wiebeTECH

Drive eRazer™
user manual

(Revised April 8, 2011)

Features

- Stand-alone product for erasing hard drives—no computer required.

- Status LED shows how much time remains in the erasing process

- Durable aluminum case with excellent heat dissipation

- Small size allows you to take it anywhere

- The models for 3.5" drives can optionally be used with WiebeTech's v4 Combo Adapters, adding compatibility with many more drive types. Versatile Bundle configurations include two such adapters for the most common drives, including 2.5" & 3.5" SATA.

1. Pre-Installation Instructions

1.1 Check the accessories packaged with your Drive eRazer™
Please contact WiebeTech if any items are missing or damaged. The box should contain:

Models for 3.5" drives	
Drive eRazer unit	1
AC adapter & power cord	1
Metal drive plate	1
Packet of screws and bumpers	1
CD containing this user's manual	1

Versatile Bundle configurations also include:	
2.5" to 3.5" drive adapter	1
SATA drive adapter	1

Notebook Drive eRazer Pro SE (for 2.5" drives)	
Drive eRazer unit	1
AC adapter & power cord	1
Packet of screws	1
CD containing this user's manual	1

1.2 Take a moment to familiarize yourself with the parts of your new Drive eRazer. This will aid you in the remaining steps.
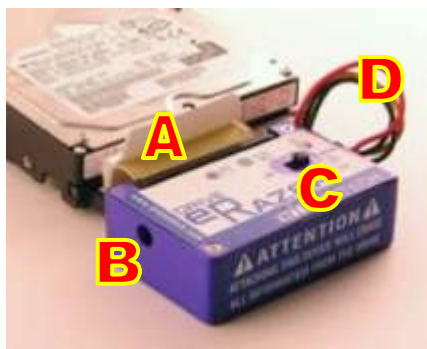
Connectors:
A IDE ribbon cable, connects to drive or adapter
B DC +12V power input from AC adapter
C Power switch (OFF / ERASE)
D 4-wire power output, connects to drive

LEDs:
a Hard drive access
b Drive eRazer status (see next section)
c +12V power output to drive is on (yellow wire)
d +5V power output to drive is on (red wire)

1.3 Status LED functions. Drive eRazer's status LED has four different functions.

1.3.1 Function Indicator
When you activate Drive eRazer, the status LED will light solid to indicate that Drive eRazer is checking for and removing any HPA (Host Protected Area) or DCO (Device Configuration Overlay) areas found on the drive—these are hidden areas on the drive that are normally inaccessible to a computer. Next, (in some modes) Drive eRazer will erase a small section of the drive and calculate how long it will take to erase the rest of the drive. This may take several minutes. When the LED changes from solid to blinking, it has begun performing its next function.

1.3.2 Timer
Next, the status LED acts as a timer, counting down the remaining minutes before the erase is complete. It will start to blink in a rhythmic, repeating pattern that represents four digits. Each digit is shown as a succession of 1 to 10 blinks, indicating the digits 0-9. Simply subtract one from the number of blinks to get the correct digit. For example, the pattern [1 blink, 2 blinks, 3 blinks, 8 blinks] represents [0, 1, 2, 7], or 127 minutes. This pattern will repeat over and over, gradually counting down the time until the erase process is complete.

1.3.3 Error Indicator
If Drive eRazer™ encounters any problems during the erase process, the status LED will act as an error indicator. It will indicate what error occurred by a repeating number of fast blinks (quicker than the countdown blinks). The chart below shows what error is indicated by a specific number of blinks.

