



Wireless Print Server

LPV2-WS11GC

User's Manual

Using this Manual

This section explains the symbols and signs used in this manual.

■ Symbols

Caution

 **Caution** Items to which you must pay attention when handling the product. Failure to follow this mark may result in personal injury and/or damage to the equipment.

Note

 **Note** Supplementary information you should know for handling the product.

Reference

 **Reference** Refers to a related subject page.

- Text in bold indicates the names of menu options, buttons, text boxes, check boxes, software, dialog boxes, etc., that you can select to perform operations.
- A personal computer with the BUFFALO Wireless LAN Card installed is called the Wireless LAN PC.
- The following terminology is used in this manual to distinguish between an Ethernet 10/100BASE-T LAN and a Wireless LAN.

Ethernet LAN: A LAN connected by cables

Wireless LAN: A LAN connected by radio signal

The preceding terminology is strictly for use in this manual for the sake of convenience and should not be construed as generally accepted terminology outside this context.

- The personal computer to be used to change the LPV2-WS11GC settings is referred to as the Setting PC.

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■ The names of other products used in this manual are trademarks or registered trademarks. Trademark symbols TM, ®, © are not indicated in this manual.

■ Specifications, designs and other descriptions in this manual are subject to change without notice.

■ This manual has been carefully prepared, however, feel free to contact your nearest sales representative if you have any questions or problems.

In addition, please note that BUFFALO. shall not be liable for any expenses incurred due to damage or loss arising from use of the LPV2-WS11GC, even though BUFFALO has been advised of the possibility of such damage.

For your safety, be sure to follow the instructions given below.

Follow the instructions below to avoid harming yourself, other people and property, and to ensure safe use of the product.

For your, others and property safety be sure to read, understand and follow the instructions given below thoroughly before using the product. This manual contains instructions concerning general operation of the computer to which the product is connected in addition to those concerning the product itself.

Please take note that our warranty will not cover any failures and problems of the computer, any losses and failures of data, or failures and problems of the product caused by misuse.

■ Signs and symbols used in this manual

Warning signs:

 WARNING	The instructions with this sign indicate prohibited actions. Failure to follow the instructions shown with this sign may result in death or serious injury to the user.
 CAUTION	Failure to follow the instructions shown with this sign may result in injury to the user or property damage.

Symbols:

	This indicates warnings and cautions. (Ex.  Exercise care to avoid an electric shock.)
	This indicates prohibiting actions. (Ex.  Do not disassemble.)
	This indicates what must be done. (Ex.  Disconnect the plug from the outlet.)

WARNING



Strongly
recommended

Follow the warning and caution instructions which are issued by the PC and peripheral manufactures.



Prohibit

Do not attempt to disassemble or repair the LPV2-WS11GC.
This may result in fire or electric shock.



Strongly
recommended

Install this product away from children.
Failure to do so may result in injury.



Prohibit

Do not handle the equipment with wet hands while the power supply cable is connected to the AC socket.

This may result in electric shock.



Unplug the
power supply

If you see smoke or smell strange or hear noise from the device unplug the power.

Using the device continuously may result in a short circuit, fire, or electric shock. Consult your dealer immediately.



Unplug the
power supply

If the product is dropped or subjected to severe shock, unplug the power.

Using the device continuously may result in a short circuit, fire, or electric shock. Consult your dealer immediately.



Unplug the
power supply

If liquid or foreign matter enters the equipment, unplug the power.

Using the device continuously may result in a short circuit, fire, or electric shock. Consult your dealer immediately.



Prohibit

Do not damage, process, overheat or attempt to repair the power supply cable, as this may result in fire or electric shock.

- When installing this product, do not crimp the power supply cable.
- Do not place heavy objects on the power supply cable, or pull the cable.
- Do not place the power supply cable close to heat sources, or overheat the cable.
- When removing the power supply cable, be sure to remove it by holding the plug.
- Do not bend the cable too much.
- Do not move this product with the power supply cable still connected.
- If the power supply cable is damaged, replace it.



