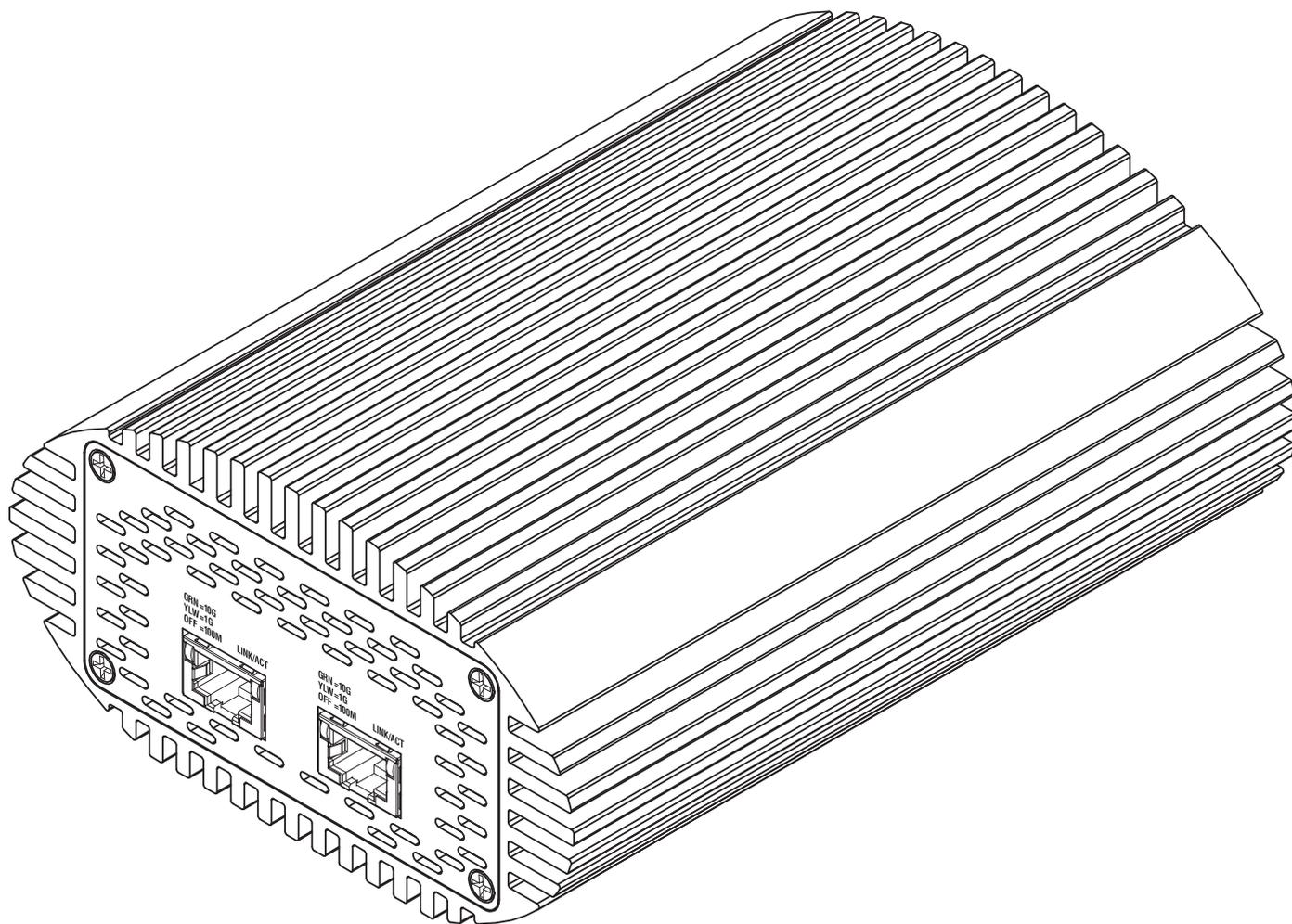


# User's Guide

for Twin 10G

10GBase-T 10 Gigabit Ethernet Thunderbolt™ 2 Adapter



THUNDERBOLT™



SONNET™  
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[www.sonnettech.com](http://www.sonnettech.com)

