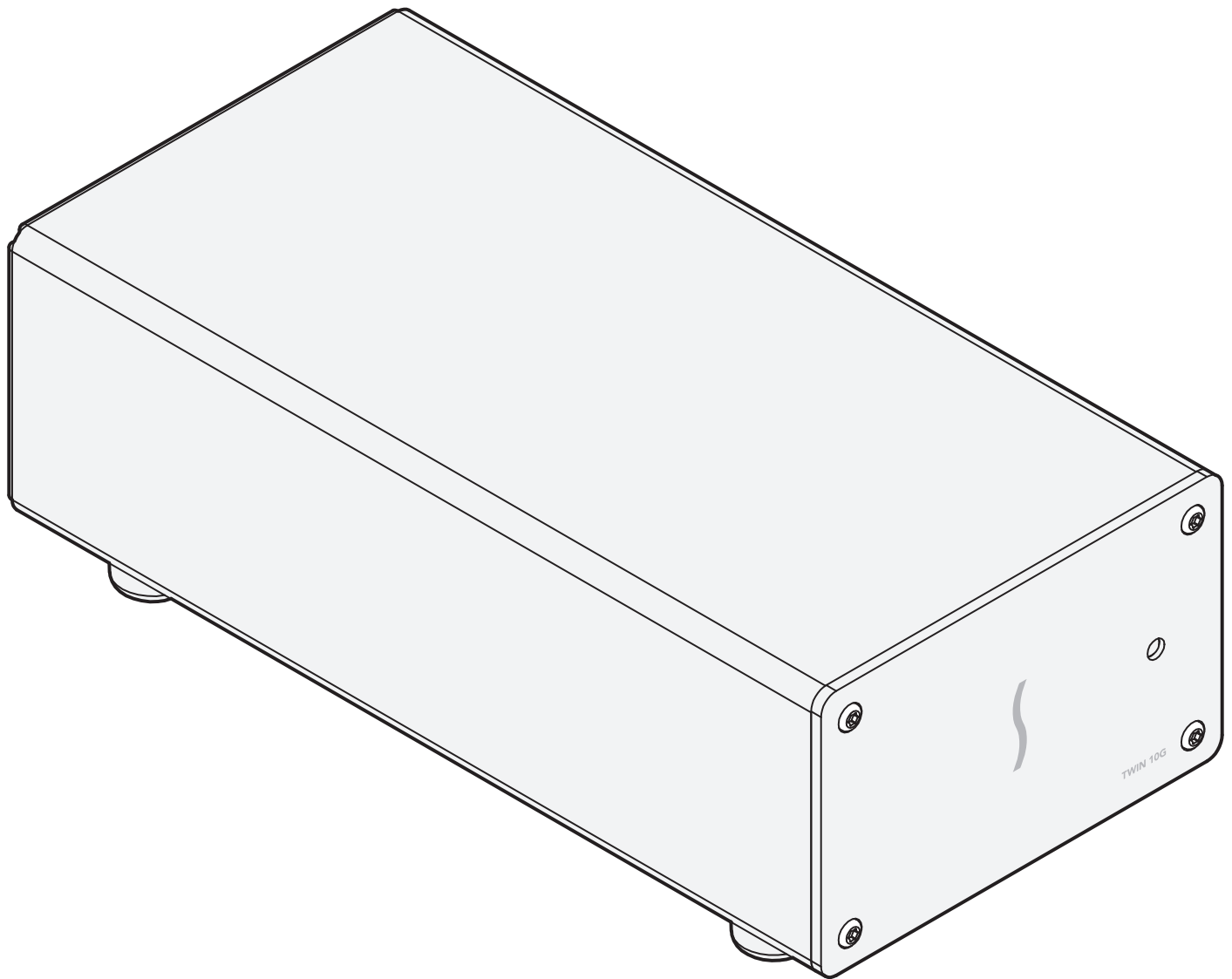


# User's Guide

for Twin 10G™ Thunderbolt™ 3 Edition  
Dual-Port 10GBASE-T 10 Gigabit Ethernet  
Thunderbolt 3 Adapter



