

MUH-4100 / MiTAC

MUH-4100

User's Guide

November 2006



TRADEMARKS

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NOTE

The information in this manual is subject to change without notice.



Regulatory Information

NOTE: Marking labels located on the exterior of your device indicate the regulations that your model complies with.

Federal Communication Commission Interference Statement

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 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.

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 Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device may only be operated indoors. Operation outdoors is in violation of 47 U.S.C. 301 and could subject the operator to serious legal penalties.

NOTE:

Operation under the provisions of this section is limited to UWB transmitters employed solely for indoor operation.

(1) Indoor UWB devices, by the nature of their design, must be capable of operation only indoors. The necessity to operate with a fixed indoor infrastructure, e.g., a transmitter that must be connected to the AC power lines, may be considered sufficient to demonstrate this.

(2) The emissions from equipment operated under this section shall not be intentionally directed outside of the building in which the equipment is located, such as through a window or a doorway, to perform an outside function, such as the detection of persons about to enter a building.

(3) The use of outdoor mounted antennas, e.g., antennas mounted on the outside of a building or on a telephone pole, or any other outdoors infrastructure is prohibited.

Per FCC regulations, an intentional radiator may only transmit when communicating with an associated receiver. This continuous transmit mode is for evaluation purposes only.

FCC 47 CFR Section 15.517 (a)(5)

A communications system shall transmit only when the intentional radiator is sending information to an associated receiver.

In end-user applications, this is handled through handshaking, acknowledgements, negotiation of the communication channel, and other mechanisms that ensure the transmitter is active when communicating with a receiver.

Safety Information

Only qualified persons are authorized to carry out maintenance on this device.

- Read this User Manual carefully and follow the correct procedure when setting up the device.
- Do not open or attempt to disassemble or modify the device. Never insert any metallic object into the device to avoid any risk of electric shock, fire, short-circuiting or dangerous emissions. The device contains no user-serviceable parts. If it appears to be malfunctioning, have it inspected by a qualified technical support representative.
- Never expose your device to rain, or use it near water, or in damp or wet conditions. Never place objects containing liquids on your device, as they may spill into its openings. Doing so increases the risk of electrical shock, short-circuiting, fire or personal injury.
- Do not expose the device beyond 50 °C degree. Doing so may damage the device or disfigure its casing. Avoid placing your device near a source of heat or exposing it to sunlight (even through a window). Inversely, placing your device in an environment that is too cold may damage the unit.
- Always unplug the device from the electrical outlet if there is a risk of lightning or if it will be unused for an extended period of time. Otherwise, there is an increased risk of electrical shock, short-circuiting or fire.
- Use only the power supply shipped with the device.
- Do not use the device near other electrical appliances such as televisions, radios or speakers. Doing so may cause interference which will adversely affect the operation of the other products.
- Do not place the device near sources of magnetic interference, such as computer displays, televisions or speakers. Magnetic interference can affect the operation and stability of your device.
- Do not place heavy objects on top of the device or use excessive force on it.
- Protect your device from excessive exposure to dust during use or storage. Dust can build up inside the device, increasing the risk of damage or malfunction.

- Never use benzene, paint thinners, detergent or other chemical products to clean the outside of the device. Such products will disfigure and discolor the casing. Instead, use a soft dry cloth to wipe the device.

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Chapter 1 Introduction

Your MUH-4100 Wireless USB Hub allows you to connect with MUD-100 Wireless USB dongle. It can allow you to set up an ad hoc, wireless network instantly, extending USB range without the hassle of setting up a network infrastructure; thereby providing a right balance between functionality and design. It allows remote content browsing, sharing, control, multi-channel streaming, hotsync, printing, fast copy and very fast exchange of information between PC and USB 2.0/1.1 PC peripherals. The types of content supported are data, applications, pictures, and compressed video and audio files (asynchronous transfer).

