ATEN

Simply Better Connections

CS1922M / CS1924M

2/4-Port USB 3.0 4K DisplayPort
MST KVMP™ Switch
User Manual

Compliance Statements

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.

The 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.

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.

KCC Statement

유선 제품용 / B 급 기기 (가정용 방송 통신 기기)
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것을 목적으로 하며 , 모든 지역에서 사용할 수 있습니다 .

Industry Canada Statement

This Class B digital apparatus complies with Canadian ICES-003.

CAN ICES-003 (B) / NMB-003 (B)

HDMI Trademark Statement

The terms HDMI, HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

HDMI
HIGH-DEFINITION MULTIMEDIA INTERFACE

RoHS

This product is RoHS compliant.

User Information

Online Registration

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

International	http://eservice.aten.com

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	1-888-999-ATEN ext 4988
	1-949-428-1111

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.

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
North America	http://www.aten-usa.com

Package Contents

Check to make sure that all the components are in working order. If you encounter any problem, please contact your dealer.

The CS1922M / CS1924M package consists of:

◆ 1 CS1922M / CS1924M 2/4-Port USB 3.0 4K DisplayPort MST KVMP™ Switch

◆ 2/4 DisplayPort cables (CS1922M / CS1924M, Certified)*

◆ 2/4 USB 3.0 cables (CS1922M / CS1924M)

◆ 4/8 audio cables (CS1922M / CS1924M)

◆ 1 power adapter

◆ 1 user instructions

> **Note:** The high quality DisplayPort cables included in this package (or cable of equal standards) are required to achieve 4K video resolutions.

Contents

4. Hotkey Operation

5. Keyboard Emulation

6. The Firmware Upgrade Utility

Appendix

About this Manual

This user manual is provided to help you get the most from your CS1922M / CS1924M unit. 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 CS1922M / CS1924M. 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 installation. The necessary steps are provided.

Chapter 3, Basic Operation, explains the fundamental concepts involved in operating the CS1922M / CS1924M.

Chapter 4, Hotkey Operation, details all of the concepts and procedures involved in the Hotkey operation of your CS1922M / CS1924M installation.

Chapter 5, Keyboard Emulation, provides tables that list the PC to Mac keyboard emulation mappings.

Chapter 6, The Firmware Upgrade Utility, explains how to upgrade the CS1922M / CS1924M's firmware with the latest version available.

Appendix, provides specifications and other technical information regarding the CS1922M / CS1924M.

Note:

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

◆ The product may be updated, with features and functions added, improved, or removed since the release of this manual. For an up-to-date user manual, visit http://www.aten.com/global/en/

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.

Chapter 1
Introduction

Overview

The CS1922M / CS1924M 2/4-Port USB 3.0 4K DisplayPort MST KVMP™ Switch takes a giant leap forward in KVM switch functionality by combining a KVM switch with a DisplayPort video interface, 2-port USB 3.1 Gen 1 hub, MST hub and 2.1 channel audio for rich bass in surround sound. DisplayPort technology provides a 4K UHD @ 60 Hz and 4K DCI @ 60 Hz resolution that displays the most vivid high-definition images available while pumping out premium sound for music, movies, and games.

As a KVM switch with built-in MST hub, the CS1922M / CS1924M allows users to access two or four DisplayPort computers from a single USB keyboard, USB mouse and DisplayPort or HDMI monitor console. In addition to the front panel pushbuttons, hotkeys, and RS-232, the CS1922M / CS1924M offers the latest mouse port-switching functionality which allows a double-click of the scroll-wheel to change ports. A Power On Detection feature also ensures that if one computer is powered off, the CS1922M / CS1924M will automatically switch ports to the next powered-on computer.

The 2-port USB 3.1 Gen 1 hub provides SuperSpeed 5 Gbps data transfer speeds to all connected peripherals. The unit's independent (asynchronous) switching feature, allows the KVM focus to be on one computer while the USB peripheral focus is on another computer. This eliminates the need to purchase a separate USB hub or stand-alone peripheral sharer – such as a print server, modem splitter, etc.

The CS1922M / CS1924M's built-in MST hub can receive DisplayPort™ 1.2 signals from the source device and split it to independently route the video signal to multiple monitors.

Featuring an unbeatable combination of ultra high 4K resolutions, a next generation USB 3.1 Gen 1 hub and enhanced, user-friendly operations, the CS1922M / CS1924M provides the latest innovations in desktop KVM technology.

