

# FUSION™ DX800RAID

8-Drive Serial ATA Disk Array Storage System

## Drive Enclosure User's Guide



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Windows

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# Fusion DX800RAID Enclosure Specs and Features

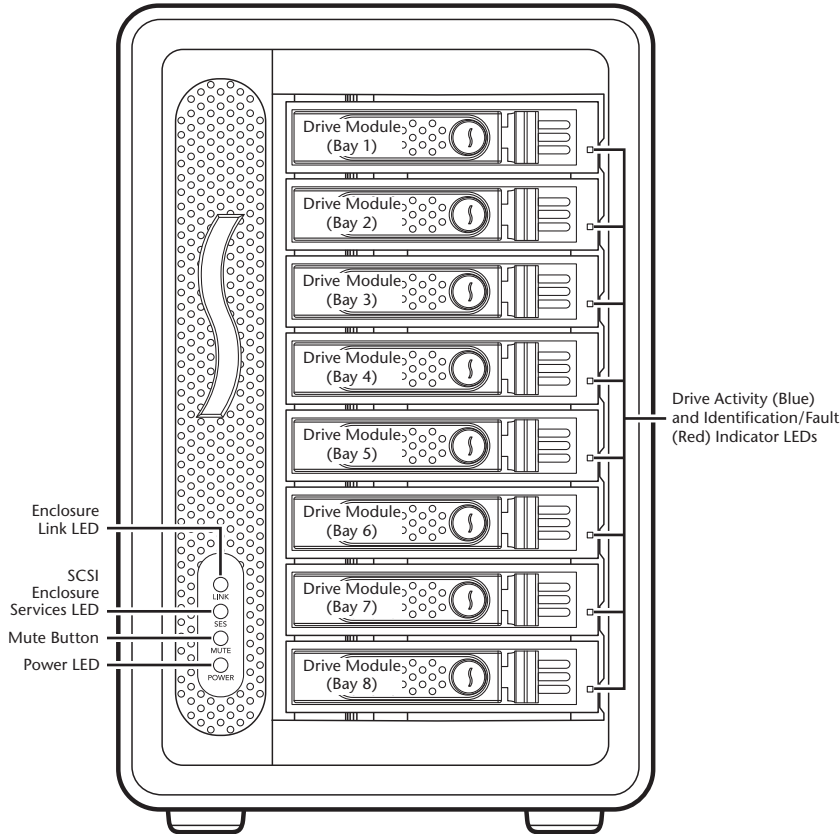


Figure 1

## Enclosure Specifications

Compatibility	Compatible with Mac <sup>®</sup> , Windows <sup>®</sup> , and Linux <sup>®</sup> computers with Sonnet RAID controller installed
Interface Connectors	2 x mini-SAS
Drives Supported	3 & 1.5 Gb/s Serial ATA; 3.5"
Power Supply	100–240V AC, 50/60Hz
Operating Temperature	41 to 104° F (5° C to 40° C)
Dimensions (WxDxH)	7.4 x 15.8 x 11.2 in (18.7 x 40.1 x 28.6 cm)
Weight	14.7 lbs (6.7 kg)

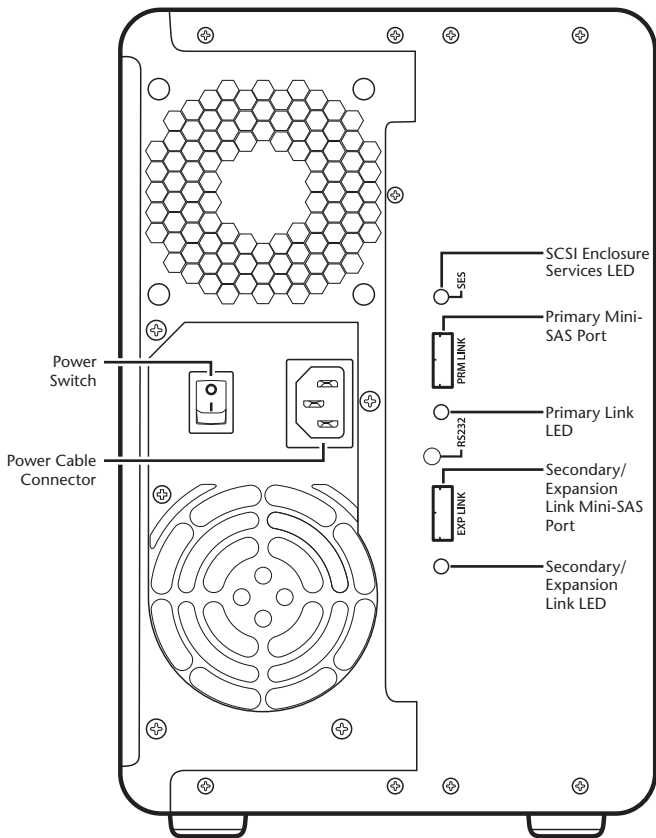


Figure 2

## 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 your reseller or local distributor.
- Do not drop the enclosure 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 your reseller or local distributor for additional advice not covered in this User's Guide.

