# Use Instructions And Test Guidance

# HF-BL500 Module Operation Guide

This document applies to the following series of products.



HF-BL500

# **Table Of Contents**

| 1. | HF-B | L500 MODULE INTRODUCTION          | .3 |
|----|------|-----------------------------------|----|
|    | 1.1. | HF-BL500 EVK Connection           | .3 |
| 2. | SERI | AL PORT SOFTWARE INTRODUCTION     | .4 |
|    | 2.1. | Serial Port Tool SecureCRT        | .4 |
|    | 2.2. | Set Serial Port Parameters        | .4 |
| 3. | HF-B | L500 MODULE TEST                  | .5 |
|    | 3.1. | AT Command                        | .5 |
|    | 3.2. | Transparent Transmission Test     | .7 |
|    | 3.3. | APP Send AT Command               | 11 |
|    | 3.4. | Rewrite Bluetooth MAC Address     | 12 |
|    | 3.5. | Serial Port Mode Firmware Burning | 12 |
|    | 3.6. | OTA Upgrade                       | 14 |

# 1. HF-BL500 MODULE INTRODUCTION

This document introduces the HF-BL500-1 EVB.

### 1.1. HF-BL500 EVK Connection

The schematic diagram of the HF-BL500 EVB board is as follows.



Connect the development board with a USB cable to power the board and do communication tests.

Module PIN13 (development board silkscreen GPIO8) is the dormant pin. If you need to send serial data to the module, you need to pull down this pin, or directly short this pin to GND to disable the dormant function.

Module PIN1 (development board silkscreen GPIO12) and PIN2 (development board silkscreen GPIO4) are serial debugging information and programming pins.

As shown in the figure above, the wiring of the development board means that the left USB serial port is used for communication testing, and the right RS232 serial port is used for debugging information output. At the same time, GPIO8 is connected to GND to close the sleep function.

Note: The module has no reset pin, so the reset button of the development board is invalid.



Each pin of the module corresponds to the silk screen on the EVK development board as follows:

DEBUG\_UART1\_TX: GPIO12 BCTS: GPIO24 WAKEUP: GPIO8 DEBUG\_UART1\_RX: GPIO4 MANUFACTURE: GPIO25



SecureCRT Application

VanDyke Software, Inc. , executable

# 2. SERIAL PORT SOFTWARE INTRODUCTION

# 2.1. Serial Port Tool SecureCRT

#### Download Link:

http://www.hi-flying.com/download-center-1/applications-1/download-item-securecrt SecureCRT.exe

Unzip the folder, open it to find the SecureCRT program, and click Open.

Click the quick connect button 💹, create a connection.



|    | □ 未连接          | - SecureC | RT    |                |       |                |       |                |   |
|----|----------------|-----------|-------|----------------|-------|----------------|-------|----------------|---|
|    | 文件(E)          | 编辑(E)     | 查看(V) | 选项( <u>O</u> ) | 传輸(工) | 脚本( <u>S</u> ) | 工具(L) | 帮助( <u>H</u> ) |   |
| 1  | <b>XI XI</b> ( | ) () ()   |       | A 🖓            | 541   | - 28 1         | 0     | =              |   |
|    | 快              | 速连接       |       |                |       |                |       |                |   |
| I. |                |           |       |                |       |                |       |                | _ |

# 2.2. Set Serial Port Parameters

Protocol: Serial

Port: The port that the computer is actually connected to (it can be viewed through "My Computer" -> "Device Manager" -> "Port (COM and LPT)", as shown in the figure.)

| 🗸 Ϋ 端口 (CO  | M和LPT)  |  |   |   |   |
|---|---|--|---|---|---|
| 👘 USB 🤅   | Serial Port (C  | OM11)                                      | )   |   |   |
| Baud Rate: 11<br>Data Bits: 8<br>Parity: None<br>Stop Bit: 1<br>Flow Control: | 15200<br>None (pleas<br>Quick Connect   | e remove                                   | e the '   | '√" in front of RTS/CTS)                          | × |
|   | <u>P</u> rotocol:<br>P <u>o</u> rt:<br><u>B</u> aud rate:<br><u>D</u> ata bits:<br>P <u>a</u> rity:<br><u>S</u> top bits: | Serial<br>COM5<br>115200<br>8<br>None<br>1 | $\langle \langle \langle \langle \langle \langle \rangle \rangle \rangle \rangle \rangle$ | Flow Control DTR/DSR ETS/CTS XON/XOFF             |   |
|   | □Sho <u>w</u> quick   | connect on                                 | star  | ✓Saye session<br>□Open in a tab<br>Connect Cancel |   |

