

# ***BUFFALO***

## **WBMR-HP-GN**

N-Technology  
High Power ADSL2+ Modem Router



## **User Manual**

35010879 ver01

[www.buffalotech.com](http://www.buffalotech.com)

**EN**

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Thank you for your purchase of the Buffalo N-Technology ADSL2+ High Power Modem Router. In minutes you will be able to share your Internet connection and network your computers with your new Router.

### **Package Contents**

- N-Technology ADSL2+ Modem Router (WBMR-HP-GN)
- Utility CD-ROM w/ User Manual
- Quick Setup Guide
- AC Adapter
- Ethernet Cable
- DSL Cable
- Warranty Statement

### **System Requirements**

- Activated Broadband ADSL Line
- PC with a Client Adapter
- Microsoft® Windows XP / Vista™ (32bit) (Setup Wizard supported)
- Internet Explorer 5.0 or higher
- CD-ROM Drive

### **Gathering Information**

Most DSL providers require PPPoE or PPPoA details to log in to your connection. You must call your ISP's Technical Support number to obtain the following information:

**Username:** This is the Username that is used to log onto your ADSL service provider's network. It is commonly in the form – user@isp.com.

**Password:** This is the Password that is used, in conjunction with the Username above, to log on to your ADSL service provider's network.

**Connection Protocol:** This is the method that your ADSL service provider uses to send and receive data between the Internet and your computer.

**VPI:** This is the Virtual Path Identifier (VPI). It is used in conjunction with the Virtual Channel Identifier (VCI) below, to identify the data path between your ADSL service provider's network and your computer.

**VCI:** This is the Virtual Channel Identifier (VCI). It is used in conjunction with

the VPI above to identify the data path between your ADSL service provider's network and your computer.

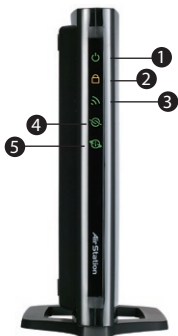
Note: This information should be stored and kept to hand as it will be required to enable you to establish an internet connection.

The table below is a quick reference guide for configuring your ADSL Internet connection. You may try the settings for the ISPs shown.

Country	Encapsulation	VPI/VCI	Multi-plexing	ISPs
France	PPPoE	12997	LLC	Various
Germany	PPPoE	11689	LLC	T-Online, Various
Holland	1483 Bridged	0/35 0/32 0/34	LLC-	BBNed, XS4all Ver-satel, DHCP Baby XL, Tiscali. (start/ Surf/ Family/ Live)
	PPPoA	8/48	VC MUX	KPN, Hetnet, HCCNet, Tiscali (lite/ Basis/Plus), Wanadoo
	PPPoA	0/32	VC MUX	Versatel PPP, Zonnet
	PPPoE	8/35	LLC	Various
Belgium	PPPoA	8/35	LLC	Belgacom, Tiscali, Scarlet
Ireland	PPPoE	8/35	LLC	Eircom, BT, Digiweb, Irish Broadband
Italy	PPPoE	8/35	VC MUX	TIN
Spain	PPPoE	8/32	LLC	Telefonica
Sweden	1483 Bridged	3/35	LLC	Telia

UK	PPPoA	0/38	VC MUX	BT, Freeserve, Tiscali, AOL
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## Front Panel



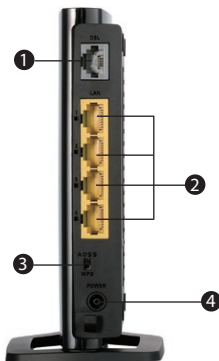
No	Name	Colour	Description
1	POWER	Green or Red	<p>ON (Green): Power On</p> <p>OFF : Power Off</p> <p>Continuous flashing (Red): Writing to Flash-ROM (e.g. changing settings, updating firmware)</p> <p>Flash once (Red): RAM error (e.g. access, recognized storage size)</p> <p>Flashes twice (Red): Flash-ROM error (e.g. access, parameter settings)</p> <p>Flashes three times (Red): Wired device error (Example: wired driver install error)</p> <p>Flashes four times (Red): Wireless device error, Wired device error (e.g. Wireless Driver install error)</p> <p>Flashes five times (Red): Network error (e.g. IP address at WAN side is within LAN network)</p> <p>Flashes nine times (Red): System error (e.g. the device has stopped working)</p>

2	SECURITY	Orange	ON: Wireless Security enabled OFF: Wireless Security disabled Flashes twice: Waiting for AOSS/WPS (PBC) to be activated. Flashes continuously: AOSS/WPS (PBC) setup has failed due to timeout/negotiation error –(LED will turn off after 30 mins, if security is not set.)
3	WIRELESS	Green	ON: Wireless connection available OFF : Wireless connection is inactive/not available Flashing: Communicating wirelessl
4	DSL	Green	ON: DSL is synchronizing OFF: Modem function is off Series of 2 flashes: Searching for carrier signal Series of 4 flashes: Carrier signal found and connecting modem.
5	INTERNET	Green or Red	ON: DSL is synchronizing OFF: Modem function is off Series of 2 flashes: Searching for carrier signal Series of 4 flashes: Carrier signal found and connecting modem.

