



Thunderbolt 2 Sharing Switch

US7220

User Manual



FCC Information

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT: This equipment has been tested and found to comply with the limits for a Class B digital service, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Any changes or modifications made to this equipment may void the user's authority to operate this equipment. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television 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 the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

KCC Statement: 이 기기는 업무용 (A 급) 전자파 적합기기로서 판매자 또는 사용자는 이점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.



RoHS

This product is RoHS compliant.

Safety

This product has been classified as Information Technology Equipment.

User Information

Online Registration

Be sure to register your product at our online support center:

International	http://eservice.aten.com
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Telephone Support

For telephone support, call this number:

International	886-2-8692-6959
China	86-400-810-0-810
Japan	81-3-5615-5811
Korea	82-2-467-6789
North America	1-949-428-1111
United Kingdom	44-175-3539-121

User Notice

All information, documentation, and specifications contained in this manual are subject to change without prior notification by the manufacturer. The manufacturer makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties as to merchantability or fitness for any particular purpose. Any of the manufacturer's software described in this manual is sold or licensed *as is*. Should the programs prove defective following their purchase, the buyer (and not the manufacturer, its distributor, or its dealer), assumes the entire cost of all necessary servicing, repair and any incidental or consequential damages resulting from any defect in the software.

The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. **PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.**

Package Contents

The US7220 package consists of:

- ◆ 1 US7220 Thunderbolt 2 Sharing Switch
- ◆ 1 Thunderbolt Cable (1 m)
- ◆ 1 Power Adapter
- ◆ 1 Vertical Stand
- ◆ 1 User Instructions*

Check to make sure that all the components are present and that nothing got damaged in shipping. If you encounter a problem, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the unit, and/or any of the devices connected to it.

* Features may have been added to the US7220 since this manual was published. Please visit our website to download the most up-to-date version.

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About this Manual

This User Manual is provided to help you get the most from your US7220 system. It covers all aspects of installation, configuration and operation. An overview of the information found in the manual is provided below.

Chapter 1, Introduction, introduces you to the US7220 system. Its purpose, features and benefits are presented, and its front and back panel components are described.

Chapter 2, Hardware Setup, describes how to set up your US7220 installation.

Chapter 3, Operation, explains how to operate the US7220.

An Appendix, provides specifications and other technical information regarding the US7220.

Conventions

This manual uses the following conventions:

- Monospaced Indicates text that you should key in.
- [] Indicates keys you should press. For example, [Enter] means to press the **Enter** key. If keys need to be chorded, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt].
- 1. Numbered lists represent procedures with sequential steps.
- ◆ Bullet lists provide information, but do not involve sequential steps.
- Indicates selecting the option (on a menu or dialog box, for example), that comes next. For example, Start → Run means to open the *Start* menu, and then select *Run*.
-  Indicates critical information.

Product Information

For information about all ATEN products and how they can help you connect without limits, visit ATEN on the Web or contact an ATEN Authorized Reseller. Visit ATEN on the Web for a list of locations and telephone numbers:

International	http://www.aten.com
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Chapter 1

Introduction

Overview

The ATEN US7220 Thunderbolt 2 Sharing Switch is a dual-computer docking station with full KVM functionality for your workspace. You can share Thunderbolt devices, a dual-monitor setup and USB peripherals through a single cable, directly between two computers.

The US7220 enables two Thunderbolt 2-enabled computers to share peripherals with ultra-high 20 Gbps data transfer rates. As a KVM sharing switch it allows you to easily switch the keyboard, video, mouse and peripherals between two computers with the push of a button. With the ability to daisy-chain up to five Thunderbolt devices, the US7220 connects up to 11 peripherals including Thunderbolt monitors and video capture devices – plus USB drives, printers, high-definition cameras, keyboards, mice and more.

The ATEN Thunderbolt 2 Sharing Switch is the ideal choice for those who want the flexibility of laptop computing with the performance, sharing and high-definition/dual-monitor capabilities of a full workstation.