Features

- 2/4-port DisplayPort KVMP Switch with USB 3.1 Gen 1 hub and 2.1 surround sound audio

- One USB console controls 2/4 computers and two USB peripherals

- Computer selection via front panel pushbuttons, hotkeys, RS-232 commands, and mouse[1]

- Independent switching of KVM, USB hub and audio focus

- Superior video quality – 4K UHD (3840 x 2160 @ 60 Hz) and 4K DCI (4096 x 2160 @ 60 Hz)

- 2-port USB 3.1 Gen 1 hub with SuperSpeed 5 Gbps transfer rates

- DisplayPort 1.2 compliant[2], HDCP 1.3 compliant

- Supports HD audio through DisplayPort[3]

- Full bass response for high-quality 2.1 channel surround sound systems

- Power On Detection – if a computer is powered off the CS1922M / CS1924M automatically switches to the next powered-on computer

- Built-in Multi-Stream Transport (MST) hub – allows multiple monitors through a single DisplayPort source[4]

- DisplayPort Dual-Mode (DP++) technology supports passive HDMI and DVI adapters[5]

- Hot pluggable – add or remove computers without powering down the switch

- Mouse emulation/bypass feature supports most mouse drivers and multifunction mice

- Multi-platform support – Windows 2000, Windows XP, Windows Vista, Windows 7/8 and higher, Mac, and Linux

- Multilingual keyboard mapping supports English, Japanese, French and German keyboards

- Mac keyboard support and emulation[6]

- Auto Scan Mode for monitoring all computers

- Firmware upgradeable

Note: 1. Mouse port switching is only supported under mouse emulation mode with a USB 3-button mouse wheel.

2. For DisplayPort 1.4 compliant display device, make sure to configure the device setting to be compatible with DisplayPort 1.2 to avoid compatibility issue.

3. HD audio through DisplayPort cannot be switched independently.

4. MST (Multi-Stream Transport) requires either monitors capable of DisplayPort 1.2 daisy-chaining, or use of a powered DisplayPort MST Hub. A DisplayPort v1.1a display can be the last display in a DisplayPort v1.2 chain. The PC source must be DisplayPort 1.2 compliant.

5. DisplayPort Dual-Mode (DP++) does not require an active adapter for most single display setups. Active DisplayPort adapters are recommended if you are unsure of the video source's DP++ compatibility.

6. PC keyboard combinations emulate Mac keyboards. Mac keyboards only work with their own operating system.

Requirements

Console

- A DisplayPort or HDMI monitor capable of the highest possible resolution
- A USB mouse
- A USB keyboard
- Microphone and speakers

Computers

The following equipment must be available on each computer:

- DisplayPort port
- USB Type-A port
- Audio ports

Cables

To guarantee video quality we recommend using only ATEN DisplayPort KVM cables which are certified by the VESA Compliance Program. Two (CS1922M) or four (CS1924M) cables are provided with this package.

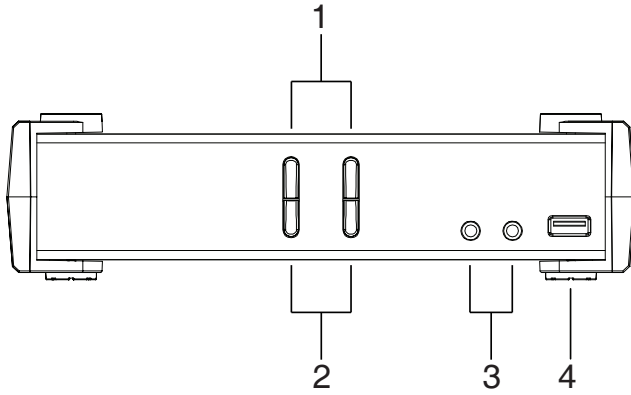**Note:** 1. The video quality displayed is affected by the quality and length of the cables you use. We recommend the total length from the source to the monitor not exceed 3 meters. If you need additional cable sets, please contact your dealer to purchase ATEN approved cables.

2. If you use DisplayPort cables that are DP 1.1 compliant, make sure the DisplayPort setting on the monitor is set to auto or DP 1.1.

<u>Operating Systems</u>

OS		Version
Windows		2K / XP / 2003 / 2008 / Vista (x64 / x86) / 7 / 10 or above
Linux	RedHat	9.0, Fedora and higher, RHEL AS 4, RHEL 5
	SuSE	10 / 11.1 and higher; OpenSUSE 10.2; SLES 10 SP1
	Debian	3.1 / 4.0
	Ubuntu	7.04 / 7.10 or later
Unix	IBM AIX	4.3 / 5L (V5.2, V5.3) / V6 (V6.1)
	FreeBSD	5.5 / 6.1 / 6.2
	Novell	Netware 6.0 / 6.5
Mac	OS	10.1 / 10.2 / 10.3 / 10.4 / 10.5 / 10.7 / 10.8 or later