The Security button is located on the top of the device as shown below:



## Back Panel



### 1. DSL Line

Connect your ADSL line to this port.

### 2. LAN Ports

The Ethernet ports are RJ45, 10/100 auto-negotiation. The ports are labelled 1 through 4. These ports correspond to the numbered LEDs on the front of the Router. Connect your network-enabled computers or any networking devices to one of these ports.

### 3. Security Selection Switch

This switch allows you to choose the required method to configure a wireless connection, either WPS or AOSS. To initiate AOSS, you must also press the AOSS button on the top of the device.

### 4. Power

Connect the included power cord to this inlet.

The "**Reset**" button is located on the bottom of the modem router and should be used in rare cases when the Router may function improperly. Resetting the Router will restore the Router's normal operation while maintaining the programmed settings.

You can also restore the factory default settings by using the Reset button. Use the restore option in instances where you may have forgotten your custom password.



- a. Resetting the Router - Push and hold the Reset button for one second then release it. When the Power LED becomes solid again, the reset is complete.
- b. Restoring to Factory Defaults - Press and hold the Reset button for 10 seconds then release it. When the Power LED becomes solid again, the restore is complete.

### ***Label on the back side***

This label shows the router's MAC address (SSID), security PIN, and preset AES KEY information.

The WBM-R-HP-GN is secured by AES encryption in default configuration.

### ***Positioning your Router***

Your wireless connection will be stronger the closer your computer is to your Router. Typical indoor operating range for your wireless devices is between 30m and 60m. In the same way, your wireless connection and performance will degrade somewhat as the distance between your Router and connected devices increases. This may or may not be noticeable to you. As you move farther from your Router, connection speed may decrease. Factors that can weaken signals simply by getting in the way of your network's radio waves are metal appliances, or obstructions, and walls. If you have concerns about your network's performance that might be related to range or obstruction factors, try moving the computer to a position between 1.5m and 3.0m from the Router, in order to see if distance is the problem.

## ***Installing Your Router***

3

### ***Smart Wizard Installation***

To help setup your router and connect to the Internet quickly, the resource CD contains a Smart Wizard. The wizard on the Air Navigator CD will assist in connecting your equipment, configuring wireless settings and enabling security. Insert the CD, launch the wizard and follow the steps as indicated. You will need the ADSL settings information as provided by your ISP.

Alternatively, to setup the connection manually, proceed to the next section.

Note: If you have a Macintosh or Linux system, you will need to use the manual installation method.

## **Manual Installation**

1. Power off your computers and networking equipment.
2. Connect your computer to one of the YELLOW RJ45 ports on the rear of the Router with the supplied Ethernet network cable.

### 3. Connect your ADSL Line

Connection for the Router to the ADSL line varies by country and region. Typically it involves a microfilter or a microfilter with built-in splitter to allow simultaneous use of ADSL service and telephone service on the same telephone line. Please read the following steps carefully and select the appropriate method.

- If your telephone service and ADSL service are on the same telephone line, ADSL microfilters are needed for each telephone and device, such as answering machine, fax machine, and caller ID display. Additional splitters may be used to separate telephone lines for telephone and Router. Note: Do not connect the ADSL microfilter between the wall jack and the Router—this will prevent ADSL service from reaching the modem.
- If your telephone service and ADSL service are on the same telephone line and you are using an ADSL microfilter with built-in splitter, connect the splitter to the telephone wall jack providing ADSL service. Then, connect the telephone cord from the ADSL microfilter RJ11 port generally labelled 'DSL' to the gray RJ11 port labelled 'DSL line' on the back of your Router. Connect the telephony device to the other port on the ADSL splitter commonly labelled 'Phone'.
- Note: An RJ11 telephone cord is supplied. When inserting an RJ11 plug, be sure the tab on the plug clicks into position correctly.
- If you have a dedicated ADSL service telephone line with an RJ11 wall jack, simply connect a telephone cord from the wall jack to the DSL port on the back of your Router.
- If you have an RJ45 wall jack for your ADSL service, connect an RJ45-to-RJ11 converter to the wall jack. Then connect one end of the telephone cord to the converter and the other end to the DSL port on the back of your Router.

### 4. Powering Up your Router

- Connect the supplied power cord to the Router power-input.