Strongly
recommended

Use this product under supervision and guidance of an adult when a small child uses.



Strongly
recommended

Insert the AC adapter into the AC socket firmly.

Using this product without the AC adapter firmly inserted may cause a short circuit, overheating, fire or electric shock.



Strongly
recommended

Be sure to use the Power Cable (AC adapter) provided.

Using other Power cable (including internal connections) and AC adapter may cause fumes or fire due to incompatible voltage or terminal polarity.

CAUTION



Strongly
recommended

To prevent damage due to the static electricity touch a metal object such as a door handle or metal window before touching the device.

Static electricity may result in damage to the equipment.



Strongly
recommended

For usage of the PC and peripheral, refer to the product manual.



Strongly
recommended

Remove the dust from all connectors.

Dust may result in failure in performance.



Prohibit

Do not locate this product in the following locations. Doing so may result in electric shock or fire, or may adversely affect this product.

- Locations with strong magnetic fields or static electricity (may result in failure)
- Locations prone to vibration (may result in injury or damage)
- Locations that are not level (may result in injury or damage)
- Locations in direct sunlight (may result in failure or deformation)
- Locations close to fire, or subject to heating (may result in failure or deformation)
- Locations with water leakage or current may result in failure or electric shock
- Locations with excessive dust (may result in failure)



Prohibit

Using the device with different voltages, such as overseas, may result in a short circuit, smoke, or fire.

Plug into only 120 VAC(US)/100-240VAC(EU) power supply.



Strongly
recommended

Be careful not to get your body caught on the cables connected to this product.

Doing so may result in personal injury and/or damage this product.



Strongly
recommended

Be sure to back up the contents of the hard disk to other media such as floppy disks or MO disks..

We recommend that dual backup before and after updating of original data be created for unrecoverable important data. Data may be damaged or lost in the following cases.

- When the device is used incorrectly
- When the device receives static electricity or electrical noise
- When the device breaks down or is repaired
- When the power is turned on immediately after the PC is turned off
- When the device is damaged by natural disasters

Please note that MELCO INC. shall not be liable for any expenses incurred due to the damage or loss of hard disk data that may arise in the above cases or in any other case.



Be sure to back up the contents of the hard disk before making any changes to your PC environment such as installing software or installing or removing hardware.

Strongly
recommended

Even if data is damaged or lost due to misuse or faults, backup data can minimize the extent of such damage. Please note that MELCO INC. shall not be liable for any expenses incurred due to the damage or loss of hard disk data.

Preface

This section explains the organization of the LPV2-WS11GC manual.

Organization of the LPV2-WS11GC Manual

The LPV2-WS11GC user's manual consists of Introduction, Application and Settings.

The contents are:

■ Easy Setting Guide

Introduction is intended for those who are not familiar with local area networks (LANs) and their connections. Operation procedures are described with screen shots. A few possible actions when printing cannot be accomplished are described..

■ LPV2-WS11GC User's Manual (This Manual)

These sections are for those who already has a large-scale LAN or changing the setting in ESS-ID, wireless channels, server names and port names.

* The LPV2-WS11GC cannot be set up from Macintosh or UNIX OS. It must be set from the Windows OS with* a Wi-Fi certified wireless LAN card. (It is possible to print from Macintosh or UNIX.)

Overview of the LPV2

This section describes the features and operating environment of the LPV2.

■ Features

LPV2 is the wireless print server that allows printing from PCs on wireless LANs. It supports four protocols: NetBEUI, AppleTalk, TCP/IP and NetWare. If the ESS-ID is set for the wireless LAN to be used just install the printer driver for printing.

Note A wireless LAN PC is required for setting the LPV2. The wireless LAN PC or the "setting PC" must use the Windows OS with a Wi-Fi certified wireless LAN card. (It is not possible to set the LPV2 from a 2Mbps wireless LAN cards.) For printing through a wireless access point, the Wi-Fi certified access point such as MELCO's AirStation should be used.

