

# Bluetooth to RS-232&RS422/485

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## EX-9132BI(5.0) Bluetooth Adapter Operation Manual



The EX9132BI(5.0) with Bluetooth 5.0 LE version is good performance in 2 units pairing as Master and Slave. If it is used as Slave for pairing with Mobile Phone or Pad, please refer the descriptions in Config Tool “Bonding Enable” chapter.

For EX9132BI(5.0) as Slave pairing with Mobile Phone or Pad, we strongly recommend to pair EX9132BI(5.0) with Mobile Phone or Pad via APP (such as “nRF UART” to be downloaded freely) which should be able to drive Mobile Phone or Pad’s Bluetooth function. We recommend not enable “Bonding Enable” and not set “Pin Code” in EX9132BI(5.0) in this purpose.

EX9132BI(5.0) is not recommended to pairing with Mobile Phone or Pad by directly clicking Bluetooth pairing in Mobile Phone or Pad because if Mobile Phone or Pad switched their Bluetooth On/Off once that would cause EX9132BI(5.0) missing UUID of Mobile Phone or Pad. By this condition happened, EX9132BI(5.0) actually not pairing with Mobile Phone or Pad even it showed “Paired”.

## 1. Device Hardware Connection:

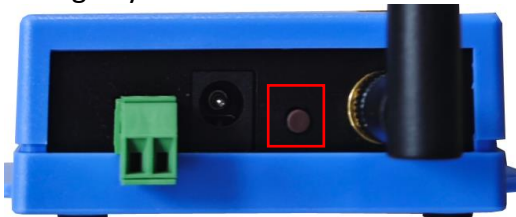
1.1 Connect host computer with a RS-232 cable (or RS-422/485) to EX9132BI(5.0).

1.2 A crosslink RS-232 cable or a crosslink adaptor for RS-232 parallel cable is required.

1.3 Power on the EX9132BI(5.0) with a DC Power Adapter or 2-wire from Power Supply within 9-24VDC. The SYS LED will be ON.



2. Config Key: Refer the button inside red square as per below picture.



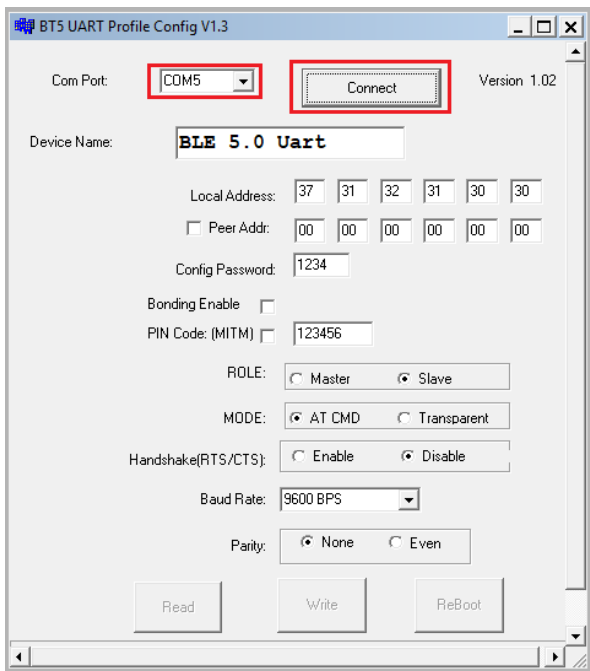
2.1 Configuration mode: Press the Config Key for more than 4 seconds will see SYS LED start quicker blinking by 4 times and then slow blinking. This make EX9132BI(5.0) go into Configuration mode allow setting parameters via Config Tool.

2.2 Transparent mode: When after configuration completed, press Config Key for 1 second then will see SYS LED constantly ON. It is same function as like clicking “ReBoot” button in Config Tool.