- After connecting the power cord and the power source is turned on, the Router's power icon on the front panel should be on. It might take a few minutes for the Router to fully start up.
- Turn on your computer. After your computer boots up, the LAN status LED on the front of the Router will be on for each port to which a wired computer is connected. These lights show you the connection and activity status. Now you are ready to configure the Router for ADSL connection.

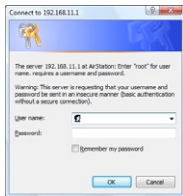
In order for your computer to properly communicate with your Router, you will need to change your computer's 'TCP/IP Ethernet' settings to 'Obtain an IP address automatically/Using DHCP'. This is normally the default setting in most home computers. Consult your operating system's Help files for information on changing this setting, if required.

1. You can access the web-based management user interface of the Router using the Internet browser on a computer connected to the Router. Type "**http://192.168.1.1**" in your browser's address bar. Then press the "**Enter**" key.



Note: It is strongly recommended that you use a computer physically connected to the Router with an RJ45 cable for initial setup. Using a wirelessly connected computer for initial setup is not recommended.

2. The following screen will appear in your browser to prompt you to log in. The default User Name is "**root**" and the default Password is blank. Click on the "**OK**" button to log in.



Note: It is strongly recommended that you set a password for increased security.

Quick-Navigation Tabs - You can go directly to any of the Router's UI pages by clicking directly on these links. The links are divided into logical categories and grouped by tabs to make finding a particular setting easier to find.

Help is available to the right of each page.

## Setup



The panel to the left of this page contains setup wizards to allow you to quickly and conveniently make changes to your modem router configuration. Wizards are provided for the following features:

- **Internet Connection** - This Wizard scans your Internet connection and connects to the Internet. Most cable modems will connect automatically when the Internet Connection Wizard is run. DSL modems may require PPPoE information to connect to the Internet. If your connection requires a password or other PPPoE information, have it ready! Your ISP can provide this information if you don't have it.
- **Wireless SSID** - This Wizard lets you set an SSID (network name) and choose a wireless channel for your network.
- **Wireless Encryption** - This Wizard lets you choose the type of encryption to use on your wireless network.
- **Port forwarding** - This Wizard lets you set a Static NAT to play Internet Games.
- **Windows Live Messenger Settings** - This Wizard lets you enable UPnP's Internet gateway function. Windows Live (MSN) Messenger requires this to

function correctly.

- Wireless Multicast Rate - This Wizard sets the Wireless Multicast Rate and IPv6 Pass Through.
- Firmware Update – This wizard installs an AirStation Firmware update.
- Initialisation - This Wizard restores the AirStation to factory default settings.

An overview of your AirStation's system information is displayed on the right. The wireless section displays the status and encryption settings of your wireless LAN access point.

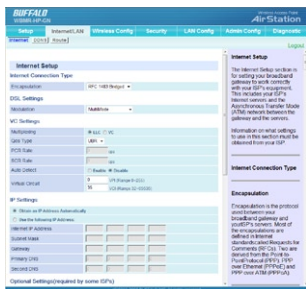
Shortcuts are also available for AOSS and WPS connection methods.

## Internet/LAN

### Internet

The Internet Setup section is for setting your broadband gateway to work correctly with your ISP's equipment. This includes your ISP's Internet servers and the Asynchronous Transfer Mode (ATM) network between the gateway and the servers.

Note: Information on what settings to use in this section must be obtained from your ISP.



The **"Internet/LAN"** tab is where you will set up your Router to connect to your Internet Service Provider.

## Connection Type

From the “**Connection Type**” drop down box, you can select one of these five connection types based on the instruction provided by your ISP:

- RFC 2516 PPPoE
- RFC 2364 PPPoA
- 1483 Bridged
- 1483 Routed
- Bridge Mode Only

### *Setting your ISP Connection Type to PPPoE or PPPoA*

PPPoE (Point-to-Point Protocol over Ethernet) is the standard method of connecting networked devices. It requires a user name and password to access the network of your ISP for connecting to the Internet. PPPoA (PPP over ATM) is similar to PPPoE, but is mostly implemented in the UK.

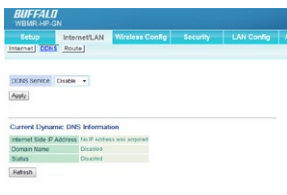
### *Setting your Connection Type to RFC 1483 Bridged/Routed*

This connection method bridges your network and your ISP's network together. The Router will obtain an IP address automatically from your ISP's DHCP server.

### *Setting your Connection Type to Bridge Mode Only (Disable Internet Sharing)*

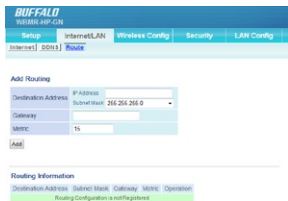
In this mode, the Router simply acts as a bridge passing packets across the DSL port. It requires additional software to be installed on your computers in order to access the Internet.

