

Item # BTM402, 3.6V Bluetooth Module with Power Amplifier



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Long Range Bluetooth™ Serial Module

Stock Locator

The BISM II PA Bluetooth Serial Module is a fully integrated and qualified Class 1 Bluetooth solution, which incorporates a power amplifier and low noise amplifier that maximizes the RF link budget to provide the greatest range of any Bluetooth Module. The module is designed for lowest cost of integration and ownership for designers wishing to incorporate Bluetooth functionality into their products. The module is qualified to Bluetooth Version 2.0.

The BISM II PA Bluetooth Serial Module is one of the most compact complete Bluetooth solutions, making it ideal to integrate into handheld devices. The module includes a high sensitivity, high gain antenna which provides excellent range. Typical open field performance provides ranges of up to 1,000 meters at transmit powers of 65mW.

The BISM II PA Module is based on Cambridge Silicon Radio's BlueCore 04 chipset. The module contain all of the hardware and firmware for a complete Bluetooth solution, requiring no further components. The Module has an integrated, high performance antenna which is matched with the Bluetooth RF and baseband circuitry. The firmware integrated into the BC04 chipset implements the higher layer Bluetooth protocol stack, with support for applications requiring Generic Access Profile (GAP), Service Discovery Profile (SDAP), Serial Port Profile (SPP), Dial Up Networking Profile (DUN), Headset Profile (HSP), Hands Free Profile (HFP), File Transfer Profile (FTP) and OBEX (Client).

A virtual processor is used within the BC04 to implement an AT command processor. This interfaces to the host system over a straight forward 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 cable replacement and voice applications. Firmware is also included that provides programming support for multi-point applications. A low cost development system is available for fast product evaluation and development.

Support is provided for low power modes that make the BISM II PA particularly applicable to battery powered installations.

The Module can be configured so that it can be attached to a 'dumb' terminal or attached to a PC or PDA for cable replacement applications.

In addition to the Bluetooth functionality, The BISM II PA Module provides access to 7 General I/O lines and 2 analogue input lines. These can be configured to provide connection to simple devices such as switches or LEDs without requiring any external processor. Both the GPIO and ADC lines can be accessed either via the wired host UART connection, or remotely over the Bluetooth link.

The BISM II PA module is supplied in a small form factor pcb (22.0 mm x 34.0 mm x 7.6 mm), that connects to a main pcb using a 40 way Hirose connector. The interface is compatible with the BISM1 module and Laird Technologies' 40 pin 802.11 modules. The BISM II PA module is Lead-free and is RoHS compliant and supports an industrial temperature range of -10°C to +85°C.

A key feature of the design is that the module is pin and format compatible with Laird Technologies' range of 802.11 wireless LAN modules. This allows designers to manufacture a single version of pcb which can accept either a Bluetooth or an 802.11 module, greatly reducing development time to generate a range of wirelessly enabled products. The compatible 802.11 modules are the WISMC01, which contains a full TCP/IP stack, network drivers and a web server, and the WISMC02 which contains wireless network drivers and a UDP stack with SLIP interface.

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WIRELESS SPECIFICATION

Standards Supported	Bluetooth v2.0
Transmit Class	Class 1
Frequency	2.400 to 2.4835 GHz
Channels	79 channels Frequency Hopping Adaptive Frequency Hopping
Max. Transmit Power	+16 dBm at antenna connector +18 dBmi from integrated antenna
Min. Transmit Power	-27 dBmi from integrated antenna
Receive Sensitivity	-87 dBm
Max. Data Transfer Rate	300 Kbps
Max. Range	1000 meter free space

ANTENNA MODES

Integrated Antenna	High performance +2dBi multilayer ceramic
External Antenna	50 Ohm U.FL connection

UART INTERFACE

Serial Interface	RS-232 bi-directional for commands and data 16550 compatible
Baud Rate	Configurable from 1200 to 921,600 bps Non-standard baud rates supported
Bits	7 8
Parity	even none Odd
Stop Bits	1 2
Default Serial Parameters	9, 600, n, 8, 1
Levels	3.3 V CMOS

Modem Control ¹	CTS DCD DSR DTR RI RTS
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¹ DSR, DTR, RI and DCD are configurable either as GPIO or as modem control lines.

GENERAL PURPOSE INTERFACE

Input/Output ¹	7 general purpose input/output pins, 3.3 V CMOS
Max. ADC	2 ADC inputs. 8 bit, 1.8 V

¹ DSR, DTR, RI and DCD are configurable either as GPIO or as modem control lines.

AUDIO

Support	3 PCM Channels at 64kbps
SCO Channels	Support SCO and eSCO
PCM Interface	13 bit linear 8 bit μ -law 8 bit A-law Configurable as master or slave PCM Clock available when in slave mode

PROTOCOLS & FIRMWARE

Bluetooth Stack	V2.0 compliant. Fully integrated.
Profiles	FTP Client GAP - Generic Access Profile SDP - Service Discovery Profile SPP - Serial Port Profile
Advertised Profiles	DUN (Dial Up Networking) FTP Server Hands free (Audio Gateway) Headset (Audio Gateway)
Profile Components	Audio Gateway Generic OBEX Push/Pull Client
Firmware Upgrade	Available over UART
Connection Modes	Multipoint - max 7 slaves Point to point (cable replacement)

COMMAND INTERFACE

AT Instructions Set	Comprehensive control of connection and module operation S Registers for non-volatile storage of parameters
Multipoint Software	Supports multiple connections

CURRENT CONSUMPTION

Typical Data Transfer	130 mA
Low Power Sniff Mode	Less than 2.5 mA

SUPPLY VOLTAGE

Voltage (DC)	3.6 to 5.0 V
Regulation	On-board regulators and brown-out detection

COEXISTENCE / COMPATIBILITY

WLAN (802.11)	2-wire and 3-wire hardware coexistence schemes supported Pin compatible with the WISM Bluetooth modules
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CONNECTIONS

Interface	40 way Hirose DF-12 Connector
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PHYSICAL

Dimensions	22.8 x 33.8 x 7.6 mm
Weight	8 g

ENVIRONMENTAL

Operating Temperature Continuous Transmission	-10 to +85 °C
Storage Temperature	-40 to +85 °C

APPROVALS

Bluetooth	Qualified as an END Product B0xxx
FCC	Modular Approval PI408B
IC	Industry Canada 1931B-BISMPA
CE &R&TTE	Approved

MISCELLANEOUS

Lead free	RoHS compliant
Warranty	2 Years

DEVELOPMENT TOOLS

Development Kit	Development board and software tools
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APPLICATIONS

- POS Equipment
- Medical Equipment
- Telemetric
- Voice Applications
- Industrial Automation
- Automotive Applications