



Store and Share your Digital Creations



miniSwap/U3™

**Hot-Swap, 2.5" External, Bus Powered,
USB 3.0 Enclosure**

User Manual

FirmTek, LLC
www.firmtek.com

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Changes

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Before installing the miniSwap/U3 or any other hardware or software, you are responsible for backing up data contained on any storage devices. After the hardware or software installation, you are responsible for backing up data on any storage devices at frequent intervals. FirmTek, LLC is not liable for any loss of data or damage to equipment resulting from the use of FirmTek products.

External Shielded USB 3.0 Cable

Please use the USB 3.0 cable provided with the miniSwap/U3 to ensure integrity during data transfers. Use caution and handle the cable with care. When inserting and removing the USB 3.0 cable, **hold the connector at the ends (not the cable)** when inserting and removing the cable from the computer and the external USB 3.0 enclosure.

Note: *The miniSwap/U3 cable and connectors: This external USB 3.0 cable/connector is specifically design to provide secure connections with the miniSwap/U3.* The USB 3.0 cable included with the miniSwap/U3 can be used with either USB 2.0 or USB 3.0 ports.

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I. Introduction

Welcome

Congratulations and thank you for purchasing the miniSwap/U3 Trayless, Hot-Swap, 2.5" External USB 3.0 Enclosure. This product is yet another innovative solution from FirmTek.

About This User Manual

The user manual will introduce you to the miniSwap/U3 enclosure. Please read it carefully, so that you may become familiar with the proper operation of the miniSwap/U3.

About USB 3.0 Technology





An evolutionary replacement for the USB 2.0 interface, the USB 3.0 (Universal Serial Bus) standard provides enhanced performance, simple upgrades and easy configuration. USB 3.0 is fully compliant with the USB 2.0 protocol while offering up to 5 Gbit/s performances compared to a maximum of 480Mbit/sec for USB 2.0. USB 3.0 devices can be hot-swapped (with most operating systems), support cable lengths up to 9.8 feet and its electrical design is closer to PCIe Gen2 than USB 2.0. USB 3.0 utilizes single unidirectional data paths for increased bandwidth up to 10x faster than USB 2.0. For faster data performance, the miniSwap/U3 implements USB Attached SCSI Protocol (UASP) which enables command queuing for USB storage devices while eliminating software overhead for SCSI command phases.

About the miniSwap/U3

The miniSwap/U3 is a Trayless, high quality, Aluminum, External, Hot-Swap, USB 3.0 enclosure. It supports 2.5" Solid State Drives (SSD) and 2.5" SATA hard disks (HDD). The silver aluminum case is crafted for maximum durability and heat dissipation. For maximum performance the disk is provided its own "direct connect" USB 3.0 connector. The unique Trayless design, allows customers to easily hot-swap bare drives in and out of the enclosure within seconds. This feature provides virtually unlimited storage possibilities in an ultra-small form-factor. Built from the ground-up as a true 6G Serial ATA solution with a USB 3.0 interface, the miniSwap/U3 is designed to provide the ultimate in performance with external SSD and 2.5" SATA hard disks.

Package Contents

Part number **SATA-miniSwap/U3** includes:

One-Bay external USB 3.0 chassis	
One ext. shielded USB 3.0 data cable with Type A to Micro-B connectors	
Four rubber feet	
One CD-ROM containing the miniSwap/U3 User's Manual	

miniSwap/U3 Highlights

- ◆ Attractive, durable, portable Trayless enclosure supports one 2.5" SATA SSD or HDD
- ◆ Easy to set up: No screws, no drive tray required, simply swap drives in seconds
- ◆ Easy to operate: Simply open the door to insert or remove storage device for virtually unlimited storage
- ◆ Supports 7mm, 9.5mm, 12.5mm and 14.9mm drive heights
- ◆ High performance design – Integrated SATA to USB 3.0 backplane; no internal cabling
- ◆ High bandwidth design – Supports USB 3.0, 5Gbit/s peak transfer rates
- ◆ Supports SATA 1.5G, 3G or 6G HDD or SSD 2.5" form factor with any capacity
- ◆ Bus Powered with Power and Activity LED
- ◆ Aluminum case for maximum durability and heat dissipation
- ◆ Ultra quiet, fan free, aluminum heat dissipation cooling system
- ◆ High performance to handle multiple projects simultaneously
- ◆ Perfect for both storage-hungry and speed-sensitive applications
- ◆ Cross-platform, PC and Macintosh compatible, operating system independent
- ◆ Expand storage without increasing heat inside the computer
- ◆ Works with Macintosh or PC with shielded USB 2.0 or 3.0 ports running Mac OS X, Windows or Linux
- ◆ Kensington Security Slot

