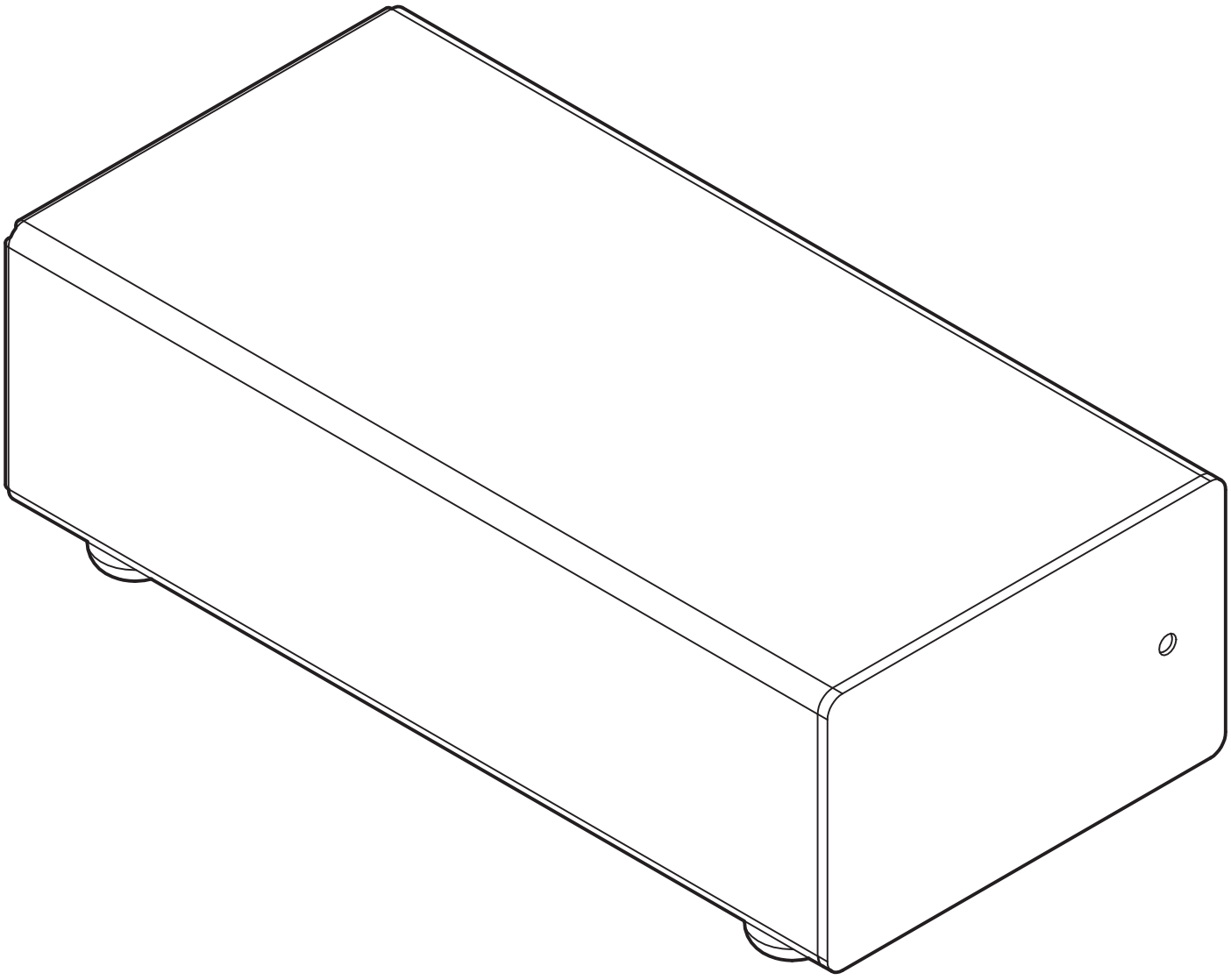
User's Guide

for Echo™ Express SEL 10GbE
10 Gigabit Ethernet Thunderbolt™ 2 Adapter



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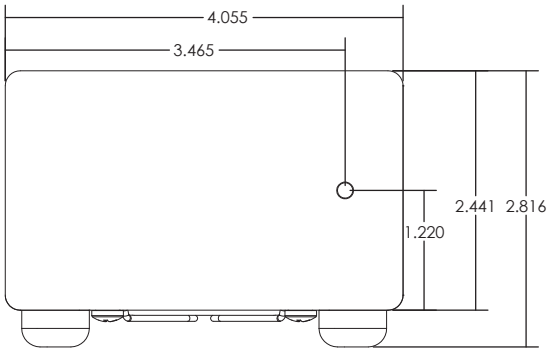
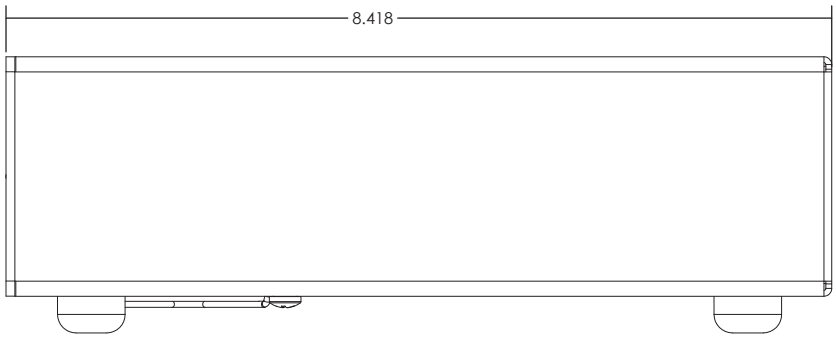
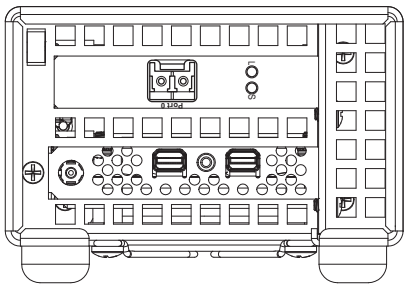
Chapter 1 – Introduction, System Requirements, Driver Information

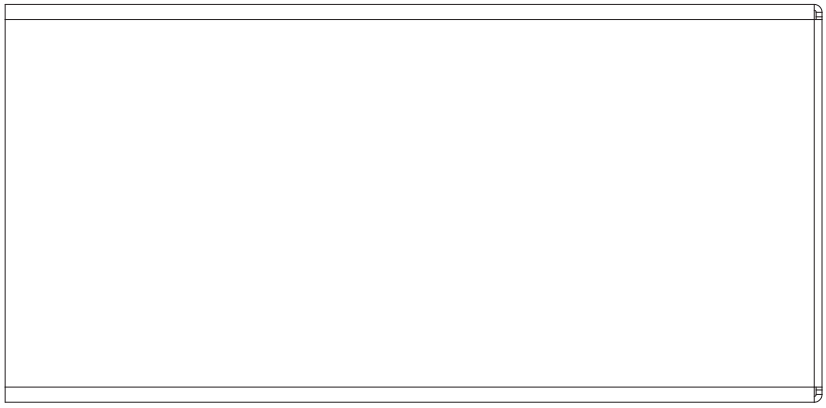


FRONT VIEW



SIDE VIEW


REAR VIEW


TOP VIEW

Introduction

Congratulations on your purchase! The Echo Express SEL 10GbE is a Thunderbolt 2-to-10 Gigabit Ethernet (10GbE) adapter that enables you to connect your Mac® with a Thunderbolt port to 10GbE infrastructure.

Connection of the Echo adapter to your computer requires a single Thunderbolt cable, while connection to 10GbE infrastructure requires the use of an LC/LC fiber optic cable.