Features

- ◆ Thunderbolt 2.0 compliant with data transfer rates up to 20 Gbps
- ◆ Connect 11 devices to a laptop through a single Thunderbolt cable*
- ◆ Two Thunderbolt ports connect two Thunderbolt computers
- ◆ One Thunderbolt port connects a Thunderbolt device and daisy-chains up to 5 additional devices
- ◆ Gigabit Ethernet port
- ◆ HDMI port supports an additional HDMI display
- ◆ Supports three USB 3.1 Gen 1 ports with data transfer rates up to 5 Gbps
- ◆ Two USB 2.0 ports with data transfer rates up to 480 Mbps
- ◆ Supports high-definition audio signals with Dolby and DTS pass-through via Mini TOSLINK; and 2.1 channel audio via 3.5 mm audio cable
- ◆ Analog/Digital audio line-in and line-out
- ◆ Supports HDMI 1.4b with 4K (UHD) resolutions
- ◆ Supports DisplayPort 1.2 with 4K (UHD) resolutions
- ◆ eSATA port for storage devices

Note: Additional Thunderbolt cables sold separately.

Requirements

The following devices are required for a complete US7220 installation:

Compatible Hardware

- ◆ MacBook Pro (Retina, 13-inch, Late 2012) and later
- ◆ MacBook Pro (Retina, 15-inch, Mid 2012) and later
- ◆ MacBook Pro (13-inch, Early 2011) and later
- ◆ MacBook Pro (15-inch, Early, 2011) and later
- ◆ MacBook Air (11-inch, Mid 2011) and later
- ◆ MacBook Air (13-inch, Mid 2011) and later
- ◆ Mac mini (Mid 2011) and later
- ◆ iMac (Mid 2011) and later
- ◆ Mac Pro (Late 2013)
- ◆ Mac Pro (Late 2016)*
- ◆ Thunderbolt 2 enabled computer**
- ◆ Computer or A/V source device with HDMI Type A output connector(s)

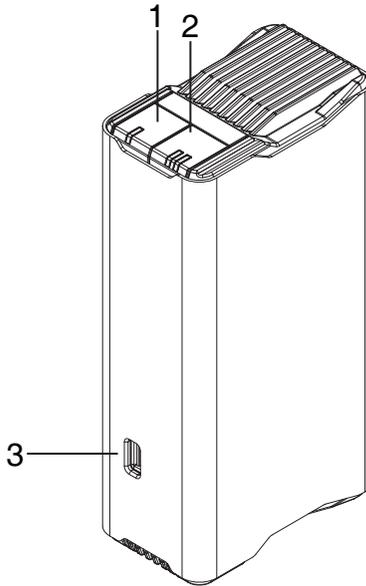
-
- Note:** 1. Thunderbolt 3 enabled computers require a Thunderbolt 3 (USB-C) to Thunderbolt adapter to connect to the US7220.
2. Thunderbolt 2 enabled computers and the connected monitor must support 4K resolutions for both the Thunderbolt and HDMI outputs to display 4K resolutions. In certain situations the HDMI output may support 4K resolutions while the Thunderbolt output cannot.
-

Operating Systems

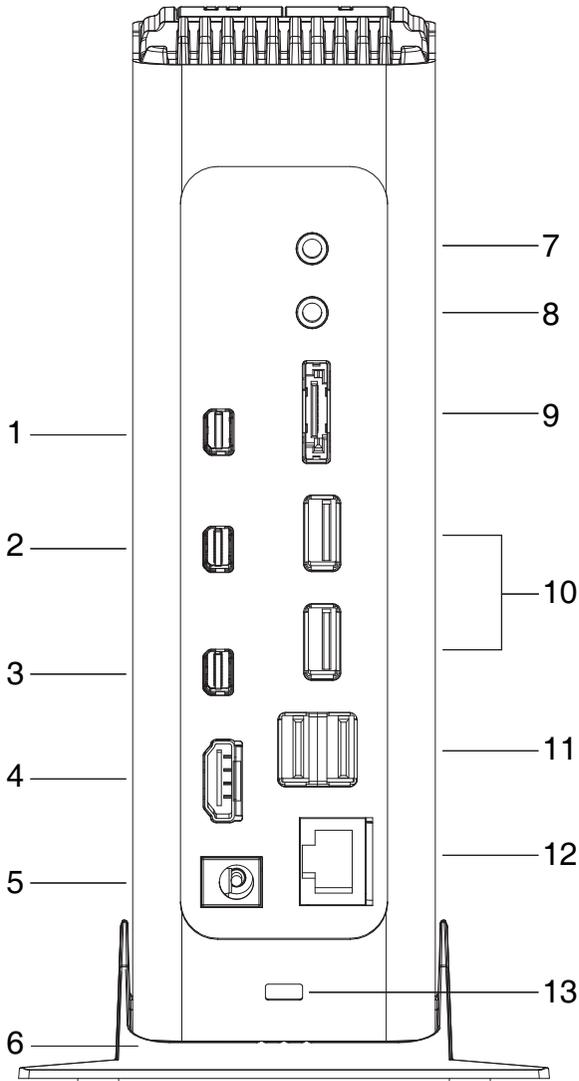
- ◆ Windows® 10
- ◆ Windows® 7 (Requires driver installation)*
- ◆ Mac iOS 10.9

