

User's ▶▶▶▶▶▶▶▶ manual

Signal Booster + 11g AP KIT

HSB2 –AP
Wireless Signal Booster (HSB2)
Plus
Wireless G AP (HWBA54G)



Website: www.hawkingtech.com

E-Mail: techsupport@hawkingtech.com

© Copyright 2003 Hawking Technologies, Inc. All rights reserved.

CE MARK WARNING

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

LIMITED WARRANTY

Hawking Technology guarantees that every HWBA54G Wireless-G AP / Bridge is free from physical defects in material and workmanship under normal use for two (2) years from the date of purchase. If the product proves defective during this two-year warranty period, call Hawking Customer Service in order to obtain a Return Authorization number. Warranty is for repair or replacement only. Hawking Technology does not issue any refunds. **BE SURE TO HAVE YOUR PROOF OF PURCHASE. RETURN REQUESTS CAN NOT BE PROCESSED WITHOUT PROOF OF PURCHASE.** When returning a product, mark the Return Authorization number clearly on the outside of the package and include your original proof of purchase.

IN NO EVENT SHALL HAWKING TECHNOLOGY'S LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE OR ITS DOCUMENTATION. Hawking Technology 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. Hawking Technology reserves the right to revise or update its products, software, or documentation without obligation to notify any individual or entity. Please direct all inquiries to: techsupport@hawkingtech.com

TRADEMARKS AND COPYRIGHT

Windows 95/98/ME and Windows NT/2000/XP are registered trademarks of Microsoft Corp. All other brands and product names are trademarks of their respective companies.

No part of this publication may be reproduced in any form or by any means or used to make any derivative (such as translation, transformation or adaptation) without the express written consent of the manufacturer as stipulated by the United States Copyright Act of 1976.

FCC WARNING

This equipment has been tested and found to comply with the regulations 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

Table of Contents

Section 1 – HWBA54G Wireless 11g AP

<u>Chapter 1 Introduction.....</u>	<u>1</u>
1.1 Package Contents.....	2
1.2 Features	2
1.3 Specifications	2
1.4 Physical Description	3
<u>Chapter 2 Wireless LAN Access Point Connection</u>	<u>5</u>
<u>Chapter 3 Wireless LAN Access Point Configuration.....</u>	<u>6</u>
3.1 Getting Started.....	6
3.2 Configuring the Access Point	11
3.2.1 Client Mode configuration.....	12
3.2.2 AP Mode configuration.....	15
3.2.3 P2P Mode configuration	20
3.2.4 PMP Mode configuration	21
3.2.5 WEP Setting.....	23
3.2.6 WPA Setting	25
3.2.7 Advanced Setting.....	26
3.2.8 Access Filter	27
3.2.9 Status Setup	29
3.2.10 Admin Setup	30
3.2.11 LAN Setup.....	32
<u>Chapter 4 Troubleshooting</u>	<u>33</u>

Section 2 – HSB2 Wireless Signal Booster

1. Introduction	35
2. Installation ProcEDURE	38
3. Product Specifications	40
4. Networking terms	41

Chapter 1 Introduction

Thank you for purchasing the Hawking Technologies Hi-Speed 54M Wireless-G Access Point and Ethernet Bridge. The HWBA54G is compliant with the IEEE 802.11g/b wireless standards.

The **Hi-Speed 54G Wireless AP/Bridge** utilizes the highest wireless security standards (WPA) to protect your network from outside intruders, including WPA-PSK, WEP, ESSID and MAC address filter functions. With ESSID authentication, WPA-PSK, 64-/128-bit WEP encryption and MAC address filtering, unauthorized outside access into your wireless network is prevented.

The unique multi-function feature of the HWBA54G puts three solutions into one compact unit, saving you time and money. You may setup your HWBA54G as a Wireless Access Point to provide wireless access to any wired network or you may choose to set up your device as an Ethernet Bridge to make any Ethernet-ready device wireless. The Hi-Speed 54G Wireless AP/Bridge can also function as a wireless repeater to extend your wireless network range.

The HWBA54G's dipole antenna is detachable by connecting to a RP-SMA connector.

1.1 Package Contents

The HWBA54G includes the following items:

- One HWBA54G Access Point/Bridge
- One Power Adapter
- One Quick Installation Guide
- One Setup CD
- One Dipole Antenna

1.2 Features

- Complies with the IEEE 802.11g/b wireless standards.
- Multiple Functions: Access Point, Ethernet Bridge, Workgroup Bridge.
- High speed data rates: 54, 48, 36, 24, 18, 12, 11, 5.5, 2 and 1Mbps network speeds.
- Seamlessly integrates wireless and wired Ethernet LAN networks.
- Auto rate fallback in case of obstacles or interferences.
- Provide 64/128-bit WEP Data Encryption security and the latest WPA Security for protected wireless data transmissions.
- Supports Web-based configuration.

1.3 Specifications

- Standards: IEEE 802.11g/b (Wireless), IEEE 802.3 (Wired)
- Data Rate: 54/48/36/24/18/12/11/5.5/2/1Mbps auto fallback
- Security: 64/128-bit WEP Data Encryption, WPA
- Frequency Band: 2.400~2.4835GHz (Industrial Scientific Medical Band)
- Antenna: External detachable dipole antenna (with RP-SMA

connector)

- Connectors: 10/100Mbps RJ-45 x 1
- Power: 12VDC, 0.5A
- Transmit Power: 16dBm (Typical)
- LEDs: Power, LAN Link/Activity, Wireless Activity
- Dimension: 30(H) x 127(W) x 87(D) mm
- Temperature:
 - ◆ Operating: 32~131°F (0~55°C)
 - ◆ Storage: -4~158°F(-20~70°C)
- Humidity: 10-90% (Noncondensing)

1.4 Physical Description

Front Panel

Located on the HWBA54G's front panel are LED status lights that inform you of the unit's current status. Below is an explanation of each LED.

Overview

PWR, LAN, and WLAN LEDs

- A solid light on the PWR LED indicates that the unit is on and operational.
- A solid light on the LAN LED indicates a successful connection between the AP/Bridge and a wired Ethernet network.
- A blinking light on the WLAN LED indicates a successful and active data transfer connection between the AP/Bridge and a wireless network.

Antenna

- Adjustable for optimal reception.
- Removeable for upgrade to Hawking Hi-Gain Antenna line products.

Power Port

- Connects to supplied AC Adapter

"Reset" Button

- Pressing the reset button with a pencil tip (for less than 5 seconds) will reboot the device, keeping your original configurations intact.
- If problems continue to persist or you have forgotten your password, pressing the reset button for more than 5 seconds will reset the device back to its factory default settings.

