

# ***OWC***

## OWC Mercury Rack Pro ASSEMBLY MANUAL & USER GUIDE



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# INTRODUCTION

## 1.1 MINIMUM SYSTEM REQUIREMENTS

### 1.1.1 Mac Requirements

- PowerPC G4 CPU, 128MB RAM
- eSATA: Mac OS X 10.3 or later
- FireWire: Mac OS X 10.2 or later
- USB 3.0 (backwards compatible to USB 2.0): Mac OS X 10.2 or later

### 1.1.2 PC Requirements

- 500MHz Intel Pentium 3 CPU, 128MB RAM
- eSATA: Windows XP or later
- FireWire: Windows 2000/XP or later
- USB 3.0 (backwards compatible to USB 2.0): Windows 2000/XP or later

### 1.1.3 Supported Hard Drives

- Up to four 3.5" SATA drives (1.5Gb/s, 3.0Gb/s, or 6.0Gb/s)
- Drives of identical model are required for all RAID types other than Clear/JBOD (Independent Drive) mode and Combine/JBOD (SPAN) mode.

## 1.2 PACKAGE CONTENTS



eSATA cable



USB 3.0  
(A to Standard-B) cable



Power cable



FireWire 400  
(1394a) cable



FireWire 800  
(1394b) cable



Rack handles (2)



Phillips screws for rack  
handles (8)



Bumpers for rack handle  
screw holes (2)



Desktop feet  
with Phillips screws (4)

## 1.3 ABOUT THIS MANUAL

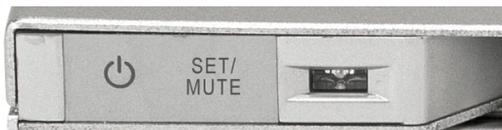
Firmware, images, and descriptions may vary slightly between this manual and the unit shipped. Functions and features may change depending on the firmware version. Please visit the product webpage for the most recent specifications.

## 1.4 FRONT VIEW



## 1.4.1 Buttons

The “Power On/Off” and “Set/Mute” buttons are inside the front door on the left side. The SET/MUTE button is used for setting the RAID modes (covered in **Section 1.7, RAID Settings**) and disabling the audible alarm when there is a drive failure.



## 1.4.2 LED Drive Bay Indicators

Each drive bay has a multicolor LED indicator.

### Power:

- Off = power off
- Blue = power on
- Pink = power on (advanced format drives)

### Access:

- Flashing purple = drive being accessed

### Rebuild:

- Blinking red = rebuilding RAID array
- Solid red = faulty drive



## 1.5 REAR VIEW



Power Input

eSATA  
USB 3.0  
FW800  
FW400

### 1.5.1 Connection

1. Plug the power cable into the wall and into the OWC Mercury Rack Pro.
2. Connect the eSATA, FireWire 800, FireWire 400, or USB 3.0 cable – appropriate for the interface that your computer supports – into the drive and computer. (eSATA or USB 3.0 interfaces are recommended for maximum performance)

### NOTE:

- Only one interface (eSATA, FW800, FW400, USB 3.0) at a time can be used. When more than one interface cable is connected, the fastest interface has priority.
- 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.
- In order for the computer to access volumes larger than 2TB, the operating system needs to support large volumes (e.g., Windows Vista or Mac OS X 10.4 and above).

## 1.5.2 Fan Alarm Mute Button

In the event one of the fans within the OWC Mercury Rack Pro fails, an alarm will sound. The “Fan Alarm Mute” button located on the rear panel of the unit will mute the alarm. It is recommended to replace the failed fan as soon as possible in order to adequately cool the unit, prevent damage to components, and avoid data loss.



## 1.5.3 RAID Selector Switches

To adjust your RAID settings, there are 3 switches on the back of the OWC Mercury Rack Pro.

Use the silkscreened chart as a guide when adjusting the switches to the desired RAID setting. Proceed to section 1.7 for instructions on changing the RAID levels on the OWC Mercury Rack Pro.

