



MERCURY RACK PRO

Assembly Manual & User Guide



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INTRODUCTION

1.1 Minimum System Requirements

1.1.1 Apple Mac Requirements

- » eSATA: OS X 10.3-10.11.6 | macOS 10.12 or later
- » FireWire: OS X 10.2-10.11.6 | macOS 10.12 or later
- » USB 3.1 Gen 1 (supports USB 2.0): OS X 10.6-10.11.6 | macOS 10.12 later

1.1.2 PC Requirements

- » eSATA: Windows XP or later
- » FireWire: Windows XP or later
- » USB 3.1 Gen 1 (supports USB 2.0): Windows 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)
- » Identical model drives are required for all RAID modes. Clear RAID (Independent) and Combine (SPAN) do not require identical drives.

1.2 Package Contents



OWC Mercury Rack Pro



Power cable



eSATA cable



USB 3.1 Gen 1
(Standard-A to
Standard-B) 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

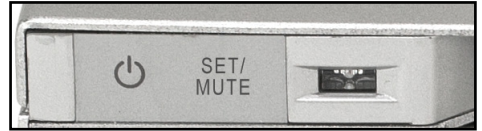
The images and descriptions may vary slightly between this manual and the unit shipped. Functions and features may change depending on the firmware version. Please visit the product web page for the most current information. OWC's Limited Warranty is not transferable and subject to limitations.

1.4 Front View



1.4.1 Buttons

The Power button and SET/MUTE buttons are behind the front cover on the left side. The SET/MUTE button is used for setting the RAID mode (see **Section 1.7**) and disabling the audible alarm if there is a drive failure.



1.4.2 LED Indicators

Power:

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

Access:

- » Blinking purple = drive being accessed

Rebuild:

- » Blinking red = RAID array being rebuilt
- » Solid red = faulty drive



1.5 Rear View



1. Power Input
2. eSATA port
3. USB 3.1 Gen 1 port
4. FireWire 400 port
5. FireWire 800 ports
6. RAID Mode switches

1.5.1 Connection

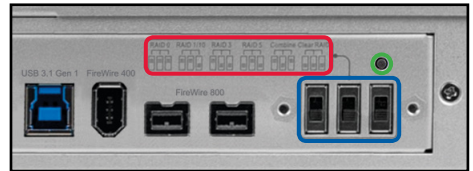
1. Plug the power cable into the wall and into the OWC Mercury Rack Pro.
2. Connect the appropriate eSATA, FireWire 800, FireWire 400, or USB 3.1 Gen 1 cable into the Rack Pro and computer (eSATA or USB 3.1 Gen 1 interfaces are recommended for maximum performance).

1.5.2 Usage Notes

- » Only one interface (eSATA, FW800, FW400, USB 3.1 Gen 1) 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 unmount the drive from your operating system before powering off and ejecting the drive. See **Section 3.3** for more information.
- » For the computer to access volumes larger than 2TB, the operating system must support large volumes (i.e. Windows Vista and later or Mac OS X 10.4 and later).
- » If one of the fans in the Mercury Rack Pro fails, an alarm will sound. The “Fan Alarm Mute” button located on the rear panel (highlighted below in green) will mute the alarm. It is recommended that you replace the failed fan as soon as possible in order to adequately cool the unit, thus preventing damage to components and avoiding potential data loss.

1.5.3 RAID Selector Switches

There are three RAID Mode switches on the back of the Mercury Rack Pro (highlighted in blue) that are used to change the RAID mode. Use the silkscreen above the switches as a guide (highlighted in red) when changing the RAID mode.



Section 1.7 provides additional details about working with RAID modes.

1.6 Pre-configured Solutions

If your Mercury Rack Pro included hard drives, they have been pre-configured as a RAID 5 volume — that volume has been pre-formatted. If you need drive installation tips, please see **Section 2.1**. Formatting tips for Mac and PC can be found in **Section 3.2**.

1.7 RAID Settings

1.7.1 Changing the RAID Mode

IMPORTANT: Identical model drives (make, model, capacity, firmware) are required for all RAID modes. Clear RAID (Independent) and Combine (SPAN) do not require identical drives. Additionally, changing the RAID mode 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 the three steps below.

1. With the Rack Pro powered off, adjust the switches on the back of the unit to Clear RAID to either clear the previous mode, or to immediately change to Independent mode.
2. Press and hold the SET/MUTE button on the front of the enclosure and power on the Rack Pro. Keep holding the button down until you hear a full beep. The lights on the Rack Pro will also flash during this process and will stop flashing when complete.
3. After the Rack Pro’s RAID mode has been cleared, power off again if you do not wish to use Independent mode. Change the switches to reflect your desired RAID mode and then repeat Step 2. Once the LED flashing stops the new RAID volume is ready to be formatted. See **Section 3.2** for more information on formatting.

