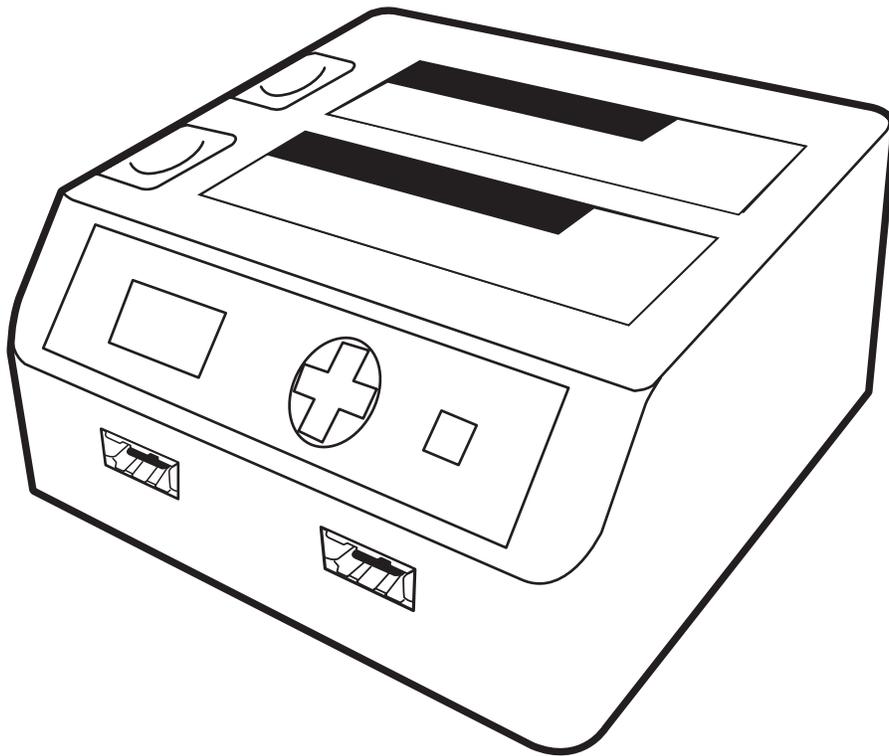




"Technology on the move!"



Kanguru miniClone 1HD SATA User Guide

NOTICES AND INFORMATION

Please be aware of the following points before using your Kanguru miniClone

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To obtain service or technical support for your system, please contact Kanguru Solutions Technical Support Department at 508-376-4245, or visit www.Kanguru.com for web support.

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FCC Compliance Statements

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, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to 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 Distance between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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1. Introduction

Congratulations on your purchase of the Kanguru miniClone from Kanguru Solutions.

The Kanguru miniClone is a high speed, stand-alone 1 to 1 SATA hard drive duplicator that creates hard drive clones. The duplicator has many advanced features for the IT professional, yet a novice can begin cloning hard drives within minutes of taking it out of the box.

The Kanguru miniClone is a 1 to 1 duplicator, meaning that it copies the content of a Source Drive to a Destination Drive. With ultra fast copy speeds of up to 120MB/s, and an intuitive user interface, the Kanguru miniClone is a versatile tool that makes your small duplication projects a snap.

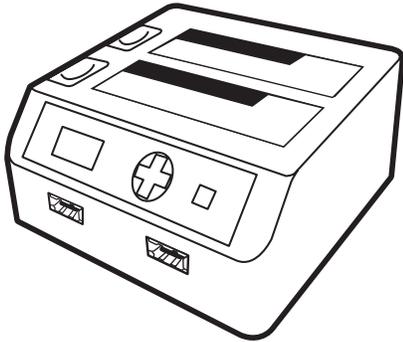
The Kanguru miniClone can also be connected to a computer through USB or eSATA connection.

Features

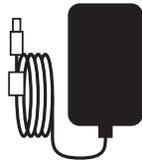
- √ Make copies of bare SATA HDDs (Hard Disk Drives), external hard drives (USB and eSATA external hard drives supported) and USB flash drives.
- √ HDD Size and Brand independent: Supports all standard 2.5" / 3.5" SATA HDDs, SSDs and external hard drives. Master & Target drives can be different sizes, brands and models.
- √ Up to 120MB/s transfer rates (depending on hard drive).
- √ Stand alone functionality, means no computer is required for operation.
- √ Clear 128 x 64 OLED display.
- √ Space saving, toaster style duplicator.
- √ Clones any operating system: including DOS, Win98, Win2K, Win NT, Win XP, Win Vista, Linux, Mac and many more.
- √ Powerful diagnostic functions
- √ Up to 7 x Wipe erase function.
- √ Six copy / compare Functions:
 - **Disk Copy** - Full copy, sector for sector
 - **Disk Compare** - Compares the content of two hard drives.
 - **Disk Copy & Compare** - After copying a hard drive, the two drives are compared to ensure that the data on them are the same.
 - **Partition Copy** - Copies all active partitions on the Source Drive to a Destination Drive.
 - **Partition Compare** - Compares the content of the active partitions of two hard drives.
 - **Partition Copy & Compare** - After copying the active partitions on a hard drive, the partitions are compared to ensure that the data on them are the same.

1.1 Package Contents

If any of the following items are missing, please call Kanguru Solutions' Tech Support department at: (508) 376-4245, extension 2 and replacement parts will be shipped to you immediately.