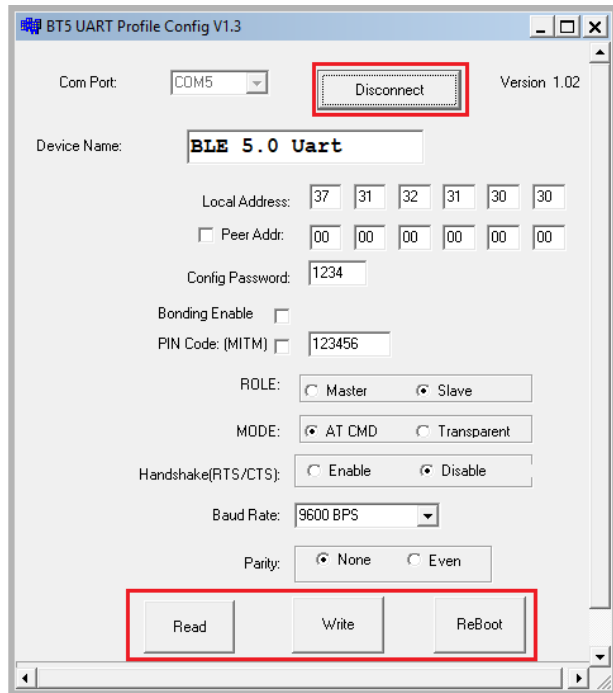
3. Config Tool: On the host computer PC/NB run Config Tool “BT5\_Uart\_Config.exe”.



- When the Config Tool window pops up, ensure EX9132BI(5.0) has been set into Configuration mode. Clicking “Com Port” dropdown button to select the right Com Port which is connected with EX9132BI(5.0). Be careful to check the Com port not to be occupied by other Utility. Click “Connect” will see the TX LED blink once.



- When the Com Port is connected correctly, the “Connect” button change to be “Disconnect” and the below “Read”, “Write”, “ReBoot” buttons become clickable. Click “Read” button to read out existing settings from the device.



## 6. Configuration settings:

6.1 Device Name: as per default or to be modified.

6.2 Local Address: ID of this device is modifiable.

6.3 Peer Address: manually input the ID (address) of another device for pairing.

6.4 Config Password: input password for opening this Config Tool.

6.5 Bonding Enable:

### 6.5.1 Pairing Mobile Phone or Pad with EX9132BI(5.0) Slave:

6.5.1.1 “Bonding Enable” box **is enabled** in EX9132BI(5.0) Slave:

Slave EX9132BI(5.0) will send out UUID and record UUID of Master device. It's better not use this mode because if Mobile Phone or Pad Bluetooth switched On/Off once would cause EX9132BI(5.0) disconnection due to missing UUID of Mobile Phone or Pad. If this condition happened, the solution is to set EX9132BI(5.0) into Configuration mode and back to Transparent mode again. If connection hang, EX9132BI(5.0) will take 10 seconds to release the binding.

6.5.1.2 For “Bonding Enable” box **is not enabled** and “Pin Code” **is not set** in EX9132BI(5.0) Slave: **(recommended)**

We recommend this way because EX9132BI(5.0) Slave device won't need a Reset process if Mobile Phone or Pad Bluetooth switched On/Off once. The EX9132BI(5.0) will ONLY ACCEPT to connect with Mobile Phone or Pad via APP driving Bluetooth function On/Off. Mobile Phone or Pad's Bluetooth can find EX9132BI(5.0) in the list but refuse to pairing. If connection hang, EX9132BI(5.0) will take 20~30 seconds to release the binding.

### 6.5.2 Pairing EX9132BI(5.0) Master and Slave:

Either Master or Slave was set to Configuration mode, it can receive data prefix with “AT+RCV=” still but cannot send out data until back to Transparent mode.

6.5.2.1 For “Bonding Enable” box **is enabled** and “Pin Code” **is enabled** in both Master and Slave EX9132BI(5.0): **(recommended)**

This is way is more security in link of Master and Slave. Once a Master or Slave was set to Configuration mode, then back to Transparent mode, another pairing device should do the same procedure otherwise will not restore linking.