Note: The default serial port data of the module is as shown in the figure above

#### http://www.iotworkshop.com

# 3. HF-BL500 MODULE TEST

## 3.1. AT Command

Step1: Connect the product to the PC via USB, open the device manager to view the connected com port, the driver can be downloaded from the website

|   | http://www.hi-flying.com/download-center-1/applications-1/driver-ft232r |
|---|---|
| > | □ 处埋器   |
| > |   |
| > | 🚂 存储控制器   |
| > | 💼 打印队列  |
| > | 🤪 电池  |
| ~ | ₩ 端口 (COM 和 LPT)  |
|   | USB Serial Port (COM12)   |
|   | USB Serial Port (COM13)   |
|   | 💭 USB Serial Port (COM4)  |
| ~ | 1 计管机   |

Step 2: Open SecureCRT, set the tool serial port parameters, the module will have startup information after power on (subsequent module hardware revisions will be resolved)



Step 3: Input the AT command at the bottom of the interface and press Enter to send the AT command, and the command query result will be displayed in the display area.

| <u>F</u> ile <u>E</u> dit <u>V</u> iew <u>O</u> ptions <u>T</u> ransfer | <u>S</u> cript Too <u>l</u> s <u>W</u> indow <u>H</u> elp              |
|---|--|
| 🔚 🖏 🆏 🗶 Enter host <alt+r></alt+r>                                      | 🗈 🖺 👬 I 🎒 I 🚰 💥 🏌 I 🞯 I 🖪  |
| Session Manager 🛛 📮 🗙   | ✓ serial-com4 ×  |
| - 🕼 🕾 🗶 🗈 🐔 🗡 🎽   | freqchipBLE Peripheral aae   |
| Filter by session name <alt+1></alt+1>                                  | A1.VER-J00-C0-VI.0   |
| serial-com20 🔨  |  |
| 💻 serial-com21  |  |
| 💻 serial-com22  | Output AT Response   |
| 💻 serial-com27  |  |
| 💻 serial-com3 🛛 🗸   |  |
| Default 🗸 🔵 +++ 🍚 a 🝚 STA 🍚 W   | SSSID 🥌 WSKEY 🕘 AT+Z 🍚 WSCAN 🔵 DEVICE 🍚 AT+GMR 🕘 AT:SAVE 🔵 AT:RST 🍚 AT |
|   |  |
| Send commands to active session   |  |
| AT:VER?   |  |
|   | Input AT Command   |
|   |  |

#### The command interaction bar needs to be opened manually.



### 3.2. Transparent Transmission Test

IOS system can download LightBlue APP for testing, the following only uses Android APP as an example.

Android system download 【BLE Utility】 for data sending and receiving test.