Features of the LPV2 are:

- Complies with IEEE802.11b and the baud rate of 11 Mbps over a wireless LAN.
 - Supports a printer port (D-sub 25-pin).
 - The maximum range is 115 m indoor or 550 m outdoor LOS.
The range may change depending on the baud rate as below.
 - 11 Mbps: 160 m outdoor LOS
 - 50 m indoor (1) LOS
 - 25 m indoor (2) LOS
- Note: Indoor (1) is defined here as offices with less obstructions and indoor (2) is defined as offices with more obstructions.
- * The range is depending on the environment and it may become shorter in the following situations.
1. Inside the reinforced concrete buildings such as apartment house.
 2. Near the large metal objects.
- Supports a multi-channel (11ch) function that reduces network load.
 - Supports 128/40 bit WEP. Refer to the "WEP (Encryption) *Encryption Recommendations*" section (page 11)" for further information.
 - * When using 128-bit WEP, the access point must also be set to 128-bit WEP. (128-bit WEP and 40-bit WEP cannot be used together.)
 - Supports DHCP, BOOTP and RARP.
 - Supports SNMP and MIB2.
 - Provided with LPV Manager 2.

■ Operating Environment

Protocols Supported

TCP/IP, NetBEUI, AppleTalk (EtherTalk)*

* Supports only PostScript printers (ASCII mode).

Operating Systems for the LAN

Windows XP/Me/98/95, Windows 2000/NT4.0, MacOS7.6 or later, UNIX

* Note that the LPV2 cannot be set from Mac OS or UNIX.

■ WEP (Encryption): Encryption Recommendations

This product transmits data using radio waves, thereby causing the possibility of wireless packets to be accessed by external sources. Therefore, we recommend setting a WEP encryption key for transmission of wireless packets to provide security.

This product enables 128-bit WEP and 40-bit WEP encryption. 128-bit WEP (13 ASCII characters or 26 Hex characters) provides greater security. For communications with wireless LAN products that only support 40-bit WEP (5 ASCII characters or 10 Hex characters), however, the WEP setting of this product must also be set to 40-bit WEP.

* For details of WEP (encryption) setting methods for AirStation, refer to the manual provided with AirStation.

Content of this Package

This package contains the following items. Should you find any missing items, contact the dealer from which you purchased this product.

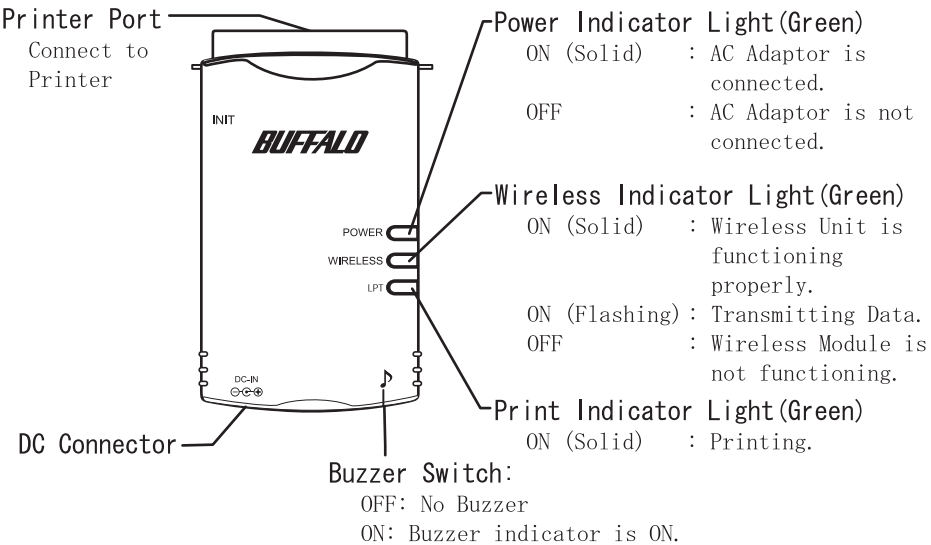
LPV2 Wireless Print Server:	1
AC adapter	1
LPV2 Utility CD (CD-ROM)	1
Easy Setting Guide	1

* Be sure to read attached documents included in the package.