Components

CS1922M Front View

CS1924M Front View

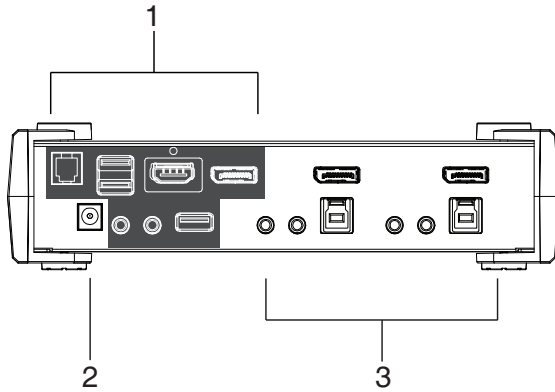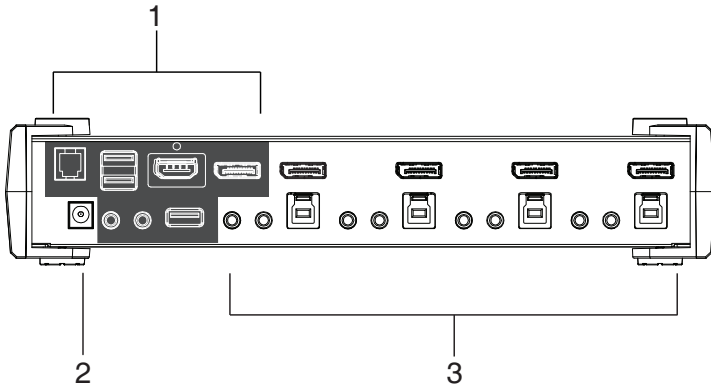| No.	Component	Description
1	port selection pushbuttons	For manual port selection (see *Manual Switching*, page 13): ◆ Press a port selection pushbutton for less than two seconds to bring the KVM, USB hub, and audio focus to the computer attached to its corresponding port. ◆ Press a port selection pushbutton twice to bring the audio focus to the computer attached to its corresponding port. ◆ Press a port selection pushbutton for longer than two seconds to bring only the KVM focus to the computer attached to its corresponding port. ◆ Press port selection pushbutton 1 and 2 simultaneously for 2 seconds to start Auto Scan Mode (see *Auto Scanning*, page 25).
2	port LEDs	The port LEDs are built into the port selection pushbuttons. The upper are KVM Port LEDs; the lower are USB LEDs: **KVM** ◆ Lights DIM ORANGE to indicate that the computer attached to the corresponding port is connected (online). ◆ Changes to BRIGHT ORANGE to indicate that the computer attached to its corresponding port is the one that has the KVM focus (Selected). ◆ Flashes to indicate that the computer attached to its corresponding port is being accessed under Auto Scan mode. **USB** ◆ Lights GREEN to indicate that the computer attached to its corresponding port is the one that has access to the USB peripherals.
3	audio ports	The cables from your main speakers and main microphone plug in here. The speakers and microphone plugged in here have priority over those on the rear panel.
4	USB 3.0 port	USB peripherals (printers, scanners, drives etc.) plug into this port. This USB 3.1 Gen 1 port features 5 Gbps data transfer rates for compatible USB peripherals.

CS1922M Rear View

CS1924M Rear View

No.	Component	Description
1	console ports	The cables from your DisplayPort monitor, HDMI monitor, USB keyboard, USB mouse, speakers, microphone, and USB peripherals* plug in here. In addition, there is an RJ-11 port for serial control. Each connector is marked with an appropriate icon to indicate its use. **Note:** This USB 3.1 Gen 1 port features 5 Gbps data transfer rates for compatible USB peripherals.
2	power jack	The power adapter cable plugs into this jack.
3	KVM ports	The cables that link the switch to your computers plug in here. Each KVM port section is comprised of a microphone jack, speaker jack, USB Type-B socket and a DisplayPort connector.

Chapter 2
Hardware Setup

1. Important safety information regarding the placement of this device is provided on page 41. Please review it before proceeding.

2. To prevent damage to your installation from power surges or static electricity. It is important that all connected devices are properly grounded.

3. Make sure that power to all the devices you will be installing has been turned off. You must unplug the power cords of any computers that have the Keyboard Power On function.

4. Please operate the device with caution when under high environmental temperatures, as the surface of the device may become overheated under such conditions. For instance, the surface temperature of the device may reach 70 °C (158 °F) or higher when the environmental temperature reaches close 50 °C (122 °F).

Cable Connections

To set up your installation, refer to the installation diagram on the following page (the numbers in the diagram on page 11 correspond to the steps below), and do the following:

1. Plug the USB keyboard and USB mouse into the USB console ports located on the unit's rear panel.

2. Plug the console monitor into the DisplayPort and/or HDMI port located on the unit's rear panel and power on the monitor(s). For multiple monitor setups, see *Display Modes*, on page 16.

3. Plug the main microphone and speakers into the console microphone and speaker jacks located on the unit's front panel. The microphone and speakers plugged into these ports have priority over those in the rear panel.

4. (Optional) Plug your secondary microphone and speakers into the console audio ports located on the unit's rear panel.

5. Using the cables provided with this package, plug the DisplayPort, USB 3.0, microphone, and speaker connectors into their corresponding sockets in the KVM Port section of the switch.

Note: Verify that all the plugs are in the same KVM Port sockets (all in port 1, all in port 2, etc.) Each socket is marked with an appropriate icon to indicate its function.

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6. At the other end of the cable set, plug the DisplayPort, USB 3.0, microphone, and speaker connectors into their respective ports on the computer.

7. (Optional) Plug USB peripherals into the USB 3.0 ports located on the unit's front and rear panel.

8. (Optional) Connect an RJ11-to-DB9 cable from the unit's serial port to a computer's serial port for RS-232 control.

Note: The RJ11-to-DB9 cable is sold separately. Contact your ATEN dealer for product information.

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9. Plug the power adapter (provided with this package) into the unit's power jack and then plug the other end into an AC power source.

10. Power on the computers.

Note: ◆ By default, the CS1922M / CS1924M switches to the first computer that is powered on.

