Exabyte Eliant 820 8mm Tape Drive

Installation and Operation

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Trademark notices

Revision history

Revision	Date	Description
000	August 1996	Beta
001	October 1996	Initial release
002	February 1997	Updated product name
003	August 1999	Updated installation procedure for tabletop model.

Exabyte Eliant 820

Safety agency standards

When purchased from Exabyte, both the internal model and the tabletop model of the Exabyte® Eliant™ 820 8mm Tape Drive comply with the following domestic and international product safety standards:

- UL Standard 1950, 3rd Edition, Information Technology Equipment including Electrical Business Equipment

- CSA Standard C22.2 No. 950-95, Safety of Information Technology Equipment including Electrical Business Equipment

- EN60950/IEC 950, Safety of Information Technology Equipment including Electrical Business Equipment

The internal model of the tape drive is certified as a component only. Certification of the final integrated product is the responsibility of the system integrator.

Electro-magnetic compatibility (EMC)

When properly installed in a shielded cabinet with shielded cables and adequate grounding of the SCSI bus and input power, the tape drive meets the requirements for emissions and immunity as defined by the following standards:

USA:	FCC, CFR 47, Ch. I, Part 15, Subpart B, Class B
Canada:	ICES-003, Class B
Australia:	AS/NZ 3548, Class B
Taiwan:	CNS-13438, Class A
Europe:	EN55022/CISPR 22, Class B
	EN50082-1: Residential, Commercial, and Light Industry

For the tabletop tape drive, the requirement for a shielded cabinet is met by the tabletop enclosure.

FCC notice

When installed in an Exabyte enclosure, the tabletop model of the Eliant 820 tape drive has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of FCC rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause interference to radio and television communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be detected by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Use shielded cables.

• Consult the dealer or an experienced radio/TV technician for help.

According to FCC regulations, changes or modifications not expressly approved by Exabyte Corporation could void your authority to operate the equipment.

Industry Canada notice per ICES-003

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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Welcome

Congratulations on selecting the Exabyte®
Eliant™ 820 8mm Tape Drive. The Eliant 820 is a
high-capacity, high-performance, and highly reliable
storage device for PC, workstation, and local area network
(LAN) applications. Assuming an average compression ratio
of 2:1, the Eliant 820 can store approximately 14.0 gigabytes
on a single Exatape™ 160m XL 8mm Data Cartridge at a rate
of 2.0 megabytes per second.

The Eliant 820 writes data in 8500 and 8500c (compressed)
formats. It reads data written in 8500, 8500c, and 8200
formats.

The tape drive is available as an internal model that can be
installed into an enclosure (shown on the right) or as a
tabletop model housed in its own enclosure (shown on the
left).
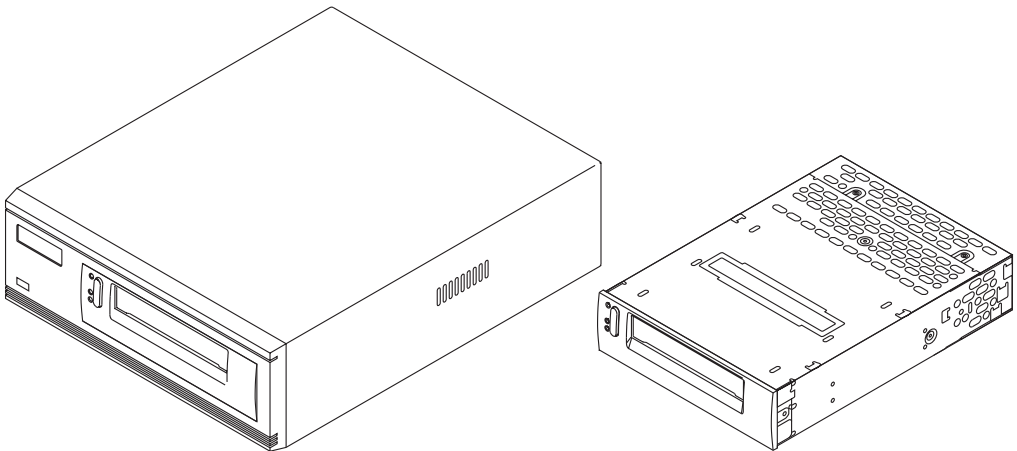
Installing the tape drive

If you have the internal model of the tape drive, follow the installation instructions below. If you have the tabletop model, follow the instructions beginning on .