|  | 19:21                      |                               |   | at 🗢 🗊  |  |  |
|--|----------------------------|-------------------------------|---|---|--|--|
|  | Sort                       | Light                         | <b>t</b> Blue   | Filter  |  |  |
|  | Enjoying L<br>Learn abou   | .ightBlue?<br>It our insights | s into BLE  |   |  |  |
|  | you@exam                   | ple.com                       |   |   |  |  |
|  | Sig                        | jn Up                         | Not No  | W   |  |  |
|  | Peripherals                | s Nearby                      |   |   |  |  |
|  | Unn<br>-71 No se           | amed<br>ervices               |   | >   |  |  |
|  |                            |                               |   |   |  |  |
|  |                            |                               |   |   |  |  |
| 11 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | <b>岩</b> 这 51%             | <b>1</b> 4:48                 | ©, "! "! ゑ ()   |   | ¥ 🕸 51% 🔳  | 14:49  |
| $\leftarrow$ Q ble utility   | ×                          | <b>搜索</b>                     | $\leftarrow$  |   |  | Q  |
| 应用/游戏  | 内容                         |                               | BLE S   | BLE调试宝<br><sup>毛费</sup><br>"告检测·人工复检  |  |  |
| BLE调试宝<br>12.6MB·4万次安装<br>通信调试-蓝牙BL  | E GATT                     | 打开                            |   |   |  |  |
| <b>二日44日 年 10</b><br><b>二日44日 年 10</b><br><b>二日44日 年 10</b><br><b>二日44日 年 10</b><br>33.4MB・1.606万次<br>掌上云游戏玩糖5 | <sub>安装</sub><br>豆人不占内存不卡顿 | <b>安装</b>                     | <b>4.5★★★</b><br>46人评分  | ★★★ 4万<br>次安泰   | , <b>12+</b><br>: 年满 12 周岁<br>evice 时开 :   | ;<br>← My I  |
| 您可能还喜欢   |                            | 更多 〉                          | E BLE混纵宝  | Service Cha   | 「記念 S村日古<br>inged 筆  | 四<br>二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二  |
|  | 5                          | <u>•</u>                      | And Standard Constants     And Standard Con | Properties IND     Properties IND | CATE<br>mation<br>1000-000 500003835598340<br>wrface Device<br>1000-1008 5000-03835963340  | HEX ADDI<br>同規模是来:<br>一 同規模是来:<br>一 同規模是来:<br>   |
| 百首播放<br>万能空调… 天气预报   | 互传 万能空调.                   | 永久免费<br>. 微信分身)               | NN_Remote_66  | 27 den 310 Vordic UAR<br>UUC: CelfCCC   | T Service  | 18.50(16.421) 華昭<br>18.50(16.158) 華瑞<br>18.50(17.474) 建築<br>18.50(17.455) 建康<br>18.50(17.455) 建康 |
| 安装  安装   | 安装安装                       | 安装                            | ASTERION CHA<br>未能は 不可論的  | All offen<br>ULLO: 6440000<br>Properties: NOT<br>RX Characte  | nissio at 1990 and 19 | 18.50/91.452+ MPU  |
| 迅雷 <del>礼</del> 43.4MB · 7亿次安装<br>看电影找资源必行   | 备下载神器                      | 安装                            |   | ULUT CONTINUE<br>Properties WIT<br>住地特式 - 任約1<br>① 《 一 《 一 和 正<br>』 報天式区 編  | -1513 Tool Clair Color Color Color Color Tr. Vini Tr. (No. RESPONSE<br>REPORT NO. RESPONSE<br>ASS21 Color R. R. Response<br>(2)(ms): B   | 112233445566<br>① 《 《 P  |
| [礼包]迅雷 7元现   | 金券                         | >                             | <b>」</b> 通信调  | ]试-蓝牙BLE GATT   |  |  |
| AcTEC BLE<br>15.7MB・<1万次安<br>可以控制蓝牙设行  | tă<br>Să                   | 安装                            | <b>关于此应用</b><br><sup>免费</sup><br>一款为蓝牙相关:   | 开发人员量身定制  | 的调试助手,大邞   | >  |
| <b>BLE调试助手</b><br>4.1MB・2万次安装<br>非常好用的BLE训   | 制试工具                       | 安装                            | 高工作效率,简i<br>か m т m<br><b>。</b>   | 洁易用。<br>- <b>a</b><br>打开  | Ś  | Ð  |

Open BLE Utility and click Connect HF-LPT270.



