

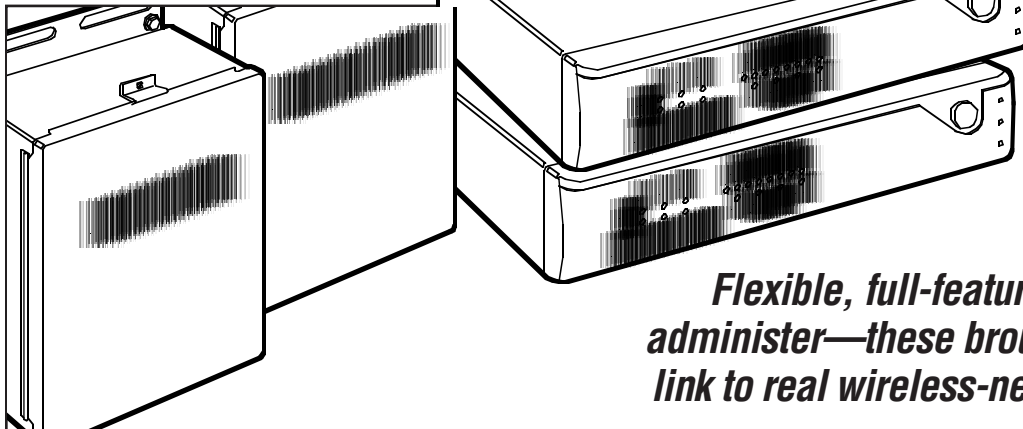


BLACK BOX[®]

NETWORK SERVICES

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SERIES 4000 AND 8000 WIRELESS BRIDGE/ROUTERS



Flexible, full-featured, but easy to administer—these routers could be your link to real wireless-networking success!

Key Features

- ▶ **Uses DSSS rather than IEEE 802.11 for better outdoor reliability.**
- ▶ **License-free 2.4-GHz, 11-Mbps operation.**
- ▶ **Performs IP routing, packet and protocol filtering, and more.**
- ▶ **Supports SNMP and comes with powerful management software.**
- ▶ **Series 4000 supports up to 16 Remote Units.**
- ▶ **Series 8000 supports 48 Remote Units, plus NAT and DHCP.**
- ▶ **Mastmount models can be placed outdoors.**
- ▶ **Many different antennas available.**

Everyone talks about the frequency-hopping wireless-LAN standard IEEE 802.11. And it has its place—but, in many cases, the great outdoors isn't it.

If you need a more robust outdoor wireless-LAN solution, try our Series 4000 and 8000 Wireless Bridge/Routers. They operate at 11 Mbps in the unlicensed 2.4-GHz band, just like 802.11 routers do, but they use Direct-Sequence Spread-Spectrum (DSSS) radio that's often more reliable than frequency hopping. With premium antennas and amplifiers, they can transmit and receive data across as much as 25 miles (40.2 km).

To create a Series 4000 or 8000 wireless system, just install a Bridge/Router Base Unit and antenna at your main or central site, plus a Remote Unit and antenna at each remote site.

All of the Series 4000 and 8000 models can be plugged into your wired Ethernet LANs without needing to be configured—they sense local traffic, build internal address tables, and filter and retransmit data automatically, without user involvement.

They do, however, come with Configurator software that gives you strong remote-management capabilities. And they can be administered with SNMP as well.

Our basic Series 4000 models (LW400xA product codes) are well suited for smaller-scale networks with up to 16 Remote Units. Series 8000 models (LW800xA) add high-performance features useful for larger networks and ISPs. This includes support for as many as 48 Remote Units, Network Address Translation (NAT), and bandwidth configuration (traffic burst rates for each site can be limited to any increment of 1 kbps).

Series 8000 units can also be configured as Dynamic Host Control Protocol (DHCP) servers to dynamically assign local IP addresses. This means that DHCP-transaction traffic can be handled locally at each site and kept off the wireless segment, reducing the load on the whole network.

Both the Series 4000 and Series 8000 Bridge/Routers come in two different versions. The Base Units and Remote Units of the Mastmount models (LW4001/2A,

LW8001/2A) consist of an indoor junction box for power and LAN connections plus an outdoor radio box that the antenna can plug into. The junction box and radio box can be connected to each other with outdoor-rated CAT5 cable such as the cables included in the LW001C, LW002C, or LW003C Installation Kits.

