

Advanced Medical Electronics

Bluetooth Transceiver Module

User's Guide **Draft**

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Rev: 5/06
Manual P/N: **XXXX**

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CHAPTER 1: PRODUCT OVERVIEW

BLUETOOTH TRANSCEIVER MODULE

The AME Bluetooth Module is a completely integrated Bluetooth Serial Port module incorporating the Bluetooth 2.0 baseband controller and 2.4 GHz radio in a small form factor ready to be placed onto a host PCB. All the hardware and firmware provides a complete solution from the built-in antenna through the complete lower and upper layers of the Bluetooth stack, up to the application including the Generic Access Profile (GAP), the Service Discovery Application Profile (SDAP), and the Serial Port Profile (SPP). The firmware provides a complete Bluetooth (v2.0) stack including profiles and command interface. This firmware features point-to-point and point-to-multipoint link management supporting data rates over RfComm up to 704 kbps.

The AME Bluetooth Module is designed to be included within host PCB applications by soldering the module to the host PCB. The Bluetooth Module interface with the host PCB is accomplished through a number of electrical interface connections. Communication between the host PCB and the Bluetooth Module is through a Universal Asynchronous Receiver Transmitter (UART) consisting of Receive (RX), Transmit (TX), Ready-to-Send (RTS), and Clear-to-Send (CTS). RTS and CTS are used for hardware handshaking between the host and the Bluetooth module. The UART interface supports formats of 8-bit data with or without parity, with one or two stop bits. It can operate at standard baud rates from 2400 bits/sec up to a maximum baud rate of 921.6 Kbits/sec. Commands and data are transferred from the Bluetooth Module to the host PCB through this UART interface.

FEATURES AND BENEFITS

Data Throughput:

700 kBits/sec between all connected devices.

Antennae:

On board

Link Features:

- ?? Class II (0 dBm)
- ?? Bluetooth Specification 1.2
- ?? Profiles Supported: Serial Port Profile
- ?? Supported Connections: 7 slaves
- ?? Supporting Point-to-point, point-to-multipoint.

- ?? Support all Bluetooth low-power modes: sniff, park, hold.
- ?? Support role switching.

Electrical Interface:

- ?? TTL level UART. UART will support hand-shaking ability via RTS and CTS.
- ?? Baud Rate: up to 921.6 Kbaud
- ?? JTAG connection for firmware upgrades

Physical Connection:

The module can be soldered onto pads located on the host PCB. This is similar to a QFN IC package style.

Interface Control:

The Bluetooth module will provide functionality and configuration through a simple UART command interface. The desire is to create a module that gives the host great flexibility in controlling and configuring the module.

The protocol consists of defined control packets that contain command, parameter, checksum information. This interface will allow the user to configure the following parameters:

- Connection parameters
- Radio specific item i.e. name, discoverability, scan intervals, page intervals, etc.
- Default parameters to be stored in on-board flash.
- Service database
- Security features

The interface provides unsolicited messaging notify the host of important events such as connection drop, connection received, errors, etc. The interface should provide the configurability to select the events to be reported – i.e. an event filter. Support a “transparent” mode in a point-to-point scenario.

Security & Encryption:

Supports Bluetooth authentication and encryption




PACKAGE CONTENTS

?? TBD

- ?? User's Guide
- ?? OEM FCC Compliance Label

SYMBOLS

The following symbols are used on the front and back panels of the Transceivers.

Symbol	Name	Function
	Attention!	Consult Accompanying Documents
	Bluetooth	Bluetooth Certified Compatible Product Listing
	Non-ionizing Radiation	Non-ionizing Radiation, a class 2 Bluetooth wireless transceiver
SN	Serial Number	Serial Number of the Transceiver

WARRANTY

Advanced Medical Electronics, Inc. warrants this product to be free from defects in materials and workmanship for a period of one year. Should the Transceiver module fail prematurely, the sole liability of Advanced Medical Electronics, Inc. is limited to repair, or at its option, replacement of the product, with a new or like unit, with no charge for parts or labor. Under no circumstances shall Advanced Medical Electronics, Inc. be liable for any loss or damage, direct, consequential, or incidental, including property damage or personal injury arising from the use of, or the inability to use this product. This warranty is rendered void and Advanced Medical Electronics, Inc. cannot be held liable for conditions resulting from: damage, marginal performance or malfunctions caused by: misuse, abuse, neglect, improper line voltage, power fluctuations, or any adverse environmental conditions, tampering, unauthorized modifications, adjustments or repairs to the product or its accessories. This warranty is in lieu of all other warranties, expressed or implied and is extended only to the original purchaser. Features and specifications are subject to change without notice.

FCC COMPLIANCE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received; including interference that may cause undesired operation.

FCC ID: T6U BLUEMODOD0106

NOTE: Advanced Medical Electronics is NOT responsible for any radio or TV interference caused by unauthorized modifications to the AME Bluetooth Module. Such modifications could void the user's authority to operate the equipment.

Original Equipment Manufacturer (OEM) Compliance Requirements for use of the Bluetooth Module:

The outside of the device into which the Advanced Medical Electronics Bluetooth Module is installed MUST display a label referring to the enclosed module FCC compliance.

Advanced Medical Electronics provides a label with each Bluetooth Module. This label should be affixed to the OEM equipment such that it is clearly visible to the end user/customer. Below is the format of the OEM FCC compliance label:

Contains Transmitter Module FCC ID: T6UBLUEMODOD0106

CHAPTER 2: INSTALLATION AND SETUP

VERIFYING THE TRANSCEIVER OPERATION

TBD

CONFIGURING WITH A PERSONAL COMPUTER

TBD

CHAPTER 3: PRINCIPLES OF OPERATION

TBD

CHAPTER 4: TROUBLESHOOTING

TBD

CHAPTER 5: SPECIFICATIONS

Size.....18mm(W) x 31mm(L) x 4.5mm(H)
Weight 4 grams
Power +3.3 Volts, 65 mWatts
Operating Temperature..... -30C to +75C
Storage Temperature..... -40C to +85C
Operating and Storage Humidity: 15 to 95% Non-condensing