Components

Front View



No.	Component	Description
1	Port Selection Pushbutton (1)	Use this pushbutton to switch access/control of all connected devices to the computer connected to Thunderbolt Port 1.
2	Port Selection Pushbutton (2)	Use this pushbutton to switch access/control of all connected devices to the computer connected to Thunderbolt Port 2.
3	USB 3.1 Gen 1 Port	Use this port to connect a USB 3.0/2.0/1.1 peripheral device.

Rear View

No.	Component	Description
1	Thunderbolt 2 Port (1)	This Thunderbolt 2 port connects the first of two Thunderbolt-enabled computers.

No.	Component	Description
2	Thunderbolt 2 Port (2)	This Thunderbolt 2 port connects the second of two Thunderbolt-enabled computers.
3	Thunderbolt 2 Daisy-Chain Port	This port connects a Thunderbolt 2 enabled device that can daisy-chain up to 5 additional Thunderbolt 2 devices.
4	HDMI Output Port	The cable from an HDMI display plugs into this port.
5	Power Jack	The power adapter cable plugs into this jack.
6	Vertical Stand	The vertical stand provides stability for the device when its standing upright.
7	Digital Line Out (speakers)	The cable from the digital audio speakers plugs into this port.
8	Digital Line In (microphone)	The cable from the microphone plugs into this port.
9	eSATA Port	The cable from a storage device with an eSATA connector plugs into this port.
10	USB 3.1 Gen 1 Ports	Use these two ports to connect USB 3.0/2.0/1.1 peripheral devices.
11	USB 2.0 Ports	Use these two ports to connect USB 2.0 peripheral devices.
12	Gigabit Ethernet Port	The Ethernet cable that provides LAN connectivity plugs into this port.
13	Kensington Lock	The cable from a computer lock can be attached to this port to provide additional anti-theft security.

Chapter 2

Hardware Setup



1. Important safety information regarding the placement of this device is provided on page 11. Please review it before proceeding.
2. Make sure that the power to all devices connected to the installation are turned off. You must unplug the power cords of any computers that have the Keyboard Power On function.

Overview

Before setting up the devices it will help you to understand how Single View and Multi View setups affect the installation. The table below provides a picture of the display connections in a Single View and Multi View setup. For example, the first row shows that in a Single View - Mini DisplayPort setup, you cannot connect a HDMI or Thunderbolt monitor and no Thunderbolt Daisy-Chained devices can be connected.

Monitor	Mini DisplayPort	HDMI	Thunderbolt	Thunderbolt Daisy-Chained Devices
Single View	✓	-	-	0
	-	✓	-	5
	-	-	✓	4
Multi View	-	✓	✓	4