The Echo adapter works in concert with your computer, turning on only when connected to your computer and the computer turned on. When your computer is turned off or sleeping, the Echo adapter turns off automatically to save energy.

System Requirements

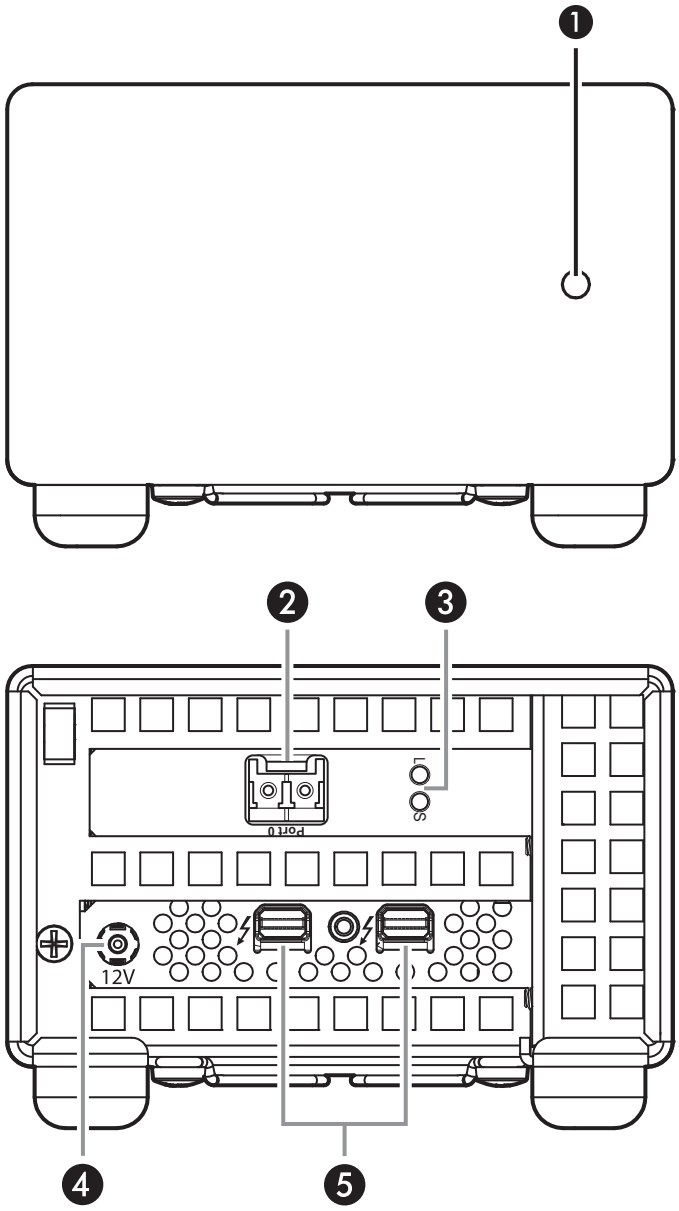
The Echo adapter requires the following to operate:

- Mac computer with a Thunderbolt port
- OS X 10.8.5 or later
- Thunderbolt cable
- LC/LC fiber optic cable

Driver Information

The driver that enables the 10GbE adapter card inside the Echo adapter to work with your computer must be downloaded from Sonnet's Website; instructions follow.

Chapter 2 – Echo Express SEL 10GbE Description



Echo Express SEL 10GbE Exterior

1 – Power Indicator

This indicator lights when the Echo adapter is powered, the Thunderbolt cable between the adapter and your computer is plugged in securely, and the computer powered on. Note that if the Echo adapter is connected to another Thunderbolt device instead of directly to the computer, every other Thunderbolt device connected between the computer and Echo adapter must also be powered on before the Echo adapter's power indicator will light up.

