ELECOM

Broadband Router

Wireless router for use in hotels

WRH-150x-G series

Detailed Manual

Read this manual along with the attached Setup guide ① and Setup guide ②.

● **Terms used in this manual**

In this manual, the following terms are used with some exceptions.

Term	Meaning
This product	Wireless router for use in hotels, WRH-150x is described as "the router".
11n/11g/11b	In some part of the manual, the following abbreviations are used: Standard of IEEE802.11n : 11n Standard of IEEE802.11g : 11g Standard of IEEE802.11b : 11b
Wireless router	Wireless router wireless LAN broad-band router is simply described as "Wireless router".
Wireless host	Wireless routers and wireless AP are generally described as "Wireless host".
Wireless adapter	Equipment incorporating wireless adapter and wireless LAN function, equipment fitted with a wireless adapter, equipment to which a wireless converter is connected are generally described as "wireless adapter". Sometimes a wireless adapter or a wireless converter is also described as "wireless adapter".

● **Symbols used in this manual**

Symbol	Meaning
Note	Describes especially important information to be followed in operating or working on the product. Failure to follow this precaution could cause injuries, product malfunction, or fire.
	Describes supplementary or useful information.

Wireless router for use in hotels

WRH-150x-G series

Detailed Manual

Introduction

Thank you for purchasing the 'Wireless router for use in hotels'. This manual contains operating or setting procedures, as well as precautions for the safe use of the product. Before starting the implementation work, be sure to read this manual and ensure safe implementation and operation of the product.

For safety in use

Before using the product, please read this document so you can learn how to use the product correctly.

The product is not designed for use with facilities and devices of importance to human life, or for facilities and devices that require a high degree of reliability and safety (medical, aerospace, transport, nuclear power, and other such uses). Our company cannot be held responsible for bodily accidents or property damage that result from the use of our product for these purposes.

■ **About signs**
The "For safety in use" part is described with the following signs. Make sure to fully understand their meanings before reading the following description.

⚠ WARNING	Ignoring the following warnings and handling the product improperly may lead to death or serious injuries to the user.
⚠ CAUTION	Ignoring the following warnings and handling the product improperly may lead to injuries to the user or damage to property.

🚫	A circle with a line through it means that a certain action is prohibited. The circle may have the prohibited action displayed as a picture inside of it. For example, the mark on the left means that disassembly is prohibited.
⬤	A filled in circle mark means that a certain action must be done. The circle may have the necessary action displayed as a picture inside of it. For example, the mark on the left means that the power cord must be unplugged from the wall socket.

⚠ WARNING

In case of any abnormalities
If the product is generating smoke or releasing an odor, contact the retailer with whom you made your purchase.

Make sure no foreign objects are inside.
Do not put any metal inside the product. Make sure the product holds no liquid. Failure to do so may cause fires, electrical shock or malfunctions.
* In the case of a foreign object being inside, immediately turn the product off and contact the retailer with whom you made your purchase.

If lightning may, or does, strike, turn the product off and stop the usage.
Failure to do so may cause fires, electrical shock or malfunctions.

Do not use the product in locations near water. Do not touch the product with a wet hand.
Doing so may cause fires or electrical shock.

Do not disassemble the product.
Do not disassemble the case. If there is a need to do so, contact the retailer with whom you made your purchase.

⚠ CAUTION

Do not obstruct the air hole. Doing so may cause fires or a malfunction due to overheating.

Do not use or store the product in direct sunlight, or in places with high temperatures or high humidity. Do not use it outside. Great temperature changes may cause malfunction due to dew drops forming inside.

The product is a sensitive device. Do not use or store it in locations that are subject to impacts and vibrations.

This product may create noise on your radio, television, etc., if you use it near any of these products. In addition, using this product near a motor or other object that produces a strong magnetic field will create noise, and may lead to it malfunctioning. Please make sure to separate this product from such areas before use.

Precautions in using wireless LAN

● Since wireless LAN receives or transmits data by wireless communication, it may be subject to interception and unauthorized access. In using wireless LAN, fully understand the risk and provide security settings to ensure data safety. It is also an effective security measure to use wired LAN for important information such as a personal data.

● This product is certified by the radio laws of various countries, and does not need to apply for any license. However, be sure to avoid the following:

• Disassembly or modification of the product
• Removal of, or tampering with, the certification label attached at the rear of the product.
Violation of the above could be subject to punishment by law.

● Do not use a wireless LAN system, including this product, near someone fitted with a cardiac pacemaker or medical equipment. Such usage could affect the pacemaker or medical equipment and, in the worst case, result in death.

● Using the product near a microwave can affect the communication of wireless LAN.

Table of Contents

Chapter 1

· ·

Overview

1 Product Warranty

Warranty and service

For the warranty policy of the product, refer to the attached "Setup guide ②".

2 Product Overview

Features

● **Connecting to the LAN port in a hotel room creates a wireless LAN router that allows you to conveniently use Wi-Fi.**

● **The product is compatible with a USB power supply, and you can choose the power source based on your surroundings.**

● **When connected to a PC's USB port, the wireless router can be used as a wired LAN adapter. ***

*Windows®8.1/8/7/Vista, XP (SP3 or later), Mac OS X 10.6 to 10.8 only

● **Simple setting application, "QR link"(free), for connection with the wireless host**

Exclusive setting application to allow connection with the wireless host, "QR link", is available (to be downloaded from AppStore (iOS) or Google Play (Android)).
Use of the exclusive application allows simple Wi-Fi connection with smartphones and/or tablets.
* Successful downloading of the application in China is not guaranteed.
* The application supports the iOS terminals for iOS 4.0 or later versions, and the model with a camera. For the Android terminals, the application supports Ver. 2.1 or later versions, and the model with a camera. (Terminals incorporating a camera with auto focus function are recommended.)

● **Simple setting with a single button, by applying wireless LAN setting method that supports the WPS function**

The router supports the WPS function that enables simple wireless LAN setting without annoying en-cryption settings. Just pressing the WPS and reset button at the side of the router or by pressing the WPS button on the Utility screen can easily complete the wireless LAN connection with security setting.

● **Supports various wireless security functions**

The router corresponds the new standard, WPA-PSK/WPA2-PSK. Encryption keys are automatically changed after a certain time in order to prevent invalid decoding from outside. Other functions incorporated includes; SSID stealth function to hide the sending SSID for wireless clients, and Access control function to specify the MAC address of wireless clients to limit the access.

■ **A Settings utility based on the Web browser incorporated**

You can access the settings for the router using the Web browser of the client PC and use the router's easy-to-understand menus in the Settings Utility.

■ **Other router functions available**

• DHCP server function requiring no IP address setting on the PC side
• Easy firmware upgrades
• 'Back up' and 'Restore' are available for all the settings

Operation environment of the product

The product supports the following environments only.

Compatible models and OS	Machines operating Windows 8/8.1/7/Vista/XP Apple Mac computers with an Intel CPU in which Mac OS X (10.8/10.7/10.5) is installed
Corresponding browser (Web-based Settings Utility)	Internet Explorer 5.5 or later, Safari 6.0.3 or later

3 Part Names

Top	Left side	Front	Right side	Rear side

Bottom

①	Power supply jack (Micro USB)	Connect a cable that conforms to the USB 2.0 (Micro-B to Micro-A) standard.	
②	WAN port (blue)	Use a LAN cable to connect this product to the hotel's LAN port.	
③	WPS/Reset lamp (blue)	Lit	The reset function is starting.
		Blinking	The WPS function is in operation.
		Off	The product is operating normally.
④	WAN lamp (blue)	Lit or blinking	The connection with the WAN is being established.
		Off	The product is disconnected from the WAN.
⑤	WLAN lamp (blue)	Lit or blinking	The connection with the WAN is being established.
		Off	The product is disconnected from the WAN.
⑥	WPS/Reset button	Hold down this button for approximately one to nine seconds to start the WPS function. Hold down this button for ten seconds or more to start the reset function.	

4 Settings Utility

To allow various settings of the router, a settings utility is available from the Web browser. This section explains the menu configuration of the Settings Utility. For further information, or for steps in setting menu parameters, refer to the corresponding pages.

● **To activate the Settings Utility**
To display the Settings Utility on the PC Web browser, the router must be connected with the PC using a USB cable or via wireless LAN.

● **To display the Settings Utility**
Refer to "Displaying the Settings Utility screen" on P58.

ELECOM   Access Point mode

WRH-150x series

Site contents
▶ Operation Mode
▶ Wireless
▶ TCP/IP Settings
▶ Management

Language
English

Status	
The system information of this device is shown.	
System	
Uptime	0day:0h:5m:22s
Firmware Version	v1.03.6
Operation Mode	Access Point mode
LAN configuration	
IP address	192.168.2.251
Subnet Mask	255.255.255.0
DHCP Server	Auto
MAC address	58:b0:d4:05:83:7a
Wireless configuration (1st SSID)	
SSID	elecom2g-xxxxxx
Channel Number	1ch
Encryption	WPA2 Mixed
BSSID	58:b0:d4:05:83:7a
Associated Clients	0

Menu parameter	Description
Operation Mode	Sets the operation mode of the router (→ P60).
Wireless	This is a menu allowing various settings on the wireless LAN, such as Basic Settings (→ P61), Advanced Settings (→ P64), Encryption (→ P68), Access Control (→ P65), and WPS settings (→ P67).
TCP/IP Settings	This is a menu allowing Internet connection, such as LAN settings (→ P75), and WAN settings (→ P79).
Management	This is a menu for controlling the router, such as Status (→ P83), Upgrade Firmware (→ P85), Saving/Reload Settings (→ P86) and Password Setup (→ P88).
Language	Switches the language setting for the Settings Utility screen.

5   Before Setup

Before starting the router setup, check the numbered points below. These check parameters are necessary for using the product in your home. When the product is used in hotels, these checks are not necessary.

Check agreements with the connection provider

Check the following:

① **Is (Are) the agreement(s) with line providers completed?**
Agreements with line providers should be completed.

② **Is a device, such as a modem, prepared?**
To use the Internet, the router requires connection via broadband, such as ADSL, CATV or optical fibers. When the agreement states the need for a separately purchased modem, then a suitable modem should be prepared.

③ **Is the line installation completed?**
In addition to agreements with line providers, line installation to the premises should be completed and a modem should be prepared. Also, make sure that the 'line open' date has elapsed.

④ **Have you prepared devices needed for a PC?**
Settings for the product, as well as the network devices connected with the product, should incorporate wireless LAN function of either IEEE 802.11n, 802.11g or 802.11b. When the PC does not incorporate wireless LAN function, prepare a wireless adapter separately. For the setup steps of each device, refer to the device's instruction manual.

For broadband modems

This product is a wireless LAN router combining a wireless LAN function with a router function. Some broadband modems and terminal devices currently on the market already incorporate a router function. To connect this product to such broadband modems or terminal devices, set it to the Access point mode (this is the product's initial setting).

Prepare provider information necessary for the setting

To use the product in the router mode, it is necessary to check the line type beforehand. Especially when using PPPoE connection, the user ID and the password supplied from the provider may be requested. Also, if you use a special Internet service, such as Static IP, prepare necessary information beforehand.
* PPPoE is a protocol typically used in FLET'S service in Japan.