Parts Nomenclature and their functions

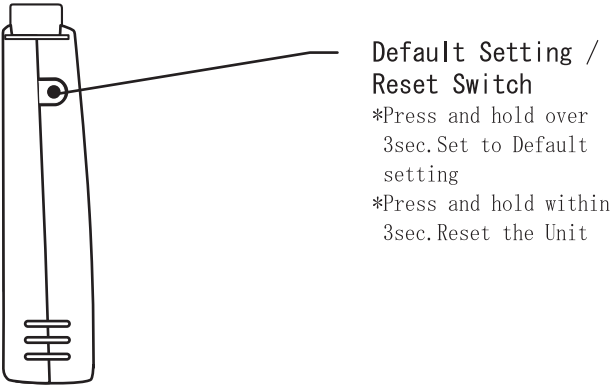
This section explains the name and function of each LPV2 component.

Top View Diagram



Buzzer	Meaning
Two Beeps	Start Printing
Continiouse	Error Occurred

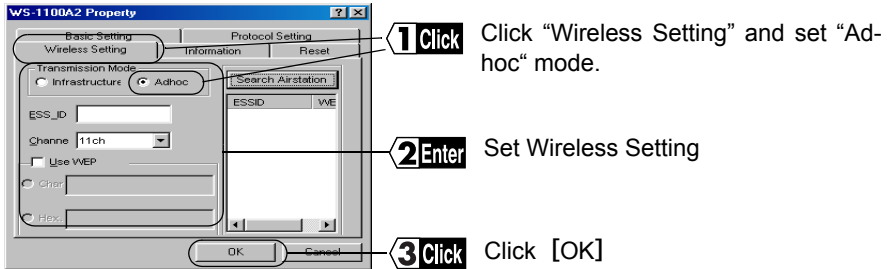
Side View Diagram



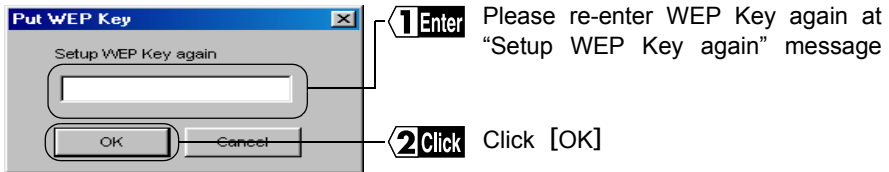
Windows Adhoc Mode Setting

Windows Adhoc Mode allows you to print directly through LPV2, not via AirStation. This setting process is basically same among any MS-Windows. This capter shows how to setup with Windows98.

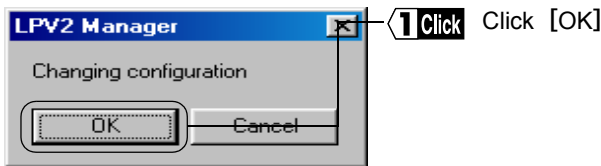
1 Start LPV2 Manager



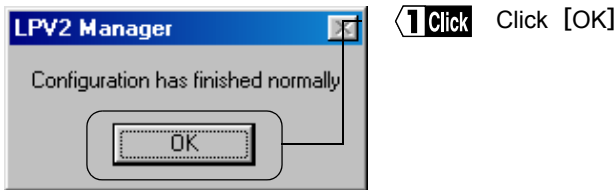
- If you don’t not know about “Channel”, please open Client Manager Program and refer to Manual Setting window by selecting [File]-[Manual Setting].
- If you are using WEP Key, put check mark on the [Use WEP Key] Box and enter WEP Key.



