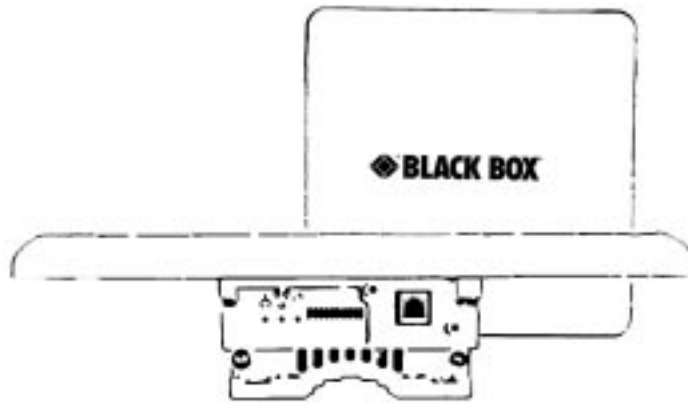




# BLACK BOX<sup>®</sup>

## NETWORK SERVICES

## Wireless LAN



### Key Features

- ▶ Indoor-outdoor architecture for maximum range and reliability
- ▶ Optimized for outdoor building-to-building applications
- ▶ Dynamic output power range for maximum distances in all regulatory domains (-4 dBm to +24 dBm)
- ▶ Up to 10km distance in ETSI
- ▶ Extremely high sensitivity
- ▶ RC4 40-bit key WEP encryption
- ▶ Extensive LED diagnostics including 10-LED RSSI bar display for easy antenna alignment
- ▶ IEEE 802.11b and 802.3 compatible
- ▶ User friendly configuration and management utility

#### Wireless Outdoor Bridging

The Black Box DS.11 Wireless Outdoor Bridge offers a whole new dimension in reliable, high performance, wireless connectivity. Bridging campuses, buildings or any remote sites, BLACK BOX DS.11 Wireless Outdoor Bridge provides the ideal point-to-point and point-to-multipoint solutions in the unlicensed 2.4GHz ISM band.

#### Optimized for Outdoor Applications

The unique indoor-outdoor architecture of the Black Box DS.11 Wireless Outdoor Bridge enables unprecedented range and capacity. The outdoor unit, containing the radio, is placed together with the antenna. The indoor and outdoor units are connected at baseband frequencies, allowing the use of a low cost, easy to install UTP cable with no signal loss.

#### Fast and Reliable

The Black Box DS.11 Wireless Outdoor Bridge accommodates network links at up to 11 Mbps, covering distances of up to 10 km in diverse environments, unaffected by adverse weather conditions such as fog, rain, snow and wind.

Dynamic output power range allows the unit to maximize range in a variety of regulatory domains.

#### Standards Compliant

The Black Box DS.11 Wireless Outdoor Bridge adheres to the IEEE 802.11b standard for high speed wireless LANs, is Wi-Fi compliant and is interoperable with other 802.11b compliant products. It complies with both FCC and ETSI regulations for wireless point-to-point and point-to-multipoint communications in the unlicensed 2.4GHz ISM band.

#### Security

The Black Box DS.11 Wireless Outdoor Bridge features advanced security architecture to prevent eavesdropping and hacking when using the wireless network. Wired equivalent privacy (WEP), using RC4 40-bit key encryption algorithm as defined in the IEEE 802.11 standard, enable users to benefit from high-performance connectivity with data transfer at privacy levels equivalent to those of wired systems.

#### Effortless Installation

The indoor-outdoor architecture of the BLACK BOX DS.11 Wireless Outdoor Bridge allows for quick deployment by a single installer. The unit is easily mounted and cables are simple to connect. Antenna alignment is achieved using a 10 LED Radio Signal Strength Indicator bar display, located in the outdoor unit. Implementation of a DHCP client allows for dynamic allocation of IP addresses. A remote configuration utility eliminates the need to locally set parameters.

