



BlueMod™ Starter Kit User Guide

Draft 0.01

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- HCV Wireless assumes no responsibility for any of the following:
 - damage or loss resulting from the use of this guide.
 - loss or claims by third parties which may arise through use of this software.
 - damage or loss caused by deletion of data as a result of malfunction or repairs.
- BlueMod™ specifications and prices are subject to change without notice.
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Product Regulatory Information

FCC Statement

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.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution:

Changes or modifications not covered in this manual must be approved in writing by the manufacturer. Changes or modifications made without written approval may void the user's authority to operate this equipment.

This equipment generates and radiates radio-frequency energy. In order to comply with FCC radio-frequency radiation exposure guidelines for an uncontrolled environment, this equipment has to be installed and operated while maintaining a minimum body-to-antenna distance of 20 cm.

Responsible Party:

HCV Wireless Pty Ltd
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CE Compliance Statement

This product was tested by HCV Wireless and found to comply with all the requirements of the R&TTE Directive 1999/5/EC as amended.



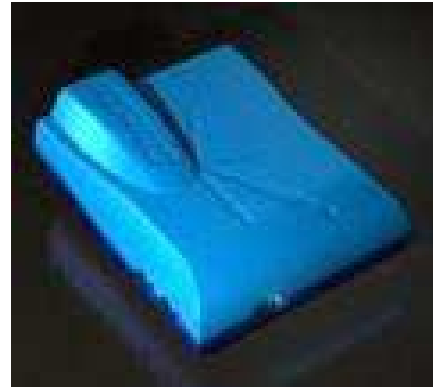
WELCOME TO BLUEMOD™

Welcome to BlueMod™, the latest Bluetooth offering from HCV Wireless.

This User Guide serves as a learning tool and reference guide for purchasers of the BlueMod™ Starter Kit. It describes all standard features and functions of BlueMod™, including procedures for connecting power, cables and accessories. This User Guide should be used in conjunction with the BlueMod™ Software Developers Guide.

Adobe Acrobat versions of this and other BlueMod™ documents are available on the BlueMod™ Starter Kit CD-ROM or from www.hcvwireless.com.

Please read this Guide carefully before using BlueMod™.



**BlueMod™
by HCV Wireless**

Safety Precautions

CAUTION! BlueMod™ contains electronic hardware that is capable of causing harm when handled without care. Incorrect handling can also result in permanent damage to the device and/or data stored on the device. In order to avoid these problems the following safety measures should be followed:

- BlueMod™ should not be powered via the USB connector when an Accessory is connected to the system. When an accessory is connected to the BlueMod™ SBC, the peak current consumption can exceed the rated supply capability of a USB host. This violates USB Specifications and may cause failure with some USB devices.
- The BlueMod™ I/O connector is a 10-pin IDC header that gives the developer access to on-board Serial Port and GPIO resources. As this is a proprietary design pin-out, it is very important that only the BlueMod™ Serial Adapter should be used when connecting the BlueMod™ I/O port to the serial port of another RS232 device. Using a standard IDC-to-DB9 cable assembly will permanently damage the BlueMod™ SBC.
- Do not expose BlueMod™ to water, oil, acid or any other conducting or harmful liquids.
- Only use BlueMod™ Plug Packs to provide power to BlueMod™ via the DC Power Jack.
- Use an Anti-Static Discharge system when adding/removing accessory boards or when handling BlueMod™ without its enclosure.
- Do not operate BlueMod™ on aircraft or in the vicinity of sensitive medical equipment without appropriate testing and approval.
- BlueMod™ is not approved for use in life support applications.

About BlueMod™

BlueMod™ is both a pre-qualified Bluetooth sub-system for OEMs and a rapid Bluetooth prototyping platform for system integrators and application developers. It features multiple connectivity accessories and a powerful 32-bit onboard microprocessor.

BlueMod™ is fully compliant with European, North American, Australian and New Zealand regulations for Bluetooth-enabled products. It is also registered as a Qualified Bluetooth Product with the Bluetooth Special Interest Group (SIG).



BlueMod™

BlueMod™ uses the Widcomm Bluetooth Protocol stack, ported to BlueMod™ by HCV Wireless. It is optionally packaged with Widcomm Bluetooth software for Windows plus either:

- a. Bluetooth USB dongle for PCs, or
- b. Bluetooth Compact Flash card for PDAs.

