

FUSION™ D400RAID

4-Drive Serial ATA Disk Array Storage System

Drive Enclosure User's Guide



Fusion D400RAID Enclosure Specs and Features

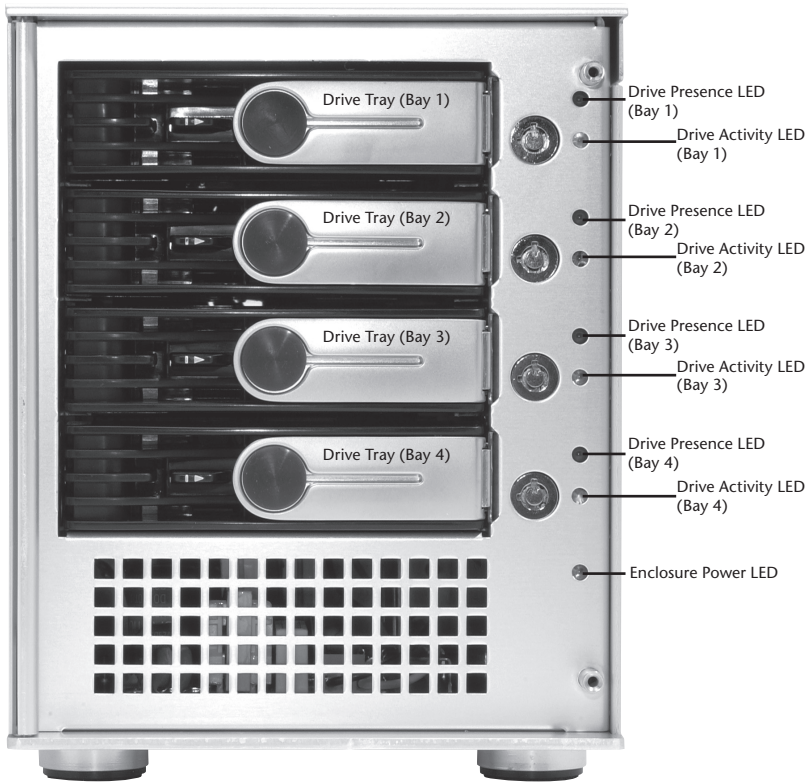


Figure 1

Specifications

Compatibility	Compatible with Mac, Windows, and Linux computers with Sonnet RAID controller installed
Interface Connector	Infiniband multilane
Drives Supported	1.5 & 3 Gb/s Serial ATA; 7,200 RPM
Power Supply	100–240V AC, 50/60Hz
Operating Temperature	32 to 95° F (0° C to +35° C)
Dimensions	5.9 x 11.25 x 7.5 in (14,9 x 28,5 x 19 cm)
Weight (with drives)	17 lbs (7.7 kg)
Warranty	2-year limited warranty

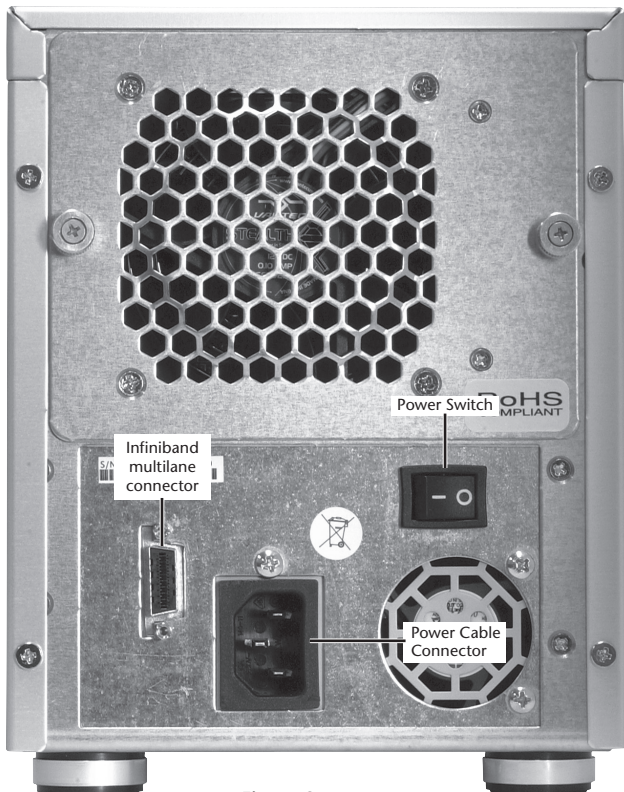


Figure 2

Safety Precautions and Disclaimers

SAFETY PRECAUTIONS

Please read this section carefully before proceeding. These precautions explain the correct and safe use of this device, thereby helping to prevent injury to you or others, and also help you to minimize the risk of damaging the device.

