algorithm	WPA2PSK -	
STA Setting AP Setting	Password	AES    AES	
BRM Setting Other Setting	Obtain an IP address automatically IP Address	Disable ▼ 0.0.0.0	
Account Upgrade SW	Subnet Mask Gateway Address	0. 0. 0. 0	
Restart Restore	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.

	Serial Port Parameters Setting	
ystem	Baud Rate	115200
/ork Mode	Data Bit	8
TA Setting	Parity Bit	None
P Setting	Stop Bit	1
RM Setting	CTSRTS	Disable
other Setting		
ccount		
pgrade SW	Network Parameters setting Protocol	TCP-Server
estart	Port ID	8899
estore	Server Address	1
	TCP Time Out Setting	300

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.

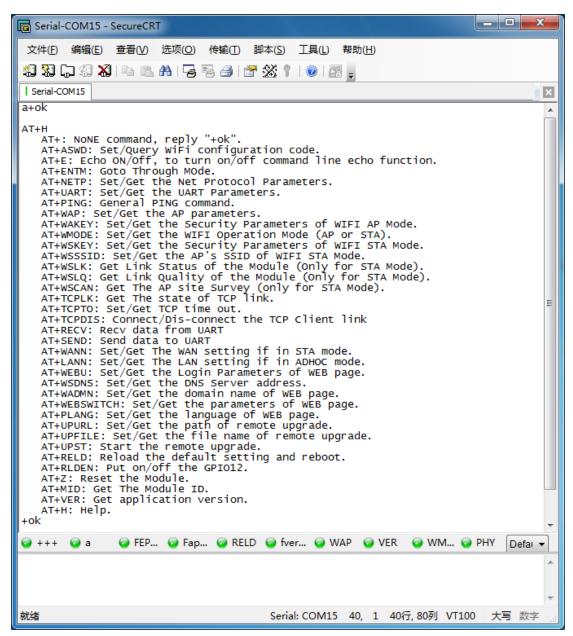
Fifth, after all parameter is configured, enter "restart" menu and press "ok" button, the module will restart.

	Restart Device						
System							
Work Mode							
STA Setting	Important notice:						
AP Setting	After restart, you will need to re-login the configuration interface. It is recommended to restart after completing all configurations.						
BRM Setting	Restart will interrupt the network for a very short period, are you sure to restart now?						
Other Setting							
Account							
Upgrade SW	OK Back						
Restart							
Restore							

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

#### 4.2.3 HF-LPB120 work mode configuration

Because HF-LPB120 cannot support webpage configuration, it is suggested to use serial port to configure. The specific steps are shown as follows: First, enter into the AT command configure by command configuration in chapter 3.



Second, search the AP nearby and take the following figure as an example:

AT+WSCAN +ok=Ch,SSID,BSSID,RSSI 1, HF-LPB100, AC:CF:23:91:15:4D, OPEN/NONE, 47 1,HF-LPB100,AC:CF:23:6D:4E:45,OPEN/NONE,64 1,What's My sec,00:0E:E8:B6:57:2C,WPA2P5K/AE5,88 1,double\_kill,14:75:90:9E:10:0A,WPAP5KWPA2P5K/AE5,78 1, UPGRADE-AP\_bbbb, A4:56:02:52:4D:F5, WPAPSKWPA2PSK/AES, 100 1, HF-LPT120, AC:CF:23:08:07:05, OPEN/NONE, 72 1, hf\_jing, 14:75:90:0B:C4:84, WPAPSKWPA2PSK/AES, 72 1, onePlus, 00:0E:E8:B6:5E:F4, WPA2PSK/AE5,45 1, HF-Repeater, AC:CF:23:5B:8B:A0, OPEN/NONE, 64 1,LWT,00:0E:E8:B6:47:14,WPAP5KWPA2P5K/AE5,59 2,FAST\_3016\_FLH,F4:6A:92:0C:30:16,WPAP5KWPA2P5K/AE5,84 1, TOTOLINK\_B77CD8, B8:55:10:B7:7C:DC, WPAPSKWPA2PSK/AE5, 54 1, HF-LPB120, AC:CF:23:A1:3E:EB, OPEN/NONE, 64 4, Banana, 14:75:90:0B:C6:96, WPA2P5K/AE5, 84 5, UPGRADE-AP, 74:EA:3A:27:E3:54, OPEN/NONE, 54 5, UPGRADE-AP, B8:55:10:B7:39:54, OPEN/NONE, 52 6,NETGEAR25,04:A1:51:15:22:6A,WPA2P5K/AE5,100 6, TP\_LQJ, 14:75:90:B5:BE:3A, WPAPSKWPA2PSK/AES, 100 6, ChinaNét-demon, 14:75:90:0B:C6:B2, WPAPSKWPA2PSK/AE5, 80 6, TP-LINK\_WR941N, D8:15:0D:D7:E5:44, WPAPSKWPA2PSK/TKIPAE5, 78 8, Tenda\_3B7420, C8:3A:35:3B:74:20, WPAPSK/AES, 70 11,HiwiFi\_3C3C70,D4:EE:07:3C:3C:70,WPAPSKWPA2PSK/AES,92 9,Lab-test-ap,C8:3A:35:2F:BA:E0,WPAPSKWPA2PSK/AES,40 9,UPGRADE-AP-mxj,00:0E:E8:B6:49:AC,OPEN/NONE,61 11,wanstar,AC:CF:23:42:6B:98,WPA2PSK/TKIP,28 10,zjl,96:A8:2E:DF:8E:41,WPA2PSK/AE5,88 11, IOT-LINK\_Beck, 14:75:90:0B:C6:AE, WPAPSKWPA2PSK/AES, 100 11, ChinaNet, 30:49:3B:02:1A:67, OPEN/NONE, 16 11, TL-WR703N\_5C4E, 14: E6: E4: EA: 5C: 4E, WPAPSKWPA2PSK/AE5, 70 11, TP-LINK\_60com, 88:25:93:4D:3C:9C, WPAPSKWPA2PSK/AES, 59 11, TP-LINK\_9276, EC:26:CA:75:92:76, WPAPSKWPA2PSK/AES, 82 11, HF-A11x\_AP, AC:CF:23:43:91:84, OPEN/NONE, 59 11,123,AC:29:3A:9D:2F:ED,WPA2PSK/AES,25 11,HF-Meeting-Room,80:89:17:D6:41:88,WPA2PSK/AES,66 11,UPGRADE-AP-NSZ,14:75:90:B5:CE:A6,WPAPSKWPA2PSK/AES,70 11, HF\_yanshi, 00:0E:E8:B6:48:80, WPAPSKWPA2PSK/AE5, 76 11,Marco\_Sun's iMac,AC:29:3A:92:54:E1,WPA2PSK/AE5,74