| ‱ "   | ≵ іՋ 27% 🔲 13:05 | <sup>©®</sup> n <sup>ad</sup> ali <sup>®</sup> ali <sup>©</sup> ali ≅ (t) ≵ ½ 26% <b>⊡</b> 13:06 |
|---|------------------|--|
| ☰ BLE调试宝  | ar C             | ← HF-BL500 断开<br>F0:FE:6B:88:00:00   |
| <b>TY</b><br>18:B9:05:C0:6A:EE<br>未配对 可连接       | -75 dBm 连接       | 蓝牙服务 修改MTU (23) // Generic Access  |
| HF-BL500<br>F0:FE:6B:88:00:00<br>未配对 可连接        | -69 dBm 连接       | Generic Attribute     UUID: 00001801-0000-1000-8000-00805f9b34fb                                 |
| <b>aux-8061</b><br>F0:FE:23:FF:80:62<br>未配对 可连接 | -72 dBm 连接       | > Unknown Service  |
| <b>AZ</b><br>78:23:FF:23:CF:AD<br>未配对 可连接       | -68 dBm 连接       |  |
| <b>aux-8060</b><br>F0:FE:23:FF:80:61<br>未配对 可连接 | -56 dBm 连接       |  |
|   |                  |  |
|   |                  |  |
|   |                  |  |
|   |                  |  |
|   |                  | 数据恰式: aaUUDD11CC22 (支持经格) 及这 V<br>hex V Default No Response Signed                               |
|   |                  | ☐ 循环发送 延时(ms): □   |

Modify MTU to 240 (BLE 5.0 version module supports long packets)





When reading serial port data, click the ringing icon of the following channel UUID: 2B10 to enable the notification read channel, and the uplink serial port data can be displayed in the real-time log interface.

The serial port sends the following test data, and the APP can view the corresponding data in the real-time log. Note that one frame of serial port data does not exceed the MTU (240 characters):

à5 a5 00 33 10 01 01 00 07 4a 41 43 4b 5f 32 47 08 31 32 33 34 35 36 37 38 05 40 54 45 53 54 05 40 54 45 53 54 05 40 54 45 53 54 05 40 54 45 53 54 05 40 54 45 53 54

The serial port will send the packet to both 2B10(notification read channel) and the 2B13(indication read channel):



|  |   |  |   |  |                      | _   |   |
|--|---|--|---|--|----------------------|---|---|
| 🧱 大傻串口调试软件-3.0AD   | QQ:6972972  |  |   | - 0  | 1 ×                  | ■ " < S > < <   | * 🖄 23% 💷 🛙 13:41   |
| 諸 曰: C074 ▼<br>波特室: 115200 ▼<br>教指位: 8 ▼                           | 发帧数 2<br>发字节数 59<br>收帧数 0                                     | [2021:01:13:13:39:28][发送]43<br>[2021:01:13:13:40:05][发送]44<br>32 33 34 35 36 37 38 05 40 54<br>54 45 53 54           | 3 68 61 72 61 63 74 65 72<br>5 A5 00 33 10 01 01 00 07<br>4 45 53 54 05 40 54 45 53 | 69<br>4A 41 43 4B 5F 32<br>54 05 40 54 45 53   | 47 08 31<br>54 05 40 | ← HF-BL500<br>F0:FE:6B:BD:46:56   | Disconnect  |
| 校验位: 元 <u>▼</u><br>停止位: 1 <u>▼</u><br>状本 ● 关闭串ロ                    | 收字节数         0           清空计数         关于程序                    |  |   |  |                      | Gatt Services   | Logs  |
| 发送 ● ● 接收  | 文件行数<br>当前发送行   |  | $\searrow$  |  |                      | Filter keywords(not case sensitive)   |   |
| 清空接收区 ▼ 16进制<br>停止显示 ▼ 自动清<br>保存数据 再改立件                            | <ul> <li>✓ 显示保存发送</li> <li>✓ 显示保存时间</li> <li>✓ 帧换行</li> </ul> |  |   |  |                      | hex V Display s   | send 🗹 Auto-scroll  |
| data txt   | 天確学过態接收<br>关键字  |  |   | $\mathbf{\mathbf{N}}$  |                      |   | ^   |
| 发送区1 清空 手动发送   | 43 68 61 72 61 63 74 6<br>a5 a5 00 33 10 01 01 0              | 35 72 69<br>00 07 4m 41 43 4b 5f 32 47 0   | 8 31 32 33 34 35 36 37 38   | 05 40 54 45 53 54  | 05                   | 13:40:40.161> [00002b10] Notify: "43 68 61<br>13:40:40.162> [00002b13] Notify: "43 68 61                                | 72 61 63 74 65 72 69"<br>72 61 63 74 65 72 69"  |
| 发送区3 清空 手动发送   | 40 54 45 53 54 05 40 5  | ×4 45 53 54 U5 4U 54 45 53 5-  | 4   |  | > < >                | 3:41:16.886> [00002b10] Notify: "A5 A5 00<br>4B 5F 32 47 08 31 32 33 34 3<br>54 05 40 54 45 53 54 05 40 5               | 33 10 01 01 00 07 4A 41 43<br>5 36 37 38 05 40 54 45 53<br>4 45 53 54 05 40 54 45 53  |
| 「友送区及发送文件轮发属性<br>」「只轮发一遍」周期」□0<br>○ 收到回答后发下一帧<br>超时时间 5 s 重发次<br>3 | 选择发送文件           • 定时         开始文件轮发           数         1    | <ul> <li>发送区1属性</li> <li>✓ 16进制</li> <li>校验</li> <li>● 自动发</li> <li>● 参加轮发</li> <li>发送周期</li> <li>1000 ms</li> </ul> | 发送区2属性<br>▼ 16进制 校验<br>自动发 ● 参加轮发<br>发送周期 1000 ms                                   | <ul> <li>发送区3属性</li> <li>▼ 16进制</li> <li>● 自动发</li> <li>● 参数</li> <li>● 参数</li></ul> | 验<br>加轮发<br>ms       | 54"<br>13:41:16.886> [00002b13] Notify "A5 A5 00<br>48 5F 32 47 08 31 32 33 34 3<br>54 05 40 54 45 53 54 05 40 5<br>54" | 33 10 01 01 00 07 4A 41 43<br>15 36 37 38 05 40 54 45 53<br>4 45 53 54 05 40 54 45 53 |
|  |   |  |   |  |                      |   |   |
|  |   |  |   |  |                      |   |   |
|  |   |  |   |  |                      | Data format: aa00bb11cc22   | Send 😽  |
|  |   |  |   |  |                      | hex $\vee$ Defi   | ault No Response Signed   |
|  |   |  |   |  |                      | Circularly Delay(ms): 0   |   |
|  |   |  |   |  |                      |   |   |