Installing the internal model in an enclosure

### ESD protection

Protect the tape drive from electrostatic discharge by following these precautions:

- Use an antistatic mat and wristband, if possible.

- Leave the tape drive in its antistatic bag until you are ready to install it.

- Before handling the tape drive, touch a known grounded surface to discharge static electricity from your body.

- Do not place the tape drive on a metallic surface.

Location of components

When installing the tape drive, refer to the following figure for the location of back-panel components.
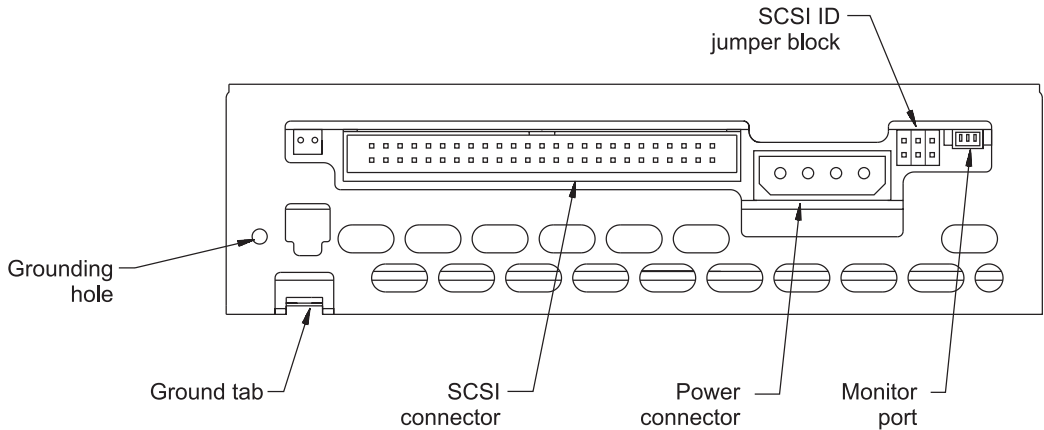
Step 1 – Set the SCSI ID

To set the SCSI ID, position the jumpers provided with the tape drive to obtain the desired ID. (If necessary, use a pair of flat-nose pliers to remove the jumpers.) The following figures show how to position the jumpers.
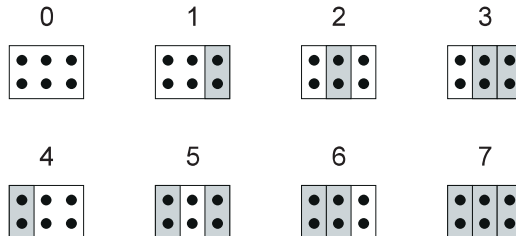
Note: You can also set the SCSI ID by removing the jumpers and connecting your own remote switch.