In using the router in the Access Point mode
The router function incorporated in the terminal device is used. To use the router in the Access Point mode, refer to Chapter 2, .

Provider information
Some of the information described here may be different from the information given by your provider. Perform Internet connection settings by also referring to the setting references given by your provider.

A For PPPoE connection

For anyone using an Internet provider connecting by PPPoE, you must have the user ID and password from the information supplied by the provider. Fill in the entry column in the table below.

* PPPoE is a protocol typically used in FLET'S service in Japan.

Parameter	Entry column
Connection method	PPPoE
Certification ID (user name) [Connection ID]	
Certification password [Connection password]	

* Indication of "Certification ID" or "Certification password" depends on the provider. When the user ID includes "@", input "@" and the "provider identifier" after the "user name" supplied by the provider. However, even with a PPPoE connection, a certification ID or a certification password are sometimes not described, and, therefore, their entry is not required."

When a separate router is prepared
The user ID and the password are set to the device supplied by the provider; the setting in the router is not required.

B For DHCP connection

If DHCP connection is used, connection to the Internet automatically starts. There is no need to identify the line type nor to configure settings. The connection will be established automatically.

C For Static IP in which the Static IP address is supplied by the provider

This is a service in which the IP address (global IP address) on the Internet side is allocated to a fixed point. Check the following and note them in the entry column in the table below:

Parameter		Entry column
WAN IP address*1		
WAN subnet mask		
WAN gateway		
DNS server address	Primary DNS	
	Secondary DNS	

*1 Global IP address.

Chapter 2

Implementation

Implementing the product
For steps connecting the router with a modem or to the Internet, refer to the simple explanation in "Setup guide ①", included with the product. It can also be downloaded from the ELECOM website.

1 Setup Flow

For use in hotels

Connection with wired LAN in hotels

Connect the LAN port in the hotel room to the WAN port (blue) of the router with the LAN cable supplied in the hotel.

▼

Power connection

Connect the attached USB cable to the power jack, in order to supply power by either of the following: → P22
• Connect to a USB port of a PC
• Connect to an AC outlet using a USB-type AC adapter

▼

Connection of a PC or wireless adapter*

Perform the appropriate connection setting for each device.
For setting smartphones or tablets supporting iPhone, iPad or iPod touch (iOS 4.0 or later, with camera) or Android, the exclusive application "QR link" is available.
*Successful downloading of the application in China is not guaranteed.

▼

Setup is not completed.

* For setting up the wireless adapter, refer to the wireless adapter's instruction manual.

N o t e **When more than one of these routers are installed in the same network in the Access Point mode, set the IP address of each router to each different Static IP address beforehand. Otherwise, correct access to the control panel will be disabled. For how to fix the IP address, refer to "LAN Interface Setup screen" on P75.**

For home use

Preparation of provider information

When using a provider with a line type information or PPPoE connection or the Static IP connection, you need information supplied from the provider such as the User ID. Prepare necessary information beforehand.
* PPPoE is a protocol typically used in FLET'S service in Japan.

▼

Connection of the router

Connect the router with a broadband modem or PC.
◆ Even if the router is to be used only as a wireless adapter, it is necessary to connect the router with a PC via USB for setting the Internet connection. *1
◆ Only when the router is first connected to a PC, should the driver for a wired LAN adapter be installed.

When the router is used in the Access Point mode   **When the router is used in the Router mode**

Setting for Internet connection

Start up the Settings Utility, set to allow the Internet connection, and confirm the connection.
For PPPoE connection or Static IP connection, inputting the information supplied from the provider is required.
* PPPoE is a protocol typically used in FLET'S service in Japan.

Installing drivers for wireless LAN

Install the driver and the Settings Utility, of the wireless adapter you want to use, on the wireless LAN adapter*2.
For setting up iPhone/iPad/iPod touch (iOS 4.0 or later, with a camera), or Android smartphones/tablet PCs, the exclusive application "QR link" is available. *Successful downloading of the application in China is not guaranteed.

Setting wireless LAN connection

When the WPS function is valid	When the WPS function is invalid
Set using the WPS function. Just press the setting button. *2	Manually configure SSID and security settings for the wireless adapter.*2

Confirming Internet connection with the wireless LAN

Confirm that the wireless LAN adapter connected with wireless LAN can connect to websites.

Setup is now completed.

*1 Use a PC to connect to the Settings Utility of the router.

*2 For settings of the wireless adapter, refer to its instruction manual.

2 Before starting setup

Connect the router with a broadband modem.

1 **To use the router in a hotel room, connect the room's LAN port to the WAN port (blue) of the router with the LAN cable supplied at the hotel.**

LAN cable

* Prepare a LAN cable separately, such as borrowing one from the hotel.

LAN port in a hotel

WAN port of the wireless router

* To use the router at home, connect it with a broadband modem that has been connected to the Internet in your home.

2 **Connect the USB cable to the router's power supply jack, and then use one of the following methods to supply power to the product:**

■ **To use a PC's USB port**

* To connect the router to a notebook-type PC, be sure to connect the AC adapter to the notebook-type PC.

Proceed to step 3 . (→ P23)

* Do not connect the wireless router to the PC at this time.

■ **To use a USB-type AC adapter**

Proceed to step 4 . (→ P28)

* Plug the wireless router into a household outlet at this time.

3 **Install this product's built-in wired LAN adapter driver.**

⚠ **This item refers to a procedure that is only necessary the first time that you connect this product to a PC.**

- Please close all applications in use before beginning. In addition, please temporarily disable any security software. (Please refer to the security software instruction manual for the detailed procedure.)
- Please install while logged in as an administrator.

For Windows 8/8.1

❶ Wait until the PC has completed its startup procedure, and then connect the wireless router to the PC's USB port.

❷ When a message is displayed in the upper right corner, click it.

CD Drive (F:) Setup
Tap to choose what happens with this disc.

❸ Click "Run Setup.exe" on the operation selection screen.

CD Drive (F:) Setup

Choose what to do with this disc.

Install or run program from your media

Run Setup.exe
Publisher not specified

Other choices

Open folder to view files
File Explorer

Take no action

❹ When "User Account Control" menu is displayed, click "Yes".

User Account Control

Do you want to allow the following program from an unknown publisher to make changes to this computer?

Program name: Setup.exe
Publisher: **Unknown**
File origin: CD/DVD drive

⌄ Show details   Yes   No

Change when these notifications appear

For Windows 7, Windows Vista

❶ Wait until the PC has completed its startup procedure, and then connect the wireless router to the PC's USB port.

❷ The "AutoPlay" dialogue box is displayed automatically. Click "Run Setup.exe."

❸ When "User Account Control" menu is displayed, click "Yes" or "Allow".

Windows 7   **Windows Vista**

❹ A message, "Device driver software installed successfully.", is displayed in the information area.

For Windows XP

1 Wait until the PC has completed its startup procedure, and then connect the wireless router to the PC's USB port.

2 When the "Found New Hardware Wizard" screen is displayed, click [Cancel].

3 A pop-up message, "Found New Hardware", is displayed in the task tray.

4 Open the [Setup] drive from MyComputer, and click [Setup (.exe)].

5 A pop-up message, "Found New Hardware", is displayed in the task tray.

For Mac OS

❶ Wait until the computer has completed its startup procedure, and then connect the wireless router to the computer's USB port.

❷ Click the [Apple menu] in the upper left of the screen, and then click [System Preferences].

❸ Click [Network].

❹ Click [+ (addition)] in the lower left of the screen.

❺ Set "Interface" to "USB Network Interface", and then click [Create].

❻ Click "Apply."

❼ Check that the status has changed from "Not Configured" to "Connected."

Installation of the driver is now completed.

For uninstalling the driver, refer to Appendix, "1 Uninstalling the wired LAN adapter driver" on P90.

4 **Check that the status of each lamp on the router is as follows:**

①	**WPS/Reset lamp**	Off
②	**WAN lamp**	Lit in blue or blinking in blue
③	**WLAN lamp**	Lit in blue or blinking in blue

* It takes around one minute after turning the power on to get to this stage.

3 Setting for the Internet connection

How to connect to the Internet at home using the router, is described here. When you use the router in hotels, this step is not needed.

Internet connection types

Before using the router, check the Internet connection type.
An Internet connection using the router may not be necessary with some types of setting.
When setting with a wireless adapter, automatic connection is possible by using the WPS function.
For wireless connection from the wireless adapter, refer to "4 Connecting using Wireless LAN" on P35.

The cases in which the setting for Internet connection is not required:

● The broadband modem has a router function with the Internet connection already set

● Another router with the Internet connection already set is available

● **The Internet connection has been provided by the facility, as in the case of some apartment buildings.**

An Internet connection setting with the router WRH-150x-G is not necessary.
Go to "4 Connecting using Wireless LAN" on P35.

The cases in which the setting for the Internet connection is required

When you use the wireless router in the manner as shown in the figure below, or when you have a problem in connecting to the Internet with the router in the default status, change the operation mode to the Router mode, to allow the Internet connection setting.
Refer to "2 Operation Mode Selection" on P60, "WAN Interface Setup screen" on P79.

When the Internet connection is completed, go to the step described in "4 Connecting using Wireless LAN" on P35.
To connect a PC that was originally connected to a wired LAN with the wireless LAN, remove the LAN cable and prepare the PC's wireless LAN function.

Displaying the Settings Utility

The Settings Utility of the router can be displayed via the Web browser on the PC.

The PC should be set so that the IP address can be automatically acquired.
In this manual, the description is given on the assumption that the PC automatically acquires the IP address by the DHCP server function of the router. When the Static IP address is set to the PC, the IP address of the PC may have to be changed.

IP address of the router (initial value) : 192.168.2.251

1 **Check that the broadband modem and the router are powered on, and start the PC for setting up.**

● When this order is not followed, the PC cannot correctly acquire the IP address, resulting in failure in accessing the setting screen.

2 **Start up a Web browser, such as Internet Explorer.**

3 **Input "http://wrh-150x.setup" to the address bar of the Web browser, and press [Enter] on the keyboard.**

Enter

● The certification screen is displayed.

When the certification screen is not displayed
Check the following:
① Is the router powered on? Is the PC correctly connected to the router with the USB cable?
② Turn off the PC. Switch the router on, wait for three minutes and turn the PC back on.
③ Check the IP address of the PC connected. (Refer to "Displaying the IP address of a PC" on P98.)

4 **Enter the user name and the password of the router, and click** <u>**OK**</u> **.**

For Windows 7

| User name | admin |
| Password | admin |

① Enter

② Click

● The default values are shown in the table above. Use alphanumerical characters in lowercase.

● The Settings Utility of the router is displayed.

In an environment where others may have access to the PC, changing the password is recommended so that the setting cannot be changed by a third party. (Refer to <u>"Password Setup screen" on P88</u>.)

Set the country of use

This product is shipped with wireless settings for use in Japan. To use in other countries, please change the settings by following the steps below:

1 **Start up a Web browser, such as Internet Explorer.**

2 **Input "http://wrh-150x.setup" to the address bar of the Web browser, and press [Enter] on the keyboard.**

http://wrh-150x.setup ← **Enter**

● The certification screen is displayed.

3 **Enter the user name and password of the router, and click ⬜OK⬜.**

For Windows 7

Windows Security

The server wrh-150x.setup at WRH-150x requires a username and password.

Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).

admin
•••••

☑ Remember my credentials

❶ **Enter**

User name	admin
Password	admin

OK

❷ **Click**

● The Settings Utility of the router is displayed.

4 **Click [Wireless] from the menu, and click [Basic Settings].**

ELECOM　　Access Point mode

WRH-150x series

Site contents
▶ Operation Mode
▶ Wireless
　▶ Basic Settings
　▶ Advanced Settings
　▶ Encryption
　▶ Access Control
　▶ WPS
▶ TCP/IP Settings
▶ Management

Wireless Basic Settings

You can change the basic settings of Wi-Fi(Wireless LAN).

Multiple SSID

1st SSID:	elecom2g–xxxxxx	(MAX 32 characters)
Channel Width:	20MHz ▾	
Channel Number:	Auto ▾	
SSID stealth:	Disabled ▾	
Country Setting:	Japan ▾	

5 Select the appropriate country from the drop-down menu in [Country Setting], and click
Apply .

Multiple SSID		
1st SSID:	elecom2g–xxxxxx	(MAX 32 characters)
Channel Width:	20MHz ▾	
Channel Number:	Auto ▾	
SSID stealth:	Disabled ▾	
Country Setting:	Japan ▾	
	Japan	
	China	
	Taiwan	
Apply	Korea	
	Europe	
	Spain	
	France	

6 A message "Change setting successfully!" is displayed. Click Reboot Now .

Change setting successfully!

Your changes have been saved. The router must be rebooted for the changes to take effe
You can reboot now, or you can continue to make other changes and reboot later.

Reboot Now ◄─────────────────────────────── **Click**

7 The waiting time is displayed. When it is 0 second, the display automatically returns to the
main 'Settings Utility' screen.

Rebooting.

Please do not turn off the power of this device absolutely until the page changes.
The remaining **27** seconds...

8 Setup is now completed.

4 Connecting using Wireless LAN

Enables you to connect to the Internet from a PC wireless adapter via the router.

Confirmation

This product has a WPS function, and enables you to simply set the wireless LAN function by combining with a wireless adapter that supports WPS. A "Push-button method", allowing the setting by simply pressing a button, is available.

To connect a wireless adapter that does not have a WPS feature, to a router, adjust the setting value of the wireless adapter to the one on the router.

Does the wireless adapter support WPS?	
Yes, it does.	No, it doesn't.
↓	↓
Does it have a WPS button?*	Go to "Connecting by manual setting" on P45.
Yes, it is.	No, it isn't.
↓	↓
Go to "Connecting using the WPS button" on the following page.	Go to "Connecting by manual setting" on P45.

*WPS button
There are two types of WPS "push-button": 1. an actual, dedicated button on the wireless adapter; 2. a [WPS] icon in the Settings Utility that you click on.

Connecting using the WPS button

For Windows 8

1 **Point to the upper-right corner of the screen to display the Charm Bar, and then click [Settings].**

Start

Devices

Click ← Settings

2 **Click the wireless icon.**

Available 100 Unavailable

Click

Notifications Power ENG Keyboard

Change PC settings

3 **From the list of networks, select the network that has the same SSID as the network written on the included "Setup information sheet."**

← Networks

Wi-Fi

elecom2g-xxxxxx

●**Setup information sheet**

Setup information sheet (default value)

2.4GHz SSID	elecom2g-xxxxxx	QR code for setting (for QR link only)
Encryption	WPA/WPA2 mixed	
Encryption Key	yyyyyyyyyyyyy	

* A six-digit random combination of numbers 0-9
  and letters a-f will go in the place of "xxxxxx".
* A 13-digit random combination of numbers
  will go in the place of "yyyyyyyyyyyyy".

〈To access the management screen〉

Example

MAC address

Click

4 **Click** **Connect** **.**

Click

5 **Check that the message "You can also connect by pushing the button on the router." is displayed.**

If the message does not appear, manually enter the (13-digit) "encryption key" from the "settings information sheet" enclosed in the same package, and then click [next].

6 **Depress the [WPS/Reset button] at the side of the router for three or more seconds, then release it.**

WPS/Reset lamp
Blinking in blue

● The WPS/Reset lamp flashes blue when the router is waiting to connect the wireless adapter that has a
   WPS feature. The connection needs to be completed while the WPS/Reset lamp is flashing.

37

Holding down the [WPS/Reset button] for 10 seconds or more starts the reset function. Be sure to release the button within nine seconds.

The WPS/Reset lamp turns off when the connection is completed, or after a specific time (approx. two minutes) has elapsed.

7 **If a screen is displayed with the message "Do you want to turn on sharing between PCs and connect to devices on this network?", click [Yes, turn on sharing and connect to devices].**

8 **When a normal wireless LAN (Wi-Fi) connection or Internet connection is successful, [Connected] is displayed.**

● The WPS/Reset lamp turns off.

9 Connect to your desired website from the Web browser, and check that it is displayed without any problems.

ELECOM website   http://www.elecom.co.jp/global/

10 This completes the setting of a wireless adapter using the WPS function. When there is another wireless adapter, follow the same settings procedure.

For Windows 7/Vista/XP

1 Click the wireless LAN icon in the notification area in the lower-right corner of the screen.

N o t e

If the icon does not appear in the notification area on Windows® 7
① Click the triangle icon on the task tray in the lower-right corner of the notification area.
② Click [Customize…].
③ Tick [Always show all icons and notifications on the taskbar], and click [OK].

2 **From the list of networks, select the network that has the same SSID as the network written on the included "Setup information sheet."**

●Setup information sheet

Setup information sheet (default value)

2.4GHz SSID	elecom2g-xxxxxx
Encryption	WPA/WPA2 mixed
Encryption Key	yyyyyyyyyyyyy

QR code for setting (for QR link only)

Example

* A six-digit random combination of numbers 0-9 and letters a-f will go in the place of "xxxxxx".
* A 13-digit random combination of numbers will go in the place of "yyyyyyyyyyyyy".
⟨To access the management screen⟩

MAC address

Click

3 **Click [Connect].**

Click

4 **When the "Connect to a Network" dialogue box is displayed, check that the message "You can also connect by pushing the button on the router." is also displayed.**

5 **Depress the [WPS/Reset button] at the side of the router for three or more seconds, then release it.**

WPS/Reset lamp
Blinking in blue

● The WPS/Reset lamp flashes blue when the router is waiting to connect the wireless adapter that has a WPS feature. The connection needs to be completed while the WPS/Reset lamp is flashing.

Holding down the [WPS/Reset button] for 10 seconds or more starts the reset function. Be sure to release the button within nine seconds.
N o t e

The WPS indicator turns off when the connection is completed or after a specific time (approx. two minutes) has elapsed.

6 **Eventually, the "Connect to a Network" dialogue box will disappear automatically.**

● The WPS/Reset lamp turns off.

7 **Connect to your desired website from the Web browser, and check that it is displayed without any problems.**

ELECOM website http://www.elecom.co.jp/global/

8 **This completes the setting of a wireless adapter using the WPS function. When there is another wireless adapter, follow the same settings procedure.**

Connecting by entering a PIN code

Set the PIN code method of the WPS function. There are two setting ways; entering the PIN code set to the wireless router side to the wireless adapter, and entering the PIN code set to the wireless adapter side to the wireless router. Explained here is how to enter the PIN code set to the wireless adapter side to the wireless router.

1 **Prepare a PC for wireless connection to a place in which it is connectable to the router.**

2 **Check the wireless adapter's PIN code.**
  ● For how to check the wireless adapter's PIN code, refer to the wireless adapter's manual.

The wireless adapter's PIN code

3 **Displays the router's Settings Utility.**
  ● For how to display the Settings Utility, refer to .

4 **Select [Wireless], [WPS] from the menu list on the left of the Settings Utility screen, in order to display the [Wi-Fi Protected Setup] screen.**

5 **In the [PIN code of client] box, enter the wireless adapter's PIN code, and click Start .**

6 **When the following screen is displayed, click OK .**

The WPS/Reset lamp flashes in blue.

7 **Start the WPS function of the wireless LAN client (wireless adapter) within two minutes.**

- For how to check the PIN code of the wireless adapter, refer to the wireless adapter's manual.
- Once the wireless setting has been completed, the WPS/Reset lamp turns off.

8 **After setting, check if the connection is successful by accessing the Internet via wireless LAN.**

Connecting by manual setting

For the wireless adapter without the WPS function, manually perform the setting by the setting tool of the wireless adapter. The initial values of the router are as follows. Adjust the setting value of the router to the one of wireless adapter by referring to the instruction manuals of the wireless adapter as well as the work flow in the following pages.

Parameter	Setting value (initial value)	
SSID	elecom2g-xxxxxx * A random number and/or letter of either 0-9, a-f will go in the place of "x".	
Certification method	WPA2-Mixed	Select "WPA2-PSK" at the wireless adapter side.
Encryption method	AES	Specify "AES" at the wireless adapter side.
WPA unicast cipher suite	WPA2-PSK	
Common key format	Pass phrase	
Encryption key	Refer to the Setup information sheet attached to the product. The characters used are alphanumerical characters in uppercases. ●**Setup information sheet** Setup information sheet (default value) 2.4GHz SSID elecom2g-xxxxxx Encryption WPA/WPA2 mixed Encryption Key yyyyyyyyyyyyy QR code for setting (for QR link only) Example * A six-digit random combination of numbers 0-9 and letters a-f will go in the place of "xxxxxx". * A 13-digit random combination of numbers will go in the place of "yyyyyyyyyyyyy". * The Setup information sheet may be different from the one in the illustration depending on the shipping time. PASS entry	

If you use the encryption key on the Setup information sheet along with the initial setting values of the router, the Settings Utility does not need to be displayed. You can connect the wireless adapter to the router just by configuring the wireless adapter.

1 **Prepare a PC for wireless connection in a place where communication with the router is secured.**

2 **Start up the wireless adapter's Settings Utility.**

3 **When the SSID box in the Settings Utility displays elecom2g-xxxxxx", you should select it.**
- A random number and/or letter of either 0–9, a–f will go in the place of "x".
- When the SSID cannot be automatically detected, manually enter the SSID setting value (e.g. ele-com2g-xxxxxx) into the "SSID" box in the Settings Utility of the wireless adapter by alphanumerical characters in lowercase.

4 **This product is already arranged with the encryption function (WPA2-PSK/AES/Pass-phrase: 13 characters) for security purpose.The [Encryption] settings screen of the wireless adapter's Settings Utility is displayed.**

5 **Read the wireless adapter's instruction manual and set up the wireless adapter based on the router settings.**

6 **After setting, check the connection is successful by accessing the Internet via wireless LAN.**

Connecting in Mac OS

1 Click the [Apple menu] in the upper left of the screen, and then click [System Preferences].

2 Click [Network].

3 Check that "Status" for the AirMac (Wi-Fi) has changed to "On."

4 **From the list of networks, select the network that has the same SSID as the network written on the included "Setup Information Sheet."**

●Setup information sheet

Setup information sheet (default value)

2.4GHz SSID	elecom2g-xxxxxx
Encryption	WPA/WPA2 mixed
Encryption Key	yyyyyyyyyyyyy

* A six-digit random combination of numbers 0-9
and letters a-f will go in the place of "xxxxxx".
* A 13-digit random combination of numbers
will go in the place of "yyyyyyyyyyyyy".
⟨To access the management screen⟩

QR code for setting
(for QR link only)

Example

MAC address

Note

When more than one "elecom2g-xxxxxx"are found

There is a wireless host with the same SSID nearby. Select one with a strong radio wave.