Cable Connections

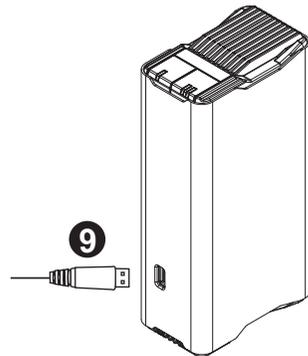
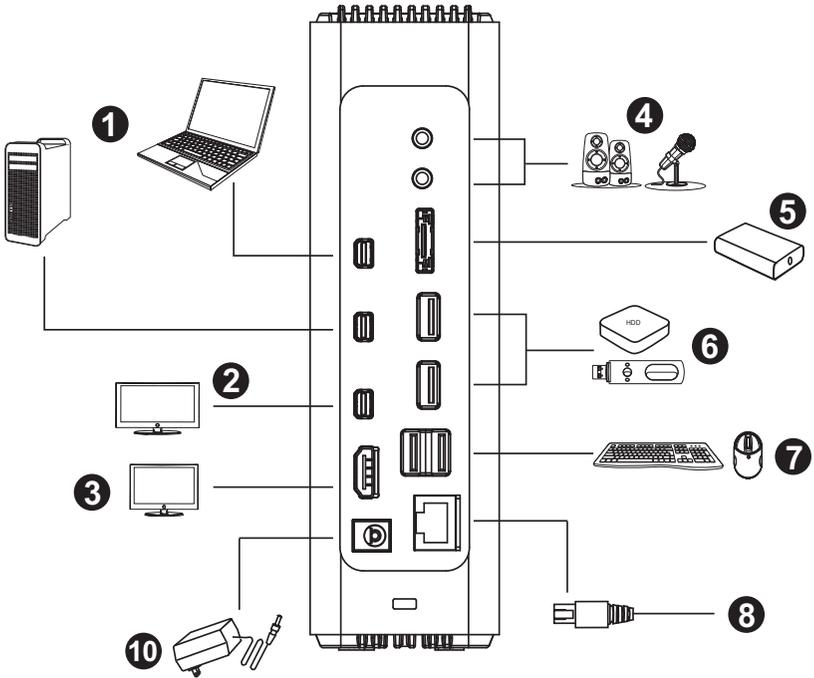
Installation of the US7220 is simply a matter of connecting the appropriate cables. Refer to the installation diagram on the following page (the numbers in the diagram correspond to the steps below), and do the following:

1. Use Thunderbolt cables (one is included with this package) to connect a Thunderbolt-enabled Mac and/or PC to the Thunderbolt 2 ports on the US7220. The power saving function will automatically shut down the US7220 when the Mac or PC host is powered-off.
2. Connect a Thunderbolt (or Mini DisplayPort*) monitor to the Thunderbolt 2 Daisy-Chain port on the US7220. You can daisy-chain up to 4 additional devices through the Thunderbolt 2 Daisy-Chain port.
3. Connect an HDMI monitor to the HDMI port on the US7220. The HDMI monitor should automatically detect the additional display.*
4. Use mini digital optical (mini TOSLINK) or 3.5 mm analog audio cables to connect the Line Out port to external speakers and the Line In port to a microphone. The Line In and Line Out ports support optical signals for higher quality playback.**
5. Use an eSATA cable to connect an external storage device to the eSATA port.
6. Connect USB 3.0/2.0/1.1 peripherals to the USB 3.1 Gen 1 ports.
7. Connect a keyboard and mouse (or any other USB 2.0/1.1 peripheral) to the USB 2.0 ports.
8. Connect a Cat 5e/6 LAN cable to the Ethernet port.
9. Connect a USB 3.0/2.0/1.1 peripheral device to the front USB port.
10. Plug the AC power adapter into the US7220's power jack, and plug the other end into an AC power source.

Note: 1. If a Mini DisplayPort monitor is connected to the Thunderbolt 2 Daisy-Chain port, the monitor connected to the HDMI port will not work. The US7220 supports either a Mini DisplayPort or HDMI monitor but not both at the same time.

2. The audio Line In/Line Out ports only support optical or self-powered sound devices, such as active speakers and mini sound systems. To use passive headphones, you must use a digital headphone amplifier.
-

Installation Diagram



Safety Instructions

General

- ◆ Read all of these instructions. Save them for future reference.
- ◆ Follow all warnings and instructions marked on the device.
- ◆ This product is for indoor use only.
- ◆ Do not place the device on any unstable surface (cart, stand, table, etc.). If the device falls, serious damage will result.
- ◆ Do not use the device near water.
- ◆ Do not place the device near, or over, radiators or heat registers.
- ◆ The device cabinet is provided with slots and openings to allow for adequate ventilation. To ensure reliable operation, and to protect against overheating, these openings must never be blocked or covered.
- ◆ The device should never be placed on a soft surface (bed, sofa, rug, etc.) as this will block its ventilation openings. Likewise, the device should not be placed in a built in enclosure unless adequate ventilation has been provided.
- ◆ Never spill liquid of any kind on the device.
- ◆ Unplug the device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- ◆ The device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- ◆ The device is designed for IT power distribution systems with 230V phase-to-phase voltage.
- ◆ To prevent damage to your installation it is important that all devices are properly grounded.
- ◆ The device is equipped with a 3-wire grounding type plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not attempt to defeat the purpose of the grounding-type plug. Always follow your local/national wiring codes.
- ◆ Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.