THUNDERBOLT™



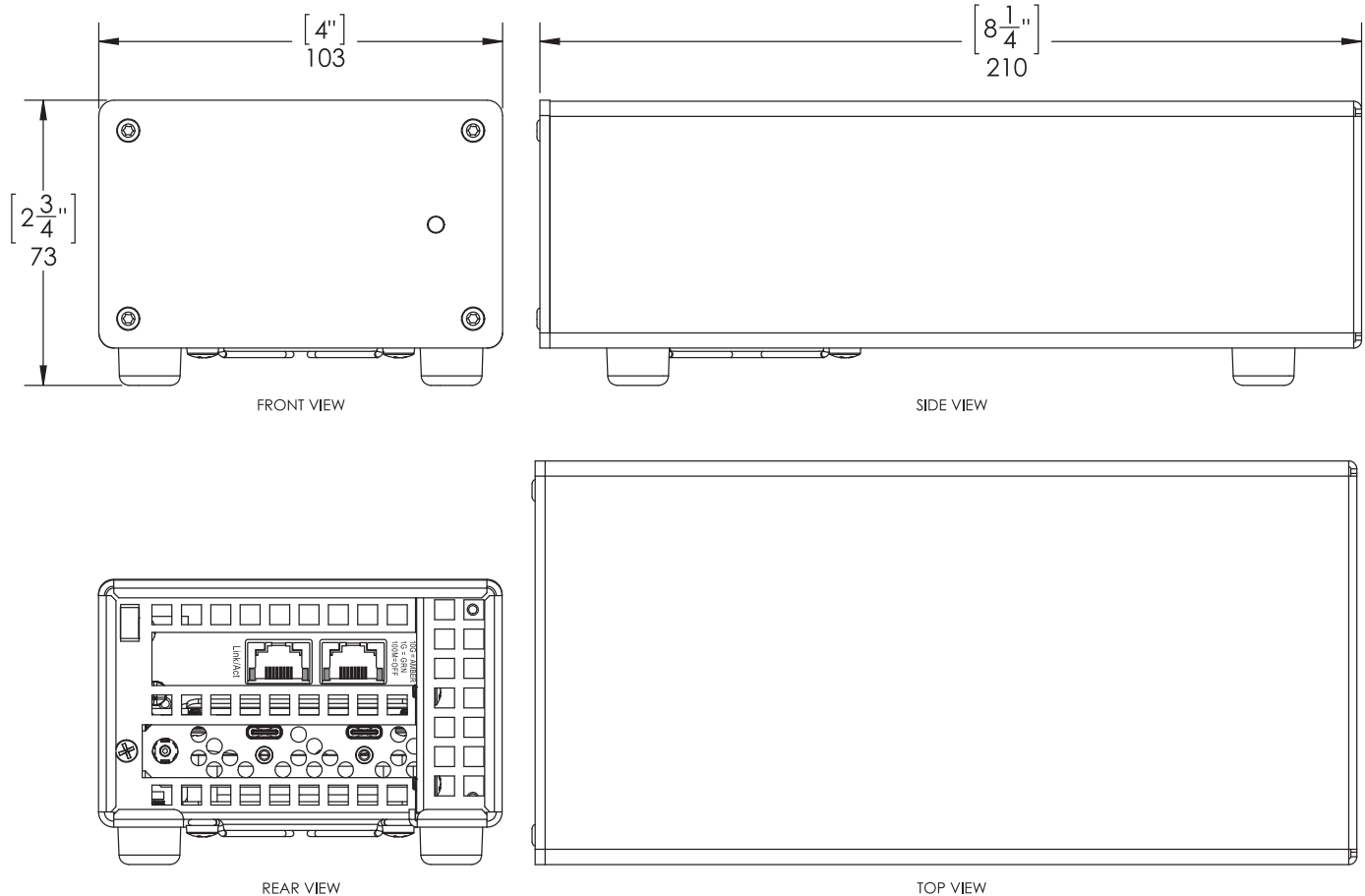
For  
Windows

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## Chapter 1 – Introduction, System Requirements, and System Preparation



### Introduction

Congratulations on your purchase! The Twin 10G Thunderbolt 3 Edition (T3E) is a Thunderbolt 3 to 10 Gigabit Ethernet (10GbE) adapter that enables you to connect your computer with a Thunderbolt 3 port to 10GbE infrastructure.

Connection of the Twin 10G T3E adapter to your computer requires a single Thunderbolt 3 (40Gbps) cable (included), while connection to 10GbE infrastructure requires the use of one or two CAT-6 or CAT-6A cables.



**Support Note:** This document was up to date at the time of printing. However, changes to the hardware or software may have occurred since then. 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 Thunderbolt 3 Edition link, and then click the Documentation link.
5. Click the Twin 10G Thunderbolt 3 Edition User's Guide [English] link, and then check the Document Version information. If the version listed is later than this document (revision D), click the Download Now button for the latest version.

### Mac® Compatibility

- Mac with Thunderbolt 3 ports
- Mac with a Thunderbolt or Thunderbolt 2 port when used with an Apple Thunderbolt 3 (USB C) to Thunderbolt 2 Adapter
- macOS® 10.12.6+
- macOS High Sierra compatible

### Windows® Compatibility

- Computer with a Thunderbolt 3 port
- 64-bit editions of Windows 10, Version 1703 (Creator's Update) or newer

### System Requirements

The Twin 10G T3E adapter requires the following to operate:

- Thunderbolt 3 (40Gbps) cable (included)
- One or two CAT-6 or CAT-6A cables



**Support Note:** For link aggregation (teaming) support, the switch or router to which the Twin 10G is connected must also support link aggregation, and ports must be configured for link aggregation. Windows 10 teaming requires Creator's update, version 1703 or greater.

### Driver Information

The drivers that enable the Twin 10G T3E adapter to work with your computer must be downloaded from Sonnet's Website; instructions follow.