10/100M Ethernet Port

- Connects to local network devices such as a DSL/Cable Modem



Front LED Panel

LED	Color	Status	Description
Power	Green	Lit	Power is supplied.
		Off	No Power.
Wireless Activity	Green	Flash	Antenna is transmitting or receiving data.
		Off	Antenna is not transmitting or receiving data.
LAN Link/Activity	Green	On	A valid link is established.
		Flash	It is transmitting or receiving data.
		Off	No link is established.

Back Panel Connectors

1 Antenna Connector

This round connection has a standard Reverse SMA connector where any Reverse SMA-compatible antenna can be connected to the Access Point.

2 DC Adapter Port

Insert the power jack of the power adapter into this port.

3 LAN Port

The Access Point's LAN port is where you connect to your network devices.

4 Reset

The Reset button allows you to do one of two things.

- 1) If problems occur with your Access Point, pressing the reset button with a pencil tip (for less than 5 seconds) will reboot the device,

keeping your original configurations intact.

- 2) If problems continue to persist or you have forgotten your password, pressing the reset button for more than 5 seconds will reset the device back to its factory default settings.

(Warning: your original configurations will be replaced with the factory default settings).

Chapter 2 Wireless LAN Access Point Connection

1. Choosing a location for the access point.

Usually, the best place for the access point is at the center of your wireless network, with line of straight to all your wireless clients.

2. Adjust the antenna.

Usually the higher the antenna is placed, the better your performance will be.

3. Connect the access point to your local area network (LAN).

Connect an **Ethernet cable** to the **Ethernet** port of the access point, and the other end to a hub or switch. (If you are using a straight Ethernet cable, make sure the II-X button is switched right; the other way for Cross Ethernet cable.)

4. Power on the device.

Connect the supplied AC power adapter to the access point's power port and the other end to a wall outlet. (Note: Use only the included power adapter for the Access Point. Using a different adapter may cause damage to the product.)

The Hardware Installation is now complete.

Please follow the steps below to configure the Access Point.

Chapter 3 Wireless LAN Access Point Configuration

3.1 Getting Started

This Access Point provides web-based configuration tools, allowing you to configure from wired or wireless stations. Follow the instructions below to configure the device.

From Wired Station

1. Make sure your wired station has the same subnet address as the access Point.

The default IP Address and Sub Mask of the access point are:

Default IP Address: 192.168.1.240

Default Subnet: 255.255.255.0

Configuring your PC to have the same subnet as the access point.

1a) Windows 95/98/Me

1. Click the *Start* button and select *Settings*, then click *Control Panel*. The *Control Panel* window will appear.
2. Double-click *Network* icon. The *Network* window will appear.
3. Check your list of *Network Components*. If TCP/IP is not installed, click the *Add* button to install it now. If TCP/IP is installed, go to **step 6**.
4. In the *Network Component Type* dialog box, select *Protocol* and click *Add* button.
5. In the *Select Network Protocol* dialog box, select *Microsoft and TCP/IP* and then click the *OK* button to start installing the TCP/IP protocol. You may need your Windows CD to complete the installation.
6. After installing TCP/IP, go back to the *Network* dialog box. Select *TCP/IP* from

the list of *Network Components* and then click the *Properties* button.

7. Check each of the tabs and verify the following settings:

Bindings: Check *Client for Microsoft Networks* and *File and printer sharing for Microsoft Networks*.

Gateway: All fields are blank.

DNS Configuration: Select *Disable DNS*.

WINS Configuration: Select *Disable WINS Resolution*.

IP Address: Select *Specify an IP Address*. Specify the IP Address and Subnet Mask as following example.

- 1 IP Address: 192.168.1.3 (any IP address within 192.168.2.2~192.168.2.254 is available, **do not setup 192.168.2.1**)
- 2 Subnet Mask: 255.255.255.0

8. Reboot the PC. Your PC will now have the IP Address you specified.

1b) Windows 2000

1. Click the *Start* button and select *Settings*, then click *Control Panel*. The *Control Panel* window will appear.
2. Double-click *Network and Dial-up Connections* icon. In the *Network and Dial-up Connection* window, double-click *Local Area Connection* icon. The *Local Area Connection* window will appear.
3. In the *Local Area Connection* window, click the *Properties* button.
4. Check your list of *Network Components*. You should see *Internet Protocol [TCP/IP]* on your list. Select it and click the *Properties* button.
5. In the *Internet Protocol (TCP/IP) Properties* window, select *Use the following IP address* and specify the IP Address and Subnet mask as following.

IP Address: 192.168.1.3 (any IP address within 192.168.1.2~192.168.1.239 is available, **do not setup 192.168.1.1 or 192.168.1.240**)

Subnet Mask: 255.255.255.0
6. Click *OK* to confirm the setting. Your PC will now have the IP Address you specified.

1c) Windows NT

1. Click the *Start* button and select *Settings*, then click *Control Panel*. The *Control Panel* window will appear.
2. Double-click *Network* icon. The *Network* window will appear. Select the *Protocol* tab from the *Network* window.
3. Check if the *TCP/IP Protocol* is on your list of *Network Protocols*. If *TCP/IP* is not installed, click the *Add* button to install it now. If *TCP/IP* is installed, go to **step 5**.
4. In the *Select Network Protocol* window, select the *TCP/IP Protocol* and click the *Ok* button to start installing the *TCP/IP protocol*. You may need your Windows CD to complete the installation.
5. After you install *TCP/IP*, go back to the *Network* window. Select *TCP/IP* from the list of *Network Protocols* and then click the *Properties* button.
6. Check each of the tabs and verify the following settings:

IP Address: Select *Specify an IP address*. Specify the IP Address and Subnet Mask as following example.

3 IP Address: 192.168.1.3 (any IP address within 192.168.1.2~192.168.1.254 is available, **do not setup 192.168.1.1, or 192.168.1.240**)

4 Subnet Mask: 255.255.255.0

- **DNS:** Let all fields are blank.
- **WINS:** Let all fields are blank.
- **Routing:** Let all fields are blank.

7. Click *OK* to confirm the setting. Your PC will now have the IP Address you specified.

2. Open the web browser, enter the local port IP address of the access point (default at **192.168.1.240**), and click “**Go**” to access the login page.
3. A screen will pop up and prompt for user name and password entry. The default user name and password is as follows:
User Name: Admin
Password: 1234
Type in the default user name and password, then press the **OK** button.



4. You can now begin configuring the Access Point.

Accessing the Configuration Menu From a Wireless Station

1. Make sure your wireless station has the same subnet as the access point. Please refer to **Step 1** above for configuring the IP Address and Sub Mask of the wireless station.
2. Connect to the Access Point.
The Access Point's ESSID is "**HawkingAP**" and the WEP Encryption function is disabled. Make sure your wireless station is using the same ESSID as the Access Point and associate your wireless station to the Access Point.
3. Enter **192.168.1.240** from the web browser to access the Access Point's configuration tool.
4. Enter the user name and password and then press **OK** button.