Step 2 – Mount the tape drive

As shown in the following figure, the main housing of the tape drive includes three sets of four mounting holes for mounting the tape drive horizontally or vertically and in a sliding or stationary position. There are two sets of mounting holes 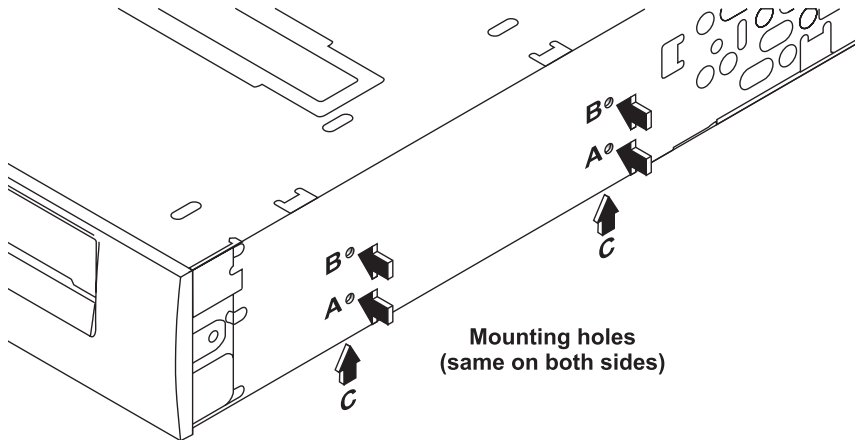on the sides of the tape drive (set A and set B) and one set on the bottom (set C). The mounting holes accommodate $M3 \times 0.5 \times 6$ mm screws and are designed for standard 5.25-inch half-high form factor mounting requirements.

Mounting holes
(same on both sides)

Note: You may find it easier to connect the cables to the back of the tape drive (as described in steps 3 through 5) before you secure it to the enclosure.

CAUTION

Before mounting the tape drive, be sure that all power to the enclosure or computer is turned off and that all power connectors are disconnected.

When mounting the tape drive, follow these guidelines:

- Use *one* set of mounting holes. (Use all four holes in whichever set you choose; do not use combinations of mounting holes from different sets.)

- Use M3 $\times$ 0.5 $\times$ 6 mm screws. **For proper mounting, use the correct screw length.**

- Ensure that no objects such as screw heads, cables, or adjacent devices are pressing against the frame.

- Do not obstruct the ventilation slots on the tape drive.

- Allow sufficient space for accessing the tape drive's front panel controls.

Installing the tape drive into a computer drive bay

If there is a cover over the drive bay you plan to use, remove it. Keep any screws or mounting hardware; you may need them to secure the tape drive to the drive bay. If you need slide rails for the tape drive, you can obtain them from a computer supplier.

➤ **Important**   If you need to remove a floppy disk drive to provide an empty drive bay, be sure to change your system configuration files to reflect the change. Also, be sure that you do not remove your floppy drive A.

Step 3 – Connect the drive to the SCSI bus

You must provide your own SCSI cable, and if the tape drive is the last device on the bus, you must also provide an external terminator. See page 23 for cable and terminator requirements.

To connect the tape drive to the SCSI bus:

1. Connect an internal SCSI cable to the tape drive's SCSI connector and to the next SCSI device in the enclosure (for example, a SCSI adapter card).

2. If the tape drive is the last device on the SCSI bus, be sure to terminate the bus.

Step 4 – Connect ground

To protect the tape drive from electrostatic discharge (ESD) and ensure proper operation, you must attach the tape drive to the enclosure's metal chassis (using the mounting holes shown on page 4). If you need additional chassis grounding, use *either* of the following methods:

- Connect a ¼-inch female spade connector to the ground tab.

- Connect an M3 $\times$ 0.5 $\times$ 6 mm self-tapping screw to the grounding hole.

Step 5 – Connect power

CAUTION

Do not force the power cable into the tape drive's power connector. If the power cable is upside down and you force the connection, you may damage the drive when you power it on.

To connect power to the tape drive:

1. Connect the enclosure's internal power cable to the tape drive's power connector. (Use an AMP 1-480424-0 series or equivalent female power connector.)