### DISCLAIMERS

#### Drive Usage:

Sonnet Technologies has qualified the hard drives listed here for use in Fusion DX800RAID 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 these drives and standard hard drives is how quickly each handles read errors—these qualified 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. The hard drives qualified by Sonnet also feature improved vibration characteristics that influence and support storage reliability. We recommend the use of these Enterprise/RAID edition hard drives and select, Sonnet certified desktop 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. Check the Sonnet Web site for the latest list of qualified hard drives.**

#### Drive Usage (continued)

##### 500GB Models

- Hitachi Ultrastar A7K1000, # HUA721050KLA330
- Seagate Barracuda ES, # ST3500630NS
- Seagate Barracuda ES.2, # ST3500320NS<sup>(1)</sup>
- Seagate Constellation ES, # ST3500514NS

##### 750GB Models

- Hitachi Ultrastar A7K1000, # HUA721075KLA330
- Seagate Barracuda ES, # ST3750640NS
- Seagate Barracuda ES.2, # ST3750330NS<sup>(1)</sup>

##### 1TB Models

- Hitachi Deskstar E7K1000, # HDE721010SLA330
- Hitachi Ultrastar A7K1000, # HUA721010KLA330
- Hitachi Ultrastar A7K2000, # HUA722010CLA330
- Seagate Barracuda ES.2, # ST31000340NS<sup>(1)</sup>
- Seagate Constellation ES, # ST31000524NS

##### 1.5TB Models

- Seagate Barracuda 7200.11, # ST31500341AS<sup>(2)</sup>

##### 2TB Models

- Hitachi Ultrastar A7K2000, # HUA722020ALA330

*There are unresolved technical issues in the Fusion DX800RAID with the following Enterprise/RAID edition drives, which are not recommended at this time:*

- 500GB Samsung Spinpoint F RAID, # E502IJ
- 750 GB Samsung Spinpoint F RAID, # HE753LJ
- 1TB Samsung Spinpoint F RAID, # HE103UJ

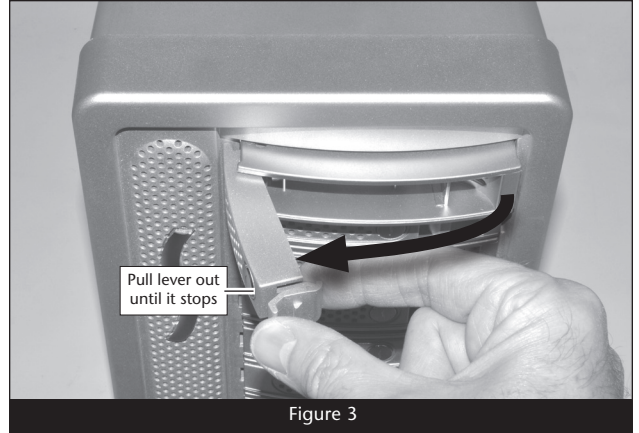
(1) Only Seagate ES.2 drives with firmware versions SN06 and newer compatible. Seagate ES.2 drives with firmware versions SN03, SN04, or SN05 are NOT compatible.

(2) Only Seagate Barracuda 7200.11 1.5TB drives with firmware versions SD1B and newer compatible.