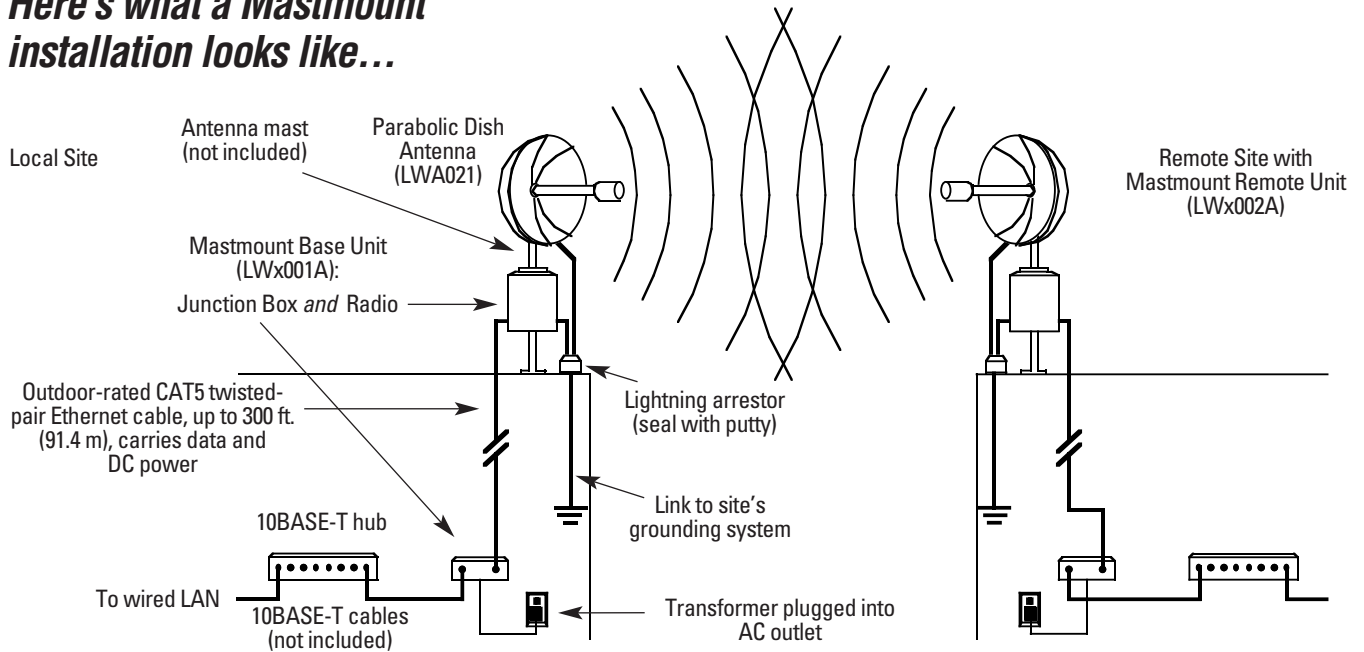
The Base Units and Remote Units of the Shelfmount models (LW4003/4A, LW8003/4A) consist of a full-blown indoor desktop chassis with diagnostic LEDs. This can be connected to the antenna with RF cable such as the cables included in the LW004C or LW005C Installation Kits. You can also attach an optional amplifier (LW060A or LW110A) for increased range.

We offer a wide range of antennas for the Series 4000 and 8000. For more information about those, see **FaxBack #25326**.

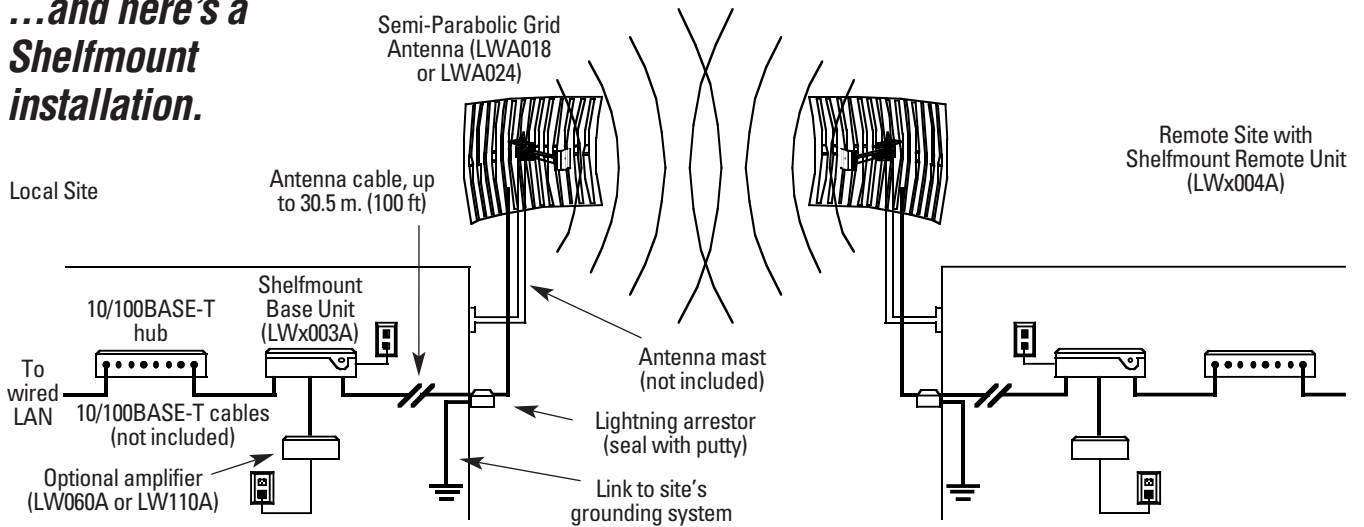
Very important: Before you order any part of a Series 4000/8000 system, please call Black Box Tech Support for help designing your wireless link and determining what equipment you need.