2 – 10 Gigabit Ethernet (10GbE) Port

Connect a fiber optic cable with LC-type connectors between this port and the switch's 10GbE port.

3 – Link and Firmware Indicators

The green LED (labeled "L") lights steadily to indicate that a link is established between the Echo adapter and another 10GbE device, while the amber LED (labeled "S") confirms that the EEPROM/driver firmware has been successfully loaded by flashing two short and close blinks per second.

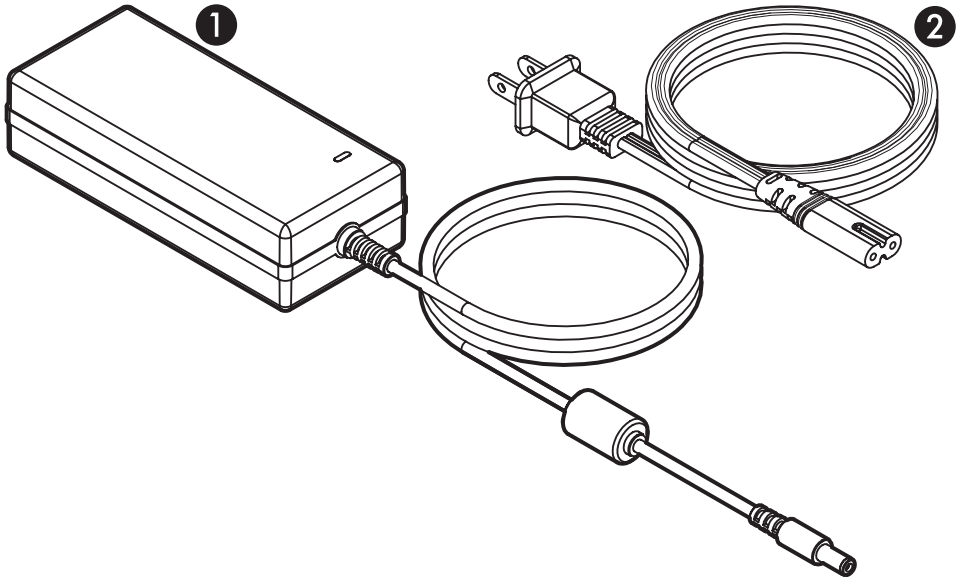
4 – 12VDC Socket

Connect the included DC power adapter between this socket and the included power cord.

5 – Thunderbolt Ports

Connect a Thunderbolt cable between either of these ports and your computer's (or intermediate device's) Thunderbolt port; the open port may be used to connect another Thunderbolt device.

Chapter 2 – Echo Express SEL 10GbE Description



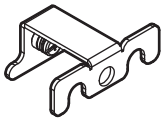
Power Adapter

1 – Power Adapter

Connect this to the Echo adapter's 12VDC socket. Note that the power indicator on top lights when the adapter is connected to AC power.

2 – Power Cord

Connect this between a power outlet and the power adapter. Note that the power cord included with your product may appear different than the one pictured here, depending on where the product was purchased.



Thunderbolt Connector Lock

This secures Thunderbolt connectors plugged into the Echo adapter's Thunderbolt ports to prevent accidental cable disconnection. This lock is not compatible with optical Thunderbolt cables.

Chapter 3 – Software Installation

You must install software in order for your computer to support this Echo adapter.

OS X Driver Download and Installation

This section describes the download and installation of the driver required to support the Echo adapter.

1. Launch a Web browser and go to www.sonnettech.com/support, and then click the Downloads, Manual, & Knowledgebase link.

2. On the Support Categories page, click the Thunderbolt Product link, and then click the Echo Express SEL 10GbE link.

3. On the Echo Express SEL 10GbE page, click the Driver link, and then click the Download Now button next to "Echo Express SE 10GbE/Echo Express SEL 10GbE/Presto 10GbE Software (OS X)"; the software will be downloaded.