## Chapter 1 – Introduction, System Requirements, and System Preparation

### Preparing to Use the Twin 10G Adapter With a Mac Computer

To enable the Twin 10G T3E to work with your system, you will do the following:

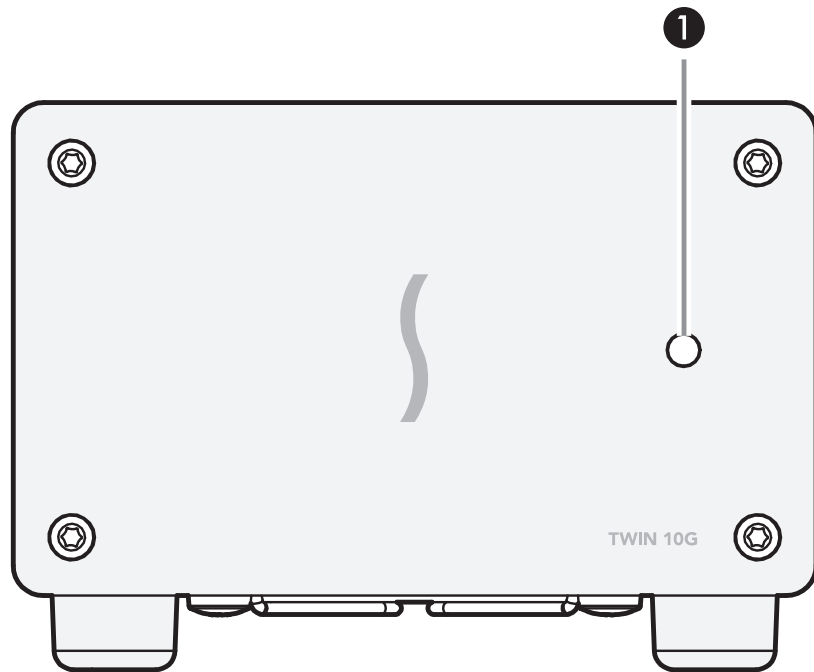
1. Update your computer to the latest version of macOS; version 10.12.6 or later is required.
2. Download and install the Twin 10G T3E drivers (instructions follow).
3. Connect the Twin 10G T3E adapter to a switch or storage system (instructions follow).
4. Connect the Twin 10G T3E adapter to your computer, and then power on the computer (instructions follow).
5. Confirm the Twin 10G T3E adapter and its Ethernet controllers are recognized by your computer (instructions follow).
6. Configure the adapter through the System Preferences' Network control panel (instructions follow).

### Preparing to Use the Twin 10G Adapter With a Windows Computer

To enable the Twin 10G T3E to work with your system, you will do the following:

1. Update Windows. You must use Windows 10, 64-Bit **Version 1703** or newer (also called the Creator's Update). To check the version number, type *winner* in the search bar and click enter.
2. Update your computer's BIOS to the latest version. If you need help updating your BIOS, contact your computer manufacturer.
3. Update your Thunderbolt Bus Driver to the latest version; you will need version 16.3.61.275 or newer. To check your driver version, go to Settings:Apps:Thunderbolt(TM) Software and you will see the version number. If it is not 16.3.61.275 or newer, then you need to update it. Check with your computer manufacturer for an update.
4. Download and install the Twin 10G T3E drivers (instructions follow).
5. Connect the Twin 10G T3E adapter to a switch or storage system (instructions follow).
6. Connect the Twin 10G T3E adapter to your computer, and then approve the device (always connect); instructions follow.
7. Confirm the Twin 10G T3E adapter and its Ethernet controllers are recognized by your computer (instructions follow).
8. Configure the adapter through the Network and Sharing Center control panel (instructions follow).

## Chapter 2 – Twin 10G Thunderbolt 3 Edition (T3E) Description



### Twin 10G T3E Indicators, Sockets, and Ports

#### 1 – Power Indicator

This lights when the Twin 10G T3E 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 Twin 10G T3E is connected to another Thunderbolt device instead of directly to the computer, any other Thunderbolt device connected between the computer and adapter must also be powered on before the adapter's power indicator will light up.

#### 2 – Activity Indicators

These LEDs flash green to indicate a link is established between the Twin 10G T3E adapter and the switch, and there is activity between the two.

#### 3 – RJ45 (10GBASE-T) Port 2

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

#### 4 – Link Speed Indicators

When a link is established between the Twin 10G T3E adapter and the switch, these LEDs light to indicate the link speed to the switch: yellow = 10Gb, green = 1Gb, off = 100Mb.

#### 5 – RJ45 (10GBASE-T) Port 1

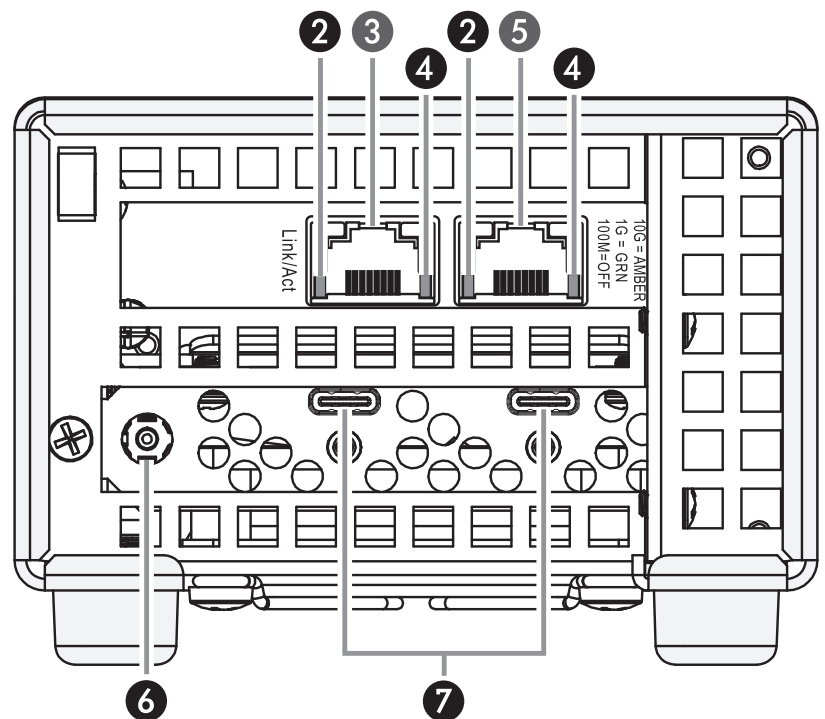
Connect a CAT-6 or CAT-6A cable between this port and the switch's or storage device's RJ45 port.

