BitStorm™ 4800 Express

Installation Guide

Document No. 4821-A2-GN21-00

October 2003

PARADYNE®

Notice

Warranty, Sales, Service, and Training Information

Contact your local sales representative, service representative, or distributor directly for any help needed. For additional information concerning warranty, sales, service, repair, installation, documentation, training, distributor locations, or Paradyne worldwide office locations, use one of the following methods:

- **Internet:** Visit the Paradyne World Wide Web site at **www.paradyne.com**. (Be sure to register your warranty at **www.paradyne.com/warranty**.)
- **Telephone:** Call our automated system to receive current information by fax or to speak with a company representative.
  - — Within the U.S.A., call 1-800-870-2221
  - — Outside the U.S.A., call 1-727-530-2340

Document Feedback

We welcome your comments and suggestions about this document. Please mail them to Technical Publications, Paradyne Corporation, 8545 126th Ave. N., Largo, FL 33773, or send e-mail to **userdoc@paradyne.com**. Include the number and title of this document in your correspondence. Please include your name and phone number if you are willing to provide additional clarification.

Trademarks

⚠ Important Safety Instructions

1. Read and follow all warning notices and instructions marked on the product or included in the manual.
2. This product is intended to be used with a 3-wire grounding type plug — a plug which has a grounding pin. This is a safety feature. Equipment grounding is vital to ensure safe operation. Do not defeat the purpose of the grounding type plug by modifying the plug or using an adapter.

   Prior to installation, use an outlet tester or a voltmeter to check the AC receptacle for the presence of earth ground. If the receptacle is not properly grounded, the installation must not continue until a qualified electrician has corrected the problem.

   If a 3-wire grounding type power source is not available, consult a qualified electrician to determine another method of grounding the equipment.
3. Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these slots and openings must not be blocked or covered.
4. Do not allow anything to rest on the power cord and do not locate the product where persons will walk on the power cord.
5. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous high voltage points or other risks. Refer all servicing to qualified service personnel.
6. General purpose cables are described for use with this product. Special cables, which may be required by the regulatory inspection authority for the installation site, are the responsibility of the customer. To reduce the risk of fire, use a UL Listed or CSA Certified, minimum 26 AWG (0.129 mm^2) telecommunication cable.
7. When installed in the final configuration, the product must comply with the applicable Safety Standards and regulatory requirements of the country in which it is installed. If necessary, consult with the appropriate regulatory agencies and inspection authorities to ensure compliance.
8. A rare phenomenon can create a voltage potential between the earth grounds of two or more buildings. If products installed in separate buildings are **interconnected**, the voltage potential may cause a hazardous condition. Consult a qualified electrical consultant to determine whether or not this phenomenon exists and, if necessary, implement corrective action prior to interconnecting the products.
9. In addition, if the equipment is to be used with telecommunications circuits, take the following precautions:
   - — Never install telephone wiring during a lightning storm.
   - — Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
   - — Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
   - — Use caution when installing or modifying telephone lines.
   - — 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.
10. Input power to the ALARM interface (located on the front panel of the enclosure) must not exceed 30V rms or 60V dc.
11. The equipment is intended for installation in a max. 50° C ambient temperature, in an environment that is free of dust and dirt.
12. The power supply cord for countries other than North America is to be a minimum H05 V V-F type, min. 0.75 mm^2, 2-conductor and earth ground terminated in an IEC 320 connector on one end, and a plug which is certified for use in the country of installation at the other end.
13. Do not physically stack the Model 4821 units more than eight (8) units high. Physical stability has not been evaluated for a stack higher than eight units, and a configuration higher than eight units might be unstable and prone to tipping over. Ensure that the four (4) rubber feet provided with the product have been installed on the bottom of each unit before stacking one atop another.

EMI Notices

⚠ UNITED STATES – EMI NOTICE:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the 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 the 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.

The authority to operate this equipment is conditioned by the requirements that no modifications will be made to the equipment unless the changes or modifications are expressly approved by Paradyne Corporation.

⚠ CANADA – EMI NOTICE:

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 réglement sur le matérial brouilleur du Canada.

Notices to Users of the Canadian Telephone Network

NOTICE: This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation IC before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

NOTICE: The Ringer Equivalence Number (REN) for this terminal equipment is labeled on the equipment and includes the effect of the POTS splitter. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

Notice to Users of the United States Telephone Network

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the Administrative Council for Terminal Attachment (ACTA). On the bottom side of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

This equipment is intended to connect to the Public Switched Telephone Network through the Model 6051 POTS splitter using a Universal Service Order Code (USOC) type RJ21X jack. Refer to the Installation Instructions for details.

The Ringer Equivalence Number (or REN) is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. The REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point. For example, 03 represents a REN of 0.3.

If the BitStorm 4800 causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with the BitStorm 4800, refer to the repair and warranty information on Page A. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

The user may make no repairs to the equipment.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

If the site has specially wired alarm equipment connected to the telephone line, ensure the installation of the BitStorm 4800 does not disable the alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

Supplier's Declaration of Conformity

Place of Issue: Paradyne Corporation
8545 126th Avenue North
Largo, FL 33773-1502
USA

Date of Issue: 3/28/2002

Paradyne Corporation, located at the above address, hereby certifies that the BitStorm 4800, Model Number 4821-AX-XXX, bearing labeling identification number US:AW2HN04B4821 complies with: the Federal Communications Commission's ("FCC") Rules and Regulations 47 CFR Part 68 and the Administrative Council on Terminal Attachments ("ACTA")-adopted technical criteria TIA/EIA/IS-968, "Telecommunications – Telephone Terminal Equipment – Technical Requirements for Connection of Terminal Equipment To the Telephone Network, July 2001."

Patrick Murphy
Senior Vice President, Chief Financial Officer

CE Marking

When the product is marked with the CE mark on the equipment label, a supporting Declaration of Conformity may be downloaded from the Paradyne World Wide Web site at **www.paradyne.com**. Select *Library* → *Technical Manuals* → *CE Declarations of Conformity.*

Japan

Class A ITE

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

This is a Class A product based on the standard of the Voluntary Control Council for interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

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1 Installation

2 Cabling

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B Equipment List

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About This Guide

Document Purpose and Intended Audience

This document is written for technicians who install the BitStorm 4800 Express IP DSLAM, Model 4821-A1-447.

Document Summary

Section	Description
Chapter 1, *Installation*	Describes the physical installation of the BitStorm 4800 Express into a rack.
Chapter 2, *Cabling*	Describes how to install all cables for the BitStorm 4800 Express and Management Module.
Chapter 3, *LEDs*	Explains the meaning and usage of the front panel LEDs.
Chapter 4, *Configuration*	Describes the minimal configuration steps required to prepare the BitStorm 4800 Express for remote access.
Appendix A, *Connectors, Cables, and Pin Assignments*	Provides pinouts for all connectors on the BitStorm 4800 Express.
Appendix B, *Equipment List*	Provides part numbers for the BitStorm 4800 Express and related products.
Appendix C, *Technical Specifications*	Lists the technical characteristics of the BitStorm 4800 Express.
Index	Lists key terms, acronyms, concepts, and sections in alphabetical order.

A master glossary of terms and acronyms used in Paradyne documents is available on the World Wide Web at **www.paradyne.com**. Select *Library* → *Technical Manuals* → *Technical Glossary.*

Related Product Documents

Documentation for the BitStorm 4800 Express IP DSLAM is available on the World Wide Web at **www.paradyne.com**. Select *Library* → *Technical Manuals*→ *BitStorm DSL Systems.*

Document Number	Document Title
4800-A2-GB20	*BitStorm 4800 User's Guide* Describes how to use the web interface, the command line interface (CLI), and Simple Network Management Protocol (SNMP) to configure BitStorm 4800 series DSLAMs. Lists and explains all CLI commands.
6051-A2-GZ40	*BitStorm 6051 POTS Splitter Installation Instructions* Describes how to install the POTS splitter card and chassis used with the BitStorm 4800 series DSLAMs in North America.