4. Double-click the sonnet_10gbe_installer_x.x.dmg (*x.x* is the version) file; the file will expand and a new window will open.

5. Double-click the Sonnet 10Gb Ethernet Installer x.x.pkg file to launch the driver installer.

6. When the *Welcome to the Sonnet 10 Gigabit Ethernet Installer* window appears, click Continue.

7. When the *Important Information* window appears, read the information, and then click Continue.

Support Note: The release notes contain information regarding the configuration of the driver to enable LRO (Large Receive Offload) to improve performance in certain situations. Refer to this read me for specific information.

8. When the *Software License Agreement* window appears, read the agreement, click Continue, and then click Agree.

9. When the *Standard Install* window appears, click Customize to change the items installed if necessary, change the location or accept the default installation location, and then click Install.

10. When asked to do so, enter the Administrator password, and then click Install Software; the software is installed.

11. When the next window appears, click Restart to restart your system and finish the driver installation.

Chapter 4 – Echo Adapter Connection

Support Note: To ensure the best performance possible when connecting multiple Thunderbolt devices in a daisy chain, be sure to connect 20Gbps Thunderbolt 2 devices such as this Echo chassis closest to the computer, with 10Gbps Thunderbolt devices at the end.

1. Connect a Thunderbolt cable between either Thunderbolt port on the Echo adapter and a Thunderbolt port on your computer (or other Thunderbolt device in the chain connected to the computer). If you are daisy chaining additional Thunderbolt devices, connect another Thunderbolt cable between the downstream device and the open Thunderbolt port on the Echo adapter **(Figure 1)**.

2. Using a Phillips screwdriver, secure the Thunderbolt cable(s) to the Echo adapter with the supplied Thunderbolt cable lock **(Figure 1)**. Note that if you are using an optical Thunderbolt cable, the supplied Thunderbolt cable lock is not compatible; skip to the next step.

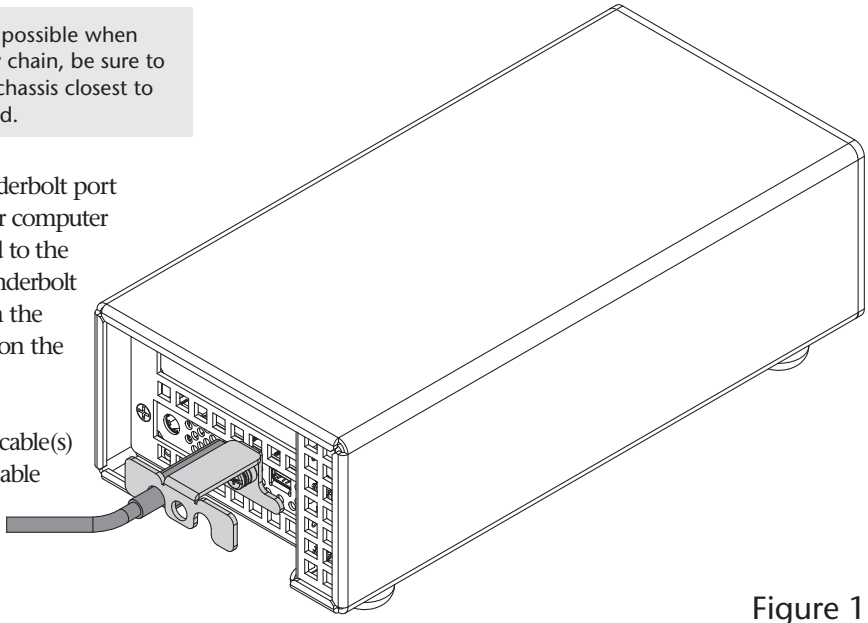


Figure 1

3. Connect an LC/LC fiber optic cable between the port on the Echo adapter and the port on the switch or device.

4. Connect the included power cord between a wall outlet or power strip and the power adapter; verify the connector is plugged in securely. Note that the power adapter's power indicator will light at this time.