Examples of USB PC peripherals (device side) types that can be used with your USB cable replacement kit includes:

- Wireless hub – multi-port wireless hub for legacy USB 2.0 / USB 1.1 devices
- Combination of wireless hub and devices – wireless hub with: WLAN access point/router/gateway, DSL modem/router, all-in-one memory card reader, desktop DVD player, desktop hard disk drive
- Wireless cradle – for digital still camera, cellular phones, smartphones, PDA, MP3 players (such as iPod), camcorder, wireless (iPod) speakers. laptop/notebook docking stations/port replicator
- Wireless embedded PC peripheral devices – integrated into different products such as wireless digital still camera, wireless portable hard disk drives, wireless camcorder, wireless printer, wireless scanner, wireless DVD player

1.1 Unpacking

After unpacking the shipping carton, you should find these standard items:



Wireless Hub



Power Adapter



Utility Disc



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1.2 Specifications

| NOTE: Specifications are subject to change without notice.

Chipset

Wisair 531 MAC/BB chip + Wisair 502 RF chip

Operational Range

Up to 10 to 20 meters (30 to 60 feet)

PHY Data Rate

Up to 480 Mbps
(automatic or manually selected)

Frequency Range

3.1 ~ 4.8 GHz supporting 3 sub-bands,
528 MHz each

RF Modulation Type

Multiband OFDM

USB Version

USB 2.0/1.1

USB Power Drive

Powers up to 4 external USB devices
(500 mA at 5 VDC each)

USB Association Type

Host GUI-based association

Operating System

Microsoft® Windows XP SP2

Coexistence

- Standard WiMedia devices
- Co-located additional USB dongles or UWB systems (FFI, TFI schemes)

Maximum Output Power

-35.12 dBm

Maximum Power Consumption

- For Wireless Hub –
3 W (600 mA at 5 VDC from external power supply)

Dimension (WxD)

- For Wireless Hub –
38x92 mm

Environment

- Operating temperature:
5 °C (41 °F) to 50 °C (122 °F)
- Operating relative humidity:
10 % to 95 % non-condensing

Compliance

- WiMedia PHY spec. Rev. 1.0
- FCC CFR 47 Part 15 subpart F; UWB intentional radiation






1.3 Components View



Wireless Hub Components



Ref	Component	Description
①	LED Indicators	Shows the current wireless hub status.
	Traffic	Blinks to indicate Rx/Tx traffic on each of the four USB ports.
	USB Dongle Association 	Glows to indicate when user on the host side approves the connection request from the wireless hub with your computer.
	Power 	Glows green to indicate when 5 V DC is supplied from the power supply.
②	USB Ports 	Each of the four ports connects a legacy USB device.
③	Power Connector DC IN	Connects the AC adapter

Chapter 2 Setting Up

Minimum system requirements:

- One available high speed USB 2.0 port
- Windows XP with SP2
- 3 MB of free disk space

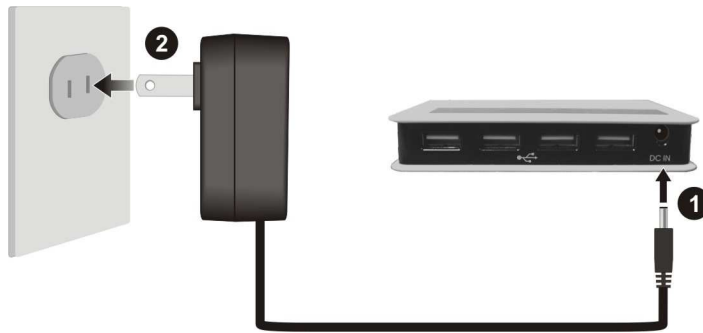
Step 1. Install the Software Application and Driver

NOTE: Do not attach the USB dongle to your computer and make sure that the wireless hub is not connected to power at this point.

NOTE: Before you install WUH-4100 Wireless USB Dongle, please kindly make sure that your Wireless USB Dongle has already installed properly

Step 2. Connect the Wireless Hub

1. Make sure that the wireless hub is not connected to power.
2. Place the wireless hub within 0.5 meter distance from the USB dongle and make sure the two devices have a clear line-of-sight.
3. Plug one end of the AC adapter to the power connector (**DC IN**) on the USB hub (❶) and the other end to an electrical outlet (❷). The power indicator (⏻) should glow green.