To order a paper copy of a Paradyne document:

- Within the U.S.A., call 1-800-PARADYNE (1-800-727-2396)
- Outside the U.S.A., call 1-727-530-8623

Related Specifications

Document Number	Document Title
ANSI T1.413-1998	*Network to Customer Installation Interfaces – Asymmetric Digital Subscriber Line (ADSL) Metallic Interface*
ANSI/EIA-310-D-1992	*Cabinets, Racks, Panels, and Associated Equipment*
G.992.1	*Asymmetrical digital subscriber line (ADSL) transceivers*
G.992.2	*Splitterless asymmetric digital subscriber line (ADSL) transceivers*
IEEE 802.1D	*Media Access Control (MAC) Bridges*
IEEE 802.1Q	*Virtual Bridged Local Area Networks*

Installation

1

Preparation

Consider the following before installing the BitStorm™ 4800 Express IP DSLAM:

- **Installation Site**

  Your installation site should be well ventilated, clean, and free of environmental extremes.

- **Installation Options**

  The BitStorm 4800 Express may be:

  — Mounted with the included mounting brackets in a standard 19-inch (483 mm) or 23-inch (584 mm) rack, or, with separately purchased mounting brackets, in a 21-inch (535 mm) ETSI or 24-inch (610 mm) EIA rack. ETSI brackets are available from Paradyne. See Appendix B, *Equipment List*.

  As many BitStorm 4800 Express units may be mounted in a standard rack as there are 1.75-inch (44.45 mm) spaces in the rack, so long as adequate cooling is provided.

  — Mounted vertically against a wall.

  The standard mounting brackets provided can be fastened to the base of the unit for wall mounting.

  — Set on a shelf or desktop.

  Up to eight BitStorm 4800 Express units may be stacked on a shelf or desktop.

- **Power**

  The BitStorm 4800 operates from a standard AC power supply (90 to 264 VAC at 47 to 63 Hz).

- **Other Cabling**

  With the exception of the power cord, no cables are provided with the BitStorm 4800 Express. See *Cables Required* on page 1-2 to determine what cables you need to procure before installation.

Cables Required

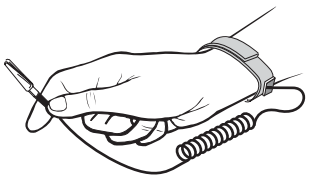
Table 1-1 shows all the cables that may be required for your installation.

Table 1-1. Cable Descriptions

Connector Name	Connector and Cable	For Connecting . . .
DSL PORTS 1–48	50-pin RJ21X Telco-type straight connector and 50-wire cable. Two cables required.	Up to 24 DSL ports to Main Distribution Frame, punchdown block, or splitters.
UPLINK	8-position modular plug and 8-wire Category 5 or better twisted pair cable.	TheBitStorm 4800 Express to the Wide Area Network (WAN) via an Ethernet switch.
MGMT	8-position modular plug and 8-wire Category 5 or better unshielded twisted pair (UTP) cable.	The BitStorm 4800 Express to a Network Management System over a Local Area Network (LAN) employing 10BaseT or 100BaseT.
CONSOLE	DB9 plug connector and shielded cable. The other connector depends on the serial port on your terminal or PC, but normally is a DB9 socket.	The Management Module to a terminal or a PC with a terminal emulation program.
MODEM	DB9 socket connector and shielded cable. The other connector depends on your modem, but normally is a DB25 plug.	The Management Module to an external modem. The connector can also be used to connect a terminal or PC.
ALARM	8-position modular plug and 8-wire cable.	The Management Module to an alarm system.

Unpacking the Hardware

⚠ HANDLING PRECAUTIONS FOR STATIC-SENSITIVE DEVICES



This product is designed to protect sensitive components from damage due to electrostatic discharge (ESD) during normal operation. When performing installation procedures, however, take proper static control precautions to prevent damage to equipment. If you are not sure of the proper static control precautions, contact your nearest sales or service representative.

The BitStorm 4800 Express is shipped in a cardboard shipping container. Carefully remove the unit from its shipping container and check for physical damage. If the unit shows signs of shipping damage, notify your sales representative.

Package Contents

In addition to this installation guide, the BitStorm 4800 Express shipping carton should contain:

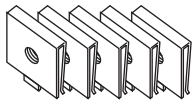
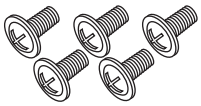
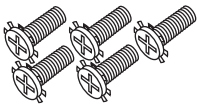
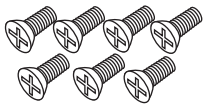
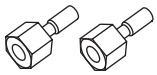
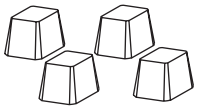
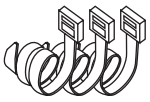
- BitStorm 4800 Express
- Mounting brackets (one left and one right)
- Power cord
- Hardware kit (see Table 1-2, Contents of Hardware Kit Shipped with the BitStorm 4800 Express)

If anything is missing, notify your sales representative.

Before installing the BitStorm 4800 Express, read the *Important Safety Instructions* in the beginning of this document.

Be sure to register your warranty at **www.paradyne.com/warranty**.

Table 1-2. Contents of Hardware Kit Shipped with the BitStorm 4800 Express

Appearance	Description	Quantity
	Self-retaining nut for racks without threaded holes	5
	Dress screw (12-24 x 1/2 inch) for use with self-retaining nuts	5
	Machine screw with captive starwasher (10-32 x 1/2 inch) for use with racks with threaded holes	5
	Flat-head screw (8-32 x 1/4 inch) for attaching mounting brackets to unit	7
	Jackscrew for attaching Telco connectors with short mounting screws	2
	Rubber foot for desk-mount and stacking of units	4
	Cable tie (8-inch) for strain relief and cable management	3

Mounting Configurations

Three basic installation configurations are available:

- Rack mount
- Wall mount
- Shelf or desktop

Rack or Wall Mount Installation

The BitStorm 4800 Express is shipped with mounting brackets suitable for a 19-inch (483 mm) or 23-inch (584 mm) rack. The same brackets may be used to attach the unit to a wall.

Brackets suitable for a 21-inch (535 mm) ETSI rack are available from Paradyne (see Appendix B, *Equipment List*), and brackets suitable for a 24-inch (610 mm) rack can be obtained from other sources.

NOTE:

In this guide, the term *rack* refers to any rack, cabinet, frame, or bay suitable for mounting telecommunications equipment.

Shelf or Desktop Installation

The BitStorm 4800 Express may also be placed on a shelf or desktop. If you will not mount the BitStorm 4800 Express in a rack or on a wall, proceed to *Installing the BitStorm 4800 Express on a Shelf or Desktop* on page 1-12.

Mounting Brackets

The right-angle mounting brackets have a long side and a short side.

- For 19-inch (483 mm) racks, the long side of a supplied bracket is fastened to the side of the unit.
- For 23-inch (584 mm) racks, the short side of a supplied bracket is fastened to the side of the unit.
- For wall mounting, the long side of a supplied bracket is fastened to the bottom of the unit.
- The optional ETSI brackets are always installed with the short side fastened to the BitStorm 4800 Express.

Both the supplied brackets and the optional ETSI brackets are marked LEFT SIDE and RIGHT SIDE, with reference to the left and right sides of the BitStorm 4800 Express when viewed from the front.

For wall mounting, proceed to *Installing the Mounting Brackets for Wall Mounting* on page 1-10.