2 LPV2 Manager



3 LPV2 Manager

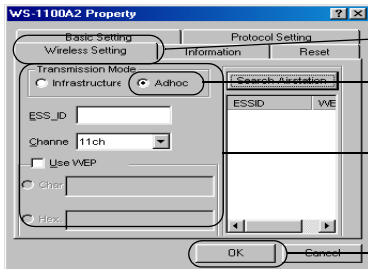


Setup is completed.

WindowsXP/2000 Adhoc Mode Setting

This chapter shows how to set up Adhoc Mode with the WindowsXP/2000.

1 Start LPV2 MANAGER

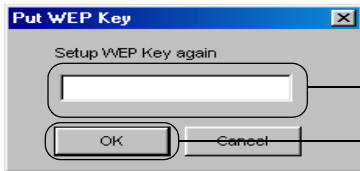


1 Click Click "Wireless Setting" and set "Ad-hoc" mode.

2 Enter Enter Wireless Setting

3 Click Click [OK]

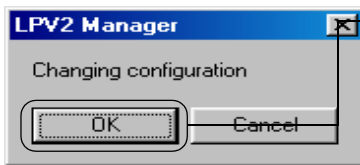
- Set the channel the same as Wireless LAN card setting to "Channel Box".
- If you are using a WEP Key, put check mark on the "USE WEP Key" box and enter a WEP Key.



1 Enter Please re-enter WEP Key at the "Re-enter WEP Key" message Box.

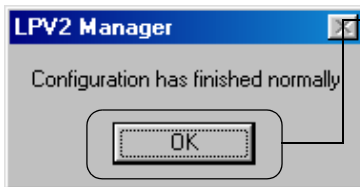
2 Click Click [OK]

2 LPV2 Manager



1 Click Click [OK]

3 LPV2 Manager



1 Click Click [OK]

Setup is completed.

Printing from Mac (OS9.x or before)

This chapter shows how to setup your Mac (OS9.x or before) to be able to print through LPV2.

- 1** Select [Apple Menu] → [Selector]
- 2** Select "LaserWriter8"
- 3** Select "WS-xxxxxx-P1"
- 4** Click "Setting"

▶Reference Please always select "LaserWriter8" for printing through LPV2 . Other printer driver will not work with LPV2 correctly.

▶Reference 'xxxxxx' is last 6 digits of LPV2 MAC address.
MAC address is 12 digits of numbers and is labeled on the side of back panel.

- 5** Click [PPD]
- 6** Select "Printer Description File"
- 7** Click "Select"
- 8** Select Printer Description File for your printer.

<If your printer is not listed in the menu box.>

- 1.Copy the Printer Description File from your printer driver FD or CD to Desktop
- 2.Click Desktop and Select the Printer Description File in the window.

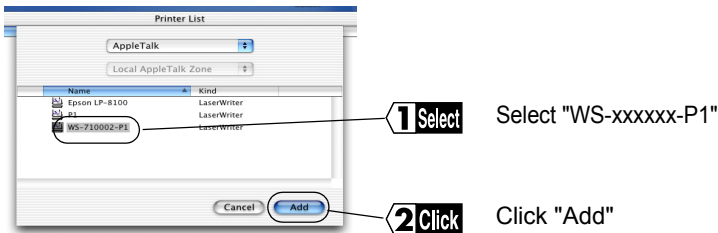
- 9** Close Selector
You have to re-setup whenever you select a different printer.

Printing from Mac (OS X)

This chapter shows how to setup your Mac (OS X) to be able to print through LPV2.