Click either the following 2B11(notification write channel) or 2B12(indicationwrite channel) uuid to send data in the APP.

| 10 ° (\$ \$ \$ \$ \$ \$  | ا 13:54 💷 ا 🕸 🕸        |
|--|------------------------|
| ← HF-BL500<br>F0:FE:6B:BD:46:56  | Disconnect             |
| Gatt Services  | Logs                   |
| > Generic Access UUID: 00001800-0000-1000-8000-00805   | 5f9b34fb               |
| > Generic Attribute  | 5f9b34fb               |
| VINknown Service   | 5f9b34fb               |
| Unknown Characteristic<br>UUID: 00002b10-0000-1000-8000-0080<br>Properties: NOTIFY           | 🏩                      |
| Unknown Characteristic<br>UUD: 00002b11-0000-1000-8000-0080<br>Properties: WRITE_NO_RESPONSE | D5f9b34fb              |
| Unknown Characteristic<br>UUD: 00002b12-0000-1000-8000-0080<br>Properties: WRITE             | 05f9b34fb              |
| Unknown Characteristic<br>UUID: 00002b13-0000-1000-8000-0080<br>Properties: INDICATE         | ()<br>05f9b34fb        |
| Unknown Characteristic   | 15f9b34fb              |
| 11   | Send 💝                 |
| hex  Defa Defa Circularly Delay(ms): 0   | ult No Response Signed |

APP sends data, the serial port outputs the following data, you can choose Hex or ASCII format:

|   | _  |
|---|--|
|   | 🚥 មុំ 🕄 🔊 👔 👘 🕸 25% 🗩 13:13  |
|   | ← HF-BL500 断开 :<br>F0:FE:6B:88:00:00   |
| こ 大 後 申 口 満 试 软 体 - 3.0AD QQ:6972972  | 蓝牙服务    实时日志   |
| 補 □: COM4 - 炭余統数 1<br>  [2020:09:01:13:11:19][振祝]12:34:56:78:90<br>  次字节数 49<br>  数4時前:8 ● レージの含素 9   | 过滤关键字(不区分大小写)  |
| 検验位: 元 收字节数 375   | hex 🗸 🗹 显示发送 🔽 自动滚动  |
|   | □ 隐藏数据来源及目标  |
| 发送     ●     接收       当前发送行   | Ⅱ 直<br>□··· ■ 收:1包,49字节<br>■ 发:成功:9包,55字节 失败:0包,0字节  |
| <br>  | 13:06:13:679> 连接成力, 等待发现服务<br>13:06:15:306- 连接成力, 等待发现服务<br>13:06:15:00-2 连接成功, 正在发现服务<br>13:06:16:428- 连接成功,并成功发现服务   |
| 发送区1 清空 手动发送 45 45 00 33 10 01 01 00 07 4a 41 43 4b 5f 32 47 08 31 32 33 34 35 36 37 38 05 40 54 45 53 54 05 0  | 13:0/:30.07/> MTU修成成功,新值: 240<br>13:09:24.577> [00002b10] Notification开启   |
| 发送区2         素全         手动发送         567         〇           发送区2         素空         手切发送         AT*27/PEX         〇   | 13:09:29.089> [00002b10] Notify: "A5 A5 00 33 10 01 01 00 07 4A 41 43<br>4B 5F 32 47 08 31 32 33 34 35 36 37 38 05 40 54 45 53<br>54 05 40 54 45 53 54 05 40 54 45 53 54 05 40 54 45 53<br>54"   |
| 发送区双发送文件轮发属性         发送区3属性         发送区3属性         发送区3属性         发送区3属性         发送区3属性         发送区3属性         第           只能发一幅         周期         1000         ns         选择发送文件         16进制         校验         16进制         校址         16进制         校址         16进制         校址         16进制         使加         16进制         使加         16进制         使加         目动波         参加化波         16进制         61边 5         参加化波         16进制         16进制         16进制         16进制         16进制         16进制         16 </th <th>13:11:22:557- [00002b11] 成功写入: '12:34 56 78 90 12:34 56 78 90'<br/>13:11:31:077- [00002b11] 成功写入: '12:34 56 78 90'<br/>13:12:24:999- [00002b11] 成功写入: '12:34 56 78 90'<br/>13:12:33 366- [00002b11] 成功写入: '12:34 56 78 90'<br/>13:12:40.047&gt; [00002b11] 成功写入: '12:34 56 78 90'<br/>13:12:40.9950- [00002b11] 成功写入: '12:34 56 78 90'<br/>13:12:41.396&gt; [00002b11] 成功写入: '12:34 56 78 90'<br/>13:13:10.505&gt; [00002b11] 成功写入: '12:34 56 78 90'</th> | 13:11:22:557- [00002b11] 成功写入: '12:34 56 78 90 12:34 56 78 90'<br>13:11:31:077- [00002b11] 成功写入: '12:34 56 78 90'<br>13:12:24:999- [00002b11] 成功写入: '12:34 56 78 90'<br>13:12:33 366- [00002b11] 成功写入: '12:34 56 78 90'<br>13:12:40.047> [00002b11] 成功写入: '12:34 56 78 90'<br>13:12:40.9950- [00002b11] 成功写入: '12:34 56 78 90'<br>13:12:41.396> [00002b11] 成功写入: '12:34 56 78 90'<br>13:13:10.505> [00002b11] 成功写入: '12:34 56 78 90' |
|   | 1234567890 发送<br>▶ Default No Response Signed<br>□ 循环发送 延时(ms): 0  |

If you want to modify the BLE name, the UUID service can be modified using AT commands, and restart after modification to take effect, for example:

AT:REN //Modify the broadcast name.

AT:UIDS //Modify BLE service uuid channel, default is 0x2B00

AT:UIDIR //Modify BLE receive indication uuid, default is 0x2B13

AT:UIDIW //Modify BLE write indication uuid, default is 0x2B12

AT:UIDNR //Modify BLE receive indication uuid, default is 0x2B10

AT:UIDNW //Modify BLE write indication uuid, default is 0x2B11

Indication: slave(module) sends packet to master(phone), master need to confirm, so packet won't lost

Notification: slave(module) sends packet to master(phone), master don't need confirm, packet may be lost.