*When the communication is unstable, changing SSID is recommended.

5 **A password entry screen will be displayed, so enter the (13-digit) encryption key written on the "Setup Information Sheet," and then click OK .**

● The password (encryption key) is a random 13 digits displayed on the "Setup Information Sheet".

6 **Check if the connection is successful.**

Setup is now completed.

Depending on the hotel, the Web browser may require you to certify yourself. In this situation, check with the hotel regarding how to do so.

Connecting iOS-running devices (iPhone/iPad/iPod touch)

In models with a camera running on iOS 4.0 or later, connection is available simply by downloading the exclusive application "QR link" from the AppStore. For details, refer to the included "Setup guide ①."
* Successful downloading of the application in China is not guaranteed.
To avoid radio-frequency interference, turning off the Bluetooth® function is recommended.
When the exclusive application does not work for the setting, manually set Wi-Fi as follows:

1 **Tap [Settings] on the main menu.**

* The screen shows an example on the display of iPhone 5.

2 **Tap [Wi-Fi] on the setting menu.**

3 **From the list of "Choose a Network…", tap the SSID written on the included "Setup information sheet.**

Settings	Wi-Fi

Wi-Fi   ON ● ──── When Wi-Fi is turned off, tap it to on.

Choose a Network…

🔒 📶 ❯

elecom2g-xxxxxx   🔒 📶 ❯

Other…   ❯

Ask to Join Networks   ON ●

Known networks will be joined automatically. If no known networks are available, you will be asked before joining a new network.

* A random combination of numbers 0-9 and letters a-f will go in the place of "XXXXXX".

⚠ **When more than one "elecom2g-xxxxxx"are found**
Select one with a strong radio wave.
N o t e *** When the communication is unstable, changing SSID is recommended.**

4 **Enter the password of the product, and tap │ Join │ .**

Enter the password for "elecom2g-xxxxxx"

Cancel	Enter Password	Join

Password ●●●●●●●●●●●●●

Q	W	E	R	T	Y	U	I	O	P

A	S	D	F	G	H	J	K	L

⇧ | Z | X | C | V | B | N | M | ⌫

?123 | space | Join

●**Setup information sheet**

Setup information sheet (default value)	
2.4GHz SSID	elecom2g-xxxxxx
Encryption	WPA/WPA2 mixed
Encryption Key	yyyyyyyyyyyyy

QR code for setting
(for QR link only)

Example

* A six-digit random combination of numbers 0-9 and letters a-f will go in the place of "xxxxxx".
* A 13-digit random combination of numbers will go in the place of "yyyyyyyyyyyyy".

● Password (encryption key) is a 13-digit random combination of numbers specified in the Setting information sheet.

* To enter alphabetical characters in uppercase, tap this key each time before the entry.

51

5 **Check if the connection is successful.**

Check that the checkmark is displayed.

● **When the wireless connection fails**
A wrong password may have been input at step 4 . Retry the connection as follows:

N o t e ① **Tap [>] at the right end of "elecom2g-xxxxxx" on the list.**
② **Tap [Forget this Network].**
③ **Repeat from step 3 .**

● **When [Unable to join the network "elecom2g-xxxxxx"] is displayed**
• Turn off the iPhone, iPad or iPod touch device's power, then turn it back on, and retry the connection.
• When the Bluetooth® function is turned on, Wi-Fi connection is affected by radio-frequency interference. Turn off the Bluetooth® function and retry the connection.

6 **Return to the main menu via the Home button.**

Setup is now completed.
Depending on the hotel, the Web browser (e.g., Safari) may require you to certify yourself. In this situation, check with the hotel regarding how to do so.

Connecting Android smartphones and tablet PCs

In models with a camera running on Android 2.1 or later, connection is available simply by downloading the exclusive application "QR link" from Google Play. For details, refer to the included "Setup guide ①."
* Successful downloading of the application in China is not guaranteed.
To avoid radio-frequency interference, turning off the Bluetooth® function is recommended.
When the exclusive application does not work for the setting, manually set Wi-Fi as follows:

The description here shows examples from Galaxy Nexus. Although your smartphone may have a different screen appearance, according to the model, the operation steps are the same. For details, refer to the relevant instruction manual of each smartphone or tablet PC.

1 **Press the menu button.**

2 **Tap [Settings].**

3 **Tap [Wi-Fi] of [WIRELESS & NETWORKS].**

4 **From the list, tap the SSID written on the included "Setup information sheet.**

Wi-Fi   ON ←———— When Wi-Fi is turned off, tap it to on.

elecom2g-xxxxxx
Secured with WPA/WPA2 (WPS available)

* A random combination of numbers 0-9 and letters a-f will go in the place of "XXXXXX".

5 **Enter the password, and tap Connect .**

elecom2g-xxxxxx

Signal strength
Good

Security
WPA/WPA2 PSK

Password

•••••••••••••

Show password

Cancel   Connect

●**Setup information sheet**

Setup information sheet (default value)

2.4GHz SSID	elecom2g-xxxxxx	QR code for setting (for QR link only)
Encryption	WPA/WPA2 mixed	
Encryption Key	yyyyyyyyyyyyy	

* A six-digit random combination of numbers 0-9 and letters a-f will go in the place of "xxxxxx".
* A 13-digit random combination of numbers will go in the place of "yyyyyyyyyyyyy".

Example

● Password (encryption key) is a 13-digit random combination of numbers specified in the Setting information sheet.

6 **Check the connection to the selected network is successful.**

Check that 📶 is displayed in the upper corner of the screen.

Setup is now completed.

Depending on the hotel, the Web browser may require you to certify yourself. In this situation, check with the hotel regarding how to do so.

Chapter 3

Advanced settings

1 Settings Utility screen

To set the product's functions, it is necessary to open the setting utility on the PC's Web browser. A simple way to connect the product's Settings Utility is explained here.

By referring to "5 Before Setup" on P15, connect the product using USB or wireless LAN beforehand.

Displaying the Settings Utility screen

1 **Start up a Web browser, such as Internet Explorer.**

2 **Input "http://wrh-150x.setup" to the address bar of the Web browser, and press [Enter] on the keyboard.**

http://wrh-150x.setup   **Enter address here**

● The certification screen is displayed.

When the certification screen is not displayed

When the router (this product) is not running before the PC has been powered up, connection may not be successful because the correct IP address has not been acquired. When the certification screen is not displayed, wait for approximately three minutes and turn the PC on.

3 **Enter the user name and the password of the router, and click** **OK** **.**

For Windows 7

Windows Security

The server wrh-150x.setup at WRH-150x requires a username and password.

Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).

admin

•••••

☑ Remember my credentials

① **Enter**

② **Click**

OK

User name	admin
Password	admin

● The default values are shown in the table above. Use alphanumerical characters in lowercase.

● The Settings Utility of the router is displayed.

● Please refer to the relevant sections for details of each parameter.

In an environment where others may have access to the PC, changing the password is recommended so that the setting cannot be changed by a third party. (Refer to "Password Setup screen" on P88.)

A description of the Settings Utility screen

ELECOM   Access Point mode

WRH-150x series

Site contents
► Operation Mode
► Wireless
► TCP/IP Settings
► Management

Language
English ⌄

Status

The system information of this device is shown.

System	
Uptime	0day:0h:5m:22s
Firmware Version	v1.03.6
Operation Mode	Access Point mode
LAN configuration	
IP address	192.168.2.251
Subnet Mask	255.255.255.0
DHCP Server	Auto
MAC address	58:b0:d4:05:83:7a
Wireless configuration (1st SSID)	
SSID	elecom2g-xxxxxx
Channel Number	1ch
Encryption	WPA2 Mixed
BSSID	58:b0:d4:05:83:7a
Associated Clients	0

Menu parameter	Description
Operation Mode	Sets the operation mode of the router (→ P60).
Wireless	This is a menu allowing various settings on the wireless LAN, such as Basic Settings (→ P61), Advanced Settings (→ P64), Encryption (→ P68), Access Control (→ P65), and WPS settings (→ P67).
TCP/IP Settings	This is a menu allowing Internet connection, such as LAN settings (→ P75), and WAN settings (→ P79).
Management	This is a menu for controlling the router, such as Status (→ P83), Upgrade Firmware (→ P85), Saving/Reload Settings (→ P86) and Password Setup (→ P88).
Language	Switches the language setting for the Settings Utility screen.

2 Operation Mode Selection

This is a screen to select the operation mode of the router.
It is shipped from the factory in access point mode.

To display screen **Select [Operation mode] from the menu list on the left side of the screen.**

Operation Mode

You can select the operation mode of this device.

○ Router mode

○ Access Point mode

Apply

Router mode	Contol management is integrated by registering the router's Internet seetings and as-signing the IP address to the connected terminals.
Access Point mode	Use this mode to expand the wireless network with the connection to a broadband modem or terminal device incorporating a router function, or to the existing LAN as a wireless access point. The Internet settings or controls will be managed by the other router. This product has been set to the Access Point mode in its default status.

3 Wireless Settings

This section explains how to set the router's wireless LAN function.

Basic Settings

To display screen **Select [Wireless] and [Basic Settings] from the menu list on the left of the screen.**

Wireless Basic Settings

You can change the basic settings of Wi-Fi(Wireless LAN).

Multiple SSID
1st SSID: elecom2g-xxxxxx   (MAX 32 characters)
Channel Width: 20MHz ∨
Channel Number: Auto ∨
SSID stealth: Disabled ∨
Country Setting: Japan ∨

Apply

When the settings are changed

When the settings are changed, be sure to save the new setting by clicking Apply . Click Reboot Later to continue setting the other parameters, and click Reboot Now to immediately activate the change. Follow the messages on the screen.

● **Setting description**

Multiple SSIDs	The router enables you to use two SSIDs at the same time. Also, different security levels can be selected for each SSID. For the setting procedure, refer to "Setting multiple SSIDs" on P63.
1st SSID	Enter SSID to use in the wireless LAN. The default SSID is "elcom2g-xxxxxx"(a random combination of numbers 0-9 and letters a-f will go in the place of "xxxxxx".)
Channel Width	Set the channel width of the standard of 11n. When connecting the router with the 11n-compliant wireless client, setting to [40 MHz] can increase the transmission speed. In some case, however, the transmission speed may not be improved due to the interference of other wireless LAN. (Default value: 20 MHz)
Channel Number	Select the channel you want to use by selecting [Auto] or ch1 to ch13. To use multiple wireless devices with different channels, each channel should be separated by five channels or more. Selecting [Auto] automatically sets the channels. (Default value : Auto) (Example) ch1, ch6, ch11
SSID Stealth	The [Disabled] option enables you to check the SSID set from the Settings Utility of the wireless adapter to the router. Selecting [Enable] does not display the SSID of the router in the Settings Utility of the wireless adapter. To prevent invalid access, or to protect the SSID from a third party, select [Enable]. (Default setting : Disabled)
Country Setting	Select the wireless setting according to the country or region where the router will be used. Japan, China, Taiwan, Korea, Europe*, France or Spain (Default setting: Japan) *European countries except Spain and France. The following channels are available for each country and region: Country or region of use / Available channels table below

Country or region of use	Available channels
Japan	ch1~ch11
China	ch1~ch11
Taiwan	ch1~ch11
Korea	ch1~ch11
Europe	ch1~ch11
Spain	ch10~ch11
France	ch10~ch11

Setting multiple SSIDs

Multiple SSID

You can set wireless setting for multiple SSID.