2. Power on the enclosure.

The tape drive performs its power-on self-test in about 30 seconds. When the tape drive is ready, the top LED turns off.
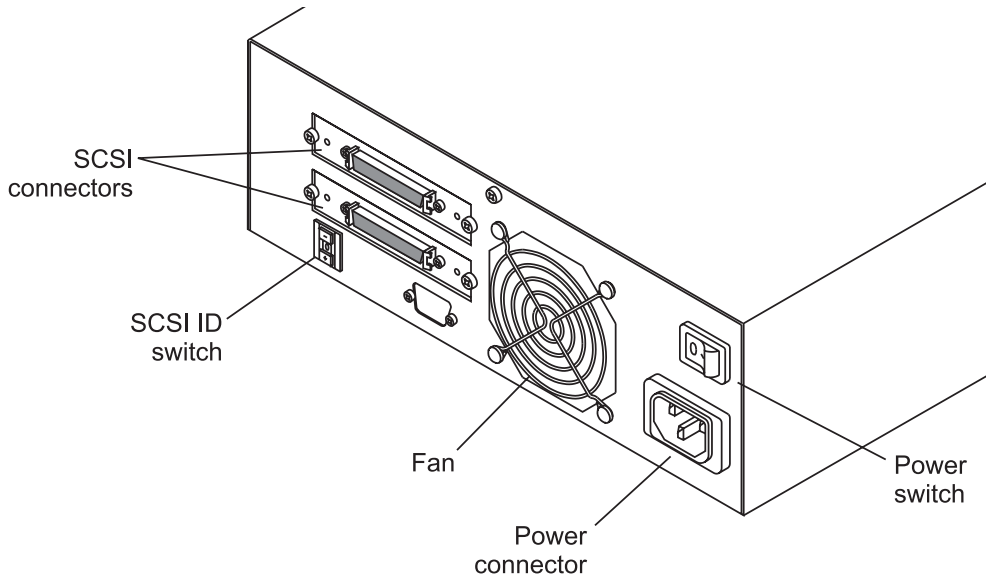
> ➤ **Important** Do not insert a cartridge into the tape drive during the power-on self-test. The tape drive will eject the cartridge.

Installing the tabletop model

Location of components

When installing the tabletop tape drive, refer to the following figure for the location of back-panel components.

SCSI connectors

SCSI ID switch

Fan

Power connector

Power switch

Step 1 – Set the SCSI ID

To set the SCSI ID for the tape drive, use a pen or other fine-tipped instrument to press the SCSI ID switch until the desired number (0–7) is displayed.

Note: Changes in the SCSI ID setting take effect after a normal power-on or SCSI bus reset.

Step 2 – Install the orientation pads

The tabletop model includes adhesive pads for either the base or left side of the tape drive, depending on the orientation you choose. These pads protect the tape drive's surface.

To install the pads:

1.   Remove the backing from four pads. (Five pads are provided.)

2.   For a *horizontal orientation,* affix the pads to the recesses in each corner of the tape drive base, as shown in the figure on the following page.

For a *vertical orientation,* affix the pads to each corner of the left side (the side with no vents), approximately ½ inch from the edges.

CAUTION

If you want to position the tape drive vertically, you must stand the tape drive on its left side. Otherwise, the air flow vents will be blocked and the tape drive will overheat.
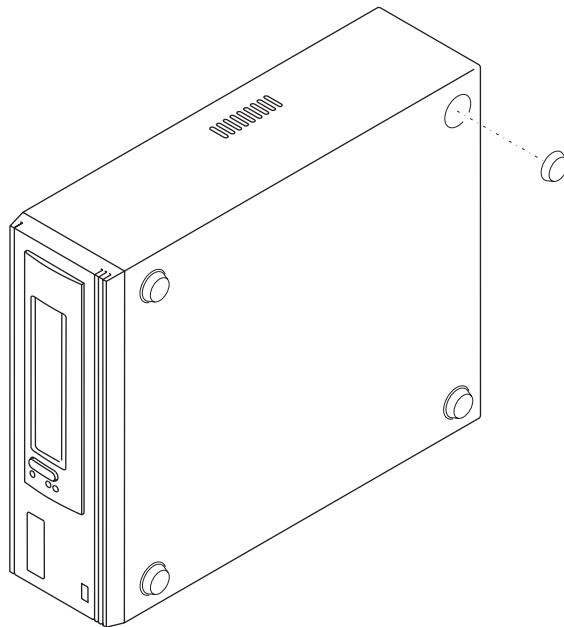
Step 3 – Connect the drive to the SCSI bus

You must provide your own shielded SCSI cable, and if the tape drive is the last device on the bus, you must also provide an external terminator. See for cable and terminator requirements.