Kanguru miniClone



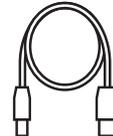
AC power adapter



Power cable



eSATA cable



USB cable



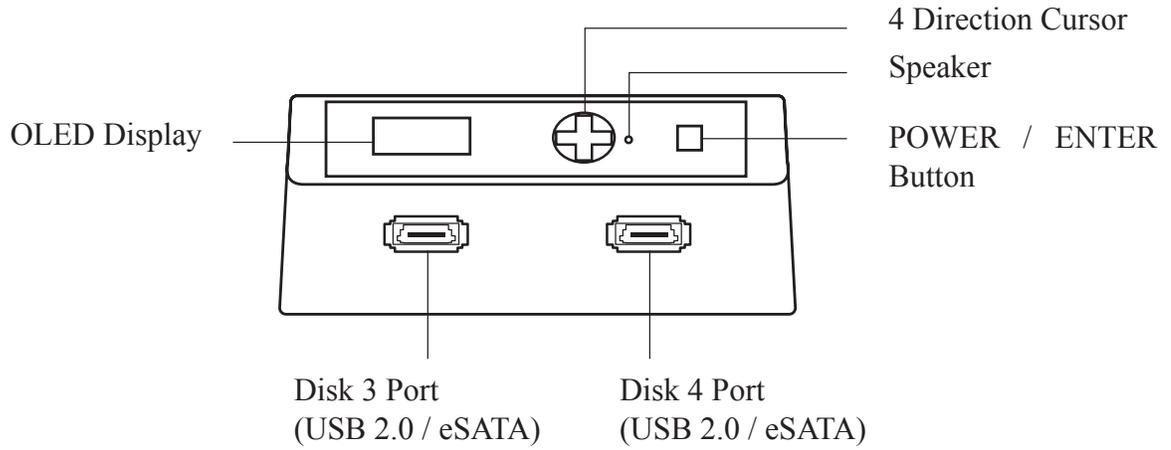
Manual

1.2 Specifications

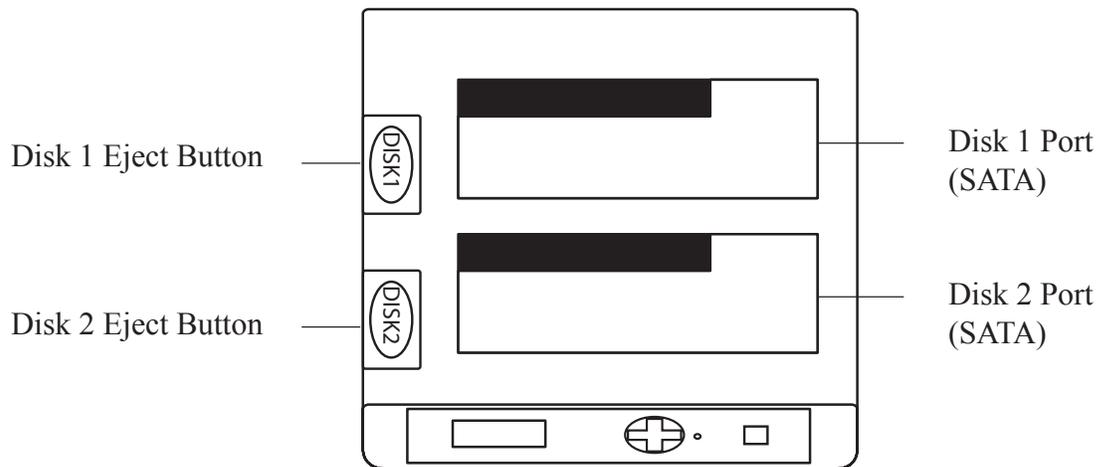
Model	KCLONE-1HD-SATA
Display	128 x 64 OLED
Supported Hard Drives	2.5" / 3.5" SATA HDD 2.5" / 3.5" SATA SSD External USB/eSATA HDD USB / eSATA Flash Drive
PC Connection Interface	USB 2.0 eSATA
External Connection Interface	SATA eSATA USB 2.0
PC Connection Supported OS	Windows 2000, XP, Vista, 7 MacOSX 10.4 or above
Dimensions	6" x 2 3/4" x 5 2/3"
Weight	1 2/3 lbs.
Operating Temperature	40°F ~ 95°F
Relative Humidity	20% ~ 80%

2. Parts and Functions

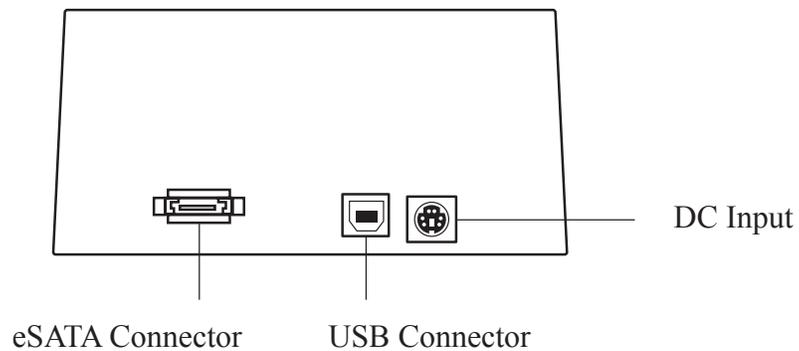
Front View



Top View

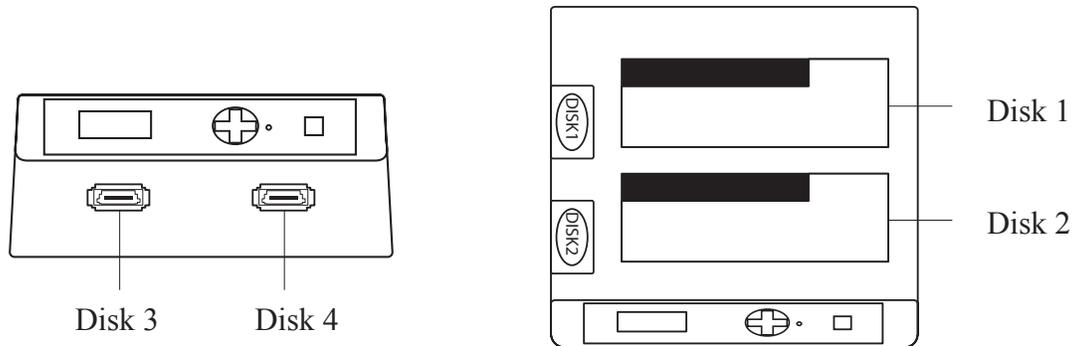


Rear View



3. Connecting and Removing Hard Drives

There are 4 ports for connecting hard drives to your miniClone. The Disk 1 and Disk 2 ports on the top of the unit are toaster style HDD cradles, used for connecting bare SATA drives. The Disk 3 and Disk 4 ports on the front of the unit are USB/eSATA ports for connecting external hard drives or flash drives.



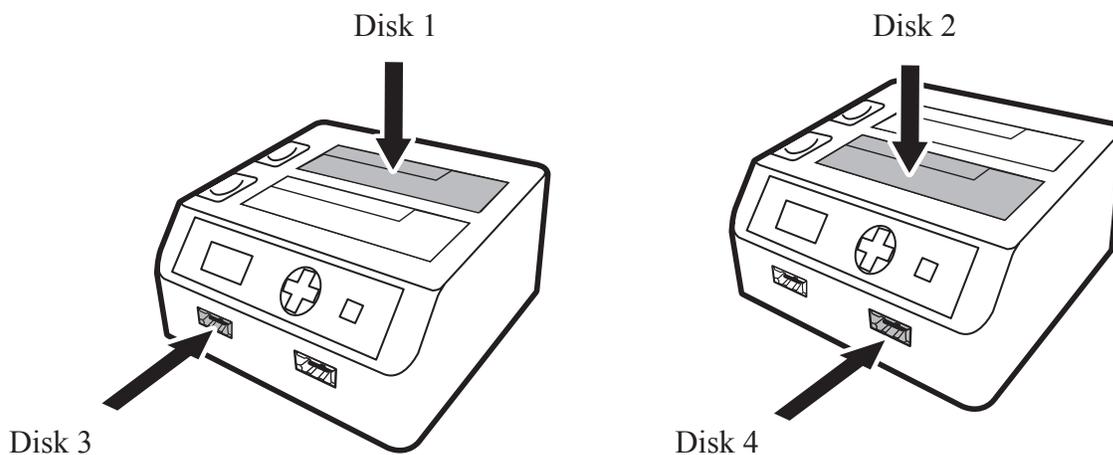
Before connecting hard drives please notice:

- Hard drives precision instruments. Avoid bumping or dropping them.
- Hard drives are electrical devices. When handling bare drives, please be aware that static electricity may damage your hard drive. Please discharge any static electricity before operating by touching a metal frame or using electrostatic prevention bands.
- To protect your hard drives, please remove all hard drives from this product when not in use.
- SATA HDD connectors have a guaranteed number of times for connection/removal, specified by the manufacturer. If an HDD is connected/removed more than this number of times, the quality of the HDD cannot be guaranteed. Therefore please minimize the number of times you connect/remove HDDs.
- The Disk 1 and Disk 2 connection ports are only for SATA HDDs. HDDs based on other standards such as IDE (PATA) HDD, SCSI HDD or SAS HDD cannot be connected.

3.1 Where to Connect Hard Drives

It is important when connecting a hard drive that you are aware which position you are connecting your hard drive to (Disk 1 / Disk 3 or Disk 2 / Disk 4). Disk 1 and Disk 3 are generally reserved for read functions. Disk 2 and Disk 4 are generally reserved for write functions. Certain functions require you to connect your hard drive to a specific Disk position.

Note: The Disk 1 and Disk 2 connection ports are only for SATA HDDs. HDDs based on other standard such as IDE (PATA) HDD, SCSI HDD or SAS HDD cannot be connected.



COPY MODE

- Disk 1, Disk 3 - Source hard drive
- Disk 2, Disk 4 - Target hard drive

ERASE MODE

- Disk 2 or Disk 4

CHECK MODE

- HDD can be verified from any position, but when HDD is connected to Disk 1 or Disk 3, Verify & Repairing function and Seek Test functions are not available.

