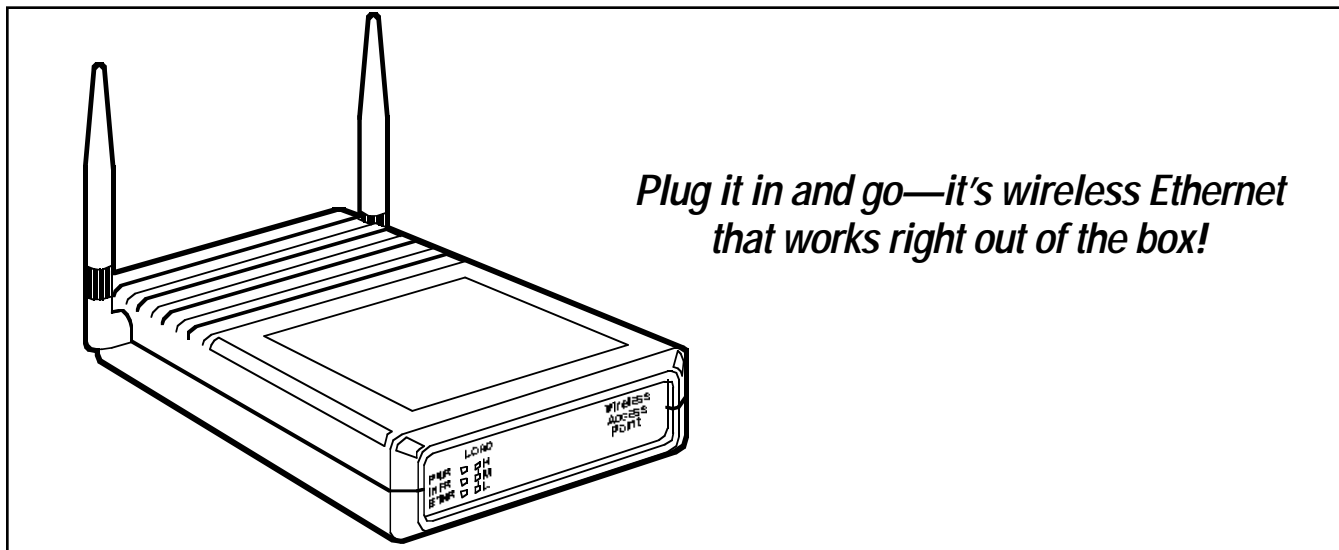


BLACK BOX[®]

NETWORK SERVICES

PRO SERIES AND PRO 11 SERIES WIRELESS ETHERNET



Plug it in and go—it's wireless Ethernet that works right out of the box!

Key Features

- ▶ **No special software**
- ▶ **No permanent installation—perfect for historic buildings or temporary setups.**
- ▶ **Two antennas on each unit—the one with the best signal is selected automatically.**
- ▶ **Seamless roaming lets portable computers move anywhere in your campus.**
- ▶ **Flash upgrade available.**

It's easy to set up wireless Ethernet connections. With the Pro Series and Pro 11 Series, all you do is plug and play.

No new software to install. No tricky setup. And—best of all—no cables.

Fast Throughput

The normal 3-Mbps data rate is fast to begin with. And you can push that to more than 15 Mbps by installing multiple Access Points where their transmission areas ("cells") can overlap.

Plug and Play

If you have an Ethernet LAN already, just plug in the Pro Series or Pro 11 Series equipment. There's no setting up, no complicated installation. You don't need to install any new drivers. Just put your wireless stations wherever you need them—the station

adapters plug into any ordinary 10BASE-T connection on a PC.

Low-Interference Radio

Frequency-hopping spread-spectrum technology keeps interference to a minimum. And you don't need a license to operate the Pro Series or Pro 11 Series.

Roaming Free

Mobile devices (like your notebook computer) can move from one cell to another without any break in the LAN connection—even if the mobile device is moving at 60 miles an hour (almost 100 km/h).

Standard Management

You can manage the whole Pro Series or Pro 11 Series system through SNMP.

