



# Guardian **MAX**imus

## ASSEMBLY MANUAL & USER GUIDE



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# INTRODUCTION

## 1.1 MINIMUM SYSTEM REQUIREMENTS

### 1.1.1 Apple® Mac Requirements

- PowerPC G4 CPU, 128MB RAM
- eSATA: Mac OS 9.2 or later
- FireWire 400: Mac OS 9.2 or later
- FireWire 800: Mac OS X 10.2 or later
- USB 2.0: Mac OS X 10.2 or later
- USB 3.0: Mac OS X 10.6 or later

### 1.1.2 PC Requirements

- 500MHz Intel® Pentium® 3 CPU, 128MB RAM
- eSATA: Windows® XP or later
- FireWire 400: Windows XP or later
- FireWire 800: Windows XP or later
- USB 2.0: Windows XP or later
- USB 3.0: Windows XP or later

### 1.1.3 Supported Drives

- 3.5" SATA hard drives

**NOTE:** Drives of identical model and capacity are required for RAID 0 and RAID 1.

## 1.2 PACKAGE CONTENTS



Guardian Maximus



Power Supply and  
cable



eSATA cable



FireWire 800 (1394b)  
9-9 pin cable



FireWire 400 (1394a)  
6-6 pin cable



USB 3.0 (Standard-A  
to Standard-B) cable

**Not pictured:** If the Guardian MAXimus was purchased as an empty enclosure, a packet of screws is included inside the Guardian MAXimus.

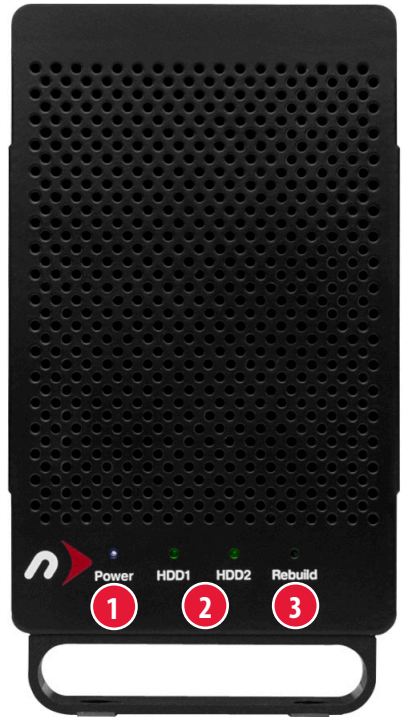
## 1.3 ABOUT THIS MANUAL

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 product specifications.

## 1.4 FRONT VIEW

### 1.4.1 LED Indicators

- 1. Power** — This LED will emit a **solid blue** light when the Guardian MAXimus is powered on.
- 2. HDD1/HDD2** — These LEDs represent the two hard drives (HDDs) inside the Guardian MAXimus. During normal activity, each of these LEDs will **blink green** when the corresponding drive is accessed. If one of the hard drives in the Guardian MAXimus fails, or if the drive bay is empty, the corresponding LED will turn **solid red**. If the Guardian MAXimus is set up as a RAID 1 and one of the hard drives is being rebuilt, the corresponding LED will **blink red**.
- 3. Rebuild** — If the Guardian MAXimus is set up as a RAID 1 and one of the hard drives is being rebuilt, this LED will **blink green** during the rebuild process.



## 1.5 REAR VIEW



## 1.5.1 Rear Features

- 1. USB 3.0 port** — Attach the included USB 3.0 (Standard-A to Standard-B) cable here.
- 2. eSATA (3Gb/s) port** — Attach the included eSATA cable here.
- 3. FireWire 800 ports** — Attach the included 9-9 pin FireWire 800 cable to one of these ports and to your computer. Use the other FireWire 800 port to daisy chain other FireWire 800 devices.
- 4. FireWire 400 port** — Attach the included 6-6 pin FireWire 400 cable here.
- 5. Power input** — Connect the included power supply here.
- 6. On/off switch** — Turn on and off the Guardian MAXimus here.
- 7. Kensington® Security Slot** — Connect a security tether here.

### NOTE:

- Only one interface (USB 3.0, eSATA, FireWire 800, Firewire 400) 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).

# SYSTEM SETUP

## 2.1 QUICK START

If you purchased the Guardian MAXimus as an empty enclosure, proceed to **Section 2.2, Assembly**. If you purchased the Guardian MAXimus with drives already installed, the NewerTech NuDrive formatting utility has been installed on your Guardian MAXimus. Follow these steps to use NuDrive to format your Guardian MAXimus for Mac OS X (10.4 and later) or Windows (XP and later).