CAUTION

To avoid damaging the tape drive, make sure the tape drive is powered off when you connect the cables on the back.

To connect the tape drive to the SCSI bus:

1. Connect a shielded SCSI cable to the back of the tape drive.

2. If the tape drive is the last device on the SCSI bus, install a terminator on the other connector. If it is not the last device, connect another SCSI cable.

Step 4 – Connect power

To connect power to the tape drive:

1. Connect the power cord to the back.

2. Press the power switch to the on (**I**) position.

The tape drive performs its power-on self-test in about 30 seconds. When the tape drive is ready, the top LED turns off.
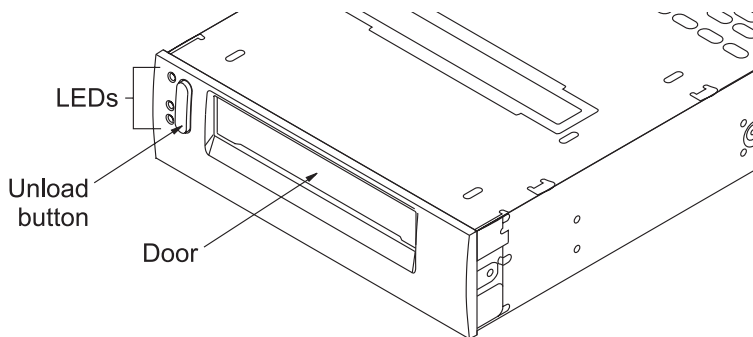
➤ **Important**   Do not insert a cartridge into the tape drive during the power-on self-test. The tape drive will eject the cartridge.

Operating the tape drive

This section describes how to operate the tape drive. The figure below shows the front-panel components used for tape drive operation.

Monitoring the LEDs

The LEDs have the following general meanings:

- **Top LED (amber)**. When this LED is flashing, the tape drive either has an error or needs to be cleaned.

- **Middle LED (green)**. When this LED is flashing, SCSI bus activity is occurring.

- **Bottom LED (green)**. When this LED is on, a tape is loaded. When it is flashing, tape motion is occurring or the tape drive needs cleaning.

Note: The tabletop model also includes a power-on LED on its front panel.

The following table describes various LED combinations that occur during normal tape drive operation.

	Power-on self-test (POST)	Failed POST	Ready (no tape loaded)	Ready (tape loaded)	Normal tape motion	High-speed tape motion	SCSI bus reset	Error	Time to clean	Cleaning in progress
Top LED (error)	●	☀ fast	○	○	○	○	●	☀ slow	☀ fast	○
Middle LED (SCSI)	●	☀ irreg	☀ irreg	☀ irreg	☀ irreg	☀ irreg	☀ irreg	n/a	n/a	☀ irreg
Bottom LED (tape)	●	○	○	●	☀ slow	☀ fast	●	○	☀ fast	☀ slow

Key: ● = On ○ = Off ☀ = Flashing:

☀ **slow** = 1 flash/second (0.94 Hz).

☀ **fast** = 4 flashes/second (3.76 Hz).

☀ **irreg** = Rate of flash varies with SCSI bus activity. If the tape drive is not connected to the SCSI bus, this LED will be off.

Selecting data cartridges

The Eliant 820 uses data-quality removable, rewriteable 8mm metal-particle (MP) data cartridges. These data cartridges require no formatting or media conditioning before use.

The following table shows the capacities of the Exatape™ 8mm data cartridges that are compatible with the Eliant 820.

Approximate capacities of Exatape 8mm data cartridges...[a]			
15m	**54m**	**112m**	**160m XL**
1.2 GB	4.7 GB	10.0 GB	14.0 GB

[a] Assumes data is written in 8500c format at a 2:1 data compression ratio.

➤ **Important**   Exabyte strongly recommends that you use Exatape data-grade media with all Exabyte tape drives. Exclusive use of Exatape media with Exabyte 8mm tape drives has been shown to prolong head and tape life.