<< Using AppleTalk>>

- 10** Select "Applications" - "Utilities" - "Print Center"
- 11** Click [Add] at "No Available Printer" the message.
If you have setup before, you will see the printer list. Please click "Add Printer".
- 12** Select "AppleTalk" in the list-box.
- 13** Available printer/server names will be listed. Select "WS-xxxxxx-P1" and click "Add"



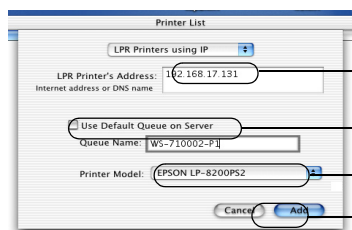
Note 'xxxxxx' is last 6 digits of LPV2 MAC address. MAC address is 12 digits of number and is labeled on the side of back panel.

- 14** If you see the printer server name on the printer list, the setup is completed.

<<Using TCP/IP>>

- 1** Select "Applications" - "Utilities" - "Print Center"
- 2** Click [Add] at "No Available Printer" the message.
If you have setup before, you will see the printer list. Please click "Add Printer".
- 3** Select "AppleTalk" in the list-box.

4 Enter the following items and click "Add"



1 Enter

Enter LPV2 IP address

2 Select

Put check mark on "Use Server's default que"

3 Click

Click to chose your printer

4 Click

Click "Add"

5 If you see the printer server name on the printer list, the setup is completed.

Printing from UNIX base Computer

LPV2 is not able to be setup directly from UNIX base Computer. You need to use Windows base computer with Buffalo Wireless Client (WLI-PCM-L11G etc.) to setup the LPV2 to be able to Print from UNIX base Computer.

Procedure:

- 1 Set LPV2. IP Address (In case of Static IP)
- 2 Verify the IP Address setting
- 3 Edit "/etc/hosts" file
- 4 Edit "/etc/printcap"
- 5 Print by using "lpr" command

LPV2 default setting:

- Server Name: WS-xxxxxx
- (xxxxxx is last 6 digit of MAC address. Please Refer to Page 11)
- Printer Port Name: WS-xxxxxx-P1
- IP Address: DHCP/BOOTP/RARP - automatically allocated by Server

1 Set LPV2 IP Address

EX: Use following command:

```
Arp -s 192.168.9.123 00:60:1D23:BA:42  
(Set LPV2 IP Address to 192.168.0.123)
```

 **Note** If the LPV2 IP Address is set to [1.1.1.1], it is not able to print through LPV2. Please set IP to other than [1.1.1.1].

2 Verify the IP address setting

EX: USE following command:

```
Ping 192.168.0.123
```

3 Edit "/etc/hosts" file

Define LPV2 IP Address, Domain Name and LPV2 Server Name on "etc/hosts" file.

Add as following:

```
192.168.0.123
```


4 Edit "/etc/printcap" file

Add a line as following:

```
LPV|LPV Line printer/:lp=:rm=LPV:sd=/usr/spool/LPV:rp=WS-23BA42-P1:
```

Meaning of the words in description:

lp (Local Printer):	It specifies the Local Printer Name.
rm (Remote Machine):	It specifies the LPV Host Name which should be defined in "hosts" file.
sd (Spool Directory):	It specifies the directory where system spools print data. The spool directory must be setup before printing.
rp (Remote Printer):	It specifies the port on which printer is connected.

5 Print by using lpr command.

6 Use lpr command to Print

```
Lpr-PLPV "File Name"
```

 **Note** If you need to print without re-boot the computer after all setup, please use following command:
lpc restart LPV

Changing LPV2 Setting

This chapter will explain to you about possible issues, causes, and solutions in using LPV2

Changing Workgroup Setting (For NetBEUI protocol users ONLY)

Note Here, we show the how to change the LPV2 setting with Windows98 as an example.