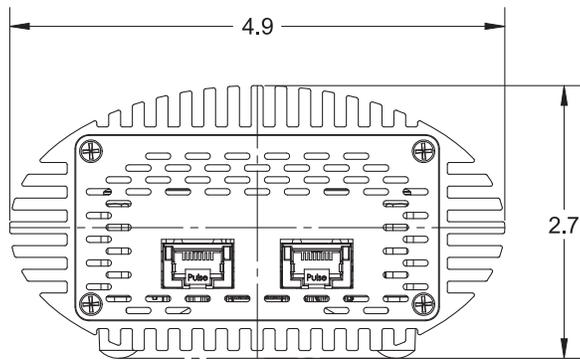


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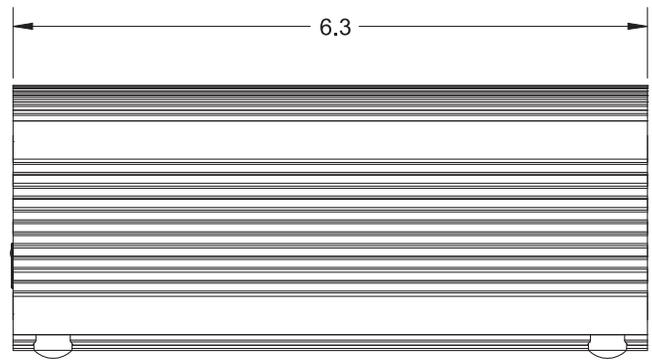
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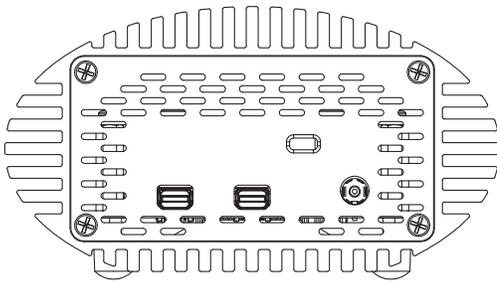
## Chapter 1 – Introduction, System Requirements, Driver Information



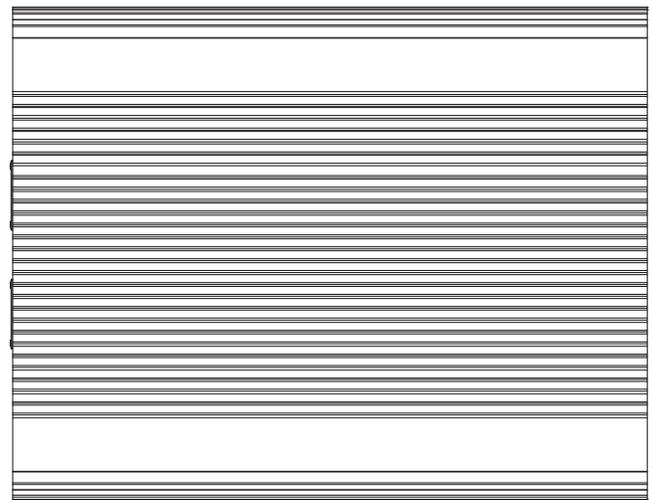
FRONT VIEW



SIDE VIEW



REAR VIEW



TOP VIEW

### Introduction

Congratulations on your purchase! The Twin 10G 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 Twin 10G adapter to your computer requires a single Thunderbolt cable (included), while connection to 10GbE infrastructure requires the use of CAT-6 or CAT-6A cables.



**Support Note:** For Mac users, this document was up to date at the time of printing. However, changes to the hardware or software may have occurred since then. For Windows users, this document does not include driver installation instructions and other information. In either case, Please check the Sonnet website for the latest documentation.

1. Go to [www.sonnettech.com/support/kb/kb.php](http://www.sonnettech.com/support/kb/kb.php)
2. Click the Thunderbolt Product link.
3. Click the Twin 10G link, and then click the Documentation link.
5. Click the Twin 10G User's Guide [English] link. For Mac users, check the Document Version information. If the version listed is later than this document, click the Download Now button for the latest version. For Windows users, click the Download Now button.