   ◆ We recommend that the total video cable length from the PC to the console monitor cannot exceed 3 meters.

   ◆ Choosing high quality video cable ensures 4K UHD (3840x2160 @ 60 Hz) or 4K DCI (4096x2160 @ 60Hz) resolutions can be achieved.

   ◆ Make sure the computers and devices that the CS1922M / CS1924M connects to are also properly grounded.

Installation Diagram

USB 3.0

DisplayPort

Audio

Audio,
DisplayPort,
USB 3.0 Cables

HDMI

DisplayPort

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Chapter 3
Basic Operation

Port Switching

There are four methods to switch between the computers: Manual – by pressing the port selection pushbuttons on the front panel; Mouse – by double-clicking the scroll wheel; Hotkey – by entering key combinations on the keyboard; and RS-232 Commnads – by entering the correct command and control.

Manual Switching

For manual port selection:

- Press and release a port selection pushbutton to bring the KVM focus, plus the USB and Audio focus, to the computer attached to its corresponding port.

- Press and hold a port selection pushbutton for more than 2 seconds to bring the KVM focus to the computer attached to its corresponding port. The USB and Audio focus does not change – they stay with the port that they are already on.

- Press a port selection pushbutton twice to bring the audio focus to the computer attached to its corresponding port.

- Press and hold port selection pushbutton 1 and 2 for more than 2 seconds to start Auto Scan Mode (see page 25 for details).

- Press and release either port selection pushbutton to stop Auto Scan Mode. The KVM focus goes to the computer attached to the corresponding port of the switch you pressed.

Mouse Switching

For mouse port selection: Double-click the scroll wheel of your USB mouse to cycle through the ports.

Note: 1. Mouse switching is only supported by USB 3-key scroll wheel mice.

2. Mouse switching is disabled by default. See *Mouse Port Switching*, page 30, to enable mouse switching.

3. Mouse switching is only supported when Mouse Emulation is enabled.

Hotkey Switching

For Hotkey port selection: All port switches from the keyboard begin by pressing the Scroll Lock key twice. Regarding details of the hotkey parameters, see *Hotkey Port Switching*, page 21.

RS-232 Commands

For RS-232 port selection: Enter the correct command and control to switch port. Regarding details of the RS-232 command and control, please refer to the *CS1922M-CS1924M RS-232 Command User Manual*.

Hot Plugging

The CS1922M / CS1924M supports USB hot plugging – components can be removed and added back into the installation by unplugging their cables from the USB hub ports without the need to shut the unit down.

Powering Off and Restarting

If it becomes necessary to power off the switch, before powering it back on, you must do the following:

1. Shut down all the computers that are attached to the switch.

2. Unplug the switch's power adapter cable.

3. Wait 10 seconds, then plug the switch's power adapter cable back in.

4. Once the switch is powered up, power on the computers.

Port ID Numbering

Each KVM port section on the switch is assigned a port number (1 or 2 for the CS1922M) or (1 to 4 for the CS1924M). The port numbers are marked (CPU 1, CPU 2, CPU 3, etc.) on the rear panel of the switch (see page 8 for details).

The Port ID of a computer is derived from the KVM port number it is connected to. For example, a computer connected to KVM port 2 has a Port ID of 2.

The Port ID is used to specify which computer gets the KVM, USB peripheral, and audio focus with the Hotkey port selection method (See *Going Directly to a Port*, page 23 for details).

Alternative Manual Port Selection Settings

When Hotkey Setting Mode has been activated (page 32), pressing [S] will invoke the alternative front panel pushbutton manual port selection functions, as explained below:

- Press a port selection pushbutton once to bring only the KVM focus to the computer attached to its corresponding port.

- Press a port selection pushbutton twice to bring the audio focus to the computer attached to its corresponding port.

- Press and hold a port selection pushbutton for more than 2 seconds to bring the KVM, audio and USB focus to the computer attached to its corresponding port.

- Press and hold port selection pushbuttons 1 and 2 for more than 2 seconds to start Auto Scan Mode, see page 25 for details.
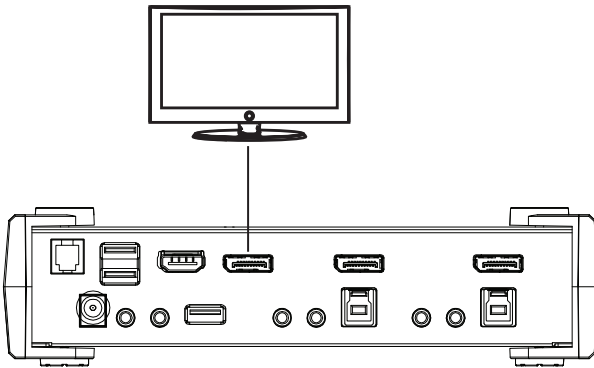
Display Modes