#### 6 – 12VDC Socket

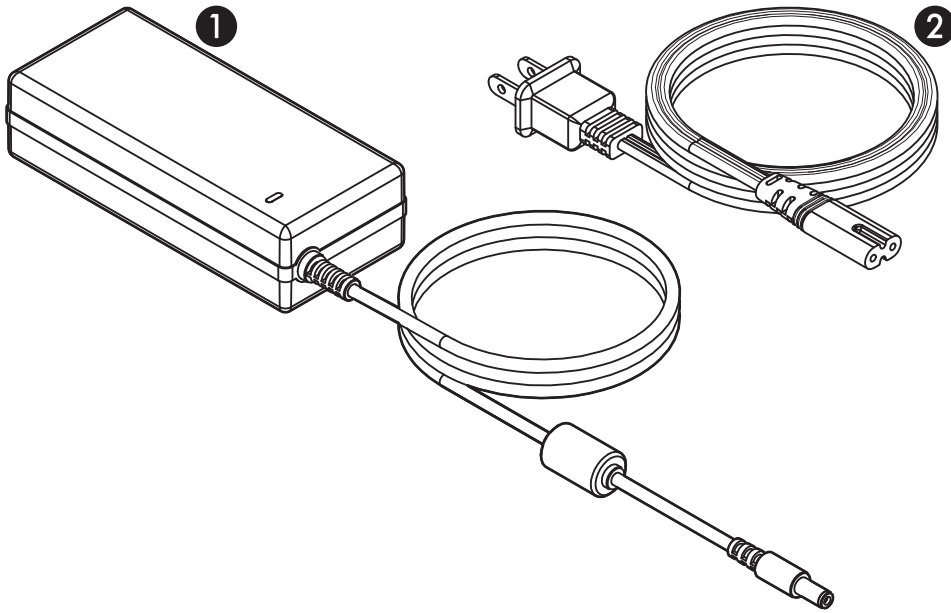
Connect the included DC power adapter between this socket and the included power cord.

#### 7 – Thunderbolt 3 (USB-C) Ports

Connect the included Thunderbolt cable between either of these ports and your computer's (or intermediate peripheral device's) Thunderbolt port; the open port may be used to connect another Thunderbolt peripheral device. *You may not connect two computers to this adapter's Thunderbolt ports, nor to a daisy chain of Thunderbolt peripheral devices.*



## Chapter 2 – Twin 10G Thunderbolt 3 Edition (T3E) Description



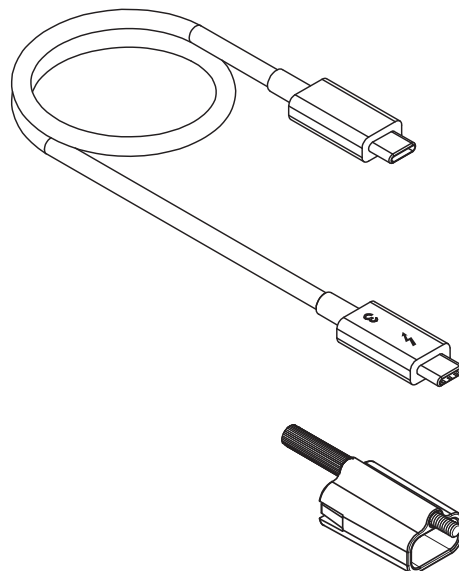
### Power Adapter

#### 1 – Power Adapter

Connect this to the Twin 10G T3E 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 3 (40Gbps) Cable

Connect this cable between the Twin 10G T3E adapter and your computer (or other Thunderbolt peripheral device in the chain connected to the computer).

### Thunderbolt Connector Retainer Clip

This secures a Thunderbolt 3 connector plugged into the Twin 10G T3E adapter's Thunderbolt 3 port to prevent accidental cable disconnection. This clip is compatible with Sonnet 0.5-meter Thunderbolt 3 cables, but not with Sonnet 1-meter Thunderbolt 3 cables.

## Chapter 3 – Driver Download/Installation Steps

### Driver Download and Installation Steps— Mac Users

This section describes the download and installation of the drivers required to support the Twin 10G T3E adapter connected to your Mac computer.

1. Launch a Web browser and go to [www.sonnettech.com/support](http://www.sonnettech.com/support), and then click the Downloads, Manuals, & Knowledgebase link.
2. On the Support Categories page, click the Thunderbolt link, and then click the Twin 10G Thunderbolt 3 Edition link.
3. On the Twin 10G Thunderbolt 3 Edition page, click the Driver link, and then click the Download Now button next to driver software for macOS; the software will be downloaded.
4. Double-click the .dmg 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. Follow the on-screen instructions, and then click Restart to restart your system and finish the driver installation.