Number of Blinks	Reported Error
3	**HPA ERROR** - An HPA (Host Protected Area) has been detected on the hard drive, and cannot be removed. The HPA should be removed manually and the hard drive tried again with the Drive eRazer.
4	**DCO ERROR** - A DCO (Device Configuration Overlay) has been detected on the hard drive and cannot be removed. The DCO should be removed manually and the hard drive tried again with the Drive eRazer.
5	**SECURE ERASE NOT SUPPORTED -** The hard drive connected to the Drive eRazer was produced before Secure Erase was standard on all hard drives. The drive will need to be erased using Single Pass mode instead.
6	**VERIFY ERROR -** The erasure process completed successfully, but during erasure verification an error was encountered. This typically indicates a problem with the hard drive itself. The erasing process should be attempted again. If the same error occurs, a defective drive is the most likely culprit.
7	**MIN LBA ERROR -** The drive is too small to be used with the Drive eRazer. This error applies to disks smaller then 5 Megabytes. Usually, this error will only occur if a drive is defective.
8	**HDD TIMED OUT -** The Drive eRazer sent a command to the hard drive, but no response was received. Typically indicates a defective drive.
9	**WRITE ERROR -** The Drive eRazer sent a write command to the hard drive, and the drive returned a write error. Typically indicates a defective drive.
10	**SECURE ERASE TIME NOT SUPPORTED -** This indicates that the Drive eRazer is erasing the drive using the Secure Erase method, but does not know how long the process will take. Once the erasure process is complete the status light will be solid green, as normal.
11	**NO HDD PRESENT -** This error message is typically given if the drive was removed from the Drive eRazer during an erasure process. If the drive is still attached, this can often indicate a defective hard drive.
12	**PASSWORD ALREADY ENABLED -** The hard drive connected to the Drive eRazer was interrupted during a Secure Erase with a non-Drive eRazer device and will need to be unlocked by that device before it can be used with Drive eRazer.
13	**PASSWORD DISABLED -** If the previous erase process is interrupted your drive will be locked for use. Attach the drive to the DRZR until you encounter the 13 blink error code. This means the password is reset and your drive is now unlocked. Cycle power on the Drive eRazer, then either try to erase in Secure Erase mode again or switch to Single Pass mode.

1.3.4 Completion Indicator
At the end of the erasing process, Drive eRazer will show a solid light on the status LED to show that it has finished erasing the drive. At this point it is safe to turn off the Drive eRazer and disconnect the drive.

1.4 Configure the jumpers on your IDE/PATA hard drive.

The drive must be set to the Master setting. Consult the instructions for your drive (some drives display configuration information on the drive's label). A few drives have both "Master with Slave Present" and "Master without Slave" options. Choose the latter in this case. In rare cases, if the Master setting does not work then try Cable Select. Note: If using Drive eRazer™ with non-IDE/PATA drives (via adapters), jumpers are usually not required.

Rear of hard drive

IDE interface   **Jumper Pins**   Power

(Example)
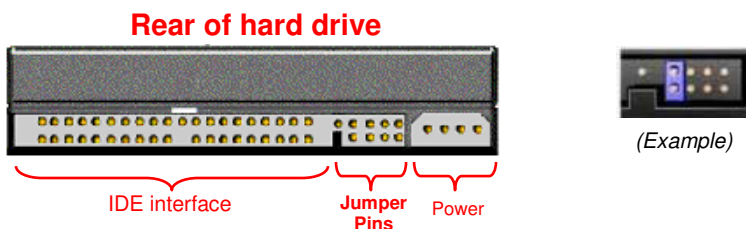
2. Installation Steps

2.1 Attach protective metal drive plate to your 3.5″ hard drive. (This step

is optional but recommended.) The purpose of the bottom plate is to provide protection to your drive electronics and aid heat dissipation. Attach the bottom plate to your drive using the four screws supplied. Attach a rubber bumper to each corner. Extra bottom plates are available from WiebeTech.

2.2 Connect the hard drive to the dock.

### 2.2.1. Attach the free end of the IDE ribbon cable to the rear of the hard drive.

The connector is keyed to insert only one way. The IDE pins on the hard drive are fragile, so be very careful when inserting or removing the IDE connector.

IDE   **Power**

2.2.2 Attach the 4-pin power connector from the Drive eRazer into the rear of the hard drive. As with the IDE cable, the power connector will only fit one way.

