AT-LX3800U Multi-Service Transport System

LightExplorer™

Installation and Maintenance Guide

Allied Telesyn

Electrical Safety and Emissions Standards

This product meets the following standards.

U.S. Federal Communications Commission
Radiated Energy Note: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Note: Modifications or changes not expressly approved of by the manufacturer or the FCC, can void your right to operate this equipment.

Industry Canada
This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

RFI Emissions	FCC Class A, EN55022 Class A, EN61000-3-2, EN61000-3-3, VCCI Class A, C-TICK, CE
Immunity	EN55024
Electrical Safety	EN60950 (TUV), UL 60950 ($_C$UL$_{US}$)
Laser Safety	EN60825

Laser Warnings

Caution
- Using controls, making adjustments to performance, or performing procedures other than those specified herein may result in hazardous radiation exposure.

- The protection provided by the equipment may be impaired if the equipment is used in a manner not specified by Allied Telesyn.

- Do not remove the cover from the unit or change any of the internal cables or wiring. Only an authorized Allied Telesyn service technician should make repairs to this device.

- The TX and RX multiplexing ports contain embedded Class IIIb lasers operating in Class I compliance. Do not make any modifications to the unit that would override the safeguards that maintain the Class I compliance.

- The laser light used by the multiplexing ports and SFP modules is invisible. Standard safety precautions (e.g. avoid looking directly into a fiber optic port) should always be observed when installing or maintaining this product.

Pluggable Transceivers

For continued compliance with the above laser safety standards, use only UL recognized or other safety agency certified Class 1 small form-factor pluggable (SFP) transceivers. The following SFP transceiver models are available from and supported by Allied Telesyn:

AT-SPSX
AT-SPLX10
AT-SPLX40
AT-SPZX80
AT-SPZX80/1470
AT-SPZX80/1490
AT-SPZX80/1510
AT-SPZX80/1530
AT-SPZX80/1550
AT-SPZX80/1570
AT-SPZX80/1590
AT-SPZX80/1610

Refer to the Allied Telesyn web site, **www.alliedtelesyn.com**, or an authorized Allied Telesyn sales representative for a current list of supported SFP modules for this unit.

Product Labels

This label, located on the front panel of the unit, indicates the device is a Class 1 laser device.

This label is located on the bottom panel of an AT-LX3800U Multi-Service Transport System.

Translated Safety Statements

Important: Appendix C contains translated safety statements for installing this equipment. When you see the ✍, go to Appendix B for the translated safety statement in your language.

Wichtig: Anhang C enthält übersetzte Sicherheitshinweise für die Installation dieses Geräts. Wenn Sie ✍ sehen, schlagen Sie in Anhang B den übersetzten Sicherheitshinweis in Ihrer Sprache nach.

Importante: El Apéndice C contiene mensajes de seguridad traducidos para la instalación de este equipo. Cuando vea el símbolo ✍, vaya al Apéndice B para ver el mensaje de seguridad traducido a su idioma.

Important : L'annexe C contient les instructions de sécurité relatives à l'installation de cet équipement. Lorsque vous voyez le symbole ✍, reportez-vous à l'annexe B pour consulter la traduction de ces instructions dans votre langue.

Importante: l'Appendice C contiene avvisi di sicurezza tradotti per l'installazione di questa apparecchiatura. Il simbolo ✍, indica di consultare l'Appendice B per l'avviso di sicurezza nella propria lingua.

Важно: Приложение С содержит переведенную инструкцию по безопасности при установке данного устройства. Если Вы встретите ✍, перейдите к Приложению В для получения переведенной инструкции по безопасности.

Contents

Contents

Figures

Figures

Tables

Tables

Preface

This guide contains instructions on how to install an AT-LX3800U Multi-Service Transport System and contains the following sections:

❐ "Safety Symbols Used in this Document" on page 14

❐ "Where to Find Web-based Guides" on page 15

❐ "Contacting Allied Telesyn" on page 16

Safety Symbols Used in this Document

This document uses the safety symbols defined in Table 1.

Table 1. Safety Symbols

Symbol	Meaning	Description
⚠	Caution	Performing or omitting a specific action may result in equipment damage or loss of data.
⚠	Warning	Performing or omitting a specific action may result in electrical shock.

Where to Find Web-based Guides

The installation and user guides for all Allied Telesyn products are available in portable document format (PDF) on our web site at **www.alliedtelesyn.com**. You can view the documents online or download them onto a local workstation or server.

Contacting Allied Telesyn

This section provides Allied Telesyn contact information for technical support as well as sales and corporate information.

Online Support   You can request technical support online by accessing the Allied Telesyn Knowledge Base: **http://kb.alliedtelesyn.com**. You can use the Knowledge Base to submit questions to our technical support staff and review answers to previously asked questions.

Email and Telephone Support   For Technical Support via email or telephone, refer to the Support & Services section of the Allied Telesyn web site: **www.alliedtelesyn.com**.

Returning Products   Products for return or repair must first be assigned a return materials authorization (RMA) number. A product sent to Allied Telesyn without an RMA number will be returned to the sender at the sender's expense.

To obtain an RMA number, contact Allied Telesyn Technical Support through our web site: **www.alliedtelesyn.com**.

Sales or Corporate Information   You can contact Allied Telesyn for sales or corporate information through our web site: **www.alliedtelesyn.com**. To find the contact information for your country, select Contact Us -> Worldwide Contacts.

Management Software Updates   New releases of management software for our managed products are available from either of the following Internet sites:

❒   Allied Telesyn web site: **www.alliedtelesyn.com**

❒   Allied Telesyn FTP server: **ftp://ftp.alliedtelesyn.com**

If you prefer to download new software from the Allied Telesyn FTP server from your workstation's command prompt, you will need FTP client software and you must log in to the server. Enter "anonymous" for the user name and your email address for the password.

Chapter 1

Overview

The AT-LX3800U Multi-service Transport System aggregates up to eight multi-rate services into a single fiber optic link using small form-factor pluggable (SFP) transceivers.

This chapter contains the following sections:

System Description

The AT-LX3800U Multi-service Transport System has the following features:

❒ An eight-slot chassis with integrated management module

❒ One preinstalled AT-LXPWR/AC or AT-LXPWR/DC power supply in the PWR A slot in the rear, with one expansion slot for an optional redundant power supply unit. Both slots support any combination of AC and DC power supplies.

❒ Eight preinstalled AT-LX3801 Blank Slot Covers

❒ Standard rack mounting or standalone

❒ Eight AT-LX3811/x Multi-Service Line Cards available with industry standard small form-factor pluggable (SFP) transceiver slots

❒ Data rates from 100 MB to 2.5 GB

❒ Numbered and color-coded system labels and line cards to eliminate line card installation errors

❒ Six LEDs per line card and four system LEDs

❒ One RS-232 terminal port for local management

❒ One 10/100Base-TX Ethernet port for remote management

❒ Preinstalled AT-S65 management software for remote or local management

The AT-LX3800U chassis is available with either an AC or a DC power supply preinstalled.

Figure 1 shows the front panel of the AT-LX3800U system.

Line Card Slots

RX and TX Ports

RS-232 Terminal Port

10/100Base-T Port
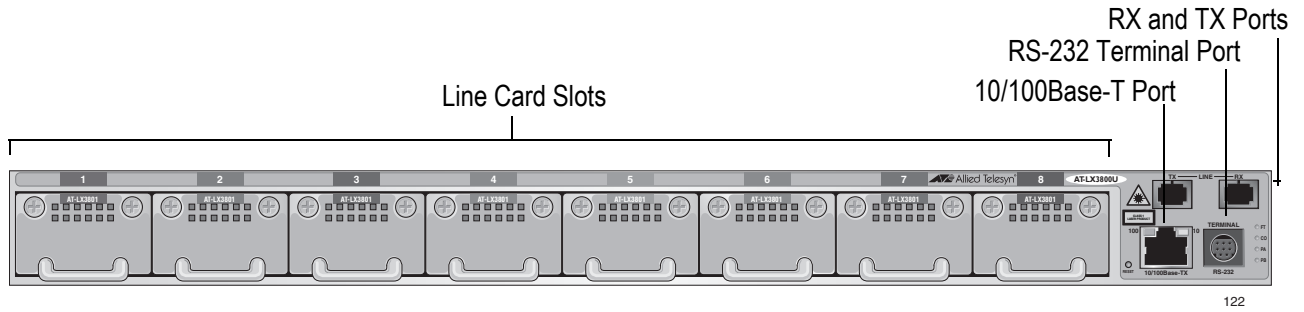
Figure 1. AT-LX3800U System Front Panel

Figure 2 shows the back panel of an AC-powered system.
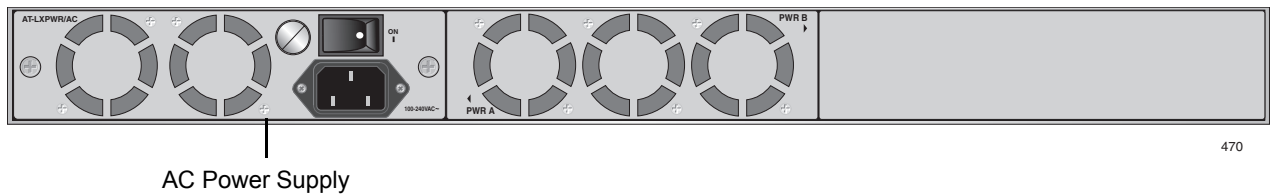
AC Power Supply

Figure 2. Back Panel of an AT-LX3800U System Ordered with an AC Power Supply Installed

Figure 3 shows the back panel of a DC-powered system.
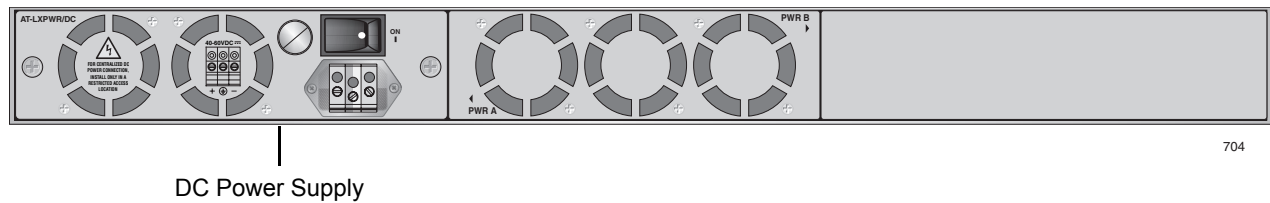
DC Power Supply

Figure 3. Back Panel of an AT-LX3800U System Ordered with a DC Power Supply Installed

Line Card Descriptions

The AT-LX3800U chassis can contain up to eight AT-LX3811/x line cards, numbered and color-coded for insertion in the corresponding numbered slot in the chassis, as described in Table 1.

Table 1. AT-LX3811/x Line Cards

Model	Wavelength	Slot Number
AT-LX3811/1	1470	1
AT-LX3811/2	1490	2
AT-LX3811/3	1510	3
AT-LX3811/4	1530	4
AT-LX3811/5	1550	5
AT-LX3811/6	1570	6
AT-LX3811/7	1590	7
AT-LX3811/8	1610	8

Figure 4 shows a sample AT-LX3811/x line card.
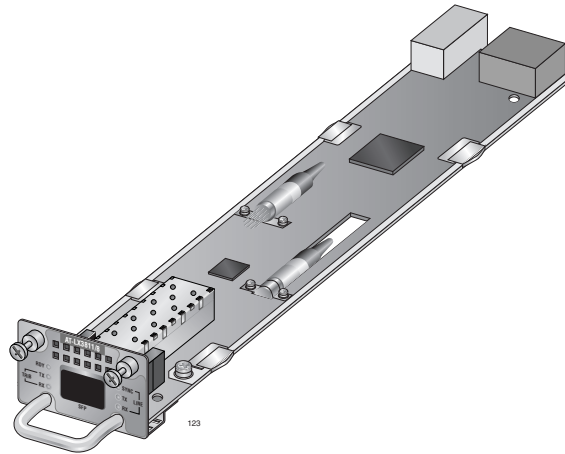
Figure 4. AT-LX3811/x Line Card

Note
The RDY LED on the line card flashes and the AT-S65 management software displays an error if a line card is inserted in the wrong slot.

The line cards are hot swappable into and out of the system. Each line card can only be used in its dedicated slot.

Each AT-LX3811/x line card contains one SFP transceiver slot.

To install an AT-LX3811/x line card, refer to "Installing an AT-LX3811/x Line Card" on page 50.

AT-LX3801 Blank Slot Covers

The AT-LX3800U chassis is shipped with eight AT-LX3801 Blank Slot Covers in place. The blank slot cover protects the fiber optic connectors on the backplane from becoming dirty, and helps maintain proper air flow through the chassis. A blank slot cover is shown in Figure 5.
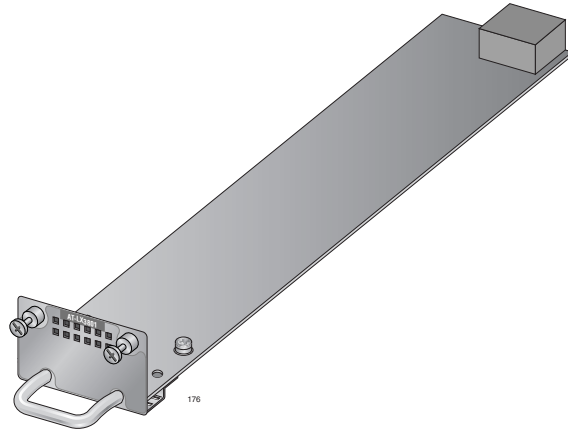
Figure 5. AT-LX3801 Blank Slot Cover

Note

Allied Telesyn strongly recommends that a blank slot cover be inserted in any slot that does not contain a functioning line card.

To install a blank slot cover that was removed from the chassis, refer to "Installing an AT-LX3801 Blank Slot Cover" on page 55.

LEDs

The AT-LX3800U provides two groups of LEDs, one group for each line card and one group for the system.

Line Card LEDs   Each line card has six LEDs, as shown in Figure 6.
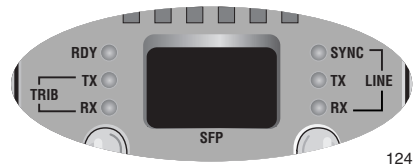
Figure 6. Line Card LEDs

The line card LEDs include a RDY (Ready) LED that provides information about the overall operation of the line card, and two groups marked TRIB and LINE. The TRIB LEDs provide information about the tributary side of the line card (the operation of the SFP), and the LINE LEDs display information about the line side of the line card (the operation of the RX and TX Wavelength Division Multiplexing (WDM) ports).

The LEDs are described in the following tables:

❏ The RDY LED is described in Table 2.

❏ The tributary side TX and RX LEDs are described in Table 3 on page 24.

❏ The line side TX and RX LEDs are described in Table 4 on page 25.

❏ The line side Sync LED is described in Table 5 on page 27.

Table 2 describes the RDY LED on the tributary side.

Table 2. RDY LED

State	Description
Flashing green	Power is on, but the card is in the wrong slot. Note that when a new version of the AT-S65 management software is being downloaded, the RDY LED may flash on all line cards until the downloading is complete.
Solid green	Power is on and the card is in the correct slot.
Off	The line card is not receiving any power.

Note

When you install or reinstall a line card, the AT-S65 management software recognizes this change within 20 seconds.

The operation of the tributary side TX and RX LEDs is affected by the status of the Missing Link feature in the AT-S65 management software. Table 3 describes the TX and RX LEDs on the tributary side.

Table 3. Tributary Side TX and RX LEDs

Missing Link State	TX and RX State	Description
Enabled	TX: Solid green RX: Solid green	The SFP port has established a link with its local end node as well as with its corresponding end node connected to the remote system.
	TX: Off or flashing green RX: Solid green	The SFP port is receiving packets or a link signal from its local end node but has not established a link with its corresponding remote end node connected to the remote system. Or, the port was manually disabled using the AT-S65 software, but is still receiving packets or a link signal from its local end node.
	TX: Flashing green RX: Off	The SFP port has not established a link with its local end node. It is receiving packets or a link signal from its corresponding remote end node connected to the remote system.
	TX: Off RX: Off	No SFP is installed. Or, the port was manually shut down using the AT-S65 management software and the local end node connected to the port was powered off. Or, the cable to the SFP port was disconnected.

Table 3. Tributary Side TX and RX LEDs (Continued)

Missing Link State	TX and RX State	Description
Disabled	TX: Solid green RX: Solid green	The SFP port has established a link with its end node.
	TX: Solid green RX: Off	The SFP port is transmitting packets or a link signal but has not established a link to its local end node.
	TX: Off RX: Solid green	The port was manually shut down using the AT-S65 management software, but is still receiving packets or a link signal from its local end node.
	TX: Off RX: Off	No SFP is installed. Or, the port was manually shut down using the AT-S65 management software and the end node connected to the port was powered off. Or, the cable to the SFP port was disconnected.

The operation of the line side TX and RX LEDs is affected by the status of the Missing Link feature in the AT-S65 management software. Table 4 describes the line side TX and RX LEDs.

Table 4. Line Side TX and RX LEDs

Missing Link State	TX and RX State	Description
Enabled	TX: Solid green RX: Solid green	The line port has established a link with its corresponding end node connected to the remote system.
	TX: Off RX: Off	The line port is not receiving or sending packets. Or, the port was manually shut down using the AT-S65 management software while the port was not receiving packets or a signal.

