

# Bluetooth Low Energy (BLE) Block Data Sheet

BLE 100616

## SPECIFICATIONS

- > **Pairing Code:** None
- > **Range:** ~10m (in line of sight)
- > **Baud Rate:** 115200kbps
- > **Reliable Throughput:** 24kbps
- > **Input Voltage Range:** 2.4-3.6V
- > **Consumption:** ~18mA

## FEATURES

- > Bluegiga BT121 module<sup>1</sup>
- > Bluetooth 4.1 chipset
- > UART interface
- > Integrated chip antenna
- > Plug & play operation
- > Programming interface pins

## APPLICATIONS

- > Rapid prototyping of custom hardware
- > Biomedical engineering projects

## GENERAL DESCRIPTION

This ready-to-use Bluetooth Low Energy (BLE) module is a perfect match for real-time wireless data streaming using our MCU block. It is pre-programmed with a custom firmware that behaves similarly to a serial replacement profile, although the programming pins are accessible, enabling easy re-programming and upload of your own code. The Bluetooth 4.1 chipset provides maximum multiplatform compatibility especially for mobile applications, given that most devices are BLE-compliant by default.

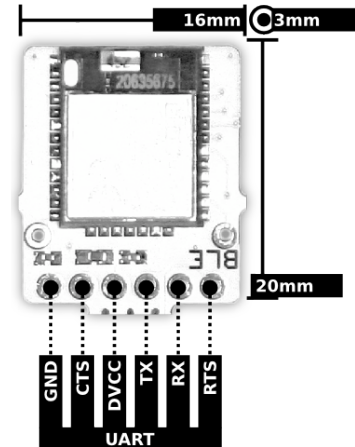


Fig. 1. Pin-out and physical dimensions.

<sup>1</sup> [http://bitalino.com/datasheets/BT121\\_Datasheet.pdf](http://bitalino.com/datasheets/BT121_Datasheet.pdf)



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## PROFILE SETTINGS

The firmware on the BLE module is pre-programmed to work as an UART bridge supported on the Generic Attribute Profile (GATT), behaving similarly to a serial replacement profile. By default you can connect directly to the device using the MAC address as no pairing is needed.

Should your application connect using the device UUID rather than the MAC address (e.g. like the iOS SDK by Jasmin Nizic<sup>2</sup>) you can either retrieve the UUID programmatically by performing a device search or using a BLE scanning tool<sup>3</sup> (device name "BITalino BLE").

After establishing the connection you should search for services; an "Exchange Data Service" with UUID `c566488a-0882-4e1b-a6d0-0b717e652234` should be found. This service has two characteristics, namely:

> **Commands:** UUID `4051eb11-bf0a-4c74-8730-a48f4193fcea`

> **Frames:** UUID `40fdb6b-672e-47c4-808a-e529adff3633`

The BITalino command set found in the MCU data sheet<sup>4</sup> should be sent through the *Commands* characteristic and notifications should be enabled for the *Frames* characteristic since the data packets sent from the device are received through that path.

## ORDERING GUIDE

Part #	Description
COMP-BLE	Bluetooth Low Energy (BLE) block

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<sup>2</sup> <http://bitalino.com/index.php/development/apis>

<sup>3</sup> <https://itunes.apple.com/us/app/bluetooth-smart-scanner/id509978131?mt=8>  
<https://play.google.com/store/apps/details?id=com.macdom.ble.blescanner&hl=en>

<sup>4</sup> [http://bitalino.com/datasheets/REVOLUTION\\_MCU\\_Block\\_Datasheet.pdf](http://bitalino.com/datasheets/REVOLUTION_MCU_Block_Datasheet.pdf)