Display Modes allow you to use one or multiple monitors to view video content in various ways. This section explains how to setup Single Stream Transport (SST) and Multi-Stream Transport (MST) display modes. By default, MST mode is enabled. To disable MST mode, see *Display Mode*, page 27.
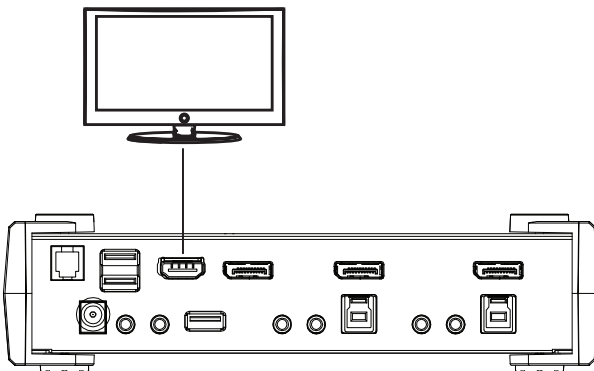
Single Stream Transport (SST)

SST mode provides point to point connections between the switch and displays. To use SST mode, you must disable MST mode (see page 27).
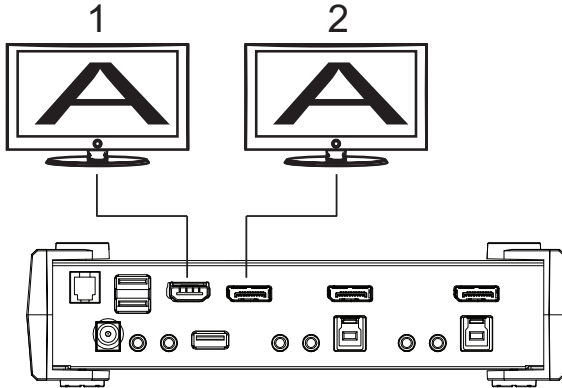
Connecting a display to the DisplayPort port:
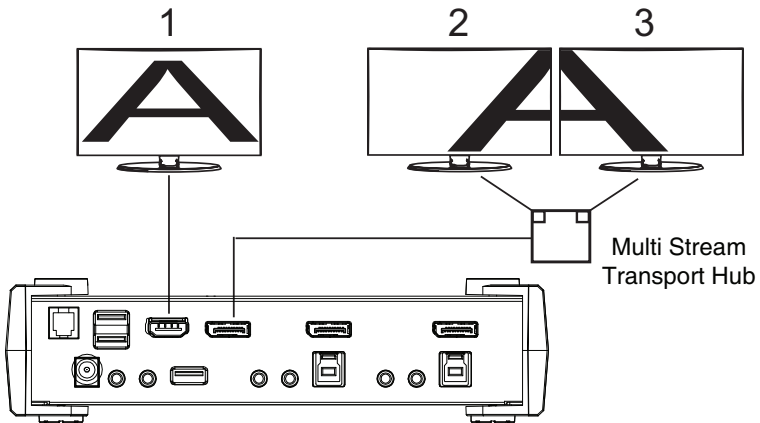

Connecting a display to the HDMI port:

Note: The optimum resolution for SST mode is 4K DCI @ 60 Hz.

Splitter Mode

Splitter mode displays the same video content on two monitors allowing the source to be duplicated.
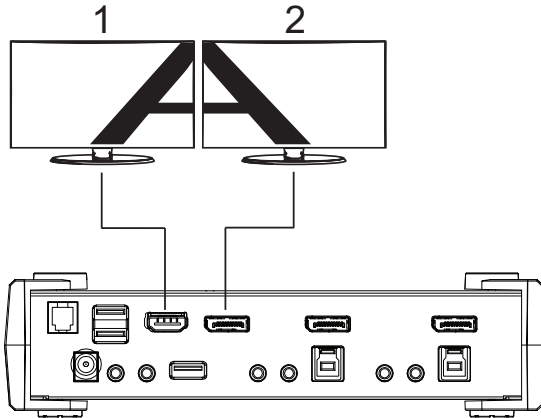

With an external MST hub (not included) you can copy video content to one HDMI and two DisplayPort monitors, as shown below.

Note: In Splitter mode, the optimum resolution for each output is 4K DCI @ 60 Hz. If you connect an external MST hub to the CS1922M / CS1924M's DisplayPort port, the video resolution for the two monitors depends on the bandwidth shared between the displays.

Multi-Stream Transport (MST)

A MST hub is built into the CS1922M / CS1924M. The MST hub allows you to combine multiple monitors into one large display – utilizing both the HDMI and DisplayPort connections, as shown below:

Note: The optimum resolution for two monitors in MST mode is 4K @ 30 Hz.

A third monitor can be added by connecting an external MST hub (not included) to split the DisplayPort signal, as shown below:
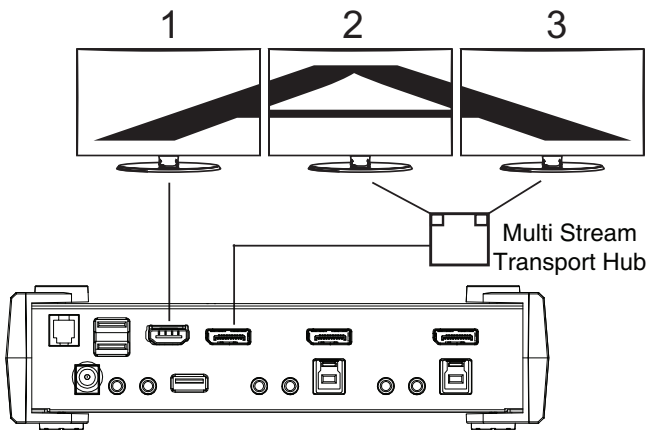
Note: The optimum resolution for three monitors in MST mode depends on the bandwidth shared between the displays.