Table 4. Line Side TX and RX LEDs (Continued)

Missing Link State	TX and RX State	Description
Enabled	TX: Flashing green RX: Off	The line port has not established a link with its corresponding end node on the remote system and the line port is not receiving packets or a signal.
	TX: Off RX: Flashing green	The local SFP port has not established a link with its corresponding local end node. Or, the line port is not receiving packets or a signal. Or, the port was manually shut down using the AT-S65 management software while the port was receiving packets or a signal.
Disabled	TX: Solid green RX: Solid green	The line port has established a link with the remote line port.
	TX: Flashing green RX: Off	The line port has not established a link with the remote line port.
	TX: Off RX: Flashing green	The port was manually shut down using the AT-S65 management software but is still receiving packets or a link signal from its remote end node.
	TX: Off RX: Off	The port was manually shut down using the AT-S65 management software. Or, the optical cable to the remote line port is disconnected.

Table 6 describes the line side Sync LED.

Table 5. Line Side Sync LED

State	Description
Fast flashing green	The RX path signal is synchronized.
Slow flashing green	The TX path signal is synchronized.
Solid green	Both the RX and TX path signals are synchronized.
Off	No activity.

System LEDs To the right of the RS-232 terminal port are four system LEDs, as shown in Figure 7 and described in Table 6.
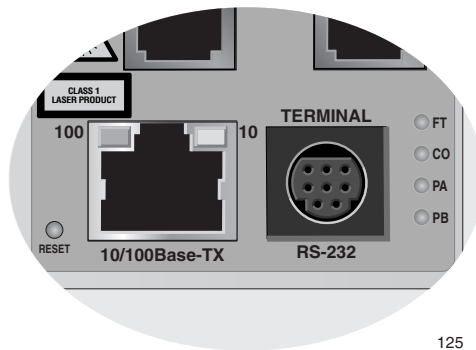
Figure 7. System LEDs

Table 6. System LEDs

LED	Definition	State	Description
FT	Fault	Solid red	System fault.
CO	Console	Solid green	User is logged in to the system through the RS-232 terminal port.
		Flashing green	A management software update is being downloaded through the RS-232 terminal port.
PA	Power supply slot A	Solid green	Normal operation.
		Fast flashing green	The output of the power supply in slot A is not OK.
		Slow flashing green	The operation of the power supply in slot A is normal but one or two fans have failed.

Table 6. System LEDs (Continued)

LED	Definition	State	Description
PB	Power supply slot B	Solid green	Normal operation.
		Fast flashing green	The output of the power supply in slot B is not OK.
		Slow flashing green	The operation of the power supply in slot B is normal but one or two fans have failed.

Management Connections

The AT-LX3800U chassis provides two management connections to the preinstalled AT-S65 management software:

❒ RS-232 terminal port for local (out-of-band) management

❒ 10/100Base-TX Ethernet port for remote management using Telnet

Terminal Port You can use the terminal port to establish a local (out-of-band) management session with the chassis to configure parameters and also view information about the operating of the system and line cards. You establish a local management session with the switch by connecting either a terminal, or a personal computer with a terminal emulation program, to the port.

The terminal port has a DIN-8 style connector. A management cable is supplied with the chassis.

The terminal port is set to the following specifications:

❒ Baud rate: 115200 bps

❒ Data bits: 8

❒ Parity: None

❒ Stop bits: 1

You can use the AT-S65 management software to change the terminal port settings.

10/100Base-TX Ethernet Port You can also manage the AT-LX3800U chassis from any workstation on your network through the 10/100Base-TX Ethernet port using Telnet.

AT-LXPWR Power Supply Module

The AT-LX3800U chassis is shipped with one AT-LXPWR power supply preinstalled in slot A, and one empty slot (B) for an optional redundant power supply (RPS). Two power supply versions, AC and DC, are available for the AT-LX3800U chassis, as described below. Both slots support any combination of AC and DC power supplies.

When two power supplies are installed, one of them works in standby mode while the other one provides full power to the chassis. If one power supply fails, the remaining power supply provides all the power to the system, preventing a system failure.

AT-LXPWR/AC Power Supply

The AT-LXPWR/AC power supply is shown in Figure 8.
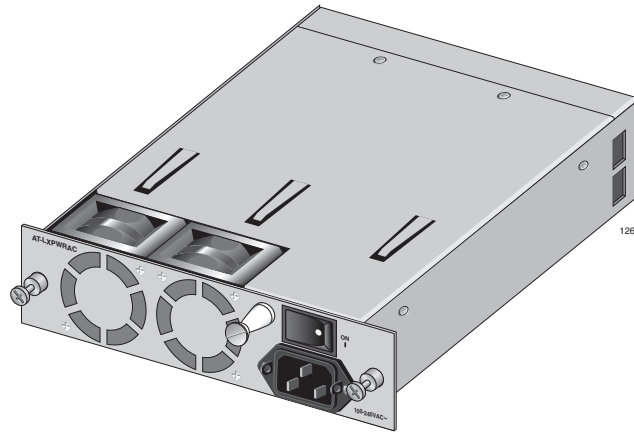
Figure 8. AT-LXPWR/AC Power Supply

For information about installing an AT-LXPWR/AC power supply, consult the documentation that is shipped with the unit.

AT-LXPWR/DC Power Supply

The AT-LXPWR/DC power supply is shown in Figure 9.
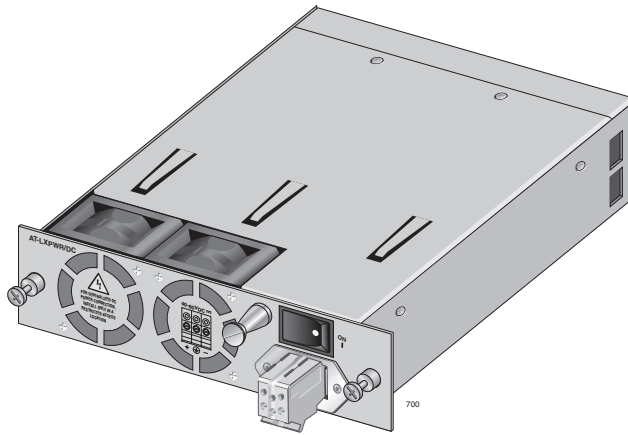
Figure 9. AT-LXPWR/DC Power Supply

For information about installing an AT-LXPWR/DC power supply, consult the documentation that is shipped with the unit.

Power Connectors

The AT-LX3800U chassis is available with one of two power supply options: AC or DC.

AC Power Connector   The AC power supply in an AT-LX3800U chassis has an On/Off switch, as shown in Figure 10.

On/Off Switch

AC Power Connector

471
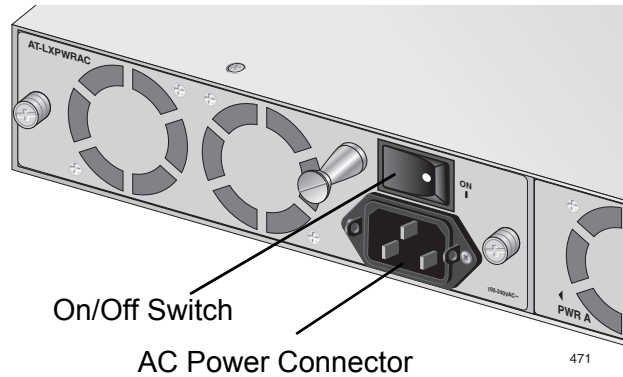
Figure 10. AC Power Connector and On/Off Switch

DC Power Connector   The DC power supply in an AT-LX3800U chassis has a DC terminal block, as shown in Figure 11.

706
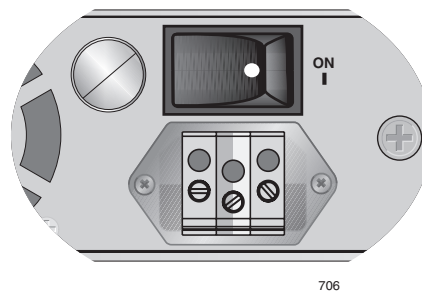
Figure 11. DC Terminal Block

For information about wiring a DC power supply refer to "Wiring and Powering On a DC Powered System" on page 63.

Topologies

The AT-LX3800U chassis can be configured for multiple network topologies. The following figures show several possible configurations.

Figure 12 shows two AT-LX3800U systems linked to multiple devices.
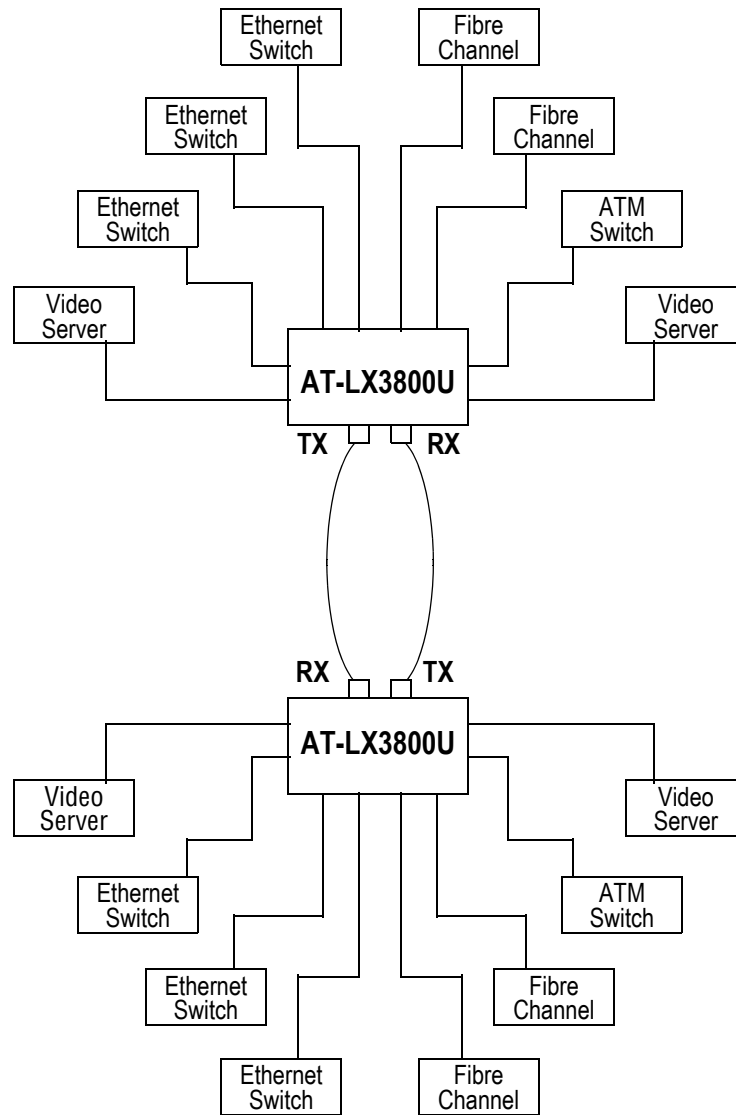
Figure 12. Standard Point-to-Point Configuration

The AT-LX3800U system is capable of fully regenerating, retiming, and reshaping each tributary service. This allows for configurations which extend services beyond the limits of the point-to-point configuration, as shown in Figure 13.
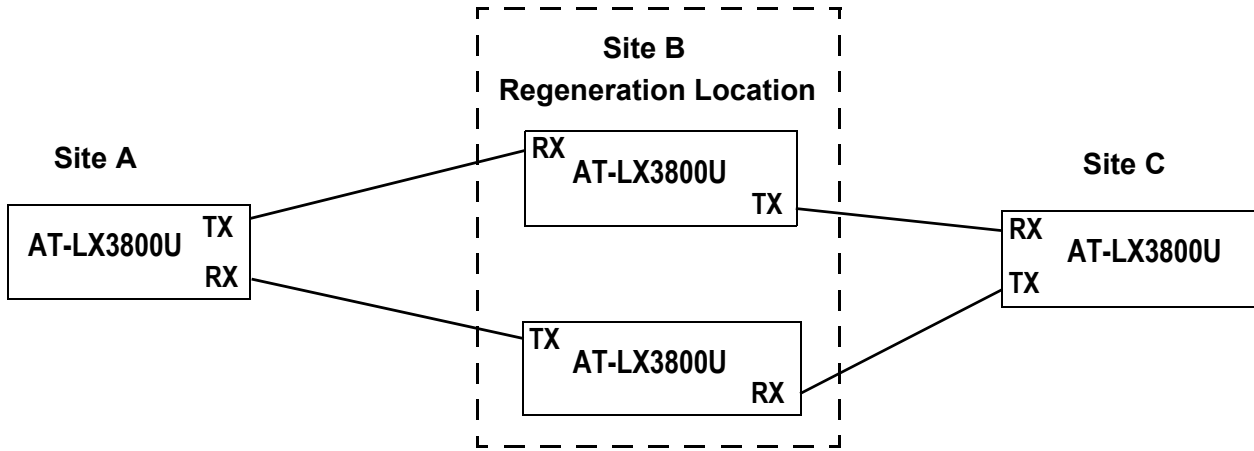
Figure 13. Regeneration Configuration Using the Internal Loopback Feature

For more information about using the AT-S65 software to set up this type of topology, refer to Chapter 5, "Line Card Modes of Operation" in the *AT-S65 Management Software User's Guide.*

Figure 14 illustrates a loop-type backbone topology.
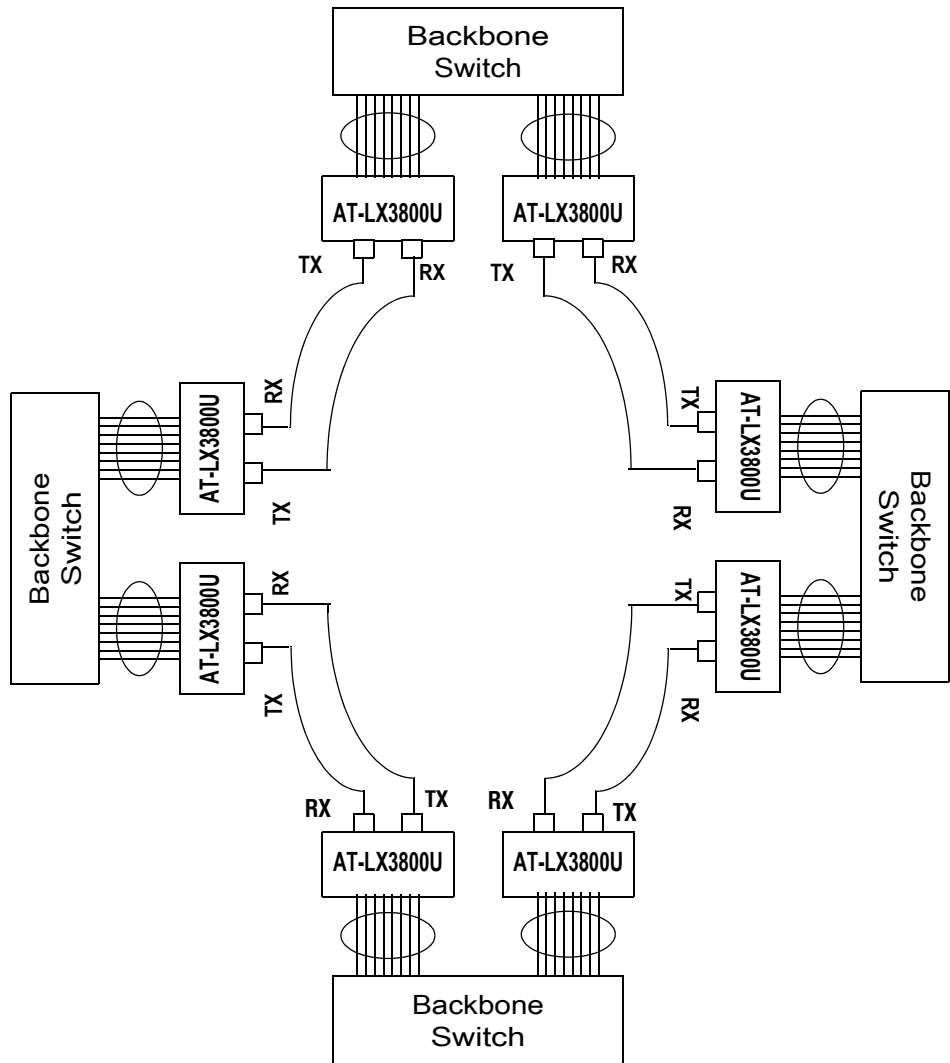
Figure 14. Loop-type Backbone Topology

Chapter 2
Installation

This chapter contains the following installation information for the AT-LX3800U chassis:

❒ "Reviewing Safety Precautions" on page 38

❒ "Selecting a Site for the Chassis" on page 42

❒ "TX and RX Fiber Optic Cable Specifications" on page 43

❒ "Unpacking the Chassis" on page 44

❒ "Installing the Power Cord Retaining Clip (AC Power Supply Only)" on page 45

❒ "Installing the AT-LX3800U Chassis in a Rack" on page 47

❒ "Installing an AT-LX3811/x Line Card" on page 50

❒ "Installing an SFP Transceiver in a Line Card" on page 53

❒ "Installing an AT-LX3801 Blank Slot Cover" on page 55

❒ "Cabling the Chassis" on page 57

❒ "Powering On an AC Powered System" on page 60

❒ "Wiring and Powering On a DC Powered System" on page 63

❒ "Starting a Local Management Session" on page 66

❒ "Starting a Remote Management Session" on page 68

❒ "Warranty Registration" on page 70

Reviewing Safety Precautions

Please review the following safety precautions before you begin to install the chassis or any of its components.

Note
When you see the ⌐, go to Appendix C, "Translated Electrical, Safety, and Emission Information" on page 77 for translated safety statements.