### Driver Download and Installation Steps— Windows Users

This section describes the download and installation of the drivers required to support the Twin 10G T3E adapter connected to your Windows PC.

1. Launch a Web browser and go to [www.sonnettech.com/support](http://www.sonnettech.com/support), and then click the Downloads, Manuals, & Knowledgebase link.
2. On the Support Categories page, click the Thunderbolt link, and then click the Twin 10G Thunderbolt 3 Edition link.
3. On the Twin 10G Thunderbolt 3 Edition page, click the Driver link, and then click the Download Now button next to the driver software for Windows link; a new window or tab will open.
4. Locate the Intel® Network Adapter Driver for Windows® 10 link, and then click it; a new page opens.
5. On the *Intel® Network Adapter Driver for Windows® 10* page, locate and click the PROWin64.exe button; an *Intel Software License Agreement* window will open.
6. Read the license agreement, and then click the “I accept the terms in this license agreement” button; the *Opening PROWin64.exe* window will open.
7. In the *Opening PROWin64.exe* window, click Save File; the file will be saved.
8. Locate and double-click the PROWin64 application file to launch the installer. If you haven’t disabled User Access Control (UAC) on your computer, another window will appear asking you to allow the program to run; click Allow; the installer will launch.
9. Follow the on-screen instructions to complete the driver installation.

## Chapter 4 – Twin 10G T3E Adapter Connection Steps



**Support Note:** Sonnet's ThunderLok™ 3 Thunderbolt connector retainer clip secures the included Thunderbolt 3 (40Gbps) cable to the Twin 10G adapter to prevent accidental disconnects. It is compatible with Sonnet 0.5-meter Thunderbolt 3 (40Gbps) cables, but not compatible with Sonnet 1-meter Thunderbolt 3 (40Gbps) cables.

To attach the clip to the cable, remove both from their packaging, and then insert the connector through the connector clip as shown (**Figure 1**). Note that the connector will pass all the way through the clip; when you connect the cable to the chassis, the clip will secure the connector.

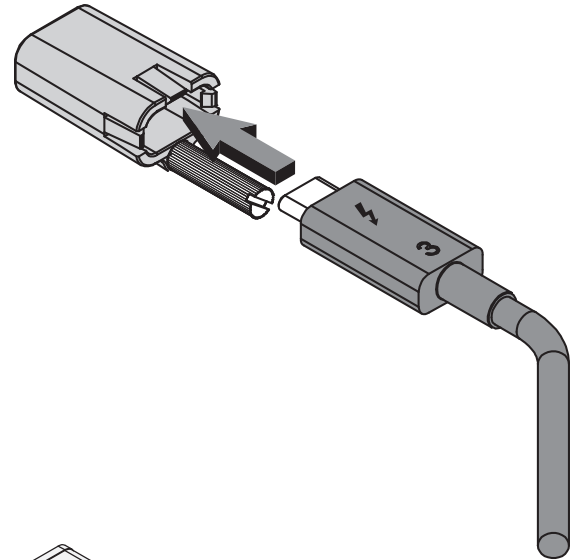


Figure 1

1. Connect the included Thunderbolt cable between either Thunderbolt port on the Twin 10G T3E adapter and a Thunderbolt port on your computer, or other Thunderbolt peripheral device in the chain connected to the computer (**Figure 2**). Secure the retainer clip to the adapter if you attached it to the cable. If you are daisy chaining additional Thunderbolt peripheral devices, connect another Thunderbolt cable between the downstream device and the open Thunderbolt port on the Sonnet adapter. Note that **you may not connect two computers to the Sonnet adapter's Thunderbolt ports, nor to a daisy chain of Thunderbolt devices.**



**Support Note:** Unless your setup requires connection redundancy or link aggregation (and your switch or storage system supports those features), connecting the Twin 10G adapter to a switch or storage system requires only a single CAT-6 or CAT-6A cable.

2. Connect one or two CAT-6 or CAT-6A cable(s) between the port(s) on the Twin 10G T3E adapter and the port(s) on the switch or storage device.
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 T3E adapter's 12V power socket. Note that the Sonnet adapter's power indicator will not light until the computer, and any other Thunderbolt devices connected between it and the adapter, is powered on.
5. Go to the next section, Verification and Configuration Steps.