miniSwap/U3 Applications

- ◆ Graphic arts
- ◆ Digital photography
- ◆ Computer animation
- ◆ Offsite backup
- ◆ Bulk data transport
- ◆ High-performance workstations
- ◆ File sharing over high-speed networks
- ◆ Digital audio/music composition, recording, editing, storage and playback
- ◆ Personal and professional high-definition digital video creation and editing
- ◆ Supported Video Formats: 10-bit uncompressed HD; 1080/60i, 8-bit; uncompressed SD; DVCPRO 25/50; HDV, DV, DVCA

miniSwap/U3 Specifications

General System Hardware Requirements	Compatible with Macintosh or PC with an available USB 2.0 or USB 3.0 port
Operating Systems Supported	<ul style="list-style-type: none"> • System independent • Cross-platform, PC and Macintosh compatible
Enclosure Capacity	<ul style="list-style-type: none"> • One 2.5" Trayless hot-swappable drive bay
External Connector	<ul style="list-style-type: none"> • One-port shielded USB 3.0 Micro-B Connector
Cables Supported	<ul style="list-style-type: none"> • Shielded USB 3.0 up to 3 meters in length
Hard Drive Types Supported	<ul style="list-style-type: none"> • 2.5" Serial ATA hard drive (HDD) or solid state drive (SSD) • Must support 5V operation • Supports 7mm, 9.5mm, 12.5mm, 14.9mm drive heights • Any capacity
Data Transfer Rates	<ul style="list-style-type: none"> • Up to 5 Gbit/second burst data
Advanced Data Features	<ul style="list-style-type: none"> • Fully compliant with SATA 1.5, 3 and 6.0Gbps Devices
Warranty	<ul style="list-style-type: none"> • One year limited parts & labor
Enclosure Dimensions	<ul style="list-style-type: none"> • 170.5 mm (L) x 23.9 mm (H) x 97 mm (W)
Enclosure Weight	<ul style="list-style-type: none"> • Enclosure Only: 13oz: (without drive)
Color	<ul style="list-style-type: none"> • Silver Aluminum
Status LED	<ul style="list-style-type: none"> • No Drive Detected - LED is Green • Drive Detected – LED is Blue • Drive Activity – Blue LED Blinks
Power	<ul style="list-style-type: none"> • Operates via USB Bus Power • Supports 5V devices
Environmental	<ul style="list-style-type: none"> • Operation Temperature: +41°F to +131°F (+5°C to +55°C)
RoHS	<ul style="list-style-type: none"> • Compliant
EMC Compliance	<ul style="list-style-type: none"> • EN55022/1998, EN55024/1998 (European Community) • FCC Part 15 Class B (US)

miniSwap/U3 System Requirements

Hardware Requirements

- Compatible with external USB 3.0 and 2.0 ports. USB 3.0 ports can be found on the 2012 Apple MacBook Pro, 2012 MacBook Air, 2012 Mac mini, 2012 iMac and Windows PC notebooks and desktops
- 2.5" SATA 1.5G, 3G, 6G hard drive or SSD, any capacity
- Bus power support for most 5v energy efficient 2.5" SSD/HDD
- If more than two miniSwap/U3 enclosures are used on a single computer an optional power adapter is required.



II. Preparing the miniSwap/U3



Caution:

Please verify your data is backed up before attempting to use the miniSwap/U3 external enclosure.

The miniSwap/U3 enclosure, hard drive/SSD and computer contain sensitive components that can be permanently damaged by Static Electric Discharge. Be sure you're working in an area free of static electricity to prevent damage. Use a wrist grounding strap if you have one or regularly touch a metal part of the computer chassis such as the power supply case or a port access cover to discharge any built-up static electricity from your body. Make sure to handle the hard drives around the edges to avoid damage by static electricity.

Getting Started

This section describes the proper method of preparing the miniSwap/U3 for use. Please review this section and familiarize yourself with the miniSwap/U3 enclosure before installing hard drives and connecting it to your computer.

Front view of the miniSwap/U3 enclosure:



Rear view of the miniSwap/U3 enclosure:



Mount Rubber Feet

Once the miniSwap is out of the box, please mount the included four rubber feet. Two rubber feet are attached in the front and two in the rear.

