

## BLW-04EM 4Ports Wireless Broadband Router



### Feature

The BLW-04EM incorporates the on-board 4-port Switch for wired LAN connection, as well as IEEE802.11b compliant wireless Access Point feature. For the first time, we achieved a high cost effectiveness surprising for this class of wireless LAN broadband routers.

#### ■ Provides 11Mbps Wireless LAN Access Point Functionality

The BLW-04M features the on-board IEEE802.11b compliant wireless LAN access point. Equipped with four 10BASE-T/100BASE-TX switching ports, the product can connect to a broadband line in both wireless and wired networking environments.

#### ■ The Multi-NAT function enables Access from the WAN Side

The BLW-04EM supports Multi-NAT, a function that maps multiple global IP addresses to private IP addresses to client PCs on the LAN. In internet services that provide multiple global IP addresses, this feature allows the user to open multiple servers online (make them globally accessible through the Internet).

#### ■ Wireless LAN Security Features

The product supports 64/128bit WEP (Wired Equivalent Privacy), along with MAC address filtering function. These functions block any access from PC's other than those already on the internal access permission list to guard the system against unauthorized accesses.

In the wireless LAN environment, ESS-ID is broadcasted periodically as beacon, which brings about the risk of being detected by neighboring PCs. The "Hide ESS-ID" function of BLW-04EM makes the router invisible to other wireless LAN devices, protecting it from an unauthorized access.

#### ■ Firewall with SPI (Stateful Packet Inspection) support

The BLW-04EM utilizes SPI (Stateful packet inspection) as its firewall method. SPI verifies the consistency of packets for each communication session. Since it blocks all ports upon the completion of a session, the technology implements a truly "hole-less" firewall.

Furthermore, SPI blocks communication as soon as an unauthorized access from the Internet (WAN side) is detected.

(The administrator can be notified of such attacks via e-mail)

\* Detectable Unauthorized Access.

[Ping of Death][UDP flooding attack][Smurf Attack][SYN flood][Land attack][IP Spoofing]

### ■ Supports Special Application feature

When NAT/IP masquerading is enabled, applications whose send packets and receive packets use different protocols and port numbers are usually blocked. Nonetheless, the special application function of the product allows the user to access such applications in the same environment. The following special applications are enabled by default, and more applications may be added as well.

\*[Battle.net][Dialpad][ICU II][MSN Gaming Zone][PC-to-Phone][Quick Time 4]

### ■ Wired Networking Throughput

The maximum throughput value of 24Mbps was achieved for the wired networking. It was obtained under the following environment.

< measurement method >

The throughput indicates the speed at which a 50MB file was sent or received from an FTP server on the WAN side to an FTP client on the LAN side via a router. All the settings of the router except a fixed IP address are the factory default settings. NAT is enabled.

< measurement environment >

BLW-04EM F/W v01.027

FTP Server Intel Pentium4 1.8GHz 256MB(Turbo Linux 7.0) ProFTPD 1.2.1 is used

FTP Client Intel Pentium4 1.8GHz 256MB(WindowsXP) The ftp command in the DOS prompt window is used

Each average ten times is assumed to be a result.

The file was send and received ten times each, and the average is assumed to be a result.

Downstream throughput: 24.13 Mbps Upstream throughput: 24.87 Mbps

\* The throughput values above do not represent guaranteed performance in actual product usage.

### ■ Firewall Features

Since an IP address on the WAN port is shared between multiple PCs, it is impossible for anyone on the Internet to identify the IP address of each client attached to the LAN ports. Furthermore, the user can restrict communication from the LAN side to the WAN side by configuring packet filtering rules. In addition, the BLW-04EM automatically detects and blocks any incoming unauthorized access from the Internet.

-Supported Access Control parameters(LAN-to-WAN, outgoing direction)

MAC Address/Schedule-based URL Blocking

-Detectable types of unauthorized access

-Ping of Death][UDP flooding attack][Smurf Attack][SYN flood][Land attack] [IP Spoofing]

### ■ Internet Sharing Between Multiple PCs

The NAPT(NAT/IP masquerade) feature allows one global IP address to be shared by multiple local IP addresses,

enabling simultaneous Internet access of multiple PCs.