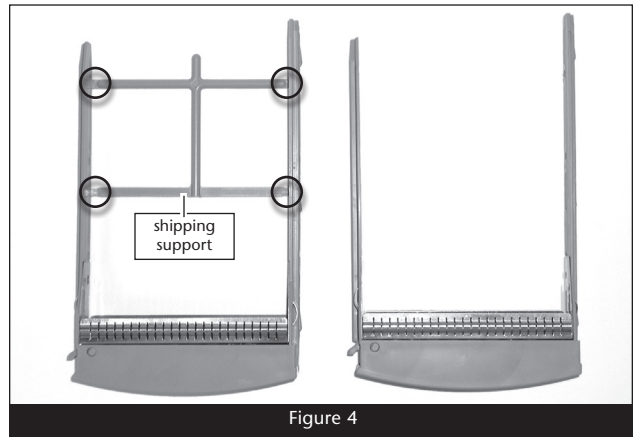
## Drive Installation and Enclosure Setup

### Install Drives Into Drive Trays

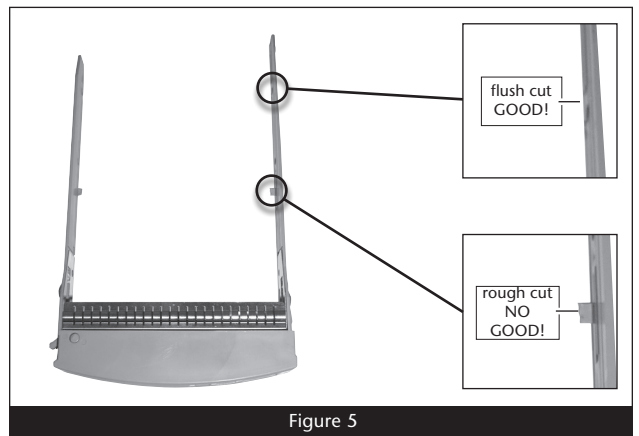
1. Remove the Fusion drive enclosure from its packaging, and place it near the computer to which it will be connected.
2. Pull a drive tray's lever out until it stops, and then pull the tray out of the enclosure. (Figure 3).



3. Using wire cutters, cut off the shipping support between the drive tray rails (Figure 4). Be sure to cut the plastic flush; do not leave a rough cut (Figure 5).
4. Repeat steps 2 and 3 with each remaining drive tray.

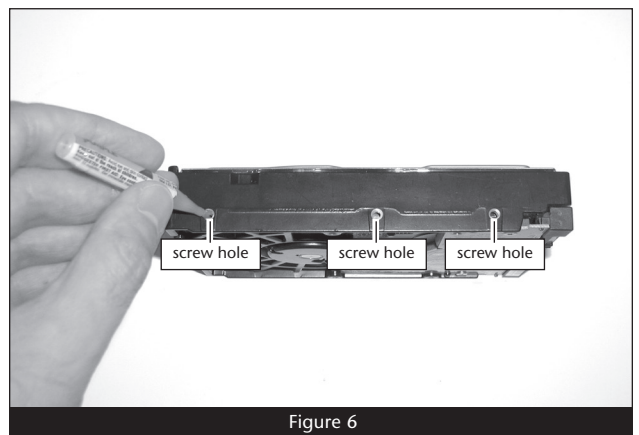


**WARNING:** If you do not cut off the edges of the shipping support flush with the drive tray rails, the drive tray will not fit properly in the enclosure, and the storage system may not work reliably.



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

5. Remove a SATA drive from its packaging and set it on edge on a flat, level surface with the label facing away from you and the connectors to the right. Open the supplied tube of threadlocker and apply a *single* drop inside each of the three screw holes on the side of the drive (Figure 6).



## Drive Installation and Enclosure Setup

### Install Drives Into Drive Trays (continued)

6. With the lever facing the left, slide a drive tray over the drive and align its holes with the screw holes in the drive (Figure 7).
7. Using three of the supplied screws, secure the drive tray to the drive; tighten each screw to secure the tray snugly to the drive; **do not overtighten the screws** (Figure 7).

**WARNING:** When securing the trays to the hard drives, you must verify the screw heads are flush with the tray. Otherwise, a screw may catch on the side of the enclosure and prevent you from removing the tray.

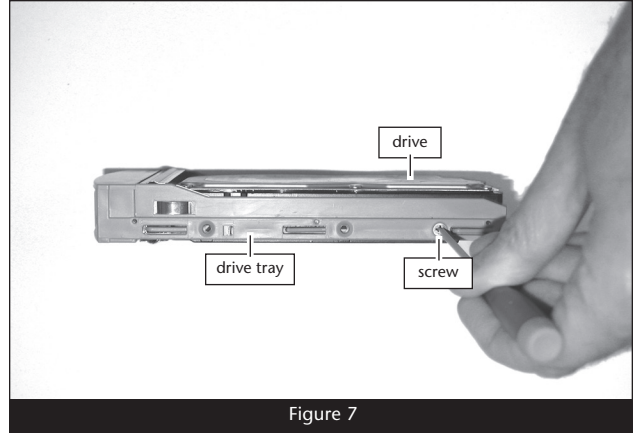


Figure 7

8. Flip the drive and drive tray over so that they are resting on the other side. Push the drive tray rail up to expose the screw holes on the side of the drive, and then apply a *single* drop of threadlocker inside each of the three holes (Figure 8).
9. Using three of the supplied screws, secure the drive tray to the drive; tighten each screw to secure the tray snugly to the drive; **do not overtighten the screws** (Figure 8).
10. Repeat steps 5–9 for each remaining drive.