Type the command AT+WSCAN, and then you will see some information like channel, SSID of the AP nearby.

```
AT+WSSSID=UPGRADE-AP_bbbb
+ok
AT+WSKEY=wpapsk,aes,12345678
+ok
AT+WMODE=sta
+ok
```

There are totally three commands in the figure above. The first one is used to set the SSID of the related AP. The second one is to set the encryption parameter of STA. (Note that the three parameters stand for authentication mode, encryption algorithm and the key respectively) The last one is about the work mode.

Third, set the parameters of network and serial port.

```
AT+WANN
+ok=DHCP,10.10.10.16,255.255.255.0,10.10.10.1
AT+NETP
+ok=TCP,Server,8899,10.10.100.254
AT+UART
+ok=115200,8,1,None,NFC
```

Among all the commands above, AT+WANN is used to set network parameters and there are four parameters which represent IP mode of STA, IP address of STA, the subnet mask of STA and gateway address of STA respectively.(In this case, the costumer can also set static IP according to special requirements)

AT+NETP is used to set parameters of network protocol, there are four parameters which stand for type of protocol, network mode, port and the IP address or domain name under client mode.

AT+UART is the command to check and modify the information in serial port. It has five parameters, and they are baud rate, data bits, stop bits, check bits and hardware flow control. If there are no special requirements, it is suggested to use default mode.

Four, after setting all the parameters, you must reset the module. After restart, when the "Link" LED light turns on, it indicates the module already connected to router.

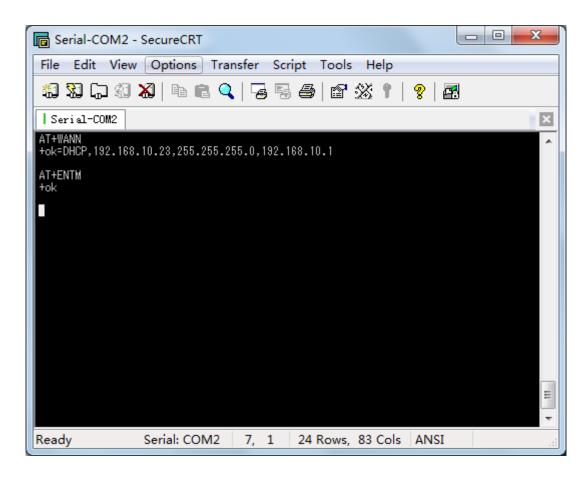
4.2.4 PC2 serial configuration and check