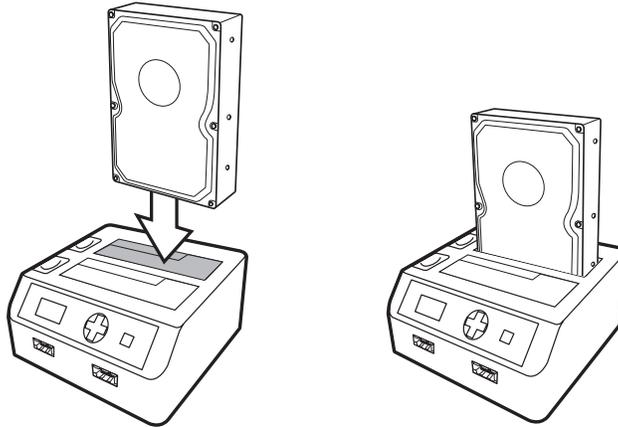
CHECK MODE

- Disk 2 or Disk 4

3.2 Connecting Bare Hard Drives

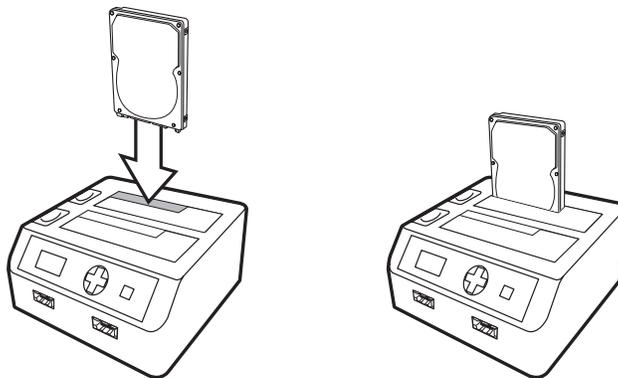
Connecting 3.5" HDDs

Hold the HDD vertically with the SATA connector at the bottom-left and then slowly insert it into the cradle firmly.



Connecting 2.5" HDDs

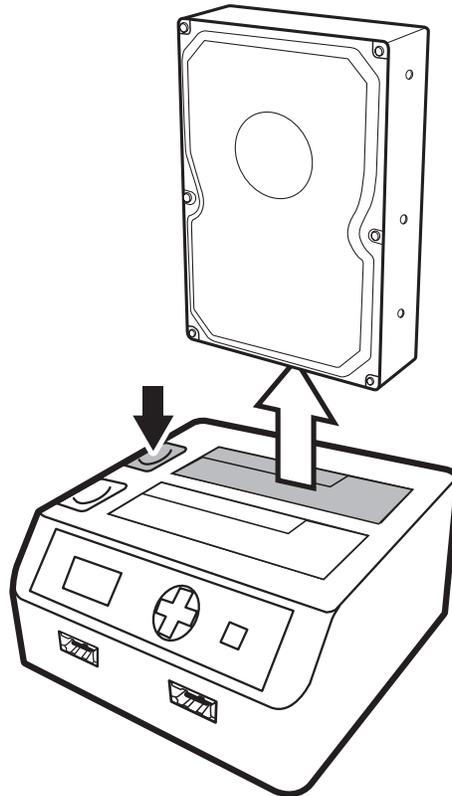
Hold the HDD vertically with the SATA connector at the bottom-left and then slowly insert it into the slot in the cradle firmly.



Warning! When connecting a bare HDD into the Disk 1 or Disk 2 port, please insert the HDD slowly. Pay attention to the direction that the HDD is facing and the position of the SATA connector. If you insert the HDD with too much force, it may cause damage to your hard drive or to the miniClone.

3.3 Removing Bare Hard Drives

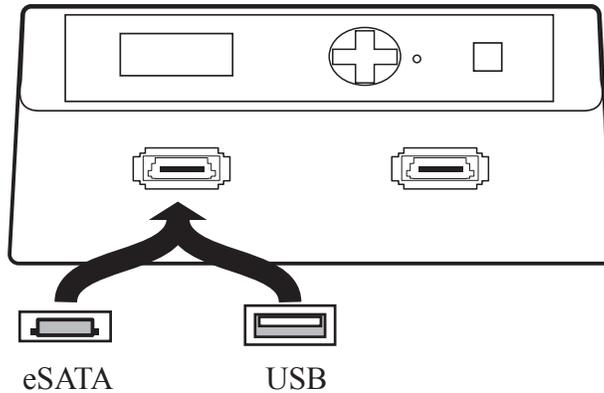
To remove a bare hard drive, push the eject button to the left of the bare HDD that you want to remove. This will cause the HDD to protrude. Then slowly remove the HDD straight out of the cradle.



Warning! Do not remove any hard drives while they are in use or being accessed by the miniClone. Doing so may result in damage to your hard drive or the miniClone.

3.4 Connecting External Hard Drives

The Disk 3 and Disk 4 ports are USB / eSATA combo ports. Both USB and eSATA external hard drives or flash drives can be connected to these ports. Other USB storage devices like DVDRW drives or card readers cannot be connected to these ports.



It is possible to connect USB or eSATA devices that can operate on bus power to the USB / eSATA ports. If the device requires more electricity than the miniClone's rated value (500mA), it will not be possible for the device to operate on bus power. You will need to connect the device's external power supply in order for the device to work with the miniClone.

Note: The Kanguru miniClone does not support devices secured by password protection or data encryption.

4. Operating Your Kanguru miniClone

Things to remember

- Make sure that sufficient power is supplied to the Kanguru miniClone. Incorrect power will cause faulty operation.
- It is OK to connect and disconnect Master or Target drives while the Kanguru miniClone is powered on. However, do NOT connect or disconnect drives while any function is running or is in progress.
- Booting an OS using this product is not supported.
- This product may malfunction if it is located close to a radio, television or an audio device. Please keep the miniClone away from these types of devices during operation.
- This product is for 2.5 inch and 3.5 inch SATA HDD, SATA SSDs, USB / eSATA external hard drives and flash drives exclusively. The operation of other devices (e.g. optical drives) are not supported. Bare IDE HDDs are not supported.
- Bare SATA HDDs can be connected to the miniClone without any kind of enclosure. SATA HDDs are designed to be used with an enclosure. When using this product with SATA HDDs the electrical components are uncovered. Static electricity may cause damage to electronic devices. Please be careful and use tools, like electrostatic prevention bands, when handling bare SATA HDDs.

Hardware Setup

1. Place the Kanguru miniClone where there is proper ventilation. Avoid using the Kanguru miniClone in environments with high temperatures.
2. Before plugging in the AC Power Cable, please make sure that the voltage is adjusted to the same as your local voltage 110V/220V.

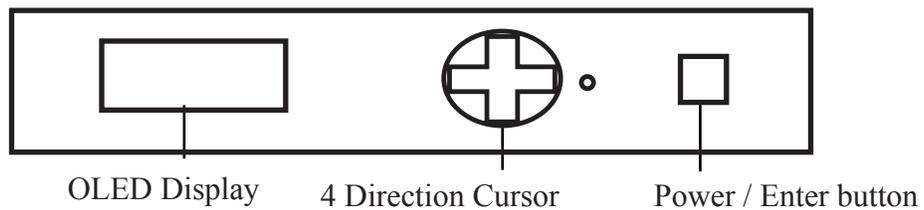
Note: Make sure that sufficient power is supplied to the Kanguru miniClone. Incorrect power will cause faulty operation.

3. You are now ready to begin using your Kanguru miniClone.

4.1 The User Interface

Kanguru Solutions designed the Kanguru miniClone's menu system with the professional in mind. The menu system is fast, responsive, and easy to navigate. This means fewer key presses are needed to achieve a desired action.

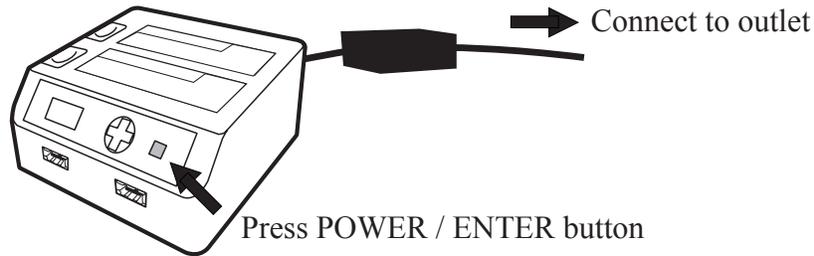
The menu system is controlled by a 4 Direction Cursor and a Power/Enter push button located to the right of the OLED screen.