In selecting BlueMod™, designers benefit from a fully extensible platform, a reduced time to market, lower project risks and reduced manufacturing costs.

Sample Applications

BlueMod™ can be deployed as an embedded platform for a wide range of practical solutions. Sample applications include:

- Cable replacement / format conversion
- Gateway / Access point / Web server
- Wireless Distributed Computing
- Security & Access Control
- Telematics
- Universal Remote Control
- Automation
- Sensors / Transducers / Actuators
- Robotics
- Data Logging

The BlueMod™ Starter Kit



BlueMod™ Starter Kit

The following items are included with your BlueMod™ Starter Kit:

- The BlueMod™ Single Board Computer (SBC)
- USB Lead and serial adaptor
- Power supply (AC/DC Plug Pack)
- Ethernet Accessory Board
- Depending on your chosen option, either:
 - a. **PC Option:** USB Dongle plus Widcomm BT software, or
 - b. **PDA Option:** Bluetooth Compact Flash Card plus Widcomm BT software
- BlueMod™ Starter Kit CD-ROM with:
 - source code for μ Clinux Operating System and Bluetooth stack and profiles
 - GNU software development tool suite and drivers
 - BlueMod™ Hardware Developers Guide (.pdf format)
 - BlueMod™ Software Developers Guide (.pdf format)
 - BlueMod™ Starter Kit User Guide (.pdf format)
 - BlueMod™ Starter Kit User Guide (this document, hard copy)

Purchase of the BlueMod™ Starter Kit also entitles you to free Technical Support from HCV Wireless and membership of the BlueMod™ Developer Forum. See the enclosed CD-ROM for details.

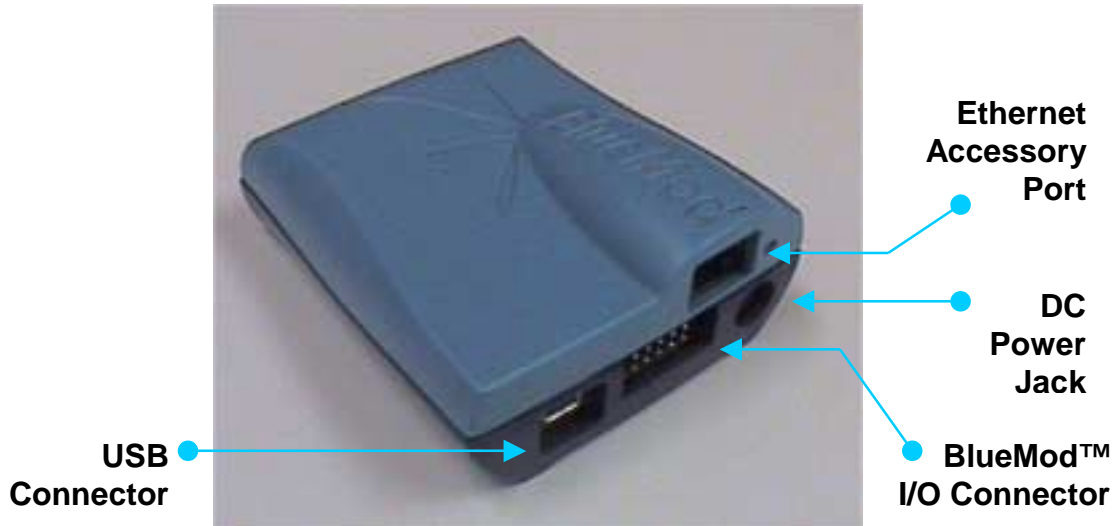
BlueMod™ External Features

BlueMod™ basically comprises a small Single Board Computer (SBC) housed within a hard plastic casing. Accessory cards (e.g. Ethernet Accessory) are directly attached to the main board and also fit within the casing. Cable ports are housed at the rear, while control buttons and lights (LEDs) are displayed in front.

The following diagrams illustrate BlueMod™'s external features:



Front View



Rear View

For an illustration of internal components, see the [BlueMod™ Internal Components](#) section below.