LPV2 Default Setting:

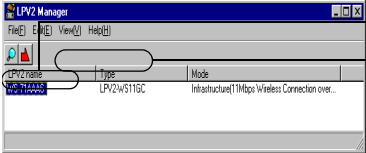
- LPV2 Server Name: WS-xxxxxxx
 - Printer Port Name: WS-xxxxxx-P1
- *(xxxxxx" is last 6 digit of MAC address. Please Refer to Page 11)

Changing Workgroup Setting (EX: Workgroup Name: "WORKGROUP" → "BUFFALO")

1 Select [Start] → [Program] → [BUFFALO AIRSTATION] → [LPV2 MANAGER]

Note Windows XP: Select [Start] → [All Program] → [BUFFALO AIRSTAION] → [LPV2 MANAGER]

2



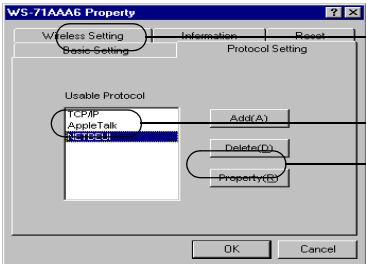
1 Select Select "LPV Name" in the window.

2 Select Select [EDIT] → [Login]

If the "Password BOX" is showed, please enter the password and click OK.

Note The setting password will be showed as "*".

3

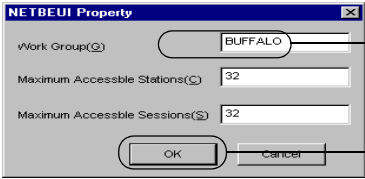


1 Click Click "Protocol Setting"

2 Select Select "NetBEUI"

3 Click "Property"

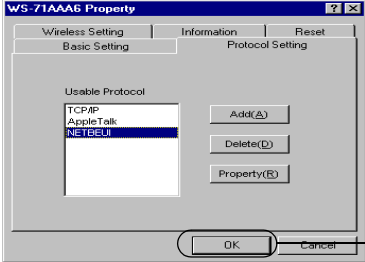
4



1 Click Click and Change the name [WORKGROUP] to [BUFFALO]

2 Click Click [OK]

5

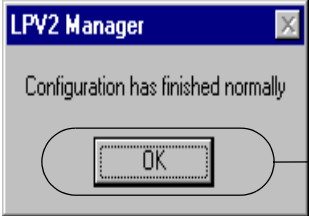


1 Click Click [OK]

6 Click [OK]

The setting will be changed.

7



1 Click [OK]

Exit "LPV2 MANAGER"

Changing AppleTalk Setting (Zone)

Note Here, we show how to change the LPV2 setting with Windows98 as an example.

LPV2 Default Setting:

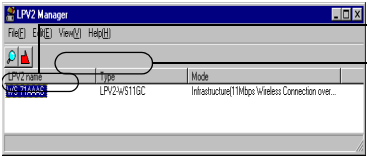
- LPV2 Server Name: WS-xxxxxx
 - Printer Port Name: WS-xxxxxx-P1
- *(xxxxxx" is last 6 digit of MAC address. Please Refer to Page 11)

EX: Changing "AppleTalkZone" → "BUFFALO"

1 Select [Start] → [Program] → [BUFFALO AIRSTATION] → [LPV2 MANAGER]

Note Windows XP: Select [Start] → [All Program] → [BUFFALO AIRSTATION] → [LPV2 MANAGER]

2



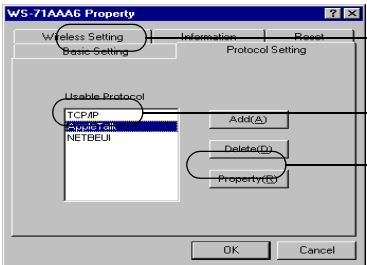
1 Select Select "LPV Name" in the window.

2 Select Select [EDIT] → [Login]

If the "Password BOX" is showed, please enter the password and click OK.

Note The setting password will be showed as "*".