6.5.2.2 For “Bonding Enable” box **is not enabled** and “Pin Code” **is not enabled** in both Master and Slave EX9132BI(5.0):

Once a Master or Slave was set to Configuration mode, then back to Transparent mode, another pairing device just keep working without change. This mode would has Slave to be linked by other Master devices when original Master break link.

6.5.2.3 For “Bonding Enable” box **is not enabled** but “Pin Code” **is enabled** in either Master or Slave EX9132BI(5.0): **(not recommended)**

Once a Master or Slave was set to Configuration mode, then back to Transparent mode, another pairing device just keep working without change. If just set Pin Code in one side of Master or Slave, it would lose data due to checking Pin Code at each receiving.

6.5.2.3 For “Peer Addr” box **is enabled** but “Pin Code” **is enabled** in both Master and Slave EX9132BI(5.0):

6.6 PIN Code: Default is “1234”. It’s prohibited to leave blank otherwise not able to configure again.

Enable or not Pin Code or not for paring between Master and Slave is optional. It should enable or not enable the Pin Code in both Master and Slave at the same time. 6-digit is a must otherwise a warning pop up and not able to save code to setting.

6.7 ROLE: Enable this device to be Master or Slave.

6.8 MODE: Enable “AT CMD” to use AT Commands or enable “Transparent” in general data transmission.

6.9 Read: To read settings from the device.

6.10 Write: To write settings to the device. The TX LED blink once.

6.11 ReBoot: To reboot device back to data transmission mode (leave Configuration mode). The TX LED blink once.

6.12 Disconnect: To break the link with Com port after “Read”, “Write” and “ReBoot” procedure.

## 7. LED display: SYS, PAIR, TX, RX

7.1 SYS LED (green):

- 1) Constantly ON: Device is in Transparent mode.
- 2) Blinks: please look the chapter of “Master’s and Slave’s SYS and Pair LED”.

7.2 Pair LED (red):

- 1) Constantly ON: Device is in Transparent mode and has been linked with another device.
- 2) Blinks: please look the chapter of “Master’s and Slave’s SYS and Pair LED”.

7.3 TX LED (green): Blinks when data transmitting from Serial port. It is Off if no data transmission.

7.4 RX LED (red): Blinks when data receiving from Bluetooth. It is Off if no data transmission.

## 8. Master and Slave pairing process:

8.1 Press Config Key of EX9132BI(5.0) for more than 4 seconds → EX9132BI(5.0) go into Configuration mode → Run program “BT5\_Uart\_Config.exe” → Connect Com port → Click “Read” the default settings in EX9132BI(5.0) → Set Role as “Master” or “Slave” and other option → click Write and ReBoot.

- 8.2 If Master had linked with a Slave previously, the Master is still able to link with Slave **though** Master's Pin Code changed **unless** Slave changed Pin Code afterward. It is because of Master still remembered the MAC and UUID of Slave.
- 8.3 Master and Slave will link after clicking "ReBoot".
- 8.4 If "Bonding Enable" is enabled, either Master or Slave had been pressed Config Key to go into Configuration mode (even not change anything), another device must do same process to ensure Master and Slave restore linking.

## 9. Master's SYS and Pair LED:

"Bonding Enable" box is **enabled**

- 9.1 If no other Slave power on, SYS LED constantly ON, Pair LED is OFF but blinks at every 4 seconds.
- 9.2 If there other Slaves power on but not link with Master, both SYS LED and Pair LED blink at every second.
- 9.3 If a Slave linked, the SYS LED constantly ON and Pair LED constantly ON.