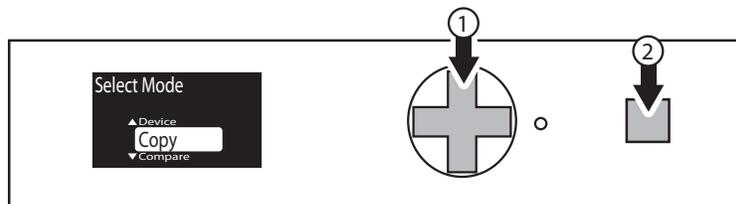
4.2 General Operation

Please follow these steps to execute the miniClone's main functions (Copy, Compare, Erase, Seek):

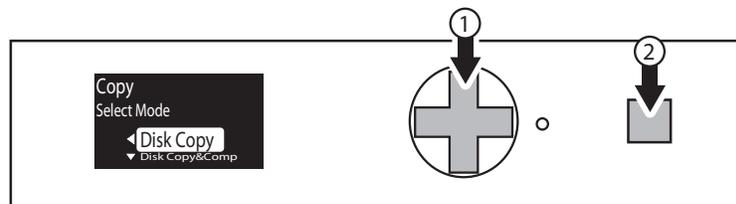
1. Connect the AC adaptor and then power on the miniClone by pressing the **POWER** button.



2. Connect your hard drives to the miniClone. See [chapter 3, Connecting and Removing Hard Drives, p.8](#) for more information on connecting your hard drives.
3. Select the desired mode from the main menu by pressing the **Up** or **Down** directional button. Press the **ENTER** button to enter that mode.

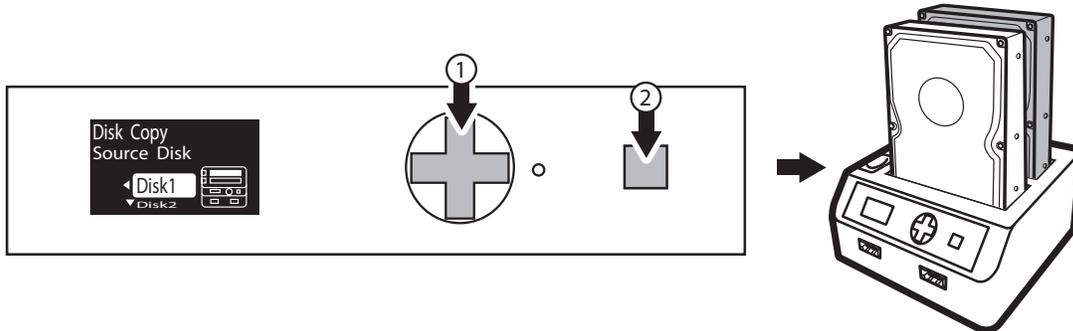


4. Select the desired function by pressing the **Up** or **Down** directional button. Press the **ENTER** button to begin that function or press the **Left** directional button to cancel and return to the Main Menu.



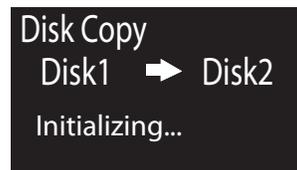
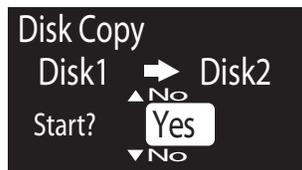
(Cont. p.15)

- Select the hard drive by pressing the **Up** or **Down** directional button. Press the **ENTER** button to confirm your selection.



Note: If the process you select requires multiple disks (such as COPY or COMPARE), select the Source Disk first and the Destination Disk second.

- You will be asked to confirm the start of the process. Select **YES** by pressing the **Up** or **Down** directional button and then press the **ENTER** button. The HDD will initialize and the process begins.



- When process is completed, [Past Time], [Speed] and [Total] will be displayed. Press the **ENTER** button to return to the main menu.

Note: If the Auto Shutdown option is set to ON, this information will not be displayed and the miniClone will automatically turn off. For more information about the Auto Shutdown option, see section 6.6.1 *General Options*, p.35.

Powering Off your Kanguru miniClone

- From the main menu, press the **Down** directional button to select Power OFF and then press the **ENTER** button.
- A confirmation screen appears. Press the **Up** or **Down** directional button to select Yes, and then press the **ENTER** button.

4.3 Pausing and Cancelling a Process

If you wish to pause the current process, press the **ENTER** button. Press the **ENTER** button again to resume.

If you wish to cancel the current process:

1. Press the **ENTER** button to pause the process.



2. Press the **Up** or **Down** directional button to bring up the cancel menu.



3. Press the **Down** directional button to select Abort and then press the **ENTER** button.



4. A confirmation screen will appear. Press the **Up** or **Down** directional button to select Yes and then press the **ENTER** button to cancel the process.



5. Press the **ENTER** button to return to the main menu.

4.4 Information Reporting

While a function is in progress, real time information is provided to you. Information can be displayed in two modes: Detailed Display and Individual Display.

Note: Some hard drives will not have all information available for display.

Detailed Display

The Kanguru miniClone operates in the Detailed Display mode by default. During the process, the display will report all information regarding your drive on a single screen:



- **LBA** - Logical Block Address
- **Progress** - Percentage completed
- **Past** - Amount of time the process has been running
- **Left** - Amount of time left before the process is completed (estimate)
- **Speed** - Data transfer rate
- **Temp** - Temperature of the hard drive

Individual Display

While in the Detailed Display mode, push the **Right** directional button to switch to the Individual Display mode.



This will allow you to view each item individually. Press the **Up** or **Down** button to switch what item is displayed. Press the **Left** directional button to return to the Detailed Display mode.

5. Menu and Functions

- **Device**
- **Copy**
 - Disk Copy
 - Disk Copy & Compare
 - Partition Copy
 - Partition Copy & Compare
- **Compare**
 - Disk Compare
 - Partition Compare
- **Erase**
 - Quick Erase
 - Full Erase
 - 3 x Wipe
 - 7 x Wipe
- **Check**
 - Verify
 - Verify & Repair
 - Seek Test
- **Option**
 - **General Option** - 2TB Limit, Spin-up Wait Time, SMART Check Period, PIO Transfer Only, Device Write Protect, Unplug Device, Auto Shutdown, Sector Count
 - **Temperature Option** - Warning Temperature, USB-FAN Temperature
 - **Error Option** - Auto Skip, Retry Count, Timeout Period, Timeout Retry
 - **Buzzer Option** - Buzzer Mode, Buzzer (Click), Buzzer (Normal), Buzzer (Error)
 - **Display Option** - Opening Animation, Smooth Scroll, Vertical Scroll, Horizontal Scroll, Reverse Select, Contrast, Transfer Rate Display
 - **Information**
 - **Set to Default**
- **Power Off**

5.1 Device

Device mode allows you to connect any one drive to a PC so that it can be used like an external HDD. To connect a hard drive attached to the miniClone as a device on your PC you first need to connect the miniClone to your PC through either the eSATA or USB port located on the back of the unit. Although the miniClone has both USB and eSATA ports, they cannot both be connected at the same time. Please connect through either USB or eSATA.

It is only necessary to connect the miniClone to a PC if you plan on using it in Device mode. Other modes do not require a PC connection.

Note: If a USB device is connected to the miniClone and the miniClone is connected to the PC via eSATA, the device will operate at USB speeds. If an eSATA device is connected to the miniClone and the miniClone is connected to the PC via USB, the device will operate at USB speeds. In order to achieve eSATA speeds, an eSATA device needs to be connected to the miniClone and the miniClone must be connected to the PC via eSATA.

Device Mode System Requirements

Connection: eSATA

- Supported systems
 - PC/AT compatible system
 - Macintosh equipped with eSATA I/F

Connection: USB

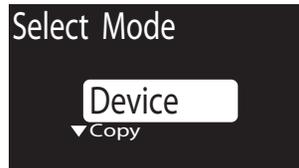
- Supported systems:
 - Windows 2000 / WindowsXP / Windows Vista / Windows 7
 - PC/AT compatible system equipped with USB 2.0 interface port (for USB 2.0 devices)
 - PC/AT compatible system equipped with USB 1.1 interface port (for USB 1.1 devices)
 - Intel chipset is recommended
 - 1 GHz processor
 - 512 MB RAM
 - Mac OS X 10.4 or later
 - MacPro, Power Macintosh G5, Mac mini, MacBook Pro, Mac Book, iBook G4 (equipped with USB 2.0 interface)

Note: Booting an OS from a hard drive connected to the miniClone is not supported.