GETTING STARTED WITH BLUEMOD™

BlueMod™ can be powered via its Plug Pack adapter or via a USB host, such as a standard PC.


Powering BlueMod™ via the Plug Pack

To power BlueMod™ with the Plug Pack:

1. Insert the BlueMod™ Plug Pack into an AC wall socket. The Plug Pack can accept input voltages between 110V and 240V AC.
1. Insert the 1.3mm plug into the BlueMod™ DC Power Jack.
2. Turn on the power at the wall socket.
3. Start BlueMod™ by pressing the Power On/Off Button for 1 second.

Powering BlueMod™ via a USB Host

To power BlueMod™ from a USB Host:

CAUTION!  BlueMod™ should not be powered via the USB connector when an Accessory Board is connected to the system. See [Safety Precautions](#).

1. Remove any BlueMod™ Accessory Boards (see [BlueMod™ Accessories](#) below for instructions).
2. Insert the Mini-B end of the BlueMod™ USB Cable into the BlueMod™ Mini-B USB Connector.
1. Insert the Type A end of the BlueMod™ USB Cable into a USB host.
2. Start BlueMod™ by pressing the Power On/Off Button for 1 second.

Connecting BlueMod™ to a PC Serial Port

CAUTION! 

The BlueMod™ I/O connector is a proprietary design pin-out. Only the BlueMod™ Serial Adapter should be used when connecting BlueMod™ to another device. See [Safety Precautions](#).

To connect BlueMod™ to a PC Serial Port:

1. Insert the IDC-10 socket on the BlueMod™ Serial Adapter into the BlueMod™ I/O Port with the polarised bump facing up.
2. Using a standard Null-Modem Serial cable, connect the BlueMod™ Serial Adapter to the Serial Port of a PC.

Advanced Features

BlueMod™ provides a number of more advanced functions such as a built-in boot manager. For details, see the *BlueMod™ Software Developers Guide* on the Starter Kit CD-ROM or visit www.hcvwireless.com.

Testing Your BlueMod™

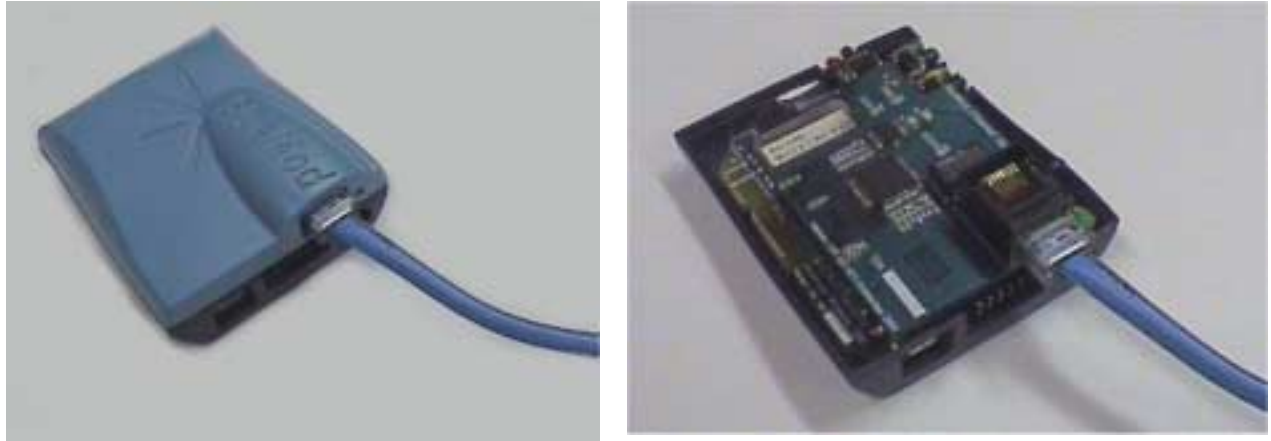
You can check that your BlueMod™ device is functioning properly by performing the following test:

1. Connect power to BlueMod™ as described above.
2. Use another Bluetooth device such as a PC or mobile phone to perform an enquiry and discover your BlueMod™ device.
3. Perform a service discovery on BlueMod™. LAN Access and a Serial Port Profile service should appear in the list of available services. This indicates that your BlueMod™ is functioning correctly.