Warnings

Always follow the basic warnings listed here to avoid the risk of serious injury or death from electrical shock, short-circuiting, fire, and other hazards. These warnings include, but are not limited to:

- With the exception of the user-swappable parts, do not attempt to disassemble or modify the enclosure. If this device appears to be malfunctioning, contact Sonnet Customer Service.
- Do not drop the enclosures or any of its drive modules; dropping or mishandling of the enclosure or drive modules may result in a malfunction.
- Do not insert your fingers or foreign objects inside the enclosure; take particular care when small children are present.
- Do not expose the device to rain, use it near water or containers that contain liquids which might spill into any openings, or in damp or wet conditions.
- If unusual smells, sounds, or smoke come from the device, or if liquids enter it, switch it off immediately and unplug it from the electrical outlet.
- Follow the instructions in this manual carefully; contact Sonnet Customer Service for additional advice not covered in this User's Guide.

DISCLAIMERS

Drive Usage:

Sonnet Technologies has qualified and specifies Enterprise/RAID edition hard drives for use in Fusion storage systems. These drives were chosen for their superior performance, error handling, and reliability characteristics, especially when used in RAID groups. One important difference between Enterprise/RAID edition hard drives and standard hard drives is how quickly each type handles read errors—Enterprise/RAID edition hard drives attempt to recover from errors for just a few seconds, while standard hard drives may take minutes. Because RAID controller cards and software-based RAID schemes allow only a very short time for drives to recover before dropping them from the RAID group, hard drive manufacturers recommend against using standard hard drives in RAID storage systems. Enterprise/RAID edition hard drives also feature improved vibration characteristics that influence and support storage reliability. **Only use Enterprise/RAID edition hard drives in your Fusion storage system to ensure system reliability and performance. Standard drives may not be supported and may degrade system reliability and performance. Sonnet has qualified and recommends the following hard drives:**

- 500GB Hitachi Deskstar E7K500, model #HDS725050KLA360
- 500GB Hitachi Ultrastar A7K1000, model #HUA721050KLA330
- 500GB Seagate Barracuda ES, model #ST3500630NS
- 750GB Hitachi Ultrastar A7K1000, model #HUA721075KLA330
- 750GB Seagate Barracuda ES, model #ST3750640NS
- 1TB Hitachi Ultrastar A7K1000, model #HUA721010KLA330

Creating RAID Volumes Under Windows:

Creating RAID volumes under Windows requires dynamic disk storage, a formatting option available with Windows Server 2003 SP1, Windows XP Professional (32- and 64-bit versions), or Windows Vista Enterprise or Ultimate (32- and 64-bit versions). In order to create RAID volumes larger than 2TB, you must do one of the following:

- Use the software configuration tools included with the Fusion storage to create volumes up to 2TB, concatenate (link together in a virtual chain) the volumes, and then format as NTFS.
- Use GPT formatting. Note that drives and volumes with GPT formatting are not visible to any version of Windows XP Professional, nor to the 32-bit version of Windows Server 2003 SP1.

Drive Installation and Enclosure Setup

1. Remove the Fusion drive enclosure and drive modules from their packaging, and place them near the computer to which the enclosure will be connected.

WARNING: When handling computer products, take care to prevent components from being damaged by static electricity; avoid working in carpeted areas. Handle the drive modules only by their edges and avoid touching connector traces and component pins.

2. Take one of the drive modules and push its lever release button toward the right until the lever pops out. (Figure 3).

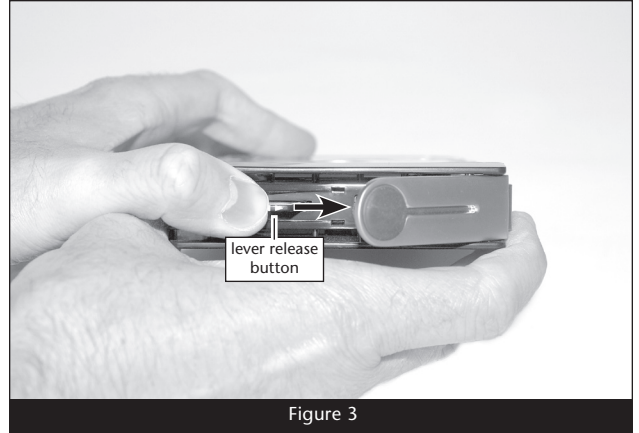


Figure 3

WARNING: When inserting drive modules into the enclosure, do not force the levers closed. If a lever does not close easily, remove and reinsert the module, and then push the lever in again.