Warning: Class 1 Laser product. ⌐ 1

Warning: Do not stare into the laser beam. ⌐ 2

Warning: To prevent electric shock, do not remove the cover. No user-serviceable parts inside. This unit contains hazardous voltages and should only be opened by a trained and qualified technician. To avoid the possibility of electric shock, disconnect electric power to the product before connecting or disconnecting the LAN cables. ⌐ 3

Warning: Do not work on equipment or cables during periods of lightning activity. ⌐ 4

Warning: Power cord is used as a disconnection device. To de-energize equipment, disconnect the power cord. ⌐ 5

Warning: Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts. ⌐ 6

Pluggable Equipment. The socket outlet shall be installed near the equipment and shall be easily accessible. ⌐ 7

Caution: Air vents must not be blocked and must have free access to the room ambient air for cooling. ⌐ 8

Warning: Operating Temperature. This product is designed for a maximum ambient temperature of 40° degrees C. ⌐ 9

All Countries: Install product in accordance with local and National Electrical Codes. & 10

Warning: As a safety precaution, install a circuit breaker with a minimum value of 15 Amps between the equipment and the DC power source.

Always connect the wires to the LAN equipment first before you connect the wires to the circuit breaker. Do not work with HOT feeds to avoid the danger of physical injury from electrical shock. Always be sure that the circuit breaker is in the OFF position before connecting the wires to the breaker. & 11

Warning: Do not strip more than the recommended amount of wire. Stripping more than the recommended amount can create a safety hazard by leaving exposed wire on the terminal block after installation. & 12

Warning: When installing this equipment, always ensure that the frame ground connection is installed first and disconnected last. & 13

Warning: Check to see if there are any exposed copper strands coming from the installed wire. When this installation is done correctly there should be no exposed copper wire strands extending from the terminal block. Any exposed wiring can conduct harmful levels of electricity to persons touching the wires. & 14

This system works with positive grounded or negative grounded DC systems. & 15

Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern. & 23

Caution: Risk of explosion if battery is replaced by an incorrect type. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Attention: Le remplacement de la batterie par une batterie de type incorrect peut provoquer un danger d'explosion. La remplacer uniquement par une batterie du même type ou de type équivalent recommandée par le constructeur. Les batteries doivent être éliminées conformément aux instructions du constructeur. &⁓ 24

A tray cable is required to connect the power source if the unit is powered by centralized DC power. The tray cable must be a UL listed Type TC tray cable and rated at 600 V and 90 degrees C, with three conductors, minimum 14 AWG. &⁓ 26

Warning: Mounting of the equipment in the rack should be such that a hazardous condition is not created due to uneven mechanical loading. &⁓ 27

Warning: This unit might have more than one power cord. To reduce the risk of electric shock, disconnect all power cords before servicing the unit. &⁓ 32

If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than the room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra). &⁓ 38

Caution: Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. &⁓ 39

Warning: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuits (e.g., use of power strips). &⁓ 40

Warning: Circuit breaker is used as a disconnection device. To de-energize equipment, shut down the circuit breaker and then disconnect the input wire.

Warning: This unit might have more than one power source. To reduce the risk of electric shock, disconnect all power sources before servicing the unit.

Selecting a Site for the Chassis

Observe the following requirements when you choose a site for the chassis:

❐ If you plan to install the chassis in an equipment rack, check to be sure that the rack is safely secured and that it will not tip over. Devices in a rack should be installed starting at the bottom, with the heavier devices near the bottom of the rack.

❐ If you are installing the chassis on a table, be sure that the table is level and secure.

❐ The power outlet for the chassis should be located near the unit and should be easily accessible.

❐ The site should provide easy access to the ports on the front of the chassis. This arrangement will make it easy for you to connect and disconnect cables as well as to view the LEDs.

❐ To allow proper cooling of the chassis, air flow around the unit and through its vents should be unrestricted.

❐ Do not place objects on top of the chassis.

❐ Do not expose the chassis to moisture or water.

❐ Make sure that the site is a dust-free environment.

❐ Use dedicated power circuits or power conditioners to supply reliable electrical power to the device.

TX and RX Fiber Optic Cable Specifications

The TX and RX ports require 9μ single mode fiber (SMF) cable with a simplex SC/UPC connector.

Note
For information about the fiber optic cabling specifications for the line cards, refer to the SFP installation instructions.

Unpacking the Chassis

To unpack the chassis, perform the following procedure:

1. Remove all components from the shipping package.

   Note
   Store the packaging material in a safe location. You must use the original shipping material if you need to return the unit to Allied Telesyn.

2. Make sure that the following components are included in the package. If any item is missing or damaged, contact your Allied Telesyn sales representative for assistance.

   ❒ One AT-LX3800U chassis with preinstalled Ac or DC power supply

   ❒ Two rack-mount brackets

   ❒ Eight flathead Phillips rack-mount bracket screws

   ❒ Power cord (AC models only; Americas, EU, Australia, and UK only)

   ❒ AC power cord retaining clip (AC models only)

   ❒ Management cable with DIN-8 connector for local management connection

   ❒ Documentation CD

   ❒ Warranty card

3. Place the AT-LX3800U chassis on a level, secure surface.

Installing the Power Cord Retaining Clip (AC Power Supply Only)

To install the power cord retaining clip on an AC powered system, perform the following procedure:

1. Locate the power cord retaining clip, as shown in Figure 15.

Figure 15. Power Cord Retaining Clip

2. Locate the retaining bracket on each side of the AC power connector on the back of the chassis, as shown in Figure 16.
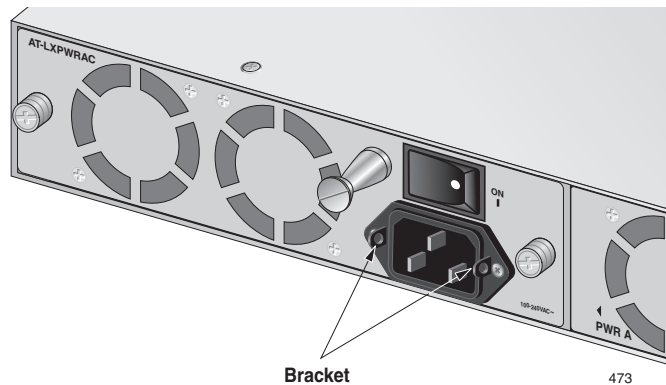
Figure 16. Power Cord Retaining Bracket

3. With the "u" of the clip facing up, press the sides of the clip toward the center and insert the short ends into the holes in the retaining bracket, as shown in Figure 17.
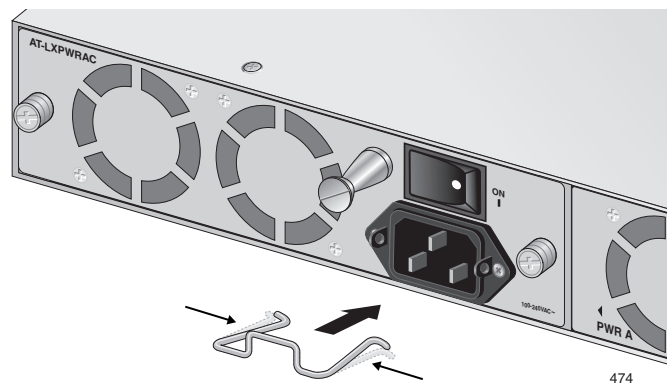
Figure 17. Inserting the Retaining Clip into the Retaining Bracket

4. Verify that the retaining clip is in the correct position, as shown in Figure 18.
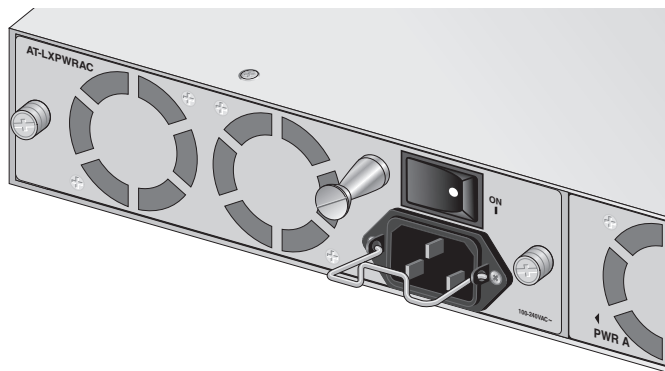
Figure 18. Retaining Clip Properly Installed in the Bracket

Installing the AT-LX3800U Chassis in a Rack

The chassis is shipped with two rack-mount brackets. To mount the chassis in a rack, perform the following procedure:

1. Place the chassis upside down on a level, secure surface.

2. Using a flathead screwdriver, remove the plastic feet from the bottom of the chassis, as shown in Figure 19.
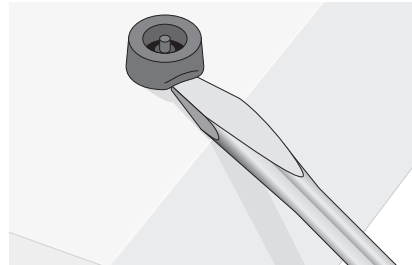
Figure 19. Removing Plastic Feet from the Chassis

3. Turn the chassis right side up.

4. Install a bracket on one side of the chassis using a Phillips screwdriver and four of the rack-mount screws included with the unit. There are two ways that you can attach the brackets to the chassis: so that it extends forward from the rack, or flush with the front of the rack, as shown in Figure 20.
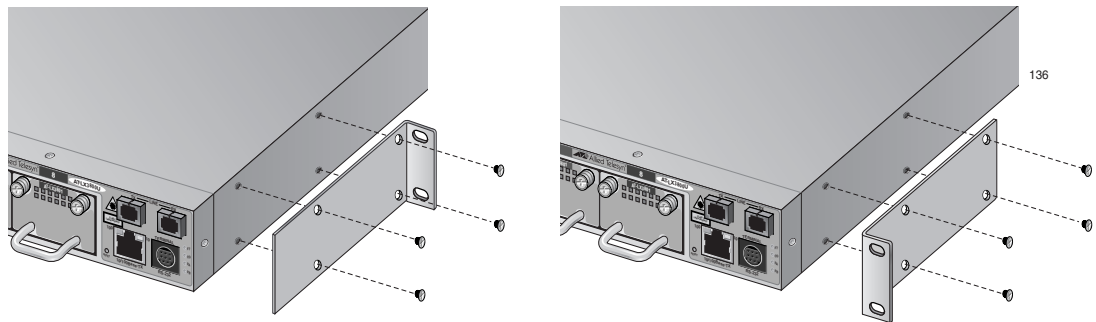
Figure 20. Rack-Mount Bracket Configurations

5. Repeat step 4 to attach the remaining bracket to the other side of the chassis.

6. Mount the chassis in a 19-inch rack using appropriate screws (not supplied), as shown in Figure 21.
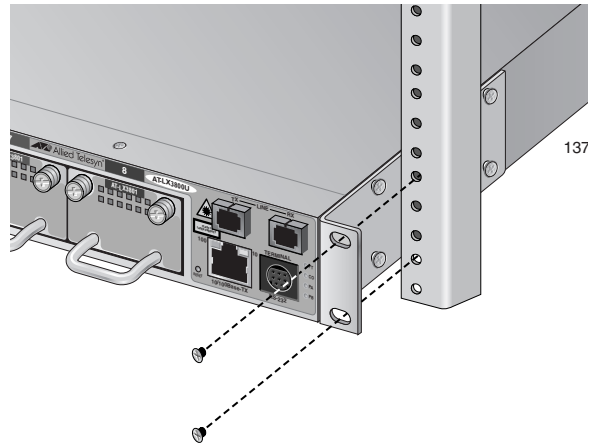
Figure 21. Mounting the AT-LX3800U Chassis in a 19-inch Rack

Warning: To prevent electric shock, do not remove the cover. No user-serviceable parts inside. This unit contains hazardous voltages and should only be opened by a trained and qualified technician. To avoid the possibility of electric shock, disconnect electric power to the product before connecting or disconnecting the LAN cables. ✍ 3

Warning: Do not work on equipment or cables during periods of lightning activity. ✍ 4

Warning: Power cord is used as a disconnection device. To de-energize equipment, disconnect the power cord. ✍ 5

Warning: Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts. ✍ 6

Pluggable Equipment. The socket outlet shall be installed near the equipment and shall be easily accessible. ✍ 7

Caution: Air vents must not be blocked and must have free access to the room ambient air for cooling. ✍ 8

Warning: Operating Temperature. This product is designed for a maximum ambient temperature of 40° degrees C. ✍ 9

Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern. &⁓ 23

Warning: Mounting of the equipment in the rack should be such that a hazardous condition is not created due to uneven mechanical loading. &⁓ 27

If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than the room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra). &⁓ 38

Caution: Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. &⁓ 39

Warning: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuits (e.g., use of power strips). &⁓ 40

Installing an AT-LX3811/x Line Card

To install an AT-LX3811/x line card, perform the following procedure:

> **Note**
> The AT-LX3811 line cards are numbered and color-coded for insertion in the corresponding numbered and color-coded slot in the chassis. The RDY LED on the line card flashes green and the AT-S65 management software displays an error if a line card is inserted in the wrong slot.

1. Remove the AT-LX3811/x line card from its shipping package and store the package in a safe place.

    You must use the original package if you need to return the unit to Allied Telesyn.

2. Select the slot in the AT-LX3800U chassis that corresponds to the number of the line card you want to install.

3. Remove any AT-LX3801 Blank Slot Cover from the slot.

    Keep the blank slot cover in a safe area in case you remove the line card. The blank slot cover protects the fiber optic connectors on the backplane from becoming dirty, and helps maintain proper air flow through the chassis.

4. Remove the dust caps from the fiber optic connectors at the back of the line card, as shown in Figure 22.
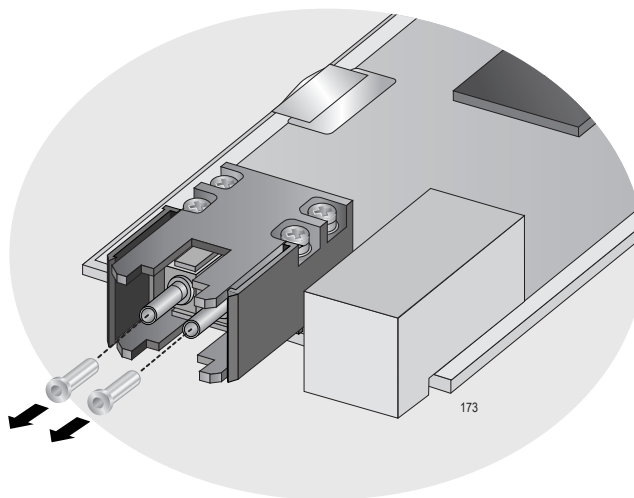
Figure 22. Removing the Dust Covers

5. Locate the left and right alignment guides in the slot, as shown in Figure 23.
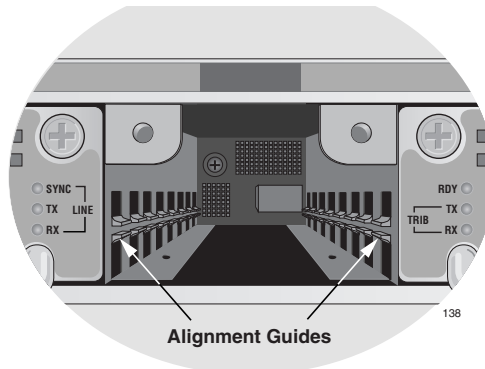
Figure 23. Location of Alignment Guides

6. Align the back edge of the line card with the left and right alignment guides.

7. Slide the line card into the slot that corresponds to the line card number, as shown in Figure 24, until the faceplate is flush with the front. (See "Line Card Descriptions" on page 20 for a list of the line cards and their corresponding slot numbers.)
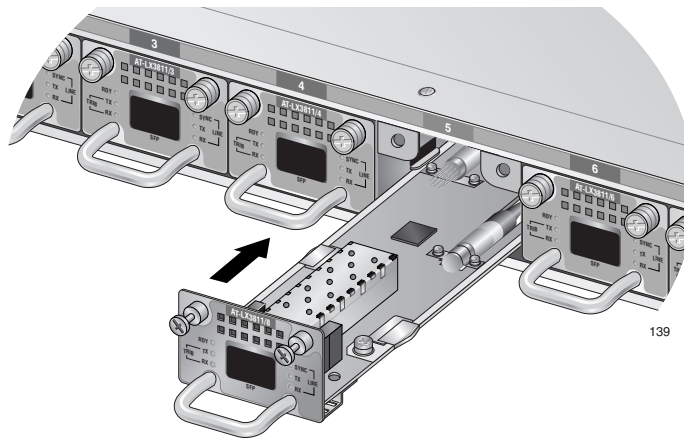
Figure 24. Inserting the Line Card

8. Use a Phillips head screwdriver to tighten the captive screws on the line card, as shown in Figure 25.

Figure 25. Tightening the Captive Screws

Note

Always tighten the captive screws to secure the line card to the chassis. This helps ensure that the fiber optic connectors at the back of the line card are securely connected to the backplane.

9. Repeat this procedure to install additional line cards.

Installing an SFP Transceiver in a Line Card

To install an SFP transceiver in a line card, perform the following procedure:

> **Note**
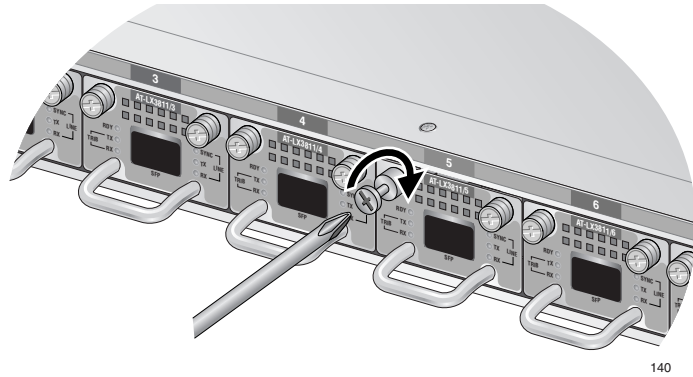> The transceiver can be hot swapped; you do not need to power off the chassis to install an SFP transceiver. However, always remove the cables before removing the SFP.