## DDNS



If your Modem Router's Internet IP address is assigned dynamically and you wish to host a Web site or other Internet service, you can sign up with DynDNS.org or TZO.com for Dynamic DNS (DDNS) service. Select your DDNS provider from this list box, enter the required information, and click "**Apply**". The gateway will send its Internet IP address to the provider so the provider can update your DNS entry. For DDNS.org service, you must enter a user name, password, and host name. For TZO.com service, you must fill in the correct e-mail address, password, and domain name

## Route



Network Address Translation (NAT) lets you use 'private' (and cost-free) IP addresses on your LAN and a single 'public' IP address (which you must pay for) on the Internet. When a local computer accesses the Internet, your broadband modem router changes the source address from the computer's to its own Internet IP address. When a response comes back, it changes the destination address from its Internet IP address to the requesting computer's



local IP address. NAT is enabled (turned on) by default. Disable it if you do not need it.

## Wireless Config

For information on configuring a connection with WPS or AOSS, please refer to the earlier sections of the manual which describe how to use these methods to establish a wireless connection.

## Basic



The “*Basic*” tab lets you make changes to the wireless network settings - wireless network name (SSID), radio, operating channel and security level.

### Wireless Radio

Select Disable to turn off wireless networking, or select the type of wireless network you are setting up: Mixed (with 11b, 11g and Draft 11n clients), BG-Mixed (with only 11b and 11g clients), or solely 11b, 11g or Draft 11n clients. Using the correct setting here ensures that the network will work as efficiently as possible.

### Wireless Channel

Your Router is configured to operate on the proper channels for the country you reside in. If there are other wireless networks operating in your area, your network should be set to operate on a channel that is different than the other wireless networks. For best performance, use a channel that is at least five channels away from the other wireless networks. For instance, if another network is operating on channel 11, then set your network to channel 6 or below.

### *150Mbps Mode Band Width*

You can select whether to use 20MHz or 40MHz modes for wireless communication. The 20-MHz channel bandwidth lessens the chance of interference with other wireless networks. However, the wide 40-MHz channel bandwidth increases throughput up to 150Mbps.

The default setting is 20MHz.

### *Extension Channel*

When 40MHz has been selected under Band Width, two channels are used - a Control Channel and an Extension Channel.

The Control Channel is specified by the "**Wireless Channel**" setting, and the Extension Channel is specified by the "**Extension Channel**" setting.

### *Broadcast SSID*

For security purposes, you can choose not to broadcast your network's SSID (set to "**Allow**" by default). Doing so will keep your network name hidden from computers that are scanning for the presence of wireless networks. To turn off the broadcast of the SSID, remove the tick.

### *Security/Encryption*

The WBM-R-HP-GN modem router includes a security feature which allows each wireless client to connect with a different level of security. This function is particularly useful in a situation where a single client can only connect via WEP (lowest level of security). Because clients can connect at different encryption levels, it means that the security of the remaining wireless devices is not compromised.

To identify your wireless network, a name called the SSID (Service Set Identifier) is used. The default SSID of the Router is printed on the label attached on the back of the Router. You can change this to anything you want to or you can leave it unchanged. To change the SSID, type in the SSID that you want to use in the SSID field. If you make a change to the SSID, your wireless-equipped computers may also need to be reconfigured to connect to your new network name.

You can also change the Pre-Shared Key or password for each encryption type and the Rekey interval (frequency with the key will be renewed).

### *SSID1*

Wireless encryption WPA-PSK-TKIP or WPA/WPA2-Mixed is used for Multi Security SSID1.

## SSID2

Wireless encryption WPA-PSK-AES is used for Multi Security SSID2.

## SSID3

Wireless encryption WEP is used for Multi Security SSID3.

## Advanced Wireless Settings



### *BSS BasicRateSet*

BSS (Basic Service Set) configures the transmission rate of communication for wireless clients. Setup choices may vary with different wireless clients.

### *Multicast Rate*

You can select 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54Mbps or Auto. Default Value is "Auto".

### *Reverse Direction Grant*

Choose whether Reverse Direction Grant (RDG) function is enabled or disabled. During an RD exchange sequence, the RD initiator station may transmit PPDU and obtain response PPDU from a single station (RD responder) during the exchange. Wireless LAN devices that connect to the AirStation must also enable the RDG function.

### *DTIM Period*

DTIM (Delivery Traffic Identification Maps' Period) is an interval when wireless LAN equipment broadcasts DTIM information. Setting larger values saves power but may slow network traffic. This setting is ignored unless power management is activated on the wireless client. Values that can be inputted: 1-255. Default value is "1".

## Privacy Separator

Choose whether Privacy Separator function is enabled or disabled. When Privacy Separator is enabled, each wireless LAN device connecting to the AirStation cannot communicate with other local wireless devices. However, communication with Internet side is still available.