## 1.6 PRECONFIGURED STORAGE SOLUTIONS

If you purchased your Rack Pro as a preconfigured solution with hard drives included, the drives have been configured as a RAID 5 volume and that volume has been preformatted. To install the drives, see section 2.1. For formatting information, including how to format your Rack Pro for Mac or Windows, go to: <http://www.macsales.com/format>

## 1.7 RAID SETTINGS

### 1.7.1 Changing the RAID Mode

**IMPORTANT NOTE:** Drives of identical model are required for all RAID types other than Clear/JBOD (Independent Drive) mode and Combine/JBOD (SPAN) mode.

**IMPORTANT NOTE:** Changing the RAID settings requires you to set the Rack Pro to “Clear RAID” mode between each mode change.



**WARNING: Changing the RAID setup will require you to reformat the drives. Reformatting will delete all of the existing data on the drives!**



To switch or clear RAID modes, follow these three steps (continued on next page):

1. With the OWC Mercury Rack Pro turned off, adjust the switches on the back of the unit to the desired setting (either to “Clear RAID” mode or to a RAID level).
2. While holding down the “Set/Mute” button, power on the OWC Mercury Rack Pro. Keep holding the “Set/Mute” button until you hear a full beep (you may hear shorter chirps or beeps while the unit is setting itself into the RAID mode). The lights on the Rack Pro will also flash during this process and will stop flashing when complete.

3. The OWC Mercury Rack Pro is now set to the new mode. If the Rack Pro has just been set to “Clear RAID” mode, you can now repeat steps 1 and 2 to apply a RAID setting. If the Rack Pro has just been set to a RAID mode, it is now ready to be formatted. Instructions for formatting can be found at: <http://www.macsales.com/format>

### 1.7.2 RAID Modes

**IMPORTANT NOTE:** Drives of identical size and model are required for all RAID types other than Clear/JBOD (Independent Drive) mode and Combine/JBOD (SPAN) mode.



**WARNING:** Changing the RAID mode will require you to reformat the drives. Be sure to back up your data first!



#### Clear/JBOD (Independent Drive) Mode

**Switch setting:** *DOWN-DOWN-DOWN*

Each drive will appear as a single volume. If you intend to use hard drives of differing capacity and model, this is the mode to use. To swap or replace drives, unmount all drives and power the OWC Mercury Rack Pro off.

#### Combine/JBOD (SPAN) Mode

**Switch setting:** *UP-DOWN-UP*

The drives show up as one large single volume. The total size will depend on the drives installed; you can use drives of different capacities. JBOD (SPAN) is an array (not RAID) in which the data is written sequentially across the drives. This combines the capacities of the drives, but it does not provide any performance or redundancy benefits.



#### RAID 0 “Drive Striping” Mode

**Switch setting:** *UP-UP-UP*

The drives show up as one large single volume with a size equal to the combined capacities of all the drives used in the array. RAID 0 is used when speed is the primary objective, but it does not have any redundancy for protection. Data is alternated very quickly across two or more drives to gain speed by distributing the workload. This allows for the fastest data transfer rates, since data is written without pausing to check parity information, 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” Mode (2 Drives Installed)

**Switch setting:** *UP-UP-DOWN*

The drives show up as one volume with a size equal to the capacity of one of the two drives used in the array. RAID 1 copies (or “mirrors”) a set of data from the first drive to the second drive. This is useful when reliability and backup are more important than capacity. When one drive fails, it can be replaced and the data will be rebuilt automatically.



## RAID 10 “Drive Mirroring with Striping” Mode (4 Drives Installed)

**Switch setting:** *UP-UP-DOWN*

The drives show up up as one volume with a size equal to the combined capacities of half of the drives used in the array. RAID 10 creates an exact copy (or “mirror”) of a set of data but also uses a RAID 0 “stripe” for speed. When one drive fails, it can be replaced and the data will be rebuilt automatically.