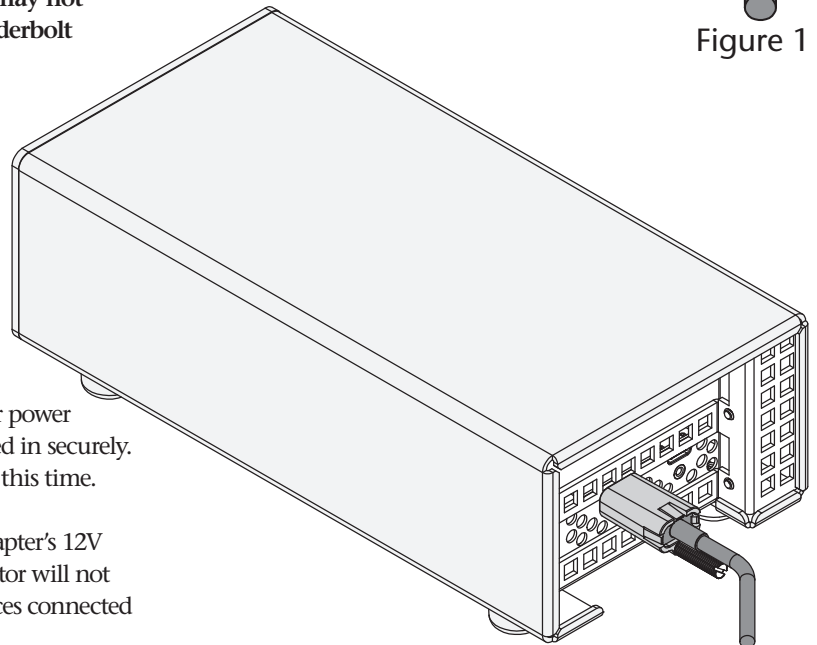


Figure 2




## Chapter 5 – Verification and Configuration Steps

### Confirm the Twin 10G T3E and Its Ethernet Controllers Are Recognized—Mac Users

This page instructs Mac users how to verify the Twin 10G T3E is recognized by the computer; Windows users should skip to the next page.

1. With the Twin 10G T3E adapter powered and connected to the computer, turn on the computer.
2. From the Apple menu, select About This Mac; the *About This Mac* window will open.
3. In the *About This Mac* window click System Report; a full report window will open.
4. In the *System Information* window, click Thunderbolt under the Hardware header in the left column (Figure 3).
5. In the top right column under the Thunderbolt Device Tree header, you will see the computer, followed by Thunderbolt Bus, and then “Echo Express SEL TB3” (Figure 3).

 **Support Note:** If you do not see “Echo Express SEL TB3” listed, disconnect and reconnect the Thunderbolt cable between the computer and Twin 10G adapter. Note that it is not necessary to shut down the computer before disconnecting and reconnecting the cable.

6. In the *System Information* window click PCI under the Hardware header in the left column (Figure 4).
7. At the top of the right column, the installed card is listed. You should see “Yes” next to Driver Installed and Tunnel Compatible, otherwise the card or driver may not be Thunderbolt-compatible (Figure 4).
8. Skip to the next section, Basic Configuration Steps—Mac Users

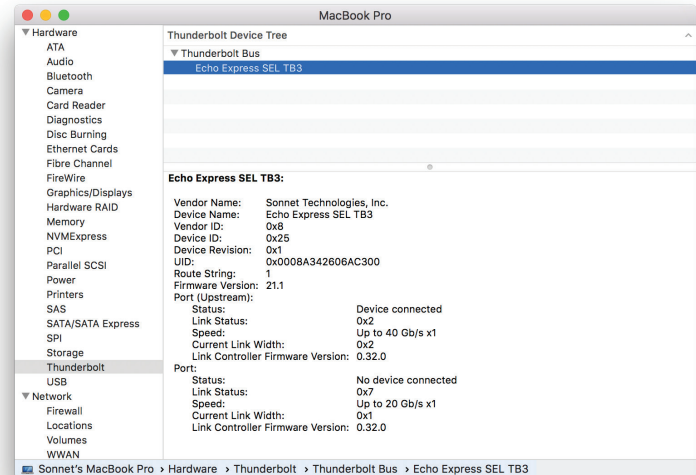


Figure 3

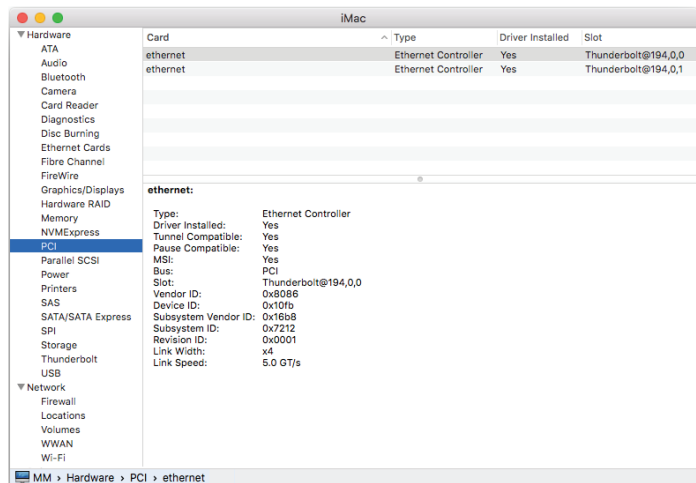


Figure 4

## Chapter 5 – Verification and Configuration Steps

### Confirm the Twin 10G T3E and Its Ethernet Controllers Are Recognized—Windows Users

This section describes how to confirm the Twin 10G T3E adapter is recognized by your Windows computer.