3



1 Click Click "Protocol Setting"

2 Select Select "NetBEUI"

3 Click "Property"

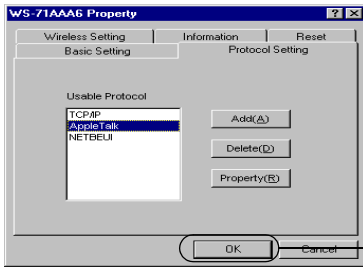
4



1 Enter Click and Change [AppleTalkZone]to [BUFFALO]

2 Click Click [OK]

5



1 Click

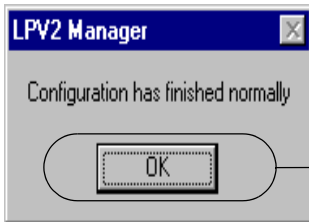
Click [OK]

6

Click [OK]

The setting will be changed.

7



1 Click

[OK]

Exit "LPV2 MANAGER"

LPV2 Factory Default Setting

Item	Default Setting
Standard Setup	
Server Name	WS-xxxxxx ※
Password	None
Port Name	WS-xxxxxx-P1 ※
High Speed Transfer	Enabled
Protocol Setup	
Get IP Address	Automatically
DHCP	Enabled
BOOTP	Enabled
RARP	Enabled
IP Address	1.1.1.1
Sub Set Mask	255.0.0.0
Gateway	0.0.0.0
AppleTalkZone	*
Work Group	WORKGROUP
Max. Number of Connection	32
Max. Number of Session	32
Wireless Setup	
Communication Mode	Adhoc
ESS-ID	None
Wireless Channel	11 channels
WEP	Disabled

※ [xxxxxx]: Last 6 digits of MAC Address. Please refer to P11

Product Specifications

Wireless LAN Interface	Conforming Standards	IEEE802.11b (Wireless LAN Standard Protocol) RCR STD-33、ARIB STD-T66 (Low-Power Data communication System Standards)
	Data Transfer Method	DS-SS Simplex (Half Duplex)
	Data Transfer Rate	1 , 2 , 5.5 , 11Mbps Auto Sense
	Access Method	Infrastructure Mode / Adhock Mode
	Frequency Range (Mid-Frequency)	2412 ~ 2484MHz ※ No conflict with Cell-Phone, Codeless phone, Television, and Radio
	Communications Distance (Depending on ambient conditions)	25m Indors, 50m outdoors at 11 Mbps 35m Indors, 70m outdoors at 5.5 Mbps 40m Indors, 90m outdoors at 2 Mbps 50m Indors, 115m outdoors at 1Mbps
	Printer Interface	36pin Standard Printer Interface
Power / Current Consumption	3.5W (Max) / 0.7A (Max)	
Operating Temperature / Humidity	0 °C to 40 °C / 0% to 80% (noncondensing)	
Weight 重量	70g (without AC Adoptor)	
Dimensions	62(W) × 98(H) × 25(D)mm	

Printer Interface Specification

DB25 Pin Printer Port

Pin Num.	Name of Singnal	Pin Num.	Name of Singnal
1	nStrobe	19	Signal Ground(nStrobe)
2	Data1	20	Signal Ground(Data1)
3	Data2	21	Signal Ground(Data2)
4	Data3	22	Signal Ground(Data3)
5	Data4	23	Signal Ground(Data4)
6	Data5	24	Signal Ground(Data5)
7	Data6	25	Signal Ground(Data6)
8	Data7	26	Signal Ground(Data7)
9	Data8	27	Signal Ground(Data8)
10	nAck	28	Signal Ground(Paper Empty , Select , nAck)
11	Busy	29	Signal Ground(Busy , nFault)
12	Paper Empty	30	Signal Ground(nAutoFd , nSelect , nInit)
13	Select	31	nInit
14	nAutoFd	32	nFault
15	Not defined	33	Not defined
16	Logic Gnd	34	Not defined
17	Chassis Gnd	35	Not defined
18	Phipheral Logic High	36	nSelect In

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

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

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

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

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