## RAID 3 “Drive Striping with Dedicated Parity” Mode

**Switch setting:** *UP-DOWN-DOWN*

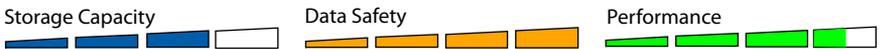
The drives show up as one volume with a size equal to the combined capacities of all the drives in the array, minus one drive. RAID 3 uses byte-level striping, with parity information located on 1 dedicated parity drive. Very fast performance can be achieved with RAID 3 while also maintaining fault protection, so if one drive fails, it can be replaced and the data will be rebuilt automatically.



## RAID 5 “Drive Striping with Distributed Parity” Mode

**Switch setting:** *DOWN-UP-DOWN*

The drives show up as one volume with a size equal to the combined capacities of all the drives in the array, minus one drive. RAID 5 uses block-level striping with parity data distributed across all disks and therefore provides the perfect balance between high performance and data integrity. When one drive fails, it can be replaced and the data will be rebuilt automatically.



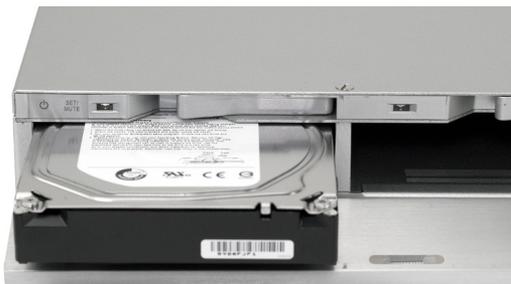
# SYSTEM SETUP

## 2.1 DRIVE INSTALLATION

**NOTE:** If you purchased a preconfigured solution with drives included, each drive has a different colored dot on it. When installing the drives, match these dots to the corresponding dots on each drive bay.

### To install drive mechanisms:

1. Open the front door on the OWC Mercury Rack Pro.
2. Install the drive as shown to the right, with the SATA connector facing away from you.
3. Slide the drive all the way into the drive bay. It will fit flush with the aluminum frame.
4. Repeat the previous steps for each drive you are installing.



**NOTE:** Be careful to not damage any components, and do not force the drives into place. If they do not slide in easily, make sure there are no obstructions.



### 2.1.1 Adding Drives to an Existing RAID Set

It is not possible to add more drives to an existing RAID array or change the RAID configuration without reformatting. In order to add more drives, the existing RAID must first be cleared using steps 1 and 2 in **Section 1.7.1, Changing the RAID Mode**. After clearing the RAID, a new RAID set may be created including any additional drives.

### 2.1.2 Adding Drives to an Independent (Clear RAID) Set

You can remove any drive from a Clear RAID set and replace it with another drive.

**IMPORTANT NOTE:** 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 OWC Mercury Rack Pro without powering off the unit first, any mounted drives will improperly unmount from the computer.

## 2.2 REPLACING DRIVES

When one of the drives fails, the corresponding activity LED will light up solid red and the alarm will sound. To disable the alarm, press the “Set/Mute” button once. If only one drive is defective and the RAID mode is set to RAID 1, RAID 3, RAID 5, or RAID 10, the data can still be accessed, but it is strongly suggested that you replace the faulty drive mechanism immediately with an identical model/capacity drive to assure continued data safety. To remove the drive from the enclosure, simply use the flip lever located above the drive to eject the drive mechanism.



If more than one drive fails at the same time, or if one drive fails and the RAID mode is set to RAID 0 or Combine/JBOD (SPAN), the data is lost (in Combine mode, only the data stored on the one failed drive is lost) and the system cannot be accessed again until the drive(s) are replaced and a new array is built.