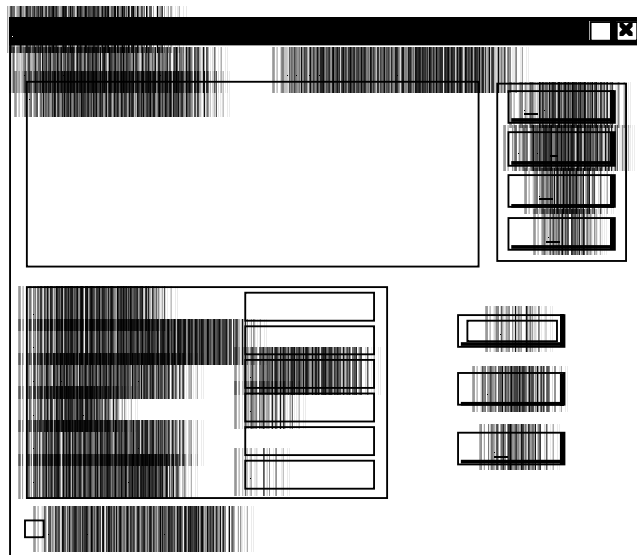
Here's what a Mastmount installation looks like...



...and here's a Shelfmount installation.



With its Configurator software, you can configure, monitor, and analyse all aspects of your Series 4000 or 8000 system.



Specifications

NOTE: In these specifications, "Mastmount models" refers to the LW4001A, LW4002A, LW8001A, and LW8002A, while "Shelfmount models" refers to the LW4003A, LW4004A, LW8003A, and LW8004A.

Compliance: FCC Part 15 Subpart J Class A, IC Class/classe A; ETSI; CE

Standards: Wired LAN: IEEE 802.2 and 802.3 Ethernet v.2

Interface:

Mastmount models: 10BASE-T;
Shelfmount models:
10/100BASE-T

Network Software Support:

Transparent to all network operating systems

Network Addressing: MAC address of Ethernet interface

RF MAC Protocol: "Campus PRC" (proprietary)

IP Routing: RFC compliant

Bit Error Rate: Better than 10^{-8}

Radio Type: Direct-Sequence Spread-Spectrum (DSSS)

Frequency: 2.4 to 2.4835 GHz (ISM band)

Channels: 11

Modulation: QPSK

Processing Gain: 11 dB nominal

Operation: Half-duplex

Transmit Power: 15 dBm typical

Receiver Sensitivity: -91 dBm typical maximum

Upgradability: Firmware is upgradable through in-band management

Configuration and Monitoring: In-band SNMP to any unit

SNMP MIBs Supported: MIB_II and Bridge MIB

Maximum Distance:

Will vary depending on antennas, antenna cabling, number of Remote Units, environmental factors, and other concerns;

Mastmount models: Up to 10 miles (16.1 km);

Shelfmount models: Up to 25 miles (40.2 km) with optional amplifier

User Controls:

Configuration and monitoring software;

Shelfmount models: (2) Rear-mounted momentary rocker switches: (1) for restoring factory defaults, (1) for base booting

Indicators:

Shelfmount models:

- (18) Front-mounted LEDs:
 - (3) Wired LAN activity (TX, RX, collision);
 - (3) Wireless LAN activity (TX, RX, collision);
 - (12) Wireless bandwidth utilization percentage

Connectors:

Mastmount models:

Bottom-mounted on main chassis:

- (1) SLTM-11 weatherproof bulkhead female to junction box for power and Ethernet data;
- (1) Reverse TNC bulkhead RF female to antenna;

Front-mounted on indoor junction box:

- (2) RJ-45 female: (1) to main chassis, (1) to LAN;
- (1) DC jack for power;

Shelfmount models: All rear-mounted:

- (1) RJ-45 female to LAN;
- (1) Reverse TNC bulkhead RF female to antenna;
- (1) DC power-supply Switchcraft female to amplifier;
- (1) IEC 320 male AC-power inlet

Temperature Tolerance:

Mastmount models:

- Operating: -40 to +70°C (-40 to +158°F);
- Storage: -10 to +60°C (14 to 140°F);