## Output Power

Output Power and the range of the associated electromagnetic waves are almost proportional. If the Output Power is cut to 50%, the AirStation's range will be shortened by about half. You may limit your AirStation's range by modifying this value. Default value is "100 %".

## WMM

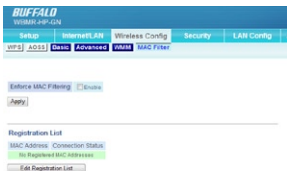
WMM (Wi-Fi Multimedia) provides multimedia enhancements for Wi-Fi® networks that improve the user experience for audio, video, and voice applications. WMM Power Save increases the efficiency and flexibility of data transmission..

This screen allows you to prioritise AirStation communication for specific

Priority	Parameter	For AP	For STA
AC_BK(Low)	Oltime	15	15
	Oltime	1023	1023
	AFSI	7	7
	TSP Line	0	0
AC_BE(normal)	Oltime	15	15
	Oltime	63	1023
	AFSI	3	3
	TSP Line	0	0
AC_VI(High)	Oltime	7	7
	Oltime	15	15
	AFSI	1	2
	TSP Line	94	94
AC_VO(Highest)	Oltime	3	3
	Oltime	7	7
	AFSI	1	2
	TSP Line	47	47

transactions. For example you may change settings which can help improve the quality of VOIP or other streaming protocols.

## MAC Filter



The MAC Filter is a powerful security feature that allows you to specify which computers are allowed on the network. Wireless connections to the AirStation can be limited to specific client MAC addresses to enhance security against unwanted network visitors. When enabled, only wireless client adapters with registered MAC addresses will be allowed to connect to the AirStation. Note: The wireless MAC filter is ignored while AOSS is in use.

Check **“Enable”** to use MAC filtering.

Click the **“Registration List”** button to display the MAC Address Filter List. To put a device on the list, you must know its Medium Access Control (MAC) address, often called its MAC or LAN MAC. This normally can be found on a label on the bottom or back of the device, or on the network interface card in a desktop computer.

When the desired MAC addresses are entered, click **“Register”** to save the list.

## Security

### Firewall



Limits the type of packets allowed to pass between the Internet and LAN. When packets reach the AirStation, the firewall evaluates the packets, and forwards packets that don't match any filter to their destination. The Firewall blocks unnecessary packets from the Internet side and prevents leaking secure information from the LAN side.

#### *Prohibit NBT and Microsoft-DS routing*

Prevents unexpected external access via Microsoft network sharing. The default setting is disabled.

#### *Reject IDENT requests*

When this is enabled, the AirStation sends reject packets if it receives an IDENT request. The default setting is enabled. Use this filter when the communication speed goes down using a network application like e-mail, ftp or WEB. If IDENT requests are forwarded to a LAN side client by address translation setting (DMZ or TCP port:113), this basic rule is ignored.

#### *Block Ping from Internet*

An anonymous Internet request is an attempt to ping your broadband gateway's WAN interface. Pinging is a way of checking if a system is running at a particular IP address. It can also be used to hunt for certain kinds of vulnerabilities in the system. Blocking WAN requests means not responding to pings coming from the Internet. This is the default setting.

## IP Filter Settings

The screenshot shows the Buffalo Wireless LAN configuration interface. At the top, there are navigation tabs: Setup, Internal LAN, Wireless Config, Security, and LAN Config. Below these, there are links for Firewall, IP Filter, and 3rd Party Through. The main content area is titled "Add IP Address Based Filter". It includes a "Log Output" checkbox (checked) and an "Apply" button. The filter configuration is as follows:

Operation	Ignore
Direction	Internet-LAN
IP Address	Source Address: _____ Destination: _____
Protocol	<input type="radio"/> ALL <input type="radio"/> ICMP <input type="radio"/> Manual Protocol Number: _____ <input checked="" type="radio"/> TCP/UDP TCP Port Manual Setting: <input type="text"/> 25560-25560 Port Number: _____

Below the configuration is an "Add Rule" button. At the bottom, there is a section for "IP Filter Information" with a table:

Operation	Direction	Source Address	Destination Address	Protocol	Count	Customize
The IP Filter has not been configured yet.						

Limits the type of packets allowed to pass between the Internet and LAN. The maximum number of rules is 32.

If the packet meets one of the monitoring conditions before it is routed, the specified action will be taken. If multiple conditions are met, the appropriate action will be performed once the packet meets the condition.

## VPN Pass Through



## PPPoE Pass Through

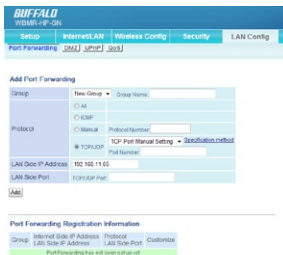
This setting enables an rfc1483 bridge mode in the modem so the PPPoE process occurs in the connected device, eg a firewall router or PC.