No.	Enable	SSID (MAX 32 characters)	SSID stealth	SSID Separator
2nd SSID	☑	elecom2g2nd-xxxxxx ✕	Disabled ▼	Disabled ▼

Apply

❶ Click Multiple SSID .
❷ Place a checkmark into [Enable].
❸ Enter a maximum of 32 random characters, for the second SSID.
❹ Perform advanced settings as necessary.
❺ Click Apply . For further operations, refer to "When the settings are changed" on P61.

● **SSID Separator**
Setting to [Enable] allows access only to the WAN side of the router from the wireless LAN remote controller that is connected to the network name (SSID) in settings – access to the other wireless LAN remote controller in the same network will be disabled.

Advanced Settings screen

The advanced optional functions in the wireless LAN are available. Note that these settings require a knowledge of the wireless LAN.

To display screen **Select [Wireless Setting] and [Wireless Advanced Settings] from the menu list on the left side of the screen.**

Wireless Advanced Settings

You can change the Advanced settings of Wi-Fi(Wireless LAN).
*These items are the items for advanced users who have sufficient knowledge about the Wi-Fi (Wiress LAN).

Privacy Separator: ○Enabled ●Disabled
RF Output Power: ●100% ○70% ○50% ○35% ○15%
Apply

When the settings are changed

When the settings are changed, be sure to save the new setting by clicking Apply . Click Reboot Later to continue setting the other parameters, and click Reboot Now to immediately activate the change. Follow the messages on the screen.

● **Advanced Settings**   When each parameter has a specifed range, it is placed in parentheses on the right.

Privacy Separator	Turning on "Enabled" prohibits access between the wireless LAN remote controls connected to the router. (Default: disabled)
RF Output Power	Enables you to adjust the output level of radio waves. The output level can be set according to the environment in order to control the transmission range. (Default value: 100%)

Wireless Access Control screen

The Wireless Access Control mode enables the router to communicate only with wireless adapters that have a registered MAC address, or to reject communication. It is useful for limiting invalid access from third-party wireless adapters.

To display screen **Select [Wireless Setting] then [Access Control] from the menu list on the left side of the screen.**

Wireless Access Control
You can manage the wireless connection of the specific client.

Wireless Access Control Mode:	Disable ∨
MAC address:	(Example : 0090fe0123ab)
Comment:	(MAX 20 characters)

Apply

Current Access Control List:

MAC address	Comment	Select

Deleted Selected   Deleted All

When the settings are changed

When the settings are changed, be sure to save the new setting by clicking Apply . Click Reboot Later to continue setting the other parameters, and click Reboot Now to immediately activate the change. Follow the messages on the screen.

● **A description of the screen for entries and settings**

Wireless Access Control Mode	[Disable] : Disables the access control mode. [Allow Listed] : Only connection with a wireless adapter that has a MAC address registered to [Access Control List] is available by wireless LAN. [Deny Listed] : Rejects wireless LAN connections with wireless adapters that have a MAC address registered to [Access Control List].
MAC address	Enter the MAC addresses of the wireless adapters to be allowed or rejected wireless LAN connection to the router.
Comment	Comments can be entered freely. This is useful for identifying the registered wireless adapter.

● **Access Control List**

The settings made on the input screen are displayed as a list. Place a checkmark in [Select] to delete the information of a registered wireless adapter.

● **Functions of buttons**

Delete Selected	Deletes the wireless adapter with a checkmark on [Select] from the list. Clicking this button displays a confirmation screen; click OK and click Reboot Now .
Delete All	Deletes all the settings of the wireless adapter on the list. Clicking this button displays a confirmation screen; click OK and click Reboot Now .

Registering a wireless adapter

Wireless Access Control

You can manage the wireless connection of the specific client.

Wireless Access Control Mode: Allow Listed ⌄

MAC address: 0090fe0123ab (Example : 0090fe0123ab)

Comment: team N (MAX 20 characters)

Apply

Current Access Control List:

MAC address	Comment	Select

Deleted Selected   Deleted All

❶ Select [Allow Listed] or [Deny Listed] in the [Wireless Access Control Mode].

❷ Enter the MAC address of the wireless adapter in [MAC address]. There is no need to separate the address using colons (:).
Example : 0090fe0123ab

❸ Enter comments, such as a name, in the [Comment] section to identify the wireless adapter, as required.

❹ Click Apply . For the further operations, refer to "When the settings are changed" on P65.

❺ When there are plural wireless adapters to register, repeat ❶ to ❹ above.

Setting the WPS function

This section describes how to set the WPS (Wi-Fi Protected Setup) function.

To display screen **Select [Wireless Setting] and [WPS] from the menu list on the left side of the screen.**

Wi-Fi Protected Setup

You can easily connect each wireless clients and this device by using WPS.

☐ Disable WPS

Apply

PIN code of this device: 26265322
PBC method connection: Start
PIN code of client: [   ] Start

Current Key Info:

Authentication	Encryption	Key
WPA2-Mixed PSK	TKIP+AES	123456789ABCD

When the settings are changed

When the settings are changed, be sure to save the new setting by clicking Apply . Click Reboot Later to continue setting the other parameters, and click Reboot Now to immediately activate the change. Follow the messages on the screen.

● **Wi-Fi Protected Setup**

Disable WPS	Place a checkmark on this option to disable the WPS function. (Default setting: OFF)
PIN code of this device	Displays the PIN code of the router.
PBC method connection	Clicking Start enables the WPS function. This gives the same result as pressing the WPS SETTING button on the router.
PIN code of client	When registering the wireless adapter's PIN code on the router, enter the PIN code, and click Start .
Current Key info	Displays the current encryption setting information.

4 Setting Security (Encryption setting)

This section describes how to set the security, such as data encryption for the data used in wireless LAN.

● **Security functionavailable in the router**

WEP	A traditional encryption method available since the wireless LAN spread. For the router, two kinds of encryption level is selectable; 64 bit and 128 bit. Use either WPA-PSK or WPA2-PSK when either of these option is available for your LAN environment.
WPA-PSK WPA2-PSK	This router uses "WPA", a new security option. You can use both WPA-PSK (TKIP) and WPA2-PSK (AES).
WPA2-Mixed	Supports the mixed environment of WPA-PKS (TKIP) and WPA2-PSK (AES).

● **Default settings of the security setting of the router**

Parameter	Default settings of the router(Default value)	
SSID	elecom2g-xxxx *A six-digit random combination of numbers 0-9 and letters a-f will go in the place of "xxxxxx".	
Certification method	WPA2-Mixed	Select "WPA2-PSK" when setting the wireless adapter.
Encryption method	AES	Select "AES" when setting the wireless adapter.
WPA unicast cipher suite	WPA2-PSK	
Common key format	Passphrase	
Encryption key	Refer to the Setup Information Sheet attached to the product. The characters used are alphanumerical characters in uppercase. ●**Setup information sheet** * The Setup information sheet may be different from the one in the illustration, depending on the shipping time. PASS entry column	

Setting WEP

Use "WEP" for the encryption security of wireless communication.

To display screen | **Select [Wireless] - [Encryption] from the menu list on the left side of the screen.**

◆ **Setting screen when WEP is selected**

Encryption setup
You can set the settings of encryption for security.

Select SSID:	elecom2g-xxxxxx ▾ Apply
Encryption:	WEP ▾
Key Length:	128-bit ▾
Key Format:	ASCII (13 characters) ▾
Encryption Key 1:	●●●●●●●●●●●●●
Show Password:	☐

Placing a checkmark here allows the current password to be displayed.

Setting procedure

Note The router, and all the wireless adapters connecting to the router, should have the same setting values for each parameter. When even a part of the setting is different, wireless LAN cannot be used.

1 For [Select SSID], select a [SSID] to be set for the security setting.

Select SSID:	elecom2g-xxxxxx elecom2g2nd-xxxxxx Apply
Encryption:	WPA-Mixed ▾
WPA Cipher Suite:	☑ TKIP ☐ AES

Select

2 For [Encryption], select [WEP].

You can set the settings of encryption for security.

Disable
WEP
WPA
WPA2
WPA-Mixed

Select SSID:	x ▾ Apply
Encryption:	
WPA Cipher Suite:	☑ TKIP ☐ AES

Select

3 For [Key Length], select the appropriate security level. Normally 128 bit is recommended.

Encryption:	WEP ▾
Key Length:	64-bit 128-bit
Key Format:	ASCII (13 characters) ▾

Select

When your wireless adapter only corresponds to 64 bit, select 64 bit. Also, when there is any wireless control which corresponds to 64 bit, select 64 bit.

Note that 64 bit has a low security level and, therefore, is not recommended. Select another option if possible.

4 **For [Key Format], select the format of the encryption key.**

Key Length:	128-bit ∨		
Key Format:	ASCII (13 characters)		**Select**
	Hex (26 characters)		
Encryption Key 1:			
Show Password:	☐		

The format of the character string selected here sets the encryption key.

ASCII (5 characters)	The option when 64 bit is selected for [Key Length]. Enter five alphanumerical characters in [Encryption Key 1].
ASCII (13 characters)	The option when 128 bit is selected for [Key Length]. Enter 13 alphanumerical characters in [Encryption Key 1].
Hex (10 characters)	The option when 64 bit is selected for [Key Length]. Enter 10 hexadecimal numbers in [Encryption Key 1].
Hex (26 characters)	The option when 128 bit is selected for [Key Length]. Enter 26 hexadecimal numbers in [Encryption Key 1].

* Hexadecimal is a character string combining 0–9 and a–f

5 **Enter the encryption key by the format selected at step 4 .**

Key Format:	ASCII (13 characters) ∨		
Encryption Key 1:	●●●●●●●●●●●●●		**Enter**
Show Password:	☐		

Placing a checkmark here allows the current password to be displayed.

● For ASCII, the uppercase and the lowercase is differentiated. For Hex, this differentiation is not applied.

6 **When all the settings are completed, click Apply .**

Select SSID:	elecom2g-xxxxxx ∨	Apply	**Click**
Encryption:	WEP ∨		
Key Length:	128-bit ∨		
Key Format:	ASCII (13 characters) ∨		
Encryption Key 1:	●●●●●●●●●●●●●		
Show Password:	☐		

7 When a confirmation message is displayed, check the contents and click OK .

Message from webpage

if WEP is turn on,WPS2.0 will be disabled

OK   Cancel

Click

8 "Change setting successfully!" is displayed. Click Reboot Now .

Change setting successfully!

Your changes have been saved. The router must be rebooted for the changes to take effe
You can reboot now, or you can continue to make other changes and reboot later.

Reboot Now   Reboot Later

Click

9 The waiting time is displayed, and when it reaches zero seconds, the screen automatically returns to the main Settings Utility screen.

Rebooting.