1. With the Twin 10G T3E adapter connected to a power source and to the computer, turn on the computer.
2. When the computer boots for the first time after connecting the Twin 10G T3E, a *New Thunderbolt™ Devices Attached...* window appears (Figure 5). Select *Always Connect* from the drop-down menu.
3. From the Windows Start menu, select the Windows Settings (gear) icon; the *Windows Settings* window will appear.
4. In the *Windows Settings* window, click on the Network & Internet Link; the *Network Status* window will appear. Click the Ethernet link on the left; the *Ethernet* window will appear.
5. In the *Ethernet* window, the various Ethernet ports recognized by the system are listed to the right. For most users, the Twin 10G T3E adapter's will be the only other Ethernet ports listed, with the computer's onboard Ethernet port listed as "Network". Click on one of the other ports; an Ethernet port *Properties* window will appear. Each of the Sonnet adapter's ports will have the description "Intel Ethernet Controller X550" with either #1 or #2 listed next to it.
6. Skip to the next section, Basic Configuration Steps—Windows Users



Figure 5

## Chapter 5 – Verification and Configuration Steps

### Basic Configuration Steps—Mac Users

Listed below are the basic steps necessary to configure the Twin 10G T3E adapter for use with your computer.

1. With the Twin 10G T3E 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 T3E'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; repeat for the other port if necessary (Figure 6).
3. When you've completed reviewing or changing the settings, click Apply.

### Performance Tuning Steps—Mac Users

Listed below are steps required to configure the Twin 10G adapter for maximum performance. Please note that to take advantage of these settings, the switch or router to which the Twin 10G is connected must also support these features.

1. With the Twin 10G T3E 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 click Advanced; a new panel appears.
3. In the Advanced panel, click Hardware. From the Configure drop-down menu, select "Manually". In the Speed drop-down menu, leave the setting at 10G... In the Duplex drop-down menu, select "full-duplex" (*not* "full duplex, flow-control"). In the MTU drop-down menu, select "Custom," and then enter "9000" in the box below (Figure 8).
4. When you've completed changing the settings for the port, click OK.
5. Repeat steps 2–4 for the other port, if necessary.
6. Back in the main Network window, click Apply after you've completed changing the settings.
7. If you 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.

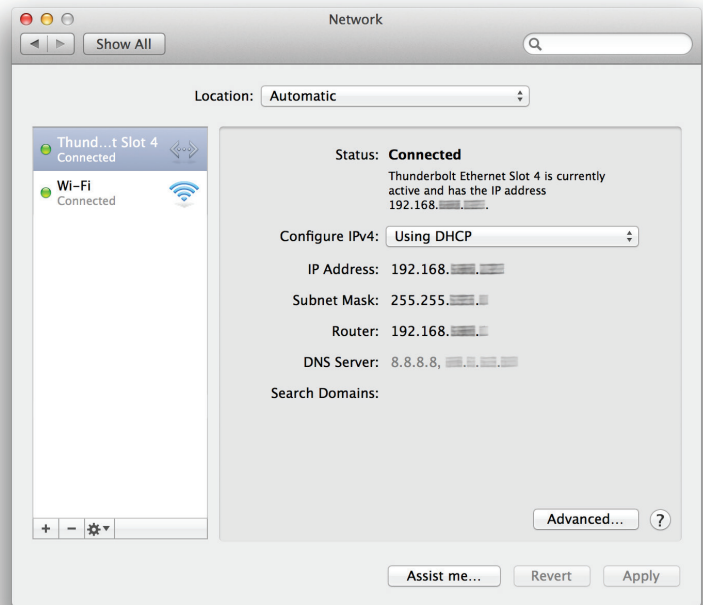


Figure 6

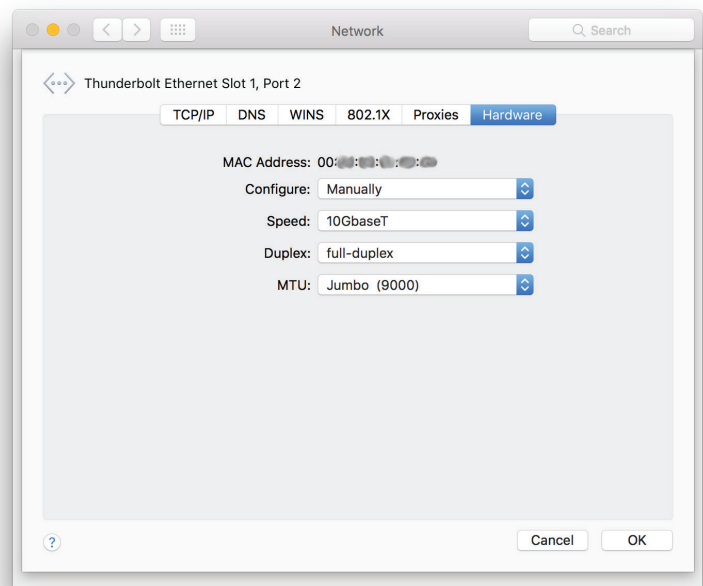


Figure 7

## Chapter 5 – Verification and Configuration Steps

### Basic Configuration Steps—Windows Users

Listed below are the basic steps necessary to configure the Twin 10G T3E adapter for use with your computer.

1. With the Twin 10G T3E adapter connected to your computer and 10GbE infrastructure, open the Network and Sharing Center control panel (**Figure 8**).
2. Set up network connections by clicking “Set up a new connection or network”.

You may also configure the Sonnet adapter’s settings using Windows Device Manager. You may locate the device’s ports in the Network adapters category, listed as Intel Ethernet Controller X550 dual port network connections.