3.2 Configuring the Access Point

The HWBA54G supports 3 modes of use: Client Bridge, Access Point, and Bridge modes. “**Client Bridge Mode**” is used to allow a network device with only a wired Ethernet function to have wireless LAN communications capability. It provides both Ad Hoc and Infrastructure modes for the “**Station Mode**”. “**Station-Ad Hoc Mode**”, allows the network device to join a wireless LAN with peer-to-peer communication. With “**Station-Infrastructure Mode**”, it can let the network device join a wireless LAN through an access point. “**AP Mode**” provides pure access point function. This is the simplest way to create a wireless LAN network. “**AP Bridge Mode**” provides the ability to bridge more than 2 wired Ethernet networks together by wireless LAN. You can use two access points with “**P2P Mode**” to bridge two wired Ethernet networks together. If you want to bridge more than two wired Ethernet networks together, you have to use enough access points with “**PMP Mode**”. An access point with “**P2P Mode**” or “**PMP Mode**” can only be used to bridge wired Ethernet networks together. It cannot accept connections from other wireless stations at the same time.

The screenshot displays the configuration web interface for the Hawking HWBA54G. The top navigation bar includes links for Mode, Status, Admin, and LAN. The main heading is "Access Point". On the left, there is a product image of the HWBA54G Wireless Access Point Station. Below the image, the "Mode Selection" section lists "Access Point" and "Bridge Mode", with "Access Point" being the selected mode. The "Current Mode" is also listed as "Access Point". The main content area, titled "Access Point Mode", contains a diagram illustrating the network setup. The diagram shows the HWBA54G acting as a central hub, connecting to an Internet service, a Cable/DSL Modem, and a Broadband Router w/ Switch. It also shows wireless connections to various devices: Desktop w/ Wireless PCI Card, Laptop w/ Wireless PC Card, and a Wireless Ethernet Bridge. Below the diagram, a text box explains that this mode allows connecting the wired (or Ethernet) portion to a router to create a Wireless LAN network, which is the default mode selection. A "Setup" button is located at the bottom of the page.

HAWKING TECHNOLOGY

Mode | Status | Admin | LAN

Access Point

HWBA54G
Wireless Access Point Station

Mode Selection:

- Access Point
- Bridge Mode

Current Mode:
Access Point

Access Point Mode

Internet

Cable/DSL Modem

Broadband Router w/ Switch

HWBA54G
Wireless-G Access Point
Turn Any Wired Network Wireless

Desktop w/ Wireless PCI Card

Laptop w/ Wireless PC Card

Wireless Ethernet Bridge

This mode allows you to connect the Wired (or Ethernet) portion to a router and create a Wireless LAN network. This is the default mode selection.

Setup

3.2.1 Client Bridge Mode configuration

This configuration is used to let a network device with only wired Ethernet functionality to have wireless LAN communication capability. It provides both Ad Hoc and Infrastructure modes for the “Client Mode”. With “Ad Hoc mode”, it can let your network device join a wireless LAN with peer-to-peer communication. With “Infrastructure mode”, it can let your network device join a wireless LAN through an access point.

HAWKING TECHNOLOGY

► Mode | ► Status | ► Admin | ► LAN

Access Point

HWBA54G
5-in-1 Wireless Access Point Station

Mode Selection:

- [Access Point](#)
- [Bridge Mode](#)

Current Mode:
Client Wireless Bridge

Station Mode ☐ 802.11b ☒ 802.11g

MAC Cloning Mode ☐ Disabled ☐ Enabled

SSID

Operation Mode ☐ Ad-Hoc ☒ Infrastructure

Channel

Security ☒ Disable ☐ WEP ☐ WPA

Preamble Type ☐ Short ☒ Long

Transmit Rate

Parameter	Description
Station Mode	802.11b mode: It allows to select the transmit rate up to 11Mbps 802.11g mode: It allows to select the transmit rate up to 54Mbps

MAC Cloning Mode	Disabled: It will use it's own MAC address to access the wireless LAN. Enabled: It will use PC's MAC address to access the wireless LAN.
SSID	The SSID (up to 32 printable ASCII characters) is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs. Please make sure that the SSID of all stations in the same WLAN network are the same. The default SSID is “default”.
Site Survey	Click “Site Survey” button, then a “Wireless Site Survey Table” will pop up. It will list all available access points near by. You can select one access point in the table and it will join wireless LAN through this access point.
Operation Mode	AD-Hoc: It can let your network device join a wireless LAN with peer-to-peer communication. Infrastructure: It can let your network device join a wireless LAN through an access point.
Channel	Select the appropriate channel from the list provided to correspond with your network settings. Channels differ from country to country. Channel 1-11 (North America) Channel 1-14 (Japan) Channel 1-13 (Europe) There are 14 channels available.
Security	Disable: Disable the security function. WEP: WEP is an authentication algorithm, which protects authorized Wireless LAN users against eavesdropping. The Authentication type and WEP key of wireless stations must be the same with the Access Point. This Access Point supports 64/128-bit WEP Encryption function. With this function, your data will be transmitted over the wireless network securely. # You can refer to the detail setting from chapter 3.2.6. WPA: You can use a pre-shared key to authenticate wireless stations and encrypt data during communication. When you enabled WPA mode, you can not use WEP encryption. # You can refer to the detail setting from chapter 3.2.7.
Preamble Type	Preamble type defines the length of preamble block in the frames during the wireless communication. Auto select: It will auto switch to the more suitable method.

Short: It is suitable for high traffic wireless network

Long: It can provide more reliable communication

Transmit Rate

When you enable the station mode selection to “802.11b” and it allows you to select the speed of 1-11Mbps. When you enable the station mode selection to “802.11g” and it allows you to select the speed of 1-54Mbps.

Click **Apply** button at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the Access Point.

Site Survey table:

When this access point is in “Client-Infrastructure mode”, it should associate with an access point and connect to your wireless LAN through the associated access point. “Wireless Site Survey” searches for all available access points near by. You can select one access point listed in this table.

	SSID	Security	Channel	Signal %	Network Type
☐	Hawking	WEP Enable	11	97%	Infrastructure

3.2.2 AP Mode configuration

This Access Point supports AP modes. “Access Point Mode” provides pure access point function. The simplest way to build up a wireless LAN is to use “AP Mode”. Access Point Mode provides wireless access to a wired network.