> **Note**
> You must install the transceiver before you connect cables to it.

1. Remove the SFP from its shipping container and store the packaging material in a safe location.

> **Note**
> An SFP transceiver can be damaged by static electricity. Be sure to observe all standard electrostatic discharge (ESD) precautions, such as wearing an antistatic wrist strap, to avoid damaging the transceiver.

2. Remove the dust plug from the SFP port, as shown in Figure 26.
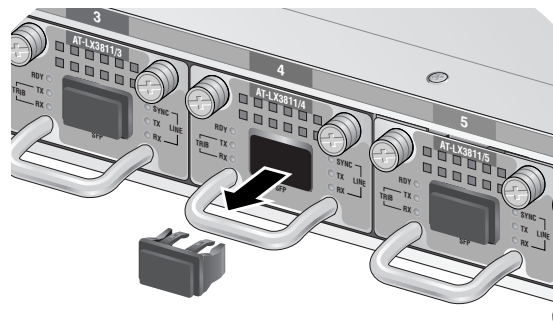
Figure 26. Removing the Dust Plug from the SFP Port

Store the dust plug in a safe location for possible use later.

3. Locate the label on the transceiver and turn it so that the label is on the top and the alignment groove is on the bottom.

4. Slide the SFP into the slot in the line card, as shown in Figure 27.
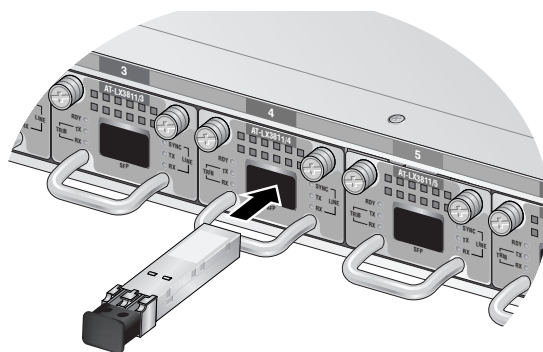
Figure 27. Installing an SFP Transceiver in a Line Card

For information about cabling the SFP, refer to "Connecting the Fiber Optic Cables to a Line Card" on page 57.

Installing an AT-LX3801 Blank Slot Cover

The AT-LX3801 Blank Slot Cover protects the fiber optic connectors on the backplane from becoming dirty, and helps maintain proper air flow through the chassis.

> **Note**
> Allied Telesyn strongly recommends that a blank slot cover be inserted in any slot that does not contain a functioning line card.

To install a blank slot cover, perform the following procedure:

1. Remove the AT-LX3801 Blank Slot Cover from its shipping package and store the package in a safe place.

    You must use the original package if you need to return the unit to Allied Telesyn.

2. Select the slot in the AT-LX3800U chassis where you want to install the blank slot cover.

3. If an AT-LX3811/x line card is installed in the slot, do the following:

    a. Disconnect the cables from the SFP in the line card.

    b. Reinstall the SFP port dust cap.

    c. Remove the line card from the slot.

4. Locate the left and right alignment guides in the slot, as shown in Figure 28.
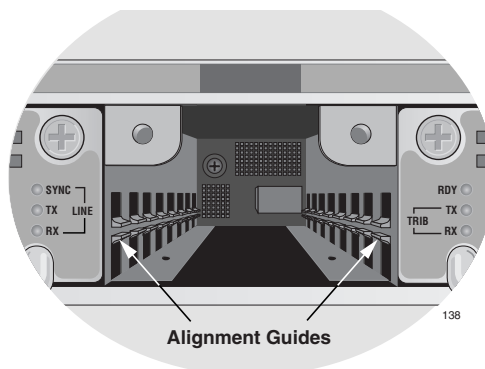
Figure 28. Location of Alignment Guides

5. Align the back edge of the blank slot cover with the left and right alignment guides.

6. Slide the blank slot cover into the slot, as shown in Figure 29, until the faceplate is flush with the front.
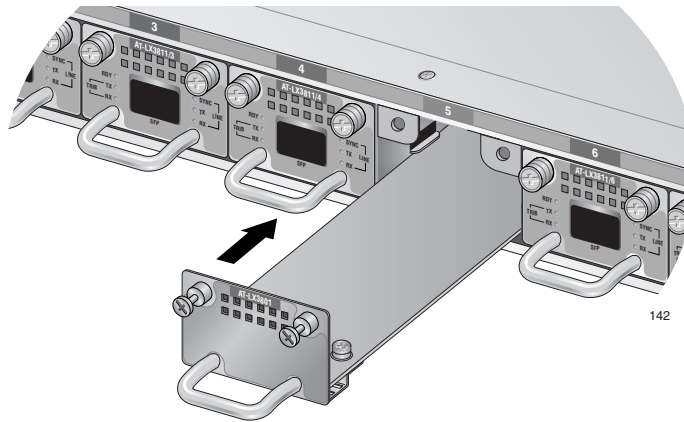
Figure 29. Installing the Blank Slot Cover

7. Use a Phillips head screwdriver to tighten the captive screws, as shown in Figure 30.

Figure 30. Tightening the Captive Screws

Note
Always tighten the captive screws to secure the blank slot cover to the chassis. This helps ensure that the fiber optic connectors on the backplane are covered by the blank slot cover connectors.

8. Repeat this procedure to install additional blank slot covers.

Cabling the Chassis

Perform the following procedures to connect the fiber optic cables to the tributary ports of the line cards and the line (WDM) ports of a device.
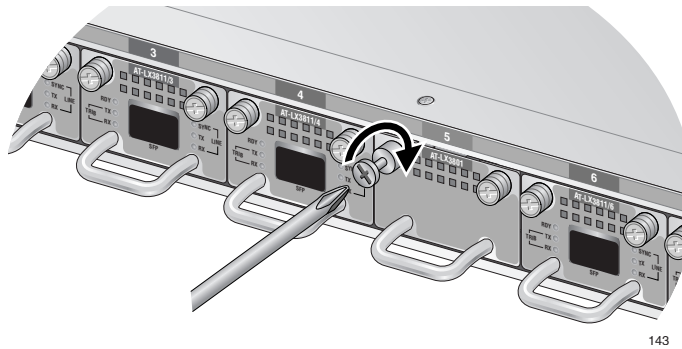
Connecting the Fiber Optic Cables to a Line Card

To connect a fiber optic cable to a line card, perform the following procedure:

Warning: Class 1 Laser product. ✍ 1

Warning: Do not stare into the laser beam. ✍ 2

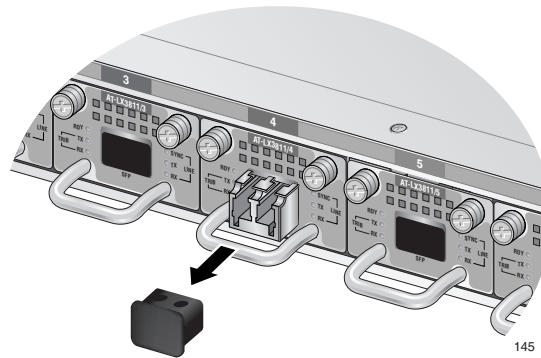1. Remove the dust plug from the SFP in the line card, as shown in Figure 27.

Figure 31. Removing the Dust Plug from the SFP

Note
For information about the proper cable type, refer to the installation instructions you received with your SFP.

Note
Before you install the cable in SFP, verify that the optical power input to the SFP is within the SFP transceiver's dynamic range.

2. Connect the fiber optic cable to the SFP, as shown in Figure 32.
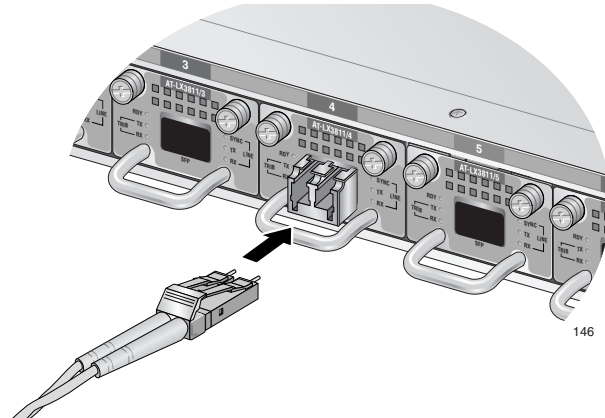
Figure 32. Connecting a Fiber Optic Cable to the SFP

3. Repeat this procedure to cable additional line cards.

Connecting the Fiber Optic Cables to the TX and RX Ports

To connect the fiber optic cables to the line ports, perform the following procedure:

⚠ **Warning:** Class 1 Laser product. ☞ 1

⚠ **Warning:** Do not stare into the laser beam. ☞ 2

1. Remove the dust plugs from the TX and RX ports, as shown in Figure 33.

Figure 33. Removing the Dust Plugs from the TX and RX Ports

Note
You must use 9µ single-mode fiber (SMF) cable with a simplex SC/ UPC connector.

2. Measure the optical power coming into the RX port using a pass-through optical power monitor.

Note

A pass-through optical power monitor is required because when the fiber optic cable is removed from the RX or TX port, the Open Fiber Control algorithm is activated. This results in a significant reduction in optical power compared to the closed loop actual optical power value.
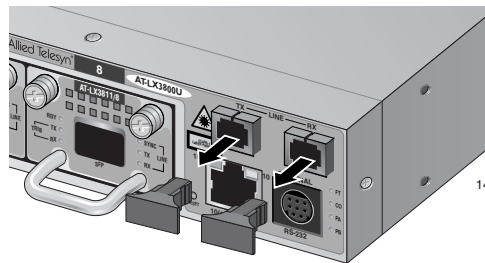
If the received optical power is greater than -7 dBm per channel, additional attenuation is required. RX values greater than -7 dBm per channel could potentially damage the optical receiver if applied for more than 60 seconds.

Note

When you add attenuation to the system, ensure that the attenuated value does not drop below the receiver's sensitivity values. Refer to "Optical Specifications" on page 76 for more information.

3. Remove the pass-through optical power monitor from the RX port.

4. Connect the appropriate fiber optic cable to the TX and RX line ports, as shown in Figure 34.

Figure 34. Connecting the TX and RX Cables
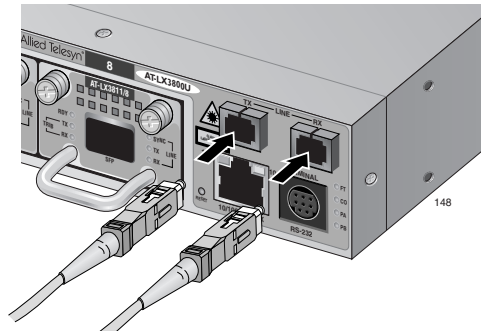
Powering On an AC Powered System

To power on an AC powered chassis, perform the following procedure:

1. Make sure that the on/off switch is in the Off position, as shown in Figure 35.
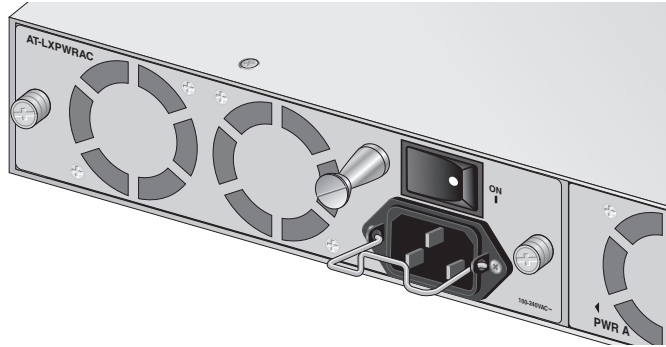
Figure 35. On/Off Switch in Off Position

2. Position the power cord retaining clip in the up position, as shown in Figure 36.
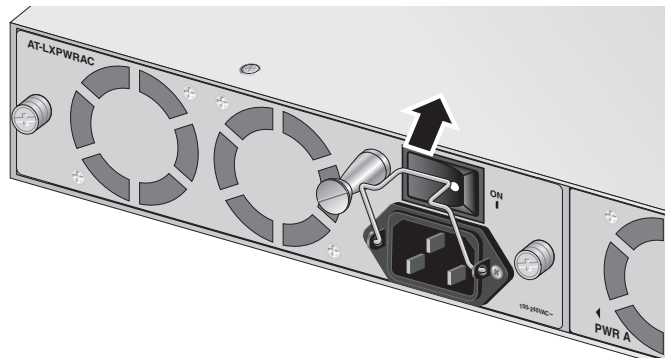
Figure 36. Power Cord Retaining Clip in the Up Position

3. Plug the power cord into the AC power connector on the back of the chassis, as shown in Figure 37.

Figure 37. Plugging in the AC Power Cord

4. Secure the cord by lowering the power cord retaining clip, as shown in Figure 38.

Figure 38. Securing the Power Cord with the Retaining Clip

5. Plug the other end of the power cord into a wall outlet.

6. Move the On/Off power switch to the On position, as shown in Figure 39.
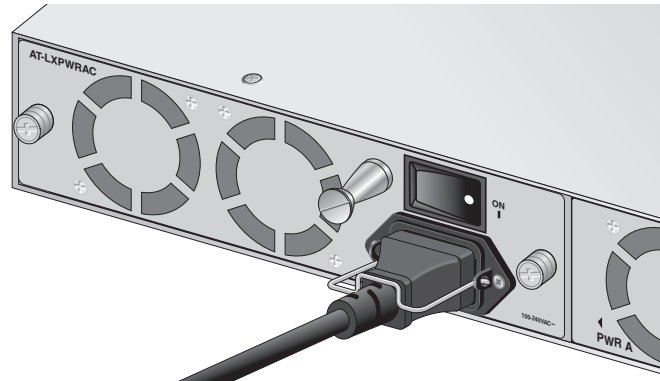
Figure 39. On/Off Switch in On Position

7. When power is applied, the chassis begins to load the AT-S65 software.

⚠️ **Warning:** Power cord is used as a disconnection device. To de-energize equipment, disconnect the power cord. ⬅ 5
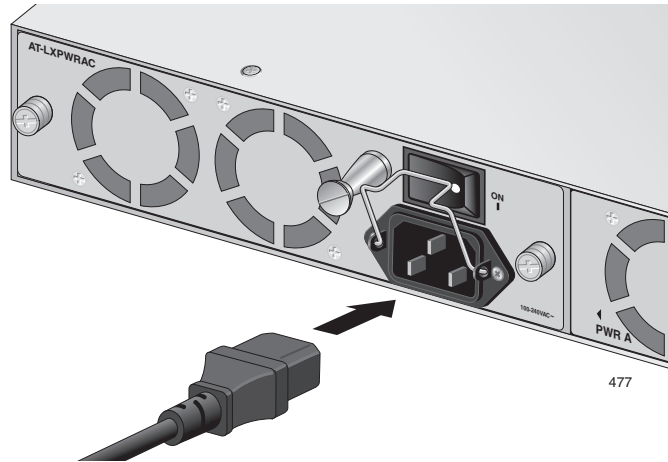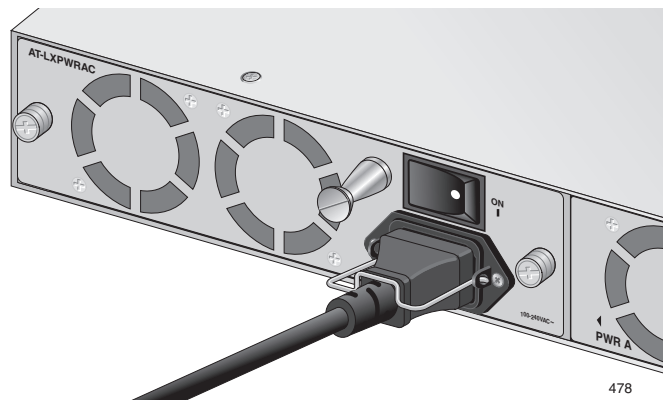
⚠️ Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts. ⬅ 6

Pluggable Equipment. The socket outlet shall be installed near the equipment and shall be easily accessible. ⬅ 7

⚠️ **Warning:** This unit might have more than one power cord. To reduce the risk of electric shock, disconnect all power cords before servicing the unit. ⬅ 32

The chassis is now ready for network operations.

No further installation steps are required if you do not need to change the default parameter settings of the chassis, which are listed in the *AT-S65 Management Software User's Guide*. However, if you want to manage the chassis or review the settings, refer to "Starting a Local Management Session" on page 66 and "Starting a Remote Management Session" on page 68.

Wiring and Powering On a DC Powered System

For a DC powered system, perform the following steps:

1. Before you attach wires to the DC terminal block on the DC power supply, review the following warning:

    ⚠ **Warning:** As a safety precaution, install a circuit breaker with a minimum value of 15 Amps between the equipment and the DC power source.

    Always connect the wires to the LAN equipment first before you connect the wires to the circuit breaker. Do not work with HOT feeds to avoid the danger of physical injury from electrical shock. Always be sure that the circuit breaker is in the OFF position before connecting the wires to the breaker. ✍ 11

    A tray cable is required to connect the power source if the unit is powered by centralized DC power. The tray cable must be a UL listed Type TC tray cable and rated at 600 V and 90 degrees C, with three conductors, minimum 14 AWG. ✍ 26

2. On the rear side of the DC power supply is a DC terminal block. Starting from the left side of the terminal block, identify the **positive**, **frame ground**, and **negative** terminals using the diagram adjacent to the terminal block as shown in Figure 40.
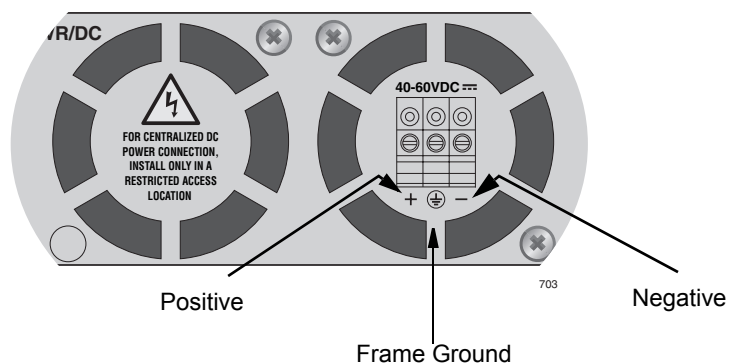

Figure 40. Positive, Frame Ground, and Negative Terminals

3. With a 14-gauge wire-stripping tool, strip the three wires in the tray cable coming from the DC input power source to 8mm ± 1mm (0.31 in., ± 0.039 in.).

