

## BLE112 *Bluetooth* Low Energy Module



### Key Features

- ▶ *Bluetooth* 4.0, single mode compliant
  - Supports master and slave modes
  - 4+ simultaneous connection in master mode
- ▶ Integrated *Bluetooth* low energy stack
  - GAP, GATT, L2CAP, SMP
  - *Bluetooth* low energy profiles
- ▶ Flexible and simple in-module development: BG Profile Toolkit™, BG Script™ or C language
- ▶ Radio performance
  - TX power: +4 dBm to -23dBm
  - RX sensitivity: -87dBm to -93dBm
- ▶ Ultra low current consumption
  - Transmit: 27mA (0 dBm)
  - Sleep mode 3: 0.4uA
- ▶ Programmable 8051 processor for embedding full applications
- ▶ *Bluetooth* end product, CE, FCC and IC qualified

### Description

BLE112, *Bluetooth* low energy module is a single mode device targeted for low power sensors and accessories. BLE112 offers all *Bluetooth* low energy features: radio, stack, profiles and application space for customer applications, so external processor is not needed. The module also provides flexible hardware interfaces to connect sensors, simple user interfaces or even displays directly to the module.

In-module software development can be done with Bluegiga's BG Profile Toolkit™ offering environment for rapid *Bluetooth* profile development. Bluegiga's BG Script™ enables developers to automate in-module software functions making *Bluetooth* low energy application development extremely simple.

BLE112 can be powered directly with a standard 3V coin cell battery or pair of AAA batteries. In lowest power sleep mode it consumes only 400nA and will wake up in few hundred microseconds.

### Markets

- ▶ Sports and fitness
- ▶ Healthcare and medical
- ▶ Assisted living
- ▶ Home automation
- ▶ Industrial automation
- ▶ Security
- ▶ Mobile phone accessories
- ▶ Indoor tracking
- ▶ Proximity Information



## Bluetooth Low Energy Features

- Bluetooth 4.0 single mode compliant radio
- Master and slave mode support
- L2CAP, GAP, ATT and GATT support
- Security manager
- Advertising, broadcasting, connections
- Built-in profiles

## Hardware Features

- Bluetooth low energy radio
- Integrated antenna, U.FL connector or RF pin
- 8051 microcontroller
  - 8 KB RAM
  - 128 KB flash
- 1-2 x UART
- 1-2 x SPI
- USB 2.0 device
- 3 x PWM
- 3 x timer
- Analog comparator
- Integrated op-amp
- Integrated battery monitor and temperature sensor
- GPIO and AIO

## Electrical Characteristics

- Transmit : 27mA (0 dBm)
- Receive: 19.6mA
- Sleep (timer active): 1.5uA
- Sleep (wake-up pin): 0.4uA
- Operating voltage: 2.0-3.6V

## Development And Evaluation Tools

- BLE112 starter kit
- BLE112 evaluation kit
- BLED112 Bluetooth low energy USB dongle
- BG Script™ : scripting language
- BG Profile Toolkit™

## Product Codes

- BLE11-A: BLE112, integrated antenna
- BLE11-E: BLE112, U.FL connector
- BLE11-N: BLE112, 50ohm RF pin

## Certifications

- Bluetooth 4.0
- CE, FCC and Industry Canada

## Applications

- Heart rate sensors
- Pedometers
- Watches
- Blood pressure and glucose meters
- Weight scales
- Key fobs
- Households sensors and collector devices
- Security tags
- Wireless keys (keyless go)
- Proximity sensors
- HID keyboards and mice
- Indoor GPS broadcasting devices

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