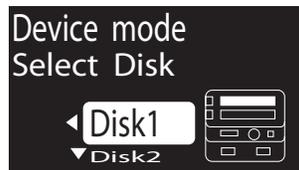
5.1.1 Connecting a Device

To connect a hard drive to your PC via the miniClone:

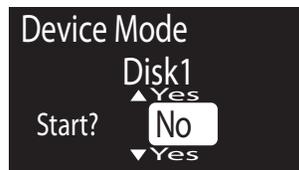
1. Connect the miniClone to your PC via the eSATA or USB port on the back of the unit.
2. Connect your hard drive, select Device from the main menu and then press the **ENTER** button.



3. Select the Disk location that you want to connect from the Select Disk menu and press the **ENTER** button.



4. Press the **Up** or **Down** button to select Yes, and then press the **ENTER** button to connect the device to your computer.



Your drive will now be connected to your computer and it will be recognized as an external hard drive. It will appear in My Computer if you are running Windows, or it will appear on your desktop if you are running Mac OSX.

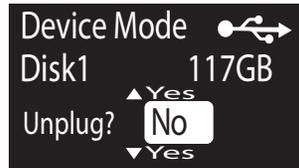
The Kanguru miniClone will provide you with real-time status reporting of your connected device:

	Device Mode		Connection type
HDD location	Disk1	117GB	HDD capacity
HDD model	WDC WD1200JS-00M		
Read speed	R	0.00MB/s	HDD temperature
Write speed	W	0.00MB/s	
		104 °F	

5.1.2 Disconnecting a Device

To disconnect a device connected to your PC via the miniClone:

1. Press the **ENTER** button. The unplug device menu appears.



2. Press the **Up** or **Down** directional button to select Yes, and then press the **ENTER** button to disconnect the device.

Caution! Make sure that no data is being transferred to the hard drive before disconnecting the hard drive from your computer. If necessary, use your operating system's Safe Hardware Removal procedure to ensure that no programs are accessing the drive before you disconnect it.

5.2 Copy

Copy mode allows you to copy data from a Source Drive to a Destination Drive.

- The Source Drive needs to be attached to either the Disk 1 or Disk 3.
- The Destination Drive needs to be attached to either Disk 2 or Disk 4.

There are four Copy functions that you can select: Disk Copy, Disk Copy & Compare, Partition Copy and Partition Copy & Compare.

5.2.1 Disk Copy

Disk Copy copies all of the data from the Source Drive to the Destination Drive. It is recommended to use two HDDs with the same capacity.

To run a Disk Copy:

1. From the main menu, select Copy and then press the **ENTER** button.
2. From the Copy menu, select Disk Copy and then press the **ENTER** button.
3. Select the location of the Source Disk and then press the **ENTER** button. The Source Disk must be connected to either Disk 1 or Disk 3.
4. Select the location of the Destination Disk and then press the **ENTER** button. The Destination Disk must be connected to either Disk 2 or Disk 4.
5. A confirmation screen appears. Select Yes and then press the **ENTER** button. The Disk Copy process begins.

Copying Disks with different Capacities

If the capacity of the Source Drive is smaller than the Destination Drive, the copy process will copy all of the data and the unused space on the Destination Drive will remain as an empty partition (e.g. if you copy the data of a 60GB HDD to a 100GB HDD, all 60GB of data will be copied to the Destination Drive and the Destination drive will have an unallocated 40GB partition remaining).

If the capacity of the Destination Drive is smaller than the Source Drive, the copy process will only copy up to the capacity of the Destination Drive (e.g. if you copy the data of a 100GB HDD to a 60GB HDD, only 60GB of data will be copied). The miniClone will check both drives' capacities during the initialization period. If the miniClone detects that the Source Drive is a larger than the Destination drive, it will display a warning message asking you to confirm whether you want to continue with the copy. Select Yes to continue with the Disk Copy.

5.2.2 Disk Copy & Compare

Disk Copy & Compare copies all data from the Source Drive to the Destination Drive. Once the copy process is completed it automatically runs the Disk Compare function, checking both disks to ensure that all data was transferred successfully. See [section 5.2.1 Disk Copy, p.23](#) for more information about the Disk Copy function. See [section 5.3.1 Disk Compare, p.27](#) for more information about the Disk Compare function.

To run a Disk Copy & Compare:

1. From the main menu, select Copy and then press the **ENTER** button.
2. From the Copy menu, select Disk Copy & Compare and then press the **ENTER** button.
3. Select the location of the Source Disk and then press the **ENTER** button. The Source Disk must be connected to either Disk 1 or Disk 3.
4. Select the location of the Destination Disk and then press the **ENTER** button. The Destination Disk must be connected to either Disk 2 or Disk 4.
5. A confirmation screen appears. Select Yes and then press the **ENTER** button.

The Disk Copy process begins. Once the Disk Copy process has completed the Disk Compare process automatically begins.

5.2.3 Partition Copy

If you have a Source Disk with unallocated space on it, Partition Copy allows you to duplicate only primary and extended partitions. Unallocated space will not be duplicated.

To run a Partition Copy:

1. From the main menu, select Copy and then press the **ENTER** button.
2. From the Copy menu, select Partition Copy and then press the **ENTER** button.
3. Select the location of the Source Disk and then press the **ENTER** button. The Source Disk must be connected to either Disk 1 or Disk 3.
4. Select the location of the Destination Disk and then press the **ENTER** button. The Destination Disk must be connected to either Disk 2 or Disk 4.
5. A confirmation screen appears. Select Yes and then press the **ENTER** button. The Partition Copy process begins.

If the capacity of the Destination Drive is smaller than the defined partition on the Source Drive, the copy process will only copy up to the capacity of the Destination Drive (e.g. if you copy the data of a 100GB partition to a 60GB HDD, only 60GB of data will be copied). The miniClone will check both drives' capacities during the initialization period. If the miniClone detects that the defined partition on the Source Drive is a larger than the Destination drive, it will display a warning message asking you to confirm whether you want to continue with the copy. Select Yes to continue with the Partition Copy.

5.2.4 Partition Copy & Compare

Partition Copy & Compare copies all primary and extended partitions on the Source Drive to the Destination Drive. Once the copy process is completed it automatically runs the Partition Compare function, checking the copied partitions on both disks to ensure that all data was transferred successfully. See [section 5.2.3 Partition Copy, p.25](#) for more information about the Partition Copy function. See [section 5.3.2 Partition Compare, p.28](#) for more information about the Disk Compare function.

To run a Partition Copy & Compare:

1. From the main menu, select Copy and then press the **ENTER** button.
2. From the Copy menu, select Partition Copy & Compare and then press the **ENTER** button.
3. Select the location of the Source Disk and then press the **ENTER** button. The Source Disk must be connected to either Disk 1 or Disk 3.
4. Select the location of the Destination Disk and then press the **ENTER** button. The Destination Disk must be connected to either Disk 2 or Disk 4.
5. A confirmation screen appears. Select Yes and then press the **ENTER** button.

The Partition Copy process begins. Once the copy process has completed, the Partition Compare process automatically begins.

5.3 Compare

Compare mode checks the contents of two hard drives to make sure that the data on both drives are the same.

There are two Compare functions that you can select: Disk Compare and Partition Compare.

Note: If you are comparing two hard drives with different capacities, the miniClone will only compare up to the capacity of the smaller hard drive.

5.3.1 Disk Compare

Disk Compare checks the contents of two hard drives to make sure that the data on both hard drives are the same.

To run a Disk Compare:

1. From the main menu, select Compare and then press the **ENTER** button.
2. From the Copy menu, select Disk Compare and then press the **ENTER** button.
3. Select the location of the first disk and then press the **ENTER** button.
4. Select the location of the second disk and then press the **ENTER** button.
5. A confirmation screen appears. Select Yes and then press the **ENTER** button. The Disk Copy process begins.

Error reporting

If during the compare process there is an inconsistency detected, an error message will be displayed.



If you receive an error message:

- **Abort** - Cancels the compare process.
- **Retry** - The miniClone will try to continue with the compare process.
- **Skip** - Skip the current error and continue with the compare process.
- **Auto Skip** - Automatically skip over any errors during the compare process. The total number of errors skipped will be reported when the compare process has completed.

5.3.2 Partition Compare

Partition Compare checks the contents of any primary or extended partitions on two hard drives to make sure that the data on the defined partitions are the same. Unallocated space is not checked.