1.7.2 RAID Mode Descriptions

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, first unmount all drives and power the OWC Mercury Rack Pro off.

Combine (SPAN) Mode

Switch setting: *UP-DOWN-UP*

The drives appear as one large volume. The total capacity depends on the drives used; you can use different capacities. Combine (SPAN) is an array (but not a RAID) in which the data is written sequentially across the drives. This combines the drives' capacities, but provides no performance or data redundancy benefits.

RAID 0 “Drive Striping” Mode

Switch setting: *UP-UP-UP*

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, but it does not provide any type of data 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. However 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 appear as one volume with a size equal to the capacity of one 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 backup are more important than capacity or speed. If one drive fails, it can be replaced and the data rebuilt.

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

Switch setting: *UP-UP-DOWN*

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 3 “Drive Striping with Dedicated Parity” Mode

Switch setting: *UP-DOWN-DOWN*

The drives appear 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 a 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 rebuilt.

RAID 5 “Drive Striping with Distributed Parity” Mode

Switch setting: *DOWN-UP-DOWN*

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.

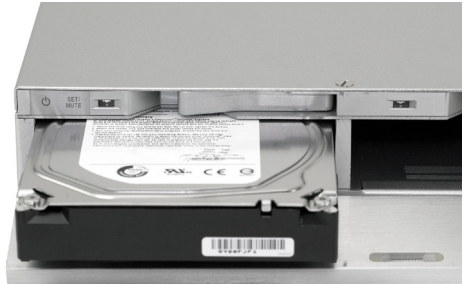
2.1 Drive Installation

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

Blue - ● Green - ● Yellow - ● Red - ●

Drive Installation Steps:

1. Open the front cover on the OWC Mercury Rack Pro.
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.



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

2.1.1 Adding Drives to an Existing RAID Set

Note that 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**. After clearing the RAID, a new RAID set may be created including any additional drives.

2.1.2 Adding Drives to Independent mode (Clear RAID)

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 Rack Pro without powering off the unit first, any mounted drives will improperly unmount from the computer.

2.2 Replacing Drives

If a drive fails, the corresponding activity LED will display as solid red and the alarm will sound. To disable the alarm, press the “Set/Mute” button once (see **Section 1.5.3**). If only one drive is defective and the RAID mode is set to RAID 1, 3, 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 drive to assure continued data safety.



To remove the drive from the enclosure, use the lever located above the drive to eject the drive mechanism (shown above). 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 (SPAN) mode, the data is lost and the system cannot be accessed again until the drive(s) are replaced and a new array is built. Note that when using a SPAN, only the data stored on the failed drive is lost.

1. Check the 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, 3, 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 (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** for more details.

Notes:

- » While the data from a failed SPAN drive is usually not recoverable, the data on the good drive(s) often will be recoverable.
- » We recommend not turning the power off during the rebuild process. However, if power is interrupted the data should 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.

3.1 Rack / Desktop Conversion

The OWC Mercury Rack Pro comes with two rack handles to enable rack-mounted configurations. Four rubber feet are also included for use in a desktop environment. Use a Phillips screwdriver to install either the handles or feet, depending on how you intend to use the enclosure. Two padded bumpers are included to cover the screw holes that are not used by the rack handles when the enclosure is configured as a desktop solution.

3.2 Formatting

To review our formatting tips please visit: www.owcdigital.com/format

3.3 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. Choose a method below to safely unmount your disk(s).

Mac:

- » 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”; OR
- » Highlight the disk on your Desktop and press Command-E.

PC:

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.

3.4 About Data Backup

To ensure your files are protected and 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 another 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 may OWC, its parent, 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 Troubleshooting

Begin your troubleshooting by verifying that the power cable is connected to the 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.

Next, 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 collection of frequently asked questions or see **Section 3.7** for information on contacting OWC technical support.

3.6 Online Resources

Data Migration:

For our recommended method of migrating data from an old drive to a new one, please visit: www.owcdigital.com/support/data-transfer

FAQs:

Access our collection of frequently asked questions at: www.owcdigital.com/faq

3.7 Contacting Technical Support



Phone: M–F, 8am–5pm CST
(866) 692-7100 (N. America) | +1 (815) 338-4751 (Int'l)



Chat: M–F, 8am–8pm CST
www.owcdigital.com/support



Email: Answered within 48 hours
www.owcdigital.com/support

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:

- » 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 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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