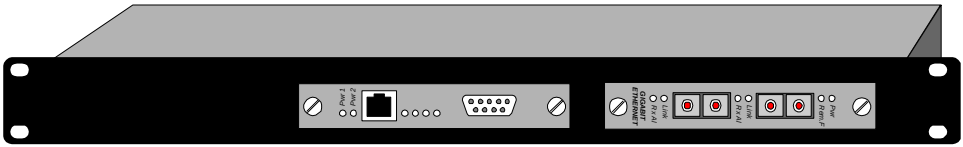
BLACK BOX
NETWORK SERVICES

DECEMBER 1999
LCL431A
LCL432A
LCL433A
LCL434A

CityLIGHT™ 2-Card Chassis



CUSTOMER SUPPORT INFORMATION

Order **toll-free** in the U.S. 24 hours, 7 A.M. Monday to midnight Friday: **877-877-BBOX**
FREE technical support, 24 hours a day, 7 days a week: Call **724-746-5500** or fax **724-746-0746**
Mail order: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055-1018
Web site: **http://www.blackbox.com** · E-mail: **info@blackbox.com**

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

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 J 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)
ELECTRICAL SAFETY STATEMENT

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.

CERTIFICATION NOTICE FOR EQUIPMENT USED IN CANADA

The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications-network protective, operation, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly (extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility—in this case, your supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION:

> Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The LOAD NUMBER (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices, subject only to the requirement that the total of the load numbers of all the devices does not exceed 100.

CONTENTS

Chapter **Page**

Figures

1. SPECIFICATIONS

Specifications for CityLIGHT 2-Card Chassis

CHASSIS	
DIMENSIONS	22 x 43.9 x 4.3 cm; 8.7" x 17.3" x 1.7" (L x W x H)
WEIGHT (SINGLE PSU)	3.2 kg; 7 lb., 1 oz.
WEIGHT (DUAL PSU)	3.7 kg; 8 lb., 3 oz.
AC PSU	
INPUT VOLTAGE	90-264V AC (UNIVERSAL)
INPUT FREQUENCY	47 HZ TO 63 HZ
INPUT CURRENT (MAXIMUM)	0.4A
CONNECTORS	IEC320 AC INPUT
DC PSU	
INPUT VOLTAGE	42-58V DC
INPUT CURRENT	0.7A
CONNECTORS	DC INPUT SCREW TERMINALS
ENVIRONMENTAL	Operating: 32 to 104°F (0 to 40°C);
	Storage: 14 to 158°F (-10 to +70°C)

HUMIDITY	MAX. 95% (NON-CONDENSING)
COMPLIANCE	UL1950
	cUL1950
	CE 73/23/EEC
	CE 89/336/EEC
	FCC PT 15 LIMIT B

2. PRODUCT OVERVIEW

CityLIGHT is a modular, chassis-based system that provides SNMP management of both local and remote transceivers for all of the major LAN protocols.

Specifically designed for Telco applications, CityLIGHT has a unique feature set that addresses all of the management and installation problems encountered by providers of LAN extension in the link between the customer's site and the central office.

The main features of CityLIGHT are as follows:

SNMP management of the transceivers

Transceiver support for all major LAN protocols

Modular chassis design options

Wavelength Division Multiplexed (WDM) options for all transceiver cards

Sideband SNMP™ communication to each transceiver

SNMP management of transceivers supporting non-LAN protocols (e.g. ESCON)

Hot-swappable cards on all chassis options

Contact closure alarm indication

VT100/220 console interface

SLIP/modem interface

Single-mode optical interfaces with up to 60km drive distance

Hot-swappable power-supply units on the 3U chassis

Redundant 90-264V AC and 48V DC power-supply options on all chassis types

Figure 1: CityLIGHT 2-Card Chassis

2.1 Chassis Options

The CityLIGHT 2-Card Chassis is for use within the service provider's customer locations and can accommodate one or two transceiver cards. This chassis design will not accommodate the CityLIGHT SNMP Card.

The CityLIGHT 2-Card Chassis is a standard 1U high, 19-inch rackmountable unit available with either single or dual, 90-264V AC or 48V DC power-supply options. The chassis contains a cooling fan for temperature management.

2.2 Power-Supply Unit

The CityLIGHT 2-Card Chassis is available in four variants:

LCL431A	-	single 90-264V AC PSU
LCL432A	-	dual 90-264V AC PSU
LCL433A	-	single 48V DC PSU
LCL434A	-	dual 48V DC PSU

Units fitted with dual power supplies are able to continue to operate on the remaining PSU in the event of a single PSU failure. Both PSUs are fed from the same connection supply. The Sideband SNMP™ will relay the fact that a fault has developed to the remote end of the fiber link.

For AC PSU variants, the AC input to the chassis is via an IEC320 connector. For DC PSU variants, the DC input is via screw terminals. To connect the DC power, connect the more positive lead to the terminal marked +ve and the more negative lead to the terminal marked -ve. Some 48V supplies are marked 0 and +48; others are marked -48 and 0. In either case, the more positive lead must be connected to the +ve terminal and the more negative lead to the -ve terminal.

The PSU will shut down if a short-circuit or an overload condition occurs; when the fault is removed the PSU will automatically restart.

Each PSU provides a signal indicating that it is operating normally. A tachometer signal gives an indication of the fan speed. These signals can be monitored via the Sideband SNMP™ agent and associated terminal.