Note: If the Source Drive drive is smaller than the Destination Drive and the Source Drive is partitioned with the GPT file system, do not run the Partition Copy and Partition Compare functions separately. The GPT file system stores partition information at the end of the hard drive, which is automatically moved to the end of the Destination Drive during the copy process. If Partition Copy and Partition Compare are done separately, you will receive errors. In such cases, please use the Partition Copy & Compare function as described in section [5.2.4 Partition Copy and Compare, p.26](#).

To run a Disk Compare:

1. From the main menu, select Compare and then press the **ENTER** button.
2. From the Copy menu, select Disk Compare and then press the **ENTER** button.
3. Select the location of the first disk and then press the **ENTER** button.
4. Select the location of the second disk and then press the **ENTER** button.
5. A confirmation screen appears. Select Yes and then press the **ENTER** button. The Disk Copy process begins.

Error reporting

If during the compare process there is an inconsistency detected, an error message will be displayed.



If you receive an error message:

- **Abort** - Cancels the compare process.
- **Retry** - The miniClone will try to continue with the compare process.
- **Skip** - Skip the current error and continue with the compare process.
- **Auto Skip** - Automatically skip over any errors during the compare process. The total number of errors skipped will be reported when the compare process has completed.

5.4 Erase

Erase mode allows you to erase data on a connected hard drive. The hard drive needs to be attached to either Disk 2 or Disk 4.

There are four Erase functions that you can select: Quick Erase, Full Erase, 3 X Wipe and 7 X Wipe.

5.4.1 Quick Erase

Quick Erase deletes the information from the hard drive's MBR (Master Boot Record) and Partition Table.

Note: Quick Erase is faster than the other Erase modes because it only deletes the boot sector. Your data is still recoverable after a Quick Erase. If you want to delete any sensitive data stored on your hard drive, please use one of the other Erase modes.

To run a Quick Erase:

1. From the main menu, select Erase and then press the **ENTER** button.
2. From the Erase menu, select Quick Erase and then press the **ENTER** button.
3. Select the location of the hard drive that you want to erase and then press the **ENTER** button. The hard drive needs to be connected to either Disk 2 or Disk 4.
4. A confirmation screen appears. Select Yes and then press the **ENTER** button. The Quick Erase process begins.

5.4.2 Full Erase

Full Erase deletes all data and file systems on the hard drive by writing “00” into all of the sectors. After a Full Erase, any data previously stored on the hard drive will be permanently deleted. Make sure that you back up any important data before running a Full Erase.

To run a Full Erase:

1. From the main menu, select Erase and then press the **ENTER** button.
2. From the Erase menu, select Full Erase and then press the **ENTER** button.
3. Select the location of the hard drive that you want to erase and then press the **ENTER** button. The hard drive needs to be connected to either Disk 2 or Disk 4.
4. A confirmation screen appears. Select Yes and then press the **ENTER** button. The Full Erase process begins.

5.4.3 3 x Wipe

3 x Wipe deletes all data and file systems on the hard drive by writing random data into all of the sectors. After the random data is written, “00” is written into all of the sectors twice. 3 x Wipe complies with the NSA standard.

Caution! After a 3 x Wipe, any data previously stored on the hard drive will be permanently deleted. Make sure that you back up any important data before running a 3 x Wipe.

To run a 3 x Wipe:

1. From the main menu, select Erase and then press the **ENTER** button.
2. From the Erase menu, select 3 x Wipe and then press the **ENTER** button.
3. Select the location of the hard drive that you want to erase and then press the **ENTER** button. The hard drive needs to be connected to either Disk 2 or Disk 4.
4. A confirmation screen appears. Select Yes and then press the **ENTER** button. The 3 x Wipe process begins.

5.4.4 7 x Wipe

7 x Wipe deletes all data and file systems on the hard drive by alternatively writing hexadecimals “00” and “FF” into all of the sectors six times. “00” is written into all of the sectors during the seventh time. 7 x Wipe complies with the DOD 5220-22.M standard.

Caution! After a 7 x Wipe, any data previously stored on the hard drive will be permanently deleted. Make sure that you back up any important data before running a 7 x Wipe.

To run a 7 x Wipe:

1. From the main menu, select Erase and then press the **ENTER** button.
2. From the Erase menu, select 7 x Wipe and then press the **ENTER** button.
3. Select the location of the hard drive that you want to erase and then press the **ENTER** button. The hard drive needs to be connected to either Disk 2 or Disk 4.
4. A confirmation screen appears. Select Yes and then press the **ENTER** button. The 7 x Wipe process begins.

5.5 Check

Check mode allows you to run several diagnostic functions that can run status reports on your hard drives.

There are three Check functions that you can select: Verify, Verify & Repair and Seek Test

5.5.1 Verify

Verify checks all of the sectors on the disk for any bad sectors.

To run a Verify:

1. From the main menu, select Check and then press the **ENTER** button.
2. From the Check menu, select Verify and then press the **ENTER** button.
3. Select the location of the hard drive that you want to verify and then press the **ENTER** button.
4. A confirmation screen appears. Select Yes and then press the **ENTER** button. The Verify process begins.

5.5.2 Verify & Repair

Verify & Repair checks all of the sectors on the disk for bad sectors. If there is a sector in which an error occurs, dummy data is written into the bad sector to repair it.

Caution! The repair process may change the data on your hard drive. Please make sure you backup any important data before running the Verify & Repair function.

To run a Verify & Repair:

1. From the main menu, select Check and then press the **ENTER** button.
2. From the Check menu, select Verify & Repair and then press the **ENTER** button.
3. Select the location of the hard drive that you want to verify & repair and then press the **ENTER** button. The hard drive needs to be connected to either Disk 2 or Disk 4.
4. A confirmation screen appears. Select Yes and then press the **ENTER** button. The Verify process begins. If any bad sectors of found they will be automatically repaired.

5.5.3 Seek Test

Seek Test performs a full-stroked seek test on a hard drive. The Seek Test checks the hard drive's physical status to make sure that no read heads are damaged.

To run a Seek Test:

1. From the main menu, select Check and then press the **ENTER** button.
2. From the Check menu, select Seek Test and then press the **ENTER** button.
3. Select the location of the hard drive that you want to the Seek Test on and then press the **ENTER** button. The hard drive needs to be connected to either Disk 2 or Disk 4.
4. A confirmation screen appears. Select Yes and then press the **ENTER** button. The Seek Test process begins.

Note: The Seek Test will not finish automatically, you need to manually cancel the Seek Test. For more information about canceling a process, see [section 4.3 Pausing and Cancelling a Process, p.17](#).

5.6 Option

The Option menu provides you with option items that allow you to configure how your Kanguru miniClone operates.

There are seven Option items that you can select: General Option, Temperature Option, Error Option, Buzzer Option, Display Option, Information and Set to Default.

Note: These option items are configured to the optimal operation settings by default. Please do not adjust any of these options unless you are sure of what you are doing.

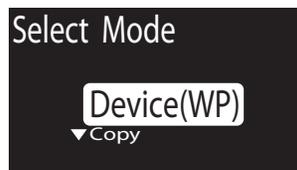
5.6.1 General Option

From the Option menu:

1. Select General Option and then press the **ENTER** button. This will bring up the General Option menu.
2. Press the **Up** or **Down** directional button to navigate the General Option items.
3. Press the **Right** or **Left** directional button to change any of the General Option items.
4. Press the **ENTER** button to save the current General Option configuration and return to the Options menu.

General Option items include:

- **2TB Limit (ON / OFF)** - Windows XP and earlier OS are not able to recognize HDDs larger than 2TB. 2TB Limit allows you to configure whether a HDD larger than 2TB in Device Mode will be automatically limited to 2TB maximum capacity. The default setting is: ON.
- **Spinup Wait Time (Auto, 1 - 30 sec.)** - Configure the amount of time between when the first HDD and second HDD spins up. The default setting is: Auto.
- **SMART Check Period (OFF, 1 min - 3 hours)** - Configure the amount of time between when the miniClone checks the SMART status of your HDDs. The default setting is: 1 min.
- **PIO Transfer Only (ON / OFF)** - Configure whether the miniClone transfers data in PIO mode only. The default setting is: OFF.
- **Device Write Protection (ON / OFF)** - Configure whether the hard drive that you connect through Device mode (see [section 5.1 Device, p.20](#)) is write protected. If Write Protect is turned on, the Device item in the main menu will be displayed “Device (WP)”. The default setting is: OFF.