5. Connect the power adapter cable to the Echo adapter's 12V power socket. Note that the power indicator on the Echo Express SEL chassis will not light until the computer, and any other Thunderbolt device connected between it and the Echo chassis, is powered on.

Chapter 5 – Verifying Adapter Recognition Using System Report

Confirming Thunderbolt and the 10GbE Controller are Recognized

1. With the Echo adapter powered and connected to the computer, turn on the computer. Note that if there are any other Thunderbolt devices connected between the Echo adapter and your computer, they must also be powered for you to perform the following steps.

2. From the Apple menu, select About This Mac; the System Information application will launch.

3. When the *About This Mac* window opens, click More Info; a summary of specifications will appear.

4. Click System Report; a full report window will appear.

5. In the System Report window, click Thunderbolt under the Hardware header in the left column (**Figure 2**).

6. In the top right column under the Thunderbolt Device Tree header, you will see the computer listing, with "Echo Express SEL" appearing below it (**Figure 2**).

Support Note: If you do not see "Echo Express SEL" listed, disconnect and reconnect the Thunderbolt cable between the computer and Echo Express SEL. Note that it is not necessary to shut down the computer before disconnecting and reconnecting the cable.

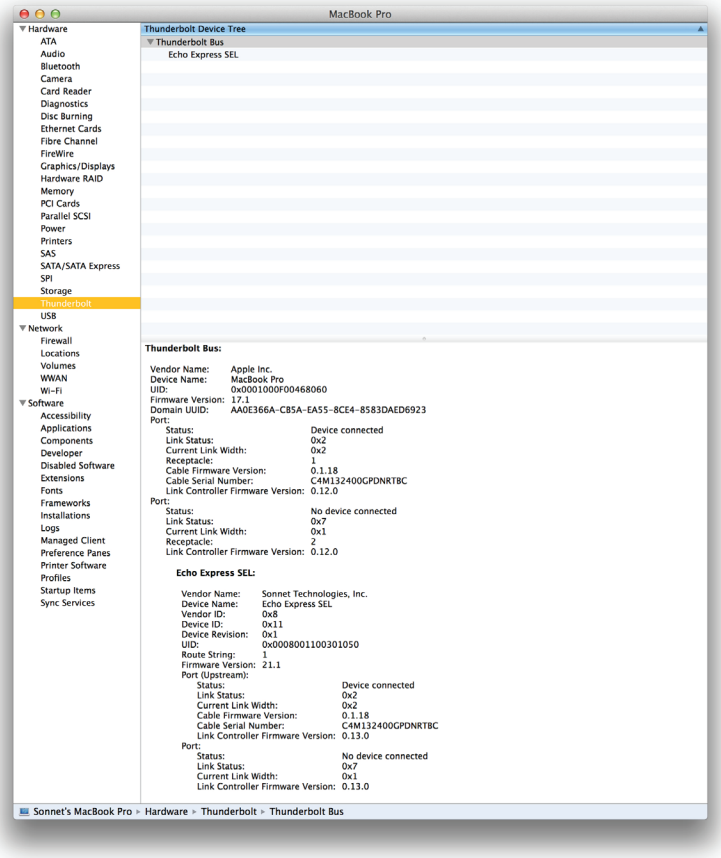


Figure 2

7. Click PCI Cards under the Hardware header in the left column (**Figure 3**).

8. At the top of the right column, the installed 10GbE card is listed, identified as an Ethernet Controller; detailed information appears below. You will see "Yes" next to Driver Installed and Tunnel Compatible (**Figure 3**).

