



Store and Share your Digital Creations



dLite™

**2.5" External, Bus Powered, High-Performance,
Ultra-light, USB 3.0 Enclosure**

User Manual

FirmTek, LLC
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Changes

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Before installing the dLite 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 dLite 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 dLite cable and connectors are specifically design to provide secure connections with the dLite.* The USB 3.0 cable included 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 dLite 2.5", external, high-performance, 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 dLite enclosure. Please read it carefully, so that you may become familiar with the proper operation of this product.

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, dLite implements USB Attached SCSI Protocol (UASP) which enables command queuing for USB storage devices while eliminating software overhead for SCSI command phases.

About the dLite

The dLite is a high quality, aluminum, external, 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. Built from the ground-up as an ultra-light true 6G Serial ATA solution with a USB 3.0 interface, the dLite is designed to provide the ultimate in performance with external SSD and 2.5" SATA hard disks.

Package Contents

Part number **USB3-dLite** includes:

External USB 3.0 chassis	
One ext. shielded USB 3.0 data cable with Type A to Mini connectors	

dLite Highlights

- ◆ Attractive, durable, ultra-portable, high-speed enclosure supports one 2.5" SATA SSD or HDD
- ◆ Easy to set up: install drives in seconds
- ◆ Easy to operate: plug and play USB 3.0 technology (no driver required)
- ◆ Supports 7mm and 9.5mm 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 design
- ◆ 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

dLite 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

dLite 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" drive of any capacity
External Connector	<ul style="list-style-type: none"> • Shielded USB 3.0 Mini Connector
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 and 9.5mm 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"> • 120.7 mm (L) x 12.8 mm (H) x 73 mm (W)
Enclosure Weight	<ul style="list-style-type: none"> • Enclosure Only: 2 oz: (without drive)
Color	<ul style="list-style-type: none"> • Silver Aluminum
Status LED	<ul style="list-style-type: none"> • USB Power 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)

dLite System Requirements

Hardware Requirements

- Compatible with external USB 3.0 and 2.0 ports. USB 3.0 ports can be found on the 2012 or later Apple MacBook Pro, MacBook Air, Mac mini, iMac and Windows PC notebooks and desktops
- 7mm or 9.5mm 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



II. Preparing the dLite



Caution:

Please verify your data is backed up before attempting to use the dLite external enclosure.

The dLite 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.

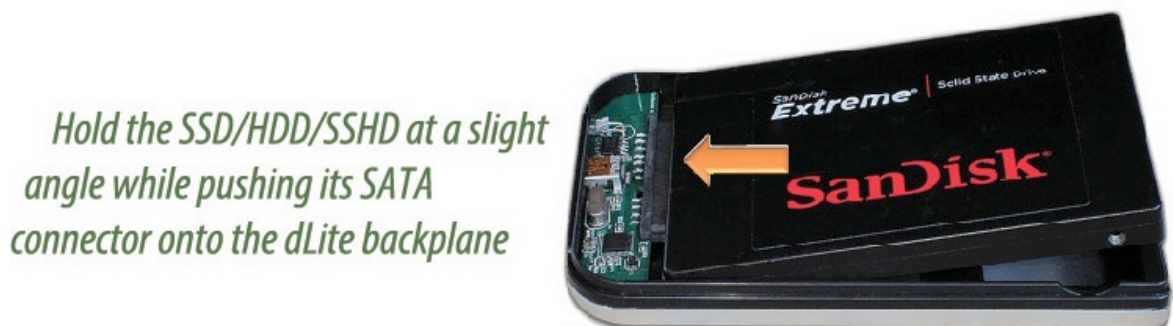
Getting Started

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

Front view of dLite enclosure:



Inside view of dLite enclosure:



Drive Installation

Follow the steps below to install a hard drive or SSD and attach the dLite to the computer.

1. Remove the top and bottom covers

Push the front middle tab on the dLite enclosure. This will allow you to remove the aluminum top and bottom covers.

2. Insert the HDD or SSD

Insert the hard drive with the label facing up and the SATA pins in the rear. Hold the SSD/HDD at a slight angle while pushing its SATA pins into the SATA backplane of the dLite. Verify the connection is tight. Next, push the front of the drive completely into the tray using your thumbs.

3. Screw the Drive to the Tray

For extra stability, attach the drive to the tray using four screws. Do not over-tighten as this may strip the screws. If the drive is already secure, this step may be skipped.

4. Re-install Bottom and Top Cover

Hold the bottom cover at a slight angle while latching the tabs found on the rounded corners of the cover to the indentations on the rear of the tray. Once the cover is latched to the rear edges, push the cover down flush with the tray. Now follow this same procedure to snap the top cover in place. *Do not use excessive force when snapping the covers in place.*



WARNING - POTENTIAL DAMAGE

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

- ♦ To remove a disk, remove the top and bottom aluminum covers as described above. Next, remove any screws securing the drive to the tray. Now from the bottom front of the tray gently push the drive up so the top portion of the drive is no longer inside the tray. With the drive at a slight angle, pull the drive out of the backplane with a very slight, slow wiggle motion. Remove the drive. ***Do not use excessive force when inserting or removing the drive. Excessive force can cause damage to the enclosure.***

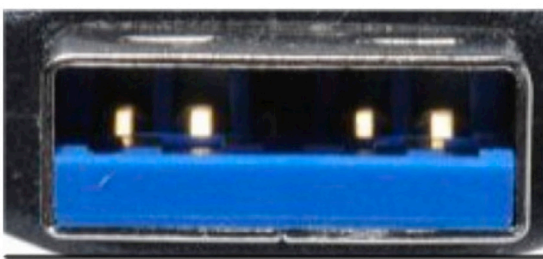
5. Attach the USB 3.0 cable

Install the USB 3.0 data cable on the rear of the dLite enclosure. Do NOT force the USB connector. The USB 3.0 Mini connector can only fit in one direction. **The orientation must be correct** to properly insert the USB connector into the rear of the dLite.



USB 3.0 Mini 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 dLite. **Use of excessive force may damage the computer or the dLite 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 dLite can be accessed by the computer. The dLite 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. The dLite does not support a power adapter.

Power/Activity LED Light

On the rear of the dLite enclosure is a Blue combination power/activity LED light. The light is located to the right of the USB port. The light will shine blue when an active USB port is connected to the enclosure. When the drive is being accessed the blue LED will blink.

III. Hot-Swapping Hard Drives

Introduction

The dLite external USB enclosure extends Serial ATA's and SSD storage capabilities outside the computer chassis. Serial ATA drives can be swapped while the computer is still running.

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 running, 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 disconnecting 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 disconnecting the external USB 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 .

IV. Sleeping & Wake-Up Procedures:

When you wish to sleep or shutdown the system and the dLite:

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 dLite 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 cables and connections. Ensure USB 3.0 cable is properly oriented to the connector on the computer and the external enclosure. Ensure enclosure is powered. If several USB devices are connected to the computer, remove all of them and just try connecting the dLite. USB 3.0 ports provide up to 900mA of power. USB 2.0 ports provide up to 500mA of power. 12v hard drives are not compatible and will not power up. Verify 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 dLite work with all PPC and Intel based Macintosh computers?**

Yes, the dLite 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

VI. Product Support

Technical Support

For additional information on how to use dLite, 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.

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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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