Maximum Resolution / Monitors

Display Resolution with Standard 60 Frames per Second Refresh Rate	Maximum Number of Monitors Based on DisplayPort 1.2 Bandwidth
1680 x 1050 (WSXGA)	5
1920 x 1080 (1080p), or 1920 x 1200	4
2560 x 1600 (WQXGA)	2
3840 x 2160 (4K UHD), or 4096 x 2160 (4K DCI)	1

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Hotkey Operation

The switch provides an extensive, easy-to-use, hotkey function that makes it convenient to control and configure your KVM installation from the keyboard. Hotkeys also provide asynchronous independent switching of the KVM, USB hub, and audio focus. Therefore, you can give one computer the KVM focus, another the USB hub focus, while a third has the audio focus.

Hotkey Port Switching

All port switches begin with tapping the **[Scroll Lock]** key twice. The tables below describe the actions that each key combination performs.

Note: If using the Scroll Lock key conflicts with other programs running on the computer, the **[Ctrl]** key can be used, instead. See *Alternate Port Switching Keys*, page 27, for details.

Cycling Through the Ports

Hotkey	Action
[Scroll Lock] [Scroll Lock] [Enter]	Brings the KVM, USB hub, and audio focus from the port that currently has the KVM focus to the next port on the installation (CS1922M: 1 to 2; 2 to 1) (CS1924M: 1 to 2; 2 to 3; 3 to 4; 4 to 1). **Example:** 1. Press **[Scroll Lock] twice**. 2. Press **[Enter]**. **Note**: the KVM, USB hub, and audio focus all go to this port even if they were on different ports to begin with.
[Scroll Lock] [Scroll Lock] [K] [Enter]	Brings only the KVM focus from the port that currently has it to the next port on the installation. The USB and audio focus remain where they are. **Example:** 1. Press **[Scroll Lock] twice**. 2. Press **[K]**. 3. Press **[Enter]**.
[Scroll Lock] [Scroll Lock] [U] [Enter]	Brings only the USB hub focus from the port that currently has it to the next port on the installation. The KVM and audio focus remain where they are. **Example:** 1. Press **[Scroll Lock] twice**. 2. Press **[U]**. 3. Press **[Enter]**.
[Scroll Lock] [Scroll Lock] [S] [Enter]	Brings only the audio focus from the port that currently has it to the next port on the installation. The KVM and USB hub focus remain where they are. **Example:** 1. Press **[Scroll Lock] twice**. 2. Press **[S]**. 3. Press **[Enter]**.

Going Directly to a Port

Hotkey	Action
[Scroll Lock] [Scroll Lock] [n] [Enter]	Brings the KVM, USB, and audio focus to the computer attached to the port corresponding to the specified Port ID. **Example:** 1. Press **[Scroll Lock] twice**. 2. Press **[2]**. 3. Press **[Enter]**. Note that the KVM, USB, and audio focus all go to this port even if they were on different ports to begin with.
[Scroll Lock] [Scroll Lock] [n] [K] [Enter]	Brings only the KVM focus to the computer attached to the specified port. The USB hub and audio focus remain where they are. **Example:** 1. Press **[Scroll Lock] twice**. 2. Press **[2]**. 3. Press **[K]**. 4. Press **[Enter]**.
[Scroll Lock] [Scroll Lock] [n] [U] [Enter]	Brings only the USB hub focus to the computer attached to the specified port. The KVM and audio focus remain where they are. **Example:** 1. Press **[Scroll Lock] twice**. 2. Press **[2]**. 3. Press **[U]**. 4. Press **[Enter]**.
[Scroll Lock] [Scroll Lock] [n] [S] [Enter]	Brings only the audio focus to the computer attached to the specified port. The KVM and USB hub focus remain where they are. **Example:** 1. Press **[Scroll Lock] twice**. 2. Press **[2]**. 3. Press **[S]**. 4. Press **[Enter]**.

Hotkey	Action
[Scroll Lock] [Scroll Lock] [n] [K] [U] [Enter]	Brings the KVM and USB hub focus to the computer attached to the specified port. The audio focus remains where it is. **Example:** 1. Press **[Scroll Lock] twice**. 2. Press **[2]**. 3. Press **[K]**, and then press **[U]**. 4. Press **[Enter]**.
[Scroll Lock] [Scroll Lock] [n] [K] [S] [Enter]	Brings the KVM and audio focus to the computer attached to the specified port. The USB focus remains where it is. **Example:** 1. Press **[Scroll Lock] twice**. 2. Press **[2]**. 3. Press **[K]**, and then press **[S]**. 4. Press **[Enter]**.
[Scroll Lock] [Scroll Lock] [n] [U] [S] [Enter]	Brings the USB hub and audio focus to the computer attached to the specified port. The KVM focus remains where it is. **Example:** 1. Press **[Scroll Lock] twice**. 2. Press **[2]**. 3. Press **[U]**, and then press **[S]**. 4. Press **[Enter]**.
[Scroll Lock] [Scroll Lock] [n] [K] [S] [U] [Enter]	Brings the **KVM**, **USB hub** and **audio** focus to the computer attached to the specified port. **Example:** 1. Press **[Scroll Lock] twice**. 2. Press **[2]**. 3. Press **[K]**, **[S],** and then press **[U]**. 4. Press **[Enter]**. This is the same action as [Scroll Lock] [Scroll Lock] [n] [Enter].

