BLACK BOX®
NETWORK SERVICES

BLACKBOX LONG RANGE WIRELESS SYSTEM

Key Features

▶ *Links up to 15 km*

▶ *High throughput*

▶ *Point to Point and Multipoint*

▶ *On-board site survey tools for easy installation*

▶ *No Licence required*

▶ *Modular and Upgradeable*

The Black Box Long Range Wireless System provides a solution that operates at high speeds over long distances without the need for licences. Not only does it offer high performance, but it is available in a range of modules that enable cost effective point-to-point and multipoint configuration unit and a modular system. The chassis design of the modular system unit accepts up to three plug-in RF modules in total. This ensures flexibility in order to increase the number of links, increase the speed and upgrade the network configuration. The combination of standard wireless LANs. The rapid deployment of wireless systems means they are ideally suited to temporay installations or to replace copper or fibre links where it is difficult to excavate and install new underground ducting.

Fast Wireless Ethernet Bridge

The Wireless Ethernet Bridge enables high speed data links to be established between buildings with line of sight up to distances of 15 km. The use of 2.4 GHz Direct Sequence Spread Spectrum technology provides robust, reliable, and secure transmissions under all weather conditions.

The Wireless Bridge can be configured to operate in either a point to point or point to multipoint mode. The latter is ideal where groups of buildings are required to be interconnected with a WAN link. The Black Box Wireless Bridge has a wealth of features that make its installation and operation more powerful than any other product available today. Typical applications for these units include Building to Building and Campus-style Bridges. The encoding techniques used on the Black Box Wireless Ethernet Bridges ensure very high real data rates, up to 9Mbps, which is optimised performance for bridging applications.

Modular Unit

Wireless digital broadband operating in the 2.4 GHz band is already reducing communication costs and improving business performance in a range of market sectors including health, education, transportation and government. The Black Box Modular Wireless Unit is a flexible system with three separate radio slots. It is modular and field upgradeable offering a future proof to accomodate future bandwidth demands and developments in radio technology. As new standards and techniques such as 802.16 and WIMAX emerge the Black

82458

Box Modular Wireless Unit is capable of upgrading without having to remove the whole installation.

Another major benefit of this modularity is the possibility to use three radio modules working in parrallel in a single unit to increase the aggregate link speed to 25 Mbps whilst still maintaining a range of up to 15 km. This is an extremely cost competitive solution compared to ongoing charges such as those incurred with leased lines. As the system attracts no licence fee there are real savings and return on investment is often realised within 12 months of installation.

Network Flexibilty

The Black Box Long Range Wireless System can be employed in a wide variety of network configurations. Point to Point and Point to Multipoint operation are possible. Single radios can be configured for multipoint operation and multiple radios can be aggregated for higher link performance. It is even possible to establish redundant links and alternate data paths. Long range is a basic design feature of the system but even greater distance operation is available because the system can also be configured as a repeater.

The rugged, fully IP65 rated enclosures mean there is no problem using the system in exposed locations to get maximum line of sight access for long distance links.

Installation

Before proceeding with any wireless system Black Box recommendeds a thorough site survey to establish the best location for the equipment, cabling and power supply. it assists the correct selection of the right antennas and ebnables a check the likely link performance before ordering and installation. Black Box has its own on site teams to undertake the survey and follow through with the installation once the survey and recommendations are completed. Black Box has installed large numbers of Wireless systems throughout Europe including provision of Wireless Hot Spots for major pan European ISP. Black Box tech support is free and can help establish your requirements and provide details of existing and emerging standards such as WiMAX.

Specifications

Frequency Range:
2.4 - 2.4835 GHz

Maximum RF Power:
100mW EIRP

Line of sight range:
up to 15km

Radio:
LWU2401: 11 Mbps
LWU243S: 11 Mbps, Radio cards (in carrier)

RF technology:
Direct Sequence Spread Spectrum (DSSS) with CCK and QMBOK modulation.

Security/Encryption:
7-bit polynomial division data scrambler.

Protocol:
Time Division Multiple Access

Ethernet port:
LWU2401: 10BaseT
LWU243S: 10/100Base-T, RJ45 at breakout Box.