The screenshot shows the Hawking Technology web interface for configuring an Access Point. The top navigation bar includes links for Mode, Status, Admin, and LAN. The main heading is 'Access Point'. On the left, there is a sidebar with a product image of the HWBA54G 5-in-1 Wireless Access Point Station. Below the image, it lists 'Mode Selection' with options for 'Access Point' (selected) and 'Bridge Mode'. It also shows 'Current Mode: Access Point'. The main configuration area includes: 'MODE' with radio buttons for 802.11b, 802.11g (selected), and Mixed; 'SSID' with a text box containing 'HWBA54G Hawking'; 'Broadcast SSID' with radio buttons for Disable and Enable (selected); 'Channel' with a dropdown menu set to 'Channel 5'; 'Security' with radio buttons for Disable (selected), WEP, and WPA, and a 'Setup' button; 'Advanced Settings' with a 'Setup' button; 'Access Filter' with a 'Setup' button; and 'Apply' and 'Cancel' buttons at the bottom.

Parameter	Description
Mode	802.11b mode: It allows to select the transmit rate up to 11Mbps 802.11g mode: It allows to select the transmit rate up to 54Mbps Mixed mode: It provides best performance for 11g transmission when you enable the AP mode selection to “Mixed mode”.
SSID	The SSID (up to 32 printable ASCII characters) is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs. Please make sure that the SSID of all stations in the same WLAN network are the same. The default SSID is “ default ”.

Broadcast SSID

It will respond to Broadcast SSID requests. If you enable this function, every wireless station located within the coverage of this access point can discover this access point easily. If you are building a public wireless network, enabling this feature is recommended. Disabling "Response to Broadcast ESSID requests" can provide better security.

Channel

Select the appropriate channel from the list provided to correspond with your network settings. Channels differ from country to country.

Channel 1-11 (North America)

Channel 1-14 (Japan)

Channel 1-13 (Europe)

There are 14 channels available.

Security

Disable: Disable the security function.

WEP: WEP is an authentication algorithm, which protects authorized Wireless LAN users against eavesdropping. The Authentication type and WEP key of wireless stations must be the same with the Access Point.

This Access Point supports 64/128-bit WEP Encryption function. With this function, your data will be transmitted over the wireless network securely.

You can refer to the detail setting from chapter 3.2.6.

WPA: You can use a pre-shared key to authenticate wireless stations and encrypt data during communication. When you enabled WPA mode, you can not use WEP encryption.

You can refer to the detail setting from chapter 3.2.7.

Advance setting

It provides more powerful features for you to configuring.

You can refer to the detail setting from chapter 3.2.8.

Access Filter

This Access Point allows you to provide a Filter List of MAC addresses that are allowed associating with this AP.

You can refer to the detail setting from chapter 3.2.9.

Click **Apply** button at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the Access Point.

3.2.3 P2P Mode configuration

This function provides to bridge more than 2 wired Ethernet networks together by wireless LAN. You can use two access points with “P2P mode” to bridge two wired Ethernet networks together.



Mode | Status | Admin | LAN

Access Point



HWBA54G
5-in-1 Wireless
Access Point Station

Mode Selection:

- Access Point
- Bridge Mode

Current Mode:
Workgroup Bridge (P2P)

NOTE Please note that all P2P settings are duplicated from Access Point settings. If you need to make changes please do so below. If these changes are applied, they will also be duplicated when you choose to activate the Access Point.

AP MAC Address

MODE ☐ 802.11b ☒ 802.11g ☐ Mixed

Channel

Security ☒ Disable ☐ WEP

Advanced Settings

Parameter	Description
AP MAC Address	You have to enter the MAC addresses of other access points that join the bridging work.
Mode	802.11b mode: It allows to select the transmit rate up to 11Mbps 802.11g mode: It allows to select the transmit rate up to 54Mbps Mixed mode: It provides best performance for 11g transmission when you enable the AP mode selection to “Mixed mode”.
Channel	Select the appropriate channel from the list provided to correspond with your network settings. Channels differ from country to country. Channel 1-11 (North America) Channel 1-14 (Japan) Channel 1-13 (Europe)

Security

There are 14 channels available.

Disable: Disable the security function.

WEP: WEP is an authentication algorithm, which protects authorized Wireless LAN users against eavesdropping. The Authentication type and WEP key of wireless stations must be the same with the Access Point. This Access Point supports 64/128-bit WEP Encryption function. With this function, your data will be transmitted over the wireless network securely.

You can refer to the detail setting from chapter 3.2.6.

Advance setting

It provides more powerful features for you to configuring.

You can refer to the detail setting from chapter 3.2.8.

Click **Apply** button at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the Access Point.

3.2.4 PMP Mode Configuration

This function allows to bridge more than 2 wired Ethernet networks together by wireless LAN. You can use two access points with “P2P mode” to bridge two wired Ethernet networks together.

HAWKING TECHNOLOGY

Mode | Status | Admin | LAN

Access Point


HWBA54G
5-in-1 Wireless Access Point Station

Mode Selection:

- [Access Point](#)
- [Bridge Mode](#)

Current Mode:
Multi-Workgroup Bridge (PMP)

NOTE Please note that all PMP settings are duplicated from Access Point settings. If you need to make changes please do so below. If these changes are applied, they will also be duplicated when you choose to activate the Access Point.

AP1 MAC Address

AP2 MAC Address

AP3 MAC Address

AP4 MAC Address

AP5 MAC Address

AP6 MAC Address

MODE ☐ 802.11b ☒ 802.11g ☐ Mixed

Channel

Security ☒ Disable ☐ WEP

Advanced Settings

Parameter	Description
AP MAC Address	If you want to bridge more than one wired Ethernet networks together with wireless LAN, you have to enter the MAC addresses of other access points that join the bridging work.
Mode	802.11b mode: It allows to select the transmit rate up to 11Mbps 802.11g mode: It allows to select the transmit rate up to 54Mbps Mixed mode: It provides best performance for 11g transmission when you enable the AP mode selection to “Mixed mode”.
Channel	Select the appropriate channel from the list provided to correspond with your network settings. Channels differ from country to country. Channel 1-11 (North America)

Channel 1-14 (Japan)

Channel 1-13 (Europe)

There are 14 channels available.

Security

Disable: Disable the security function.

WEP: WEP is an authentication algorithm, which protects authorized Wireless LAN users against eavesdropping. The Authentication type and WEP key of wireless stations must be the same with the Access Point. This Access Point supports 64/128-bit WEP Encryption function. With this function, your data will be transmitted over the wireless network securely.

You can refer to the detail setting from chapter 3.2.6.

Advance setting

It provides more powerful features for you to configuring.

You can refer to the detail setting from chapter 3.2.8.

Click **Apply** button at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the Access Point.