Note: The **n** stands for the computer's Port ID number (1, 2, 3, or 4). See *Port ID Numbering*, page 14. Replace the **n** with the appropriate Port ID when entering hotkey combinations.

Auto Scanning

The switch's Auto Scan feature automatically cycles the KVM focus through the computer ports at regular intervals. This allows you to monitor the computer activity without having to take the trouble of switching from port to port manually. See the table below for details.

Hotkey	Action
[Scroll Lock] [Scroll Lock] [A] [Enter]	Invokes Auto Scan. The KVM focus cycles from port to port at **5 second intervals**. Five second intervals is the default setting.
[Scroll Lock] [Scroll Lock] [A] [n] [Enter]	The KVM focus cycles from port to port at **n** second intervals. **Note:** The n stands for the number of seconds that the CS1922M / CS1924M should dwell on a port before moving on to the next. Replace the n with a number between 1 and 99 when entering this hotkey combination.

Note: 1. While Auto Scan Mode is in effect, ordinary keyboard and mouse functions are suspended – only Auto Scan Mode compliant keystrokes and mouse clicks can be input. You must exit Auto Scan Mode in order to regain normal control of the console.

2. Although the video focus switches from port to port, the keyboard, mouse, and USB focus do not switch. They stay at the port they were on when Auto Scanning started.

3. To exit Auto Scan Mode, press the **[Esc]** key or the **[Spacebar]**.

Hotkey Setting Mode

Hotkey Setting Mode is used to set up your switch's configuration. All operations begin with invoking Hotkey Setting Mode (HSM). After invoking HSM, use the hotkeys listed on the pages that follow to configure the switch. A summary of the HSM hotkeys is provided on page 32.

Invoking HSM

To invoke HSM, do the following:

1. Press and hold down the [**Num Lock**] key.

2. Press and release the **[-]** key.

3. Release the **[Num Lock]** key.

> **Note:** 1. There is an alternate key combination to invoke HSM, see page 27 for details.
>
> 2. The minus key must be released within one half-second, otherwise Hotkey invocation is canceled.

When HSM is active, the Caps Lock and Scroll Lock LEDs flash in succession. They stop flashing and revert to normal status when you exit HSM.

Ordinary keyboard and mouse functions are suspended – only Hotkey-compliant keystrokes and mouse clicks (described in the sections that follow), can be input.

At the conclusion of some hotkey operations, you automatically exit HSM mode. With some operations, you must exit manually. To exit HSM manually, press the **[Esc]** key, or the **[Spacebar]**.

Alternate HSM Invocation Keys

An alternate set of HSM invocation keys is provided in case the default set conflicts with programs running on the computers.

To switch to the alternate HSM invocation set, do the following:

1. Invoke HSM (see page 26).

2. Press and release the **[H]** key.

   The HSM invocation keys become the **[Ctrl]** and **[F12]** key (instead of **[Num Lock]** and **[-]**). This procedure is a toggle. Repeat to revert to the original setting.

Alternate Port Switching Keys

The port switching activation keys can be changed from tapping the **[Scroll Lock]** key twice to tapping the **[Ctrl]** key twice. To change the port switching activation keys, do the following:

1. Invoke HSM (see page 26).

2. Press and release the [**T**] key.

   This procedure is a toggle. Repeat to revert to the original setting.

Beeper Hotkey

To toggle the beeper on or off, do the following:

1. Invoke HSM (see page 26).

2. Press and release **[B]**.

   This procedure is a toggle. Repeat to revert to the original setting.

Display Mode

This hotkey toggles between the Multi-Stream Transport (MST) and Single Stream Transport (SST) display modes. The default setting is Multi-Stream Transport (MST) enabled. For more information, see *Display Modes*, page 16.

1. Invoke HSM (see page 26).

2. Press and release **[F]**.

   This procedure is a toggle. Repeat to revert to the original setting.

Keyboard Operating Platform

The switches' default port configuration is for a PC-compatible keyboard operating platform. If your console uses a PC-compatible keyboard and you have a Mac attached to a port, for example, you can change the port's keyboard operating platform configuration so that the PC-compatible keyboard emulates the Mac keyboard. The procedure is as follows:

1. Bring the KVM focus to the port you want to set.

2. Invoke HSM (see page 26).

3. Press and release the appropriate Function key (see table below). After completing this procedure, you automatically exit HSM.

Function Key	Operation
[F1]	To set the keyboard/mouse to use SPC mode so that it can work under special operating systems as a standard (104 key) keyboard/mouse.
[F2]	Enables Mac keyboard emulation, see *Mac Keyboard*, page 33 for details.
[F10]	Automatically detects and sets the keyboard operating platform.