2.3 Connect power to Drive eRazer.

Your eRazer is now ready to use! Activate the unit by moving the power switch toward the side labeled "erase". When power is on, the power output LEDs "12V" and "5V" will illuminate to show that power is going to the hard drive. The red LED access indicator will light showing that eRazer recognizes that a drive is being accessed. The status LED will begin its function.
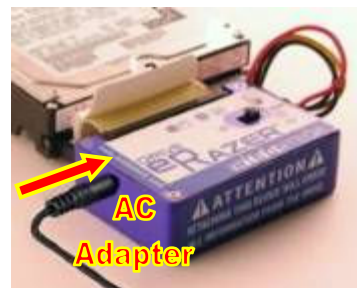
AC Adapter

> **Note:** The eRazer may utilize any 12V regulated switching power supply capable of supplying 2A or greater. Do not use an unregulated adapter, as damage may occur to the eRazer or the attached drive.

3. Using Drive Adapters

Drive eRazers™ purchased in a "Versatile Bundle" configuration include adapters for other common drive types. These adapters, as well as other adapter types, may also be purchased separately.

Adapter for SATA drives

Usage: Any 2.5-inch or 3.5-inch SATA (Serial-ATA) drive

Instructions:
a) Attach Drive eRazer's 4-wire power connector to the corresponding socket on the adapter.

b) Connect Drive eRazer's IDE ribbon cable to the adapter's 40-pin IDE interface.

c) Connect the drive to the adapter.

d) Plug the AC adapter into the Drive eRazer.

e) Turn on the power switch. The drive connected to the adapter will spin up and Drive eRazer will start erasing it immediately.

Adapter for 2.5-inch PATA drives

Usage: Any 2.5-inch PATA (Parallel-ATA) drive, the size commonly found in laptop computers. PATA drives are also sometimes referred to as IDE, ATA, or ATAPI, and are identified by their 44-pin interface.

Instructions:
a) Attach Drive eRazer's 4-wire power connector to the corresponding socket on the adapter.

b) Connect Drive eRazer's IDE ribbon cable to the adapter's 40-pin IDE interface.

c) Lay the drive onto the adapter's green board between the metal guide posts. Slide the drive forward until the drive's interface pins plug into the adapter.

d) (Optional) If you will be moving the adapter while the drive is connected, you may use the included screws to fasten the drive to the board.

e) Plug the AC adapter into the Drive eRazer.

f) Turn on the power switch. The drive connected to the adapter will spin up and Drive eRazer will start erasing it immediately.

4. Mode Specifications

All Drive eRazer™ models feature a single-pass primary mode. Professional models also feature an optional secondary mode for enhanced security. Every Drive eRazer model will unlock and erase any hidden areas found on the drive (i.e. HPA or DCO).

4.1 Primary mode: Single-Pass

Drive eRazer models: all

Description: Single-Pass mode detects and unlocks any HPA or DCO, then makes one pass across the entire drive, overwriting every bit with zeroes. At the end of the single pass, Drive eRazer will verify that the data has been erased by checking a sampling of sectors across the drive.

4.2 Secondary mode: Multi-pass

Drive eRazer models: Drive eRazer Pro MP only

Description: Multi-pass mode detects and unlocks any HPA or DCO, then proceeds to overwrite the entire hard drive three times. For the first pass, it uses a repeating string of ones and zeroes. For the second pass, it uses a different repeating string of ones and zeroes. For the final pass, it writes all zeroes. At the end of the final pass, Drive eRazer will verify that the data has been erased by checking a sampling of sectors across the drive.

4.3 Secondary mode: Secure Erase

Drive eRazer models: Drive eRazer Pro SE only

Description:
Secure Erase mode activates a built-in command present on most hard drives manufactured after the year 2001 (typically 15GB or greater). This feature ships in the drive's firmware (written by the factory), and Drive eRazer can activate it at a hardware level. To ensure hidden areas are erased, Drive eRazer Pro SE detects and unlocks any HPA or DCO before invoking the Secure Erase command.

Like single-pass mode, Secure Erase mode sequentially overwrites every single bit/track on the hard drive. Both modes overwrite data left at the end of partly overwritten blocks and directories. Secure Erase better handles, however, data on "bad blocks" (single pass may stop and report an error at a bad block).