"Bonding Enable" box is **not enabled**

- 9.4 If no other Slave power on, SYS LED constantly ON, Pair LED is OFF but blinks at every 4 seconds.
- 9.5 If there other Slaves power on but not link with Master, the Master's SYS LED is ON but blinks at every 3 seconds. Pair LED is OFF but blink at every 3 seconds.
- 9.6 If a Slave linked, the SYS LED constantly ON but blinks at every 3 seconds. Pair LED is ON but blinks at every 3 seconds.

## 10. Slave's SYS and Pair LED:

"Bonding Enable" box is **enabled**

- 10.1 If no other Master power on, SYS LED constantly ON, Pair LED blinks at every 2 seconds then OFF.
- 10.2 If there other Masters power ON but not link with Slave, the Slave SYS LED constantly ON. Pair LED blinks.
- 10.3 If a Master linked, SYS LED constantly ON, Pair LED constantly ON.

"Bonding Enable" box is **not enabled**

- 10.4 If no other Master power on, SYS LED constantly ON, Pair LED is OFF but blinks at every 3 seconds.
- 10.5 If there other Masters power ON but not link with Slave, the Slave SYS LED constantly ON. Pair LED blinks.
- 10.6 If a Master linked, SYS LED constantly ON, Pair LED is ON but blink at every 3 seconds.

## 11. Loop Test

- 11.1 Fit a loop head of RS-232 or RS-422 to Serial Port.
- 11.2 Power on the EX9132BI(5.0) device.
- 11.3 On the mobile phone, go to Google Player to install "nRF UART v2.0".

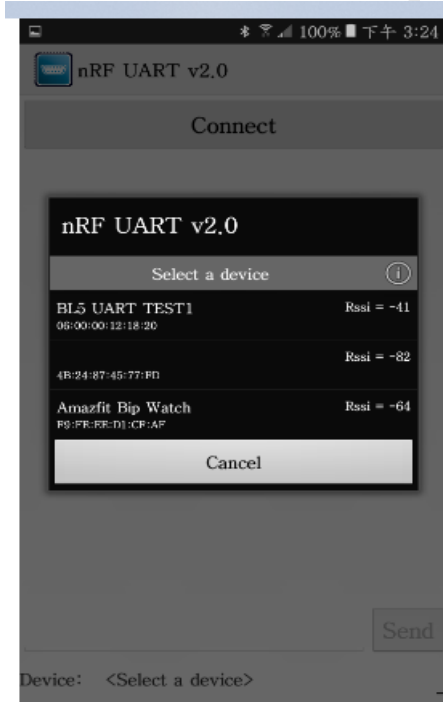


- 11.4 On the mobile phone, run "nRF UART v2.0". Click "Connect" to scan the name of EX9132BI(5.0) and connect with it. The Pair LED on the EX9132BI(5.0) will be ON when connection successful

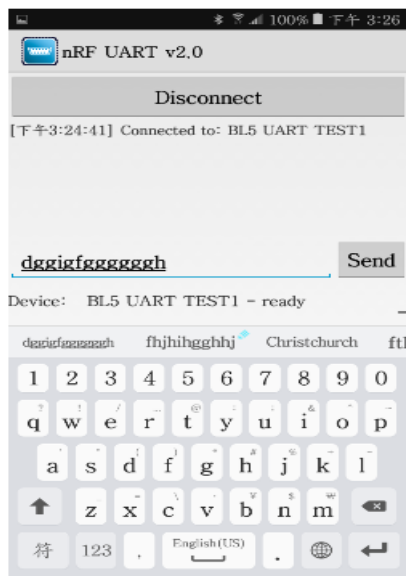
with mobile phone.



Device: <Select a device>



11.5 Type some letters on the mobile phone and send it. The TX/RX will appear the letters of sending.



11.6 If mobile phone not received the letters back via RX but the “Pair” LED still on, please release pairing of EX9132BI(5.0) from mobile phone’s Bluetooth settings page and then run the “nRF UART v2.0” to connect the EX9132BI(5.0) and input pin code again.