#### Cost Effective

Comparable in functionality with higher priced wireless bridging products, the BLACK BOX DS.11 Wireless Outdoor Bridge product uses low cost cabling and connects to inexpensive enterprise Ethernet switches and routers. Easy installation, network management and use of the unlicensed spectrum achieve low cost of ownership.

#### The Products

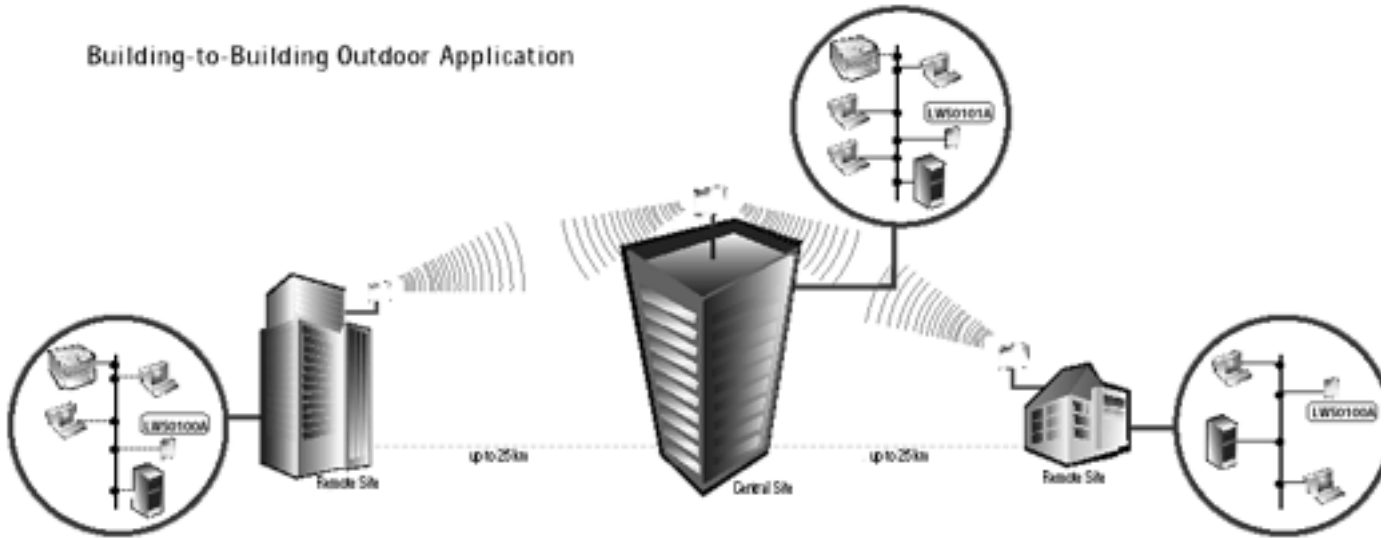
A Black Box US.11 Wireless Outdoor Bridge solution includes a base unit and one or more remote bridges. Both the base unit and the remote bridge are comprised of an indoor unit and an outdoor unit. The outdoor unit is available with an integrated antenna, or with an RF connection to an external antenna.

**LWS0100A Base Unit** is used to connect the central site to up to 128 remote sites. The base unit connects directly to a 10Base-T

Ethernet network via an RJ-45 connection.

**LWS0101A Remote Bridge** connects a remote Ethernet network to the central site via the base unit and can handle a network of up to 1024 stations. The remote bridge connects to the Ethernet network via a 10Base-T RJ-45 connection.