- ◆ If an extension cord is used with this device make sure that the total of the ampere ratings of all products used on this cord does not exceed the extension cord ampere rating. Make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
- ◆ To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or un-interruptible power supply (UPS).
- ◆ Position system cables and power cables carefully; Be sure that nothing rests on any cables.
- ◆ Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.
- ◆ Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.
- ◆ If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair.
 - ◆ The power cord or plug has become damaged or frayed.
 - ◆ Liquid has been spilled into the device.
 - ◆ The device has been exposed to rain or water.
 - ◆ The device has been dropped, or the cabinet has been damaged.
 - ◆ The device exhibits a distinct change in performance, indicating a need for service.
 - ◆ The device does not operate normally when the operating instructions are followed.
- ◆ Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.
- ◆ Avoid circuit overloads. Before connecting equipment to a circuit, know the power supply's limit and never exceed it. Always review the electrical specifications of a circuit to ensure that you are not creating a dangerous condition or that one does not already exist. Circuit overloads can cause a fire and destroy equipment.

Technical Support

International

- ◆ For online technical support – including troubleshooting, documentation, and software updates: <http://eservice.aten.com>
- ◆ For telephone support, see *Telephone Support*, page iv:

North America

Email Support		support@aten-usa.com
Online Technical Support	Troubleshooting Documentation Software Updates	http://eservice.aten.com
Telephone Support		1-888-999-ATEN ext 4988

When you contact us, please have the following information ready beforehand:

- ◆ Product model number, serial number, and date of purchase.
- ◆ Your computer configuration, including operating system, revision level, expansion cards, and software.
- ◆ Any error messages displayed at the time the error occurred.
- ◆ The sequence of operations that led up to the error.
- ◆ Any other information you feel may be of help.

Specifications

Function	US7220
Computer Connections	2
Device Connections	1 Direct; 5 Max. (via Daisy chain mode)
Connectors	
Computer	2 x Thunderbolt 2.0 Female (Black)
Device	1 x Thunderbolt 2.0 Female (Black)
	3 x USB3.1 Gen1 Type A Female (Blue)
	2 x USB2.0 Type A Female (Black)
	1 x E-SATA Female (Black)
LAN Ports	1 x Gigabit Ethernet Female (Black)
Audio Inputs	1 x Stereo / Mini Toslink Jack Female (Black)
Audio Outputs	1 x Stereo / Mini Toslink Jack Female (Black)
Power Jack	1
Video Output	1 x HDMI Female (Black)
	1 x Thunderbolt / Mini DisplayPort Female*
Port Selection	2 x Port Selection Pushbutton
LEDs	
Selected	2
Video Resolution	Single View: Mini DisplayPort / Thunderbolt - 3840 x 2160 @ 60 Hz* HDMI - 3840 x 2160 @ 30 Hz
	Dual View: Thunderbolt - 3840 x 2160 @ 60 Hz HDMI - 3840 x 2160 @ 30 Hz
Power	
Consumption	DC12 V, 90 W
Package Contents	1 x 1 meter Thunderbolt 2.0 Cable
	1 x Power Adapter
	1 x Vertical Stand
Environmental	
Operating Temperature	0–40°C
Storage Temperature	-20–60°C

Function	US7220
Humidity	0–80% RH, Non-condensing
Physical Properties	
Housing	Aluminum
Weight	0.78 kg
Dimensions (L x W x H)	5.70 x 9.75 x 19.19 cm

**The US7220 supports either HDMI or Mini DisplayPort, but not both.

Limited Warranty

IN NO EVENT SHALL THE DIRECT VENDOR'S LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, DISK, OR ITS DOCUMENTATION.

The direct vendor makes no warranty or representation, expressed, implied, or statutory with respect to the contents or use of this documentation, and especially disclaims its quality, performance, merchantability, or fitness for any particular purpose.

The direct vendor also reserves the right to revise or update the device or documentation without obligation to notify any individual or entity of such revisions, or update. For further inquiries, please contact your direct vendor.