### System Requirements

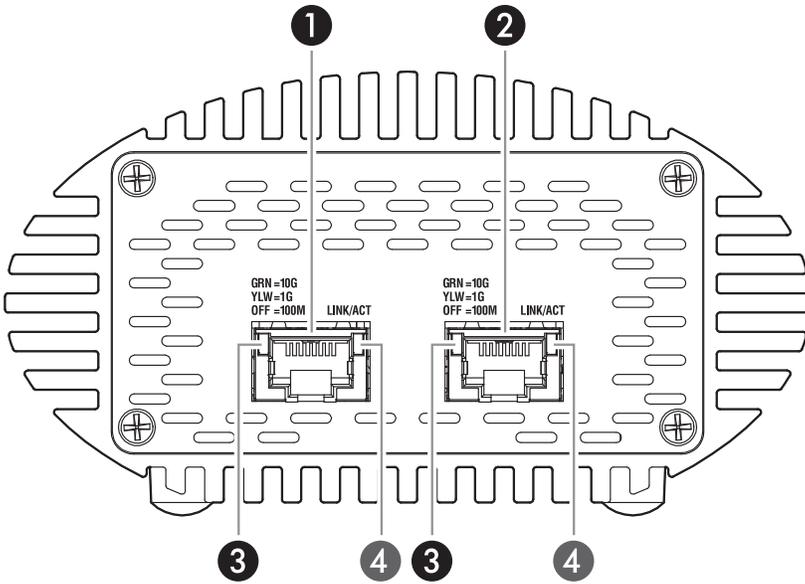
The Twin 10G adapter requires the following to operate:

- Mac computer with a Thunderbolt 2 or Thunderbolt port
- OS X 10.9 or later
- Thunderbolt cable (included)
- CAT-6 (or CAT-6A) cables

### Driver Information

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

## Chapter 2 – Twin 10G Description



### Twin 10G Ports and Indicators

#### 1 – RJ45 (10GBase-T) Port 1

Connect a CAT-6 or CAT-6A cable between this port and the switch's RJ45 port.

#### 2 – RJ45 (10GBase-T) Port 2

Connect a CAT-6 or CAT-6A cable between this port and the switch's RJ45 port.

#### 3 – Link Speed Indicators

When a link is established between the Twin 10G and the switch, these LEDs light to indicate the link speed to the switch: green = 10Gb, yellow = 1Gb, off = 100Mb.

#### 4 – Link/Activity Indicators

These LEDs light up green to indicate a link is established between the Twin 10G and the switch, and flash green when there is activity between the two.

#### 5 – Security Slot

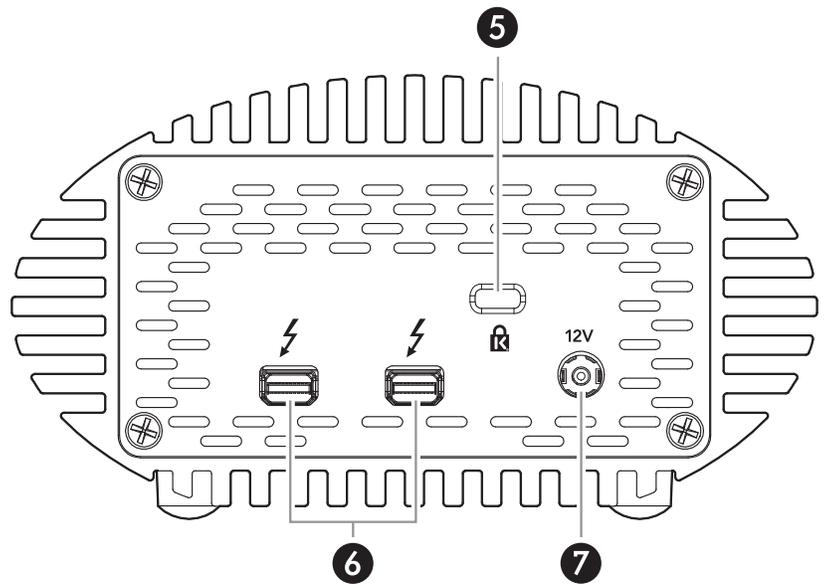
This slot works with Kensington® brand and similar security locks to secure the Twin 10G enclosure and deter theft.