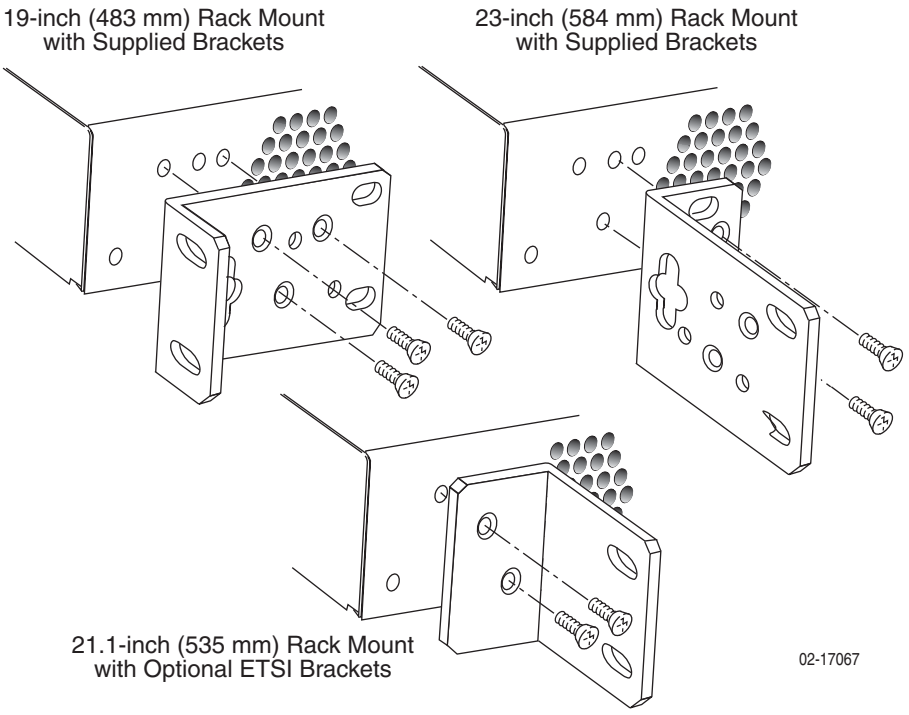
For rack mounting, proceed to *Installing the BitStorm 4800 Express Into a Rack* on page 1-8.

Installing the Mounting Brackets for Rack Mounting

▶ Procedure

To install the mounting brackets for rack mounting:

1. Identify the flat-head screws provided in the hardware kit. Six screws are required for the 19-inch (483 mm) configuration, and four screws for the other configurations.
2. Attach the brackets appropriate to your rack size. Tighten all screws firmly.



Installing the BitStorm 4800 Express Into a Rack

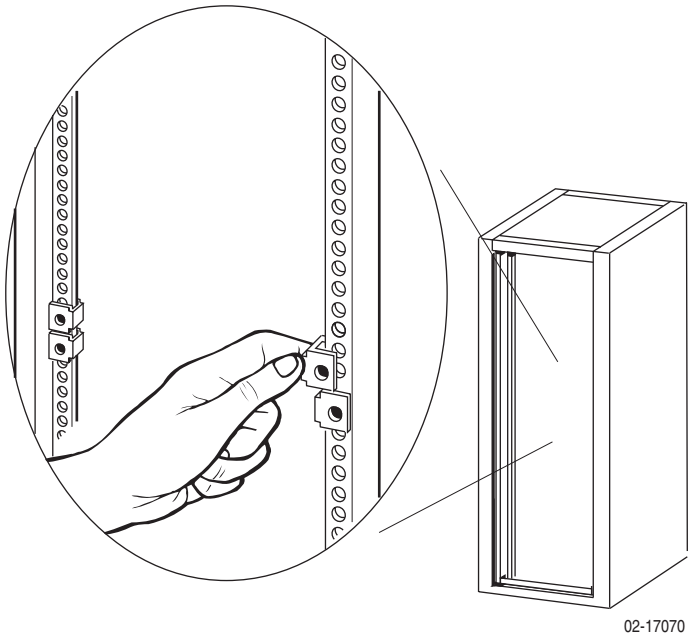
Two types of mounting screws are provided. Use:

- #10-32 mounting screws for rails with threaded screw holes
- #12-24 mounting screws and self-retaining nuts for rails with unthreaded screw holes

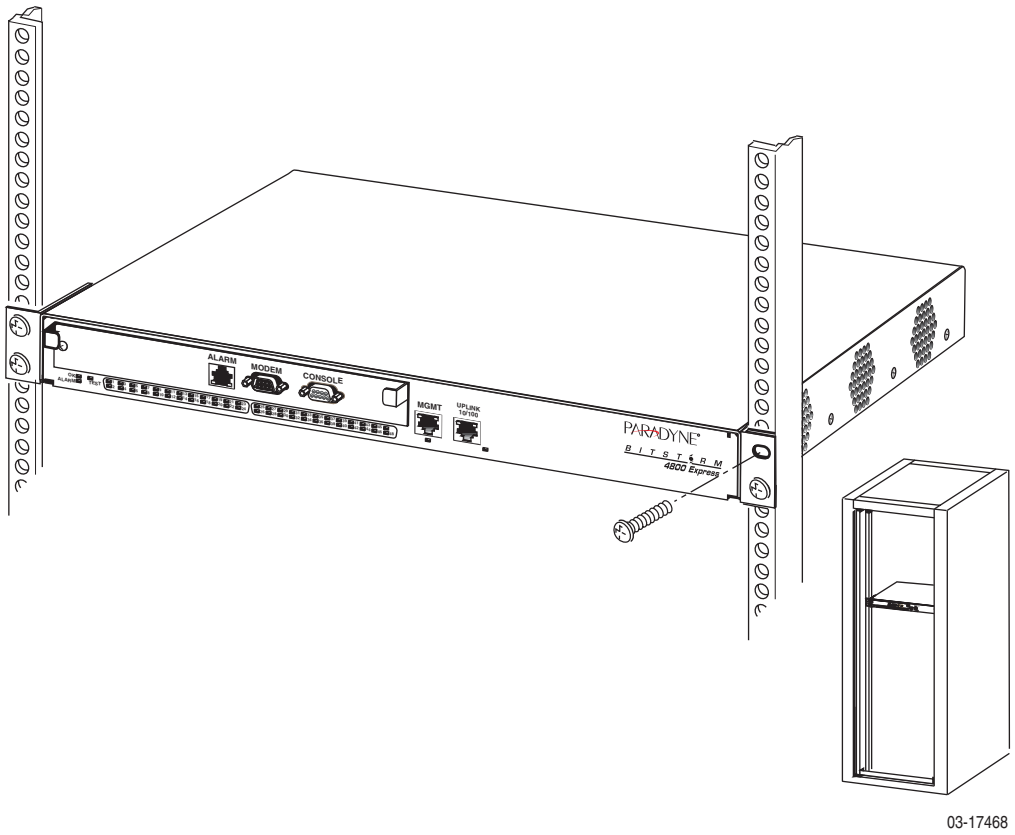
▶ Procedure

To install the BitStorm 4800 Express into a rack:

1. Determine where in the rack you will mount the BitStorm 4800 Express. If your rack does not have threaded screw holes, slip self-retaining nuts onto the rails where the BitStorm 4800 Express will be fastened.



2. Place the BitStorm 4800 Express so that the brackets rest against the front of the rails. Insert screws in the bottom screw positions and hand-tighten them.
3. Insert and tighten the screws in the top screw positions, then tighten the bottom screws.



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4. Do not plug in the unit. Proceed to Chapter 2, *Cabling*.

