



WT11 Bluetooth® Module™ Description



WT11 is a next-generation, class 1, *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. WT11 is a highly integrated and sophisticated *Bluetooth* module, containing all the necessary elements from *Bluetooth* radio antenna to a fully implemented protocol stack. Therefore WT11 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 1
- ▶ Two antenna options: integrated chip antenna or U.FL connector
- ▶ 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
- ▶ Simple iWRAP™ firmware for controlling *Bluetooth* wireless technology
- ▶ Fully qualified end product with *Bluetooth* 2.1 + EDR, CE, FCC and IC

WT11 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, WT11 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.

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
- The GPIO interface in WT11 module can be used to
 - connect host and iWRAP

Besides the iWRAP firmware, Bluegiga also offers several other firmware options for WT11 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 WT11 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 1 radio (range up to 200 meters)
 - Nominal output power +15 dBm
 - Nominal sensitivity -82 dB
 - Uses 2.4 GHz ISM band
 - Based on CSR's BC04 chipset
- Integrated antenna or U.FL connector
- Host processor interface with UART or USB
- SPI interface for firmware and parameter upgrades
- 6xGPIO, 1xAIO
- PCM interface for audio applications
- Supply voltage: regulated 3.2 – 3.4 VDC
- PCB form factor: 35.3 x 14 x 2.3 mm
- Operating temperature: -40 °C to +85 °C
- Metal shielding
- Reference designs available for HCI, cable replacement and audio applications

Product Codes

- | | |
|------------------------------------|------------|
| • iWRAP Firmware, chip antenna | WT11-A-AI |
| • HCI Firmware (USB), chip antenna | WT11-A-HCI |
| • Custom Firmware, chip antenna | WT11-A-C |
| • iWRAP Firmware, U.FL | WT11-E-AI |
| • HCI Firmware (USB), U.FL | WT11-E-HCI |
| • Custom Firmware, U.FL | WT11-E-C |

Development and Evaluation

- WT11-A Evaluation Kit EKWT11-A
- WT11-E Evaluation Kit EKWT11-E
- CSR's BlueLab Professional SDK

Other Products

- WT12 Class 2 *Bluetooth* Module™
- WT32 *Bluetooth* Audio Module™
- Bluegiga Access Server™ 2291, 2293

Certifications

- *Bluetooth* 2.1 + EDR
- CE, FCC and 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
- Audio applications

For more information about Bluegiga Technologies, please contact:

Bluegiga Technologies Oy
Sinikalliontie 5 A
02630 Espoo, Finland
Phone: +358 9 435 50 60
Fax: +358 9 435 50 660
www.bluegiga.com
sales@bluegiga.com

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