3.2.5 WEP Setting

AP: WEP - Microsoft Internet Explorer

WEP

WEP Length ☒ WEP-64 ☐ WEP-128

Mode ☒ HEX ☐ ASCII

Passphrase

Key 1

Key 2

Key 3

Key 4

Default TX Key ☒ Key 1 ☐ Key 2 ☐ Key 3 ☐ Key 4

Parameter	Description
WEP Length	WEP-64: input 10-digit Hex values (in the “A-F”, “a-f” and “0-9” range) or 5-digit ASCII character as the encryption keys. WEP-128: input 26-digit Hex values (in the “A-F”, “a-f” and “0-9” range) or 13-digit ASCII characters as the encryption keys.
Mode	HEX: input Hex values (in the “A-F”, “a-f” and “0-9” range) ASCII: input alphanumeric format.
Passphrase	Enter passphrase and click “Generate”, then the access point will automatically generate WEP keys by the passphrase for you.
Key 1 - Key 4	To entry 10 Hex digits for 64 bit key, 26 Hex digits for 128 bit key.
Default TX Key	Select the WEP key used to encrypt data transmitted in the wireless network.

Click **Apply** button at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the Access Point.

3.2.6 WPA Setting

WPA

Authentication Method ☒ PSK (Pre-Shared keys)

Passphrase

Group Re-Key Time

Parameter	Description
Authentication Type	The Pre-shared key is used to authenticate and encrypt data transmitted in the wireless network.
Passphrase	To entry at least 8 characters pass phrase as the pre-shared keys.
Group Re-Key Time (second)	It will auto re-generate the Key after the default time (86400) has passed, or you can change the default time by yourself.

Click **Apply** button at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the Access Point.

3.2.7 Advanced Setting

AP: Advanced Settings - Microsoft Internet Explorer

Beacon Interval (msec, range: 20~1000, default: 100)

RTS Threshold (range: 256~2347, default: 2347)

DTIM Interval (range: 1~255, default: 2)

Protection Mode ☒ Disable ☐ Enable

Transmit Rate ▼

Preamble Type ☐ Short ☒ Long ☐ Auto

Parameter	Description
Beacon Interval (20-1000)	The period of time that this access point broadcast a beacon. Beacon is used to synchronize the wireless network.
RTS Threshold (256-2432)	When the packet size is smaller the RTS threshold, the access point will not use the RTS/CTS mechanism to send this packet.
DTIM Period (1-255)	This is the interval of the Delivery Traffic Indication Message (DTIM). A DTIM field is a countdown field informing stations of the next window for listening to broadcast and multicast messages. When the Access Point has buffered broadcast or multicast messages for associated stations, it sends the next DTIM with a DTIM Interval value. Stations for the Access Point hear the beacons and awaken to receive the broadcast and

Protection Mode	multicast messages.
Transmit Rate	It provides best performance for 11g transmission when you enable it. When you enable the station mode selection to “802.11b” and it allows you to select the speed of 1-11Mbps. When you enable the station mode selection to “802.11g” and it allows you to select the speed of 1-54Mbps.
Preamble Type	Preamble type defines the length of preamble block in the frames during the wireless communication. Auto select: It will auto switch to the more suitable method. Short: It is suitable for high traffic wireless network Long: It can provide more reliable communication

Click **Apply** button at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the Access Point.

3.2.8 Access Filter

The HWBA54G allows you to provide a Filter List of MAC addresses that are allowed/denied access associated with this AP.

AP: MAC Filter Settings - Microsoft Internet Explorer

MAC Filtering ☒ Enable ☐ Disable

Filter Mode ☒ Only **deny** PCs with MAC listed below to access this device
☐ Only **allow** PCs with MAC listed below to access this device

Filter List

1	00:00:00:00:00:00	17	00:00:00:00:00:00
2	00:00:00:00:00:00	18	00:00:00:00:00:00
3	00:00:00:00:00:00	19	00:00:00:00:00:00
4	00:00:00:00:00:00	20	00:00:00:00:00:00
5	00:00:00:00:00:00	21	00:00:00:00:00:00
6	00:00:00:00:00:00	22	00:00:00:00:00:00
7	00:00:00:00:00:00	23	00:00:00:00:00:00
8	00:00:00:00:00:00	24	00:00:00:00:00:00
9	00:00:00:00:00:00	25	00:00:00:00:00:00
10	00:00:00:00:00:00	26	00:00:00:00:00:00
11	00:00:00:00:00:00	27	00:00:00:00:00:00
12	00:00:00:00:00:00	28	00:00:00:00:00:00
13	00:00:00:00:00:00	29	00:00:00:00:00:00
14	00:00:00:00:00:00	30	00:00:00:00:00:00
15	00:00:00:00:00:00	31	00:00:00:00:00:00
16	00:00:00:00:00:00	32	00:00:00:00:00:00

Apply Close

Parameter	Description
MAC Filtering	You can enable or disable the MAC Filtering function.
Filter Mode	If you select “Only deny PCs with MAC listed below to access this device”, then all the PCs in the list will be denied to access and all other PCs will be allowed to access. If you select “Only allow PCs with MAC listed below to access this device”, then all PCs in the list will be allowed to access but all other PCs will be denied to access.
Filter List	Enter the MAC address of PC that will be managed by the MAC Filtering rule.

Click **Apply** button at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the Access Point.

3.2.9 Status Setup



Mode | Status | Admin | LAN

Access Point



HWBA54G
5-in-1 Wireless
Access Point Station

Mode Selection:

- Access Point
- Bridge Mode

Status

Ethernet (00 : 50 : FC : 8F : 99 : 99)

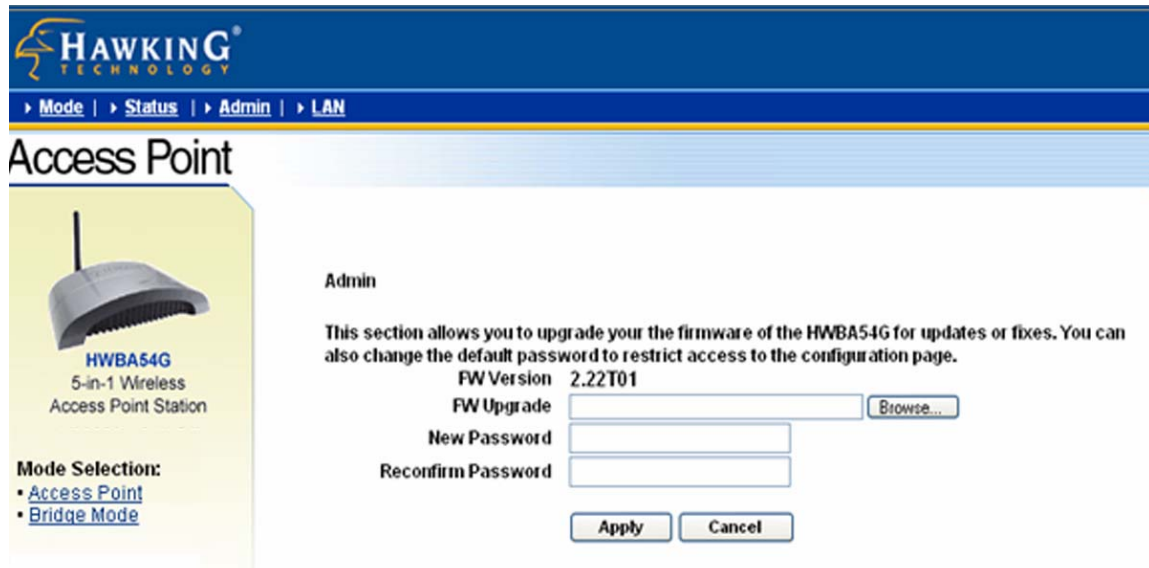
IP Address:	10 . 1 . 1 . 222
Subnet Mask:	255 . 255 . 255 . 0
Gateway:	10 . 1 . 1 . 1
Link:	Up , 100 Mbps