Shelfmount models:

- Operating: 0 to 50°C (32 to 122°F);
- Storage: 0 to 60°C (32 to 140°F)

Humidity/Water Tolerance:

Mastmount models: Up to 95% noncondensing relative humidity; can also withstand up to 10.2 cm (4") of rain per hour, but can *not* withstand being immersed in water;

Humidity/Water Tolerance (cont'd):

Shelfmount models: 10 to 90% noncondensing relative humidity; do *not* expose to water or outdoor conditions

Enclosure:

Mastmount models: NEMA 4 metal chassis suitable for tower- or pole-mounting;
Shelfmount models: Metal chassis suitable for desktop placement or rackmounting

Power:

Mastmount models: From AC outlet, through autosensing power supply and indoor junction box:
Input to power supply: 100 to 240 VAC, 47 to 63 Hz, 700 mA;
Output from power supply through junction box to main chassis: 18 VDC at 1.3 amps (supports Ethernet cable up to 61 m [200 ft.]);
Max. consumption: 24 watts;
Shelfmount models: From AC outlet through autosensing internal power supply:
Input: 100 to 240 VAC, 47 to 63 Hz, 2 amps;
Max. consumption: 150 watts

Size:

Mastmount models: 25.4 x 20.3 x 10.2 cm (10"H x 8"W x 4"D);
Shelfmount models: 28.4 x 21.8 x 5.1 cm (11.2"H x 8.6"W x 2"D)

Weight:

Mastmount models: 4.9 kg (10.7 lb.);
Shelfmount models: 2.5 kg (5.6 lb.)

The complete Bridge/Router packages

The Series 4000 and Series 8000 Mastmount Base Units (LW4001A, LW8001A) and Remote Units (LW4002A, LW8002A) each come with:

- Mastmountable outdoor RF unit
- Mounting hardware, including U-clamps
- 18-VDC indoor junction box
- Wallmount power supply
- CD with manual and Configurator software

The Series 4000 and Series 8000 Shelfmount Base Units (LW4003A, LW8003A) and Remote Units (LW4004A, LW8004A) each come with:

- Indoor chassis that can be placed on a flat surface
- Power cord
- CD with manual and Configurator software

The complete accessory packages

The basic Installation Kit (LW0000A) without any main cable comes with:

- 61-cm(24-inch) pigtail
- Lightning arrestor
- 3-m(10-foot) antenna cable
- Waterproof insulation
- Electrical tape
- Brass ground-rod clamps
- Wire zip ties

The Installation Kits for the Mastmount models add 30.5 m, (100 ft. LW001C), 61 m (200 ft., LW002C), or 91.4 m (300 ft., LW003C) of outdoor-rated UTP Ethernet cable. The Installation Kits for the Shelfmount models add 15.2 m (50 ft., LW004C) or 30.5 m (100 ft., LW005C) of antenna cable.

The Shelfmount models' optional Amplifier Kits (LW060A and LW110A) come with the amplifier and its power cord.



Ordering Information

ITEM	CODE
Series 4000 and 8000 Wireless Bridge/Routers	
Series 4000 Mastmount*	
Base Unit	LW4001A
Remote Unit.....	LW4002A
Series 4000 Shelfmount	
Base Unit	LW4003A
Remote Unit.....	LW4004A
Series 8000 Mastmount*	
Base Unit	LW8001A
Remote Unit.....	LW8002A
Series 8000 Shelfmount	
Base Unit	LW8003A
Remote Unit.....	LW8004A

***Note:** Mastmount model Base Units and Remote Units might require an AC-plug adapter for use outside North America.

You might also need...

Installation Kits

Without main cable	LW0000A
With Ethernet cable (for Mastmount models only)	
With 30.5 m (100 ft.) of cable.....	LW001C
With 61 m (200 ft.) of cable.....	LW002C
With 91.4 m (300 ft.) of cable (requires 24-VDC junction box; call for more information).....	LW003C
With antenna cable (for Shelfmount models only)	
With 15.2 m (50 ft.) of cable.....	LW004C
With 30.5 m (100 ft.) of cable.....	LW005C

Amplifiers (optional, for Shelfmount models only)

For use with 15.2-m (50-ft.) antenna cables	LW060A
For use with 30.5-m (100-ft.) antenna cables	LW110A

Category 5 patch cable to attach the Bridge/Router to your wired Ethernet network (specify length)

Straight-through pinned (to PCs, autosensing hubs and switches, etc.).....	EVMSL05
Cross-pinned (to non-autosensing hubs and switches).....	EVCRB05

See **FaxBack #25326** for the product codes and descriptions of the available antennas.

Call **Black Box Tech Support** for help determining your best options for AC-power backup and protection.



Black Box offers the best warranty program in the industry—Fido Protection®. For more information, request **FaxBack 22512**.