Drive Installation

There are three steps to install a hard drive or SSD and attach the miniSwap to the computer. The dual-bay **miniSwap/ES** is shown below to help illustrate the drive install process.

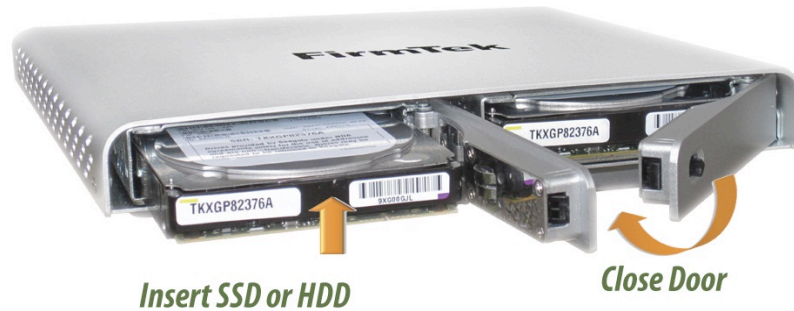
1. Open the Bay Door

To open the bay door, slide the latch to the right.



2. Insert the HDD or SSD

Insert the hard drive with the label facing up and the SATA pins in the rear. The SATA pins will be the first part of the device to enter the miniSwap bay. Push the drive in (as far as possible) using your thumb until the bay door starts to close.



WARNING - POTENTIAL DAMAGE

The SATA pins must be in the correct position to avoid damage. **DO NOT** insert a PATA device into the miniSwap as this will cause damage not covered by warranty.

- ♦ Carefully press the miniSwap door closed. The bay is now ready to be used.
Note: This is a critical step. If the fit is too tight, back out the disk and ensure the drive is the correct type and positioned properly. **Do not use excessive force** when inserting the disk. Excessive force can cause damage to the drive and the enclosure.
- ♦ To remove a disk, slide the latch to the right and open the door. Remove the disk as shown below. **Do not use excessive force when opening the bay door.** Excessive force can cause damage to the enclosure. If the door will not open easily remove the three screws on each side of the enclosure and remove the top to discover the issue.



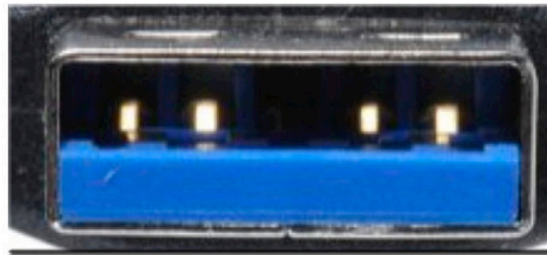
3. Attach the USB 3.0 cable

Install the USB 3.0 data cable on the rear of the miniSwap/U3 enclosure. Do NOT force the USB connector. The USB 3.0 Micro-B connector can only fit in one direction. **The notch in the Micro-B connector found on one end of the USB 3.0 cable must be pointed down** to properly insert the USB connector into the rear of the miniSwap/U3.



USB 3.0 Micro-B Connector

Attach the USB A male connector found on the other end of the USB 3.0 cable to the computer. The blue area inside the connector must be down for the connector to properly slide into place.



USB 3.0 A Connector

Making the USB 3.0 Connection:



Caution: Be sure to connect the cable using the proper orientation to your computer and external enclosure. It should easily snap into place. Please do not force the USB connector into the computer USB port or the miniSwap/U3. **Use of excessive force may damage the computer or the miniSwap/U3 and is not covered by warranty service.**

Power Operation

Once the USB cable is connected and the computer is running, the power LED will glow and the drive mounted in the miniSwap/U3 can be accessed by the computer. The miniSwap/U3 will operate on bus power provided the USB power limits of the computer are not saturated. USB 2.0 computer connections offer up to 500mA of power while USB 3.0 ports provide up to 900mA. If too many USB devices are connected at the same time an optional miniSwap/U3 power adapter may be required.

Front Panel Status & Activity LED Light

On the front of the miniSwap/U3 enclosure are two multi-color (Green & Blue) status/activity LED lights. These lights appear on the right side of the bay door. The lights will be off if the power is off. When a USB cable is attached to the miniSwap/U3, the LED will normally glow green if no drive is detected. When a hard disk is installed a blue LED will glow. Once the drive is being accessed the blue LED will blink.

III. Hot-Swapping Hard Drives

Introduction

The miniSwap/U3 external enclosure extends Serial ATA's and SSD storage capabilities outside the computer chassis. Serial ATA drives can be swapped in and out of the miniSwap/U3 enclosure within seconds.