Exatape 160m XL Data Cartridges

The Exatape 160m XL Data Cartridge is the recommended tape for the Eliant 820. The Exatape 160m XL tape features a Recognition System (RS) stripe on the tape leader. This stripe identifies the XL tape to the tape drive.

If you insert a 160m data cartridge or equivalent length video cartridge that does not have the Recognition System stripe, the Eliant 820 automatically sizes it as 112m.

Data cartridges equipped with the Recognition System stripe have the RS logo on the label. When purchasing 160m XL cartridges for your XL tape drive, always make sure they have this logo:
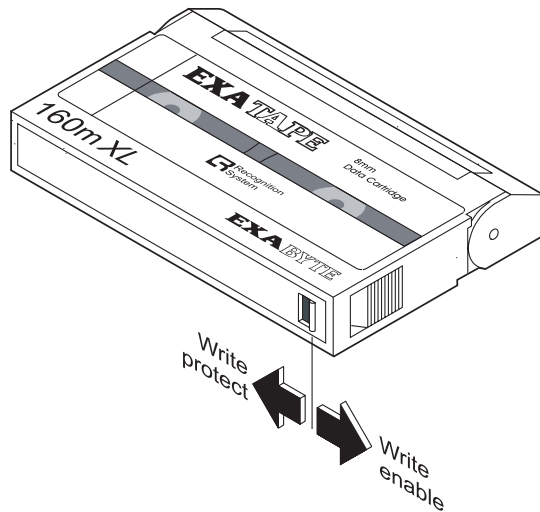
Loading data cartridges

To load a cartridge:

1. Make sure the tape drive is ready to accept a cartridge (top and bottom LEDs off). Do not insert a cartridge if the tape drive is performing its power-on self-test.

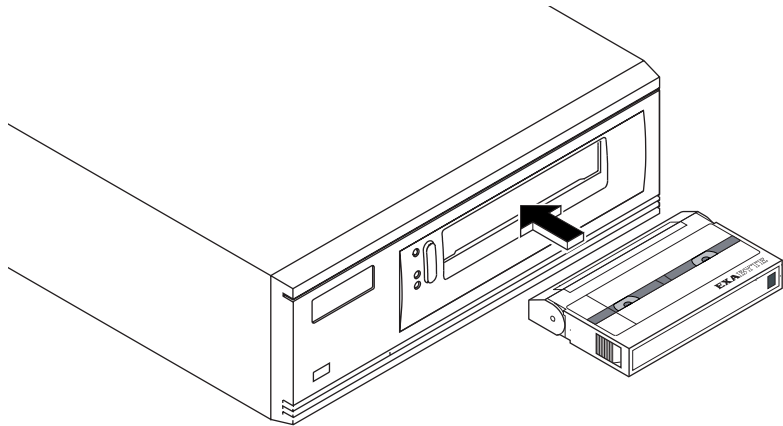**2.** Set the write-protect switch for the desired operation as shown in the following figure.

➤ **Important**   To read data written in 8200 format, you must set the switch to write protect.

3. Insert the cartridge as shown in the following figure.

When the bottom LED turns on, the tape drive is ready for read and write operations.

Automatic ejection of data cartridges

The tape drive automatically ejects a data cartridge under the following circumstances:

- You attempt to load a data cartridge during the power-on self-test.

- You attempt to load an AME (advanced metal evaporated) data cartridge.

- You attempt to load a data cartridge written in 8200 format without setting the write-protect switch to write protect.

Unloading data cartridges

To unload a cartridge, press the unload button. If the tape drive is free of errors, it performs the following actions:

- Completes any command in progress
- Writes any buffered information to tape
- Rewinds the tape to the beginning
- Unloads the tape and ejects the cartridge

Note: If an error occurs before or during the unload, the tape drive suspends the unload sequence. To clear the error, press the unload button again. The tape drive reattempts the unload sequence but does not write data in the buffer to tape.

Resetting the tape drive

If the tape drive has a hardware error, press the unload button once to attempt to clear the error.

To reset the tape drive, power the drive off and back on.