#### 3.3. APP Send AT Command

Choose the 2B14 Channel to send AT command, the packet format is as following.

| Byte length     | Data[0]              | 1 byte   | Include all byte of command type and command content |
|-----------------|----------------------|----------|--|
| Command<br>type | Data[1]              | 1 byte   | 0x0E: almost 18 bytes in one group AT command        |
|                 |                      |          | 0x0F: send verify code                               |
| Command content | Data[2]~d<br>ata[19] | 18 bytes | Details refer to command list (command type)         |

The following send "05 0E 56 45 52 3F" packet.

- 05: packet length including command type and content.
- 0E: AT command identifier.

56 45 52 3F: AT command name(VER?), there is no need to add prefix AT:, just leave the key command.

| HF-BL500<br>BB:A0:50:02:4D:AB   | 断开:          | ← HF-BL:<br>BB:A0:50:  | 500<br>:02:4D:AB   |
|---|--------------|--|--|
| 蓝牙服务 实时日志   |              | 蓝牙   | 服务实时日志   |
| neric Attribute<br>D: 00001801-0000-1000-8000-00805f9b34fb  |              | 过滤关键字(不区分;   | 大小写)   |
| nknown Service<br>D: 00002b00-0000-1000-8000-00805f9b34fb   |              | nex v  | ▶ 亚示友达   |
| nknown Characteristic<br>IID: 00002b10-0000-1000-8000-00805f9b34fb<br>operties: NOTIFY                      | ۲            | <ul> <li>● 收:1包,19字</li> <li>● 皮:成功:1包,</li> <li>12:30:32.755&gt; 连接中</li> <li>12:30:33.472&gt; 连接功功</li> </ul>          | 节<br>,6字节 失败:0包,0字节<br>,等待发现服务   |
| nknown Characteristic<br>JID: 00002b11-0000-1000-8000-00805f9b34fb<br>operties: WRITE_NO_RESPONSE           | <u>*</u>     | 12:30:33.981> 连接成功,<br>12:30:35.140> 连接成功,<br>12:30:35.210> [00002b1<br>12:30:52.812> [00002b1<br>12:30:52.902> [00002b1 | , 正在发现服务…<br>, 并成功发现服务<br>1 <mark>4] Notification开启</mark><br>14] 成功写入: "05 0E 56 45 52<br>14] Notify: "12 0E 56 45 52 2 |
| nknown Characteristic<br>UID: 00002b12-0000-1000-8000-00805f9b34fb<br>roperties: WRITE                      | <u>1</u>     | 55 2D 56   | 31 2E 33 2E 32"  |
| Inknown Characteristic<br>UID: 00002b13-0000-1000-8000-00805f9b34fb<br>roperties: INDICATE                  | ٢            |  |  |
| Inknown Characteristic<br>UID: 00002b14-0000-1000-8000-00805f9b34fb<br>roperties: NOTIFY, WRITE_NO_RESPONSE | <b>1</b> (*) |  |  |
| I <b>nknown Characteristic</b><br>UID: 0002b15-0000-1000-8000-00805f9b34fb<br>roperties: WRITE, INDICATE    | <u>*</u>     |  |  |
| 地上, 2006b11c222 (古地交校)  |              |  |  |
|   | Classed      | 05 0E 50 45 52 5F  |  |
|   | Signed       | thex hex   | Default No R   |

## 3.4. Rewrite Bluetooth MAC Address

The following command can rewrite the Bluetooth MAC. If the Bluetooth MAC is FFFFFFFFF, it is an illegal value and needs to be written manually. The factory default is written into High Flying's MAC. AT:WAC-ACCF23200000 AT:SAVE AT:RST

### 3.5. Serial Port Mode Firmware Burning

Firmware burning uses serial ports PORTA2 (PIN2, DEBUG\_UART1\_RX) and PORTA3 (PIN1, DEBUG\_UART1\_TX) Download link of burning tool: <u>http://ftp.hi-flying.com:9000/HF-BL500/Tools/</u> Connect as shown below:





Select 115200 baud rate (RS232 serial port cannot support 921600 and 460800 baud rate).