Please do not turn off the power of this device absolutely until the page changes.
The remaining **27** seconds...

10 This completes the security setting of this router by WEP. Now configure the same security settings on the wireless adapter.

● For instructions on how to set the wireless adapter, refer to the wireless adapter's manual.

Setting WPA-PSK/WPA2-PSK

Perform security settings using WPA-PSK (TKIP) or WPA2-PSK (AES). WPA2-PSK/WPA-PSK easily realizes a high level of security even with a small-sized network.
For settings, decide the encryption key beforehand.

Note **The router, and all the wireless adapters connecting to the router, should have the same setting values for each parameter. When even a part of the setting is different, wireless LAN cannot be used.**

To display screen **Select [Wireless] - [Encryption] from the menu list on the left side of the screen.**

◆ **Setting screen for selecting WPA-PSK**

Encryption setup

You can set the settings of encryption for security.

Select SSID:	elecom2g-xxxxxx ▾	Apply
Encryption:	WPA ▾	
WPA Cipher Suite:	☑ TKIP ☐ AES	
Key Format:	Passphrase ▾	
Pre-Shared Key:	••••••••••••••	
Show Password:	☐	

Placing a checkmark here allows the current password to be displayed.

1 **For [Encryption], select either [WPA], [WPA2] or [WPA2-Mixed].**

You can set the settings of encryption and security.

Select SSID:	Apply
Encryption:	Disable / WEP / WPA / WPA2 / WPA-Mixed
WPA Cipher Suite:	☑ TKIP ☐ AES

Select

WPA	WPA-PSK is used. Selecting [WPA unicast cipher suite] turns on TKIP.
WPA2	WPA-PSK is used. Selecting [WPA unicast cipher suite] turns on AES.
WPA2-Mixed	Even when WPA-PSK (AES or TKIP) clients and WPA2-PSK (AES or TKIP) clients coexist, connection is available with any wireless adapter. Also, when all the wireless adapters support WAP2-PSK (TKIP), select this option.

2 **For [Key Format], select the format of the encryption key.**

WPA Cipher Suite:	☑ TKIP ☐ AES
WPA2 Cipher Suite:	☐ TKIP ☑ AES
Key Format:	Passphrase / HEX (64 characters)
Pre-Shared Key:	
Show Password:	☐

Select

Patssphrase	Alphanumerical characters (from eight to 63) can be used. Uppercase and lowercase are differentiated.
Hex (64 characters)	64 hexadecimal characters (fixed) are available. Uppercase and lowercase are not differentiated.

* Hexadecimal is a character string combining 0–9 and a-f.

3 **For [Pre-Shared key], enter the character string in the entry format selected in step 2 .**

Key Format:	Passphrase
Pre-Shared Key:	••••••••••••••
Show Password:	☐

Enter

Placing a checkmark here allows the current password to be displayed.

4 **When all the settings are completed, click** Apply **.**

Select SSID:	elecom2g-xxxxxx Apply
Encryption:	WPA-Mixed
WPA Cipher Suite:	☑ TKIP ☐ AES
WPA2 Cipher Suite:	☐ TKIP ☑ AES
Key Format:	Passphrase
Pre-Shared Key:	••••••••••••••
Show Password:	☐

Click

5 When a confirmation message is displayed, check the contents and click OK .

Message from webpage

under WPA only or TKIP only, WPS2 daemon will be disabled

OK   Cancel

Click

6 A message, "Change setting successfully!" is displayed. Click Reboot Now .

Change setting successfully!

Your changes have been saved. The router must be rebooted for the changes to take effe
You can reboot now, or you can continue to make other changes and reboot later.

Reboot Now   Reboot Later

Click

7 The waiting time is displayed, and when it reaches zero seconds, the screen automatically returns to the main Settings Utility screen.

Rebooting.

Please do not turn off the power of this device absolutely until the page changes.
The remaining **27** seconds...

8 This completes the security setting of this router by WPA. Now configure the same security settings on the wireless adapter.

● For instructions on how to set the wireless adapter, refer to the wireless adapter's manual.

5 TCP/IP Settings

This section describes how to set the WAN port.

LAN Interface Setup screen

Set the IP address information on the LAN (Local Network) side of the router.

The display differs, depending on whether Router mode or Access Point mode is selected.

To display screen Select [Internet Setting] and [LAN Interface Setup] from the menu list on the left side of the screen.

● **Access Point mode**

LAN Interface Setup
You can setup LAN interface of this device.

IP address:	192.168.2.251
Subnet Mask:	255.255.255.0
Default Gateway:	0.0.0.0

Apply

● **Router mode**

LAN Interface Setup
You can setup LAN interface of this device.

IP address:	192.168.2.1
Subnet Mask:	255.255.255.0
Default Gateway:	0.0.0.0
DHCP Client Range:	192.168.2.100 – 192.168.2.200 Show Client
DHCP Lease Time:	480 (1 ~ 10080 Minutes)
Static DHCP:	Set Static DHCP

Apply

When the settings are changed
When the settings are changed, be sure to save the new setting by clicking Apply . Click Reboot Later to continue setting the other parameters, and click Reboot Now to immediately activate the change. Follow the messages on the screen.

● **A description of the screen for entries and settings**

IP address	The IP address of the LAN side of the router. The default value is "192.168.2.251".
Subnet Mask	Enter the subnet mask of the network in use. The default value is "255.255.255.0".
Default Gateway	Set the default gateway for external connection from LAN, such as connecting to the Internet. To connect to the Internet, enter the IP address of the LAN side of the router.
DHCP Client Range	Specify the range of IP addresses that the DHCP server automatically assigns to the client when using the DHCP server function. The IP address is automatically assigned to the range between the start address and the end address. By clicking Show Client , the connected terminal's list of IP addresses is displayed in a separate window.
DHCP Lease Time	Enter a valid time for the IP address, which the DHCP server assigns. The setting range is 1 to 10080 minutes. The default is "480".
Static DHCP	Clicking Set Static DHCP enables you to register the client MAC address with the specific IP address. For the setting up steps, refer to "Static DHCP Setup screen" on P77.

Static DHCP Setup screen

When the DHCP server function is activated, the IP address is automatically assigned to the client. However, depending on the network device of the client, a specific IP address may need to be assigned. In such cases, the client MAC address can be registered in correlation with the specific IP address.

To display screen **Select [TCP/IP Settings] and [LAN Interface] from the menu list on the left side of the screen, and click [Static DHCP Setup].**

Static DHCP Setup

You can set the static IP address to the specific clients.

☐ **Enable Static DHCP**

IP address: _____ (Example : 192.168.2.100)
MAC address: _____ (Example : 0090fe0123ab)
Comment: _____ (MAX 19 characters)

Apply

Static DHCP List:

IP address	MAC address	Comment	Select

Deleted Selected   Deleted All

When the settings are changed

When the settings are changed, be sure to save the new setting by clicking Apply . Click Reboot Later to continue setting the other parameters, and click Reboot Now to immediately activate the change. Follow the messages on the screen.

● **A description of the screen for entries and settings**

Enable Static DHCP	Placing a checkmark on this parameter activates the contents of the static DHCP list. Without a checkmark, the IP address is not fixed even though it is registered in the list.
IP address	Enter the IP address to be assigned to the client.
MAC address	Enter the MAC address of the client to which you want to assign a fixed IP address.
Comment	Comments can be entered freely. This is useful for identifying the registered wireless adapter.

● **Static DHCP list**
Lists up the settings made. Place a checkmark on [Select] to delete the registered client information.

● **Functions of buttons**

Deleted Selected	Deletes the wireless adapter checked with [Select] from the list. Clicking the button displays a confirmation window. Click OK , then click Reboot Now .
Deleted All	Deletes all the settings of the wireless adapter. Clicking the button displays a confirmation window. Click OK , then click Reboot Now .

Settings procedure for Static DHCP

Static DHCP Setup

You can set the static IP address to the specific clients.

☑ **Enable Static DHCP**

IP address: 192.168.2.100   (Example : 192.168.2.100)
MAC address: 0090fe0123ab   (Example : 0090fe0123ab)
Comment: team N   (MAX 19 characters)

[Apply]

Static DHCP List:

IP address	MAC address	Comment	Select

[Delected Selected] [Delected All]

❶ Place a checkmark on [Enable Static DHCP].

❷ Enter the IP address to assign to the client. The IP address should be delimited by a period mark ".".
Example : 192.168.2.100

❸ Enter the MAC address of the client. There is no need to delimit the address with a colon ":".
Example : 0090fe0123ab

❹ Enter comments in the 'Comment' section, as required.

❺ Clicking | Apply | displays a message, "Change setting successfully!" is displayed.

❻ Click | Reboot Later | to add the client to the register, and click | Reboot Now | to immediately activate the setting change. Follow the messages on the screen.

WAN Interface Setup screen

The WAN setting screen is displayed only for the Rooter mode.

Perform the setting on the WAN (Internet) side of the router. The setting screen depends on which option, DHCP, PPPoE, or Static IP, is selected for [WAN Access Type].
* PPPoE is a protocol typically used in FLET'S service in Japan.

To display screen — Select [TCP/IP Settings] and [WAN Interface] from the menu list on the left side of the screen.

WAN Interface Setup
You can setup WAN interface of this device.

WAN Access Type:	DHCP Client ∨
Host Name:	(MAX 30 characters)
MTU Size:	1454 (1400-1492 bytes)
● Attain DNS Automatically	
○ Set DNS Manually	
DNS 1:	(Example : 192.168.5.44)
DNS 2:	(Example : 192.168.5.43)
DNS 3:	(Example : 192.168.5.42)
Clone MAC Address:	000000000000
	Mac Clone [Clone MAC from your Computer]
☐ Enable UPnP	
☐ Enable Ping Access on WAN	

Apply

● **When [DHCP] is selected** *For the screen image, refer to the above.

Host Name	The host name can be freely entered, as necessary.
MTU Size	Set MTU (Maximum Transmission Unit) and the maximum data value transmittable by each transmission (Unit: byte. Value: 1400 to 1492.). Normally this option does not require any change. (Default value: 1454)
Setting of the DNS server	● **Attain DNS Automatically** Use this option to automatically acquire the address of the DNS server from the provider. When no specific indication is given by the provider, select this option. ● **Set DNS Manually** When the provider specifies the DNS address, select this option. When there is a single DNS, enter the address to DNS 1. When there are two or more addresses, enter the addresses into DNS1 to DNS3 accordingly.
Clone MAC Address	To notify the Internet about the PC's MAC address, other than that of a router, enter the PC's MAC address here. The address is used in the CATV Internet connection service in which the connection authorization is given based on the MAC address of the PC. Clicking Mac Clone copies and enters the MAC address of a PC that is accessing the Settings Utility page at the time.
Enable UPnP	Sets the UPnP (Universal Plug and Play) function to 'enable' or 'disable'. When the UPnP is enabled it automatically detects the device in LAN in order to correctly recognize it when the UPnP network devices are used in an OS that corresponds to the UPnP function. (Default setting: Disabled)
Enable Ping Access on WAN	Placing a checkmark on this option enables the product to respond to the ping from the WAN side of the network connection test. Note that this function lowers the security level, and is normally not recommended. (Default setting: Disabled)

When the settings are changed

When the settings are changed, be sure to save the new setting by clicking $\boxed{\text{Apply}}$. Click $\boxed{\text{Reboot Later}}$ to continue setting the other parameters, and click $\boxed{\text{Reboot Now}}$ to immediately activate the change. Follow the messages on the screen.