4. Wait for a few seconds for the “**Connect**” screen to display.



5. Click “**Connect**” to approve the association of the wireless hub with your computer.

- The system will automatically detect and begin installation of the connected device using the **“Found New Hardware Wizard.”** Select **“No, not this time”** and click **“Next >.”**



- Select **“Install the software automatically (Recommended)”** and click **“Next >”** to install the wireless hub driver. The **“Hardware Installation”** screen is displayed.



8. Click “Continue Anyway” and the “Completing the Found New Hardware Wizard” screen is displayed.

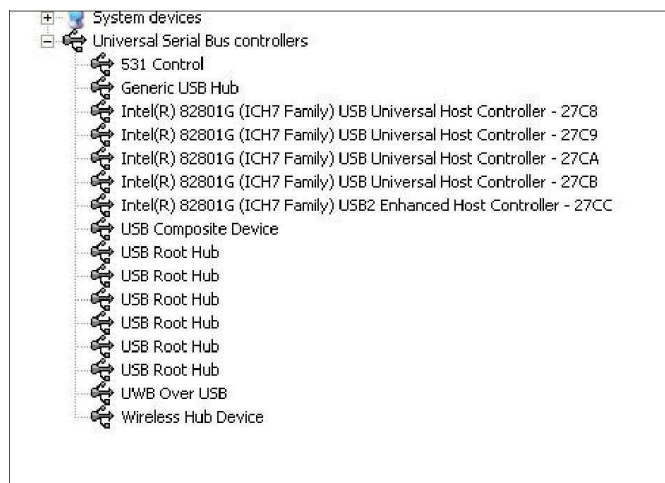


1. Click “Finish” to complete the driver installation.



2. Disconnect the USB dongle from your computer’s USB port and disconnect power off the wireless hub.
3. Restart your computer to ensure a successful USB driver installation.




4. Connect the USB dongle to your computer's USB port and connect the wireless hub to power.
5. Verify a successful driver installation by running the Window's "**Device Manager**" utility (e.g., **Start > Run > devmgmt.msc**) and confirm that it recognizes the drivers and the following names: "**531 Control**," "**USB Composite Device**," "**UWB Over USB**," and "**Wireless Hub Device**" should be displayed as shown in the following screen.



Chapter 3 Using the USB Dongle and Wireless Hub

After successfully installing the drivers for the USB dongle and wireless hub, you can start communicating with other USB devices wirelessly. The Connection Manager icon appears on your Windows system tray. The following table shows the icon color and the corresponding activity status:

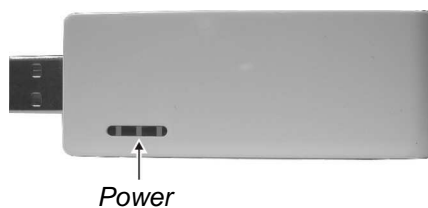
Please Note: In compliance with 47 CFR 15.519(a)(1) the wireless dongle and /or hub will cease transmission within 10 seconds unless it receives an acknowledgement from the other that its transmission is being received. An acknowledgment of reception must continue to be received by the wireless dongle and / or hub at least every 10 seconds or the UWB device will cease transmitting until it receives acknowledgement. This may cause some additional delay in operation when first associating the dongle and hub if hub is out of range of dongle or power is applied to hub after 10 seconds of dongle connection.

Icon Color	Status
	Enabled (yellow icon) The USB dongle is connected to the computer and enabled but no wireless connection is detected.
	Connected (green icon) The USB dongle is connected to the computer, is enabled, and is associated with the wireless hub.
	Disabled (gray icon) The USB dongle is not connected to the computer or, is connected to the computer but is disabled.