⚠ **Warning**: Do not strip more than the recommended amount of wire. Stripping more than the recommended amount can create a safety hazard by leaving exposed wire on the terminal block after installation. ☞ 12

8mm ±1mm
(0.31 in. ±0.039 in.)
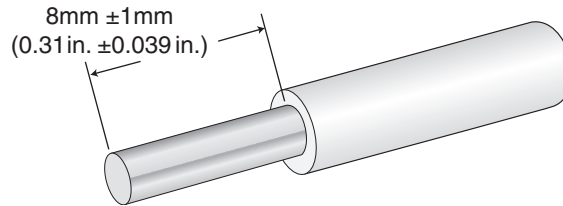
Figure 41. Wire Stripping Specification

4. Connect the **frame ground** wire to the terminal marked with the ground symbol by inserting the wire into the terminal and tightening the connection with a flathead screwdriver, as shown in Figure 42.

⚠ **Warning:** When installing this equipment, always ensure that the frame ground connection is installed first and disconnected last. ☞ 13

705

Figure 42. Connecting the Stripped Wire

5. Connect the **positive** feed wire to the terminal block marked (+).

6. Connect the **negative** feed wire to the terminal block marked (-).

> ⚠ **Warning:** Check to see if there are any exposed copper strands coming from the installed wire. When this installation is done correctly there shou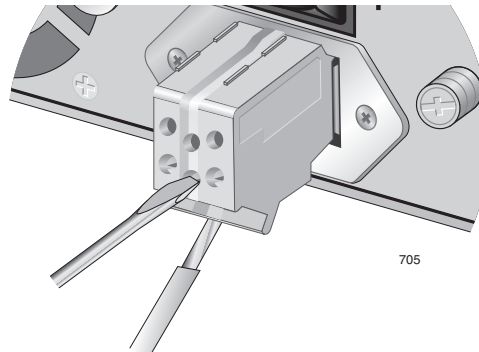ld be no exposed copper wire strands extending from the terminal block. Any exposed wiring can conduct harmful levels of electricity to persons touching the wires. ☞ 14

7. Secure the tray cable near the rack framework using multiple cable ties to minimize the chance of the connections being disturbed by casual contact with the wiring. Use at least four cable ties separated four inches apart with the first one located within six inches of the terminal block.

> This system works with positive grounded or negative grounded DC systems. ☞ 15

8. Ensure that the circuit breaker is in the Off position.

9. Connect the DC wires to the circuit breaker. (Refer to "Power Specifications" on page 75 for the power requirements.)

10. Power on the circuit breaker.

11. Verify that the PB (PWR B) LED on the front unit is green. If the PB LED is off or if the FT (FAULT) LED is solid red, refer to Chapter 3, "Troubleshooting" on page 71.

    When power is applied, the switch begins to load the AT-S65 software. The loading process takes approximately 20 to 30 seconds to complete.

> ⚠ **Warning:** Circuit breaker is used as a disconnection device. To de-energize equipment, shut down the circuit breaker and then disconnect the input wire.

> ⚠ **Warning:** This unit might have more than one power source. To reduce the risk of electric shock, disconnect all power sources before servicing the unit.

Starting a Local Management Session

The procedure in this section explains how to start a local (out-of-band) management session using the RS-232 terminal port on the chassis. You can use a local management session to configure the chassis operating parameters and view system status using the AT-S65 management software.

> **Note**
> Only one manager can log in at a time.

To start a local management session, perform the following procedure:

1. Connect the DIN-8 end of the management cable included with the AT-LX3800U chassis to the RS-232 terminal port on the front of the chassis, as shown in Figure 43.
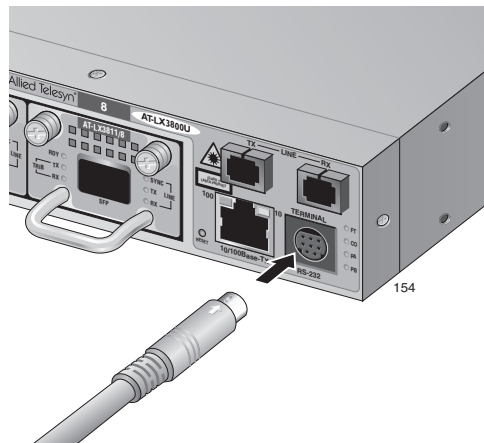

Figure 43. Connecting the Local Management Cable to the Terminal Port

2. Connect the other end of the cable to an RS-232 port on a terminal or PC with a terminal emulation program.

3. Configure the terminal or terminal emulation program to the following settings:

   ❐ Baud rate: 115200 bps

   ❐ Data bits: 8

   ❐ Parity: None

   ❐ Stop bits: 1

   ❐ Flow control: None

> **Note**
> These settings are for a DEC VT100 or ANSI terminal, or an equivalent terminal emulation program.

The software initializes.

4. Press Return.

   The Login prompt is displayed.

5. To configure chassis settings, enter "manager" as the user name. To only view the settings, enter "operator" as the user name.

   The Password prompt is displayed.

6. To configure chassis settings, enter "friend" as the password for a manager login. To only view the settings, enter "operator" as the password for an operator login.

   The Main Menu is displayed, as shown in Figure 44

```
                    Allied Telesyn AT-LX3800
                            LX3800
                          Main Menu

 Module Status and Configuration

 Administration

 System Configuration

 Quit
```
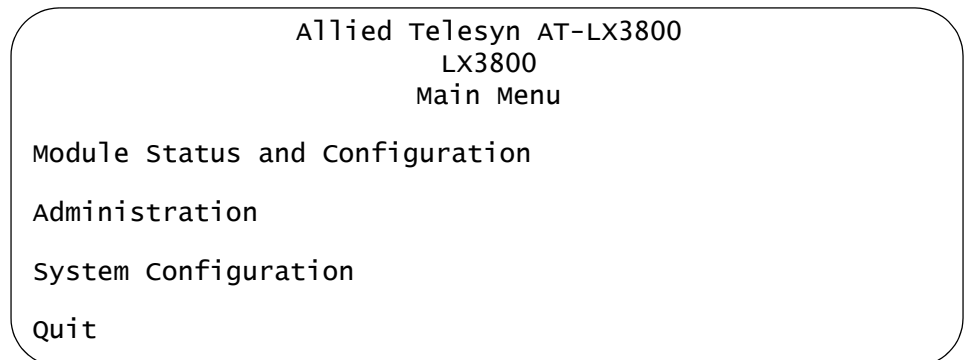
Figure 44. AT-S65 Main Menu

Refer to the *AT-S65 Management Software User's Guide* for information about how to move through the menus and make menu selections.

Starting a Remote Management Session

The procedure in this section explains how to start a remote management session using the 10/100Base-TX port on the chassis. You can use a remote management session to configure the chassis operating parameters and view system status using the AT-S65 management software.

To manage a chassis remotely, you must first assign an IP address to it. For information about assigning an IP address to the system, refer to Chapter 1, "Getting Started," in the *AT-S65 Management Software User's Guide*.

To start a remote management session, perform the following procedure:

1. Connect a twisted pair cable to the 10/100Base-T port on the front of the chassis, as shown in Figure 45.
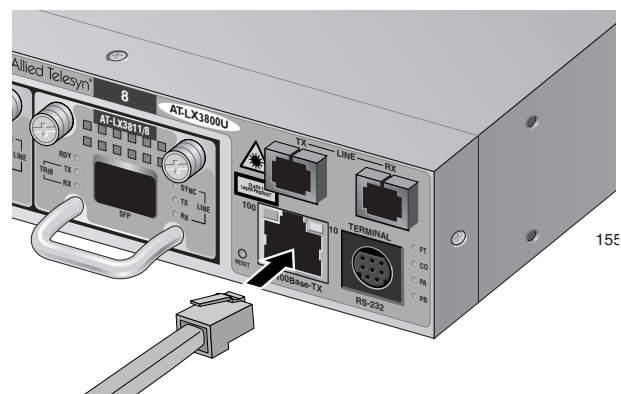

Figure 45. Connecting a Cable to the 10/100Base-T Port

> **Note**
> The RJ-45 port runs in MDIX mode. Be sure to use the proper cable. The connector and port pinouts are shown in "10/100Base-TX Port Pinouts" on page 78.

2. In the Telnet application, specify the IP address of the AT-LX3800U chassis that you want to access.

   The software initializes and then the Login prompt is displayed.

3. To configure chassis settings, enter "manager" as the user name. To only view the settings, enter "operator" as the user name.

   The Password prompt is displayed.

4. To configure chassis settings, enter "friend" as the password for a manager login. To only view the settings, enter "operator" as the password for an operator login.

The Main Menu is displayed, as shown in Figure 40 on page 30.

Refer to the *AT-S65 Management Software User's Guide* for information about how to move through the menus and make menu selections.

Warranty Registration

When you have finished installing the system, you should register your product by completing and mailing the enclosed warranty card.

Chapter 3

Troubleshooting

This chapter contains information about how to troubleshoot the chassis and line cards in the event that a problem occurs.

> **Note**
> If after following the instructions in this chapter you are unable to resolve the problem, contact Allied Telesyn Technical Support for assistance. Refer to "Contacting Allied Telesyn" on page 16 for contact information.

PA or PB LED for the System is Off or Flashing

The chassis must have at least one operational power supply, indicated by the PA (power supply A) and PB (power supply B) LEDs.

If all LEDs, including those on the chassis and line cards, are off, do one or all of the following:

❐ Verify that the On/Off switch for that power supply is turned to On.

❐ Replace the AC power cord.

❐ Verify that the power supply is completely installed in its slot.

If one of the power supply LEDs is off, but the other LED is on, do the following:

❐ Verify that the power supply in question is completely installed in its slot.

If one or both of the power supply LEDs are slowly flashing, do the following:

❐ Verify that the On/Off switch for that power supply is turned to On.

❐ Verify that the power cord is secured in the connector.

If one or both of the power supply LEDs are quickly flashing, verify that the fans are still operational.

RDY LED on a Line Card is Off

If the RDY LED on a line card is off, do the following:

❑ Verify that at least one power supply is operational.

❑ Verify that the On/Off switch at the back of the system is turned to On.

❑ Verify that the AT-LX3811/x line card is firmly inserted in the slot.

For more information about the RDY LED, refer to Table 2, "RDY LED" on page 23.

RDY LED on a Line Card is Flashing

If the RDY LED on a line card is flashing, do the following:

❑ Verify that the line card is in the correct slot: the color and number of the line card should match the color and number of the slot. If the line card is not in the correct slot, move it to the correct slot.

❑ Remove and reinsert the line card.

Line Card Tributary Side (SFP) RX and TX LEDs are Off

If one or both of the TX and RX LEDs on the tributary (SFP) side of the line card are off, do the following:

❑ Verify that the device connected to the SFP is powered on.

❑ Verify that the corresponding remote end node connected to the remote system is powered on.

❑ Verify that the SFP is firmly seated in the SFP slot.

❑ Verify that the fiber optic cable is securely connected to the SFP and to the port on the end device.

❑ Verify that you are using the appropriate type of fiber optic cable. Refer to the SFP installation guide for cabling specifications.

❑ Clean the fiber optic connectors following the instructions in Appendix B, "Cleaning Fiber Optic Connectors" on page 79.

❑ If the SFP has a dual LC connector, verify that the fiber strand connected to the RX port is connected to the TX port on the remote end device, and that the fiber strand connected to the RX port is connected to the TX port.

For additional information about these LEDs, refer to Table 3, "Tributary Side TX and RX LEDs" on page 24.

Line Card Line Side RX and TX LEDs are Flashing Green or Off

If one or both of the TX or RX LEDs for the LINE side of the line card is flashing green continuously or off, do the following:

❐ Verify that all fiber optic cables are securely connected to the RX and TX ports.

❐ Verify that the local TX port is connected to the RX port on the remote system and that the local RX port is connected to the TX port on remote system. The systems will not pass data if two TX or two RX ports are interconnected.

❐ Verify that the end nodes connected to the local and remote systems are powered on.

❐ Clean the fiber optic connectors following the instructions in Appendix B, "Cleaning Fiber Optic Connectors" on page 79.

❐ Use a fiber optic tester (pass-through optical monitor) to verify that the link attenuation is less than 35 dB.

For additional information about these LEDs, refer to Table 4, "Line Side TX and RX LEDs" on page 25.

Appendix A
Technical Specifications

Physical Specifications

Dimensions:	4.45 cm x 43.18 cm x 45.72 cm (1.75 in. x 17.0 in. x 18.0 in.) (H x W x D)
Weight:	18 lbs.
Recommended Minimum Ventilation on All Sides	10 cm (4.0 in)

Environmental Specifications

Operating Temperature:	0° C to 40° C (32° F to 104° F)
Storage Temperature:	-25° C to 70° C (-13°F to 158° F)
Operating Humidity:	5% to 90% non-condensing
Storage Humidity:	5% to 95% non-condensing
Maximum Operating Altitude:	4,000 m (13,000 ft.)
Maximum Storage Altitude:	4,000 m (13,000 ft.)

Power Specifications

AC Version

Maximum Power Consumption:	120 watts AC
Input Voltage	100 - 240 VAC
Maximum Input Current	1.5 A

DC Version

Maximum Power Consumption: 100 watts

Input Voltage   40 - 60 VDC

Maximum Input Current   2.5 A

Optical Specifications

Table 7. Optical Power per Channel for Line Ports with Optical MUX/DEMUX Losses Included

Slot No.	Wavelength (nm)	TX Line Port Output** Power, dBm		RX Line Port Sensitivity* OC-48, dBm BER=10^-10	RX Line Port Sensitivity* GE,dBm BER=10^-12	RX Line Port Sensitivity* OC-12, dBm BER=10^-10	RX Line Port Sensitivity* OC-3, dBm BER=10^-10
		Min.	Max.				
1	1470	1	4	-25	-28	-30	-32
2	1490	1	4	-25	-28	-30	-32
3	1510	0	3	-26	-29	-31	-33
4	1530	0	3	-26	-29	-31	-33
5	1550	0	3	-26	-29	-31	-33
6	1570	-1	2	-27	-30	-32	-34
7	1590	-1	2	-27	-30	-32	-34
8	1610	-1	2	-27	-30	-32	-34

* The Rx port's maximum input signal is -7 dBm

** Closed Fiber Link (otherwise, OFC [open fiber control] will reduce the output power)

Table 8. Power Budget Per Channel

LX3800U	OC-48	GbE	OC-12	OC-3	Fast Ethernet
Power budget (MUX/DEMUX included)	26 dB BER<10^-10	29 dB BER<10^-12	31 dB BER<10^-10	33 dB BER<10^-10	33 dB BER<10^-12
Dispersion penalty for fiber with 20ps/ (nm*km) at 1610 nm	<3 dB (80 km)	<1dB (135 km)	<1dB (135 km)	<1 dB (135 km)	<1 dB (135 km)

Safety and Electromagnetic Emissions Certifications

EMI:	FCC Part 15 Class A, EN 5502 Class A, CISPR Class A, VCCI Class A, C-TICK, CE
Immunity:	EN 55024
Safety:	UL 609950 ($_C$UL$_{US}$), EN 60950
Quality and Reliability:	MTBF > 100,000 hrs.

Standards

IEEE 802.3 (10Base-T)

IEEE 802.3u (100Base-TX)

DIN-8 RS-232 Terminal Port Pinouts

Figure 46 illustrates the pin layout of the DIN-8 RS-232 terminal port connector and port.
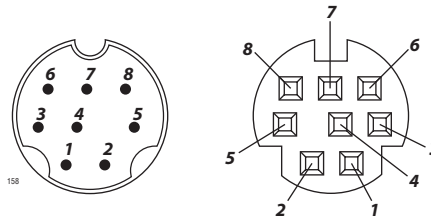
Figure 46. DIN-8 RS-232 Connector and Port Pin Layouts

Table 9 lists the definitions for the DIN-8 RS-232 terminal port pinouts.

Table 9. DIN-8 RS-232 Terminal Port Pinouts

Pin	Signal
1	NC
2	DTR
3	TX
4	RX
5	DSR
6	GND

Table 9. DIN-8 RS-232 Terminal Port Pinouts (Continued)

Pin	Signal
7	RTS
8	CTS

10/100Base-TX Port Pinouts

Figure 47 illustrates the pin layout of the 10/100Base-TX connector and port.
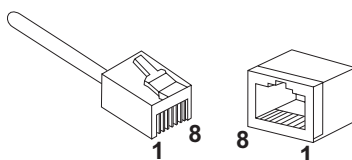
Figure 47. 10/100Base-TX Connector and Port Pinouts

Table 10 lists the definitions for the 10/100Base-TX connector and port pins.

Table 10. 10/100Base-TX Port Pinouts (MDIX Mode Only)

Pin	Signal
1	RD+
2	RD-
3	TD+
4	NC
5	NC
6	TD-
7	NC
8	NC

Appendix B
Cleaning Fiber Optic Connectors

The fiber optic connector consists of a fiber optic plug and its adapter. The end of the fiber optic cable is held in the core of the ferrule in the plug. Light signals are transmitted through the core of the fiber. Even minor smudges or dirt on the end face of the fiber, completely invisible to the naked eye, can disrupt light transmission and lead to failure of the component or of the entire system. Therefore, it is of utmost importance to clean all fiber optic connectors before use.