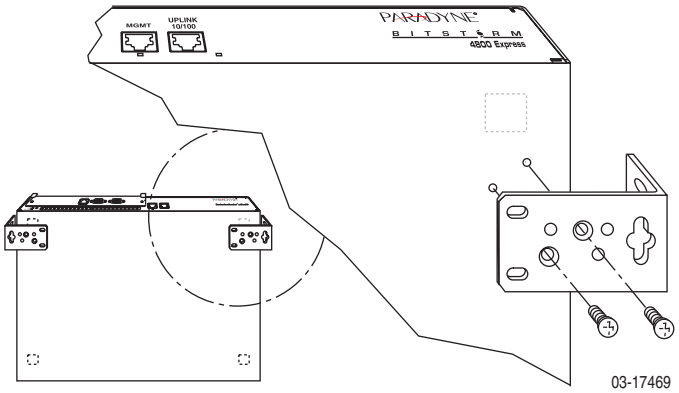
Installing the Mounting Brackets for Wall Mounting

Wall mounting requires two wood screws suitable for the weight of the fully cabled unit. These are not included. Use at a minimum 0.25-inch (6 mm) diameter screws in 0.75-inch (19 mm) plywood.

▶ Procedure

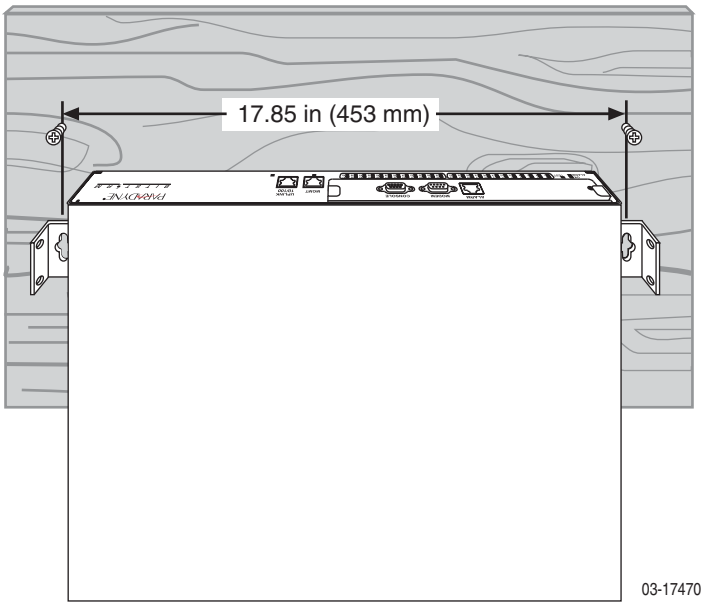
To install the mounting brackets for wall mounting:

1. Identify the flat-head screws provided in the hardware kit. Two screws are required for each bracket.
2. Orient the unit so that the bottom is facing you and the faceplate is at the top.
3. Locate the supplied Right Side mounting bracket and fasten it to the right side of the unit.



4. Locate the supplied Left Side mounting bracket and fasten it to the left side of the unit.
5. Tighten all screws firmly.

6. Install two wood screws (not provided) at the same height at least 30 inches (760 mm) above the floor and 17.85 inches (453 mm) apart. Do not completely tighten the screws. Leave them so their heads are about 0.25 inch (6 mm) from the wall.



7. Hang the unit from the wood screws to verify that the screws are properly placed. The screws should freely slide into the top of the key slots in the brackets.

8. Do not fasten the unit to the wall until it is completely cabled and tested. Proceed to Chapter 2, *Cabling*.

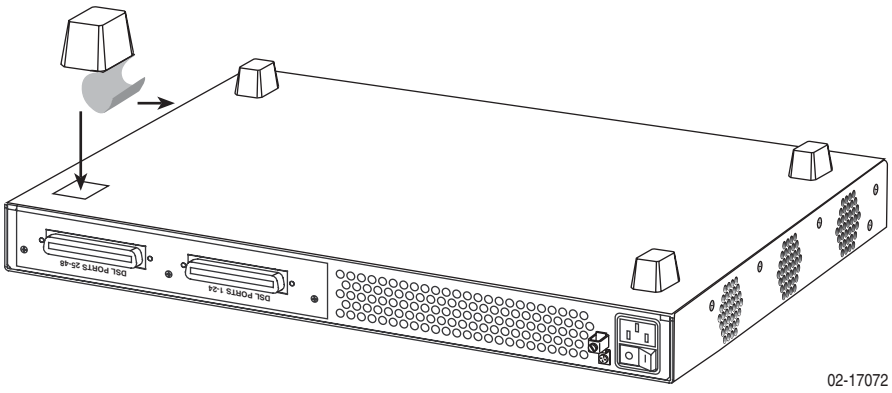
Installing the BitStorm 4800 Express on a Shelf or Desktop

If the BitStorm 4800 Express will be placed on a shelf or desktop, install the provided rubber feet before putting the BitStorm 4800 Express in position.

▶ Procedure

To install the BitStorm 4800 Express on a shelf or desktop, as a standalone unit or in a stack:

1. Locate the rubber feet in the hardware kit provided with the BitStorm 4800 Express.
2. Turn the BitStorm 4800 Express upside down on a work surface. Squares stamped into the bottom of the BitStorm 4800 Express show the proper positions for the feet.
3. Remove the protective sheet from the bottom of each foot, then press the foot onto a corner of the bottom of the BitStorm 4800 Express.



4. Turn the BitStorm 4800 Express right side up and place it in position on a shelf or desktop.

   If the installation includes more than one unit, one can be stacked atop another. Up to eight units can be stacked together.

5. Do not plug in the unit. Proceed to Chapter 2, *Cabling*.

Cabling

2

Cabling Overview

The BitStorm 4800 Express has a large variety of possible cabling configurations. This chapter describes all possible connections, not all of which are required:

DSL Ports

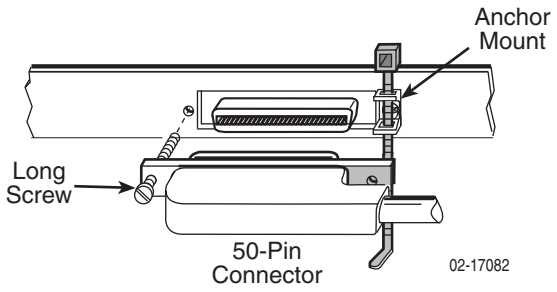
The BitStorm 4800 Express has two DSL connectors. Each connector supports the tip and ring connections of up to 24 DSL ports over a 50-position cable. These must be connected to a POTS (plain old telephone service) splitter.

In North America, the BitStorm 6051 POTS Splitter must be used. (See the *BitStorm 6051 POTS Splitter Installation Instructions* for information.) Elsewhere the splitter must conform to all regional regulatory requirements.

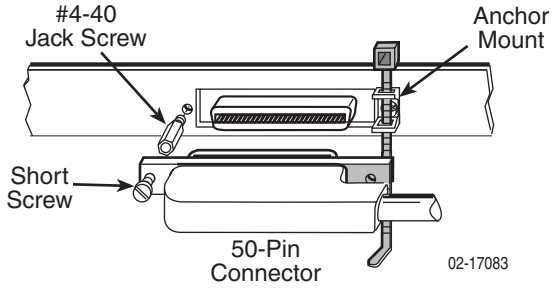
▶ Procedure

To cable the DSL Ports:

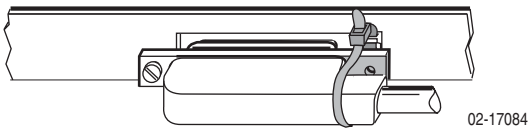
1. Insert a cable tie (provided) through the top of the anchor mount next to the DSL PORTS 1–24 connector.
2. If the connector for your cable has a long captive screw, attach it to the DSL PORTS 1–24 connector and fasten it with the captive screw.