● **When [PPPoE] is selected**

WAN Interface Setup

You can setup WAN interface of this device.

WAN Access Type:	PPPoE ▼	
User Name:	userID123@elecom.ne	(MAX 57 characters)
Password:	●●●●●●●●●●●●	(MAX 57 characters)
Service Name:		(MAX 40 characters)
Connection Type:	Connect on Demand ▼	Connect Disconnect
Idle Time:	5	(1-1000 Minutes)
MTU Size:	1454	(1360-1492 bytes)

◉ **Attain DNS Automatically**
○ **Set DNS Manually**

DNS 1:		(Example : 192.168.5.44)
DNS 2:		(Example : 192.168.5.43)
DNS 3:		(Example : 192.168.5.42)
Clone MAC Address:	000000000000	

Mac Clone [Clone MAC from your Computer]

☐ **Enable UPnP**
☐ **Enable Ping Access on WAN**

Apply

User Name	Enter the user name given by the provider. When the user ID contains "@", enter "@" and the identifier for the provider after the user name. Example userID123 @ elecom.net user name provider identifier
Password	Enter the password given by the provider.
Service Name	A name, such as the provider name, can be entered, as required.

Connection Type	Select [Continuous], [Connect on Demand], and [Manual].
	
	[Continuous] : Allows access to the Internet at all times.
	[Connect on Demand] : Automatically connects to the Internet with the connection request, and automatically disconnects the connection when the specified time elapses.
	[Manual] : Manually connects and disconnects the Internet.
	      Clicking $\boxed{\text{Connect}}$ connects the Internet.
	      Clicking $\boxed{\text{Disconnect}}$ disconnects the Internet.

Idle Time	When [Automatic Connect] is selected, enter the time, in the number of minutes, from the last connection request until the automatic disconnection. (Value: 1 to 1000)

MTU Size	Set MTU (Maximum Transmission Unit) and the maximum data value transmittable by each transmission (Unit: byte. Value: 1360 to 1492.) Normally this option does not require any change. (Default value: 1454)
Setting the DNS server	● **Attain DNS Automatically** Use this option to automatically acquire the address of the DNS server from the provider. When no specific indication is given by the provider, select this option. ● **Set DNS Manually** When the provider specifies the DNS address, select this option. When there is a single DNS, enter the address in DNS 1. When there are two or more address, enter the addresses in DNS1, DNS2 and DNS3 accordingly.
Clone MAC Address	To notify the Internet about the PC's MAC address, other than that of a router, enter the PC's MAC address here. The address is used in the CATV Internet connection service in which the connection authorization is given by the MAC address of the PC. Clicking Mac Clone copies and enters the MAC address of a PC that is accessing the Settings Utility page at the time.
Enable UPnP	Sets the UPnP (Universal Plug and Play) function to 'enable' or 'disable'. When the UPnP is enabled it automatically detects the device in LAN in order to correctly recognize it when the UPnP network devices are used in an OS that corresponds to the UPnP function. (Default setting: Disabled)
Enable Ping Access on WAN	Placing a checkmark on this option enables the product to respond to the ping from the WAN side of the network connection test. Note that this function lowers the security level, and is normally not recommended. (Default setting: Disabled)

When the settings are changed

When the settings are changed, be sure to save the new setting by clicking Apply . Click Reboot Later to continue setting the other parameters, and click Reboot Now to immediately activate the change. Follow the messages on the screen.

● **When selecting [Static IP]**

WAN Interface Setup

You can setup WAN interface of this device.

WAN Access Type:	Static IP
Static IP :	172.1.1.1
Subnet Mask:	255.255.255.0
Default Gateway:	172.1.1.254
MTU Size:	1454 (1400-1500 bytes)
DNS 1:	(Example : 192.168.5.44)
DNS 2:	(Example : 192.168.5.43)
DNS 3:	(Example : 192.168.5.42)
Clone MAC Address:	000000000000
	Mac Clone [Clone MAC from your Computer]

☐ **Enable UPnP**
☐ **Enable Ping Access on WAN**

Apply

Static IP	Enter the information given by the provider.
Subnet mask	
Default gateway	
MTU size	Set MTU (Maximum Transmission Unit) and the maximum data value transmittable by each transmission (Unit: byte. Value: 1400 to 1500.) Normally this option does not require any change. (Default value: 1454)
DNS1	Enter this only when there is only one indication for the DNS address from the DNS provider.
DNS2	Enter the secondary DNS address here when there are two indications for the DNS address.
DNS3	Enter the tertiary DNS address here when there are three indications for the DNS address.
Clone MAC Address	To notify the Internet about the PC's MAC address, other than that of a router, enter the PC's MAC address here. The address is used in the CATV Internet connection service in which the connection authorization is given by the MAC address of the PC. Clicking Mac Clone copies and enters the MAC address of a PC that is accessing the Settings Utility page at the time.
Enable UPnP	Sets the UPnP (Universal Plug and Play) function to 'enable' or 'disable'. When the UPnP is enabled it automatically detects the device in LAN in order to correctly recognize it when the UPnP network devices are used in an OS that corresponds to the UPnP function. (Default setting: Disabled)
Enable Ping Access on WAN	Placing a checkmark on this option enables the product to respond to the ping from the WAN side of the network connection test. Note that this function lowers the security level, and is normally not recommended. (Default setting: Disabled)

When the settings are changed

When the settings are changed, be sure to save the new setting by clicking Apply . Click Reboot Later to continue setting the other parameters, and click Reboot Now to immediately activate the change. Follow the messages on the screen.

6 Management

Status screen

Various status information can be confirmed on the Status screen.

To display screen **Select [System Settings] and [Status] from the menu list on the left side of the screen.**

Status

The system information of this device is shown.

System	
Uptime	0day:0h:26m:12s
Firmware Version	v1.03.6
Operation Mode	Router mode
WAN configuration	
IP address	192.168.1.17
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
MAC address	58:b0:d4:05:83:7b
LAN configuration	
IP address	192.168.2.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled
MAC address	58:b0:d4:05:83:7a
Wireless configuration (1st SSID)	
SSID	elecom2g-xxxxxx
Channel Number	1ch
Encryption	WPA2 Mixed
BSSID	58:b0:d4:05:83:7a
Associated Clients	3
Wireless configuration (2nd SSID)	
SSID	elecom2g2nd-xxxxxx
Channel Number	1ch
Encryption	WEP 128bits
BSSID	00:e0:13:81:96:b2
Associated Clients	1

● **System**

Uptime	Displays the elapsed time since the startup of the router. When power is turned off, or the router is restarted, the uptime is reset.
Firmware Version	Displays the firmware version.
Operation Mode	Displays the current communication mode. In this router, Access Point mode and the Router mode can be selected.

● **WAN configuration**
(Displayed only with the Router mode)

IP address	Displays the current IP address.
Subnet mask	Displays the current subnet mask.
Default Gateway	Displays the current default gateway.
MAC address	Displays the MAC address on the WAN side of the router.

● **LAN configuration**

IP address	Displays the current IP address.
Subnet mask	Displays the current subnet mask.
DHCP	Displays the status of the DHCP function.
MAC address	Displays the MAC address on the LAN side of the router.

● **Wireless configuration (1st SSID)**

SSID	Displays the SSID currently used.
Channel Number	Displays the current channel mode.
Encryption	Displays the encryption setting currently used.
BSSID	Displays BSSID.
Associated Clients	The number of wireless adapters connected to this SSID.

● **Wireless Configuration (2nd SSID)**
(Displayed only when the multiple SSIDs are set)

SSID	Displays for the multiple SSIDs currently used.
Encryption	Displays the encryption setting currently used.
BSSID	Displays BSSID.
Associated Clients	The number of wireless adapters connected to this SSID.

Upgrade Firmware screen

In accordance with improvements to, or expansion of, the function, the firmware can be upgraded. The upgraded firmware can be downloaded from the support page of the ELECOM website.

http://www.elecom.co.jp/global/download/utility.html

To display screen — **Select [System Settings] and [Upgrade Firmware] from the menu list on the left side of the screen.**

Upgrade Firmware

You can upgrade the firmware of this device.

Firmware Version: v1.03.6
Select File: [   ] [Browse...]
[Upload]

Upgrading the Firmware

Upgrade Firmware

You can upgrade the firmware of this device.

Firmware Version: v1.03.6
Select File: C:\WRH-150x_x1.05.bin [Browse...]
[Upload]

❶ Go to the "Download" page of our website, search for the latest firmware for the product, and save it to your PC.
The file is a compressed file. Decompress it before use. (You may not need to decompress it, depending on your OS.)
• Check on the downloading page for any precautions before starting the download.

❷ Click [Browse…].

❸ Select the firmware file that has been compressed (the extension: "bin"), and click [Open].

❹ Click [Upload].

❺ The message, "Rebooting." is displayed with the waiting time.
Never turn off the router until the upgrade is completed.

❻ The count down ends, and the screen switches to the top menu of the Settings Utility.
Upgrade of the firmware is now completed.
Unplug the power cable, and plug it in again before use.

Save/Reload Settings screen

The settings information can be saved as a file. By reading the saved file, the status of the router can be returned to the state when the setting information was saved. The settings can be also returned to the default status (factory shipping status).

To display screen | **Select [Management] and [Save/Reload Settings] from the menu list on the left side of the screen.**

Save/Reload Settings

You can save the current config, or reload, or initialize.

Save Settings to File: Save...
Load Settings from File: [   ] Browse... Upload
Reset Settings to
Default: Reset

Saving the settings

Save Settings to File: Save...

❶ Click Save... for [Save Settings for File].
❷ The File Download window is displayed; click Save .
❸ The Save as window is displayed; specify the save destination of the file, and click Save . The [Config.dat] file is saved to the specified location.

Restoring the settings

Load Settings from File: C:\Users\(UserName)\Docum Browse... Upload

❶ Click Browse for [Load Settings from File].
❷ The File Selection window is displayed; specify the setting file.
❸ Click Upload .
❹ The message, "Rebooting." is displayed with the waiting time.
❺ The count down ends, and the screen switches to the top menu of the Settings Utility.

Initializing the settings (returning to default status)

The settings of the router can be initialized (returned to the default status). All the settings changed after purchase will be returned to the default values. Before initialization, save the settings to the file as necessary.

Reset Settings to Default:	Reset

❶ Click Reset for [Reset Settings to Default].

❷ A confirmation message is displayed to ask if it is OK to return to the default status; click OK .

❸ The message, "Rebooting." is displayed with the waiting time.

❹ The count down ends, and the screen switches to the top menu of the Settings Utility.

Password Setup screen

The user name and the password for logging in to the router's Settings Utility can be set or changed.

To display screen **Select [Management] and [Password] from the menu list on the left side of the screen.**

Password Setup

You can change "user name" and "password" for access to the management system of this device.
*If "user name" was blank, you can not set protection by password
*Please set all items by one-bit alphameric characters (a~f, 0~9).
*In order to reduce the risk of information leakage, you should change these items.