Figure 48 shows the ferrule in an SC connector.
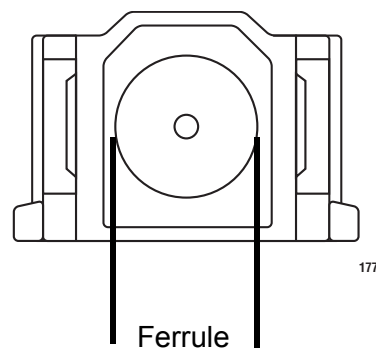
Ferrule

Figure 48. Ferrule in an SC Connector Plug

Figure 49 shows part of the end face of an unclean and clean ferrule.
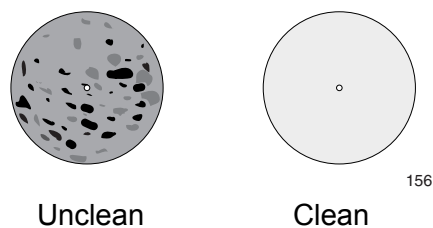
Unclean   Clean

Figure 49. Unclean and Clean Ferrule

This appendix provides the following procedures

❑ "Using a Cartridge-Type Cleaner" on page 80
❑ "Using a Swab" on page 82

Using a Cartridge-Type Cleaner

Fiber optic cartridge cleaners are available from many vendors and are typically called "cartridge cleaners," as shown in Figure 50.

Figure 50. Cartridge Cleaner

Note

Do not use compressed air or aerosol air to clean a fiber optic connector.

To clean a fiber optic connector using a cartridge cleaner, perform the following procedure.

5. With one hand, hold the cartridge cleaner and push the lever on the cleaning cartridge in the direction of the arrow to expose the cleaning surface, as shown in Figure 51.

6. Place the ferrule tip on the exposed cleaning surface and rub the ferrule in a downward direction, as shown in Figure 51.
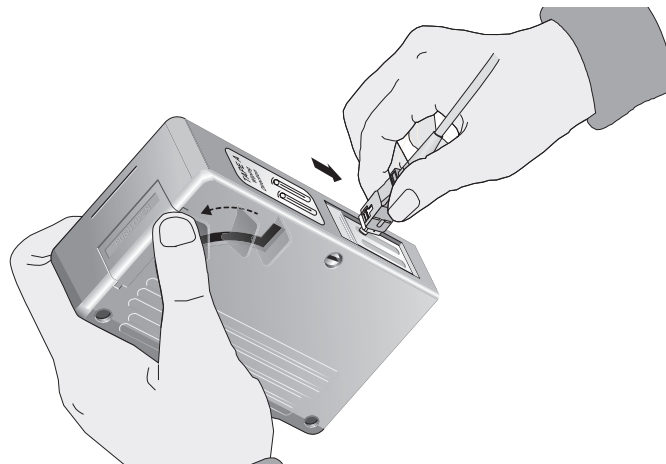
Figure 51. Rubbing the Ferrule Tip on the Cleaning Surface

Note
Rub the ferrule tip on the cleaning surface in one direction only.

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7. When you reach the end of the cleaning surface, pick up the ferrule tip, rotate and place it at the top and rub downwards at least 2 times.

⚠ **Caution**
Failing to pick up the ferrule tip when you reach the bottom of the cleaning surface can result in static electricity that can damage the fiber optic cable.

---

8. If desired, repeat steps 3 and 4.

9. If a fiber inspection scope is available, use the scope to inspect the ferrule end face to make sure that it is clean.

10. Reconnect the cable to the port or protect the ferrule tip with a dust cap.

Note
Always keep a dust cap on a fiber optic cable when it is not in use.

Note
Do not touch the end face of the ferrule in the connector.

Warning: Do not stare into the laser beam. ☞ 2

Warning: Do not look directly at the fiber optic cable ends or inspect the cable ends with an optical lens. ☞ 31

Using a Swab

Specially treated swabs (stick cleaners) are available for cleaning inside connector adapters or hard-to-reach ferrule tips. These swabs, often referred to as "lint free" or "alcohol free" swabs, are available from many vendors, as shown in Figure 52. Stick cleaners are available in both 2.5 mm and 1.25 mm sizes for use on SC and MU connectors respectively.

Note
NEVER use a household cotton swab and/or alcohol to clean a fiber optic connector. This may leave a residue on the ferrule tip.
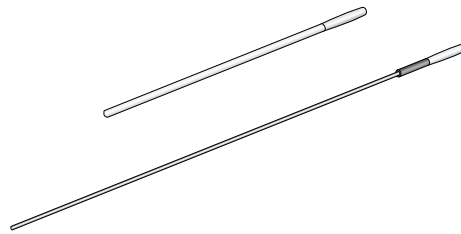
Figure 52. Lint-Free and Alcohol-Free Swabs

Note
Do not use compressed air or aerosol air to clean a fiber optic connector.

To clean a recessed ferrule using a swab, perform the following procedure.

1. Insert the swab into the adapter as shown in Figure 51 and rub the ferrule tip with the swab.

157
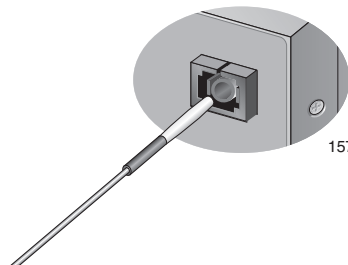
Figure 53. Cleaning a Recessed Ferrule

2. If desired, repeat step 1.

3. If a fiber inspection scope is available, use the scope to inspect the connector to make sure that it is clean and to check for scratches, pits, or other problems that may affect performance.

    Note
    Always keep a dust cap on a fiber optic cable when it is not in use.

    Note
    Do not touch the end face of the ferrule in the connector.

    Warning: Do not stare into the laser beam. ☞ 2

    Warning: Do not look directly at the fiber optic cable ends or inspect the cable ends with an optical lens. ☞ 31

Appendix C
Translated Safety Statements

Important: This appendix contains multiple-language translations for the safety statements in this guide.

Wichtig: Dieser Anhang enthält Übersetzungen der in diesem Handbuch enthaltenen Sicherheitshinweise in mehreren Sprachen.

Importante: Este apéndice contiene traducciones en múltiples idiomas de los mensajes de seguridad incluidos en esta guía.

Important: Cette annexe contient la traduction en plusieurs langues des instructions de sécurité figurant dans ce guide.

Importante: Questa appendice contiene traduzioni in più lingue degli avvisi di sicurezza di questa guida.

Важно: Данное приложение содержит переводы с разных языков по безопасности, приведенное в данном руководстве.

Laser Safety Notices

1   **Warning:** Class 1 Laser product.

2   **Warning:** Do not stare into the laser beam.

Electrical Safety Notices

3   **Warning:** To prevent electric shock, do not remove the cover. No user-serviceable parts inside. This unit contains hazardous voltages and should only be opened by a trained and qualified technician. To avoid the possibility of electric shock, disconnect electric power to the product before connecting or disconnecting the LAN cables.

4   **Warning:** Do not work on equipment or cables during periods of lightning activity.

5   **Warning:** Power cord is used as a disconnection device. To de-energize equipment, disconnect the power cord.

6   **Warning:** Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts.

7   Pluggable Equipment. The socket outlet shall be installed near the equipment and shall be easily accessible.

8   **Caution:** Air vents must not be blocked and must have free access to the room ambient air for cooling.

9   **Warning:** Operating Temperature. This product is designed for a maximum ambient temperature of 40° degrees C.

10   All Countries: Install product in accordance with local and National Electrical Codes.

11   **Warning:** As a safety precaution, install a circuit breaker with a minimum value of 15 Amps between the equipment and the DC power source.

Always connect the wires to the LAN equipment first before you connect the wires to the circuit breaker. Do not work with HOT feeds to avoid the danger of physical injury from electrical shock. Always be sure that the circuit breaker is in the OFF position before connecting the wires to the breaker.

12   **Warning**: Do not strip more than the recommended amount of wire. Stripping more than the recommended amount can create a safety hazard by leaving exposed wire on the terminal block after installation.

13   **Warning:** When installing this equipment, always ensure that the frame ground connection is installed first and disconnected last.

14   Warning: Check to see if there are any exposed copper strands coming from the installed wire. When this installation is done correctly there should be no exposed copper wire strands extending from the terminal block. Any exposed wiring can conduct harmful levels of electricity to persons touching the wires.

15   This system works with positive grounded or negative grounded DC systems.

16   Warning: Only trained and qualified personnel are allowed to install or to replace this equipment.

17   Caution: The attached mounting brackets must be used to securely mount the device on the wall.

18   Caution: Do not install in direct sunlight, or a damp or dusty place.

19   Caution: Do not expose the gateway device to moisture or water.

20   Caution: If the gateway device is installed indoors, make sure that the site is a dust-free environment. The site should provide for easy access to the ports of the gateway device.This will make it easy for you to connect and disconnect cables, as well as view the LEDs.

21   Warning: The power source for the gateway unit should be located near the unit and should be easily accessible.

22   Caution: To allow proper cooling of the gateway device, make sure that the air flow around the unit and through its heatsink cooling fins on the rear is not restricted.

23   Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

24   Caution: Risk of explosion if battery is replaced by an incorrect type. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Attention: Le remplacement de la batterie par une batterie de type incorrect peut provoquer un danger d'explosion. La remplacer uniquement par une batterie du même type ou de type équivalent recommandée par le constructeur. Les batteries doivent être éliminées conformément aux instructions du constructeur.

25   Warning: For centralized DC power connection, install only in a restricted access area.

26   A tray cable is required to connect the power source if the unit is powered by centralized DC power. The tray cable must be a UL listed Type TC tray cable and rated at 600 V and 90 degrees C, with three conductors, minimum 14 AWG.

27   **Warning:** Mounting of the equipment in the rack should be such that a hazardous condition is not created due to uneven mechanical loading.

28   **Warning:** Remove all metal jewelry, such as rings and watches, before installing or removing a line card from a powered-on chassis.

29   Use dedicated power circuits or power conditioners to supply reliable electrical power to the device.

30   **Warning:** The chassis may be heavy and awkward to lift. Allied Telesyn recommends that you get assistance when mounting the chassis in an equipment rack.

31   **Warning:** Do not look directly at the fiber optic cable ends or inspect the cable ends with an optical lens.

32   **Warning:** This unit might have more than one power cord. To reduce the risk of electric shock, disconnect all power cords before servicing the unit.

33   **Warning:** Only trained and qualified personnel are allowed to install or to replace this equipment.

34   **Warning:** The power input must be provided from SELV source only, per IEC 60950. Do not connect to a centralized DC battery bank.

35   UL recognized wires of 18 AWG minimum should be provided by the installer.

36   UL recognized wires of 22 AWG minimum should be provided by the installer.

37   **Caution:** Power to the hub must be sourced only from the adapter.

38   If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than the room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

39   **Caution:** Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

40   **Warning:** Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuits (e.g., use of power strips).

Telecommunications Compliance Notices

41   ⚠   **Warning:** When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electronic shock, and injury to persons, including the following:

Do not use this product near water, for example, near a bathtub, washbowl, kitchen sink, or laundry tub in a wet basement or near a swimming pool.

Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.

Do not use the telephone to report a gas leak in the vicinity of the leak.

42   ⚠   **Warning:** Before connecting to the telephony (TEL) ports on the gateway device, make sure to disconnect the Public Switch Telephone Network (PSTN) feed to the premises.

43   **Warning:** To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

Lasersicherheitshinweise

1 **Achtung:** Laserprodukt der Klasse 1.

2 **Achtung:** Blicken Sie nicht in den Laserstrahl.

Elektrische Sicherheitshinweise

3 **Achtung:** Um Stromschläge zu vermeiden, darf die Abdeckung nicht entfernt werden. Die Ausrüstung enthält keine benutzerwartbaren Teile. Diese Einheit führt gefährliche Spannungen und sollte nur durch einen ausgebildeten und qualifizierten Techniker geöffnet werden. Zur Vermeidung der Möglichkeit von Stromschlägen ist die Stromversorgung des Produkts vor dem Anschließen oder Abtrennen von LAN-Kabeln zu unterbrechen.

4 **Achtung:** Bei Gewittern und Blitzaktivität dürfen keine Arbeiten an der Ausrüstung oder an Kabeln erfolgen.

5 **Achtung:** Das Stromkabel dient als Abtrennungselement. Zum Abschalten der Ausrüstung Stromkabel abziehen.

6 **Achtung:** Ausrüstung der Klasse I. Diese Ausrüstung muss geerdet werden. Der Stromstecker muss an eine vorschriftsmäßig geerdete Steckdose angeschlossen werden. Eine inkorrekt verdrahtete Steckdose kann gefährliche Spannungen auf zugängliche Metallteile aufbringen.

7 Steckbare Ausrüstung. Die Steckdose sollte in der Nähe der Ausrüstung installiert und leicht zugänglich sein.

8 **Vorsicht:** Belüftungsöffnungen dürfen nicht blockiert werden und müssen zur Kühlung durch die Umluft frei zugänglich sein.

9 **Achtung:** Betriebstemperatur. Dieses Produkt ist für eine maximale Umgebungstemperatur von 40° C konzipiert.

10 Alle Länder: Dieses Produkt muss entsprechend den örtlichen und nationalen Elektrizitätsvorschriften installiert werden.

11 **Achtung:** Als Sicherheitsvorkehrung sollte ein Überlastschalter mit einem minimalen Nennwert von 15 Ampere zwischen der Ausrüstung und der Gleichstromversorgung installiert werden.

Vor dem Anschluss der Kabel am Überlastschalter sollten stets zuerst die Kabel an die LAN-Ausrüstung angeschlossen werden. Zur Vermeidung von Verletzungen in Folge von Stromschlag sollte nicht mit SPANNUNGSFÜHRENDEN Versorgungen gearbeitet werden. Vor dem Anschluss der Kabel an den Überlastschalter ist stets Sorge zu tragen, dass der Überlastschalter AUSGESCHALTET ist.

12 ⚠ **Achtung:** Nicht mehr als die empfohlene Kabellänge abisolieren. Durch das Abisolieren von mehr als der empfohlenen Länge können gefährliche blanke Drähte aus dem Anschlussblock hervorragen.

13 ⚠ **Achtung:** Beim Installieren dieser Ausrüstung ist stets darauf zu achten, dass die Rahmenerdung zuerst angeschlossen und zuletzt abgetrennt wird.

14 ⚠ **Achtung:** Das installierte Kabel muss auf etwaige freiliegende Kupferlitzen überprüft werden. Bei der korrekten Installation sollten keine freiliegenden Kupferdrahtlitzen aus dem Anschlussblock herausragen. Jegliche freiliegende Drähte können für Personen, die sie berühren, gefährlichen Strom führen.

15 Dieses System kann in Verbindung mit positiv geerdeten oder negativ geerdeten Gleichstromsystemen verwendet werden.

16 **Achtung:** Das Installieren und der Austausch dieser Ausrüstung ist nur ausgebildetem und qualifiziertem Personal gestattet.

17 ⚠ **Vorsicht:** Mechanische Montage. Zur sicheren Wandmontage des Geräts sind die beiliegenden Montageklammern zu verwenden.

18 ⚠ **Vorsicht:** Das Gerät darf nicht an feuchten, staubigen oder direktem Sonnenlicht ausgesetzten Orten installiert werden.

19 ⚠ **Vorsicht:** Das Gateway-Gerät darf keiner Feuchtigkeit oder Wasser ausgesetzt werden.

20 ⚠ **Vorsicht:** Bei der Innenraummontage des Gateway-Geräts ist darauf zu achten, dass es in einer staubfreien Umgebung installiert wird. Es sollte ein Installationsort gewählt werden, an dem die Ports am Gateway-Gerät gut zugänglich sind, um das Anschließen und Abtrennen von Kabeln zu erleichtern und den freien Blick auf die LEDs zu ermöglichen.

21 **Achtung:** Die Stromquelle für die Gateway-Einheit sollte sich in ihrer Nähe befinden und leicht zugänglich sein.

22 ⚠ **Vorsicht:** Zur Gewährleistung der erforderlichen Kühlung des Gateway-Geräts ist darauf zu achten, dass der Luftfluss um die Einheit und über seine an der Rückseite befindlichen Kühlrippen nicht behindert wird.

23 Stromkreisüberlastung: Der Anschluss der Ausrüstung an den Versorgungsstromkreis und die möglichen Auswirkungen der Überlastung von Schaltkreisen auf den Überstromschutz und die Versorgungskabel sollten erwogen werden. In diesem Zusammenhang sollten auch die auf dem Typenschild der Ausrüstung angegebenen Nennwerte entsprechend berücksichtigt werden.

24 **Vorsicht:** Beim Ersetzen der Batterie durch einen inkorrekten Typ besteht Explosionsgefahr. Die Batterie sollte nur durch denselben oder einen gleichwertigen, vom Hersteller empfohlenen Typ ersetzt werden. Die Batterien sind gemäß der Anleitungen des Herstellers zu entsorgen.

25 **Achtung:** Bei einem zentralisierten Gleichstromanschluss darf die Installation nur in einem Bereich mit gesichertem Zugang erfolgen.

26   Bei der Versorgung der Einheit durch zentralisierten Gleichstrom ist ein Tray-Kabel zum Anschluss der Stromquelle erforderlich. Das Tray-Kabel muss ein UL-gelistetes Typ-TC-Tray-Kabel mit einer Nennspannung von 600 V und einer Nenntemperatur von 90 Grad Celsius, mit drei Leitern und mindestens 14 AWG sein.

27   **Achtung:** Bei der Rackmontage der Ausrüstung ist darauf zu achten, dass keine Gefahrenbedingung durch ungleichmäßige mechanische Belastung geschaffen wird.