General Hot-Swap Guidelines

- ◆ Do not disconnect or remove hard drives while transferring data.
- ◆ Save your work and close associated applications before removing the external hard drive (applications need to be closed since they may keep temporary working files open on the external hard drive).
- ◆ Always unmount the volumes (eject, disable, or drag the volumes to trash) associated with an external hard drive before removing it.
- ◆ Do not remove a disk that is being used as the Startup Disk.

Connecting External Hard Drive(s)

If your computer is not turned on, connect the USB cable and then power on the computer. If the computer is already powered on, insert the hard drives and then power on the enclosure by connecting the USB cable to the computer.

Removing External Hard Drive(s)

 **Caution:** To prevent loss of data, save your work and close associated applications before removing an external hard drive (applications need to be closed since they may keep temporary working files open on the external hard drive). Always unmount the volumes (eject or drag the volumes to trash) associated with an external hard drive before removing it. Eject or drag all of the volumes associated with the hard drive(s) before disconnecting or removing them.



Windows Hot-Swap Procedure

Hard drives may be hot-swapped under Windows 2000, Windows XP, and Windows 2007.
Note: Hot-swap functionality is not available for Windows 98/98SE/ME; please shut down the system before adding or removing hard drives when using these operating systems.



Caution: To prevent loss of data, save your work and close associated applications and directory folders before removing the external hard drive (applications need to be closed since they may keep temporary working files open on the external hard drive).

Hot-Swap Procedure

- ◆ Bring up the Windows Device Manager: Right-click on *My Computer*, click *Manage*, and then click *Device Manager*.
- ◆ Go to *Disk Drives* and find the disk you want to remove.
- ◆ Right click on the desired disk drive and select *Remove/Disable*.
- ◆ After performing this operation, you can remove the hard drive without risk of losing any data that is currently stored in cache memory.
- ◆ To reconnect the external hard drive, reconnect it and Windows will automatically detect it.
- ◆ If you are re-attaching a hard drive after the remove/disable operation as explained above, you must make sure that the hard drive is power cycled before reconnecting it (Removing, waiting a few seconds, and reinserting the hard drive into the miniSwap/U3 external enclosure will effectively power-cycle the drive. If several drives were removed/disabled, then the external enclosure itself may need to be power-cycled).

IV. Sleeping & Wake-Up Procedures:

When you wish to sleep or shutdown the system and the miniSwap/U3:

1. Dismount the volume: On a Mac dragging the volume to the trash causes the trash icon to change; dropping the volume there dismounts the volume.
2. Put the system into Sleep mode, or shutdown normally.

When you wish to Wake-Up or Turn-On the Computer System:

1. Verify your miniSwap/U3 enclosure is connected to the computer via the USB cable.
2. Wake-Up or Turn-On your System normally.

At this point your system should automatically load, then discover, and mount the volumes.

V. Troubleshooting

- **My hard drive isn't recognized**

Check the cables and connections. Ensure the USB 3.0 cable is properly oriented to the connector on the computer and the external enclosure. Ensure the enclosure is properly powered. If several USB devices are connected to the computer, remove all of them and just try connecting the miniSwap/U3. USB 3.0 ports provide up to 900mA of power. USB 2.0 ports provide up to 500mA of power. If the drive inserted in the miniSwap/U3 requires 12v it is not compatible and will not power up. Make sure the hard drive has been initialized for use with the OS you have selected. Disk Utility completes this task with Mac OS X. Disk Manager provides this service in Windows.

- **Does the miniSwap/U3 work with all PPC and Intel based Macintosh computers?**

Yes, the miniSwap/U3 works with all computers with at least one available USB 3.0 or USB 2.0 port. For support of devices over 2TB Mac OS X 10.5.x or higher is required

- **Is a power adapter available?**

Yes, an optional miniSwap/U3 power adapter is available. FirmTek was able to successfully mount two miniSwap/U3 enclosures at the same time with 2.5" SATA HDDs installed while only using Bus power on the 2012 MacBook Pro. If you have several additional USB devices connected at the same time it's possible a power adapter may be needed. Simply unplugging excess USB devices will usually allow Bus power to support the miniSwap/U3. Please contact FirmTek if you wish to order a miniSwap/U3 power adapter.

- **Drive is difficult to eject or insert?**

If the selected 2.5" **SATA HDD has a notch in the rear**, it may cause the disk eject arm to **become stuck and the bay door difficult to open. DO NOT force the door open** as this may damage the miniSwap. If the drive is difficult to eject, take the three screws off of each side of the miniSwap and remove the top. Next, push the drive forward with your finger to eject the drive.

