R A C K   P R O   M I N I - S A S

Assembly Manual & User Guide

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INTRODUCTION

1.1 Minimum System Requirements

1.1.1 Apple Mac Requirements

The system requirements for Mac depend on the mini-SAS (PCIe) card you are using. Please check the specifications of the controller card to determine system requirements.

1.1.2 PC Requirements

The system requirements for PC depend on the mini-SAS (PCIe) card you are using. Please check the specifications of the controller card to determine system requirements.

1.1.3 Supported Drives

- Up to four 3.5" SATA or SAS drives (1.5Gb/s, 3.0Gb/s, or 6.0Gb/s)
- For RAID setups, identical drives are required (make, model, capacity, firmware)

IMPORTANT:
Cables longer than 1 meter cannot be used with 6.0Gb/s hard drives.

1.2 Package Contents

1. Power cable
2. Rack mounting handles
3. Desktop mounting feet
4. Screws for desktop conversion

1.3 About This Manual

The images and descriptions may vary slightly between this manual and the unit shipped. Functions and features may change depending on the firmware version. Please visit the product web page for the most recent product specifications.
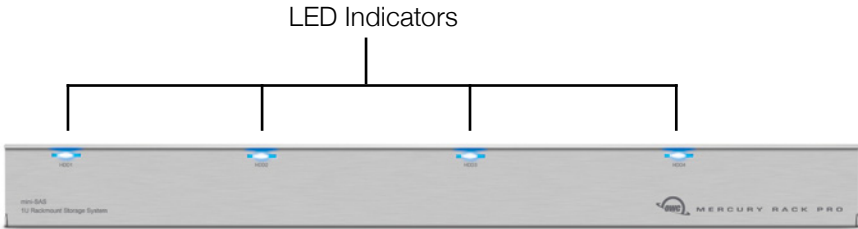
1.4 Rear View

Power Input   External mini-SAS Port

1.5 Front View

LED Indicators

LED Color Codes:

Power
Off = Power off
Blue = Power on (all 4 drive bays)

Drive Access
Flashing Red = Drive being accessed

Array Rebuild
Blinking Red = Rebuilding RAID array
Solid Red = Faulty drive

Power Button - located on the left side of the enclosure, behind the access door (pictured below).

1.6 About RAID Modes

The Mercury Rack Pro mini-SAS does not ship with built-in RAID capabilities, however many mini-SAS PCIe cards have RAID controller functionality built into them. The number and type of RAID modes available are entirely dependent upon the card you use. Please consult the manufacturer's documentation for more information about the capabilities of your specific card. The information below describes a few of the more commonly used RAID modes.

RAID 0 ("Drive Striping") — The drives appear as one large volume with a size equal to the combined capacities of all the drives in the array. RAID 0 is used when speed is the primary objective; it does not provide data redundancy. Data is distributed across two or more drives and is written and read without pausing to check parity information. This greatly improves the speed but if one drive fails the whole array can become corrupted and data will be lost.
Always maintain a backup of your data!

RAID 1 ("Drive Mirroring") — The drives appear as one volume with a size equal to the capacity of a single installed drive. RAID 1 copies (or "mirrors") a set of data from the first drive to the second drive. This is useful when reliability and redundancy are more important than capacity or speed. When one drive fails, it can be replaced and the data will be rebuilt.

RAID 10 ("Mirrored Stripes") — The drives appear as one volume with a size equal to the combined capacities of half of the drives in the array. RAID 10 uses a combination of striped and mirrored volumes. If one drive fails, it can be replaced and the data rebuilt.

RAID 5 ("Stripe with Parity") — The drives appear as one volume with a size equal to the combined capacities of all drives in the array, minus one drive. RAID 5 uses block-level striping with parity data distributed across all disks. It provides a good balance between performance and data integrity. If one drive fails, it can be replaced and the data rebuilt.

2.1 Drive Installation

NOTE: If you purchased a Rack Pro pre-configured with drives, they will be coded using the colors below. Please match the color on each drive to the corresponding drive bay.

BLUE - ●   GREEN - ●   YELLOW - ●   RED - ●

Drive Installation Steps:

1. Open the front cover.

2. Install the first drive as shown at right, with the SATA connector facing away from you.

3. Slide the drive all the way into the drive bay. When properly seated, it should sit flush with the aluminum frame.

4. Repeat the previous steps for each drive you are installing.

Important Notes:

- Do not force the drives into place. If they do not slide and seat easily, make sure there are no obstructions.

- It is not possible to add more drives to an existing RAID array or change the RAID configuration without reformatting.

- To avoid data corruption it is essential to unmount all drives and power the unit off before removing or adding a new drive. If you physically eject or remove a drive from the Rack Pro without powering off the unit first, any mounted disks will improperly unmount from the computer.

2.2 Connections

Power Input   External mini-SAS Port

1. Plug the power cable into an active wall outlet and then into the Rack Pro. The voltage will be set automatically.

2. Connect the mini-SAS port to the controller card.

CAUTION:
- Do not cover the enclosure's ventilation holes.
- Do not connect the device to your computer until the drives are installed.
- For the safe removal of your drive and to assure that no data is lost, always eject or unmount the drive from your operating system before powering off.