Wireless (00 : 50 : FC : 8F : 99 : 99)

SSID:	HWBA54G Hawking
Channel:	5
State:	802.11g Only
Encryption Function:	Not Required
Link:	Auto rate

Parameter	Description
Ethernet	It shows the default IP address, Subnet Mask, Gateway and Link status information.
Wireless	It shows the current Wireless information.

3.2.10 Admin Setup



HAWKING
TECHNOLOGY

Mode | Status | Admin | LAN

Access Point


HWBA54G
5-in-1 Wireless
Access Point Station

Mode Selection:

- [Access Point](#)
- [Bridge Mode](#)

Admin

This section allows you to upgrade your the firmware of the HWBA54G for updates or fixes. You can also change the default password to restrict access to the configuration page.

FW Version 2.22T01

FW Upgrade

New Password

Reconfirm Password

Parameter	Description
FW Version	It shows current FW version.
FW Upgrade	This tool allows you to upgrade the Access Point's system firmware. To upgrade the firmware of your Access Point, you need to download the firmware file to your local hard disk, and enter that file name and path in the appropriate field on this page. You can also use the Browse button to find the firmware file on your PC. Please reset the Access Point when the upgrade process is complete.
New Password	Enter the password (up to 32-digit alphanumeric string) you want to login to the Access Point. Note that the password is case-sensitive.
Reconfirm Password	Reconfirm the password (up to 32-digit alphanumeric string) you want to login to the Access Point. Note that the password is case-sensitive.

Click **Apply** button at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the Access Point.

3.2.11 LAN Setup



HAWKING TECHNOLOGY

Mode | Status | Admin | LAN

Access Point


HWBA54G
5-in-1 Wireless
Access Point Station

Mode Selection:

- [Access Point](#)
- [Bridge Mode](#)

Device Name

Automatic IP ☐ **Important**

Fixed IP ☒

Specify IP . . .

Subnet Mask . . .

Gateway . . .

Parameter	Description
Device Name	It shows current FW version.
Automatic IP	Selecting this option is not advised unless you have direct access to the device that provides the IP address.
Fixed IP	Specify IP: Designate the Access Point's IP Address. This IP Address should be unique in your network. The default IP Address is 192.168.2.1. Subnet Mask: Specify a Subnet Mask for your LAN segment. Gateway: Specify the default gateway IP of this Access Point.

Click **Apply** button at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the Access Point.

Chapter4 Troubleshooting

This chapter provides solutions to problems usually encountered during the installation and operation of the Access Point.

1. How do I manually find the PC's IP and MAC Address?

- 1) In Windows, open the Command Prompt program
- 2) Type **ipconfig /all** and **Enter**
 - 1 Your PC's IP address is the one entitled **IP address**
 - 2 Your PC's MAC Address is the one entitled **Physical Address**

2. What is BSS ID?

A group of wireless stations and an Access Point compose a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSSID.

3. What is ESSID?

An Infrastructure configuration could also support roaming capability for mobile workers. More than one BSS can be configured as an Extended Service Set (ESS). Users within an ESS could roam freely between BSSs while maintaining a continuous connection to the wireless network stations and the Wireless LAN Access Points.

4. Can data be intercepted while transmitting through the air?

WLAN features two-fold protection in security. On the hardware side, as with Direct Sequence Spread Spectrum technology, it has the inherent scrambling security feature. On the software side, the WLAN series offers the encryption function (WEP) to enhance security and access control.

5. What is WEP?

WEP stands for Wired Equivalent Privacy, a data privacy mechanism

based on a 64(40)-bit shared key algorithm.

6. What is a MAC Address?

The Media Access Control (MAC) address is a unique number assigned by the manufacturer to any Ethernet networking device, such as a network adapter, that allows the network to identify it at the hardware level. For all practical purposes, this number is usually permanent.

Unlike IP addresses which can change every time a computer logs on to the network, the MAC address of a device stays the same, making it a valuable identifier for the network.

Section 2 – HSB2 Wireless Signal Booster

IEEE 802.11b/g
Adjustable **WiFi** Signal Booster

HSB1

HI-GAIN24
SERIES



Website: www.hawkingtech.com

E-Mail: techsupport@hawkingtech.com

© Copyright 2004 Hawking Technologies, Inc. All rights reserved.

LIMITED WARRANTY

Hawking Technology guarantees that every HSB1 WiFi 802.11b/g Adjustable WiFi Signal Booster and HWBA54G (sold separately) is free from physical defects in material and workmanship under normal use for two (2) years from the date of purchase.

The kit contains three units, Hawking HWBA54G (Wireless Access Point), RF cable and HSB1 (Signal Booster). RF Cable and HSB1 are designed to operate only with Hawking HWBA54G as a single system, more systems may be certified at a later time. Please visit Hawking Technologies website or contact by phone for any future certifications of different systems using the HSB1.

If the product proves defective during this two-year warranty period, call Hawking Customer Service in order to obtain a Return Authorization number. Warranty is for repair or replacement only. Hawking Technology does not issue any refunds. **BE SURE TO HAVE YOUR PROOF OF PURCHASE. RETURN REQUESTS CAN NOT BE PROCESSED WITHOUT PROOF OF PURCHASE.** When returning a product, mark the Return Authorization number clearly on the outside of the package and include your original proof of purchase.

IN NO EVENT SHALL HAWKING TECHNOLOGY'S LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE OR ITS DOCUMENTATION.

Hawking Technology 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. Hawking Technology reserves the right to revise or updates its products, software, or documentation without obligation to notify any individual or entity. Please direct all inquiries to: techsupport@hawkingtech.com

Trademarks & Copyright

All brands and product names are trademarks of their respective companies.

No part of this publication may be reproduced in any form or by any means or used to make any derivative (such as translation, transformation or adaptation) without the express written consent of the manufacturer as stipulated by the United States Copyright Act of 1976.

