

How to test the S2B5232E, USBLE232D and USBLE232DEXA Serial Bluetooth Smart® Low Energy Adapter

(Tested with Samsung Galaxy S8 Android and Windows 10)

This guide describes how to connect one of our Serial Bluetooth Smart® Low Energy Adapters with an Android device and how to send and receive data to/from a PC. **The procedure is very similar with iOS.**

The setup looks like this:



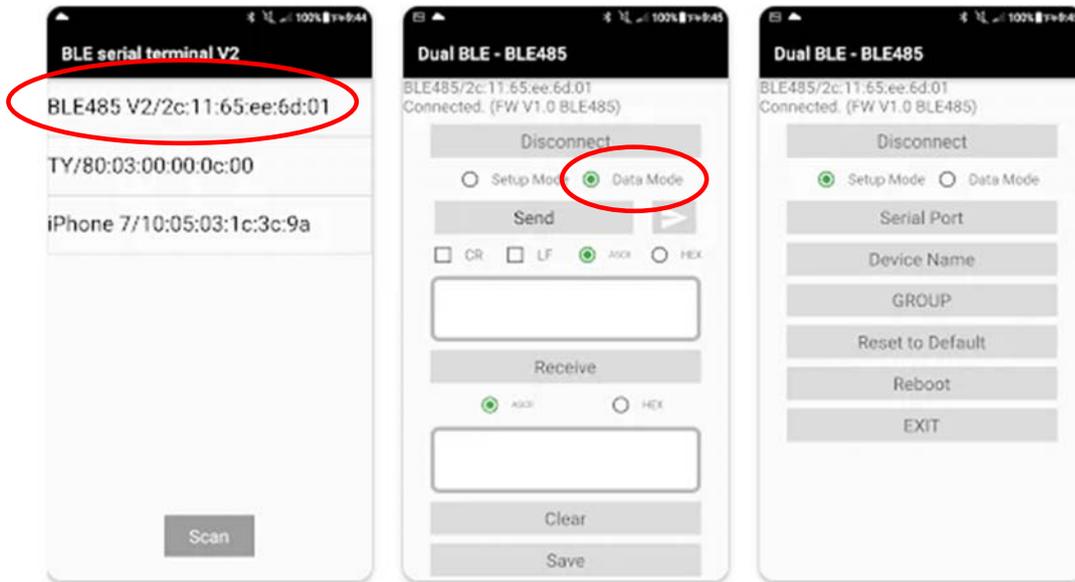
First download the app called “BLE serial terminal V2” to be able to communicate with the Serial Bluetooth Adapter. You can download it from the Google Play Store here:

<https://play.google.com/store/apps/details?id=com.uconnect.terminal2>

and for iOS here:

<https://apps.apple.com/us/app/ble-serial-terminal-v2/id6449844797>

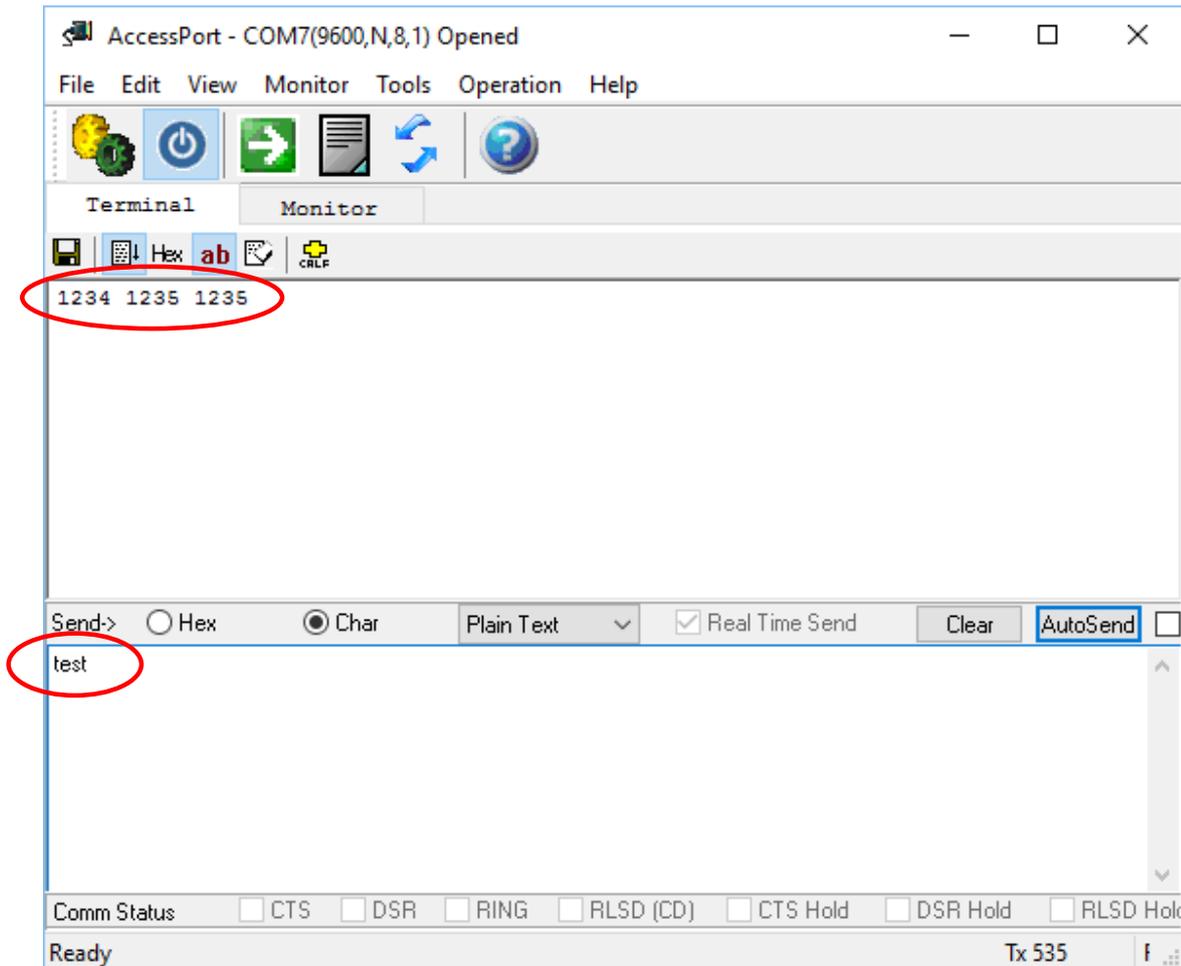
Now start the app on your Android. Tap on the adapter in the “Device List” once the app has found it. The adapter should now pair with the Android.



