



The BTM510 and BTM 511 are low-power Bluetooth® modules designed for adding robust audio and voice capabilities. Based on the market-leading Cambridge Silicon Radio BC05 chipset, these modules provide exceptionally low power consumption with outstanding range. Supporting the latest Bluetooth Version 2.1+EDR specification, these modules provide the important advantage of secure simple pairing that improves security and enhances easy use.

At only 14mm x 20mm for the BTM510 and 14mm x 25mm for the BTM511, the compact size of the modules makes them ideal for battery-powered or headset form factor audio and voice devices. With a 16-bit stereo codec and microphone inputs to support both stereo and mono applications, these modules also contain a full, integrated Bluetooth-qualified stack along with SPP, HFP 1.5, HSP, AVRCP, and A2DP profiles. (Customers using these modules may list and promote their products free of charge on the Bluetooth website.)

The BTM510/511 modules include an embedded 32-bit, 64-MIPS DSP core within the BC05. This allows designers to add significant product enhancements including features such as echo cancellation, noise reduction, and audio enhancement using additional soft codecs. The availability of the 16MB of flash memory in the module allows complex functionality to be included. DSP routines can be licensed through a number of specialist partners.

To speed product development and integration, Laird Technologies has developed a comprehensive AT command interface that simplifies application development, including support for audio and headset functionality. Combined with a low-cost development kit, Laird Technologies' Bluetooth modules provide faster time to market.

FEATURES

- Fully featured Bluetooth multimedia chipset
- Bluetooth v2.1+EDR
- Supports mono and stereo headset applications
- Adaptive frequency hopping to cope with interference from other wireless devices
- 32bit Kalimba DSP for enhanced audio applications
- Support for secure simple pairing
- External or internal antenna options
- HSP, HFP, A2DP, and AVRCP audio profiles
- 16-bit stereo codec and microphone input
- Integrated audio amplifiers for driving stereo speaker
- Comprehensive AT interface for simple programming
- Bluetooth End product qualified
- Compact size
- Class 2 output – 4dBm
- Low power operation
- Wi-Fi co-existence hardware support

APPLICATION AREAS

- High-quality stereo headsets
- Mono voice headsets
- Hands-free devices
- Wireless audio cable replacement
- MP3 and music players
- Phone accessories
- VoIP products
- Cordless headsets
- Aftermarket automotive applications

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CATEGORIES	FEATURE	IMPLEMENTATION
Wireless Specification	Bluetooth®	Version 2.1+EDR
	Frequency	2.402 – 2.480 GHz
	Max Transmit Power	Class 2 4dBm (at antenna pad – BTM510) 4dBmi (from integrated antenna – BTM511)
	Receive Sensitivity	Better than -86dBm
	Range	30 meters
	Data Rates	Up to 3Mbps (over the air)
	UART Data Transfer Rate	Greater than 300 Kbps
Host Interface	UART	Supports DTR, DSR, DCD and RI, multiplexed with other functionality.
Audio Interfaces	Codec	Internal 16 bit Stereo Codec Integrated Amplifiers for driving Stereo Speaker
	Microphone	Stereo microphone input
DSP	Integrated Kalimba DSP	32bit, 64MIPS
Profiles		SPP – Serial Port Profile HSP
		HFP – Audio Gateway and Handset
		A2DP – Source and Sink
		AVRCP – Target and Controller
Supply Voltage	Supply	3.0V – 3.6V DC
	I/O	1.7V – 3.6V DC
Power Consumption	Current Consumption	Operational - Less than 70 mA (including speaker amplifiers) Idle (sleep) < 1.0mA
Coexistence / Compatibility	802.11 (Wi-Fi)	2 wire and 3 wire schemes supported
Connections	External Antenna	Connection via SMT pad – BTM510
	Internal Antenna	Multilayer ceramic antenna – BTM511
Programming API		AT Command Set (extended for audio and headset functions)
Physical	Dimensions	14.0mm x 20.0mm x 3.4mm (integrated antenna – BTM510) 14.0mm x 25.0mm x 3.4mm (integrated antenna – BTM511)
	Environmental	Operating Temperature
	Storage Temperature	-40°C to +85°C
Miscellaneous	Lead free	Lead-free and RoHS compliant
	Warranty	1 Year
Development Tools	Development Kit	Development board and software tools
Approvals	Bluetooth	End Product Approved
	FCC/IC & CE	BTM510 - Limited Modular Approval BTM511 - Full Modular Approval

ORDERING INFORMATION

BTM510	Bluetooth Multimedia Module (external antenna)
BTM511	Bluetooth Multimedia Module (with integrated antenna)
DVK- BTM510	Development Kit (external antenna)
DVK- BTM511	Development Kit (with integrated antenna)

The details contained within the document are subject to change. Download the product specification from www.lairdtech.com/wireless for the most current specification.

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