Warning Statement:

**Federal Communication
Commission Interference Statement
Federal Communications
Commission (FCC) Requirements,
Part 15**

- 1. Reorient or relocate the receiving antenna.**
- 2. Increase the separation between the equipment and receiver.**
- 3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
- 4. 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.**
- (2) This device must accept any interference received, including interference that may cause undesired operation.**

FCC Caution:

FCC RF Exposure Statement:

This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

Regulatory information/Disclaimers:

Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

Step

1

Check the Requirements for Installation

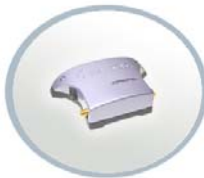


HSB1

Hi-Gain 802.11b/g Adjustable WiFi Signal Booster

This QIG Will Guide You Through
the Initial Setup of your Product

Check Your Package Contents:



Hi-Gain Adjustable
Signal Booster



Wireless Antenna



Power Adapter

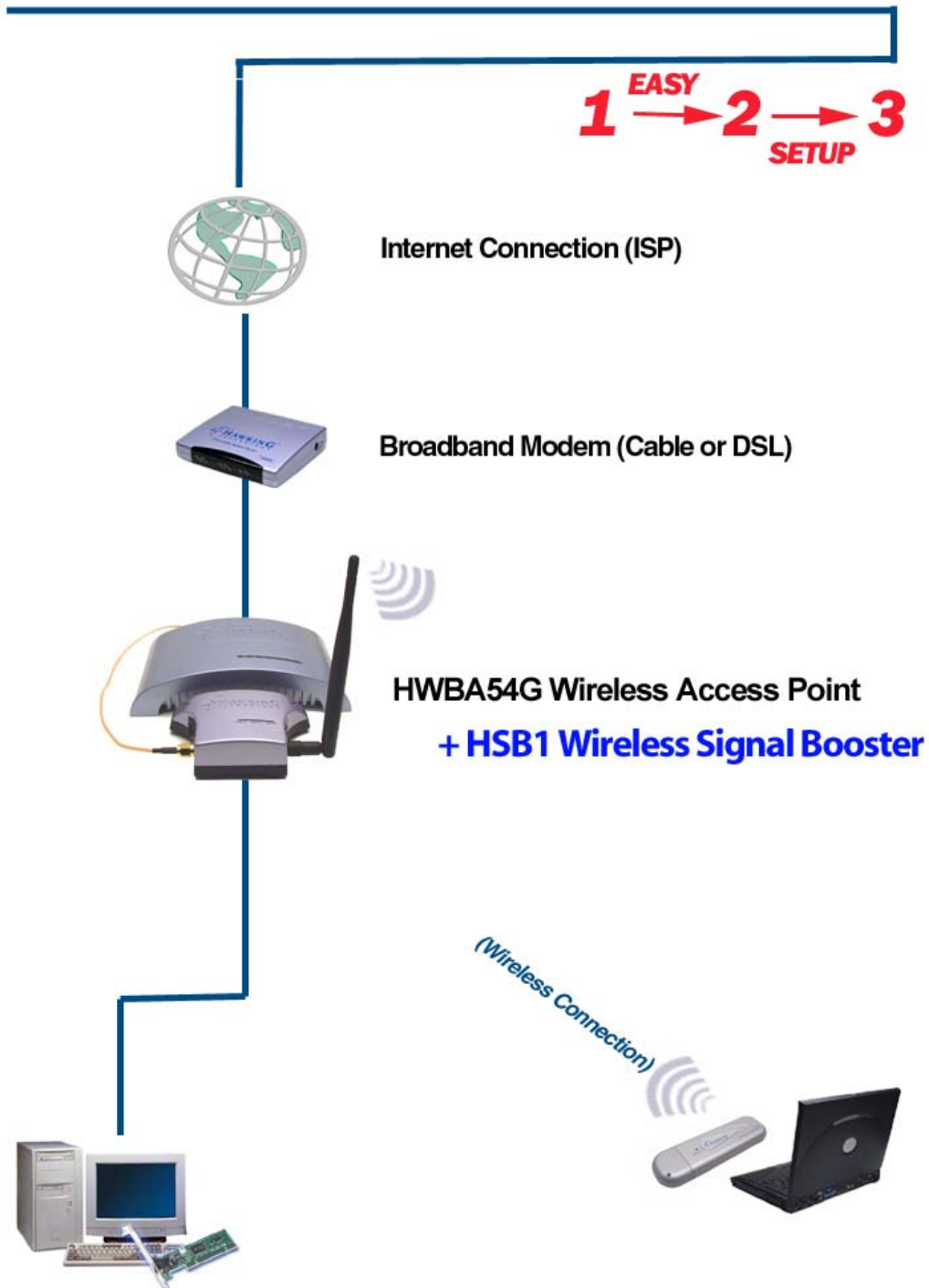


Booster Connector
Cable



Mounting Screws

TYPICAL NETWORK DIAGRAM for the HSB1



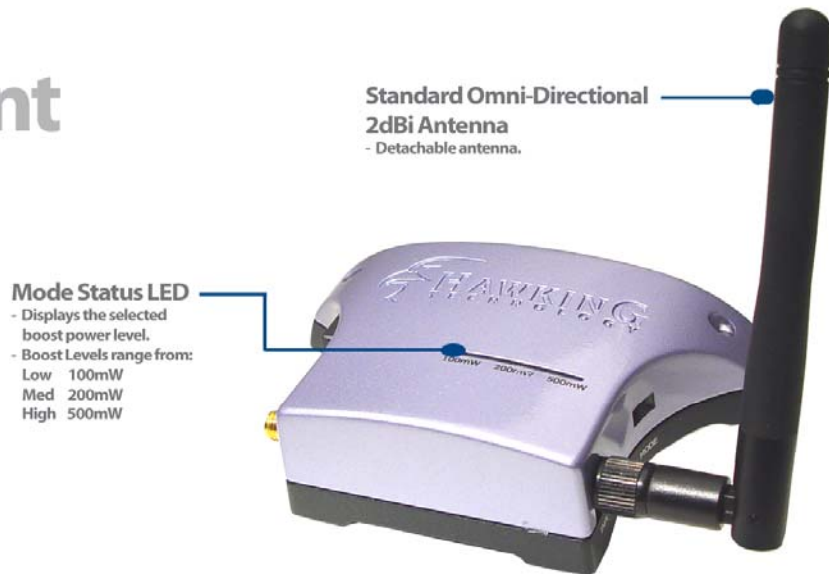
Each computer/laptop must have a network adapter to connect with the router.



HSB1

Product Overview

Front



Standard Omni-Directional 2dBi Antenna
- Detachable antenna.