Secure Erase as implemented by some drive manufacturers may also trigger specialized clearing commands to erase any drifting data in the otherwise untouched track margins on the drive platter.

Secure Erase is a federally approved method for erasing hard drives, and is specifically mentioned in NIST special publication 800-88 "Guidelines for Media Sanitization":

> "Degaussing and executing the firmware Secure Erase command (for ATA drives only) are acceptable methods for purging."

You should note that degaussing will usually destroy the target drive. Drive eRazer in any mode will not destroy the target drive—only the data.

5. Switching Between Primary and Secondary Modes

This section applies to Professional models only (Pro SE, Pro MP).

Drive eRazer™ Pro models are set to primary (single-pass) mode by default, but are capable of operating in a secondary mode (either multi-pass or Secure Erase, depending on the model) if a more rigorous erasure method is desired.

Secondary mode is enabled by changing the position of a small jumper found on the circuit board inside Drive eRazer. Carefully follow these steps to change the mode of operation.

a) Unscrew and remove the two screws holding on the lid.

b) Remove the lid.

c) At the top left of the circuit board, you will see a set of four metal pins in a square formation, with a plastic jumper connecting two of them (as shown in the picture to the right).

d) Using a pair of needle-nose pliers, move the jumper so that it connects the pins that correspond to the desired mode of operation.

- Primary (Single-Pass) Mode – Connect pins 1 & 3 (or any combination other than 1 & 2).
- Secondary (Pro) Mode – Connect pins 1 & 2. (See picture below)

e) Place the lid back on and screw it down.

Jumper
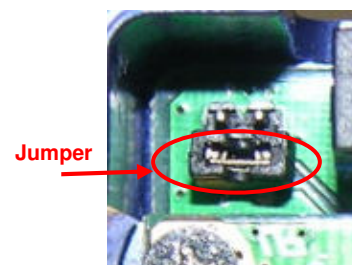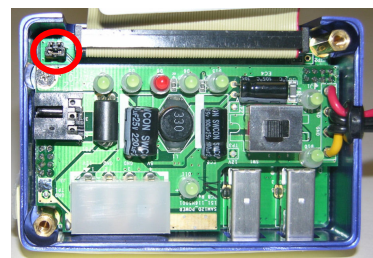
6. Frequently Asked Questions (FAQ)

Q: How does Secure Erase work?
A: Secure Erase executes a Federally-approved (NIST 800-88) command in the ATA ANSI standard. In other words, Secure Erase prompts commands that are already embedded on your hard drive. The purpose of those commands is to overwrite every single bit of data. Secure Erase is approved for user data up to the Confidential level.

Q: What is Secure Erase time support?
A: Secure Erase is implemented on most drives that were produced in 2001 or later. However, an estimate of the time needed for the operation was not added until later. So, some drives support Secure Erase but will not give a time code. Such drives will cause Drive eRazer™ Pro SE to display a 10-blink error code, though the erasure process will proceed. When the LED stops blinking, Drive eRazer will have completed erasing the drive.

Q: How fast will Drive eRazer erase the data on my drive?
A: The erasure time depends on many different variables. The first is which mode the Drive eRazer is set to. Single-Pass will finish more quickly than Secure Erase in most cases. Also, the drive size and age are important factors: older drives will erase more slowly than newer ones; higher capacity drives will take longer than lower capacity drives. On average, Single-Pass will erase at a rate of 3.5 GB/min, but has been documented erasing at 6.5 GB/min. Secure Erase will erase at an average rate of 2 GB/min, but has been documented erasing at 4.5 GB/min.

Q: Has this product been validated by any government organizations?
A: Yes. The Drive eRazer has been tested and certified by NIST, The National Institute of Standards and Technology. You may view NIST's test results and summary in PDF form here:
http://ncjrs.gov/pdffiles1/nij/231621.pdf

Also, the Dept. of Defense through the DCCI (Defense Cyber Crime Institute) has prepared a report on some of our products. We are prohibited from distributing this report, but you may contact the DCCI. If you are qualified, you may receive the report information.