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



#### 4.2.5 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

#### 4.2.6 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, 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"

🎾 TCP&UDP测试工具 - [192.168.10.2	3:8899]	
🗄 🔄 CreateConnn 🔕 CreateServer	🐰 StartServer 🐰 😧	😪 Connect 🗝   🛬 DisconnAll   💥 DeleteConn 🎇   🔟   ಿ 📮
Operate(O) View(V) Windows(	<u>W</u> ) Help( <u>H</u> ) Languag	ge ×
Properties <b>P</b> ×	192.168.10.23:8	3899 ↓ ↓ ×
Client Mode 192.168.10.23:8899 Server Mode	DestIP:           [192,168.10.23]           DestPort:           [3899]           LocalPort           [4001]           Type           TCP           AtuoConn           Eve           AtuoSend           Eve           Disconnect           Count           Send           [29]           Recv           [32]	Send       AtuoSend Eve       100       ms       Send       Stop         Send Hex       Send File       Send Received       Clear Option       BroadOption         Hi-flying HF-All Test 0123abc       Image: StopShow       C       Serial-COM2 - SecureCRT       Image: StopShow         Rec       StopShow       C       Serial-COM2 - SecureCRT       Image: StopShow       Image: StopShow         Image: StopShow       C       Image: Serial-COM2 - SecureCRT       Image: StopShow       Image: StopShow       Image: StopShow         Image: StopShow       C       Image: StopShow       Image: StopShow

Notes:

when use "SecureCRT" serial tool, and once connected with COM port successfully ,there

will be a green "" sign, as find finding up, if is 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.

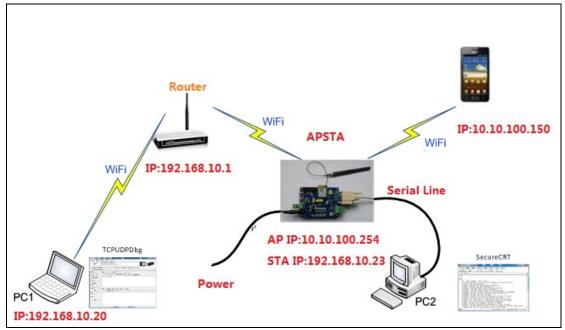
■ The target IP address in TCPUDP test tool is the IP address module acquired from wireless router, can check the IP address by input "AT+WANN".

4.3 Test Case 3: HF-LPB100 or HF-LPB120 work under AP+STA mode, STA connect with wireless router, phone connect with LPB100 AP, and realize double socket communication

Notes: HF-LPB120 cannot support for ATSTA mode, so

# please DO NOT test this example by using HF-LPB120.

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 <u>http://10.10.100.254</u>, then input user and password, both of them are "admin".

		☆☆戀
1	Windows 安全	*
	位于 USER LOGIN 的服务器 10.10.100.254 要求用户名和密码。	
	警告:此服务器要求以不安全的方式发送您的用户名和密码(没有安全连接的基本认证)。	
	admin ・・・・・ 回 记住我的凭据	
	确定取消	

Second, enter "mode setting" menu, change setting as follow: select APSTA mode and reserve.

	Select Mode			
System				
Work Mode				
STA Setting				
AP Setting				
Other Setting		Select Mode:	AP+STA mode	•
Account			AP+STA mode AP mode	
Upgrade SW			STA mode	
Restart				
Restore				

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)

(			
Custom	Network Name(SSID) Note: case sensitive	TP-LINK_HF	Scan
System	Encryption Method	WPA2PSK -	
Work Mode	Encryption Algorithm	AES 👻	
STA Setting AP Setting	Password	Show passwords	

System	Site	e Survey				Ľ
-		SSID	BSSID	RSSI	Channel	
Nork Mode	0	HuiWei_HG532d	5C:7D:5E:E1:6:64	74	1	
STA Setting	0	HF-LPB100	AC:CF:23:5:F6:39	88	1	
	0	TP-LINK_HF	A8:15:4D:FF:49:B5	49	1	
AP Setting	۲	A20120522-1619	B2:6E:5A:DA:C1:58	40	1	
BRM Setting	0	GoodWe-HF	AC:CF:23:21:22:4	74	1	Ц
Ű,	0	BUF_Liu	10:6F:3F:64:DE:45	96	1	
Other Setting	0	Kevin-3G	78:52:62:D:C6:E8	72	2	
Account	0	HF-LPB100	AC:CF:23:21:39:59	61	1	
	0	HF-LPB100	AC:CF:23:21:1C:51	61	1	
Jpgrade SW	0	HF-LPB200	AC:CF:23:20:F3:DB	74	3	
Restart	0	HF-LPB200	AC:CF:23:20:F6:A3	64	3	
Coture	0	TP-LINK_B000	6C:E8:73:B0:0:DE	88 54	4	١,
Restore	री		III	15/1		

Custom	Network Name(SSID) Note: case sensitive	TP-LINK_HF	Scan
System Work Mode	Encryption Method	WPA2PSK -	
STA Setting	Encryption Algorithm	AES 👻	
AP Setting	Password	Show passwords	
BRM Setting	Obtain an IP address automatically	Disable 🔻	
Other Setting	IP Address	0. 0. 0. 0	
Account	Subnet Mask	0. 0. 0. 0	
Upgrade SW Restart	Gateway Address	0. 0. 0. 0	
Restore	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.