#### 6 – Thunderbolt Ports

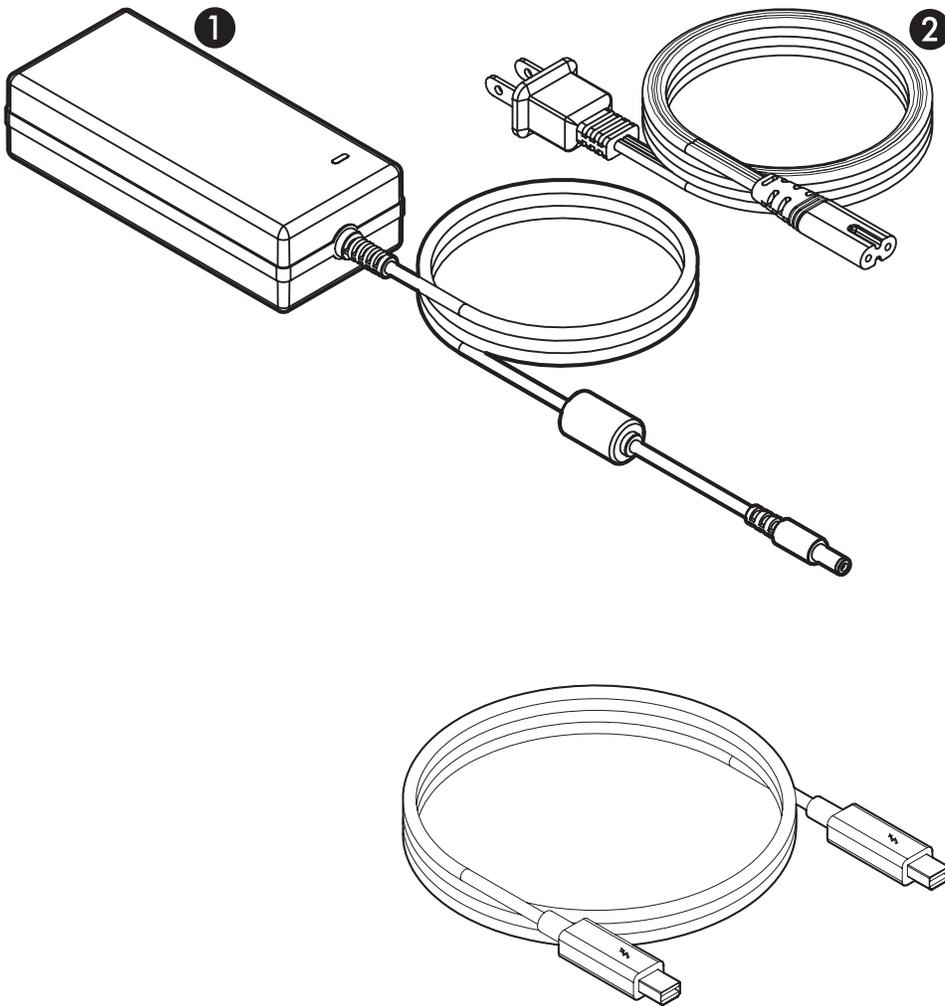
Connect a Thunderbolt cable between either of these ports and your computer's (or intermediate device's) Thunderbolt port; the open port may be used to connect another Thunderbolt device.

#### 7 – 12VDC Socket

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



## Chapter 2 – Twin 10G Description



### Power Adapter

#### 1 – Power Adapter

Connect this to the Twin 10G 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 Cable

Connect this cable between the Twin 10G adapter and your computer or other Thunderbolt peripheral device.

## Chapter 3 – Software Installation

You must install software in order for your computer to support the Twin 10G adapter.

### OS X Driver Download and Installation

This section describes the download and installation of the driver required to support the Twin 10G adapter.

1. Launch a Web browser and go to [www.sonnettech.com/support](http://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 Twin 10G link.
3. On the Twin 10G page, click the Driver link, and then click the Download Now button next to “Twin 10G Software (OS X)”; the software will be downloaded.
4. Double-click the `diskcd-twin10g-xxxx.dmg` (`xxxx` is the version) file; the file will expand and a new window will open.
5. Double-click the `Sonnet Twin-10G.pkg` file to launch the driver installer.
6. When the *Welcome to the Sonnet Twin 10G Installer* window appears, click Continue.
7. When the *Important Information* window appears, read the information, and then click Continue.
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 Change Installation Location 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; a warning dialogue appears.
11. Click Continue Installation; the software is installed.
12. When the next window appears, click Restart to restart your system and finish the driver installation.