#### ■ DHCP Feature

The BLW-04EM is equipped with DHCP Server/Client feature and thus it automatically 1) obtains an IP address from a DHCP server on the WAN side and 2) allocates an IP address to each client connected to its LAN ports. The product also supports manual IP configuration.

#### ■ PPPoE(Point to Point Protocol over Ethernet) Connectivity

In addition to the common Ethernet (static/DHCP) connection, the BLW-04EM supports Point to Point Protocol over Ethernet (PPPoE).

##### -No PPPoE software required

Since the BLW-04EM provides PPPoE client function by itself, there is no need to install a separate PPPoE program to each client PC.

##### -Internet Access of Multiple Clients as a time

The NAT/IP masquerade (NAPT) feature allows multiple computers to access the Internet simultaneously using just one PPPoE account.

##### -Automatic Connection/Disconnection

The PPPoE Service On Demand feature and Idle Access Monitoring/ Automatic Disconnection feature allow the users to access the Internet as if they were using a leased line - the users are no longer required to manually connect to or disconnect from the Internet.

#### ■ Local Server and Virtual Computer Functions enable Access from the WAN Side

Usually, access from the Internet (WAN) to the LAN is disabled as long as NAT/IP masquerading is in use. The Local Server and Virtual Computer functions of the BRL-04EM enable incoming access without compromising NAT/IP masquerading.

##### <Local Server (Port Forwarding)>

This feature permits users on the Internet to access a specific server connected to a LAN port. A server configured with private IP address can be assigned to each TCP/UDP port.

##### <Virtual Computer>

Also called DMZ (Demilitarized Zone), this function allows users on the Internet to access PCs on the internal LAN. When Virtual Computer function is enabled, all unknown packets sent to the WAN port IP address of the BRL-04EM will be forwarded to the PC configured as Virtual Computer.

#### ■ Built-in 4-port Switch

The Built-in 4-port 10/100BASE Autonegotiation Switch provides connection to network devices on LAN. Up to four computers can be directly connected the router.

#### ■ Configuration via a WEB browser

The BLW-04EM is easily configurable through a web browser. The setting screen is protected by a password

ensuring the full security.

Note: ISP's may place limitations on the use of routers like this product or on access to the Internet from multiple users. Please be sure to verify the service agreement provided by your ISP.

\*bRoadLanner series products are not dial-up routers.

► Specification

<b>Model Number</b>	<b>BLW-04EM</b>	
<b>Wireless Networking</b>		
<b>Standards Conformance</b>	IEEE802.11/802.11b	
	ARIB(Japan) /FCC(North America) /ETSI (Europe)	
<b>Data Transfer Speed</b>	11/5.5/2/1Mbps Auto-negotiation	
<b>Data Transmission Scheme</b>	DS-SS (Direct Sequence Spread Spectrum)	
<b>Frequency Range</b>	2400-2497MHz(Japan Band) 2400-2483.5(North America, Europe Band) 2455-2475MHz(Spand Band) 2446.5-2483.5MHz(France Band)	
<b>Number of Channels</b>	14(Japan) 13(Europe) 11(North America)	
<b>Security Features</b>	ESS-ID, WEP(64bit/128bit), MAC Address Filtering	
<b>Communication Range</b>	Indoor: 80m *May vary with different environmental conditions.	
<b>Antenna Type</b>	Diversity Antenna	
<b>Wired Networking</b>		
<b>Standards Conformance</b>	LAN:IEEE802.3 10BASE-T,IEEE802.3u 100BASE-TX WAN:IEEE802.3 10BASE-T,IEEE802.3u 100BASE-TX	
<b>Data Transfer Speed</b>	10/100Mbps (Auto-negotiation)	
<b>Network Port Configuration</b>	<b>WAN Port</b>	10/100BASE-TX Auto-Negotiation Port x 1(RJ-45 connector) Auto MDI/MDI-X
	<b>LAN Ports</b>	10/100BASE-TX Auto-Negotiation Port x 1(RJ-45 connector) * Auto MDI/MDI-X on all ports
<b>Supported WAN Lines</b>	ADSL, CATV, FTTH, leased lines, ect.	
<b>Supported Protocol</b>	IP	
<b>Address Translation</b>	NAT/IP Masquerading	