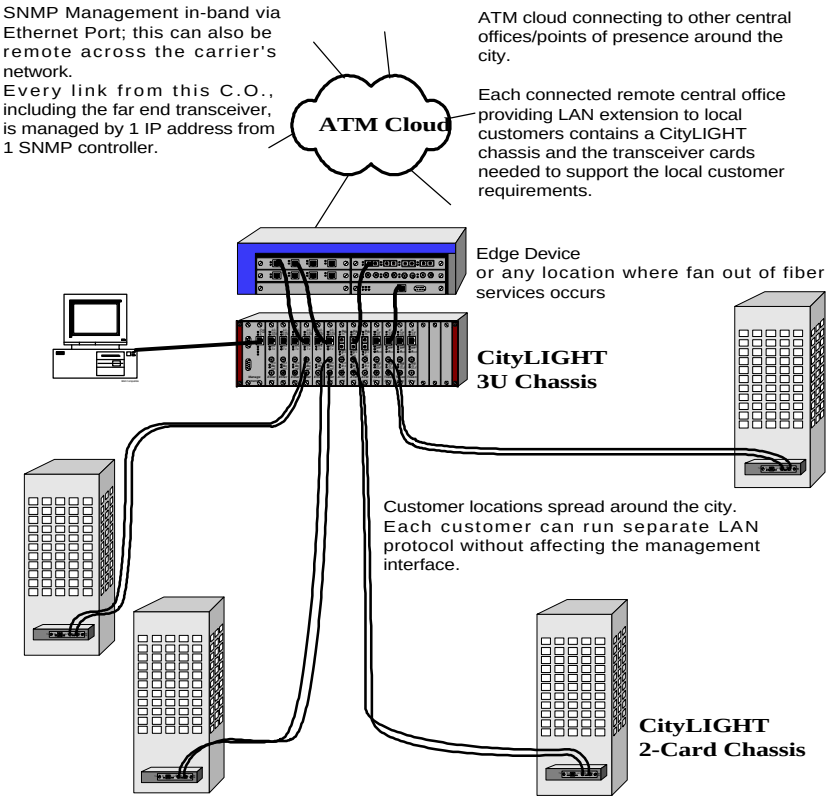
2.3 Cooling Fan

The CityLIGHT 2-Card Chassis has a cooling fan located at the rear of the chassis. If a Sideband SNMP™ Card is equipped in the chassis at the other end of the fiber link, the speed of the fan is continually checked and an alarm may be generated if the fan speed falls below a pre-set limit.

Cooling air is drawn in through the sides of the unit and exhausted at the rear. The ventilation holes must not be covered, the sides of the unit must be clear of obstruction at the operating site.

3. TYPICAL APPLICATION

The CityLIGHT system is intended for use between the central office or a local point of presence and the end user premises, or in any location where fiber links fan out to remote sites.



4. INSTALLATION

The following procedures cover the installation of the CityLIGHT 2-Card Chassis. The installation of the individual transceiver cards which are to be mounted in the chassis is briefly detailed below but also covered in their respective manuals.

4.1 Tools Required

To install a CityLIGHT 2-Card Chassis, you will need a Pozidrive and a flat-bladed screwdriver.

4.2 Rackmounted Chassis

The rackmount kit contains rackmount brackets and eight screws. These enable the CityLIGHT 2-Card Chassis to be fitted to a standard 19-inch rack.

The procedure for fitting the brackets is:

1) Place the bracket on the side of the CityLIGHT 2-Card Chassis flush with either the front or mid panel so that the four screw holes on the chassis and the bracket line up.

2) Insert the four screws and tighten. Repeat for the opposite side.

3) Insert the CityLIGHT 2-Card Chassis into the 19-inch rack.

4) Connect the supply, either 90-264V AC or 48V DC.

NOTE: 48V DC supplies at the installation site may be marked 0V and +48V or -48V and 0V. In either case, connect the more positive lead to the terminal marked +ve and the more negative lead to the terminal marked -ve, i.e. if you have 0V and -48V, connect the 0V lead to the +ve terminal and the -48V lead to the negative terminal. If you have 0V and +48V connect the +48V lead to the +ve terminal and the 0V lead to the negative terminal.

Transceiver cards may be “hot-swapped”. When installing transceiver cards into the chassis, observe static handling procedures. Locate the transceiver card into the guide rails in the chassis and push the card firmly until it engages with the connector on the backplane. Tighten the thumb screws by hand. The screws may be gently further tightened with a flat-bladed screwdriver if desired.

4.3 Standalone Chassis

If the CityLIGHT 2-Card Chassis is to be used as a standalone chassis, place it on a secure flat surface. Make sure the chassis is within reach of the necessary connections.

Rubber feet are supplied with the unit for use in standalone configurations.

Select a mounting position which will ensure the fiber leads will not encounter stress, significant movement, or tight bend radius during the entire service life of the equipment.

4.4 Service

There are no user-serviceable parts within the chassis.

5. TECHNICAL SUPPORT

If you fail to resolve your problem and require more help, please contact Black Box Technical Support at 724-746-5500 with the following information:

1. Unit type.
2. Unit serial number.
3. Environment lay-out. Include hubs, bridges and routers (with model numbers), estimated cable lengths (between equipment), and type of cable used.
4. A description of the problem you are experiencing.
5. List of tests performed.

1000 Park Drive · Lawrence, PA 15055-1018 · 724-746-5500 Fax 724-746-0746