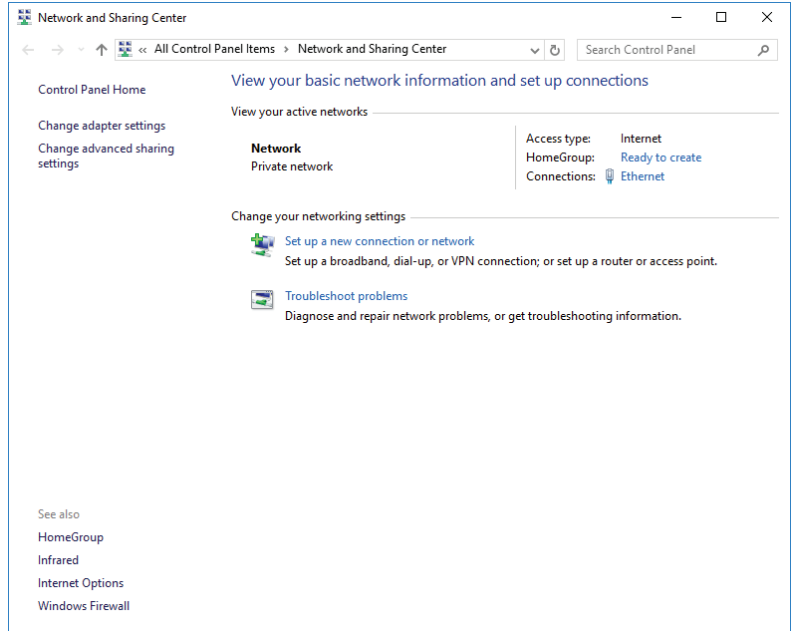


Figure 8

## Chapter 6 – Tips, General Information, and Known Issues

### TIPS, GENERAL INFORMATION

#### Keeping the Twin 10G T3E Adapter Cool

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

#### Hot-Plugging the Twin 10G T3E Adapter

You may connect and disconnect the Thunderbolt cable between the Twin 10G T3E adapter and your computer while your computer is on.

#### There's No Need to Unplug the Power Adapter

Because the Twin 10G T3E 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 LED Operation

Because the Twin 10G T3E adapter automatically 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.

#### Connecting Additional Thunderbolt 3 Peripheral Devices

The Twin 10G T3E adapter includes two Thunderbolt 3 (USB-C) ports; the first connects it to your computer, while the second supports daisy-chaining of up to five additional Thunderbolt peripheral devices.

#### Twin 10G T3E Can Provide Up to 15 Watts of Upstream Power

The Twin 10G T3E adapter is designed to provide only 15 watts of upstream power (Power Delivery), useful for charging your notebook computer when no other power adapter is connected.

#### How to Identify Thunderbolt 3 (40Gbps) Cables

Look for the Thunderbolt icon AND the number 3 on the connector housings to identify these cables. Cables with USB-C connectors that only have the Thunderbolt icon without the number 3 support 20Gbps speeds, and are not recommended devices with high bandwidth requirements.

#### Using the Twin 10G T3E to Charge Your Notebook or Laptop Computer

Apple® MacBook Pro® computers with Thunderbolt 3 and some PC laptops with Thunderbolt 3 may be charged via the Twin 10G T3E's Thunderbolt 3 port, but some PC laptops will not accept charging from a Thunderbolt peripheral; see <https://gtrusted.com/technology/thunderbolt/thunderbolt3-hosts/> for more information. Computers with Thunderbolt 2 or Thunderbolt ports may not be charged via Thunderbolt.

### KNOWN ISSUES

#### Not All Computers' Thunderbolt 3 Performance is Equal

While the Twin 10G T3E adapter features a 40Gbps Thunderbolt 3 interface, some computers equipped with Thunderbolt 3 use an x2 PCIe (2-lane) implementation of Thunderbolt 3 technology that limits PCIe performance to 20Gbps. For more computer information, visit <http://gtrusted.com/technology/thunderbolt/thunderbolt3-hosts/>

#### Not All Thunderbolt 3 Cables Deliver Full Performance or Power Delivery Capabilities

Full performance and power delivery capabilities from the Twin 10G T3E require the use of the included Thunderbolt 3 (40Gbps) cable (which also supports up to 100W power delivery), or a comparable Thunderbolt 3 (40Gbps) cable. When shopping for a Thunderbolt 3 cable, please be aware that some cables support only lower data transfer speeds (20Gbps) and/or power delivery capabilities (60W).

#### Operating System (OS) Updates May Break Compatibility

*Specific device drivers that work under one OS version may not work under a later version. Before updating your computer to the latest OS, we recommend that you check Sonnet's support pages to verify that the existing drivers work. Note that other software updates for the computer may also break compatibility.*

#### Some Devices' Performance May be Affected by Where They Are Connected in a Thunderbolt Chain

However small, Thunderbolt introduces latency to a device chain. If you add additional Thunderbolt devices to the chain, you may need to experiment with positioning devices closer to or farther from the computer in the chain.

## Chapter 7 – Warnings, FCC Compliance, and Support Information

### Warnings

- Do not attempt to modify the enclosure. If this device appears to be malfunctioning, contact your reseller or local distributor.
- 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.
- Do not drop the Twin 10G T3E; dropping or mishandling the Sonnet adapter may result in a malfunction leaving the product inoperable.
- 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 Thunderbolt 3 Edition 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, 8 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.