28   **Achtung:** Vor dem Installieren oder Ausbauen einer Leitungskarte in das bzw. aus dem Chassis einer eingeschalteten Einheit ist aller metallischer Schmuck wie zum Beispiel Ringe oder Uhren zu entfernen.

29   Zur zuverlässigen Stromversorgung des Geräts sollte ein dedizierter Stromkreis oder Netzfilter und Stabilisator (Power Conditioner) verwendet werden.

30   **Achtung:** Das Chassis kann schwer und schwierig zu heben sein. Allied Telesyn empfiehlt, bei der Rackmontage des Chassis Hilfspersonal heranzuziehen.

31   **Achtung:** Sehen Sie nicht direkt auf die Enden der Faseroptikkabel und inspizieren Sie die Kabelenden nicht mit einer optischen Linse.

32   **Achtung:** An dieser Einheit kann mehr als ein Stromkabel vorhanden sein. Vor Wartungsarbeiten sollten zur Reduzierung des Stromschlagrisikos alle Stromkabel abgetrennt werden.

33   **Achtung:** Das Installieren und der Austausch dieser Ausrüstung ist nur ausgebildetem und qualifiziertem Personal gestattet.

34   **Achtung:** Der Stromeingang darf nur über eine SELV-Quelle gemäß IEC 60950 erfolgen. Eine zentralisierte Gleichstrom-Batteriebank darf nicht angeschlossen werden.

35   UL-anerkannte Kabel mit mindestens 18 AWG sollten vom Installateur bereitgestellt werden.

36   UL-anerkannte Kabel mit mindestens 22 AWG sollten vom Installateur bereitgestellt werden.

37   **Vorsicht:** Die Stromversorgung des Hub darf nur über den Adapter erfolgen.

38   Bei der Installation in einer geschlossenen oder einer mehrere Einheiten umfassenden Anordnung kann die Temperatur der Betriebsumgebung die Raumtemperatur übersteigen. Es sollte deshalb darauf geachtet werden, das die Ausrüstung in einer Umgebung installiert wird, die der maximalen Nennumgebungstemperatur (Tmra) des Herstellers entspricht.

39   **Vorsicht:** Beim Installieren der Ausrüstung in einem Rack ist darauf zu achten, dass der für den sicheren Betrieb der Ausrüstung erforderliche Luftfluss nicht beeinträchtigt wird.

40   **Achtung:** Es sollte eine zuverlässige Erdung der rackmontierten Ausrüstung aufrechterhalten werden. Andere Versorgungsleitungen als direkte Verbindungen zu den Zweigschaltungen (z. B. Verwendung von Verlängerungskabeln) sollten besonders sorgfältig erwogen werden.

Telekommunikationskonformitätshinweise

41 ⚠ **Achtung:** Bei der Verwendung Ihrer Telefonausrüstung sollten zur Reduzierung der Brand-, Stromschlag und Verletzungsgefahr stets grundsätzliche Sicherheitsrichtlinien, einschließlich der folgenden, befolgt werden:

Verwenden Sie dieses Produkt nicht in der Nähe von Wasser, zum Beispiel in der Nähe einer Badewanne, einer Waschschüssel, eines Spülbeckens, eines Waschbottichs, in einem nassen Kellerraum oder in der Nähe eines Schwimmbads.

Vermeiden Sie die Verwendung eines Telefons (mit Ausnahme eines schnurlosen Typs) während eines Gewitters. Es könnte eine geringfügige Blitzschlaggefahr bestehen.

Verwenden Sie das Telefon nicht, um das Austreten von Gas zu melden, wenn es sich in der Nähe dieser Gefahrenquelle befindet.

42 ⚠ **Achtung:** Vergewissern Sie sich vor dem Anschluss der Telefonports (TEL) am Gateway-Gerät, dass die Verbindung des Gebäudes zum öffentlichen Telefonnetz (PTSN) unterbrochen ist.

43 **Achtung:** Verwenden Sie zur Reduzierung der Brandgefahr nur Telekommunikationsleitungskabel Nr. 26 AWG oder stärkeres Kabel.

Avisos de seguridad láser

1 **Atención:** Producto láser de clase 1.

2 **Atención:** No mire el rayo láser.

Avisos de seguridad eléctricas

3 **Atención:** Para evitar la electrocución, no quite la tapa. La unidad no contiene piezas que pueda reparar el usuario. Esta unidad contiene tensiones peligrosas y sólo la debe abrir un técnico convenientemente formado y cualificado. Para evitar todo riesgo de electrocución, desconecte la alimentación eléctrica del producto antes de conectar o desconectar los cables de la LAN.

4 **Atención:** No manipule el equipo ni los cables mientras haya rayos en la atmósfera.

5 **Atención:** El cable de alimentación se utiliza como dispositivo de desconexión. Para desactivar el equipo, desconecte el cable de alimentación.

6 **Atención:** Equipo de Clase I. Este equipo debe conectarse a tierra. La clavija de alimentación se debe enchufar a una toma eléctrica convenientemente conectada a tierra. El uso de una toma mal conectada podría provocar tensiones peligrosas en las piezas metálicas accesibles para el usuario.

7 El equipo requiere conexión. La toma eléctrica debe estar situada cerca del equipo y ser de fácil acceso.

8 **Precaución:** Las rejillas de ventilación no deben estar obstruidas y deben tener libre acceso al aire de la sala para facilitar la refrigeración.

9 **Atención:** Temperatura de funcionamiento. Este producto está diseñado para funcionar con una temperatura ambiente máxima de 40 ºC.

10 Todos los países: Instale el producto de acuerdo con las recomendaciones de la normativa sobre instalaciones eléctricas de su país.

11 **Atención:** Como medida de seguridad, instale un disyuntor con un valor mínimo de 15 A entre el equipo y la toma de alimentación CC.

Conecte siempre los cables a los equipos de la LAN antes de conectarlos al disyuntor. No trabaje con cables activos para evitar el riesgo de lesiones físicas derivadas de una descarga eléctrica. Asegúrese siempre de que el disyuntor está en la posición desconectada antes de conectar los cables.

12 **Atención:** No pele más que la longitud recomendable de cable. Si se supera dicha longitud, puede producirse un riesgo al quedar cable al descubierto en el bloque de terminales después de la instalación.

13 ⚡ **Atención:** Cuando instale el equipo, asegúrese de instalar primero la conexión a tierra del bastidor y de desconectarla en último lugar.

14 ⚡ **Atención:** Compruebe si hay algún hilo de cobre al descubierto que proceda del cable instalado. Cuando la instalación se realiza correctamente, no debe quedar ningún hilo de cobre al descubierto fuera del bloque de terminales. Todo cable descubierto puede conducir un nivel peligroso de electricidad a las personas que lo toquen.

15 Este sistema funciona con sistemas CC con conexión a tierra positiva y negativa.

16 **Atención:** Este equipo sólo debe ser instalado y manipulado por personal convenientemente formado y cualificado.

17 ⚠ **Precaución:** Utilice los soportes de montaje que acompañan al dispositivo para montarlo en un muro.

18 ⚠ **Precaución:** No instale el dispositivo expuesto a la luz solar directa ni en un lugar húmedo o con polvo.

19 ⚠ **Precaución:** No exponga el dispositivo de puerta de enlace a la humedad o el agua.

20 ⚠ **Precaución:** Si el dispositivo de puerta de enlace se instala en el exterior, asegúrese de que el entorno esté libre de polvo. El emplazamiento debe permitir un acceso fácil a los puertos del dispositivo de puerta de enlace. De esta forma, resultará fácil conectar y desconectar los cables y ver los indicadores LED.

21 **Atención:** La toma eléctrica de la unidad de puerta de enlace debe estar situada cerca de la unidad y ser de fácil acceso.

22 ⚠ **Precaución:** Para permitir la refrigeración adecuada del dispositivo de puerta de enlace, asegúrese de no limitar la circulación de aire alrededor de la unidad ni a través de las aletas de refrigeración del radiador de la parte trasera.

23 Sobrecarga de circuitos: Tenga en cuenta la conexión del equipo al circuito de alimentación y el posible efecto de la sobrecarga de los circuitos en la protección contra excesos de corriente y en los cables de alimentación. Para ello, consulte los valores que se indican en la placa de características del equipo.

24 **Precaución:** Si la batería se sustituye por otra de tipo incorrecto, existe un peligro de explosión. Sustitúyala únicamente por otra batería del mismo tipo, o equivalente, recomendada por el fabricante. Deseche la batería de acuerdo con las instrucciones del fabricante.

25 **Atención:** En el caso de una conexión CC centralizada, instale la unidad en una zona de acceso restringido.

26 Utilice un cable de control para la conexión a la toma eléctrica si la unidad utiliza alimentación CC centralizada. El cable de control debe ser de tipo TC, figurar en la lista UL y tener una capacidad nominal de 600 V y 90 ºC, con tres conductores y de un mínimo de14 AWG.

27   **Atención:** Si el equipo se monta en un rack, se deberá evitar todo peligro de irregularidad en la carga mecánica.

28   **Atención:** Quítese todas las joyas metálicas, como anillos y relojes, antes de instalar o quitar una tarjeta de red de un chasis con alimentación eléctrica.

29   Utilice circuitos de alimentación dedicados o acondicionadores de alimentación para suministrar energía eléctrica fiable al dispositivo.

30   **Atención:** El chasis puede ser pesado y difícil de levantar. Allied Telesyn recomienda buscar ayuda para montar el chasis en un rack.

31   **Atención:** No mire directamente los extremos del cable de fibra óptica ni los inspeccione con una lente óptica.

32   **Atención:** Esta unidad puede tener más de un cable de alimentación. Para reducir el peligro de electrocución, desconecte todos los cables de alimentación antes de manipular la unidad.

33   **Atención:** Este equipo sólo debe ser instalado y manipulado por personal convenientemente formado y cualificado.

34   **Atención:** La alimentación sólo debe proceder de una toma SELV, conforme a la norma UEC 60950. No conecte la unidad a un banco centralizado de baterías CC.

35   El instalador debe suministrar cables que figuren en la lista UL de un mínimo de 18 AWG.

36   El instalador debe suministrar cables que figuren en la lista UL de un mínimo de 22 AWG.

37   **Precaución:** La alimentación del concentrador sólo debe proceder del adaptador.

38   Si la unidad se instala en un conjunto de rack cerrado o con varias unidades, la temperatura ambiente de funcionamiento del entorno del rack puede ser superior a la de la sala. El equipo se debe instalar en un entorno que no supere la temperatura ambiente nominal máxima (Tmra) indicada por el fabricante.

39   **Precaución:** La instalación en un rack debe realizarse de forma que se garantice el caudal de aire necesario para el buen funcionamiento del equipo.

40   **Atención:** Se debe mantener en todo momento la fiabilidad de la conexión a tierra de los equipos montados en rack. Preste especial atención a las conexiones que no procedan directamente de los circuitos de bifurcación (por ej., regletas de conexión).

Avisos de conformidad de telecomunicaciones

41 ⚠ **Atención:** Cuando utilice su equipo telefónico, deberá adoptar las siguientes precauciones de seguridad básicas para reducir el riesgo de incendio, descarga electrónica y lesiones:

No utilice este producto en zonas húmedas; por ejemplo, cerca de una bañera, un lavabo o un fregadero, en un sótano húmedo o cerca de una piscina.

Evite el uso de teléfonos no inalámbricos durante una tormenta eléctrica. a fin de evitar el riesgo de electrocución como consecuencia de un rayo.

No utilice el teléfono para notificar una fuga de gas en las inmediaciones de la misma.

42 ⚠ **Atención:** Antes de realizar la conexión a los puertos de telefonía (TEL) del dispositivo de puerta de enlace, asegúrese de desconectar la alimentación de la red telefónica conmutada pública (PSTN/RTC) de las instalaciones.

43 **Atención:** Utilice sólo cable de telecomunicación 26 AWG o superior para reducir el riesgo de incendio.

Avis de sécurité laser

1 **Avertissement:** Produit laser de classe 1.

2 **Avertissement:** Ne pas observer directement le rayon laser.

Avis de sécurité électrique

3 **Avertissement:** Pour éviter tout risque d'électrocution, ne pas déposer le capot. L'appareil ne contient aucun composant réparable par l'utilisateur. Il est exposé à des tensions dangereuses et ne doit être ouvert que par un technicien compétent et qualifié. Pour éviter tout risque d'électrocution, débrancher l'alimentation électrique du produit avant de connecter ou de déconnecter les câbles de réseau local.

4 **Avertissement:** Ne pas travailler sur cet équipement ni sur ses câbles en présence de foudre.

5 **Avertissement:** Le cordon d'alimentation est utilisé en tant que mécanisme de déconnexion. Pour mettre l'équipement hors tension, débrancher le cordon d'alimentation.

6 **Avertissement:** Équipement de classe I. Cet équipement doit être mis à la terre. La prise d'alimentation doit être branchée sur une sortie d'alimentation correctement mise à la terre. Dans le cas contraire, les pièces métalliques accessibles risquent d'être soumises à des tensions dangereuses.

7 Équipement à connecter. La prise d'alimentation doit se situer à proximité de l'équipement et être facilement accessible.

8 **Attention:** Les orifices de ventilation doivent rester libres de toute obstruction pour pouvoir assurer le refroidissement par l'air de la pièce.

9 **Avertissement:** Température de fonctionnement. Ce produit a été conçu pour fonctionner à une température ambiante maximum de 40° C.

10 Dans tous les pays: installer le produit conformément aux réglementations électriques nationales et locales.

11 **Avertissement:** Par mesure de sécurité, installer un coupe-circuit d'une intensité minimum de 15 ampère entre l'équipement et la source d'alimentation en courant continu.

Toujours connecter les fils à l'équipement de réseau local avant de les raccorder au coupe-circuit. Ne pas travailler sur des composants d'alimentation CHAUDS pour éviter tout risque d'accident corporel par électrocution. Toujours s'assurer que le coupe-circuit est DÉSACTIVÉ avant de connecter les fils au coupe-circuit.

12 ⚠ **Avertissement**: Respecter les recommandations pour dénuder les fils. Un dénudage excessif risque de présenter des risques pour la sécurité en laissant le fil exposé sur le bornier après l'installation.

13 ⚠ **Avertissement:** Lors de l'installation de cet équipement, toujours s'assurer que la connexion de terre de la structure est installée en premier et déconnectée en dernier.

14 ⚠ **Avertissement:** Vérifier la présence de fils de cuivre exposés sur le câble d'installation. Si l'installation a été correctement réalisée, aucun fil de cuivre sortant du bornier ne doit être exposé. Tout fil exposé peut exposer les personnes qui y touchent à une tension dangereuse.

15 Ce système fonctionne avec les mécanismes c.c. de mise à la terre négative ou positive.

16 **Avertissement:** Seul le personnel qualifié et compétent est autorisé à installer ou à remplacer cet équipement.

17 ⚠ **Attention:** Les supports de montage fournis doivent être utilisés pour fixer l'équipement au mur.

18 ⚠ **Attention:** Ne pas installer l'équipement au soleil, ni dans un endroit humide ou poussiéreux.

19 ⚠ **Attention:** Ne pas exposer le périphérique servant de passerelle à l'eau ou l'humidité.

20 ⚠ **Attention:** Si le périphérique servant de passerelle est installé à l'intérieur, s'assurer qu'il se trouve dans en endroit non poussiéreux. Le site doit offrir un accès aisé au port du périphérique servant de passerelle afin de faciliter la connexion et la déconnexion des câbles, tout en permettant d'observer aisément les voyants.

21 **Avertissement:** La source d'alimentation d'une unité servant de passerelle doit se situer à proximité de l'unité et rester facilement accessible.

22 ⚠ **Attention:** Pour permettre le refroidissement correct de l'unité servant de passerelle, s'assurer que l'air circule librement autour de l'unité et à travers les ailettes du dissipateur thermique à l'arrière.

23 Surcharge du circuit: En connectant l'équipement au circuit d'alimentation, tenir compte des répercussions éventuelles d'une surcharge du circuit sur la protection contre les surcharges et le câblage d'alimentation. Tenir compte des valeurs nominales indiquées sur la plaque signalétique de l'équipement.

24 **Attention:** Le remplacement de la batterie par une batterie de type incorrect peut provoquer un danger d'explosion. La remplacer uniquement par une batterie du même type ou de type équivalent recommandée par le constructeur. Les batteries doivent être éliminées conformément aux instructions du constructeur.

25 **Avertissement:** Pour une connexion d'alimentation c.c. centralisée, installer uniquement dans un emplacement d'accès limité.

26   Un chemin de câble doit être utilisé pour la connexion à la source d'alimentation si l'unité est alimentée par alimentation c.c. centralisée. Le chemin de câble doit être de type TC agréé UL, intensité nominale de 600 V, 90 °C, trois conducteurs, 14 AWG minimum.

27   **Avertissement:** L'installation de l'équipement sur un rack doit se faire sans provoquer de danger par un chargement mécanique déséquilibré.

28   **Avertissement:** Retirer les bijoux en métal, tels que les bagues et les montres, avant d'installer ou de retirer une carte d'un châssis sous tension.

29   Utiliser des circuits d'alimentation ou des unités de conditionnement dédiés pour fournir une alimentation électrique fiable à l'équipement.

30   **Avertissement:** Le châssis peut être lourd et difficile à soulever. Allied Telesyn recommande de demander de l'aide pour installer le châssis dans un rack.

31   **Avertissement:** Ne pas observer directement l'extrémité des câbles en fibres optiques ou les inspecter à l'aide d'un objectif optique.

32   **Avertissement:** Cette unité peut être équipée de plusieurs cordons d'alimentation. Pour réduire les risques d'électrocution, débrancher tous les cordons d'alimentation avant de procéder à la maintenance de l'unité.

