

## WT12 Bluetooth® Module™ Description



WT12 is a next-generation, class 2, *Bluetooth* 2.1 + EDR module. It introduces three times faster data rates compared to the existing *Bluetooth* 1.2 modules even with a lower power consumption. WT12 is a highly integrated and sophisticated *Bluetooth* module, containing all the necessary elements from *Bluetooth* radio antenna to a fully implemented protocol stack. Therefore WT12 provides an ideal solution for developers who want to integrate *Bluetooth* wireless technology into their designs with limited knowledge of *Bluetooth* and RF technologies.

### Key Features

- ▶ *Bluetooth* Class 2
- ▶ Integrated chip antenna
- ▶ Enhanced Data Rates (EDR) with data throughput up to 2-3Mbps
- ▶ Support for Adaptive Frequency Hopping (AFH) and 802.11 co-existence
- ▶ USB version 2.0
- ▶ UART with bypass mode
- ▶ 8Mbits of flash memory
- ▶ Supported *Bluetooth* profiles: SPP, DUN, OBEX OPP, HFP v.1.5, DID, HID + HCI
- ▶ Industrial temperature range from -40°C to +85°C
- ▶ RoHS compliant
- ▶ Pin-to-pin compatible with WT11 module
- ▶ Simple iWRAP™ firmware for controlling *Bluetooth* wireless technology
- ▶ Fully qualified end product with *Bluetooth* 2.1 + EDR, CE and FCC

WT12 module combined with Bluegiga's complete development, testing and verification services and excellent developer support, OEMs and designers ensure that their products reach the market rapidly and cost-efficiently in relation to time and resources. Bluegiga has extensive in-house knowledge of both software and hardware offering customers a single point of contact to all *Bluetooth* related issues.

By default WT12 module is equipped with powerful and easy-to-use iWRAP firmware. iWRAP enables users to access *Bluetooth* functionality with simple ASCII commands delivered to the module over serial interface. Entering the world of *Bluetooth* wireless technology could not be easier!

With iWRAP software you have several implementation options:

- iWRAP can be configured to operate autonomously, - as a *Bluetooth* cable replacer
- To create sophisticated applications - a host system can be used to control iWRAP with ASCII commands
- With The GPIO interface in WT12 module can be used to connect host and iWRAP

Besides the iWRAP firmware Bluegiga also offers several other firmware options for WT12 module. Standard Host Command Interface (HCI) firmware is supported and an ideal solution for systems where the host system is capable of running the entire *Bluetooth* stack and profiles and WT12 is utilized as the physical radio over UART or USB interface.



## TECHNICAL DATA

### Firmware

- iWRAP™ command interface to access the *Bluetooth* functionality and to configure the parameters with simple ASCII commands
- HCI firmware available for UART and USB interfaces
- Possibility to use / develop custom firmware
- 128-bit *Bluetooth* encryption available for all firmware options

### Hardware

- *Bluetooth* Class 2 radio (range up to 30 meters)
  - Nominal output power +4 dBm
  - Nominal sensitivity -84 dBm
  - Uses 2.4 GHz ISM band
  - Based on CSR's BC04 chipset
- Integrated antenna
- Host processor interface with UART or USB
- SPI interface for firmware and parameter upgrades
- 6xGPIO
- PCM interface for audio applications
- Supply voltage: regulated 3.2 – 3.4 VDC
- Power consumption with iWRAP interface:
  - Link active min: 7mA, max: 60mA
  - Link active in sniff mode: 2.5mA
  - Link active in park mode: 2.5mA
  - Idle with deep sleep: <1mA
- PCB form factor: 26 x 14 x 2.3 mm
- Operating temperature: -40 °C to +85 °C
- Metal shielding to prevent RF interference
- Reference designs available for HCI, cable replacement and audio applications

### Product Codes

- iWRAP Firmware, chip antenna      WT12-A-AI
- HCI Firmware (USB), chip antenna    WT12-A-HCI
- Custom Firmware, chip antenna      WT12-A-C

## Development and Evaluation

- WT12-A Evaluation Kit EKWT12-A
- CSR's BlueLab Professional SDK

## Other Products

- WT11 Class 1 *Bluetooth* Module™
- WT32 *Bluetooth* Audio Module™
- Bluegiga Access Server™ 2291, 2293

## Certifications

- *Bluetooth* 2.1 + EDR
- CE, FCC, IC

## Applications

- Cable replacement
- Point-of-sales systems
- Barcode readers and pay terminals
- Telemetry and machine-to-machine devices
- Logistics and transportation systems
- Automotive inspection and measurement systems
- Medical systems
- Fitness and sports telemetry devices
- PDAs and other portable terminals
- PCs and laptops



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