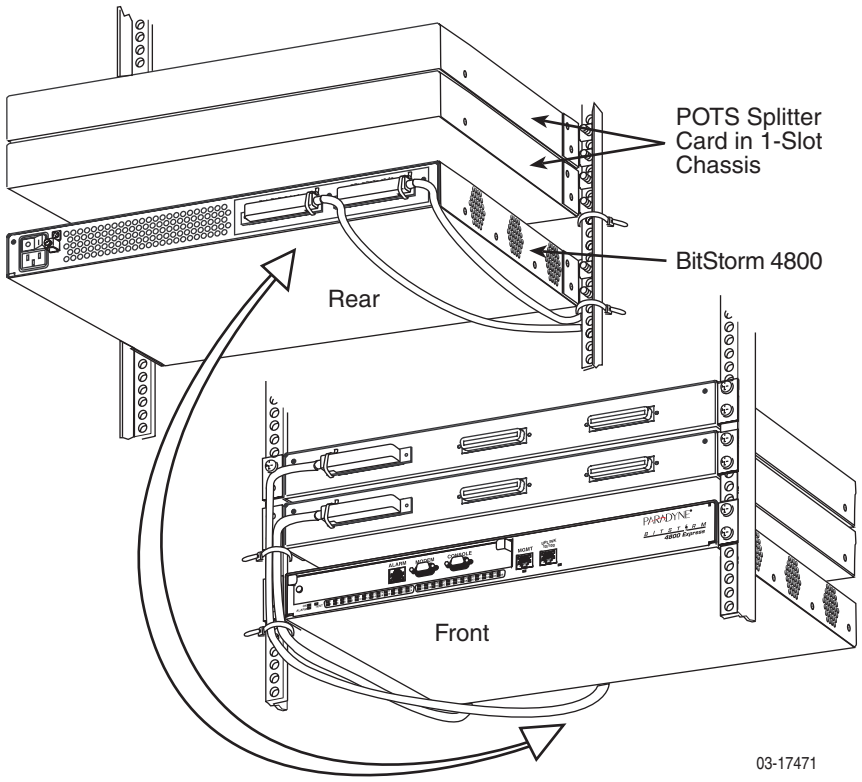
3. If the connector for your cable has a short captive screw, install the provided jack screw in the threaded hole next to the DSL PORTS 1–24 connector. Attach the cable to the DSL PORTS 1–24 connector and fasten it to the jack screw with its short captive screw.



4. Tighten the cable tie around the connector and trim the excess.



5. If ports 25–48 are used, repeat Step 1 through Step 4, substituting DSL PORTS 25–48 for DSL PORTS 1–24.
6. Connect the tip and ring connections to a POTS splitter. See the documentation that came with your POTS splitter for more information.
7. Secure the cables as required for strain relief.



Uplink Port

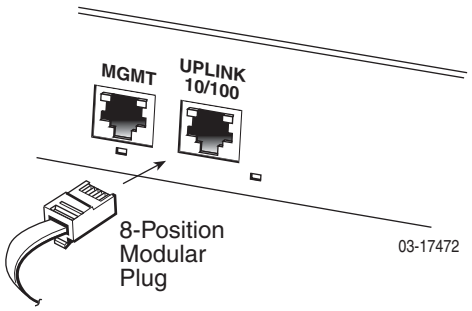
The Uplink port is used to connect the BitStorm 4800 Express to a WAN through your Ethernet switch.

Either a straight-through or a crossover cable can be used. The wiring is automatically detected and, if necessary, compensated for.

▶ Procedure

To use the Uplink port:

1. Connect a modular 8-pin cable to the UPLINK 10/100 port.
2. If the BitStorm 4800 Express is in a rack, fasten the cable to a rail with a cable tie.
3. Connect the other end of the cable to your Ethernet switch.



Management Port

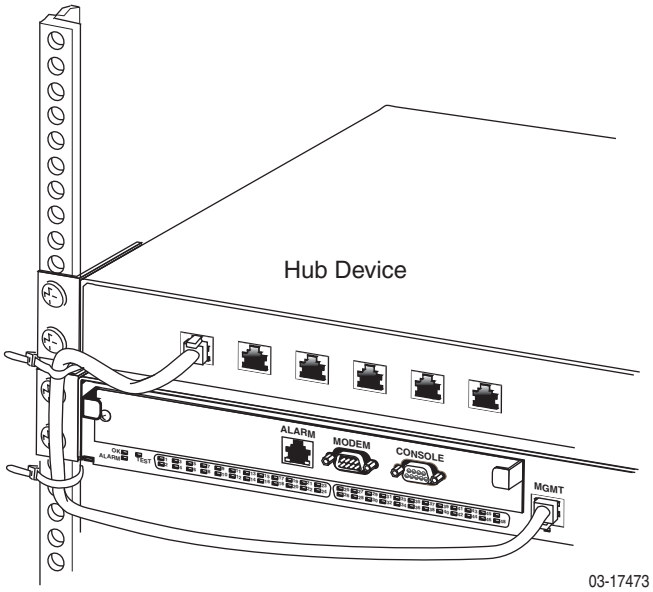
The MGMT (management) port can be used to connect the BitStorm 4800 Express to a network management system using a 10BaseT or 100BaseT LAN. The MGMT port is isolated and no user data is accessible over it.

Either a straight-through or a crossover cable can be used. The wiring is automatically detected and, if necessary, compensated for.

▶ Procedure

To use the MGMT port:

1. Connect a modular 8-pin cable to the MGMT port.
2. If the BitStorm 4800 Express is in a rack, fasten the cable to a rail with a cable tie.
3. Connect the other end of the cable to your Ethernet hub or to a network interface card in a PC.



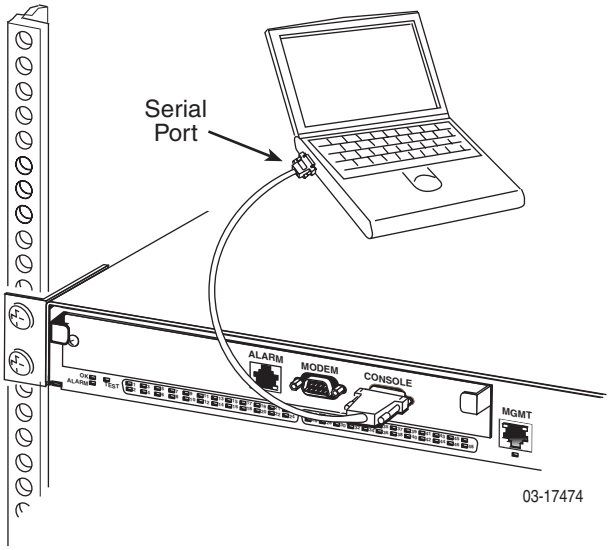
Console Port

The CONSOLE port on the Management Module normally serves as the primary user interface with the BitStorm 4800 Express during installation.

▶ Procedure

To connect a terminal or PC to the CONSOLE port:

1. Configure the terminal or terminal emulation program to use the following parameters:
   - — Maximum speed: 9600 bps
   - — Data bits: 8
   - — Parity: None
   - — Stop bits: 1
   - — Flow Control: None
2. Determine and procure the proper Data Terminal Equipment (DTE) cable type. The CONSOLE port requires a DB9 plug connector. The other connector depends on the serial port on your terminal or PC.
3. Connect the DB9 plug connector to the CONSOLE port socket. The CONSOLE port is ordinarily used only during installation, so do not fasten the connector.
4. Connect the other end of the cable to the serial port of your terminal or PC.