3. Carefully slide the drive module into the enclosure until it clicks, and then push the lever in until it clicks to secure the drive module inside the enclosure (Figure 4).
4. Repeat steps 2-3 for each remaining drive module.

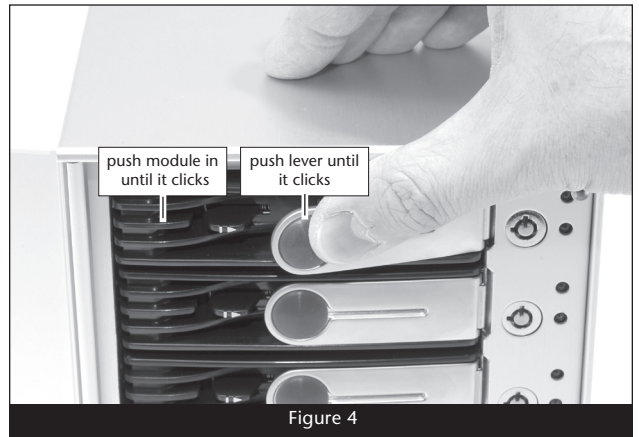


Figure 4

Connect Fusion D400RAID Drive Enclosure to Sonnet RAID Controller

This section describes the connection of the Fusion D400RAID drive enclosure to the Sonnet RAID controller card.

1. Connect the Infiniband end (with thumbscrews) of the supplied data cable to the Infiniband port on the enclosure; use the thumbscrews to secure the connector (Figure 5).

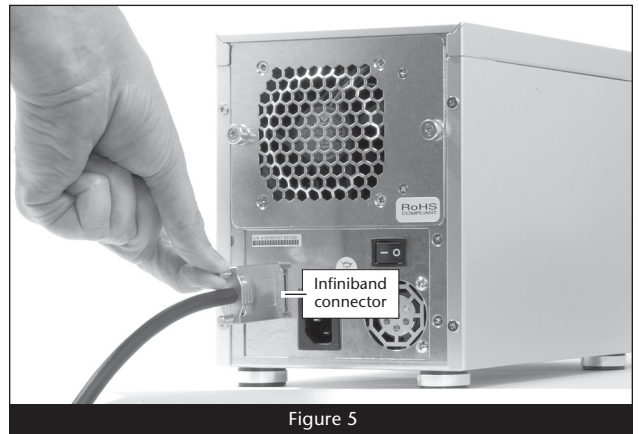


Figure 5

2. Connect the mini-SAS end of data cable to a port on the Sonnet RAID controller card; verify the connector is plugged in securely (Figure 5).
3. Connect the supplied power cable between the Fusion D400RAID enclosure and a grounded wall outlet or power strip; verify the cable is plugged in securely.
4. Push the switch on the back of the enclosure to the on position, and then power on your computer.

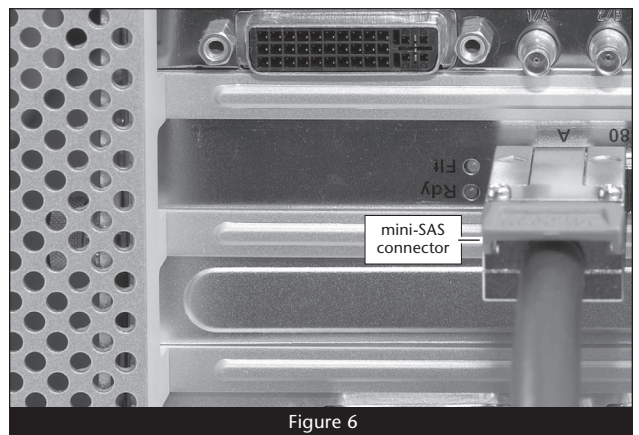


Figure 6

Tips and Additional Information

Tips

Here are some tips for using the Fusion D400RAID enclosure.

Connecting Fusion D400RAID enclosures to a Sonnet RAID controller other than the one with which it shipped:

Fusion D400RAID enclosures are matched with their included Sonnet RAID controller. When you connect a Fusion D400RAID enclosure to a different card, or connect a Fusion D400RAID expansion enclosure, you may have to force them to pair up if the card has not been updated with the latest firmware.