You are now ready to start working with BlueMod™, or start developing your own wireless solutions with BlueMod™. For further details, see the *BlueMod™ Software Developers Guide* on the Starter Kit CD-ROM or visit www.hcvwireless.com.


BLUEMOD™ ACCESSORIES

BlueMod™ Accessory Boards (e.g. the BlueMod™ Ethernet Accessory) reside inside the hard plastic casing, connected to the main BlueMod™ SBC board.



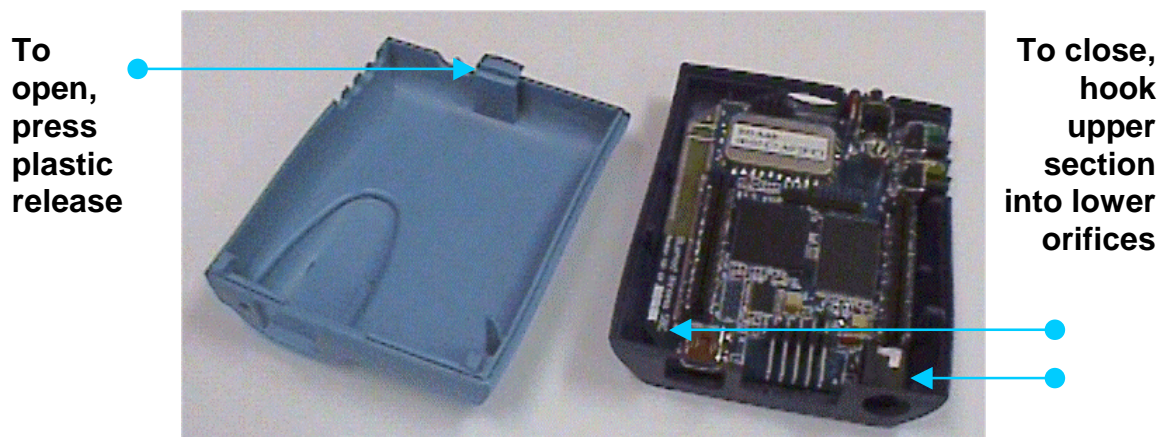
Ethernet cable attached to BlueMod™ internal Ethernet Accessory Card

To add or remove BlueMod™ Accessory Boards, the casing must be opened.

CAUTION!  All power should be switched off before opening the BlueMod™ casing.

Opening and Closing

To open BlueMod™, use a thumb or fingernail to press the plastic release in the lower front section. Take care not to damage any internal components.