## PPTP Pass Through

PPTP is a tunneling protocol defined by the PPTP forum that allows PPP packets to be encapsulated within Internet Protocol (IP) packets and forwarded over any IP network, including the Internet itself. PPTP ensures that messages are transmitted from one private network to another.

## LAN Config

## Port Forwarding



Port Forwarding allows you to route external (Internet) calls for services such as a web server (port 80), FTP server (Port 21), or other applications, through your Router to your internal network. Since your internal computers are protected by a firewall, machines from the Internet cannot get to them because they cannot be 'seen'. If you need to configure the port forwarding function for a specific application, you will need to contact the application vendor to find out which port settings you need. You can manually input this port information into the Router.

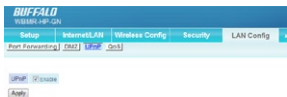
## DMZ



If you have a client PC that cannot run an Internet application properly from behind the firewall, you can open the client up to unrestricted two-way Internet access. This may be necessary if the NAT feature is causing problems with an application such as a game or video conferencing application. Use this feature on a temporary basis as a DMZ host is highly exposed to the dangers of the Internet

To put a computer in the DMZ, enter its LAN IP address and click "**Apply**" for the change to take effect.

## UPnP



Setting up the internet gateway function of UPnP: On a PC which supports UPnP (Windows XP, etc.), the AirStation is automatically recognized on the LAN as an internet gateway. Also, if a network application which supports UPnP is used, it can acquire the Internet port status of the AirStation and the Internet IP address obtained from your ISP, and perform port translation automatically.



## QoS



Quality of Service (QoS) assigns priority levels to different kinds of packets to minimize delays in the transfer of data. The table lists four common applications and lets you enter the port numbers for up to four more. Click the High Priority button for the application(s) whose packets you wish to receive preferential treatment.

### Admin Config

#### **Name**

This can be used to assign a specific descriptive name for the AirStation.

The AirStation name may be up to 64 alphanumeric characters in length, and '-' are allowed, but a '-' may not be the first or last character in the name. By default, the AirStation name is its LAN-side MAC address. This name is used as the host name for the Internet side DHCP server when the DHCP client is enabled.

When log information to the syslog server is transmitted, it uses it as the host name.

#### **Password**

Configure the Administrator Password to review the AirStation settings. Change your root password here. Password may use alphanumeric characters and underscores '\_', and may be up to 8 characters long.

The default username is the word root and this setting cannot be changed.

#### **Time/Date**

You may set the AirStation's date and time manually or acquire this information from your PC (The Time Zone cannot be acquired by this method)

#### **NTP**

If an NTP server is configured, the AirStation will access the specified NTP server and adjust it's internal clock to conform with the NTP server's time. NTP

is an acronym of Network Time Protocol. An NTP server distributes accurate time to network devices.

### **Access**

You may prohibit management of the AirStation in specific circumstances. Enabling any of these limitations will prevent changes being made to the AirStation's settings from PCs that meet the listed limitation criteria. Note that checking all of these boxes at once will make it very difficult to make future changes to the AirStation's settings.

### **Log**

You can transfer the AirStation's log information to a server. Checking "**Enable**" will instruct the AirStation to transmit log information to a Syslog server. The default setting is disabled.

### **Save/Restore**

Once you've got your AirStation set up the way you want it, you may save the current configuration to a file on the PC. This can then be used to restore settings as required.

#### *Note:*

The AirStation will not be able to restore configurations from the save file in the following circumstances:

- If you password-protect the backup and then don't enter the password correctly when restoring.
- Configuration file created with a later version of the firmware than you are currently running.
- Configuration file was created by a different product.

### **Initialize/Restart**

Sometimes it may be necessary to restart or initialize the Router if it is not working correctly. Restarting the Router will NOT delete any of your configuration settings.

However, if you choose to initialize your AirStation settings will be restored to factory defaults.

### **Update**

From time to time, Buffalo may release new versions of the Router's firmware. Firmware updates contain feature improvements and fixes to problems that may have existed. When Buffalo releases new firmware, you can download the firmware from the Buffalo website and update your Router's firmware to the latest version.

## Updating the Router's Firmware

1. In the "**Update**" screen, click "**Browse**". A window will open that allows you to select the location of the firmware update file.
2. Browse to the firmware file you downloaded. Select the file by double-clicking on the file name.
3. Click "**Update Firmware**" to update to the latest firmware version.

## DIAGNOSTIC

Diagnostic panels show the current status of your modem router, its local network connection, the wireless interface, and the DSL link. The information displayed is read-only ie. you cannot change any settings through these panels.

### System Info

Display the AirStation's main settings.