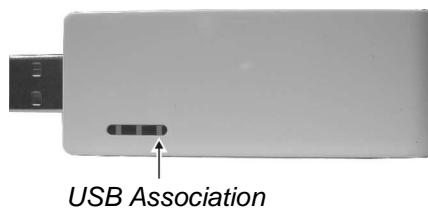
3.1 Making the Connection

To start using the USB dongle and wireless hub:

1. Connect the USB dongle to the USB port of your computer and the power LED lights up.



The USB dongle which has a unique host ID pre-configured (a product ID that resembles the MAC address format) will start scanning the airwaves for first available channel. After a few seconds when the computer to USB association is formed, the USB association LED lights up.



2. Connect the wireless hub to power. The wireless hub will start locating a wireless host by scanning for available channels.
3. The wireless hub will start to request association with your computer via the USB dongle and the association authorization screen is displayed.



Approve the association by clicking “**Connect**” and the wireless hub will switch to the Connected state.

NOTE:

- The association authorization screen is only displayed the first time the wireless hub is requesting association with your computer. The next time you use the same wireless hub it will be automatically associated.
- The wireless hub’s product ID is displayed in order to identify which wireless hub is requesting the connection. This is important when more than one active wireless hub is within range. To connect to a different wireless hub, click “**Ignore**” and wait for a few seconds for another wireless hub to request the connection.

4. Connect USB device(s) to the wireless hub and bi-directional data transfer can begin between your computer and devices connected to the wireless hub.

3.2 Configuration Properties

The USB dongle “**Properties**” screen provides direct access to the hardware configurations. To open the “**Properties**” screen, right-click on the Connection Manager icon and click “**Properties.**”

The following table shows the properties that can be configured or viewed:

Property	Description
Connection Status	
Operating State	Allows you to select the operating state: <i>Disabled</i> , <i>Disconnected</i> , or <i>Connected</i> .
Signal Strength (read only)	Shows the signal strength between 0 ~ 100 %.
Signal Quality (read only)	Shows the signal quality between 0 ~ 100 %.
Transmit Rate Select	Allows you to set the speed of transmission: <i>Auto</i> , <i>480</i> , <i>400</i> , <i>320</i> , <i>200</i> , <i>160</i> , <i>106.7</i> , <i>80</i> , or <i>53.3 Mbps</i> .
Tx Rate (read only)	Shows the Tx rate <i>480</i> , <i>400</i> , <i>320</i> , <i>200</i> , <i>160</i> , <i>106.7</i> , <i>80</i> , or <i>53.3 Mbps</i> .
Rx Rate (read only)	Shows the Rx rate <i>480</i> , <i>400</i> , <i>320</i> , <i>200</i> , <i>160</i> , <i>106.7</i> , <i>80</i> , or <i>53.3 Mbps</i> .
Channel Select	Allows you to select the channel: <i>A</i> , <i>B</i> , <i>C</i> , <i>D</i> , <i>E</i> , or <i>Auto Detect</i> .
Current Channel (read only)	Shows the current channel <i>A</i> , <i>B</i> , <i>C</i> , <i>D</i> , or <i>E</i> .
USB Dongle Status	
Reset/Disconnect	Allows you to reset (<i>Reset</i>) the connection or disassociate (<i>Disconnect</i>) the wireless hub from host (computer via the USB dongle) and restart scanning.
Disable/Enable	Allows you to turn on (<i>Enable</i>) or turn off (<i>Disable</i>) the USB dongle to save PHY power.
Packets Sent / Packets Received (read only)	Shows the amount of packets sent from the USB dongle as well as the packets received by the wireless hub.

Property	Description
USB Dongle Details	
Description (read only)	Shows the brand name of the USB dongle.
Product ID (read only)	Shows the unique identification number of the USB dongle.
Firmware Version (read only)	Shows the host (computer) firmware version installed.
Driver Version (read only)	Shows the host (computer) driver version installed.

Limited Warranty

- In no event shall the liability of MiTAC International Corp. (MiTAC) exceed the price paid for the product from direct, indirect, special, incidental, or consequential software, or its documentation.
- MiTAC offers no refunds for its products.
- MiTAC makes no warranty or representation, expressed, implied, or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose.
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