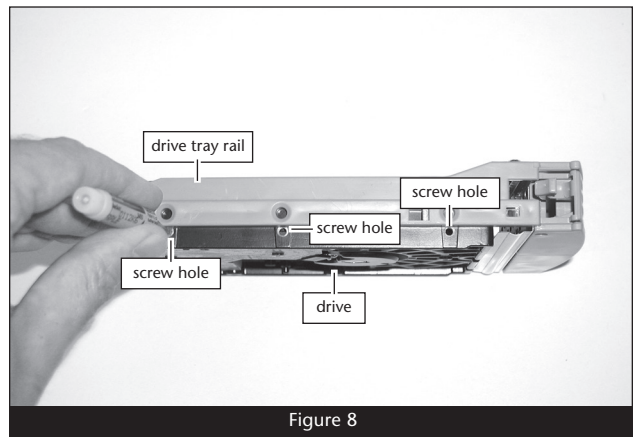


Figure 8

11. With the lever fully opened, carefully slide the drive module into the enclosure until it stops, and then secure it by pushing the lever in until it snaps closed (Figure 9). Repeat with the remaining drive modules.

**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.

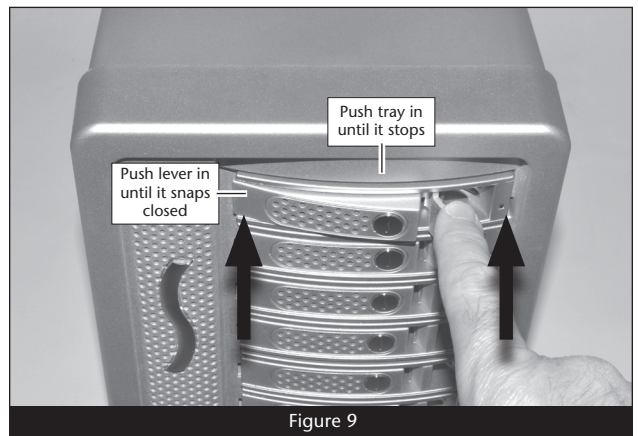


Figure 9

### Connect Fusion DX800RAID Drive Enclosure to Sonnet RAID Controller

This section describes the connection of the Fusion DX800RAID drive enclosure to the Sonnet RAID controller card.

1. Insert one end of each of the supplied data cables to the mini-SAS ports on the enclosure; **verify the connectors are plugged in securely** (Figure 10).

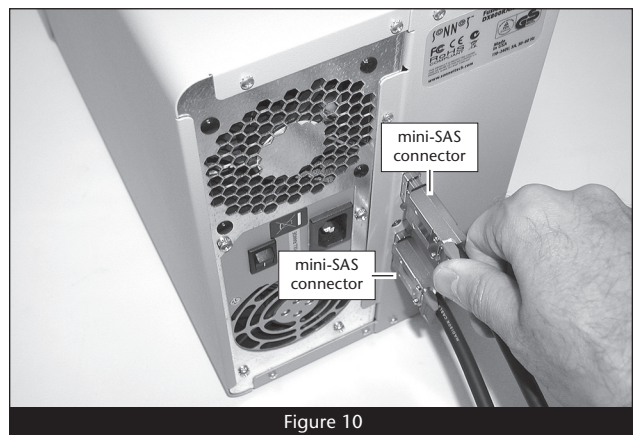


Figure 10

## Drive Installation and Enclosure Setup

2. Connect the data cables' remaining connectors to the mini-SAS ports on the Sonnet RAID controller card; **verify the connectors are plugged in securely (Figure 11).**
3. Connect the supplied power cable between the Fusion DX800RAID 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.

