October, 2003

Express
Ethernet Switch

LB9108A-R2

CUSTOMER
SUPPORT
INFORMATION

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FEDERAL COMMUNICATIONS COMMISSION AND
CANADIAN DEPARTMENT OF COMMUNICATIONS
RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment generates, uses and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada.

Normas Oficiales Mexicanas (NOM)
INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.

2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.

3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.

4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.

6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.

7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:

    A: El cable de poder o el contacto ha sido dañado; u

    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

    C: El aparato ha sido expuesto a la lluvia; o

    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

    E: El aparato ha sido tirado o su cubierta ha sido dañada.

About This Manual

This manual describes the Black Box Express Ethernet Switch LB9108A-R2 in these basic sections:

- Product Features
- Installation

Product Features
This section examines the key features, the physical features, and the product specifications of each model.

Installation
This section leads with a Quick Tip, and continues with a detailed description of Connecting to Power and Connecting to Your Network with the two types of cable: copper-based and fiber-optic. The section concludes with instructions on using the Uplink Function.

Table of Contents

Packing List

- The switch
- User's manual
- One AC power cord

Introduction

Designed in reliable metal case, LB9108A-R2 is a compact size Fast Ethernet switch that equipped with 8 ports 10/100Base-TX. It is the internal power supply version of LB8408A-R3.

By using standard auto-negotiation and the inclusion of Auto-MDIX, LB9108A-R2 provides a cost-effective way of integrating legacy 10Mbps with 100Mbps networks while eliminating problems arises from cabling difficulties. Auto-sensing MDI/MDIX allows every port on LB9108A-R2 automatically detect the Ethernet cable type (straight or crossover) being used and make adjustment to link over that cable to another PC, switch or hub.

The bridging function of LB9108A-R2 provides a solution for extending the distance between two networks segments. The non-blocking switching architecture satisfies the great demand in multimedia and imaging applications.

LB9108A-R2 meets a variety of installation requirements. It is an economical solution providing multimedia networking with space conservation.

Product Features

- 8 ports 10/100BaseTX
- All TX ports are auto-MDIX, auto-negotiation on 10/100Mbps speed and full/half duplex mode
- Broadcast storming filter function
- True non-blocking architecture
- Full wire-speed forwarding rate
- Store-and-forward mechanism
- Back pressure and IEEE802.3x compliant flow control
- Supports 2K MAC addresses
- Supports 1M bits buffer memory
- Front panel power and port status LEDs
- Compact size

Front Panel

The front panel of LB9108A-R2 has eight ports and an array of LED indicators to provide you with instant feedback on the status of the switch.

LEDs

The array of LED indicators on the front panel conveys status and configuration information to help you monitor and troubleshoot the switch.

Figure 1: Front panels

❶ **Power:** This LED comes on when the switch is connected to the power.

❷ **Port Status:** Each port has a LED, indicating the port status.

Table 1: Port Status

LED	State	Indication
LNK/ACT	Steady	The port has established a valid network connection. LNK stands for LINK.
	Flashing	The port is transmitting or receiving data. ACT stands for ACTIVITY.

Installation

Selecting a Site for the Switch

As with any electronic device, you should place the switch where it will not be subject to extreme temperatures, humidity, or electromagnetic interference. Specifically, the site you select should meet the following requirements:

- The ambient temperature should be between 32 and 104 degrees Fahrenheit (0 to 40 degrees Celsius).
- The relative humidity should be less than 90 percent, non-condensing.
- Surrounding electrical devices should not exceed the electromagnetic field (RFC) standards for IEC 801-3, Level 2 (3V/M) field strength.
- Make sure that the switch receives adequate ventilation. Do not block the ventilation holes on the side of the switch or the fan exhaust port on the rear of the switch.
- The power outlet should be within 1.8meter (6 feet) of the switch.

Connecting to Your Network

Connect network cables from computers or network segments to the TX ports on the back of the unit.

Table 2: Cabling Information

Speed	Connector	Port Speed Half/Full Duplex	Cable
100BaseTX	RJ-45	100/200 Mbps	100 m, Category 5 STP/UTP
10BaseT	RJ-45	10/20 Mbps	100 m, Category 3, 4, or 5 STP/UTP
100BaseFX Multi-mode	SC, ST, MT-RJ, VF-45, or LC	100/200 Mbps	Up to 2km, 50 or 62.5/125µm Multi-mode fiber cable
100BaseFX Single-mode	SC	100/200 Mbps	Up to 75km, 9 or 10/125µm Single-mode fiber cable

Specifications

Applicable Standards	IEEE 802.3, 10BaseT, IEEE 802.3u, 100BaseTX/FX
LED Indicators	Per unit – Power Status Per Port – LNK/ACT
Cable	10BaseT 2-pair UTP/STP Cat. 3,4,5, up to 100m 100BaseTX 2-pair UTP/STP Cat.5, up to 100m 100BaseFX 50 or 62.5/125μm Multi-mode fiber optic cable, up to 2km 100BaseFX 9 or 10/125μm Single-mode fiber optic cable, up to 75km
Switching Methods	Store-and-Forward
Forwarding Rate	14,880pps for 10Mbps, 148,800pps for 100Mbps
AC Input	100~240VAC, 50-60Hz
Power consumption	3.3VDC, 2.5A, 8.25W max.
Operating Temperature	0°C~40°C (32°F~104°F)
Storage Temperature	-25°C~70°C (-13F°~158°F)
Humidity	10%~90%, non-condensing
Emissions	FCC part 15 Class A, CE Mark
Dimensions	W254 x D135 x H35mm compact size
Weight	1.6kg (3.5lb.)