Once the adapter is paired with the Android, select “Data Mode”.

Connect the serial RS232 end of the adapter to your computer's serial port (or use a USB to serial adapter if your computer does not have a serial port).

Download the terminal program 'AccessPort' from usconverters.com and open the program. Select the COM port the adapter is connected to and select 9600bps, N, 8, 1 which are the adapter's default settings. Then open the COM port:



Enter a test string such as 'test' in the lower send window in AccessPort and click the "AutoSend" button. The characters should now be sent and received in the Android app.

From the app you can also send characters back to the computer which will be displayed in the upper received windows in AccessPort.

FAQ

Question:

It seems like the payload is only 20 bytes, Bluetooth 4.2 has a 250 bytes payload, why?

Answer:

Make sure your device has Bluetooth 4.2. However, not all Bluetooth 4.2 devices support the 250 bytes MTU, Maximum Transmission Unit.

Here is a discussion about MTU limit of 20 bytes on some Android devices:

<https://github.com/don/cordova-plugin-ble-central/issues/234>

Question:

When trying to read the adapter's parameters (or other data) via the RS232 DB9 port I'm getting garbled characters even all port settings are correct:

The screenshot shows a terminal window titled "COM6:9600baud - Tera Term VT". The terminal output consists of several lines of garbled characters, including "OK", "at", "status=?", "VERSION: VER:1.3.5", "ADDRESS: 00 AD 51 07 12 D6", "ROLE : SLAVE MODE", "FLOW : DISABLE", "ECHO : ENABLE", "PROMPT : ENABLE", "SERIAL_PROTOCOL : 9600 ,8,None,1", and "NAME : BLE232". Three blue brackets on the right side of the terminal output point to specific lines of garbled text, each enclosed in a white box with black text. The boxes contain the following text: "DIP switch 9 in position 0", "DIP switch 9 in position 1", and "DIP switch 9 in position 0".

Answer:

Set DIP switch 9 to position 1 (Configuration by AT commands or APP). Parameter settings can only be read when DIP switch 9 is in position 1.

Question:

Using an Android phone I can pair with the adapter without problems when I pair using your "BLE Serial" app, but when I try to pair with the adapter with the Android phone directly (in the phones Bluetooth list of devices) then I get the message: "Pairing not accepted by BLE232". Why can't I pair directly with the phone without using the BLE Serial app?

Answer:

The BLE adapter is built around the GATT service within Bluetooth v.4.2 (not SPP). It will be connected and communicated via UUID. You can use the BLE scanner APP to scan the available UUID and service. The data will be sent or received by the write or read activity.

This in general means that you will need to use a 3. rd party app or make your own app to be able to communicate with the adapter, it cannot communicate/pair directly with a phone, tablet or PC without an app.

You can use this app to communicate with the adapter and see the available services:

<https://play.google.com/store/apps/details?id=no.nordicsemi.android.mcp>

Question:

I have successfully been able to get the characteristics and descriptors (UUID 2902). I hooked the device up to a sensor that continually streams serial data (at 1Hz) and subscribe to the UUID 2902, however as the data comes through, the value appears to be encrypted. The expected value is something like 33,877 whereas the value I receive is something like 524E3633310E30563073A. I can't find any documentation on how to parse the value or how it is encrypted.

Answer:

The hex values needs to be represented as a UTF8 string instead of a numerical value.

Question:

How do I change/clear the pin code using the AT commands? (only with iOS. Android works fine). For example: I setup a pin-code in the BLE adapter using AT-commands (through the DB9 connector), for instance: 123456

- I connect with the iOS app to the BLE adapter using a pin-code (which works as expected)
- I disconnect with the phone
- I change the pin-code in the BLE module using AT-commands (through the DB9 connector) to: 654321
- When I try to connect with the iOS device it says: connection failed.

Answer:

This has something to do with the caching of the settings with iOS. So to be able to re-connect using the new pin-code you need to do the following:

- delete all Bluetooth devices on your phone ("forget this device")
- delete the serial app

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- restart your phone.