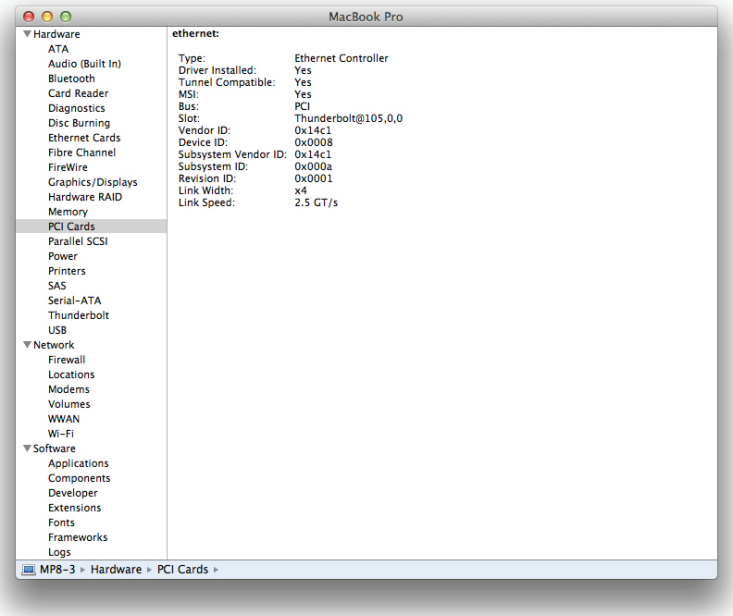


Figure 3

Chapter 6 – Basic Configuration Information

Listed below are the basic steps necessary to configure the Echo adapter for use with your computer.

1. With the Echo adapter connected to your computer and 10GbE infrastructure, open System Preferences, and then click Network.

2. In the Network preferences panel, click the Echo adapter (identified as Thunderbolt Ethernet Slot x) in the left panel, and then configure the settings **(Figure 4)**.

3. When you've finished changing the settings, click Apply. For additional information on configuring settings, refer to Mac Help (Help > Mac Help from the Finder) and www.apple.com/support; type "network, ethernet" to display various articles.

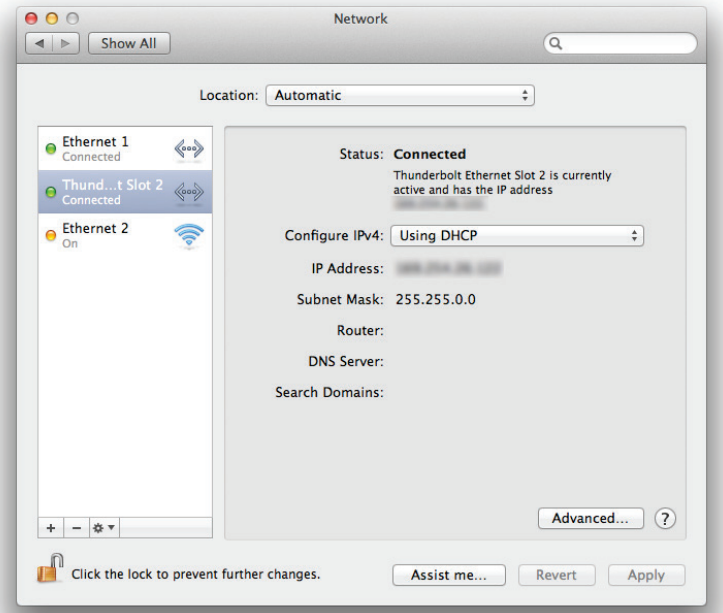


Figure 4

Chapter 7 – Tips, General Information, and Known Issues

TIPS, GENERAL INFORMATION

Keeping the Adapter Cool
With its optimized airflow design and automatic, temperature-controlled fan providing cooling at all times, the Echo adapter provides adequate cooling for the components inside. *Do not block any of the vents while the adapter is operating*! Otherwise, the adapter may overheat.

Hot-Plugging the Echo Adapter
You may connect and disconnect the Thunderbolt cable between the Echo adapter and your computer while your computer is on.

Connecting Additional Thunderbolt Devices
You may connect up to six Thunderbolt devices total in a daisy chain, including the Apple Thunderbolt Display.