### Building-to-Building Outdoor Application



## Specifications

### Radio

**Frequency Range** — 2.4 - 2.4835 GHz ISM band (ETSI, FCC); 2.4 - 2.497 GHz (Japan)

**Radio Type** — Direct Sequence Spread Spectrum (DSSS)

**Wireless LAN Standards** — Compliant with IEEE 802.11b HR

**Selectable sub Channels** — FCC 1-11, ETSI 1-13, Japan TELEC 1-14, France 10-13

**Output Power (at the antenna port)** — FCC -4, -2, 4, 6, 12, 14, 20, 24 (dBm)

ETSI -4, -2, 4, 6, 12, 14 (dBm), Japan TELEC -4, -2, 4, 6, 12, 14 (dBm)

### Sensitivity (BER 1E10-6)

Data Rate	Sensitivity	Modulation
11 Mbps	-85 dBm	256 CCK
5.5 Mbps	-88 dBm	16 CCK
2 Mbps	-90 dBm	DQPSK
1 Mbps	-93 dBm	DBPSK

**Processing Gain** — 10.4 dB Nominal Integrated Antenna Type — Flat Panel 16 dBi, 20° Vertical /Horizontal

### Range

**Europe/ ETSI (20 dBm EIRP)** —

Up to 10 km

**US FCC** — Up to 25 km (15 miles)

### Security

**Authentication and Data Encryption** — 40-bit RC4 WEP

### Configuration and Management

**Management and Setup** — SNMP based enhanced windows platform configuration utility

**Site Survey Tool** — Integrated into the configuration utility

**SNMP Agents** — MIB II, Bridge MIB, DS.11 Private MIBs

**Software Upgrade** — Simultaneous multiple units software upgrade using the configuration utility TFTP download

### LED Indicators

Indoor Interface Unit: Power status, End-to-End Ethernet status

Outdoor Unit: Power Status, 10-LED display bar, RSSI in the RB/ Load Gauge

in BU, Ethernet Status / Traffic, Wireless Link Status / Traffic

### Outdoor Unit-to-Indoor Unit Communication

**Cable Type** — Cat 5 FTP 4x2x24 Double Jacket

**Maximum Cable length between indoor and outdoor units** — 90 m (280 feet)

### Interfaces

**RF (antenna) connector in the outdoor unit** — N-Type jack, lightning protected

### Baseband (indoor-to-outdoor units)

— Outdoor units: Shielded RJ-45 with special water proof sealed cap  
Indoor units: Shielded RJ-45

**Ethernet** — Indoor units: 10BaseT, (RJ-45) with 2 embedded LEDs

### Electrical

**Power Consumption** — 110 / 220 V; 500 / 250 mA

### Mechanical Dimensions

**Outdoor Unit** — 30.5 x 12 x 5 cm

**Outdoor Unit with Integrated**

**Antenna** — 30 x 30 x 7.2 cm Indoor Unit — 15.4 x 8.4 x 5.6 cm

### Environmental

**Operating Temperature** — Indoor unit: 0°C to 40°C

Outdoor unit: -40°C to 55°C

**Operating Humidity** — 5% to 95% non-condensing. Outdoor units are weather protected

### Standards Compliance, General

**EMC** — EN 300-385, FCC Part 15

**Safety** — EN 60950, UL 1950

**Environmental** — ETS 300 019, Bellcore GR-63-CORE

**Wireless LAN Standards** — ETSI

ETS 300 328, FCC Part 15

---

## Black Box Network Services - The world's largest network services company

We are, with 25 years of experience, the world leader in network infrastructure services.

**On the Phone** — no charge, answer calls in less than 20 seconds, find the

right product with our technical experts.

**On-site** — superior design and engineering, Certified installations, end-to-end service.

**On-line** — receive technical knowledge on-line, including technology overviews, BLACK BOX Explains and the Knowledge Box.

**Most comprehensive TECHNICAL SUPPORT** — our best Product! Free hotline TECH SUPPORT!

**The world's best customer service** — Custom design services and products, the best warranties, money-saving discount programs.

**BLACK BOX exclusives** — Certification Plus. Guaranteed-for-life products and services.

### *Ordering information*

<b>ITEM</b>	<b>CODE</b>
11Mbps Basisstation with 15 dBi Antenne and 20m cable, (indoor- and outdoor unit) .....	LW2005A-EU
11Mbps Client-Router and remote-Bridge with 15dBi antenna und 20m cable, (indoor- and outdoor unit) .....	LW2001A-EU