Mode Status LED
- Displays the selected boost power level.
- Boost Levels range from:
Low 100mW
Med 200mW
High 500mW

Left Side



Power Adapter
- DC Plug input

Input Connector
- Connects Wireless Access Point to the Signal Booster.
- Use the provided Connector Cable to connect the Signal Booster to the antenna port of the wireless device.

Right Side



Antenna Connector
- Reverse Plug SMA Antenna Connector

Mode Selection Switch
- Adjusts the boost power level of the signal booster.
- Boost Levels range from:
Low 100mW
Med 200mW
High 500mW

Step

2

Connecting the Signal Booster

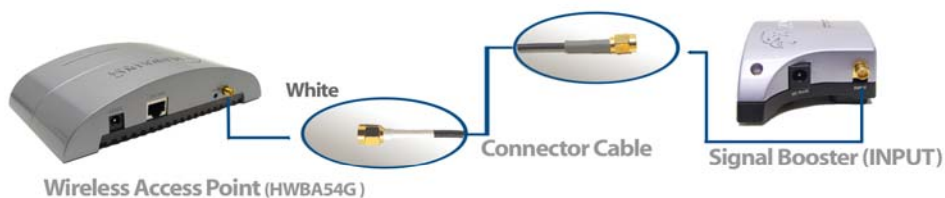
1

Remove the original antenna from the Wireless Access Point that you plan to use the Signal Booster with. The wireless device must have a detachable antenna to work with the Signal Booster. To remove the antenna, unscrew from the base of the antenna in a counter clockwise motion until the antenna is completely removed.



2

Connect the Signal Booster to the Wireless Access Point using the included color coded Connector Cable. Connect the **grey** end to the **INPUT** connector on the left side of the Signal Booster. Connect the **white** end to the antenna connector on the wireless device.



After you have connected the Signal Booster to the Wireless Access Point, find the included Wireless Antenna from the package contents and connect it to the Antenna Connector on the right side of the Signal Booster. Screw the antenna base in clockwise until the antenna is firmly connected to the Booster.



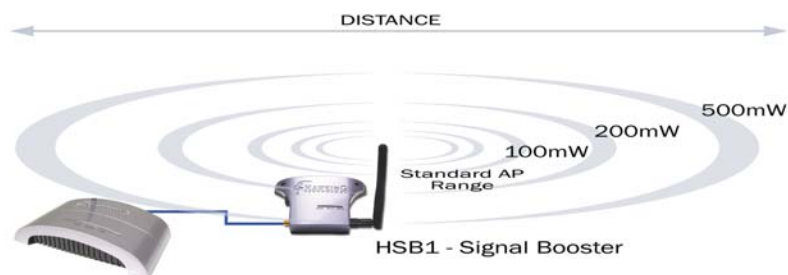
3

Power on the Signal Booster by connecting the Power Adapter to the DC Plug port on the HSB1.



4

Adjust the Boost Level of the Signal Booster according to your application.



Hawking Wireless-G Access Point

On the right side of the Signal Booster there is a switch that lets you select the Mode of your signal booster. The Modes range from:



After you have selected your Power Mode, place the Signal Booster in the highest location possible for the best signal. You may also choose to mount it on a wall using the included mounting screws.



HSB1

Product Specifications

Network/Operating Range:

IEEE 802.11b WLAN Standard
IEEE 802.11g WLAN Standard
2400 - 2500 MHz

Transmit Gain: up to 27dB

Frequency Response: +/- 1 dB

Output Power: 100/200/500mW

Transmit Power:

3 dBm min; 27dB max
Receiver Gain: 10-13 dBm, 12 dBm Typical
Noise Figure: 3.5 dB typical

Connectors:

Input: SMA Jack
Antenna: Reverse SMA Jack

Power: External Power Adapter
DC Surge Protection: Available

Cable Type, Length: HPP, 80cm



Networking Terms

Ethernet

A networking standard using cables (Category 5) to create a network.

Network Adapter - Also known as a NIC (Network Interface Card). Used to provide PC's or laptops with an Ethernet port or wireless access to the network.

Broadband Modem - A device that allows broadband connection to the internet. Broadband connections include speeds faster than 56k (dial up modem speed). The two most common types of Broadband connections are DSL and Cable. Cable modem relies on the bandwidth of cable television lines while DSL modems rely on the telephone lines operating at DSL speeds.

Router - A device used to share internet access from one user to multiple users. By taking one IP address (Addresses used by ISP's to assign broadband services to your computer) the Router distributes the services of your broadband access among multiple users and IP's.

Wireless

Wireless Device – Any WiFi device (802.11b/g) that communicates wirelessly using the

IEEE802.11 wireless standard. These devices can range from wireless access points to

wireless routers to wireless PCI client cards.

IEEE 802.11 – Wireless Network Specifications

- **802.11** -- applies to wireless LANs (Networks) and provides 1 or 2 Mbps transmission in the 2.4 GHz band using either frequency hopping spread spectrum (FHSS) or direct sequence spread spectrum (DSSS).
- **802.11b** (also referred to as *802.11 High Rate* or *Wi-Fi*) -- an extension to 802.11 that applies to wireless LANs and provides 11 Mbps transmission (with a fallback to 5.5, 2 and 1 Mbps) in the 2.4 GHz band. 802.11b uses only DSSS. 802.11b was a 1999 ratification to the original 802.11 standard, allowing wireless functionality comparable to Ethernet.
- **802.11g** -- applies to wireless LANs and provides 54 Mbps in the 2.4 GHz band. Backwards compatible with IEEE 802.11b products.

Hi-Gain WiFi Device

High powered antenna or device used to increase the distance of your WiFi network.

dBi (decibel) - A unit of measurement used to determine the gain level of wireless antennas.

mW (MilliWatt) - A unit of measurement used to determine the power level of wireless devices.



Contact Information / Tech Support

Thank you for purchasing the Hawking Technologies HSB1 - 802.11b/g Adjustable Signal Booster

NOTE: As of 12/01/2004 the HSB1 has been certified by the FCC to operate as a single system with Hawking's HWBA54G Wireless-G Access Point. (FCC ID: SOYHSB1) More systems will be certified at a later time. Please visit the Hawking Technologies website for notification of future certifications with different systems using the HSB1.

If you wish to view the entire system manual. You may go check www.hawkingtech.com for the latest product manual.

If you are having technical difficulties using the product, Hawking Technologies offers free technical support to assist you.

Technical Support (For US and Canada):

Phone: 949-790-0810

Email: techsupport@hawkingtech.com

Website: <http://www.hawkingtech.com/servicesupport.php>

RMA Information (For Warranty Issues / Returns)

Website: <http://www.hawkingtech.com/rma.php>



Thank You for choosing Hawking Technologies.