1. Check the HDD LED and replace the faulty drive. The red LED indicates the defective drive. You do NOT need to power the enclosure off to do this.
2. For RAID 1, RAID 3, RAID 5, and RAID 10, the RAID array will be rebuilt automatically. During the rebuild process, the drive LED will flash red. Rebuilding the RAID array will take several hours to days, depending on drive capacity. Once the rebuild is complete, the LED will turn off, or flash red with activity. Power cycle the rack enclosure to return the LED to normal operation.
3. For RAID 0 and Combine/JBOD (SPAN) modes, the corresponding LED will turn blue, showing that the defective drive has been replaced and a good drive is inserted into the bay. You will need to clear and reset your RAID. See **Section 1.7.1, Changing the RAID Mode** for details on how to do that.

**NOTE:** Combined drives or independent drives can have the data from the good drives recovered in most cases.

**NOTE:** We recommend not turning the power off during the rebuild process, but if power is interrupted, the data will continue rebuilding as soon as the power is restored. The OWC Mercury Rack Pro does not need to be connected to a computer for the rebuild process to take place.

# APPENDIX

## 3.1 RACK/DESKTOP CONVERSION

The OWC Mercury Rack Pro comes with two rack handles to help move the Rack Pro into and out of a rack system. Four rubber feet are also included for use in a desktop environment. The rack handles and desktop feet are included with the unit, but have not been installed. Use a Phillips screwdriver to install either the handles or feet, depending on how you intend to use the Rack Pro. Two padded bumpers are included to cover the screw holes that are not used by the rack handles when the Rack Pro is configured as a desktop solution.

## 3.2 FORMATTING

For formatting information, including instructions on how to format your OWC Mercury Rack Pro for Mac or Windows, go to: <http://www.macsales.com/format>

## 3.3 UNMOUNTING DRIVES

To properly unmount any connected drives from your computer, you need to follow a few simple steps.

### For Mac OS X systems:

There are two main methods to unmount disks with Mac OS X systems. Either drag the icon for the disk you wish to unmount to the trash can, or right-click the disk icon on the desktop, then click "Eject".

### For Windows systems:

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 be given the following message. "Safe to Remove Hardware". It is now safe to unhook the OWC Mercury Rack Pro from the computer.

## 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 Mercury Rack Pro and a second copy on either your internal drive or another storage medium, such as an optical backup, or on a second external storage unit. Any data loss or corruption while using the OWC Mercury Rack Pro is the sole responsibility of the user, and under no circumstances will Other World Computing be held liable for compensation or the recovery of any lost data.

## 3.5 TROUBLESHOOTING

Begin your troubleshooting by verifying that the power cable is connected to the OWC Mercury Rack Pro and to a power source. If the power cable is connected to a power strip, make sure that the power switch on the strip is turned on.

Then, simply verify that both ends of your cables are properly plugged into the computer and the Rack Pro. If the Rack Pro is still not working properly, try connecting to another interface (USB, FireWire, or eSATA) and see if the device works properly. You can also connect the Rack Pro to a different computer.

If problems persist, consult our online collection of frequently asked questions (<http://www.macsales.com/FAQ>) or see section 3.7 for information on contacting OWC technical support.

## 3.6 ONLINE RESOURCES

### Formatting:

For formatting information, including instructions on how to format your OWC Mercury Rack Pro for Mac or Windows, go to: <http://www.macsales.com/format>

### Data Migration:

For a step-by-step walkthrough of our recommended method for migrating your data from an old drive to a new one, go to: <http://www.macsales.com/migration>

### FAQs:

Access our online collection of frequently asked questions for this and other products at: <http://www.macsales.com/FAQ>

## 3.7 TECHNICAL SUPPORT HOURS AND CONTACT INFORMATION

8AM - 8PM (CT) Monday - Friday

9AM - 4PM (CT) Saturday



By telephone: (800) 275-4576 (North America only)  
International customers please call: (815) 338-8685



Live chat is available during normal business hours as well.  
For more information, visit: <http://www.macsales.com/livechat>



Or you can email us. Submit your email at:  
[http://www.macsales.com/ts\\_email](http://www.macsales.com/ts_email)

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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:

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

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