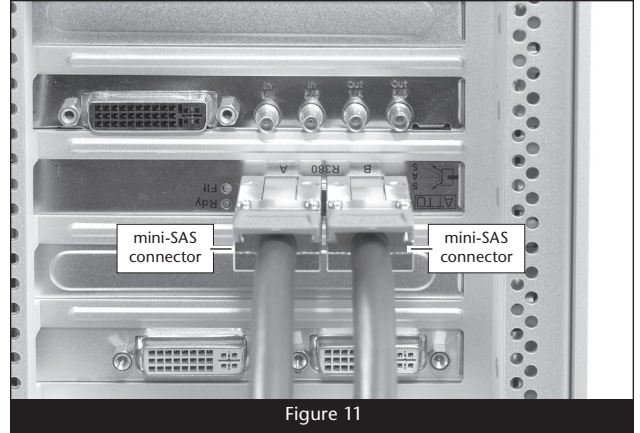


Figure 11

### How to Connect Additional Fusion DX800RAID Drive Enclosures

This section explains how to connect additional Fusion DX800RAID enclosures to your system. Perform all steps listed here with your computer and Fusion storage systems powered off.

1. In order to connect a second Fusion DX800RAID enclosure to the Sonnet RAID controller card, you must first disconnect the bottom data cable from the first enclosure, and then connect it to the top (primary) mini-SAS port of the second enclosure (Figure 12).
2. To connect three or four Fusion DX800RAID enclosures to the Sonnet RAID controller card, plug in an additional mini-SAS to mini-SAS data cable (sold separately; check with your dealer) between the bottom (expansion) mini-SAS port from an enclosure connected directly to the RAID controller card to the top (primary) mini-SAS port on the additional enclosure (Figure 13).
3. You may connect five or more Fusion DX800RAID enclosures by connecting additional data cables from one enclosure's expansion port to another enclosure's primary port.

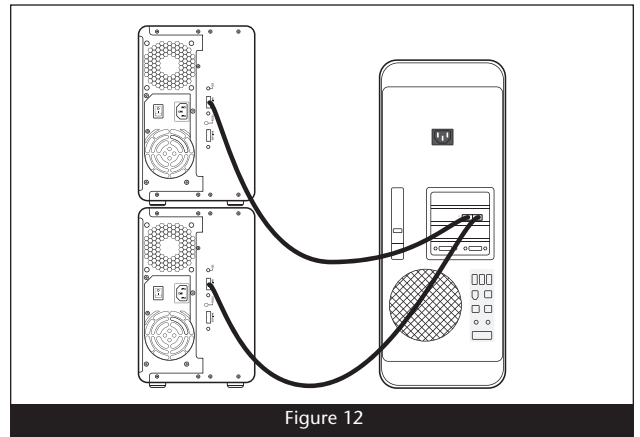


Figure 12

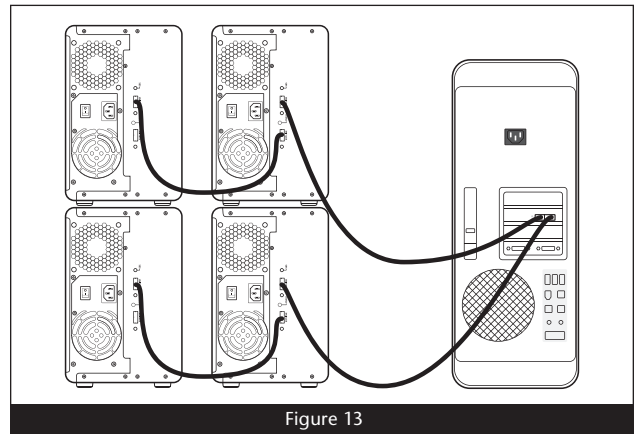


Figure 13

## Tips and Additional Information

### Tips

This section covers some common sense tips for using the Fusion DX800RAID enclosure.

#### Connecting Fusion DX800RAID enclosures to a Sonnet RAID controller other than the one with which it shipped:

Fusion DX800RAID enclosures are matched with their included Sonnet RAID controller. When you connect a Fusion DX800RAID enclosure to a different card, 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. Select RAID Management > Auto Map from the application menu.

#### Hot-swapping drives:

Fusion DX800RAID 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 drive 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 drive module from the Fusion DX800RAID with a drive that was part of a RAID group, you should power off the enclosure before reinserting the module. 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 cables and reconnect them one at a time, making sure each one “clicks” in place at both ends.
- If disconnecting and reconnecting the cables does not resolve the issue, remove and reinsert the drive module.

## Contacting Sonnet Customer Service

### USA Customers

The Sonnet Web site located at [www.sonnettech.com](http://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:** 1-949-457-6349

**E-mail:** [support@sonnettech.com](mailto:support@sonnettech.com)

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