1. Connect your drive to your computer using the proper cable, then turn on your drive. If you prefer to use a different formatting utility, do so at this time and skip the rest of these instructions.
2. Your drive will show up as "Newer HD". Open your drive to view its contents.
3. Open the "Macintosh Setup" or "Windows Setup" folder, depending on the computer's operating system, then double-click the NuDrive application.
4. Follow the simple on-screen instructions to complete the formatting process.
5. Once the formatting is finished the drive is ready to use.

## 2.2 ASSEMBLY

**NOTE:** The following assembly instructions are written for users who purchased the Guardian MAXimus as an empty enclosure. The instructions show how to open the Guardian MAXimus in order to change the RAID settings and install drives. If you purchased the Guardian MAXimus with drives already installed, **opening the Guardian MAXimus before the expiration of the original warranty will VOID the warranty**. If you wish to remove or replace the drives after the expiration of the original warranty, you may do so at that time. The DIP switches that control the RAID settings can be accessed without opening the Guardian MAXimus by removing the clip-in fan at the back.

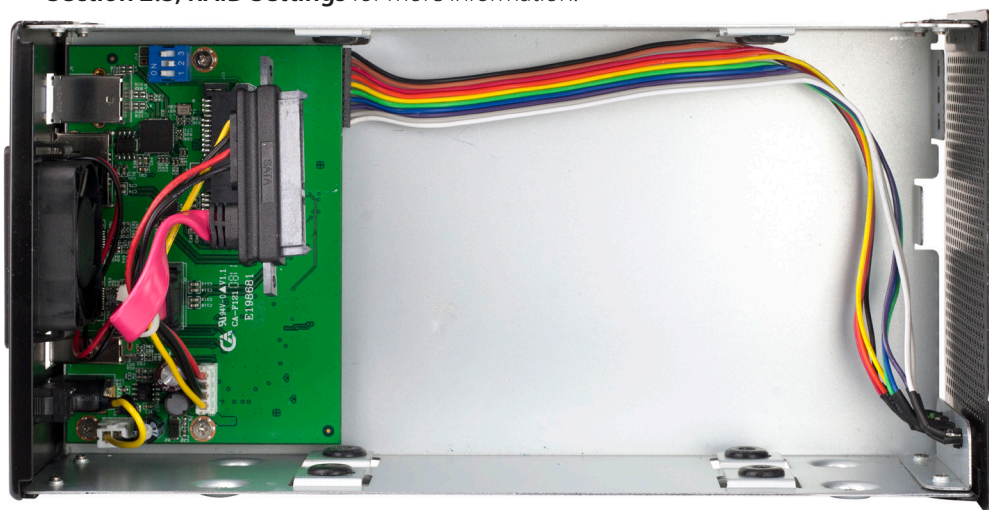
1. Remove the Guardian MAXimus from the retail box and the protective plastic bag. Set the Guardian MAXimus on its side and look at the bottom of the enclosure. Use a Phillips screwdriver to remove the two screws, as circled below in red.

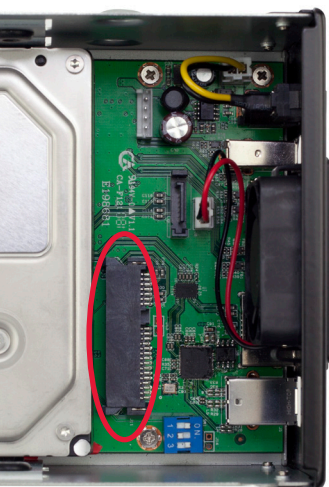


2. Once the two screws have been removed, slide the inner chassis out of the front of the outer enclosure, as shown below. Start by pushing on the rear of the inner chassis, then when you are able to get a grip on the front grill of the inner chassis, pull it the rest of the way.



3. When removed from the outer enclosure, the inner chassis will appear as shown below. There will also be a packet of screws inside. Remove this packet and use the screws as directed later in the assembly instructions. Note the blue block containing three white DIP (Dual In-line Package) switches. These switches are used to control the RAID mode. See **Section 2.3, RAID Settings** for more information.





4. Install the first hard drive (HDD1), as shown to the left. Slide the SATA connector on the hard drive into the black SATA connector circled in red. Make sure the drive is firmly seated in the black SATA connector before proceeding.