## Chapter 4 – Twin 10G 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 the Twin 10G adapter closest to the computer, with 10Gbps Thunderbolt devices at the end.

1. Connect one or two CAT-6 or CAT-6A cables between the ports on the Twin 10G adapter and the ports on the switch or device (**Figure 1**).

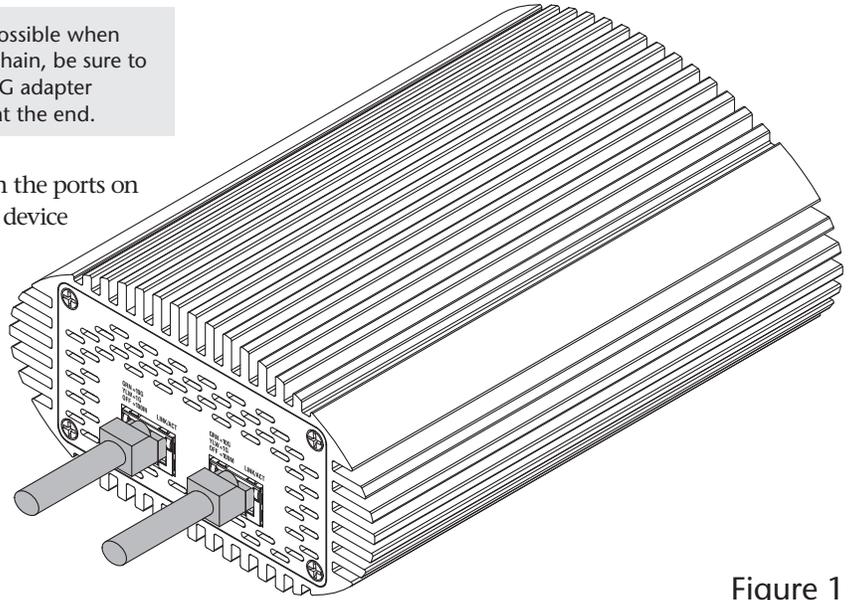


Figure 1

2. Connect the included Thunderbolt cable between either Thunderbolt port on the Twin 10G 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 Twin 10G adapter (**Figure 2**).
3. 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.
4. Connect the power adapter cable to the Twin 10G adapter's 12V power socket (**Figure 2**).