You can fill the notch if you wish to continue to use the drive with the miniSwap. One option is to use a knife to cut a small section of wood from a wooden paint stick to fill the gap. Black electrical tape can be used to hold the wood in place. With this modification completed the drive will eject properly. Do not fill the gap with any substance that conducts electricity, as this can damage the HDD.



Notch ↑



Notch ↑



Covered Notch ↑

VI. Product Support

Technical Support

For additional information on how to use miniSwap/U3, download the latest updates, or for technical assistance, please visit us at **www.firmtek.com**, or email us at **support@firmtek.com**.

Please provide the following information when contacting us:

- Product model and serial number
- Computer model
- Computer OS type and version (example: Mac OS X, version 10.6; Windows 7)
- Hardware and software installed on your system
- Contact information including daytime telephone number and email address
- A detailed description of the question or problem

Return Merchandise Authorization

To obtain limited warranty service, you must first obtain a Return Materials Authorization (RMA) and ship-to address by contacting FirmTek at <http://www.firmtek.com/support>. Please, request the RMA by filling out the form at the bottom of the page.

NO RETURNS WILL BE ACCEPTED WITHOUT AN RMA NUMBER.

If FirmTek technical support determines the product needs to be repaired or replaced, a Return Merchandise Authorization (RMA) number and shipping address will be provided. Please pack the product in the original shipping container and include all of the original packaging - including the static bag, all hardware, software, cables, and other accessories that came with the original product. You are responsible for shipping and insurance costs, and any damage incurred due to improper packaging or transport. You should remove all personal information from the product prior to its return. For your protection insure the package and ship via a traceable method such as UPS or FedEx. FirmTek is not responsible for lost or damaged packages.

FirmTek reserves the right to determine whether the product is to be repaired or replaced with refurbished parts, or with a new or refurbished product. Data Recovery is not covered under this warranty and is not part of the warranty returns process. Standard United States return shipping charges are paid by FirmTek, Foreign and other shipping methods such as express shipping are available for an additional charge.

Write down the RMA number on the outside of the shipping container, and include the following information with the shipment:

- A description of the problem
- A copy of the original purchase invoice
- Return shipping address
- Contact information including daytime telephone number and email address

FirmTek, LLC reserves the right to refuse shipments missing a valid RMA number.

VII. Product Warranty and Disclaimers

FirmTek warrants to the original buyer only that this product shall be free from defects in material and workmanship for a period of one year from the original date of purchase. This warranty is valid only when the original purchase invoice is provided. This warranty shall not apply to any defects resulting from improper handling, misuse, misapplication, abuse, or unauthorized modification(s), which are performed by the end user.

FirmTek, LLC reserves the right to make changes to any products described in this manual at any time without notice. FirmTek, LLC assumes no responsibility for the use or reliability of hardware or software that is not supplied by FirmTek, LLC or its affiliated companies. FirmTek, LLC does not assume any responsibility or liability arising out of the application or use of any product described in this document, except as expressly agreed to in writing by FirmTek, LLC; nor does the purchase or use of a product from FirmTek, LLC convey a license under any patent rights, copyrights, trademark rights, or any other intellectual property rights of FirmTek, LLC or third parties.

For FirmTek products 1TB or greater: "One gigabyte (GB) is equal to one billion bytes and one terabyte (TB) equals 1,000 GB (one trillion bytes). Accessible capacity will vary from the stated capacity due to formatting and partitioning of the hard drive, the computer's operating system, and other factors". For FirmTek products less than 1TB: "One gigabyte (GB) is equal to one billion bytes when referring to hard drive capacity. Accessible capacity will vary depending on the operating environment and formatting."

VIII. Regulatory Compliance Statements

RoHS compliant

Federal Communications Commission Radio Frequency Interference Statement

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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 instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. However, if this equipment does cause interference to radio or television equipment 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 equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.
- Use a shielded and properly grounded I/O cable and power cable to ensure compliance of this unit to the specified limits of the rules.

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.

CE European Union Compliance Statement

EMC compliance:

Emissions: EN55022: 1998, Class B

Immunity: EN55024: 1998

EN61000-4-2: 1995+A1: 1998

EN61000-4-3: 1995+A1: 1998

EN61000-4-4: 1995

EN61000-4-6: 1996

EN61000-4-8: 1993

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