



Every BTM46x-series Bluetooth® module from Laird Technologies is designed to add robust, short-range Bluetooth data connectivity to any device. The BTM46x modules build on the proven BTM4xx series of module hardware based on the market-leading Cambridge Silicon Radio (CSR) BC04 chipset. The innovative firmware on the BTM46x series allows OEMs to seamlessly support Bluetooth data connectivity to and from all PCs, smartphones and tablets including Apple iOS devices. The BTM46x modules are approved by Apple as part of their MFi program (Made for iPod / iPhone / iPad).

The BTM46x modules abstract the OEM from the intricacies of Apple’s iAP protocol by handling all iAP commands, authentication and communication with the Apple authentication co-processor. The module enables Apple licensees to leverage Bluetooth data connectivity, via the iAP protocol into their MFi accessories, and enables rapid time to market for their products.

With a compact footprint of 12.5 x 22 mm, the modules deliver maximum range with a minimum size. To ease integration, the modules are designed to support a separate power supply for I/O. Another integration advantage is the inclusion of a complete Bluetooth v2.1 protocol stack with support for multi-point connections and numerous Bluetooth profiles, including Serial Port Profile (SPP), HID (Human Interface Device) and Apple’s iAP protocol. BTM46x modules are fully qualified as Bluetooth End Products, enabling designers to integrate the modules in devices without the need for further Bluetooth Qualification.

An integrated AT command processor interfaces to the host system over a serial port using an extensive range of AT commands. The AT command set abstracts the Bluetooth protocol from the host application, saving many months of programming and integration time. It provides extremely short integration times for data oriented Bluetooth applications. Included firmware provides programming support for multi-point applications that use up to seven simultaneous data connections to and from the robust BTM46x modules.

**It is required that any OEMs who are looking to design any product that connects to iPhones, iPads, and iPods using the iAP protocol must be registered with Apple’s MFi programme.** The first port of call for OEMs looking to develop in this area is to sign up with the MFi programme at <https://developer.apple.com/programs/mfi/> with additional FAQs available at <http://mfi.apple.com/faqs>.

Once the OEM has become an Apple licensee, Laird can supply the BTM46x module and associated detailed documentation.

global solutions: local support.

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### Features & Benefits

- Bluetooth v2.1 + EDR
- Comprehensive AT command set
- Bluetooth EPL
- FCC, IC, CE and MIC approvals
- Compact Footprint
- Class 2 output – 4 dBm
- UART interface with GPIO
- Industrial Temperature range
- Support for SPP, HID and Apple’s iAP

### Application Areas

- Medical devices
- ePOS terminals
- Barcode Scanners
- Industrial Cable Replacement
- Smartphone / Tablet ‘Accessories’

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



# BTM46x Series

## Enhanced Class II Bluetooth Data Module

| CATEGORIES             | FEATURE                 | IMPLEMENTATION  |
|------------------------|-------------------------|---|
| Wireless Specification | Bluetooth®              | V2.1 + EDR  |
|                        | Frequency               | 2.402 - 2.480 GHz   |
|                        | Max Transmit Power      | Class 2<br>+4 dBm from antenna (BTM461)                     |
|                        | Receive Sensitivity     | Better than -84 dBm   |
|                        | Range                   | Up to 30 metres   |
|                        | Data Rates              | Up to 2.1 Mbps (over the air)                               |
|                        | UART Data Transfer Rate | Circa 350 kbps  |
|                        | Host Interface          | UART  |
| GPIO                   |                         | 6 configurable lines  |
| Profiles               | SPP                     | Serial Port Profile   |
|                        | HID                     | Human Interface device                                      |
|                        | iAP                     | Apple's iPod Accessory Protocol                             |
| Control Protocols      |                         | AT Command Set<br>Multi-Point API                           |
| Supply Voltage         | Supply                  | 3.0 to 3.3 V  |
|                        | I/O                     | 1.7 to 3.6 V (independent of Vcc)                           |
| Power Consumption      | Current                 | Idle (sleep) < 3 mA<br>Connectable & Discoverable < 23.5 mA |
| Antenna Option         | Internal                | Multilayer ceramic  |
| Physical               | Dimensions              | 12.5 x 22.0 x 3.4 mm  |
| Environmental          | Operating               | -40° C to +85° C  |
| Miscellaneous          | Lead Free               | Lead-free and RoHS compliant                                |
|                        | Warranty                | 1 Year  |
| Approvals              | Bluetooth®              | End Product Listing (EPL)                                   |
|                        | FCC / IC / CE / MIC     | All BTM46x Series   |

### Ordering Information

|            |  |
|------------|--|
| BTM461     | Enhanced Class II Bluetooth Data Module (integrated antenna) |
| DVK-BTM461 | Development Kit for BTM461 Module                            |

LWS-DS-BTM46X 0613

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