Tiny and Unobtrusive

Each component is about the size of your computer mouse—except the PCMCIA card, which is even smaller.

Won't Be Obsolete Next Year

The Pro 11 Series system is designed to comply with the IEEE 802.11 wireless LAN standard. And the Pro Series can be upgraded from IEEE 802.3 to IEEE 802.11 with a simple flash download. Call Technical Support for more information on upgrading your equipment.

NOTE: Non-IEEE 802.11 units will not operate with IEEE 802.11 units.

Specifications

Access Points, Station Adapters, and Ethernet Bridges

Compatibility:

Network Operating Systems Supported — All

Network Protocols Supported — All

Wired LAN Interface:

Interface — 10BASE-T

Standard — IEEE 802.3 and IEEE 802.11

Wireless LAN Interface:

Standard — IEEE 802.11 (standard—for Pro Series, firmware can be updated by TFTP download)

Physical Interface — Two antennas (integrated or external)

Radio Specifications:

Type — Frequency-hopping spread-spectrum (FHSS)

Frequency Range — 2.4 to 2.4835 GHz (ISM band); different ranges available for countries using other bands

Dwell Time — 20 to 128 ms

Transmitted Power — *Integrated antennas:* 5 mW or 100 mW (20 dBm) EIRP; *External antennas:* 50 mW (17 dBm) at the connector, up to 36 dBm EIRP for 24-dBi antenna

Sensitivity

At 1 Mbps: -81 dBm;
At 2 Mbps: -75 dBm;
At 3 Mbps: -67 dBm

Modulation — Multilevel GFSK

Demodulation — DSP-based with adaptive equalization

Antenna Diversity — Two antennas, selected for use on a per-packet basis

Approvals of Compliance — FCC Part 15; ETS 300-328; UL*, UL/C, TUV/GS, CE

Configuration and Management:

Configuration and Setup — Via Local Monitor port

SNMP Management — SNMP Agents: MIB II, Bridge MIB, WLAN MIB, proprietary MIB; Access: Via wired LAN or wireless LAN

Site Survey — Via Local Monitor port (serial RS-232)

Indicators — Power On; Wired LAN Activity; Wireless LAN Synchronization/Radio Interference; Wireless LAN Signal Quality/Load

Firmware Upgrade — Pro Series: Upgradable to IEEE 802.11 standard when ratified through TFTP download

Range:

Integral Antennas — *Unobstructed:* Pro Series: ~3000 ft. (~1000 m); Pro 11 Series: ~2000 ft. (~600 m)
Office environment: ~500 ft. (~150 m)

External Antennas

USA (FCC):
Pro Series: Up to 8 miles (~13 km); Pro 11 Series: Up to 6 miles (9.7 km)
Europe (ETSI): Up to 2.5 km (~1.5 miles);
Europe (ETSI, extended): Up to 5 km (~3 miles)
Unregulated: Over 30 km (over 18 miles)

System Considerations:

Maximum Number of Access Points per Wired LAN — Unlimited

Maximum Number of Overlapping Cells — 15

Speed — *Over the Air:* 3 Mbps, 2 Mbps, or 1 Mbps, dynamically selected according to transmission quality;
Nominal Net:

Pro Series: Up to 1.6 Mbps; Pro 11 Series: 1.9 Mbps

Aggregate: Over 15 Mbps with overlapping cells

Electrical:

Source Power — 100–250 VAC, 50–60 Hz, 0.5A autosensing power supply

Input from Power Supply — 5 VDC, 1400 mA

Environmental:

Operating Temperature — 0 to 40° C

Operating Humidity — 5 to 95%, noncondensing

Dimensions:

Size — 3 × 8.6 × 13 cm

Weight — 0.45 kg

PCMCIA Adapters

Same specs as above, except:

Compatibility:

Network Operating Systems Supported — Windows® 95, Windows 98, Windows NT4.0

Network Protocols Supported — NDIS/ODI

Wired LAN Interface:

Interface — PC Card Type II

Wireless LAN Interface:

Physical Interface — Two integrated antennas

Radio Specifications:

Dwell Time — 32, 64, or 128 ms

Transmitted Power — 100 mW EIRP

Sensitivity

At 1 Mbps: -81 dBm;
At 2 Mbps: -75 dBm

Configuration and Management:

Configuration and Setup — Via

notebook PC

SNMP Management — None

Site Survey — Via notebook PC

Indicators — Transmit Data; Receive Data

System Considerations:

Speed — *Over the Air:* 2 Mbps or 1 Mbps, dynamically selected according to transmission quality;
Nominal Net: Up to 1.3 Mbps

Electrical:

Source Power — From notebook PC

Input — *Transmit:* 5 VDC, 365 mA;
Receive: 5 VDC, 270 mA

Dimensions:

Size — 5.6 × 13.7 × 1.3 cm, including the antenna element

Weight — 57 g

Where can you use wireless Ethernet?

Here are just a few places you can take advantage of the Pro Series and Pro 11 Series:

- **Temporary installations.** Trade shows, demonstrations—wherever you need to be able to fold your tents and silently steal away.
- **Retail stores.** When you need to change the layout of your store, you don't want cables in the way.
- **Historic buildings.** Extend your network without damaging historic details or running visible cables.
- **Warehouses.** Take inventory and have the data available to the whole network *immediately*.
- **Your office!** Take your notebook down the hall to the conference room—and stay connected to the LAN.

Additional equipment you may need:

- Lightning Arrestors (see the *Ordering Information*)
- Cables (for connecting to your wired LAN)
- Wall brackets

The Pro Series and Pro Series 11 Wireless Ethernet System

The Pro Series and Pro 11 Series Wireless Ethernet System
There's a component in the Pro Series and Pro 11 Series system to take care of every kind of network connection:

Access Points

The Access Points are the connection between your wired Ethernet network and the wireless system. Install Access Points close enough so that there will be no break in coverage (see the Range specifications on page 2).

Station Adapters

You need one Station Adapter for each piece of equipment you want to connect to the wireless network. They provide your wireless connection to the Access Points.

PCMCIA Adapters

Notebook PCs can use the PCMCIA Adapters to connect to the network. With the PCMCIA adapter in your notebook, you can roam throughout the coverage area and never lose your connection.

Ethernet Bridges

Use Bridges to connect your wireless LAN to a wired LAN in another building. At one end of the connection, one Bridge is attached to your wired LAN. At the other end, another bridge is connected to an Access Point.

Ordering Information

ITEM	CODE
<i>Pro Series Wireless Ethernet Units with Integral 2-dBi Antennas</i>	
Ethernet Access Point, Monitor Cable, Power Supply	LWU9001-R2
Single-Port Station Adapter, Power Supply	LWU9002-R2
Four-Port Station Adapter, Power Supply	LWU9003-R2
Ethernet Workgroup Bridge, Power Supply	LWU9004-R2
2-Mbps Type II PCMCIA Adapter, Diversity Antenna, Software	LWU9005-R2
<i>Pro Series Units for Use with One or Two Detached Antennas</i>	
Ethernet Access Point, Monitor Cable, Power Supply, Mounting Bracket.....	LWU0025A-R2
Single-Port Station Adapter, Power Supply, Mounting Bracket.....	LWU0026A-R2
Four-Port Station Adapter, Power Supply, Mounting Bracket	LWU0027A-R2
Ethernet Workgroup Bridge, Power Supply, Mounting Bracket	LWU0028A-R2
<i>Antennas and Accessories</i>	
6-dBi Omnidirectional Antenna	LWU011
8.5-dBi Unidirectional Antenna.....	LWU012
24-dBi Directional Antenna	LWU013
18-dBi Directional Antenna, 30-Foot Cable, Hardware for 1" to 2" Mast	LWU0031
Wall-Only Bracket for up to Three 12-dBi, 18-dBi, or 24-dBi Unidirectional Antennas	LWU0038

NOTE: The Pro 11 Series is not backward-compatible with the Pro Series, but the Pro Series can be upgraded to Pro 11. For details about parts and upgrades, call Technical Support.