- **Unplug Device (ON / OFF)** - Configure whether you are able to disconnect a hard drive from your PC in Device mode. The default setting is: ON.
- **Auto Shutdown (ON / OFF)** - Configure whether the miniClone automatically turns off after a process (Copy, Compare, Erase or Check) is completed. The default setting is: OFF.
- **Sector Count (8KB - 32MB)** - Configure the capacity to assign to one sector. The default setting is: 512KB. **Caution!** Changing this option may cause your HDD to malfunction.

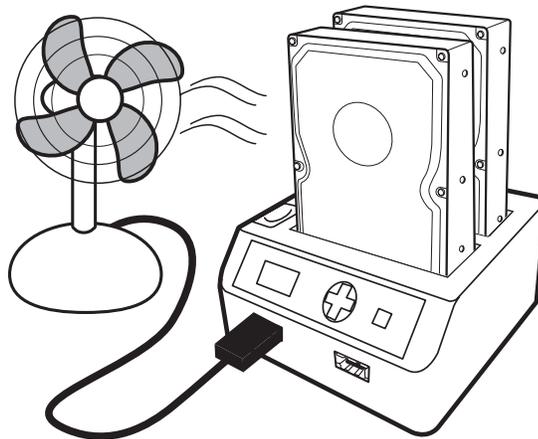
5.6.2 Temperature Option

From the Option menu:

1. Select Temperature Option and then press the **ENTER** button. This will bring up the Temperature Option menu.
2. Press the **Up** or **Down** directional button to navigate the Temperature Option items.
3. Press the **Right** or **Left** directional button to adjust any of the Temperature Option items.
4. Press the **ENTER** button to save the current Temperature Option configuration and return to the Options menu.

Temperature Option items include:

- **Temperature Unit (°F / °C)** - Configure whether temperatures are displayed in degrees Fahrenheit or degrees Celsius. The default setting is: °F
- **Warning Temperature (OFF, 86 - 211°F)** - Configure how high the hard drive's temperature can reach before the miniClone issues a warning. The default setting is 131°F.
- **USB-FAN Temperature (OFF, 86 - 211°F)** - A USB fan can be connected to the Disk 3 or Disk 4 USB / eSATA ports. When the temperature of a HDD goes above the temperature set here, the USB fan will automatically be powered on by USB power. The default setting is 113°F.



Note: It is not possible to use a USB fan if the HDD connected cannot acquire the HDD temperature in SMART.

5.6.3 Error Option

From the Option menu:

1. Select Error Option and then press the **ENTER** button. This will bring up the Error Option menu.
2. Press the **Up** or **Down** directional button to navigate the Error Option items.
3. Press the **Right** or **Left** directional button to adjust any of the Error Option items.
4. Press the **ENTER** button to save the current Error Option configuration and return to the Options menu.

Error Option items include:

- **Auto Skip (ON / OFF)** - Configure whether errors will be automatically skipped when they occur. The default setting is: OFF.
- **Retry Count (OFF, 1 - 99)** - Configure how many times a process will retry when an error occurs. The default setting is: OFF.
- **Timeout Period (OFF, 1 - 60 sec)** - Configure how much time before a timeout is reported. The default setting is: 10 sec.
- **Timeout Retry (ON / OFF)** - Configure whether the miniClone will attempt a retry when a timeout occurs. The default setting is: ON.

5.6.4 Buzzer Option

From the Option menu:

1. Select Buzzer Option and then press the **ENTER** button. This will bring up the Buzzer Option menu.
2. Press the **Up** or **Down** directional button to navigate the Buzzer Option items.
3. Press the **Right** or **Left** directional button to adjust any of the Buzzer Option items.
4. Press the **ENTER** button to save the current Buzzer Option configuration and return to the Options menu.

Buzzer Option items include:

- **Buzzer Mode (Off, Low, Mid, High)** - Configure the sound of the buzzer. The default setting : High.

Note: If you turn this setting OFF, the other Buzzer Option items will be invalid.
- **Buzzer Click (ON / OFF)** - Configure whether there is an audible signal when you navigate the different menus and items. The default setting is: ON.
- **Buzzer Normal (ON / OFF)** - Configure whether there is an audible signal that notifies you when a process starts or is completed. The default setting is: ON.
- **Buzzer Error (ON / OFF)** - Configure whether there is an audible signal that notifies you when an error occurs. The default setting is: ON.

5.6.5 Display Option

From the Option menu:

1. Select Display Option and then press the **ENTER** button. This will bring up the Display Option menu.
2. Press the **Up** or **Down** directional button to navigate the Display Option items.
3. Press the **Right** or **Left** directional button to adjust any of the Display Option items.
4. Press the **ENTER** button to save the current Display Option configuration and return to the Options menu.

Display Option items include:

- **Smooth Scroll (ON / OFF)** - Configure whether menu items are smooth scrolled during navigation. The default setting is: OFF.
- **Vertical Scroll (1 - 9)** - Configure the speed of the vertical scroll display. 1 is the slowest and 9 is the fastest. The default setting is: 6.
- **Horizontal Scroll (1 - 9)** - Configure the speed of the horizontal scroll display. 1 is the slowest and 9 is the fastest. The default setting is: 6.
- **Contrast (1 - 10)** - Adjust the contrast of the OLED display. 1 is the lowest contrast and 10 is the highest contrast. The default setting is: 5.
- **Transfer Rate Display (GRAPHICAL, DIGITAL)** - Configure how the transfer speed is displayed when a process is running. The default setting is: DIGITAL.

5.6.6 Information

The Information item displays the miniClone's version, serial number and firmware. The information displayed here is not configurable. It is for Kanguru Solution's Tech Support reference, in case you need to service your miniClone.

From the Option menu:

1. Select Information and then press the **ENTER** button. This will bring up the Information menu.
2. Press the **Up** or **Down** directional button to view the firmware version.
3. Press the **ENTER** button to return to the Options menu.

5.6.7 Set to Defaults

Set to Defaults will reset all of the Option items to the factory default settings.

From the Option menu:

1. Select Set to Default and then press the **ENTER** button.
2. A confirmation screen appears. Press the **Left** directional button to select Yes and then press the **ENTER** button to reset the miniClone's option settings.

5.7 Power OFF

Select Power OFF from the main menu and then press the **ENTER** button. A confirmation screen appears. Press the **Up** or **Down** button to select Yes and then press the **ENTER** button to shut off the Kanguru miniClone.

6. Error and Warning Messages Defined

The following chapter describes the most common error messages that you may encounter while using your Kanguru miniClone.

6.1 Initialization Errors

If an error occurs during the initialization stage, the error will be displayed as follows:



← The error message will be displayed on the first line

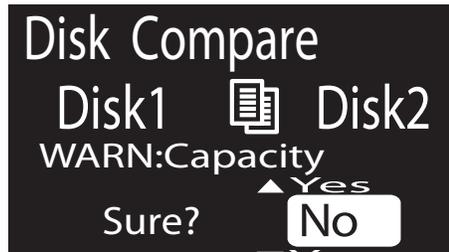
← Any possible actions will be displayed on the second line

Error Message	Definition
ERR : Diskx is not connected	Disk x is not connected, there is no detectable disk connected.
ERR : Initialize Failure in Diskx	Failed to initialize Disk x.
ERR : No Partition in Diskx	No partition information is found on Disk x.
ERR : Partition is too large.	The partition information is larger than the capacity of Disk x.
ERR : Diskx is Write Protected.	Disk x is set under Write Protect.

If an error occurs during initialization process, the function cannot be continued. Press the **ENTER** button to cancel the process and return to the main menu.