1. Launch the ATTO Configuration Tool. Expand the device tree in the Device Listing section on the left side of the window until ExpressSAS R380 is displayed, and then click ExpressSAS R380.
2. Click the CLI tab. Type *automap* and then tap the return key; type *saveconfiguration*, and then tap the return key again.

Hot-swapping drives:

Fusion D400RAID supports drive hot-swapping* for Mac users, enabling you to exchange a drive or a set of drives without having to shut down your computer. This does not mean you can simply pull out a drive at any time; you must follow the procedures below or you may lose data in the process.

- Before removing a module, you must put away (“eject”, “unmount”, “dismount”) the drive volume. Simply drag the drive icon associated with the drive(s) you wish to remove to the eject icon on the dock.
- If you remove a module from the Fusion D400RAID with a drive that was part of a RAID group, you should power off the enclosure before reinserting the tray. Once the module is secured, power on the enclosure again; this will ensure that the RAID group will mount properly.

* Windows and Linux do not provide hot swap support for drives (drive enclosures) connected to a SATA host controller card installed in a desktop PC or server.

Connections:

If you experience issues where a drive or volume does not appear on your computer, or you see an error message stating a drive is missing when you have the drives configured as a RAID set, the cause may be as simple as a loose connector, or a drive module that is not fully seated.

- Disconnect the data cable and reconnect it, making sure it “clicks” in place at the RAID controller end, and is screwed in securely at the enclosure end.
- Check the drive presence indicator LEDs on the front of the enclosure. If the LEDs are not lit on one of the bays, remove and reinsert the drive module.

Drive Enclosure Limited Warranty

Sonnet Technologies, Inc. warrants to the original purchaser that this product shall be free from defects in materials and workmanship for a period of two years following the original date of purchase. Sonnet's liability under this warranty shall be limited, at its option, to repairing or replacing product(s) shown to be defective either in materials or workmanship. The sole and exclusive remedy under this warranty shall be such repair or replacement.

A claim of defective materials or workmanship in product(s) shall be allowed only when it is submitted to Sonnet within the warranty period. No claim shall be allowed in respect to product(s) which have been altered, neglected, damaged or stored in any manner which adversely affects them. No product(s) shall be returned to Sonnet for any reason without a return authorization from Sonnet. Customer bears the responsibility for shipping product(s) to Sonnet within 30 days of authorization and paying for associated shipping and insurance costs. Customer is also required to ship said returns in their original Sonnet packaging. Sonnet will pay the cost to ship repaired or replaced product(s) back to the customer.

This warranty shall also apply to product(s) that replace defective product(s) but only for the remainder of the original warranty period. The warranty period shall not be extended by reason of defect, or any period of time during which the product(s) are not available to customer because of defects, without the express written consent of Sonnet.

EXCEPT FOR THE EXPRESS WARRANTY AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP CONTAINED HEREIN, SONNET MAKES NO WARRANTY OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, AND ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY SONNET. Without limitation of the foregoing, Sonnet expressly disclaims any liability whatsoever for any damages incurred, directly or indirectly, in connection with its product(s), including without limitation, loss of profits and special, incidental or consequential damages, whether caused by Sonnet's negligence or otherwise.

Hard Disk Drive Warranty

Hard disk drives carry their own warranty, administered by their manufacturer(s). You may contact the hard disk drive manufacturer directly to replace a faulty hard drive.

For **Hitachi** hard disk drives, go to <http://www.hitachigst.com/> Under “Support”, select “Warranty/RMA” and follow the instructions

For **Seagate** hard disk drives, go to <http://www.seagate.com/> and click “Support”. Under “Support”, select “Warranty and Returns Assistance” and follow the instructions

Contacting Sonnet Customer Service

The Sonnet web site located at www.sonnettech.com has the most current support information and technical updates. Before you call Sonnet Customer Service, please check our web site for the latest updates and online support files, and check this User's Guide for helpful information. When you call Sonnet Customer Service, have the following information available so our customer service staff can better assist you:

- Product name • Date and place of purchase • Hard drive model(s)
- Computer model • Operating system • Software/firmware versions

If further assistance is needed, please contact us at:

Sonnet Customer Service:

Online Service Form: <http://serviceform.sonnettech.com>

Tel: 1-949-472-2772

(Monday–Friday, 7 a.m.–4 p.m. Pacific Time)

Fax: 1-949-457-6350

E-mail: support@sonnettech.com

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