**NOTE:** In this picture, the cabling to connect the second hard drive has been removed. This was done to provide a better image of the drive installation only. Do not remove any cabling from the Guardian MAXimus.

5. Install the second hard drive (HDD2), as shown below. Insert the SATA connector from the Guardian MAXimus into the SATA connector on the hard drive. Make sure the SATA connectors are seated firmly before continuing.

**NOTE:** Make sure that the flat red cable is twisted as shown below to the right. The cable is designed to be twisted this way in order to avoid interfering with the exhaust fan at the rear of the Guardian MAXimus.



6. Using eight of the larger screws from the packet you removed from the inner chassis, fasten the hard drives into the inner chassis. There are four screw holes on each side of the inner chassis, as circled below in red.



7. Slide the inner chassis back into the outer enclosure. Note that while the inner chassis can slide into both sides of the outer enclosure, there is only one correct way that will allow the screw holes to line up correctly. To determine the correct orientation of the outer enclosure with the inner chassis, turn the outer enclosure on its side and look at the bottom. As shown below, the screw holes at the front of the outer enclosure are close to the silicone feet. The screw holes at the rear of the outer enclosure are farther away from the silicone feet.



8. Once you have determined the correct orientation, slide the inner chassis back into the outer enclosure, as shown below.



9. Once the front grill of the inner chassis sits flush with the edge of the outer enclosure, turn the Guardian MAXimus on its side again to look at the screw holes on the bottom. You should be able to see that the screw holes in the outer enclosure line up with the screw holes in the inner chassis. Use the four smaller screws to fasten the inner chassis to the outer enclosure, as shown below. The assembly of the Guardian MAXimus is now complete.



## 2.3 RAID SETTINGS



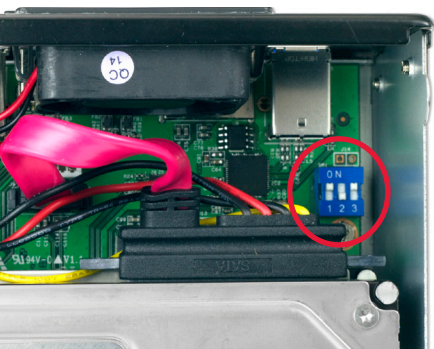
**WARNING:** Changing the RAID mode will destroy the data on the drives. Be sure to back up your data first! See section 3.4 for information on proper backup strategies.



### 2.3.1 Changing the RAID Mode

The RAID mode on the Guardian MAXimus is controlled by a set of three DIP (dual in-line package) switches located in a blue block inside the enclosure, as shown in the picture below. The DIP switches can be accessed by removing the clip-in fan at the rear of the Guardian MAXimus.

The switches are labeled 1, 2, and 3, and the blue block has the word '**ON**' at the top. The '**ON**' position for each switch is toward the word '**ON**', while the '**OFF**' position for each switch is toward the numbers. The following chart shows the switch positions that correspond to each RAID mode. See **Section 2.3.2, RAID Modes** for more information on each RAID mode that can be used.



MODE	SW#1	SW#2	SW#3
RAID 1	---	OFF	OFF
RAID 0	---	OFF	ON
SPAN	---	ON	OFF
INDEPENDENT (FIREWIRE ONLY)	---	ON	ON
2TB MODE	ON	---	---

**2TB MODE** — Switch #1 has no effect on the RAID mode. Instead, it controls the 2TB volume limitation. When switch #1 is in the **OFF** position, the total capacity of the drives is limited to a maximum of 2TB for compatibility with older operating systems.

**NOTE:**

- If setting switch #1 to **ON** does not initially allow volume sizes to exceed 2TB, do the following: keeping switch #1 in the **ON** position, change to a different RAID mode, then turn on the Guardian MAXimus. Format the new RAID volume, then shut off the Guardian MAXimus, change to the desired RAID mode (or to span or independent mode), and turn on the Guardian MAXimus.
- When 2TB mode is enabled, PowerPC Macs and Intel Macs introduced before 2008 cannot use the Guardian MAXimus as a startup drive over the FireWire connection. This is a limitation of these computers. Mac models introduced in 2008 and later are fully

capable of using the Guardian MAXimus as a startup drive over FireWire, even with 2TB mode enabled. Note that this only affects FireWire booting. All Intel Macs are still able to use the Guardian MAXimus as a startup drive over USB, regardless of whether 2TB mode is enabled.