User name: (MAX 30 characters)
New password: (MAX 30 characters)
Confirmed Password:
Apply

Note

● **Changing the password is recommended**
If the password to the Setting Utility is left at its default value, certain setting information can be freely browsed or even the password itself can be changed. Changing the login password of the Settings Utility is recommended.

● **Do not forget the user name and the password after changing them**
If the user name and the password are lost after being changed, the router must be initialized. Initialization will reset all the settings made. Be sure to remember the user name and the password when they are changed.

Settings procedure

● ●

❶ Enter the new user name in [User name].
❷ Enter the new password in [New password].
❸ Enter the new password again in [Confirmed Password].
❹ Click Apply .
❺ The message, "Rebooting." is displayed with the waiting time.
   When the waiting time reaches zero, the display automatically turns to the certification screen.
❻ Enter the newly set user name and the password, and click OK .
● The top menu of the Settings Utility is displayed.

Appendix

1 Uninstalling the wired LAN adapter driver

For Windows 8.1/8

❶ For Windows 8.1, right-click the [Start] button in the lower left corner of the screen, and click [Control Panel]. For Windows 8, right-click the mouse on the Start screen, and select [All Applications] and [Control Panel].

❷ Click [Uninstalling the Program] from [Program].

❸ Select [ELECOM WRH-150x Universal Linker] from the list of installed programs, and click [Uninstallation and Change].

The uninstallation is now completed.

For Windows 7, Windows Vista

❶ Select [Control Panel] from the startup menu.

❷ Click [Program] and [Uninstallation of Program].

❸ Select [ELECOM WRH-150x Universal Linker] from the list of installed programs, and click [Uninstalla-tion and Change].

❹ When the [User Account Control] screen is displayed, click [Continue].

The uninstallation is now completed.

For Windows XP

. . . .

❶ Select [Control Panel] from the startup menu.

❷ Click [Add or Remove Programs].

❸ Select [ELECOM WRH-150x Universal Linker] from the list of installed programs, and click [Change/Remove].

The uninstallation is now completed.

For Mac OS

❶ Click the [Apple menu] in the upper left corner of the screen, and click [System Preferences].

❷ Click [Network].

❸ Select [USB Network Interface], and click [- (Delete)] in the lower left corner of the screen.

❹ Click [Apply].

The uninstallation is now completed.

2 Troubleshooting

Refer also to the "Read this if having trouble." in the Setup guide ② attached to the product.

Wireless LAN problems

● **Wireless LAN cannot be connected.**

① Is the protocol or service setting made according to the actual network environment in the network setting?
Protocol (TCP/IP), Client (Microsoft Network client), and Service (Microsoft Network common service) should be correctly set according to the environment.

② When the Internet protocol (TCP/IP) is used without using the DHCP server function, such as a router, the IP address should be manually assigned to each PC.

◆ In the CATV Internet, the IP address may be specified by the line providers. In this case, follow the indication of the line provider.

③ Is the security setting, or the MAC address filtering setting, of the access point correct?
The security setting should be the same for all the devices on the wireless LAN network. Setting the MAC address filtering may disable the ability to connect the wireless LAN, depending on the setting conditions.

● **After setting the security function, the wireless LAN cannot be connected.**

① The security setting should be the same for all the devices on the wireless LAN network. Even a slight difference in the setting disables connection to the network.

② The character strings such as a password or a cypher used for the security functions are case-sensitive. Character strings typically used for a password or a cypher tend to have no specific meaning, and easily cause a mistake in entering. Take extra care in checking them.

◆ Most of the problems in the security setting are due to spelling mistakes or setting mistakes. Check many times.

③ Soon after the setting is changed, or when the setting is correct, turn the power of all devices off and on again, including the access point, and check the connections.

● **WPS cannot be connected.**

① When the WPS/Reset lamp is flashing quickly, it may show that an error has occured. Repeat the connection again. If the connection fails repeatedly, try other connection methods.

② The entered PIN code may be wrong. Try to connect with an automatically generated PIN code. If the connection fails repeatedly, try other connection methods.

Common problems

● **Internet connection is disabled.**

① Check whether the TCP/IP protocol is correctly set. Check for the setting on the (network) screen, and if there is no setting, add TCP/IP protocol.

② When the DHCP server function is not used, manually assign the IP address.
Setting is available in the [IP address] tab on the TCP/IP property.

③ Check if the TCP/IP protocol is correctly set.
According to the provider, an IP address can be automatically selected, or it should be specified to the fixed address. Perform correct settings by referring to the manuals given by the provider.

④ Check if all the information given by the provider is set.
Information for identification other than the IP address may be necessary in some cases.
Perform correct settings by referring to the manuals given by the provider.

● **The settings for the product have been successfully completed, but an error, "The network cannot be referred.", is shown when opening the PC.**

① The network setting may not be correct. Check the setting again by using Device Manager, and check if the product is correctly recognized by the OS side.

● **Files from other PCs or printers cannot be shared.**

① Is the network setting done? Even when the wireless LAN operates normally, files or printers cannot be shared without the correct network setting.

3 Checking the IP Address of a PC

This section describes how to check the IP address of a PC in order to access the Settings Utility of the router, when the Setting Utility of the router cannot be accessed.
The checking procedure described here can be used to check both the wired client that is to connect with the router and the IP address of the wireless adapter.

Displaying the IP address of a PC

For Windows 8.1/8

❶ Display the Charm Bar in the Start screen.

❷ Select [Search].

❸ Enter [cmd] in Apps, and start searching.

❹ [Command Prompt] is displayed in the search result on the right side of the screen. Click it.

❺ Where the cursor placed to the right of [>] flashes, enter [ipconfg] via the keyboard, and press [Enter].

```
Microsoft Windows [Version 6.2.9200]
(c) 2012 Microsoft Corporation. All rights reserved.

C:\Users>\(UserName)\ipconfig_
```

* Note that the characters should be deleted one by one from the right end; characters in the middle of the string only cannot be deleted.
  When the message ["xxx" is an internal command...] is displayed, it shows a mistake has been made in entering. Enter it again.

❻ The current IP address, "192.168.xxx.xxx", is displayed in the line [IPv4 address] of [Ethernet Adapter Local Area Connection*]. (xxx is a random value).

```
Ethernet adapter Local Area Connction:

    Connection-specific DNS Suffix  . :
    IPv6 Address. . . . . . . . . . . : 2001:a450:43:cb00:301f:5a0:a002:4090
    Temporary IPv6 Address. . . . . . : 2001:a450:43:cb00:4cf9:8c83:3ad:7500
    Link-local IPv6 Address . . . . . : fe80::301f:5a0:a002:4090%13
    IPv4 Address. . . . . . . . . . . : 192.168.1.58
    Subnet Mask . . . . . . . . . . . : 255.255.255.0
    Default Gateway . . . . . . . . . : fe80::225:36ff:fe30:20e6%13
                                        192.168.1.1
```

* The description may vary depending on the client connected to the product.

❼ When the product is used in the factory shipping state (with the default value), refer to "Display result at factory setting" on P101 for the IP address displayed on the PC display.

For Windows 7/Vista *The example display is from Windows Vista.

❶ Click [Start], [All programs], [Accessory], and [Command prompt] in this order.

❷ Where the cursor placed to the right of [>] flashes, enter [ipconfg] via the keyboard, and press [Enter].

```
Microsoft Windows [Version 6.0.6002]
Copyright (c) 2006 Microsoft Corporation.  All rights reserved.

C:\Users\<UserName>>ipconfig_
```

* Note that the characters should be deleted one by one from the right end; characters in the middle of the string only cannot be deleted.
When the message ["xxx" is an internal command...] is displayed, it shows a mistake has been made in entering. Enter it again.

❸ The current IP address, "192.168.xxx.xxx", is displayed in the line [IPv4 address] of [Ethernet Adapter Local Area Connection*]. (xxx is a random value).

```
Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . :
    IPv6 Address. . . . . . . . . . . : 2001:a450:43:cb00:a59a:985d:8c45:9c16
    Temporary IPv6 Address. . . . . . : 2001:a450:43:cb00:f0e7:e963:7cf8:2bd0
    Link-local IPv6 Address . . . . . : fe80::a59a:985d:8c45:9c16%14
    IPv4 Address. . . . . . . . . . . : 192.168.1.56
    Subnet Mask . . . . . . . . . . . : 255.255.255.0
    Default Gateway . . . . . . . . . : fe80::225:36ff:fe30:20e6%14
                                        192.168.1.1
```

* The description may vary depending on the client connected to the product.

❹ When the product is used in the factory shipping state (with the default value), refer to "Display result at factory setting" on P101 for the IP address displayed on the PC display.

For Windows XP

❶ Click [Start], [All programs], [Accessory], and [Command prompt] in this order.

❷ Where the cursor placed to the right of [>] flashes, enter [ipconfg] via the keyboard, and press [Enter].

```
█▀ Command Prompt

Microsoft Windows XP [Version 5.1.2600]
<C> Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\<UserName>>ipconfig
```

*Note that the characters should be deleted one by one from the right end; characters in the middle of the string only cannot be deleted.

When the message ["xxx" is an internal command...] is displayed, it shows a mistake has been made in entering. Enter it again.

❸ The current IP address, "192.168.xxx.xxx", is displayed in the line [IPv4 address] of [Ethernet Adapter Local Area Connection*]. (xxx is a random value).

```
Windows IP Configuration

Ethernet adapter Local Area Connection:

        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . : 192.168.1.79
        Subnet Mask . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . : 192.168.1.1
```

* The description may vary depending on the client connected to the product.

❹ When the product is used in the factory shipping state (with the default value), refer to "Display result at factory setting" on P101 for the IP address displayed on the PC display.

Display result at factory setting

When the IP address is correctly assigned from the router, the IP address of each PC should be displayed as "192.168.2.xxx". "xxx" is a random value (default value: any value from 100 to 200).

When the subnet mask is indicated as "255.255.255.0", and the default gateway is indicated as "192.168.2.1", it means that the PC is correctly connected with the router.

4 Specifications and Factory Setting at Shipping

● Specifications

Data transfer speed (wired)	10/100 Mbps (automatic judgement)
Number of port (wired)	WAN port: 1 Port (connected to WAN side) * Corresponds to Auto MDI/MDI-X
Power consumption	250 mA (maximum)
Operation temperature/ Operation humidity	0ºC-40ºC/90% or less (no condensation)
External dimensions	Approx. 59.5 (W) x 23.4 (D) x 14 (H) mm
Weight	Approx. 12.7 g

* This product does not incorporate port transmission, DMZ, or DDNS functions.

● Setting value of the Settings Utility at factory shipping

Login user name and password	User name : admin Password : admin

● Setting value of wired LAN at factory shipping (Default value)

IP address at LAN side	192.168.2.251 (AP mode)

● Setting value of wired LAN at factory shipping (Default value)

SSID	elecom2g-xxxxxx *1
Encryption	WPA/WPA2 pre-shared *2
Encryption key	Described in the attached "Setup information sheet".
Encryption key format	Passphrase

*1 A random number and/or letter of either 0–9, a–f will go in the place of "1x".

*2 Select "WPA2-PSK " when setting the wireless adapter.

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Wireless router for use in hotels

WRH-150x-G series

Detailed Manual

ELECOM Co.,Ltd.   As of May 1, 2014