<b>DHCP Server</b>	Supports up to 253 addresses (LAN ports only, can be disabled)
<b>DHCP Client</b>	Obtains an IP address from an ISP (WAN port only, can be disabled)
<b>DNS Relay</b>	Supported
<b>PPPoE</b>	Supports 1 session
	PPPoE Service-on-Demand, Idle Connection Monitoring/automatic Disconnection, Keep Alive
<b>Local Server</b>	Forwards packets to a specific PC on the LAN per TCP/ UDP port
<b>Virtual Computer(DMZ)</b>	Forwards packets from WAN port to a specific PC on the LAN
<b>Packet Filtering (LAN to WAN)</b>	MAC AddressL
	Schedule-based URL Blocking
<b>VPN Pass Through</b>	IPsec/PPTP/ L2TP
<b>DynamicDNS</b>	Support
<b>Configuration Interface</b>	Web Browser
<b>System Upgrade</b>	Upgradable Flash ROM
<b>Common features</b>	
<b>LED</b>	POWER,WLAN,WAN / LAN,Link/Act
<b>Maximum Power Consumption</b>	9W Max
<b>Dimensions</b>	220(W) x 38(H) x 133(D)mm (Excluding the antenna)
<b>Weight</b>	550g
<b>Operating Temperatures</b>	0to40 degrees Celsius
<b>Operating Humidities</b>	35to70%(non-condensing)
<b>Supported OSes</b>	<b>For Ethernet (Wired) Communication:</b> <ul style="list-style-type: none"> <li>• Windows 95/98/Me/2000/XP PC equipped with an Ethernet (RJ-45) port</li> <li>• Computer equipped with an Ethernet (RJ-45) port that supports OSes with TCP/IP support (Mac OS , UNIX, etc.)</li> </ul>
	<b>For Wireless Communication</b> <ul style="list-style-type: none"> <li>• Windows 95/98/Me/2000/XP PC equipped with a wireless LAN card or wireless LAN communication function that complies with IEEE802.11/IEEE802.11b</li> </ul>

	<ul style="list-style-type: none"> <li>• Macintosh with the AirMac Wireless LAN Card</li> </ul>
<b>Required Network Cables</b>	<p>The product requires the following networking devices</p> <p>*Twisted-pair cable (Required quantity: the number of PC's attached to the product)</p>
<b>Supported ADSL/Cable Modem</b>	<p>The product supports the following ADSL/Cable Modem</p> <p>*External ADSL modem with an RJ-45 (LAN) port</p> <p>*External cable modem with an RJ-45 (LAN) port</p>
<b>EMI</b>	VCCI Class B, FCC Class B, CE
<b>Warranty</b>	1 Year
<b>Package Contents</b>	<p>BLW-04EM, AC adapter(short cord included), User's Manual, twisted-pair cable Cat.5/1m)</p> <p>*The BLW-04EM-PK also includes GW-NS11C (wireless LAN adapter for client PC)</p>

Since no cabling is required to set up a wireless LAN, anyone can establish and start using a wireless LAN with ease. However, data communication between two nodes may fail or slow down significantly if they are separated by any of the following materials (see below). To ensure stable data communication, it is strongly recommended to remove these objects or environmental factors from the installation site.

Environmental Factor	Negative Impact on Comm. Range (*1 The more asterisks, the shorter the communication range )	Examples
Air	*	-
Wooden	**	Wooden Partition
Plaster	**	Partition walls
Synthetic Materials	**	Partitioning parts in plywood boards
Asbestos	**	Ceilings
Glass	**	Window panes, glass wall plates
Water	***	Damp wooden materials
Bricks	***	Brick walls
Marble	****	Marble walls

Cement/ Concrete	****	Floors, walls
Bulletproof glass	****	Walls/ window panes used in lookouts
Iron/ Steel	*****	Iron partition materials, reinforced concrete walls

► Connection Sample

**BLW-04EM Network Layout Sample**

*Wired and wireless computers access the Internet simultaneously via the BLW-04EM*

