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DKBT *Bluetooth* Smart Ready Development Kit

Quick Start

Friday, 17 April 2015

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Thank You for selecting Bluegiga

The DKBT development kit is meant to help you to get started and evaluate the Bluegiga Bluetooth Smart Ready modules like the BT121. The development kit also allows you to easily test the features of the Bluetooth Smart Ready modules and try out the example applications provided by Bluegiga.

This quick start guide provides instructions on how to the test the built-in demo application pre-installed into the module your DKBT development kit and points you to the additional software and documentation resources available for your device.

Development kit contents

- DKBT development kit main board
- BT121 Bluetooth Smart Ready carrier board
- Micro USB cable
- Printed quick start and EULA
- 1.5V AAA battery

Preparing the DKBT development kit

Step 1 : Connect the carrier to the main board.

Step 2 : Make sure all the three jumpers are in place.

Step 3 : Turn the **SPI Display** switch **ON.**

Step 4 : Turn the **SPI Accelerometer** switch **OFF.**

Step 5 : Turn the **I2C Altimeter** switch **ON.**

Step 6 : Turn the **USB to UART Converter** switch **ON.**

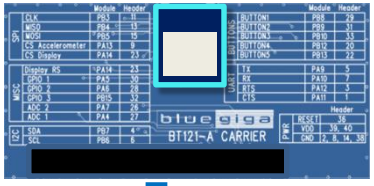
Step 7 : Connect the AAA battery to the battery holder.

Finally: turn the **POWER** switch to **BAT** position.

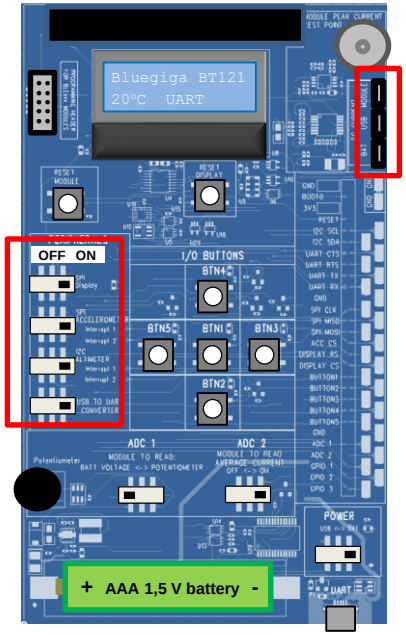
Verify:

- The power led next to the **POWER** swich turn **ON**.
- The display turns on and displays text: ”Bluegiga BT121-A”.

BT121-A carrier board



DKBT main board



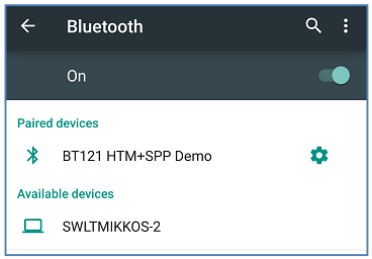
Learn more and get started with development

To learn more about the Bluetooth Smart Modules and to try other demos and examples:

- Go to : www.bluegiga.com/register
- Create yourself an account and log in
- Go to https://www.bluegiga.com/bt121
- Download the ***Bluetooth Smart Ready Software Getting Started Guide*** to learn more about the Bluetooth Smart Ready software, SDK, tools and other demo applications
- Download the ***DKBT Development Kit User Guide*** to learn more about the development kit
- Contact our customer service or sales if you have any questions or need help at www.bluegiga.com/support

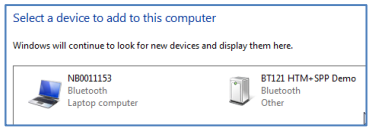
Bluetooth SPP demo continued

Step 6 : Use your Android or Windows device to discover and pair a device named ***BT121 HTM+SPP Demo***

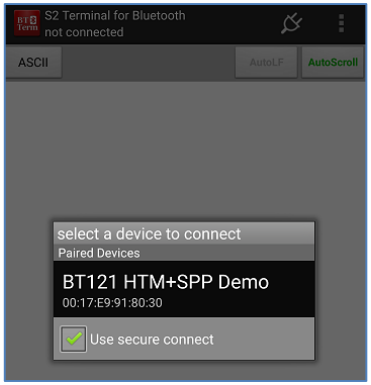


Step 7 : Open ***S2 Bluetooth Terminal*** application and use it to open SPP connection to the BT121.

