



The BTM410 and BTM 411 Bluetooth® modules from Laird Technologies have been designed to meet the needs of developers who wish to add robust, short range Bluetooth data connectivity to their products. They are based on the market leading Cambridge Silicon Radio BC04 chipset, providing exceptionally low power consumption with outstanding range. They support the latest Bluetooth Version 2.1 Specification, providing the important advantage of Secure Simple Pairing, which improves security and enhances the ease of use for end customers.

With physical sizes as small as 12.5 x 18.0mm for the BTM410 and best of class, low-power operation, these modules are the ideal choice for applications where designers need both performance and minimum size. For maximum flexibility in systems integration, the modules are designed to support a separate power supply for I/O.

To aid product development and integration, Laird Technologies has integrated a complete Bluetooth protocol stack within the modules, including support for the Bluetooth Serial Port Profile. The modules are fully qualified as Bluetooth End Products, allowing designers to integrate them within their own products with no further Bluetooth Qualification. They can then list and promote their products on the Bluetooth website free of charge.

Future supports includes the Bluetooth Health Device Profile, making this the ideal module for development of Continua compliant medical and wellness devices.

A comprehensive AT command interface is included, which simplifies firmware integration. Combined with a low cost developers kit, this ensures that the choice of Laird Technologies Bluetooth modules guarantees the fastest route to market.

#### FEATURES AND BENEFITS

- Bluetooth v2.1+EDR
- Adaptive frequency hopping to cope with interference from other wireless devices
- Secure Simple Pairing support
- External or internal antenna options
- Comprehensive AT interface for simple programming
- Bluetooth END Product Qualified
- Compact size
- Class 2 output – 4dBm
- Low power operation
- UART interface
- Multi-point support
- PCM and SCO for external codec
- GPIO lines under AT control
- Wi-Fi co-existence

#### APPLICATION AREAS

- Embedded devices
- Phone accessories
- Security devices
- Medical and wellness devices
- Automotive applications
- Bluetooth advertising
- ePOS

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[www.lairdtech.com/wireless](http://www.lairdtech.com/wireless)

CATEGORIES	FEATURE	IMPLEMENTATION
<b>Wireless Specification</b>	Bluetooth®	Version 2.1+EDR
	Frequency	2.402 – 2.480 GHz
	Max Transmit Power	Class 2 +4dBm (at antenna pad – BTM410) +4dBm (from integrated antenna – BTM411)
	Receive Sensitivity	Better than -84dBm
	Range	Up to 30 meters
	Data Rates	Up to 2.1Mbps (over the air)
	UART Data Transfer Rate	Greater than 300 Kbps
<b>Host Interface</b>	UART	Supports CTS, RTS, DTR, DSR, DCD and RI
<b>User Interface</b>	GPIO	8 lines (shared)
<b>Profiles</b>		SPP – Serial Port Profile Voice over SCO via a PCM interface HDP - Health Device Profile (future release)
<b>Supply Voltage</b>	Supply	3.0v to +3.3v
	I/O	1.7v to +3.6v (independent of Vcc)
<b>Power Consumption</b>	Current Consumption	Less than 40mA during SCO transmission Idle (sleep) < 1mA
<b>Coexistence / Compatibility</b>	802.11 (Wi-Fi)	2 wire and 3 wire schemes supported
<b>Connections</b>	External Antenna	Connection via SMT pad – BTM410
	Internal Antenna	Optional – multilayer ceramic – BTM411
<b>Protocols</b>		AT Command Set
		Multipoint Support
<b>Physical</b>	Dimensions	12.5mm x 18.0mm x 2.4mm (external antenna – BTM410)
		12.5mm x 22.0mm x 2.4mm (integrated antenna – BTM411)
<b>Environmental</b>	Operating Temperature	-30°C to +70°C
	Storage Temperature	-40°C to +85°C
<b>Miscellaneous</b>	Lead free	Lead-free and RoHS compliant
	Warranty	1 Year
<b>Development Tools</b>	Development Kit	Development board and software tools
<b>Approvals</b>	Bluetooth	End Product Approved
	FCC & CE	Approved (see Application Note for details)

## ORDERING INFORMATION

BTM410	Bluetooth AT Data Module (external antenna)
BTM411	Bluetooth AT Data Module (with integrated antenna)
DVK- BTM410	Development Kit (external antenna)
DVK- BTM411	Development Kit (with integrated antenna)

The details contained within the document are subject to change. Download the product specification from [www.lairdtech.com/wireless](http://www.lairdtech.com/wireless) for the most current specification.

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LWS-DS-BTM410-411 0909

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