33   **Avertissement:** Seul le personnel qualifié et compétent est autorisé à installer ou à remplacer cet équipement.

34   **Avertissement:** L'alimentation doit être fournie par une source SELV uniquement, conformément à la norme IEC 60950. Ne pas connecter à une rangée de batteries c.c. centralisée.

35   L'installateur doit fournir des fils de 18 AWG agréés UL.

36   L'installateur doit fournir des fils de 22 AWG agréés UL.

37   **Attention:** Le concentrateur doit uniquement être alimenté par l'adaptateur.

38   Si l'équipement est installé dans un rack fermé ou à plusieurs unités, la température ambiante de fonctionnement du rack risque d'être supérieure à la température ambiante de la pièce. Il convient d'en tenir compte avant d'installer l'équipement dans un environnement conforme à la température ambiante maximum du constructeur.

39   **Attention:** Réduction de la circulation d'air: l'installation de l'équipement dans un rack ne doit pas compromettre la circulation d'air requise pour son fonctionnement sécurisé.

40   **Avertissement:** Une terre fiable doit être maintenue sur l'équipement en rack. Faire plus particulièrement attention aux connexions d'alimentation autres que les connexions directes sur les circuits de dérivation (par ex. utilisation de barrettes d'alimentation).

Télécommunications – Avis de conformité

41   **Avertissement:** Les précautions élémentaires de sécurité doivent être systématiquement respectées en utilisant l'équipement téléphonique pour réduire les risques d'incendie, d'électrocution et d'accident corporel, notamment:

Ne pas utiliser ce produit près d'une source d'eau, telle qu'une baignoire, un lavabo, un évier ou un baquet dans un sous-sol humide ou près d'une piscine.

Éviter d'utiliser le téléphone (autre que sans fil) en présence de foudre pendant un orage. La foudre peut entraîner un léger risque d'électrocution.

Ne pas utiliser le téléphone pour signaler une fuite de gaz à proximité de la fuite.

42   **Avertissement:** Avant de connecter les ports téléphoniques (TEL) sur le périphérique servant de passerelle, veiller à déconnecter les alimentations RTPC (réseau téléphonique public commuté) du local.

43   **Avertissement:** Pour réduire les risques d'incendie, utiliser uniquement un cordon de télécommunication n° 26 AWG ou supérieur.

Indicazioni sulla sicurezza laser

1   **Avvertenza:** Prodotto laser Classe 1.

2   **Avvertenza:** Non fissare il raggio laser.

Indicazioni sulla sicurezza elettrica

3   **Avvertenza:** Per evitare scosse elettriche, non rimuovere la copertura. All'interno non sono presenti componenti utilizzabili dall'utente. Questa unità presenta voltaggi rischiosi e deve essere aperta solo da un tecnico qualificato ed esperto. Per eliminare il rischio di scosse elettriche, scollegare il cavo di alimentazione del prodotto prima di collegare o scollegare i cavi della rete locale LAN.

4   **Pericolo:** Non utilizzare l'apparecchiatura o maneggiare i cavi in caso di lampi.

5   **Attenzione:** Il cavo di alimentazione viene utilizzato come dispositivo di scollegamento. Per togliere la corrente all'apparecchiatura, scollegare il cavo di alimentazione.

6   **Attenzione:** Apparecchiatura Classe I. Questa apparecchiatura deve essere messa a terra. Il cavo di alimentazione deve essere collegato a un socket correttamente cablato e messo a terra. Un socket non correttamente cablato potrebbe trasferire voltaggi pericolosi su componenti di metallo accessibili.

7   Apparecchiatura cablata. Il socket deve essere installato accanto all'apparecchiatura e deve essere facilmente accessibile.

8   **Attenzione:** Le prese d'aria non devono essere ostruite e devono avere libero accesso all'aria dell'ambiente per raffreddare l'apparecchiatura.

9   Temperatura di esercizio. Questo prodotto è progettato per una temperatura ambiente massima di 40°C.

10   Per tutti i paesi: Installare il prodotto in conformità con le normative sull'elettricità locali e nazionali.

11   **Avvertenza:** Per precauzione, installare un salvavita con un valore minimo di 15 ampere tra l'apparecchiatura e la fonte di alimentazione CC.

Collegare i cavi all'apparecchiatura LAN prima di collegarli al salvavita. Per evitare il rischio di danni fisici causati da scosse elettriche, non utilizzare l'apparecchiatura ad alte temperature. Verificare che il salvavita sia in posizione OFF prima di collegare i cavi.

12   **Avvertenza:** Non scollegare più cavi di quelli raccomandati: può essere pericoloso lasciare dei cavi esposti sul blocco terminale dopo l'installazione.

13 ⚡ **Avvertenza:** Quando si installa l'apparecchiatura, verificare che il collegamento di messa a terra FG (frame ground) sia installato per primo e disinstallato per ultimo.

14 ⚡ **Avvertenza:** Verificare che non sporgano fili di rame dai cavi installati. Se l'installazione viene effettuata correttamente, non vi sono fili di rame scoperti, sporgenti dal blocco terminale. Gli eventuali fili scoperti possono condurre livelli di elettricità dannosi sulle persone che li toccano.

15 Questa apparecchiatura funziona con sistemi CC con messa a terra a polarità positiva o negativa.

16 **Avvertenza:** Solo personale esperto e qualificato può installare o sostituire l'apparecchiatura.

17 ⚠ **Attenzione:** Per un montaggio a muro sicuro del dispositivo, è necessario utilizzare i supporti di montaggio forniti in dotazione.

18 ⚠ **Attenzione:** Non installare il dispositivo in un luogo esposto alla luce solare, umido o polveroso.

19 ⚠ **Attenzione:** Non esporre il dispositivo gateway all'umidità o all'acqua.

20 ⚠ **Attenzione:** Se il gateway è installato in un ambiente chiuso, verificare che l'ambiente sia privo di polvere. Il sito di installazione dovrebbe disporre di un facile accesso alle porte del gateway. Questo vi consentirà di collegare e scollegare i cavi e visualizzare i LED in modo semplice.

21 **Avvertenza:** La fonte di alimentazione dell'unità gateway deve essere posizionata vicino all'unità, in un luogo facilmente accessibile.

22 ⚠ **Attenzione:** Per consentire il raffreddamento appropriato del dispositivo gateway, verificare che il flusso d'aria attorno all'unità e attraverso le ventole di raffreddamento per la dispersione del calore poste sul retro non sia ostruito.

23 Sovraccarico del circuito: Prestare attenzione al collegamento dell'apparecchiatura al circuito di alimentazione e all'effetto che il sovraccarico dei circuiti potrebbe avere sulla protezione contro i sovraccarichi di corrente e sui cavi di alimentazione. In tal senso, tenere presente i valori riportati sull'etichetta dell'apparecchiatura.

24 **Attenzione:** Se si sostituisce la batteria con un tipo di batteria non corretto, si rischia di provocare un'esplosione. Sostituire la batteria solo con una dello stesso tipo o di un tipo equivalente raccomandato dal produttore. Eliminare le batterie usate secondo le istruzioni del produttore.

25 **Avvertenza:** In caso di alimentazione CC centralizzata, installare l'apparecchiatura solo in aree ad accesso limitato.

26 Se l'unità ha un'alimentazione CC centralizzata, è necessario un cavo di tipo TC approvato UL, valutato a 600 V e 90°C, con tre conduttori, di minimo 14 AWG.

27 **Avvertenza:** Il montaggio dell'apparecchiatura in rack deve essere effettuato in modo da evitare di provocare rischi dovuti a un carico meccanico irregolare.

28 ⚠ **Avvertenza:** Rimuovere tutti gli oggetti di metallo, ad esempio anelli e orologi, prima di installare o estrarre una scheda di linea da un chassis acceso.

29 Utilizzare circuiti di alimentazione o alimentatori dedicati per fornire energia elettrica al dispositivo in modo affidabile.

30 **Avvertenza:** Il chassis potrebbe risultare pesante e scomodo da sollevare. Allied Telesyn consiglia di richiedere assistenza per il montaggio del chassis in rack.

31 ⚠ **Avvertenza:** Non osservare le estremità dei cavi a fibre ottiche direttamente oppure attraverso una lente ottica.

32 ⚠ **Avvertenza:** Questa unità potrebbe disporre di più cavi di alimentazione. Per ridurre il rischio di scosse elettriche, scollegare tutti i cavi di alimentazione prima di iniziare la manutenzione dell'unità.

33 **Avvertenza:** Solo personale esperto e qualificato può installare o sostituire l'apparecchiatura.

34 **Avvertenza:** L'alimentazione deve essere fornita da una fonte SELV, come specificato nello standard IEC 60950. Non collegare il dispositivo a una batteria CC centralizzata.

35 I cavi riconosciuti UL di minimo 18 AWG non sono forniti in dotazione.

36 I cavi riconosciuti UL di minimo 22 AWG non sono forniti in dotazione.

37 **Attenzione:** L'hub deve essere alimentato solo mediante l'adattatore.

38 Se l'installazione è posizionata in un ambiente chiuso o in rack multi-unità, la temperatura operativa del rack potrebbe essere maggiore della temperatura ambiente. Per questo motivo, installare l'apparecchiatura in un ambiente compatibile con la temperatura ambiente massima stimata dal produttore (Tmra).

39 **Attenzione:** L'installazione dell'apparecchiatura in rack dovrebbe essere effettuata in modo che il flusso d'aria richiesto per un funzionamento sicuro non venga compromesso.

40 ⚠ **Attenzione:** È necessario mantenere la messa a terra dell'apparecchiatura montata in rack. Prestare particolare attenzione ai collegamenti di alimentazione non CC ai circuiti periferici (ad esempio all'uso dei cavi di alimentazione).

Indicazioni per la conformità con le norme sulle telecomunicazioni

41 ⚠ **Avvertenza:** Quando si utilizza l'apparecchiatura telefonica, per ridurre il rischio di incendio, scosse elettriche e danni alle persone, è necessario seguire alcune precauzioni di base per la sicurezza, ad esempio:

Non utilizzare il prodotto in prossimità di acqua, ad esempio, vicino a vasche da bagno, lavabi, lavandini, piscine oppure in ambienti umidi.

Non utilizzare un telefono (di tipo non cordless) durante un temporale: esiste il rischio remoto che i lampi provochino scosse elettriche.

Per segnalare una perdita di gas, non utilizzare il telefono in prossimità della perdita.

42 ⚠ **Avvertenza:** Prima di utilizzare le porte per il collegamento telefonico (TEL) del dispositivo gateway, verificare che la rete telefonica pubblica (PSTN) sia disconnessa.

43 Per ridurre il rischio di incendi, utilizzare solo un cavo di linea telefonica di 26 AWG o superiore.

Лазерная безопасность

1 **Внимание:** лазерный продукт, класс 1.

2 **Внимание:** Не смотрите прямо в лазерный луч.

Электрическая безопасность

3 **Внимание:** Для предотвращения электрического шока, не снимайте кожух. Внутри нет частей, подлежащих обслуживанию пользователем. Этот устройство – под опасным напряжением и должно открываться только обученным и квалифицированным инженером. Для избежания возможности поражения электрическим током, отсоедините питание перед соединением или отсоединением сетевых кабелей LAN.

4 **Внимание:** Не работайте с оборудованием во время грозы.

5 **Внимание:** Кабель питания используется для отсоединения. Для отсоединения оборудования, отсоедините кабель питания.

6 **Внимание:** Оборудование Класса I. Это оборудование должно быть заземлено. Вилка питания должны быть присоединена к соответствующим образом подключенному заземлению. Неправильное соединение может подвергнуть доступные металлические части действию опасного напряжения.

7 Розетки. Розетка должна быть установлена невдалеке от оборудования и должна быть легко доступной.

8 **Предостережение:** Вентиляционные отверстия не должны быть заблокированы и должен быть свободный доступ к воздуху в комнате для охлаждения.

9 **Внимание:** Рабочая температура. Этот продукт предусмотрен для температуры окружающего воздуха не выше + 40° C.

10 Во всех странах: Инсталлируйте продукт в соответствии с национальными нормами электротехники.

11 **Внимание:** Для безопасности установите прерыватель для максимальной силы тока 15 ампер между оборудованием и источником постоянного тока.

Всегда подсоединяйте провода к сетевому оборудованию (LAN) перед тем, как присоединять кабели к прерывателю. Не работайте с кабелями под напряжением, чтобы избежать поражения электротоком. Перед присоединением проводов к прерывателю, убедитесь, что прерыватель находится в положении ВЫКЛ (OFF).

12 **Внимание:** Не очищайте от изоляции провод больше, чем рекомендовано. Чрезмерное очищение кабеля может составлять опасность после инсталляции.

13 ⚡ **Внимание:** При инсталляции оборудования, убедитесь, что заземление подключается в первую, а отключается в последнюю очередь.

14 ⚡ **Внимание:** Проверьте, нет ли на инсталлированных проводков на кабеле. При правильной инсталляции на терминале свободных проводков быть не должно. Открытые провода могут представлять опасность электрического поражения тем лицам, которые прикасаются к проводам.

15 Эта система действует как с плюсовым, так и минусовым заземлением постоянного тока.

16 **Внимание:** Это оборудование должно быть инсталлировано только обученными и квалифицированным работниками.

17 ⚠ **Предостережение:** Оборудование должно быть надежно прикреплено к стене с помощью скоб.

18 ⚠ **Предостережение:** Не инсталлируйте на солнцепеке, во влажном или пыльном месте.

19 ⚠ **Предостережение:** Не подвергайте шлюзовую установку действию влажности или воды.

20 ⚠ **Предостережение:** Если шлюзовая установка инсталлируется в помещении, позаботьтесь, чтобы в помещении не было пыли. Должен быть обеспечен легкий доступ к портам оборудования, чтобы Вам было легко соединять и отсоединять кабели и видеть светодиоды.

21 **Внимание:** Источник питания должен быть невдалеке от установки, и к нему должен быть удобный доступ.

22 ⚠ **Предостережение:** Для хорошей вентиляции шлюзовой установки, позаботьтесь, чтобы вокруг установки и через вентиляционные решетки мог свободно циркулировать воздух.

23 Перегрузка контура: Следует подумать о том, какое количество оборудования присоединяется к контуру питания и на возможный эффект перегрузки контуров на защиту перегрузки и провода питания. Следует обращать внимание на указанные предельные показатели на фабричных табличках.

24 **Литиевая батарея:** Должна заменяться только обученным и квалифицированным инженером.

Предостережение: Возможен взрыв при замене неправильным типом батареи. Заменяйте только тем же или эквивалентным типом, рекомендованным производителем. Утилизируйте использованные батареи только в соответствии с указаниями производителя.

25 **Внимание:** Для централизованного подсоединения постоянного тока, устанавливайте только в помещении, доступ к которому ограничен.

26   Для подсоединения источника питания, если установка питается централизованным постоянным током, требуется желобной кабель. Кабель должен быть признанным UL типа и предназначен для 600 В и + 90°С, с тремя кондукторами, минимум 14 AWG (американский калибр).

27   **Внимание:** Установка оборудования на раме должна быть такой, чтобы не создавалось опасности от неровной механической нагрузки.

28   **Внимание:** Снимите все механические украшения, кольца и часы, перед инсталляцией и удалением линейной карты с корпуса под напряжением.

29   Для надежного питания используйте отдельные контуры питания и выравниватели энергии.

30   **Внимание:** Корпус может быть тяжелым и поднять его может быть сложно. Allied Telesyn рекомендует, что при установке корпуса на раме Вам необходимо обеспечить соответствующую помощь.

31   **Внимание:** Не смотрите прямо на торцы волоконно-оптического кабеля и не инспектируйте торцы кабеля с помощью оптической линзы.

32   **Внимание:** Установка может быть оборудована несколькими проводами питания. Перед техническим обслуживанием установки, отсоедините все провода питания.

33   **Внимание:** Оборудование должно обслуживаться и заменяться только обученными и квалифицированными работниками.

34   **Внимание:** Питание должно подаваться только от источника SELV, в соответствии с IEC 60950. Не подключайте к централизованному блоку аккумуляторов постоянного тока.

35   Инсталлятор должен обеспечивать провода, признанные UL, минимум 18 AWG.

36   Инсталлятор должен обеспечивать провода, признанные UL минимум 22 AWG.

37   **Предостережение:** Питание на узел должно подаваться только с адаптера.

38   При монтировке на раме с несколькими установками или в закрытом контуре, рабочая температура оборудования на раме может быть выше, чем температура окружающей среды. Поэтому следует позаботиться о том, чтобы температура не превышала максимальной температуры окружающей среды, указанной производителем (Tmra).

39   **Предостережение:** Уменьшенный воздушный поток: инсталляция оборудования на раме должна быть такой, чтобы не ограничивать циркуляцию воздуха, необходимую для безопасной работы оборудования.

40   **Внимание:** Оборудование на раме необходимо надежно заземлять. Особое внимание следует обращать на соединения питания, помимо прямых соединений к веткам контура (например, на розеточные блоки).

Телекоммуникационное соответствие

41 ⚠ **Внимание:** При использовании телефонного оборудования, всегда следует обращать внимания на требования безопасности для снижения риска пожара, поражения током и ранения, в том числе:

Не используйте оборудование рядом с водой – например ванной, раковиной или стиральным резервуаров или в мокром подвале рядом с бассейном.

Во время электрической бури не используйте телефон (кроме беспроводного). Есть некоторый риск поражения от молнии.

Не используйте телефон для сообщения об утечке газа вблизи от утечки.

42 ⚠ **Внимание:** Перед соединения к телефонным портам (TEL) на шлюзовой установке, отсоедините городской телефон (PSTN) от помещения.

43 **Внимание:** Для снижения риска пожара, используйте коммуникационный кабель не меньше 26 AWG.