2.3 Replacing Drives

If one of the drives fails, its activity LED will display solid red. We strongly suggest you immediately replace any failing drive.

To remove the hard drive from the enclosure, first unmount the drive from your system, then pull the lever located above the hard drive to eject it (right).

NOTE: some RAID modes allow the data on the array to remain accessible if a single drive within that array fails. If more than one drive fails at the same time, or if one drive fails and the RAID mode you have chosen does not support data redundancy, data will be lost. CAUTION: always have a separate backup of your data when using non-redundant modes like RAID 0!

Consult your RAID controller documentation for additional steps that may be required to preserve data and replace drives, when using different RAID modes.

2.4 Desktop Conversion

The OWC Mercury Rack Pro can be converted from a rack mounted enclosure to a desktop unit by removing the rack handle from the sides of the enclosure and attaching the included rubber feet.

To remove the rack handles simply remove the four Phillips screws on the side of the rack and the rack handle will come off, as shown below.

Once you have removed the rack handles, turn the OWC Mercury Rack Pro over and attach the four rubber feet using a Phillips screwdriver to the bottom of the enclosure.

SUPPORT RESOURCES

3.1 Formatting

For our recommended drive formatting techniques, please visit:
www.owcdigital.com/format

3.2 Unmounting Drives

For the safe removal of your drive and to ensure that no data is lost, always eject or unmount the corresponding disk(s) from your operating system before powering off. You can use the methods described below to safely unmount your disk(s).

Mac OS X:
Each of the methods below will produce the same result.

- Drag the icon for the disk you wish to unmount to the trash can.

- Right-click the disk icon on the desktop, then click 'Eject'.

- Highlight the disk on your Desktop and press Command-E.

Windows:

1. Go to the System Tray (located in the lower right corner of your screen). Click on the 'Eject' icon (a small green arrow over a hardware image).

2. A message will appear, detailing the devices that the "Eject" icon controls, i.e., 'Safely remove...' Click on this prompt.

3. You will then see a message that says, 'Safe to Remove Hardware.' It is now safe to disconnect the Mercury Elite Pro Dual from the computer.

3.3 Troubleshooting

Many problems can be traced to power or connectivity issues. Begin troubleshooting by verifying that the Rack Pro mini-SAS is connected to power. If connected to a power strip, make sure that it is switched on and that there are no bad outlets on the strip. If power issues persist try plugging the Rack Pro directly into an active wall outlet.

It is also important to verify that your mini-SAS cable is fully plugged into the computer and Rack Pro. If the cable connections are snug and the Rack Pro is still not working properly, please see Section 3.5 to contact Technical Support.

3.4 About Data Backup

To ensure that your files are protected and to prevent data loss, we strongly suggest that you keep two copies of your data: one copy on your OWC Rack Pro mini-SAS and a second copy on either your internal drive or another storage medium, such as an optical backup, or on another external storage unit. Any data loss or corruption while using the Rack Pro mini-SAS is the sole responsibility of the user, and under no circumstances may OWC, its parents, partners, affiliates, officers, employees, or agents be held liable for loss of the use of data including compensation of any kind or recovery of the data.

3.5 Contacting Technical Support

HOURS OF OPERATION
8am - 8pm (CT) Monday - Friday

(866) 692-7100 (North America only)
+1 (815) 338-8685 (International)

Live chat is available during normal business hours at:
www.owcdigital.com/support

Email support is available at:
www.owcdigital.com/support

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Changes:

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FCC Statement:

Warning! Modifications not authorized by the manufacturer may void the user's authority to operate this device.

NOTE: 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 with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the 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 harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined 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 to an outlet on a circuit different from that to which the receiver is connected.

Health And Safety Precautions:

- Read this user guide carefully and follow the correct procedures when setting up the device.

- Use proper anti-static precautions while performing the installation of your hard drives into this drive enclosure. Failure to do so can cause damage to your drive mechanisms and/or the hard drive enclosure.

- Do not attempt to disassemble or modify the device. To avoid any risk of electrical shock, fire, short-circuiting or dangerous emissions, never insert any metallic object into the device. If it appears to be malfunctioning, contact OWC technical support.

- Never expose your device to rain, or use it near water or in damp or wet conditions. Never place objects containing liquids on the drive, as they may spill into its openings. Doing so increases the risk of electrical shock, short-circuiting, fire or personal injury.

- General Use Precautions:

- To avoid damage, do not expose the device to temperatures outside the range of 5° C to 40° C (41° F to 104° F).

- Always unplug the device from the electrical outlet if there is a risk of lightning or if it will be unused for an extended period of time. Otherwise, there is an increased risk of electrical shock, short-circuiting or fire.

- Do not use the device near other electrical appliances such as televisions, radios or speakers. Doing so may cause interference which will adversely affect the operation of the other products.

- Do not place the device near sources of magnetic interference, such as computer displays, televisions or speakers. Magnetic interference can affect the operation and stability of hard drives.

- Do not place heavy objects on top of the device.

- Protect your device from excessive exposure to dust during use or storage. Dust can build up inside the device, increasing the risk of damage or malfunction.

- Do not block any ventilation openings on the device. These help to keep the device cool during operation. Blocking the ventilation openings may cause damage to the device and cause an increased risk of short-circuiting or fire.

For up-to-date product and warranty information, please visit the product web page.

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