Step 8 : Once the connection has been established BT121 will send you a welcome message over Bluetooth SPP connection which you can observe in the S2 Bluetooth Terminal application.

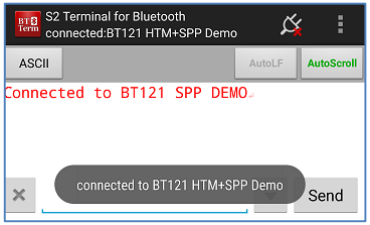


Step 9 : Use S2 Bluetooth Terminal to send data to BT121 and observe the data in the terminal software connected to the BT121 development kit.



You can also send data from the BT121 to the S2 bluetooth Terminal.

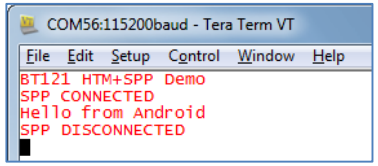
The terminal application will show ”SPP CONNECTED” and ”SPP DISCONNECTED” messages indicating Bluetooth SPP connection establishment and disconnection.



In the example ”Hello from Android” text was sent from the S2 Bluetooth Terminal to the BT121.

Note: You can perform the same test for example with a Windows PC and using the built-in Bluetooth features.

If you change the oritation of your Android device from portrait to landscape or vice versa the SPP connection is disconnected by Android.



The built-in demo applications

The pre-installed demo application on the DKBT development kit will make the Bluetooth Smart Ready device visible to both Bluetooth Classic and Smart devices and can be connected from both.

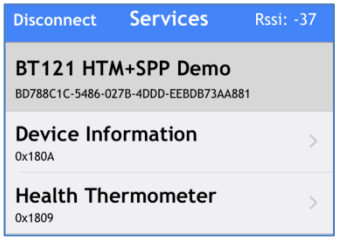
The demo will expose the temperature readings from the I²C altimeter via the Bluetooth Smart connection using the Health Thermometer Profile. The demo enables also serial data exchange over Bluetooth Serial Port Profile (SPP).

Trying out the Bluetooth Smart demo with iOS

Step 1 : For iOS download and install for example ***BLExplr*** or **BLE Utility** application from App Store.

Step 2 : Open BLExplr and perform a device discovery.

Step 3 : Select and connect device named ***BT121 HTM+SPP Demo.***

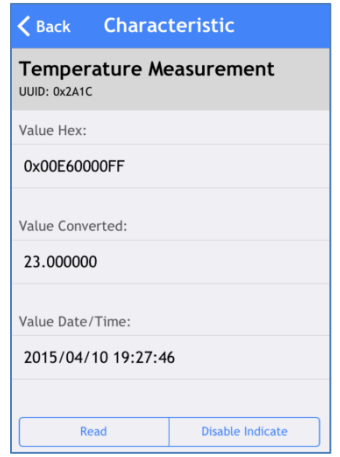


Once the connection has been opened, the BLExplr application will show you the GATT services the device implements.

Step 4 : Select the ***Health Termometer*** service.

As soon as you select the Health Thermometer service the BLExplr application will perform a characteristics discovery and show all the data exposed by the service.

Step 5 : Select the ***Temperature Measurement*** characteristic.



Step 6 : Press Enable Indicate button to enable the temperature readings to be transmitted to the application.

The temperature measurement is shown in hex and converted values and you can observe the value changes both in the application and on the development kit’s display as the temperature changes.

Trying out the Bluetooth Smart demo with Android

With Android an application called BLE Tool is recommended for testing.

Step 1 : Use your Android device to discover and pair a device named ***BT121 HTM+SPP Demo.***

Step 2 : Download and install ***BLE Tool*** application from Google Play Store.