Q: I saw a website claiming the DoD requires 5 (or more) passes for classified data. Why does your white paper indicate that the DoD only requires one?
A: As of June 2007, the DoD requires physical drive destruction for any drive containing classified data. For non-classified data, a single-pass erasure is sufficient. Many websites have not updated their information to reflect this change in policy. At any rate, Drive eRazer™ can perform as many passes as you need for your application. When it finishes one erasure process, simply start another one. Repeat as needed.

Q: With what drive capacities is Drive eRazer compatible?
A: Drive eRazer cannot erase drives or media that are less than 10,000 sectors (5.12MB) or larger than 2TB.

**Q:** Do I have to jumper my drive to a particular setting?
A: We recommend that you jumper your IDE/PATA hard drives to a MASTER setting. Some hard drives have two different MASTER settings: one for when there is a SLAVE drive present and one for when there is NO SLAVE drive present. Choose the setting for NO SLAVE present. There may be some drives that will not work with either of these settings. The next choice is CABLE SELECT. If this does not work, try using NO jumpers. This may be the same as MASTER with NO SLAVE present.

7. Technical Specifications

Product Models	Drive eRazer Standard Drive eRazer Pro MP (multi-pass) Drive eRazer Pro SE (Secure Erase) Notebook Drive eRazer Pro SE (Secure Erase) Note: each model (except Notebook) is available in a Versatile Bundle configuration
Erase Modes	Drive eRazer Standard: single-pass mode only Drive eRazer Pro MP: single-pass or multi-pass, selectable via internal jumper Drive eRazer Pro SE: single-pass or Secure Erase, selectable via internal jumper Notebook Drive eRazer Pro SE: single-pass or Secure Erase, selectable via internal jumper
Erasure speed	Typically around 35 MB/s. Speeds vary depending on the erase mode, drive model, and drive capacity.
Detects & Erases HPA	Yes, all models
Detects & Erases DCO	Yes, all models
External Power Supply	100-240VAC +12V / 3A (included)
Power Input	+12V 3A from AC adapter via +12V DC Jack
Power Output	+12V / +5V to drive
Power Switch	2-position: Off / Erase
HDD Access Indicator	Provides visual indication of hard drive activity
Operating Temperature	50 – 85° Fahrenheit (10 – 30° Celsius)
Operating Humidity	5% to 95%, noncondensing
Drive Compatibility	Drive eRazer Standard: 3.5" IDE/PATA drives up to 2TB Drive eRazer Pro MP: 3.5" IDE/PATA drives up to 2TB Drive eRazer Pro SE: 3.5" IDE/PATA drives up to 2TB Notebook Drive eRazer Pro SE: 2.5" IDE/PATA drives Versatile Bundle configurations: 2.5" & 3.5" IDE/PATA, 2.5" & 3.5" SATA
Shipping Weight	2 pounds, including accessories
Dimensions	3.2" x 2.2" x 0.95" (81mm x 56mm x 24mm) Dimensions are exclusive of attached plates, drives, and cables.
Warranty	2-year limited warranty. See warranty statement for details and limitations. WiebeTech offers free phone support for 90 days after purchase (1-866-744-8722). After 90 days, email support is available at support@wiebetech.com.

Drive eRazer™ is a trademark of CRU-DataPort. Other marks are the property of their respective owners.

FCC Compliance Statement: "This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."

Tested to comply
with FCC standards

FOR HOME OR OFFICE USE
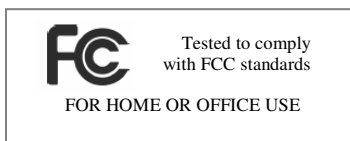
In the event that you experience Radio Frequency Interference, you should take the following steps to resolve the problem:
1) Ensure that the bottom plate and case of your attached drive is grounded, either to the eRazer™ case or to an Earth ground.
2) Use a FireWire cable with RFI reducing ferrites on each end.
3) Use a power supply with an RFI reducing ferrite approximately 5 inches from the DC plug.

If you have any questions or problems, please contact support@wiebetech.com for technical support. If you are interested in purchasing more WiebeTech products, check our website or contact sales@wiebetech.com. We appreciate being able to serve you!