### Logs

Displays log information recorded by your AirStation. Select the type of information you wish to log and the location.

### Packet Info

Displays the total numbers of packets sent and received by the AirStation, and any errors.

### Client Monitor

Displays the LAN side clients (PC's) that are accessing the AirStation.

### Ping

A Ping test can be performed from your AirStation. With a ping test, you can establish whether the AirStation can communicate with a specific network device. Enter the network IP address that you want to ping; e.g. 192.168.11.3 or www.buffalotech.com. Click "**Execute**" and the results of the test are displayed.

### DSL Connection

If a DSL link has been established, technical information about it is shown here. The PVC Connection section reflects settings in the Internet Connection and VC Settings areas of the Internet/LAN panel.

Specifications	
Dimensions:	(W) 130 x (H)143 x (D)28 mm
Weight:	210g
Operating temperature:	Temperature 0-40°C, Humidity 20-80%(Non Condensing),
Power Consumption:	11W
Power Supply:	12V/2A
CD setup wizard:	Microsoft® Windows XP / Vista™ (32bit)

Network Protocol and Standards Compatibility	
DSL Interface	
Standard	TR067/TR068/G.922.1/G.992.2/ G.992.3/G.992.4/G.992.5/T1.413i2
Connector Type	RJ11
Number of DSL Ports	1
LAN Interface	
Standard Compliance	IEEE802.3 IEEE802.3u (100BASE- TX/10BASE-T) Auto-MDIX
Speed	100Mbps
Connector Type	RJ45
Number of LAN Ports	4
WAN Interface	
Standard Compliance	802.11b/g
Frequency range	1-11ch 2412-2462MHz)
Antenna	Internal 2dBi 1pcs
Wireless Security	WPA/WPA2

Feature	Default Setting
Router Login	
User Login URL	http://192.168.11.1
User Name (case sensitive)	root
Login Password	""(blank)
Internet Connection	
WAN MAC Address	Use Default address
WAN MTU Size	1500
Port Speed	AutoSensing
Local Network (LAN)	
Lan IP	192.168.11.64
Subnet Mask	255.255.255.0
DHCP Server	Enabled
DMZ	Disabled
Time Zone	GMT

**Europe – EU Declaration of Conformity**

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the Directive:

**EN60950-1: (2006)**

Safety of Information Technology Equipment

**EN50385 : (2002-08)**

Product standard to demonstrate the compliance of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields (110MHz - 40 GHz) - General public

**EN 300 328 V1.7.1: (2006-10)**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

**EN 301 489-1 V1.8.1: (2008-04)**

Electromagnetic compatibility and Radio Spectrum Matters (ERM); Electro-Magnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements

**EN 301 489-17 V1.3.2 (2008-04)**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Electro-Magnetic Compatibility (EMC) standard for radio equipment; Part 17: Specific conditions for 2,4 GHz wideband transmission systems, 5 GHz high performance RLAN equipment and 5,8 GHz Broadband Data Transmitting Systems

**Intended use:**

This device is a 2.4 GHz wireless LAN transceiver, intended for indoor home and office use in USA, Canada, all EU and EFTA member states.

**EU Countries intended for use:**

This device is intended for indoor home and office use in the following countries:

Austria, Belgium, Germany, Denmark, Spain, Greece, France, Finland, Italy, Ireland, Luxembourg, The Netherlands, Portugal, Sweden, United Kingdom, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovak Republic and Slovenia.

The device is also authorised for use in all EFTA member states Iceland, Liechtenstein, Norway and Switzerland.

**EU countries not intended for use:**

None

**Potential restrictive use:**

This device is a 2.4 GHz wireless LAN transceiver, intended for indoor home and office use in all EU and EFTA member states, except in France, Belgium and Italy where restrictive use applies.

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain an authorization to use the device for setting up outdoor radio links.

In Belgium there is a restriction in outdoor use. The frequency range in which outdoor operation in Belgium is permitted is 2460 – 2483.5 MHz.

In France only channels 10,11,12 and 13 are available.

This device may not be used for setting up outdoor radio links in France. For more information see <http://www.anfr.fr/> and/or <http://www.art-telecom.fr>

**Safety**

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this manual and of the computer manufacturer must therefore be allowed at all times to ensure the safe use of the equipment.



Česky [Czech]	Buffalo Technology tímto prohlašuje, že tento Modem Router je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Dansk [Danish]	Undertegnede Buffalo Technology erklærer herved, at følgende udstyr Modem Router overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.