## 2.3.2 RAID Modes

### **Independent Drive Mode (FireWire Only):**

Each drive will appear individually without being combined. If you are using drives of differing capacity and model, or if you are using only one drive, this is the mode to use.

**NOTE:** This mode will only have full functionality over the FireWire connection. If the Guardian MAXimus is set to independent drive mode and connected over USB or eSATA, only the first hard drive (HDD1) will be displayed on the computer.

### **Span Mode:**

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. A 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:**

The drives show up as one large single volume with a size equal to the combined capacities of both drives. 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 both drives to gain speed by distributing the workload. This allows for the fastest data transfer rates, 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:**

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 redundancy are more important than capacity. When one drive fails, it can be replaced and the data will be rebuilt automatically.

## 2.4 DRIVE FAILURE

In the event that one of the drives fails, the corresponding drive LED will turn solid red. If the Guardian MAXimus was configured as a RAID 0 or span, the data on the array is lost and the volume cannot be used. In a span, only the data stored on the failed drive is lost, although data recovery software will be required to recover the data from the other drive in the span. If the drives were configured independently, then the data on the drive that did not fail will remain intact.

### 2.4.1 Drive Replacement and Rebuild

If the drive was part of a RAID 1 array, then it can be replaced. In the meantime, the data will remain accessible through the other drive in the RAID 1 array. If the Guardian

MAXimus was purchased with drives already installed and it is still under warranty, see **Section 3.6** for information on how to contact NewerTech technical support to arrange for replacement.

If the unit is outside its warranty or was purchased without drives, follow the assembly instructions in **Section 2.2** to access and replace the failed drive. If the HDD1 LED is solid red, the failed drive is the one on the bottom, connected directly to the black SATA connector on the circuit board of the Guardian MAXimus (see **Section 2.2**, step 4). If the HDD2 LED is solid red, the failed drive is the one on the top, connected using cables (see **Section 2.2**, step 5).

**NOTE:** The failed drive must be replaced with a drive of identical model and capacity.

After the failed drive is replaced, if the Guardian MAXimus is configured as a RAID 1, the array will automatically begin the rebuild process when it is turned on. This process may take several hours to more than a day, based on the capacity of the drives. During the rebuild process, the LED for the drive being rebuilt (HDD1 or HDD2) will blink red, and the rebuild LED will blink green. It is recommended to leave the Guardian MAXimus turned on during the entire rebuild process, but if power is interrupted, the unit will continue rebuilding automatically when power is restored. Once the rebuild process is complete, the rebuild LED will turn off and the LED for the rebuilt drive will resume normal activity. See **Section 1.4** for more information on the behavior of the LEDs on the front of the Guardian MAXimus.

If the Guardian MAXimus is set up as a span or as a RAID 0, the array must be reformatted before it can be used again. If the Guardian MAXimus is set up in independent drive mode, you do not need to reformat the existing drive or the new drive. If the new drive had data on it before being installed in the Guardian MAXimus, that data will remain intact.

# APPENDIX

## 3.1 FORMATTING

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

## 3.2 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 see a message that says, "Safe to Remove Hardware." It is now safe to disconnect the Guardian MAXimus from the computer.

## 3.3 TROUBLESHOOTING

Begin your troubleshooting by verifying that the power cable is connected to the Guardian MAXimus 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 Guardian MAXimus. If the Guardian MAXimus is still not working properly, try connecting to another interface such as the USB connection and see if the device works properly. You can also connect the Guardian MAXimus to a different computer.

If one of the drive LEDs (HDD1 or HDD2) is solid red, then that drive has failed. See **Section 2.4** for instructions on how to proceed. If the Guardian MAXimus is configured as a RAID 1 and the rebuild LED is blinking, simply wait for the rebuild process to complete. If the rebuild LED is still blinking after more than 48 hours, contact tech support for assistance.

If problems persist, consult our online collection of frequently asked questions (<http://www.macsales.com/FAQ>) or see **Section 3.6** for information on contacting 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 Guardian MAXimus 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 Guardian MAXimus is the sole responsibility of the user, and under no circumstances will NewerTech be held liable for compensation or the recovery of any lost data.

### 3.5 ONLINE RESOURCES

#### Formatting:

For formatting information, including instructions on how to format your Guardian MAXimus 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>

### 3.6 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://newertech.com/support>



Or you can email us. Submit your email at:  
<http://www.newertech.com/support>

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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 Newer Technology 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 webpage.



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NWTMANGMAXU3

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