Step 3 : Open BLE Tool and it will perform a device discovery automatically.

Step 4 : Select and connect device named ***BT121 HTM+SPP Demo.***

If requested for pairing during the connection setup accept pairing with BT121. If you did pairing in step 1 this is not needed.

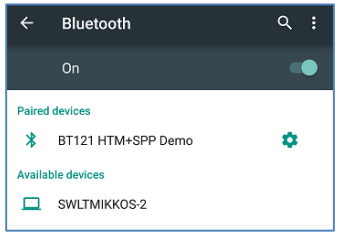
Once the connection has been opened, the BLE Tool application will show you the GATT services and characteristics the device implements.

Step 5 : Select the ***Health Termometer*** service and ***Temperature Measurement*** characteristic.

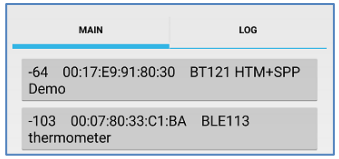
Step 6 : Press ***Read values*** button to read the temperature value from the BT121.

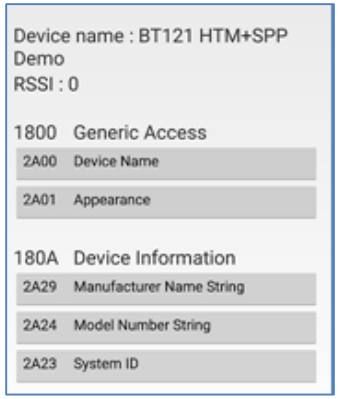
The value is shown in decimal, hex or string depending on your selection in the tool.

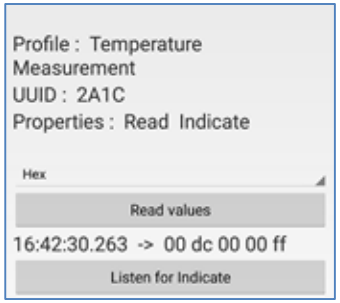
Note: Android applications typically do not support the indication of characteristic values. This is an issue of Android.



BLE Tool







Bluetooth Serial Port Profile Demo

The Bluetooth SPP demo will enable serial data exchange over Bluetooth Serial Port Profile (SPP) and the data can be received with a PC or an Android phone running a terminal application.

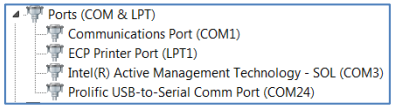
Notice that Apple iOS devices cannot be used to try out this demo since they do not implement the Bluetooth SPP profile, but use the iAP profile instead, which is only available to Apple MFI licensees.

Trying out the SPP Demo

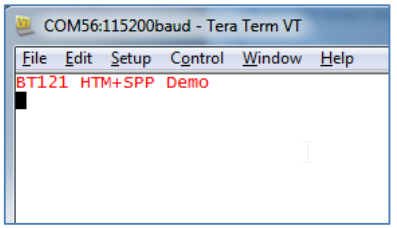
Step 1 : Connect the development kit to a PC via the USB connector named **UART.**

A Windows PC will detect the USB-to-UART converter on the device and starts to autmatically install the drivers for it.

If the PL2303 driver is not automatically installed you can manually download and install it from the Prolific web site: www.prolific.com.tw.



Step 2 : Check from Windows device manager, which COM port is assigned for the development kit.



Step 3 : Open the COM port with a terminal software such as ***Tera Term.***

Use settings: ***115200bps, 8 data bits, no parity, 1 stop bit, RTS/CTS flow control enabled***

Step 4 : Press ***RESET MODULE*** button on the development kit to reset the module and make sure you see "***BT121 HTM+SPP Demo***" text in the terminal application indicating the serial connection works.

Step 5 : Download and install ***S2 Bluetooth Terminal*** application from Google Play store or alternatively you can also use the built-in Bluetooth on your Windows PC.

S2 Terminal for Blu...
S2(Futaba)