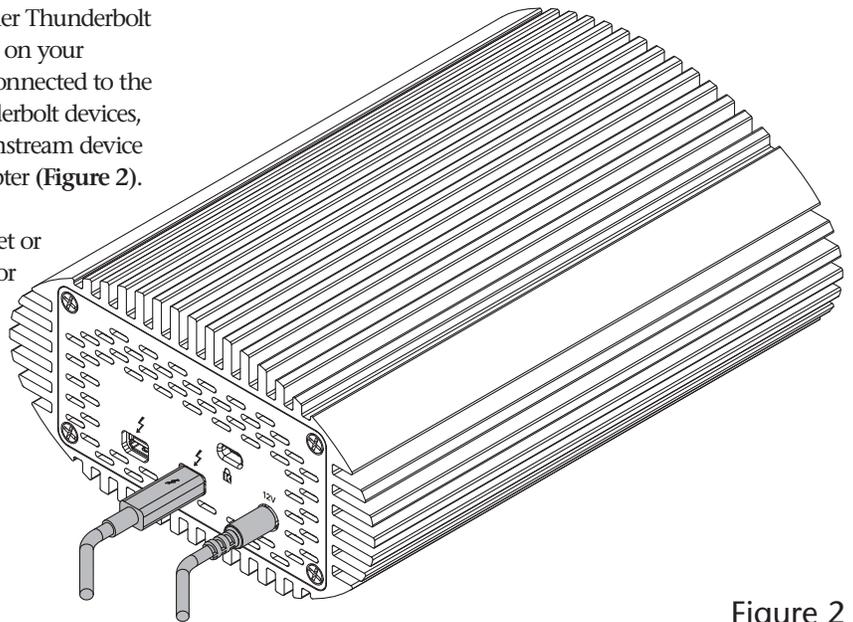


Figure 2

## Chapter 5 – Verifying Adapter Recognition Using System Report

### Confirming Thunderbolt and the 10GbE Controllers are Recognized

1. With the Twin 10G adapter connected to a power source and to the computer, turn on the computer. Note that if there are any other Thunderbolt devices connected between the Twin 10G 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 *About This Mac* window will appear.
3. Click More Info; a summary of specifications will appear.
4. Click System Report; the System Information application will launch.
5. In the *System Report* window, click Thunderbolt under the Hardware header in the left column (**Figure 3**).
6. In the top right column under the Thunderbolt Device Tree header, you will see the Thunderbolt Bus, with “Twin 10G” appearing below it (**Figure 3**).

 **Support Note:** If you do not see “Twin 10G” listed, disconnect and reconnect the Thunderbolt cable between the computer and Twin 10G. Note that it is not necessary to shut down the computer before disconnecting and reconnecting the cable.

7. Click PCI Cards under the Hardware header in the left column (**Figure 4**).
8. At the top of the right column, the Twin 10G’s Ethernet Controllers are listed; detailed information appears below. You will see “Yes” next to Driver Installed and Tunnel Compatible (**Figure 4**).

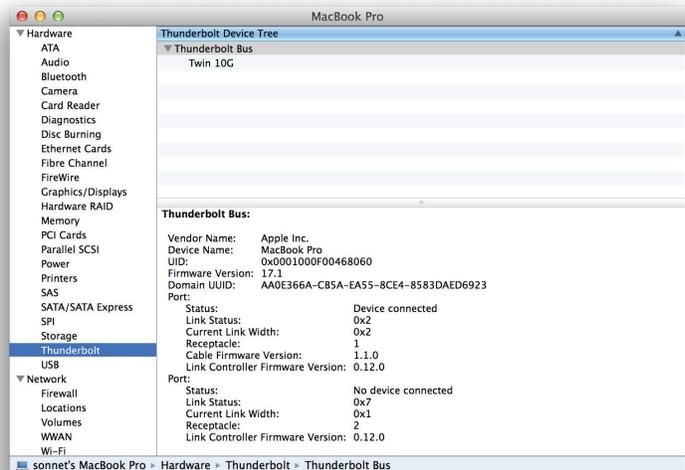


Figure 3

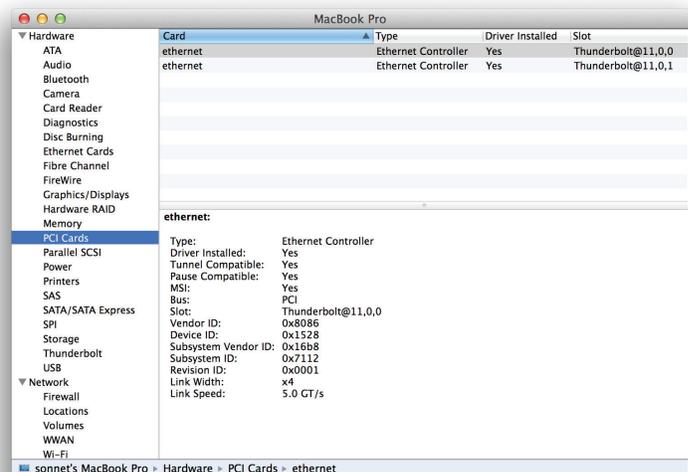


Figure 4

## Chapter 6 – Basic Configuration Information

Listed below are the basic steps necessary to configure the Twin 10G adapter for use with your computer.

1. With the Twin 10G adapter connected to your computer and 10GbE infrastructure, open System Preferences, and then click Network.
2. In the Network system preferences panel, click one of the Twin 10G's ports (identified as Thunderbolt Ethernet Slot x, Port 1, and Thunderbolt Ethernet Slot x, Port 2) in the left panel, and then configure the settings, if necessary (repeat for both ports). If your computer was already connected to a network using built-in Ethernet, you may not have to enter new settings (**Figure 5**).
3. When you've completed reviewing or changing the settings, click Apply.
4. If you used existing settings and do not need to combine Ethernet ports (link aggregation), your installation is complete. For additional information on combining Ethernet ports, open a browser and go to [support.apple.com](http://support.apple.com); type "network, ethernet" and "Manage Virtual interfaces" to display various articles.