There's No Need to Unplug the Power Adapter
Because the Echo adapter automatically powers on and off with the computer to which it's connected, there's no power switch, nor is there any need to disconnect the power cable under normal use.

Power Indicator Operation
Because the Echo adapter powers on and off with the computer to which it's connected, its power indicator only lights when the computer is on, and turns off when the computer is sleeping or powered off. Note that the power adapter's power indicator remains lit as long as it is connected to a live power outlet.

KNOWN ISSUES

Some Devices' Performance May be Affected by Where They Are Connected in a Thunderbolt Chain
However small, the Thunderbolt interface introduces latency to a device chain. If you add additional Thunderbolt devices to the chain, you may need to experiment with which device works better closer or farther to the computer in the chain.

OS X Updates May Break Compatibility
Specific device drivers that work under one version of OS X may not work under a later version. *Before updating to the latest OS*, we recommend that you contact Sonnet to verify that the existing drivers work. Note that other software updates for the computer may also break compatibility.

Chapter 8 – Specifications, Precautions, FCC Compliance, and Support Information

Specifications

External Connectors	Two Thunderbolt SFP+ Power
Power Adapter	Input: 100-240V AC 1.6A, 50-60 Hz Output: 12V@7.0A (80W)
Operating Temperatures	+32˚ F to +95˚ F (0˚ C to +35˚ C)
Dimensions WxDxH	4 x 8.42 x 2.82 in. (10.16 x 21.39 x 7.16 cm)
Weight	1.88 lbs. (.85 kg)
RoHS Compliant	Yes
Package Contents	• Echo Express SEL 10GbE(1) • Power adapter • Power cord • Thunderbolt cable lock(2) • User's guide

1. Thunderbolt cable required; available at the Apple Store and your reseller.
2. Not compatible with optical Thunderbolt cables.

Warnings

Always follow the basic warnings listed here to avoid the risk of serious injury or death from electrical shock, short-circuiting, fire, and other hazards. These warnings include, but are not limited to:

- **Do not open the Echo Express SEL 10GbE adapter or remove its cover under any conditions. There are no user serviceable parts inside.** ***Breaking the seals and removing the cover will void the warranty!***

- Do not attempt to modify the enclosure. If this device appears to be malfunctioning, contact your reseller or local distributor.

- Do not drop the chassis; dropping or mishandling the chassis may result in a malfunction leaving the product inoperable.

- Do not expose the device to rain, use it near water or containers that contain liquids which might spill into any openings, or in damp or wet conditions.

- If unusual smells, sounds, or smoke come from the device, or if liquids enter it, switch it off immediately and unplug it from the electrical outlet.

- Follow the instructions in this manual carefully; contact your reseller or local distributor for additional advice not covered in this User's Guide.

FCC Compliance

Echo Express SEL 10GbE complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: This device may not cause harmful interference, AND this device must accept any interference received, including interference that may cause undesired operation.

Contacting Customer Service

The Sonnet Web site located at www.sonnettech.com has the most current support information and technical updates. Before you call Customer Service, please check our Web site for the latest updates and online support files, and check this User's Guide for helpful information.

When you call Customer Service, have the following information available so the customer service staff can better assist you:

- Product name
- Date and place of purchase
- Computer model
- Operating system version
- Software/firmware versions

USA Customers

If further assistance is needed, please contact **Sonnet Customer Service** at:
Tel: 1-949-472-2772
(Monday–Friday, 7 a.m.–4 p.m. Pacific Time)
E-mail: support@sonnettech.com

For Customers Outside the USA

For support on this product, contact your reseller or local distributor.

Visit Our Web Site

For the most current product information and online support files, visit the Sonnet Web site at www.sonnettech.com/support/. Register your product online at http://registration.sonnettech.com to be informed of future upgrades and product releases.

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Printed in the USA. UG-ECHO-EXP-SL10G-E-A-021214