6.2 Initialization Warnings

If there is are any issues that the miniClone recognizes during the initialization process, the warning message will be displayed as follows:



← The warning message will be displayed on the first line

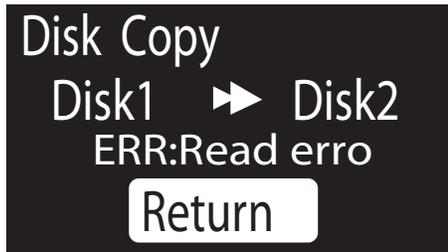
← Any possible actions will be displayed on the second line

Warning Message	Definition
WARN : Capacity mismatch (Diskx ><Disky)	The capacity of the Disk x and the capacity of the Disk y are not the same.
WARN : Diskx is prefailure!	Disk x is at risk of disk failure. (This requires SMART information)
WARN : Diskx is too cold!	The disk temperature of Disk x is too low. (This requires SMART information)
WARN : Diskx is too hot!	The disk temperature of Disk x is too high. (This requires SMART information)

When the warning is displayed during the initialization process, press the **Up** or **Down** directional button to select Yes or No. If you select Yes, the miniClone will ignore the warning and continue with the process. Please be aware that depending on the warning, you may not achieve the desired result if you choose to ignore the warning and continue with the process.

6.3 Process Errors

If an error occurs during a process, the error will be displayed as follows and the process will be stopped:



← The error message will be displayed on the first line

← Any possible actions will be displayed on the second line

Error Message	Definition
ERR : Diskx was disconnected	Disk x was removed during the process.
ERR : Read error in Diskx (status, LBA=xxxxxxx)	Error while reading data from Disk x.
ERR : Write error in Diskx (status, LBA=xxxxxxx)	Error while writing data to Disk x.
ERR : Read error in Diskx (status, GPT)	Error while reading the partition information of Disk x.
ERR : Write error in Diskx (status, GPT)	Error while writing the partition information to Disk x.
ERR : Verify error in Diskx (status, LBA=xxxxxxx)	Error while verifying the data of Disk x. (during Check Mode)
ERR : Seek error in Diskx (status, LBA=xxxxxxx)	Error while seeking Disk x. (during Seek Test)
ERR : Compare error (status, LBA=xxxxxxx)	The data on the disks are not the same (during Compare Mode)

If an error occurs, please select an action by pressing the **Up** or **Down** directional button and then press the **ENTER** button. If only “Return” is displayed when the error occurs, then it is not possible for the process to continue.

If an error was skipped, the process may not successfully complete. For example, if error occurs during a copy, and an error was skipped, the data on the Destination Disk may not be the same as the data on the Source Disk.

6.4 Retry Errors

If an error occurs and the miniClone retries the process, it can be displayed as follows:

```
Disk Copy
Disk1  ▶▶ Disk2
Disk2   R=rr
RD:xxxxxxxxxxxx
```

- ← The disk the error occurred on and the number of retries (rr) will be displayed on the first line
- ← The retry process and the LBA under process will be displayed on the second line.

6.5 Timeout Errors

If an error occurs the miniClone retries the process, it can be displayed as follows:

```
Disk Copy
Disk1  ▶▶ Disk2
Disk2   T=tt
```

- ← The disk under process and the timeout count (time left until timeout period = tt) is displayed.

If the time left until timeout period (tt) reaches zero, then a timeout error occurs.

7. Troubleshooting

Please check the followings if you are experiencing unusual behavior by your Kanguru miniClone.

Problem	Possible Solution
Hard drive is not recognized by my computer in Device Mode.	<ul style="list-style-type: none"> • Check if the USB cable / eSATA cable / AC cable are connected to the back of the miniClone. • Check that Device Mode is on in the display screen.
I loaded an OS on a hard drive connected to the miniClone in Device mode, but it will not boot.	<ul style="list-style-type: none"> • Booting an OS through an HDD connected to the miniClone in Device mode is not supported. The HDD must be connected directly to the computer.
Transfer speed is slow.	<ul style="list-style-type: none"> • Check the whether the connection is USB 1.1 or if your external hard drive is a USB 1.1 device. If so, high speed transfer is not possible.
When formatting with Windows, a dialog “format was not completed” appears and format cannot be completed.	<ul style="list-style-type: none"> • Windows 2000 and later cannot make FAT32 partitions larger than 32GB. In this case, you need to format with NTFS or format with a different OS such as Windows 98SE beforehand.
Even though several HDDs are connected, only one HDD is detected in Device Mode.	<ul style="list-style-type: none"> • In Device Mode, only one HDD can be detected by your computer.

8. FAQ

Q : Is it possible to copy data between 2 HDDs with different capacities?

A : It is possible. If the capacity of the Destination Disk is larger than the Source Disk, then all of the data can be copied and the unused space on the Destination Disk will remain as an unallocated partition. If the capacity of the Destination Disk is smaller than the Source Disk, then not all of the data can be copied. When the Destination Disk is full, the copying process will be stopped.

Q : If my Destination Disk is larger than the Source Disk, what will happen to the remaining space after the copy process?

A : With Copy Mode, you can copy the partition of the HDD perfectly as it is. E.g. if you copy the data from a 40GB HDD to a 80GB HDD, 40GB of data will be copied to the Destination Drive and the remaining 40GB on the Destination Drive will be left as unallocated space.

Q : Is it possible to copy data between two HDDs with different RPMs and transfer rates?

A : It is possible. This product supports copying data between SATA1 and SATA2, SATA1.5Gbps and SATA3.0Gbps. It also supports copying between USB and eSATA.

Q : For copying is it possible to use an HDD with bad sectors?

A : The miniClone cannot read any partitions which cannot be read by a PC. It is possible to copy only the readable data while skipping the unreadable parts to an HDD with no bad sectors.

Q : Can I copy data using two hard drives that are the same capacity but were produced by different manufacturers?

A : Yes. Even though the both HDDs are the same capacity, you may receive a Capacity Mismatch error. There may be a small difference in capacity depending on the HDD manufacturer.

Q : Is it possible to copy a HDD with SCSI or Serial SCSI?

A : This product does not support SCSI and Serial SCSI.

Q : Is it possible to make a copy of my PC's hard drive through Device Mode?

A : When connecting through Device Mode, it may not be possible to copy your entire PC's hard drive. It may be necessary to remove the HDD from your computer and connect it directly to the miniClone.

Q : The capacity of the Destination Disk is smaller than the Source Disk, but the total amount of data on the Source Disk is equal to or less than the capacity of the Destination Disk. Will it copy all of the data from the Source Disk to the Destination Disk?

A : Copying to a Destination Drive with a smaller capacity is possible, but when the capacity of the Destination Disk is reached, the copy operation will be stopped. Therefore it is not guaranteed that all of the data will be copied. For example, if you copy a 40GB Source Disk with 20GB of data, to an 20GB Destination Disk, it is not certain that all of the data will be copied perfectly because the miniClone cannot determine which part of the HDD the OS will write the data to.

Q : How long does it take to copy data?

A : It depends on the HDDs you use. It is possible for high-performance HDDs to copy with transfer rates of 1GB – 4GB / minute.

Q : Is it necessary to format the HDD before starting to copy?

A : No. It is not necessary to format the HDD beforehand.

Q : Is it possible to copy an IDE(PATA) HDD?

A : It is not possible to copy an IDE(PATA) HDD with the miniClone. If you need to copy data off of an IDE(PATA) HDD, you will need to install the HDD in an external hard drive enclosure that supports IDE HDDs and either USB or eSATA connection.

9. Warranty

This product carries a 1 year* warranty. Kanguru Solutions is not responsible for any damages incurred in the shipping process. Any claims for loss or damage must be made to the carrier directly. Claims for shipping errors should be reported to Kanguru Solutions within three (3) working days of receipt of merchandise. Please refer to the 90-day warranty from the date of purchase. Any claims for loss or damage must be made to carrier directly. Claims for shipping errors should be reported to Kanguru Solutions within three (3) working days of receipt of merchandise.

*90-day warranty on labor. After 90 days, a \$20 service charge will be applied to all RMAs. Shipping back to the customer is covered during the first 90 days of purchase. After 90 days the customer is responsible for shipping both ways.

Kanguru Solutions does not offer money back returns on its duplicator product lines due to the unique nature of the product. All units will be fully supported under manufacturer's warranty.

10. Tech Support

If you experience any problems installing your Kanguru product or have any technical questions regarding any of our products, please call our tech support department. Our tech support is free and available Monday thru Friday, 9am to 5pm EST.

Call 1-508-376-4245

Or visit our website at www.Kanguru.com



"Technology on the move!"



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