Serial Port Parameters Settin	q
System Baud Rate	115200
Vork Mode Data Bit	8
TA Setting Parity Bit	None
AP Setting Stop Bit	1
BRM Setting CTSRTS	Disable
Other Setting	S
Account Network Parameters setting	
Ipgrade SW Protocol	TCP-Server
Port ID	8899
estore Server Address	1

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

Serial-COM	2 - SecureCRT		
File Edit Vie Tools Help	ew Options T	ransfer Scr	ipt
<b>11 12 12 1</b> 2 1	] 🗶   🖻 🛍	Q   😼 🗟	<b>s</b> 8
Serial-COM2			×
AT+SOCKB=UDP,9 +ok	000,10.10.100.15	0	<u>^</u>
			-
Ready	Serial: COM2	2 4, 1	10 Row

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.

	Restart Device					
System						
Work Mode						
STA Setting	Important notice:					
AP Setting	After restart, you will need to re-login the configuration interface.lt is recommended to restart after completing all configurations.					
BRM Setting	Restart will interrupt the network for a very short period, are you sure to restart now?					
Other Setting						
Account						
Upgrade SW	OK Back					
Restart						
Restore						

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

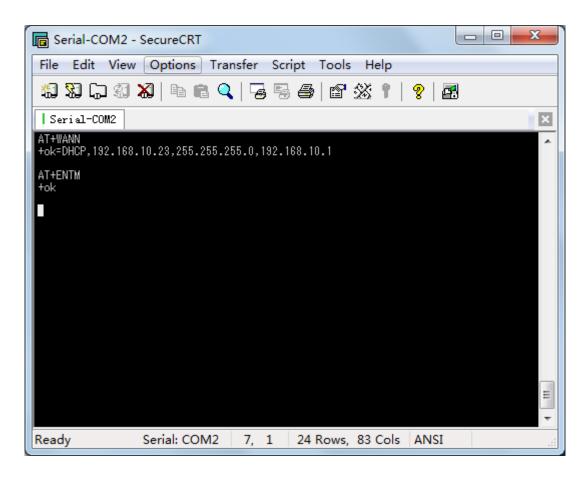
#### 4.2.3 PC2 serial configuration and check

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

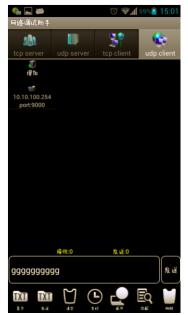
(2) Acquire IP address automatic: PC2 connect to HF-LPB100 through serial port, and enter command mode, input "AT+WANN", the feedback message is the IP address, for example. "+ok=DHCP,192.168.10.23,255.255.255.0,192.168.10.1", then the IP address of HF-LPB100 is "192.168.10.23", please remember this 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:

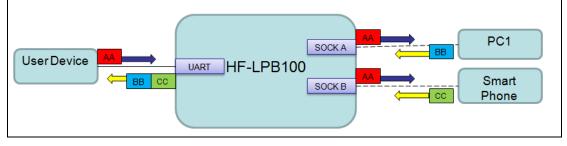
Press "create connect" and select TCP, target IP:192.168.10.23 (This IP is acquired automatically) port: 8899

#### 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"

✗ TCP&UDP测试工具 - [192.168.10	23:8899]				
🗄 🔄 CreateConnn 🔕 CreateServer	🛿 🔏 StartServer 😤 🚱	😤 Connect 蜜   📚 Disc	onnAll   💥 DeleteCo	onn 💸   🔯   🧝	Ŧ
Operate(O) View(V) Window	s( <u>W)</u> Help( <u>H</u> ) Languag	ge			×
Properties <b>4</b> ×	192.168.10.23:8	899			4 Þ ×
Client Mode □ I 192.168.10.23:8899 Server Mode	DestIP: 192.168.10.23 DestFort: 0899 LocalPort 4001 Type TCP AtuoConn Eve 0 s AutoSend Eve 0 ms Disconnect Count Send 29 Recv 32 Clear	Send AtuoSend I Send Hex Send Fil Hi-flying HF-All Test Of Rec StopShow C Save(In Time) hi-flying HF-All test	Ie Send Received 123abc File Edit View Tools Help Serial-COM2 atok AT+ENTM +ok=DHCP, 192.168. AT+ENTM +ok Hi-f lying HF-A11 Ready	Options Trans	n BroadOption
	Send Spee	ed(B/S): 0 Rece			

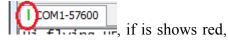
The data flow chart is the following picture:



Notes:

■ when use "SecureCRT" serial tool, and once connected with COM port

successfully ,there will be a green "|" sign, as 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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