Data throughput capability:
Up to 9 Mbps (Single Radio)

Antenna port:
LWU2401: 2 x SMA 9(f) (supports Antenna diversity)
LWU243S: 2 x TNC per radio card fitted.

LEDs:
LWU2401: 20 Tri-colour (site survey and operational modes)
LWU243S: 10 Tri-colour

configurable for installer functions.

Input supply voltage:
100VAC to 240VAC, 47Hz to 63Hz

Power consumption:
LWU2401: 6W
LWU243S: 35W

Dimensions (HxWxD):
LWU2401: 42 X 150 X 245 mm (approx)
LWU243S: 312 x 295 x 102 mm

Weight:
LWU2401: 0.5 kg (approx)
LWU243S: 2.95 kg (single radio)

Mounting Kits:
Wall or Pole mounts optional

Normal Operating Temperature:
- 20℃ to + 50℃ (Test range: -40℃ to + 70℃)

Humidity:
10% to 90% non-condensing

Approvals:
LWU2401: ETS 300 328, FCC (part 15), ETS 300 826
LWU243S: EN 300 328, EN 301 489-17.

Management tools:
Remote via Ethernet (SNMP compatible)

Environmental:
Sealed for outdoor use, IP65

Applications:
Fixed Wireless Access, Outdoor pt-pt & pt-multi-pt and Repeater

▼ *Ordering Information*

ITEM	CODE
Long Range Wireless System	
Three Slot Modular Wireless Unit with single 2.4 GHz radio	LWU243S
Radio Module for outdoor unit (2,4 GHz radio)	LWU24RM
Mounting Kit for LWU243S	LWU2458MK
Wireless Ethernet Bridge (Fixed 2.4GHz Single Radio)	LWU2401
Mounting Kit for LWU2401	LWU2401MK

Notes:
The LWU243S comes equipped with a single radio thus two slots remain for expansion. The appropriate mounting kit is required for every radio ordered. You will also need Downlink and Antenna cables as well as Antenna. Call Black Box Tech support to arrange a site survey to confirm your requirments and part codes.

For Black Box Antennas see PDF Data Sheet No.82222

Antenna Cables	
Antenna Cables for LWU2401:	
0.5m sma-sma cable for 4dBi or 8.5dBi	LWUAC3182
0.5m tnc-sma cable for 7dBi	LWUAC3265
3.0m sma-sma cable for 14dBi	LWUAC3182/213
5.0m sma-sma cable for 18dBi	LWUAC3182/215

Antenna Cables for LWU243S:	
0.5m RG223/U SMA(M)/TNC(M)	LWUAC3265
3.0m RG223/U SMA(M)/TNC(M)	LWUAC3265/223
5.0m RG223/U SMA(M)/TNC(M)	LWUAC3265/235
0.5m RG223/U N(M)/TNC(M)	LWUAC3686
3.0m RG223/U N(M)/TNC(M)	LWUAC3686/213
5.0m RG223/U N(M)/TNC(M)	LWUAC3686/215
0.5m RG223/U TNC(M)/TNC(M)	LWUAC3687
3.0m RG223/U TNC(M)/TNC(M)	LWUAC3687/213
5.0m RG223/U TNC(M)/TNC(M)	LWUAC3687/215

Antenna Accessories	
2 Way antenna splitter	LWU2W3359

▼ *Ordering Information*

ITEM	CODE
Downlink cables:	
0.5m downlink cable	LWUDC3005
5.0m downlink cable	LWUDC305
10m downlink cable	LWUDC310
20m downlink cable	LWUDC320
30m downlink cable	LWUDC330
40m downlink cable	LWUDC340
50m downlink cable	LWUDC350
60m downlink cable	LWUDCLL360
60m downlink cable (NB Unsuitable for LWU243S)	LWUDC360
70m downlink cable	LWUDCLL370
70m downlink cable (NB Unsuitable for LWU243S)	LWUDC370
80m downlink cable	LWUDCLL380
80m downlink cable (NB Unsuitable for LWU243S)	LWUDC380
90m downlink cable	LWUDCLL390
90m downlink cable (NB Unsuitable for LWU243S)	LWUDC390