Load the firmware, plug in the module and power on again (the module has no hardware reset function, only power off and power on), the current status shows that it is connected and click [Write all content] to complete the firmware burning.



| 串口                           |                                  |  |  |
|------------------------------|----------------------------------|--|--|
|                              | 107T                             |  |  |
|                              | 波特率: 115200 × 关闭                 |  |  |
| 波特率: 115200 × 关闭             | □ FLASH写保护                       |  |  |
| □ FLASH写保护                   | 当前状态: 等待连接 总烧录次数: 894            |  |  |
| 当前状态: 已经连接(flash) 总烧录次数: 893 | 烧录状态: 写入成功 当前烧录次数: 1             |  |  |
| 烧录状态:未烧录 当前烧录次数: 0           |                                  |  |  |
| <b>第三帝</b> 年                 |                                  |  |  |
|                              |                                  |  |  |
| 山地坦自增                        | 基础地址                             |  |  |
| 基础地址                         | 已烧录地址                            |  |  |
| 已烧录地址                        | ADDR存放护址                         |  |  |
| ADDR存放地址                     |                                  |  |  |
| KEY存放却址                      | NE 117/DCASAL                    |  |  |
|                              | 配置                               |  |  |
| 配置                           | 0%                               |  |  |
| 0%                           |                                  |  |  |
| 导入D/文件                       | 导入DAT文件                          |  |  |
|                              | 导入KEY文件                          |  |  |
| 47/NE X1+                    | 读取所有数据                           |  |  |
| 读取所有数据                       | 导入脱录文件BL500-1.0.1.bin成功 11:28:44 |  |  |
| ≱入待税录文件<br>请导入KEY文件          |                                  |  |  |
| 请导入KEY文件                     | KEY总数: 0 KEY剩余: 0                |  |  |
| KEY总数: 0 KEY剩余: 0            | 2017 1 - + + 12                  |  |  |
| 读取与税录                        |                                  |  |  |
| 写入所有内容                       | 写入所有内容                           |  |  |
| 擦除所有内容                       | 擦除所有内容                           |  |  |

### 3.6. OTA Upgrade

Step 1: Install "HF1601\_XXX.apk" (Enable all authority) .

← → C ▲ 不安全 | http://ftp.hi-flying.com:9000/HF-BL500/Tools/

# Index of /HF-BL500/Tools

- Parent Directory
- <u>HF1601 OTA\_20210707.apk</u>
- <u>HF1601\_config\_tools.exe</u>

Step 2: Send firmware to phone. Take QQ for example, firmware will be saved in Android/data/com.tencent.mobileqq/Tencent/QQfile\_recv directory.

Step 3: Click "搜索" to search the module need to upgrade, and click "路径" to choose the firmware.





Note: Erase all Content before using UART tools to program the firmware if OTA upgrade method has been used before). This will erase the MAC address, use AT:WAC-XXXX, AT:SAVE to rewrite the MAC address.

| 串口                         |          |        |     |  |
|----------------------------|----------|--------|-----|--|
| 端口号: COM5                  | Ψ.       | 打开     |     |  |
| 波特率: 115200                | Ψ        | 关闭     |     |  |
| □ FLASH写保护                 |          |        |     |  |
| 当前状态: 已经连                  | 接(flash) | 总烧录次数: | 872 |  |
| 烧录状态: 擦除flash 成功 当前烧录次数: 0 |          |        |     |  |
| 蓝牙地址                       |          |        |     |  |
| □ 地址自増                     |          |        |     |  |
| 基础地址                       |          |        |     |  |
| 已烧录地址                      |          |        |     |  |
| ADDR存放地址                   |          |        |     |  |
| KEY存放地址                    |          |        |     |  |
| 配置                         |          |        |     |  |
|                            |          |        | 0%  |  |
|                            | 导入DATS   | て件     |     |  |
|                            | 导入KEY文件  |        |     |  |
|                            | 读取所有数据   |        |     |  |
| 请导入待烧录文件                   |          |        |     |  |
| 请导入KEY文件                   |          |        |     |  |
| KEY总数: 0 KEY剩余: 0          |          |        |     |  |
| 读取与烧录                      |          |        |     |  |
|                            | 写入所有的    | 的容     |     |  |
| 擦除所有内容                     |          |        |     |  |