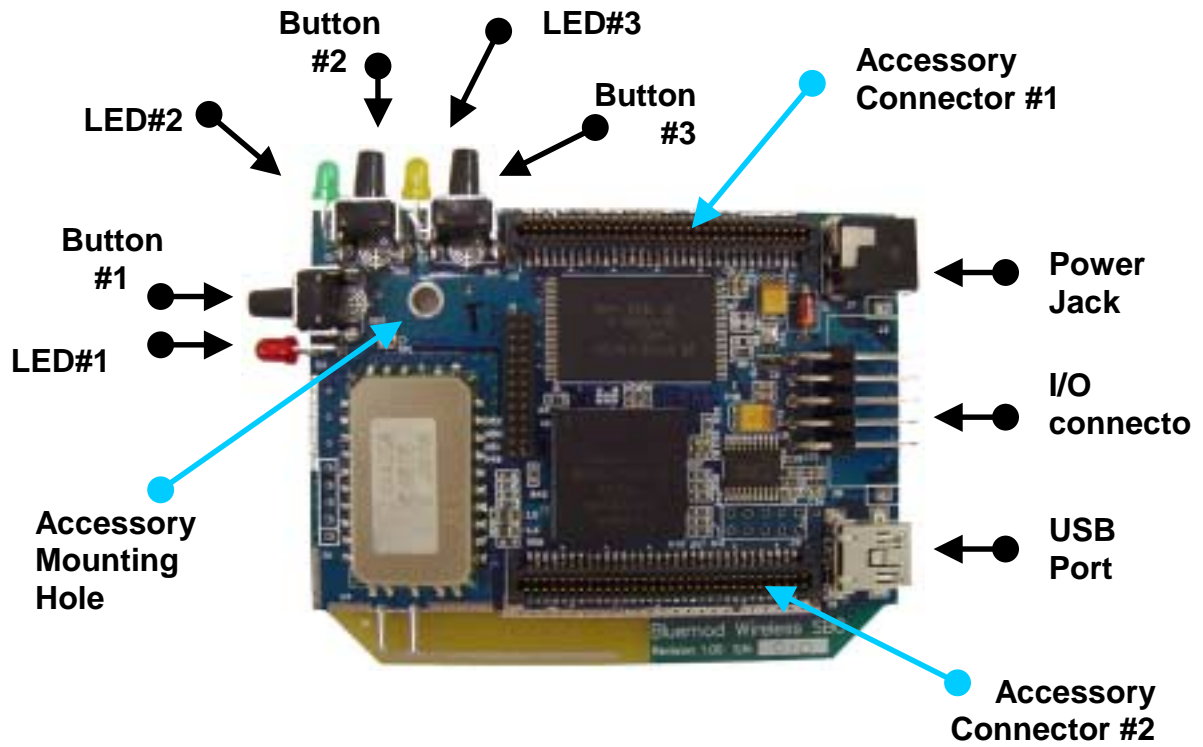


BlueMod™ Exposed

When re-closing the casing, hook the upper rear section into the appropriate orifices in the lower section and gently but firmly snap shut.

BlueMod™ Internal Components

The diagram below provides an internal view of BlueMod™ components:



BlueMod™ Internal Components

Connecting BlueMod™ Accessory Boards

CAUTION! 

When connecting or removing a BlueMod™ Accessory Board, ensure the power is off and wear an anti-static wrist or ankle strap. The Accessory Connectors have an average mating life of 100 cycles so swapping should be minimised.

To connect an Accessory Board to BlueMod™:

1. Unplug any sources of power and open the BlueMod™ casing.
2. Place the Accessory Board on top of the BlueMod™ SBC. Carefully align the Accessory Connectors and the Mounting Holes as shown below:



Aligning the BlueMod™ Accessory Board

4. Squeeze the two circuit boards together until the connectors snap together.
5. Lock the board in place by securing the Accessory Board Mounting Hole screw. Failure to do so may result in intermittent failure.

SOFTWARE AND SUPPORT

BlueMod™ Software and Manuals

The BlueMod™ Starter Kit CD-ROM includes the following software:

- Source code for Clinix Operating System stack and profiles
- Source code for Bluetooth stack and profiles
- GNU software development tool suite and drivers
- Widcomm BT software for Windows (PC Option) or Embedded Environments (PDA Option)

For instructions on downloading and using this software, see the *BlueMod™ Software Developers Guide*. For Hardware details, see the *BlueMod™ Hardware Developers Guide*. Adobe Acrobat versions of these files are available on the Starter Kit CD-ROM.

For more information, including the latest software and documentation updates, see the HCV Wireless website at www.hcvwireless.com.

BlueMod™ Technical Support

Purchase of the BlueMod™ Starter Kit entitles you to free Technical Support from HCV Wireless. See the HCV Wireless website at www.hcvwireless.com for details.

BlueMod™ Developers Forum

Purchase of the BlueMod™ Starter Kit also entitles you to free membership of the online BlueMod™ Developers Forum.

See the HCV Wireless website at www.hcvwireless.com for details.

Contact Details

For further information or for any queries or suggestions regarding BlueMod™ and/or this User Guide, please contact:

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www.hcvwireless.com

GLOSSARY

Dongle - a small device providing authorized access to proprietary software.

GPIO – General Purpose Input/Output.

HCI – Host Controller Interface.

OEM – Original Equipment Manufacturer, a company using components from other companies to create its own branded product.

PDA – Personal Digital Assistant, a small mobile device providing data storage and other capabilities (e.g. Palm Pilot).

SBC – Single Board Computer. The BlueMod™ SBC is an electronics card housed within the BlueMod™ casing.

SIG – Special Interest Group. The Bluetooth SIG oversees development of Bluetooth™ wireless technology.

Stack – TCP/IP software is often described as a “stack”, referring to the various levels packaged together (c.f. OSI levels).

USB – Universal Serial Bus, a plug-and-play interface between computers and other devices.