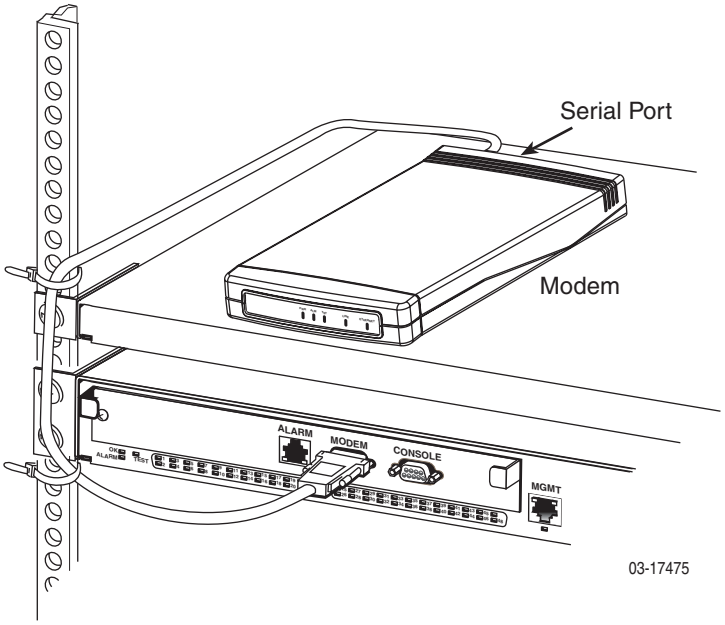
Modem Port

The MODEM port on the Management Module can be used to attach a modem for remote dial-in management of the BitStorm 4800 Express. The MODEM port can also be used to attach a terminal or PC to the Management Module using a Data Communications Equipment (DCE) cable.

▶ Procedure

To connect a modem to the MODEM port:

1. Determine and procure the proper DCE cable type. The MODEM port requires a DB9 socket connector. The other connector depends on the serial port on your modem, but normally a DB25 plug is required.
2. Connect the DB9 socket connector to the MODEM port socket.
3. If the modem will be permanently connected, fasten the connector to the Management Module with its captive screws. If the BitStorm 4800 Express is in a rack, dress the cable to the left and attach it to the rail with a cable tie.
4. Connect the other end of the cable to the serial port of your modem.



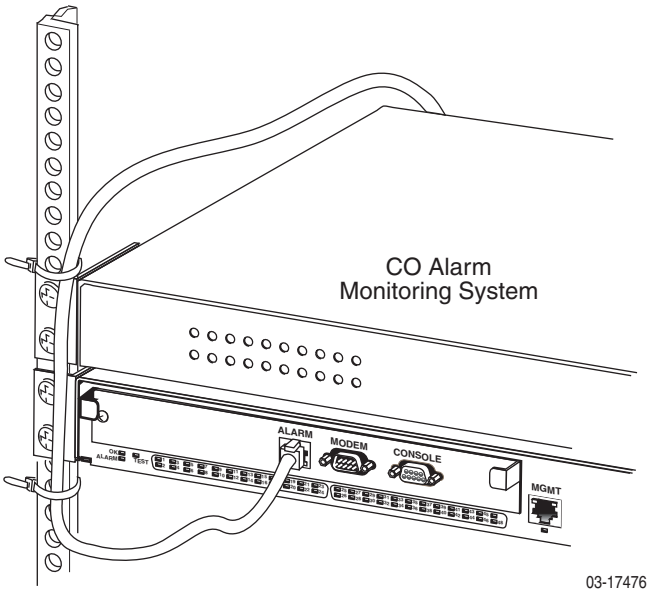
Alarm Port

The ALARM port provides a normally-on circuit and a normally-off circuit that reverse their states in response to an alarm. This interface can be used to set off a physical alarm.

▶ Procedure

To use the ALARM port:

1. Connect a modular 8-pin cable to the ALARM port.
2. If the BitStorm 4800 Express is in a rack, dress the cable to the left and secure it to the rail with a cable tie.
3. Connect the other end of the cable to your alarm monitoring system.

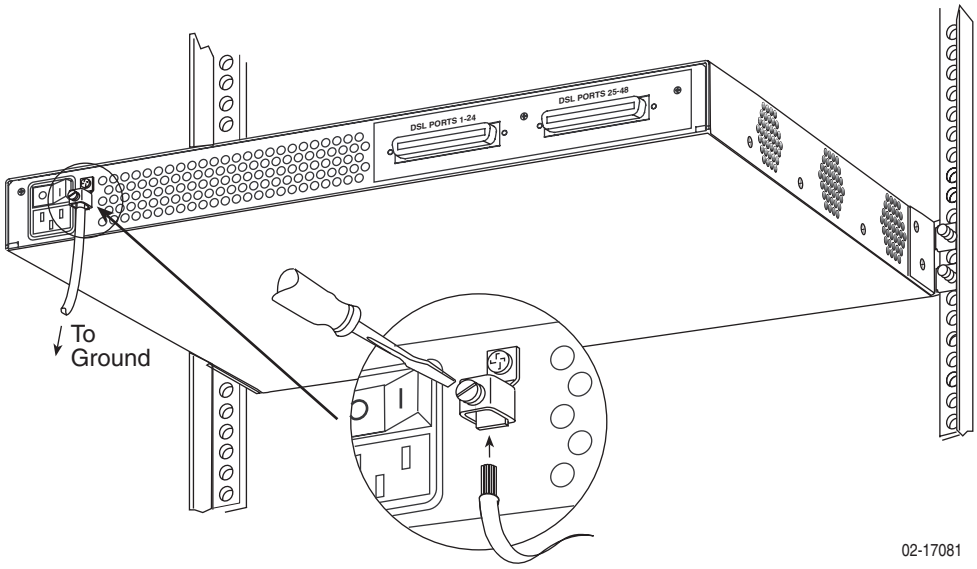


Grounding Lug

▶ Procedure

To connect the unit to a ground:

1. Strip back the insulation approximately 5/16 in (8 mm) on 14 AWG (2.08 mm^2) copper ground wire.
2. Loosen the screw on the grounding lug located on the back panel next to the power switch.
3. Insert the stripped end of the wire through the bottom of the grounding lug and tighten the screw. Ensure that the screw makes contact with the stripped portion of the wire.
4. Attach the ground wire to an earth ground.



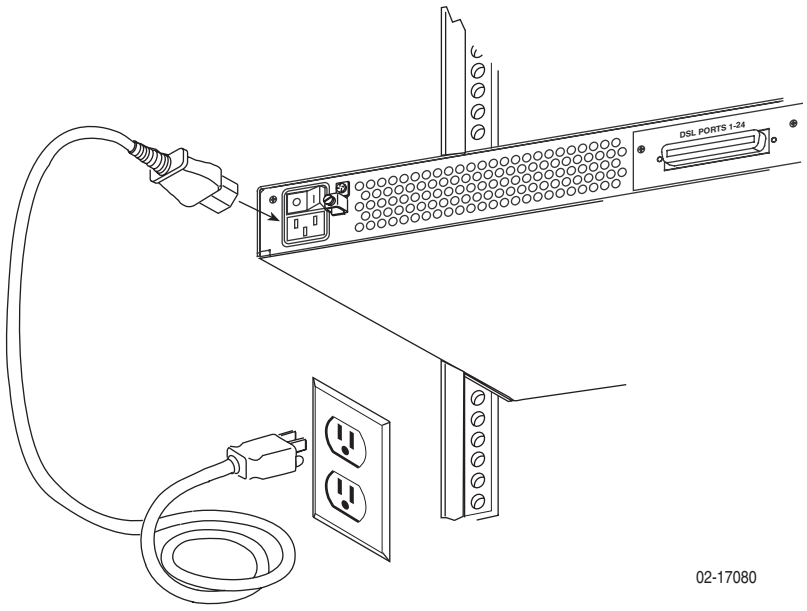
Power Cord

The BitStorm 4800 Express can be powered by any AC source providing 90 to 264 VAC at 47 to 63 Hz.

▶ Procedure

To connect the BitStorm 4800 Express to a power source:

1. Verify that the switch on the rear panel is in the Off (0) position.
2. Insert the power cord into the socket under the switch.
3. If the BitStorm 4800 Express is in a rack, dress the power cord to the left and fasten it to the rail with a cable tie.
4. Connect the other end of the power cord to a grounded AC power source.
5. Press the On (1) position of the switch to turn on the BitStorm 4800 Express.



When power is applied to the BitStorm 4800 Express, the front panel Light-Emitting Diodes (LEDs) convey the state of the unit and its interfaces. See Chapter 3, *LEDs*.