Deutsch [German]	Hiermit erklärt Buffalo Technology, dass sich das Gerät Modem Router in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Eesti [Estonian]	Käesolevaga kinnitab Buffalo Technology seadme Modem Router vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, Buffalo Technology, declares that this Modem Router is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]	Por medio de la presente Buffalo Technology declara que el Modem Router cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Buffalo Technology ΔΗΛΩΝΕΙ ΟΤΙ Modem Router ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Français [French]	Par la présente Buffalo Technology déclare que l'appareil Modem Router est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Italiano [Italian]	Con la presente Buffalo Technology dichiara che questo Modem Router è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo Buffalo Technology / izgatavotāja nosaukums] deklarē, ka Modem Router atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo Buffalo Technology deklaruojama, kad šis Modem Router atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.



Nederlands [Dutch]	Hierbij verklaart Buffalo Technology dat het toestel Modem Router in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Malti [Maltese]	Hawnhekk, Buffalo Technology, jiddikjara li dan Modem Router jikkonforma mal-ftigijiet essenzjali u ma provvedimenti oħrajn rilevanti li hemm fid-Dirrettiva 1999/5/EC.
Magyar [Hungarian]	Alulírott, Buffalo Technology nyilatkozom, hogy a Modem Router megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
Polski [Polish]	Niniejszym Buffalo Technology oświadcza, że Modem Router jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
Português [Portuguese]	Buffalo Technology declara que este Modem Router está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Slovensko [Slovenian]	Buffalo Technology izjavlja, da je ta Modem Router v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	Buffalo Technology týmto vyhlasuje, že Modem Router spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish]	Buffalo Technology vakuuttaa täten että Modem Router tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar Buffalo Technology att denna Modem Router står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

## **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:**

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.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

### **FCC REQUIREMENTS**

This equipment complies with Part 68 of FCC Rules and the requirements

adopted by the ACTA. On the base unit of this equipment is a label that contains, among other information, a product identifier in the format US: BFFDL01BWBMRHPGN. If requested, this number must be provided to the telephone company.

the REN for this product is part of the product identifier that has the format US: BFFDL01BWBMRHPGN. The digits represented by 01 are the REN without a decimal point.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have those devices ring when your telephone number is called.

In most, but not all areas, the sum of the REN of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

If your equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. If advance notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC. Your telephone company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, please contact the following address and phone number for information on obtaining service or repairs:

The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company.

Connection to party lines is subject to state tariffs.

Buffalo wireless products come with a 2-year limited warranty from the date of purchase. Buffalo Technology warrants products in good operating condition for the warranty period. This warranty does not include non-Buffalo Technology installed components. If the Buffalo product malfunctions during the warranty period, Buffalo Technology will, at its discretion, repair or replace the product at no charge, provided the product has not been subjected to misuse, abuse or non-Buffalo Technology authorized alterations, modifications, or repairs. When returning a product, include your original proof of purchase. Return requests cannot be processed without proof of purchase. Shipment of returned product to Buffalo Technology is the responsibility of the purchaser. All expressed and implied warranties for the Buffalo product line including, but not limited to, the warranties of merchantability and fitness for a particular purpose, are limited in duration to the above period. Under no circumstances shall Buffalo Technology be liable in any way to the user for damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use of, or inability to use, the Buffalo products. Buffalo Technology reserves the right to revise or update its products, software, or documentation without obligation to notify any individual or entity.

Please have your proof of purchase receipt to get warranty support. All defective products shall be returned with a copy of proof of purchase. In no event shall Buffalo Technology's liability exceed the price paid for the product from direct, indirect, special, incidental, or consequential damages resulting from the use of the product, its accompanying software, or its documentation. Buffalo Technology does not offer refunds for any product.

**Contact Information - USA**

Buffalo Technology USA Inc.  
11100 Metric Blvd, Suite 750  
Austin, TX 78758

Toll-free: (866) 752-6210  
Email: [info@buffalotech.com](mailto:info@buffalotech.com)

**Contact Information - EUROPE**

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Finland	010802812
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Germany	01801 003757
Ireland	1890 719901
Italy	848 782113
Netherlands	09000401256
Norway	81000050
Spain	9018 10750
Sweden	0771404105
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For all other European regions	+353 61 704617

## Contact Information - Asian Pacific

[Taiwan]

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e-mail: support@bualo-tech.com.tw

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TEL: 1-8004256210

e-mail: csbualo@accelfrontline.in

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[Malaysia]

TEL: 03-5032-0138

e-mail: bualo@ecsm.com.my

[Indonesia]

TEL: 021-6231-2893

[Philippines]  
TEL: 2-688-3999  
e-mail: [digisupport@msi-ecs.com.ph](mailto:digisupport@msi-ecs.com.ph)

[Other Area]  
Please contact the shop or distributor where you purchased, referring to the attached warranty card issued by distributor.

*At Buffalo Technology, we constantly update our software and firmware. For the most recent software, firmware, driver, and technical whitepaper releases available, please visit the Buffalo Technology website:  
[www.buffalo-technology.com](http://www.buffalo-technology.com).*