Note: If you reset the tape drive while a cartridge is loaded, it rewinds the tape to the beginning after the reset is complete. The reset may take as long as four minutes if the tape is positioned near the end.

Cleaning the tape drive

When the tape drive requires cleaning, the top and bottom LEDs flash. You should clean the tape drive as soon as possible after the LEDs begin flashing. Use the Exabyte Premium 8mm Cleaning Cartridge to clean the Eliant 820.

CAUTION

Using a cleaning method other than a cleaning cartridge, or using a cleaning cartridge not approved by Exabyte for the Eliant 820, will void the tape drive's warranty.

Note: The Eliant 820 does not support the cleaning cartridge designed for Exabyte Mammoth tape drives. It also does not support older versions of the Exabyte 8mm Cleaning Cartridge. The Eliant 820 automatically ejects these cleaning cartridges without cleaning the tape drive.

To clean the tape drive, insert the cleaning cartridge. The tape drive performs the cleaning automatically. When finished, the tape drive turns off the top and bottom LEDs and ejects the cleaning cartridge.

Note: If there are no more cleaning cycles remaining for the cleaning cartridge, the tape drive ejects it without performing a cleaning. The top and bottom LEDs remain lit. Discard the cleaning cartridge if no more cleaning cycles remain.

CAUTION

To prevent contamination of the tape drive and damage to the heads, never rewind and reuse a cleaning cartridge. Reusing the material in the cleaning cartridge will redistribute contaminants previously removed from the tape path.

If the top and bottom LEDs start flashing again soon after you have cleaned the tape drive, you may be using a data cartridge that is nearing the end of its useful life. Discard the data cartridge and use a new one.

Packing the tape drive

If you are shipping the tape drive to another location or returning it for repair, pack the tape drive in its original shipping container and packing materials.

CAUTION

To avoid damaging the tape drive and voiding your warranty, use the original shipping materials (or replacement materials from your dealer).

> ➤ **Important**   If you are returning the tape drive for service, remove and keep all cartridges, cables, and terminators.

If you are returning the tape drive to Exabyte, contact Exabyte Direct Service to obtain an RMA number:

Exabyte Service:	
United States	1-800-EXATAPE (1-800-392-8273)
Scotland	(44) 1324-564564

Specifications

Supported Data Formats	
8500c (compressed)	Read and write
8500	Read and write
8200	Read only

Operating Environment Specifications	
Tape path temperature range	+ 5° C to + 40° C (+ 41° F to + 104° F)
Relative humidity	20% to 80%; non-condensing
Wet bulb	26° C (79° F) max
Altitude	–304.8 m to + 3,048 m (–1,000 ft to + 10,000 ft)

Input Voltages	
Internal model	Standard + 5 VDC and + 12 VDC ± 5%
Tabletop model	Accepts 100 to 240 VAC at 1 Amp maximum and a frequency of 50 to 60 Hz. Automatic input voltage selection.

SCSI Cable Specifications — Internal Model	
Connector type	50-pin female, ribbon (AMP 1-746285-0 or equivalent)
Length (maximum) Single-ended Differential	6 meters (19.7 feet) 25 meters (82 feet)

SCSI Cable Specifications — Tabletop Model	
Connector type	50-pin male, shielded (AMP 554953-1 or equivalent)
Length (maximum)[a] Single-ended Differential	6 meters (19.7 feet) 25 meters (82 feet)

[a] Each tabletop tape drive attached to the SCSI bus uses 0.4 meters (1.31 feet) of cable length internally. To determine the total length, add 0.4 meters (1.31 feet) to the length of cable used on the bus for each tabletop tape drive.

Terminator Specifications — Internal Model	
Single-ended	Methode Electronics, Inc. dataMate® DM550-06-R
Differential	Methode Electronics, Inc. dataMate DM550-05-0

Terminator Specifications — Tabletop Model	
Single-ended	Methode Electronics, Inc. dataMate DM800-09-0
Differential	Methode Electronics, Inc. dataMate DM800-08-0

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