LEDs

3

LED Locations

The small black-on-white rectangles in the following illustration denote the locations of the front panel LEDs.

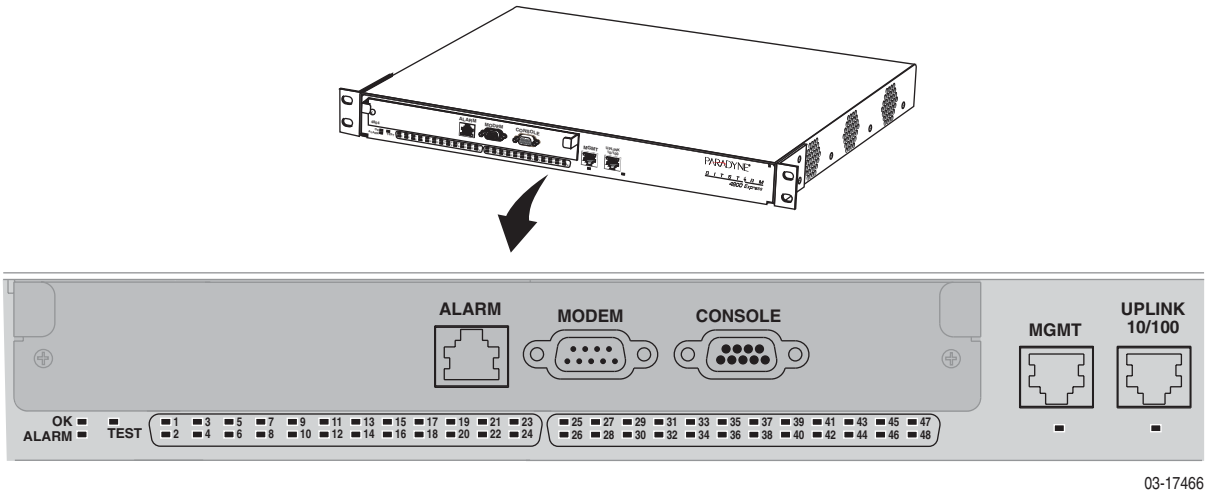


Figure 3-1. Front Panel LEDs

Front Panel LEDs

When power is first applied to the BitStorm 4800 Express it performs a self-test. When this test is successfully completed, the OK LED lights. The meaning of all the LEDs is as shown in Table 3-1, Front Panel LEDs.

Table 3-1. Front Panel LEDs

LED	Color	State	Meaning
ALARM	Amber	Off	No Alarms.
		On	Unit failed self-test, the Uplink port is down, the unit has exceeded a safe temperature, or a fan has failed.
DSL Port (1–48)	Green	Off	The port is disabled or no signal is detected on the line.
		On	Port has successfully trained with the remote and is active.
		Blinking	Port is attempting to train.
MGMT	Green	Off	The port is disabled, or no physical connection exists.
		On	A physical connection is detected.
OK	Green	Off	No power, or the unit has not completed initialization.
		On	Unit has power and has completed initialization.
TEST	Amber	Off	Normal operating mode.
		On	At least one port is in test mode.
UPLINK	Green	Off	The port is disabled, or no physical connection exists.
		On	A physical connection is detected.

System LEDs

The three system LEDs, OK, TEST, and ALARM, have meaning at all times, as shown in Table 3-2, System LEDs.

Table 3-2. System LEDs

OK	ALARM	TEST	Description
Off	Off	Off	Unit is powered Off.
Off	Off	ON	**Unit Failed** – LEDs should never be in this state. Notify your service representative.
Off	ON	Off	**Unit Failed** – The unit has power, but never completed its initialization process. Notify your service representative.
Off	ON	ON	**Self-Test** – The LEDs should be in this state only during self-test, immediately after the unit is turned on.
ON	Off	Off	**Normal Operation** – Unit has successfully passed self-test, there are no alarms in the system, and none of the ports is in test mode.
ON	Off	ON	**Test Mode** – At least one port is in test mode.
ON	ON	Off	**Alarm** – Unit has failed self-test, the Uplink port is down, or a major alarm condition exists. Verify that the Uplink port is properly connected. If necessary, notify your service representative.
ON	ON	ON	**Alarm** – At least one port is in test mode, and a major alarm condition exists. Notify your service representative.

Configuration

4

Overview

The BitStorm 4800 Express is designed to require minimal configuration before it can be accessed by a Network Operations Center (NOC). You may need to configure:

- The IP address for the Management Module if the default address (10.10.10.10) is not usable
- The default gateway address

Initial configuration can be performed using the Command Line Interface (CLI). The CLI is available from a terminal or PC connected to the CONSOLE port of the Management Module.

See the *BitStorm 4800 User's Guide* for detailed information about the CLI.

Conventions Used

In this book, the Enter key means whatever key you use to submit data to your terminal or PC. It may be called the Return key on older devices.

Characters displayed on your screen, including those you type, are shown in the **`Courier`** font in this book.

Using the CLI

You need to type only enough of a command to make it unique. For example, if you enter:

```
sh man i
```

the CLI interprets it as:

```
show management ip
```

You can prompt expansion of a command or parameter by pressing the Tab key. For example, if you enter:

```
sh man
```

then press the Tab key, the CLI responds:

```
sh management
```

You may then proceed with typing the rest of the command.

You can obtain help with CLI commands by typing a **?** (question mark). A question mark alone lists all commands. A command followed by a question mark lists all usages of the command. For example, if you enter:

```
sh ?
```

the CLI lists all the possible **show** commands.

Logging In to the BitStorm 4800 Express

When the BitStorm 4800 Express is turned on, the following prompt is displayed on the terminal:

```
Login>
```

▶ Procedure

To log in to the BitStorm 4800 Express:

1. Type **admin** at the login prompt and press Enter. The following prompt is displayed:

   ```
   Password>
   ```

2. The default user password is null, so simply press Enter. The following prompt is displayed:

   ```
   IAC>
   ```

   IAC stands for IP Access Concentrator.

3. Type **privilege** and press Enter to enter administrator mode. The following prompt is displayed:

   ```
   Password>
   ```

4. The default administrator password is null, so simply press Enter. The following prompt is displayed:

   ```
   IAC#
   ```

   This shows that you are in administrator mode.

Setting the IP Address

The IP address of the Management Module must be set before the BitStorm 4800 Express can be remotely managed.

▶ Procedure

To set the IP address of the Management Module:

1. At the **IAC#** prompt, type:

   configure management address *address mask gateway*

   Where:

   — *address* is the IP address to be assigned to the Management Module

   — *mask* is the IP subnet mask for the specified address

   — *gateway* is the default gateway IP address

   For example:

   conf man addr 135.26.10.37 255.255.255.0 135.26.10.254

2. Press Enter. The prompt changes to **IAC#!** to show that the configuration change has yet to be saved.
3. Type **save** and press Enter.
4. To verify that the address has been set, type:

   show management ip

   The CLI displays the IP address, subnet mask, and default gateway address.