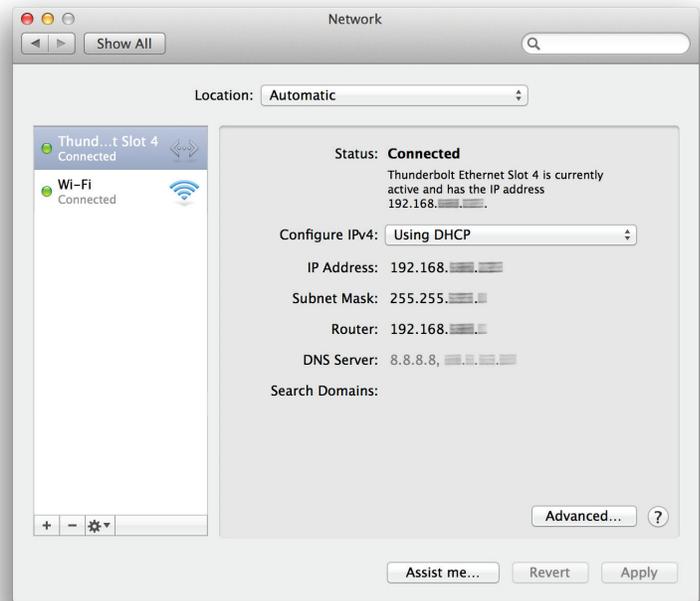


Figure 5

## Chapter 7 – Tips, General Information, and Known Issues

### TIPS, GENERAL INFORMATION

#### Keeping the Twin 10G Adapter Cool

With its optimized airflow design and automatic, temperature-controlled fan providing cooling at all times, the Twin 10G 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 Twin 10G Adapter

You may connect and disconnect the Thunderbolt cable between the Twin 10G 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 Twin 10G 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. When your computer is sleeping, the Twin 10G enters a low-power state; this allows it to wake with your computer, or be ready to wake your computer if you've set the Energy Saver control to wake for network access (Wake On LAN).

#### Indicator Operation

Because the Twin 10G adapter powers on and off with the computer to which it's connected, its external indicators light only when the computer is on, and turn 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 Twin 10G 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	<ul style="list-style-type: none"><li>• Two RJ45</li><li>• Two Thunderbolt</li><li>• 12V Power</li></ul>
Network	10GBase-T
Packets	Maximum packet size: 9000 bytes (jumbo packets)
Throughput	~9.9 Gb/s with 9KB MTU, ~ 9.5 Gb/s with 1500B MT
Cable Distances	CAT-6 cable: up to 55m CAT-6A cable: up to 100m
Stateless Offloads	<ul style="list-style-type: none"><li>• IP and TCP checksum offload, send and receive</li><li>• TSO (TCP Segmentation Offload, AKA Large Send Offload)</li><li>• LRO (Large Receive Offload)</li><li>• RSS (Receive-Side Scaling)</li><li>• Interrupt Coalescing</li><li>• Multicast filtering</li></ul>
Power Adapter	Universal 60W, 100–240V AC, 50–60 Hz
Operating Temperatures	+32° F to +95° F (0° C to +35° C)
Dimensions WxDxH	4.9 x 6.3 x 2.7 in. (12.45 x 16 x 6.86 cm)
Weight	3.3 lbs. (1.5 kg)
RoHS Compliant	Yes
Package Contents	<ul style="list-style-type: none"><li>• Twin 10G adapter</li><li>• Power adapter</li><li>• Power cord</li><li>• Thunderbolt cable</li><li>• User's guide</li></ul>

### 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 Twin 10G adapter under any conditions. There are no user serviceable parts inside.**
- Do not attempt to modify the enclosure. If this device appears to be malfunctioning, contact your reseller or local distributor.
- Do not drop the Twin 10G; dropping or mishandling the Twin 10G 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.

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

### FCC Compliance

Twin 10G 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](http://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](mailto: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/](http://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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