Connectors, Cables, and Pin Assignments

A

Overview

The following sections provide pin assignments for:

- *Management Port Connector* on page A-2
- *Uplink Connector* on page A-3
- *DSL Network Interface Cable* on page A-4
- *Alarm Port* on page A-5
- *Modem Port Connector* on page A-6
- *Console Port Connector* on page A-6

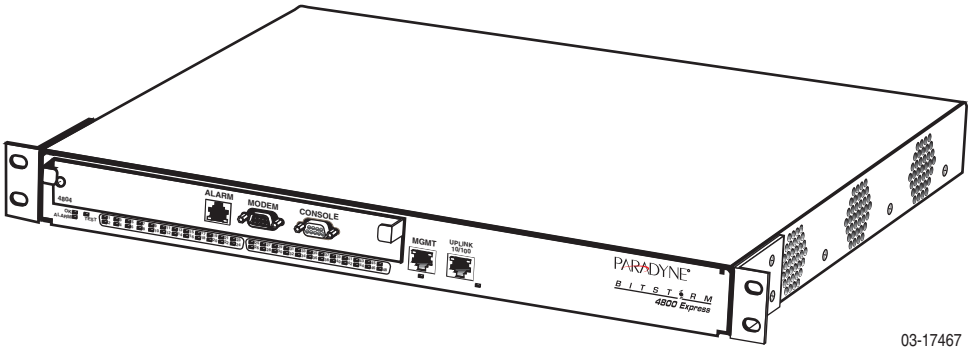


Figure A-1. BitStorm 4800 Express Front Panel

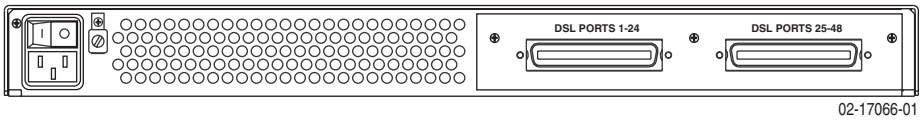


Figure A-2. BitStorm 4800 Express Rear Panel

Management Port Connector

The Management (MGMT) connector is an 8-pin unkeyed modular jack for a 10/100BaseT management interface. Either a straight-through or a crossover cable can be used. The wiring is automatically detected and, if necessary, compensated for.

Table A-1. Management Port Pinouts

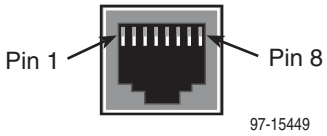
Signal	Pin
Transmitted Data +	1
Transmitted Data –	2
Received Data +	3
Unused	4
Unused	5
Received Data –	6
Unused	7
Unused	8

Uplink Connector

The UPLINK wire connector is an 8-pin unkeyed modular jack for 10/100BaseT. Either a straight-through or a crossover cable can be used. The wiring is automatically detected and, if necessary, compensated for.

Table A-2. Uplink Port Pinouts

Signal	Pin
Transmitted Data +	1
Transmitted Data –	2
Received Data +	3
Unused	4
Unused	5
Received Data –	6
Unused	7
Unused	8



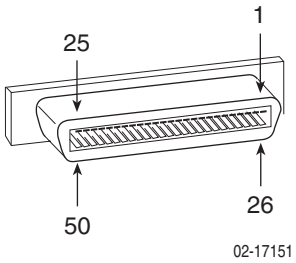
DSL Network Interface Cable

The BitStorm 4800 Express has two 50-pin RJ21X (designated CA21A in Canada) Telco connectors on its rear panel. The connectors provide the 2-wire loop interface from each DSL port to the demarcation point.

Table A-3, DSL Connector Pinouts, lists the pin assignments for each of these interfaces. Note that Pins 25 and 50 are not used.

Table A-3. DSL Connector Pinouts

DSL Port	Connector Pins (Ring, Tip)
1	1, 26
2	2, 27
3	3, 28
4	4, 29
5	5, 30
6	6, 31
7	7, 32
8	8, 33
9	9, 34
10	10, 35
11	11, 36
12	12, 37
13	13, 38
14	14, 39
15	15, 40
16	16, 41
17	17, 42
18	18, 43
19	19, 44
20	20, 45
21	21, 46
22	22, 47
23	23, 48
24	24, 49



Alarm Port

The alarm relay reports major alarms through the ALARM port on the faceplate of the Management Module. The ALARM port is an 8-pin modular connector; only Pins 2, 3, and 4 may be used.

Maximum ratings for the ALARM connector are:

- 30 VAC
- 60 VDC
- 0.5 A

Table A-4. Alarm Connector Pinouts

Signal	Pin
None	1
Closed on Alarm (Normally Open)	2
Common	3
Open on Alarm (Normally Closed)	4
None	5
Future Use	6
Future Use	7
None	8

Modem Port Connector

The MODEM port connector is a DB9 female connector on the faceplate of the Management Module. It supports an EIA-232 circuit as shown in Table A-5, Modem Port Connector.

Table A-5. Modem Port Connector

Signal	Direction	Pin
—	—	1
Receive Data	In	2
Transmit Data	Out	3
DCE Data Terminal Ready	Out	4
Ground	—	5
Data Set Ready	In	6
—	—	7
—	—	8
—	—	9

Console Port Connector

The CONSOLE port connector is a DB9 male connector on the faceplate of the Management Module. It supports an EIA-232 circuit as shown in Table A-6, Console Port Connector.

Table A-6. Console Port Connector

Signal	Direction	Pin
—	—	1
Transmit Data	Out	2
ReceiveData	In	3
—	—	4
Ground	—	5
—	—	6
—	—	7
—	—	8
—	—	9

Equipment List

B

Table B-1. Equipment List

Description	Model Number
Allied Data ADSL Modem – 10BaseT Ethernet and USB port	CJ810
BitStorm 4800 Express *Includes BitStorm 4800 Express, mounting brackets and hardware, and Installation Guide.*	4821-A1-447
BitStorm 4800 User's Guide (paper copy)	4800-A2-GB20
BitStorm 6051 POTS Splitter	6051-B1-001
Filter 66-Block	05-00021-01
Hospitality VBN Server	01-00159-01
In-Line Phone Filter for ADSL	05-00015-01
Mounting Brackets for ETSI 21-inch (535 mm) Rack	4800-F1-011

Technical Specifications

C

Technical specifications are subject to change without notice.

Table C-1. Technical Specifications (1 of 2)

Specifications	Criteria
Cooling and Air Handling	Each BitStorm 4800 Express is independently cooled with integral fans and does not rely on vertical air flow.
Electrical Safety	All interfaces are Safety Extra-Low Voltage (SELV) circuits except: ■ DSL ports ■ Power supply These are designed in accordance with IEC 60950.
Electromagnetic Compatibility (EMC)	Meets the following standards: ■ CISPR 22, Class A ■ EN 50082-1 ■ EN 55022 ■ FCC Part 15, Class A ■ VCCI Class A
Network Approvals	■ FCC Part 68 ■ Industry Canada CS-03
DSL Compatibility	The BitStorm 4800 Express supports: ■ G.dmt (G.992.1) ■ G.lite (G.992.2) ■ ANSI T1.413-1998
Installation Options	The Bitstorm 4800 Express can be: ■ Installed on a desktop and stacked up to eight units high ■ Mounted with the included mounting brackets in a standard 19-inch (483 mm) or 23-inch (584 mm) rack, or, with separately purchased mounting brackets, in a 21-inch (535 mm) or 24-inch (610 mm) rack ■ Attached vertically to a wall

Table C-1. Technical Specifications (2 of 2)

Specifications	Criteria
Interfaces	■ **DSL PORTS** (one for 24-port models, two for 48-port models): 50-pin RJ21X Telco-type connector ■ **UPLINK**: 8-pin modular jack (10/100BaseT) ■ **MGMT**: 8-pin modular jack (10/100BaseT) ■ **CONSOLE**: DB9 socket, EIA-232 ■ **MODEM**: DB9 plug, EIA-232 ■ **ALARM**: 8-pin modular jack
Operating Environment	Ambient Temperature: 0° to 50° C (32° to 122° F) Relative Humidity: 5% to 95% noncondensing Storage Temperature: –40° to 70° C (–40° to 158° F) Shock and vibration tolerance sufficient to withstand normal shipping
Physical Dimensions	Height: 1.72 in (44.0 mm, or 1U as defined in EIA-310-C) without feet Width: 17.32 in (440.0 mm) without mounting brackets Depth: 16.13 in (409.7 mm) Weight: 8.5 lb (3.85 kg)
Power	90 to 264 VAC at 47 to 63 Hz
Power Consumption	100 VAC, 1.0A: 95W maximum 120 VAC, 0.8A: 95W maximum 240 VAC, 0.5A: 95W maximum

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