List Switch Settings

To see a listing of the current switch settings, do the following:

1. Open a text editor or word processor and place the cursor in the page window.

2. Invoke HSM (see page 26).

3. Press and release **[F4]** to display the settings.

USB Reset

If the USB loses focus and needs to be reset, do the following:

1. Invoke HSM (see page 26).

2. Press and release **[F5]**.

Keyboard Language

To change the keyboard language, do the following:

1. Invoke HSM (see page 26).

2. Press **[F6] [*nn*] [Enter]**.

Note: *nn* is a two-digit number that represents the keyboard language code
(US English: 33; French: 08; Japanese: 15; German: 09).

Port Switching Keys

To disable the Port Switching Keys (**[Scroll Lock] [Scroll Lock]** / **[Ctrl] [Ctrl]**), do the following:

1. Invoke HSM (see page 26).

2. Press **[X] [Enter]**.
   This procedure is a toggle. Repeat to revert to the original setting.

Firmware Upgrade Mode

To set the switch to Firmware Upgrade Mode, do the following:

1. Invoke HSM (see page 26).

2. Key in: **[U] [P] [G] [R] [A] [D] [E]**.

3. Press **[Enter]**. The front panel LEDs flash to indicate the upgrade has started.
   To exit Firmware Upgrade Mode, you must power off the switch.

Restore Default Settings

To reset the switch to its default hotkey settings, do the following:

1. Invoke HSM (see page 26).

2. Press **[R] [Enter]**.
   All hotkey settings return to the factory default values (See *Hotkey Default Settings*, page 47).

Alternative Manual Port Selection

To toggle between the default and the alternative front panel pushbutton manual port selection settings, do the following:

1. Invoke HSM (see page 26).

2. Press **[S]**.

   This procedure is a toggle. Repeat to revert to the original setting. See *Alternative Manual Port Selection Settings*, page 15, for more information.

Mouse Emulation

To toggle between mouse emulation enabled and disabled, do the following:

1. Invoke HSM (see page 26).

2. Press **[M]**.

   This procedure is a toggle. Repeat to revert to the original setting

Mouse Port Switching

Mouse Port Switching allows you to use the mouse wheel button (clicked twice) to switch ports. For Mouse Port Switching to work, Mouse Emulation (above) must be enabled. To toggle between mouse port switching enabled and disabled, do the following:

1. Invoke HSM (see page 26).

2. Press **[W]**.

   This procedure is a toggle. Repeat to revert to the original setting.

   Note: This feature is only supported by USB 3-key scroll wheel mice. The default setting is disabled. This feature is only supported when mouse emulation is also enabled. See *Mouse Emulation*, above.

Keyboard Emulation

The console keyboard port emulation/bypass feature supports most gaming/multimedia keyboards. The default setting is enabled. To disable, do the following:

1. Invoke HSM (see page 26).

2. Press **[N]**.

   This procedure is a toggle. Repeat to revert to the original setting.

   Note: When keyboard emulation is disabled, the [M], [Q], [W], [F2], [F4], [F5], [F6], and [F10] hotkey operations are disabled.

Power on Detection

With Power on Detection, if the focus computer is powered off, the switch will automatically switch to the next powered-on computer. Power on Detection can be enabled or disabled. The default setting is enabled. To disable Power on Detection, do the following:

1. Invoke HSM (see page 26).

2. Press and release **[E]**.

   This procedure is a toggle. Repeat to revert to the original setting.

Monitor Re-detection

If the monitor's display is blank, use this hotkey to re-detect the monitor's EDID. Monitor re-detection can be enabled or disabled. The default setting is disabled. To enable monitor re-detection, do the following:

1. Invoke HSM (see page 26).

2. Press **[Q]** **[*n*]** **[Enter]**.

   n is a one-digit number that represents the port number: *n*=1-2 (CS1922M); or *n*=1-4 (CS1924M).

   This procedure is a toggle. Repeat to revert to the original setting.

HSM Summary Table

After invoking HSM (see page 26), key in one of the following keys to perform the corresponding function:

Key	Function
[B]	Toggles the beeper On and Off.
[E]	Enable/Disable the Power on Detection feature.
[F]	Enable/Disable Multi-Stream Transport (MST) mode.
[H]	Toggles between the default and alternate HSM invocation keys.
[M]	Toggles between mouse emulation enable and disable.
[N]	Enable/Disable keyboard emulation.
[Q] [n] [Enter]	Enable/Disable monitor re-detection on port [n].
[R] [Enter]	Resets the hotkey settings to their default statuses.
[S]	Toggles between the default and alternative pushbutton operation settings.
[T]	Toggles between the default ([Scroll Lock] [Scroll Lock]) and alternate ([Ctrl] [Ctrl]) Port Switching keys.
[U][P][G][R][A][D][E] [Enter]	Invokes Firmware Upgrade Mode.
[W]	Enable/Disable mouse port switching
[X] [Enter]	Enable/Disable the Port Switching keys.
[F1]	Allows the keyboard and mouse to work under special operating systems as a standard (104 key) keyboard/ mouse.
[F2]	Enables Mac keyboard emulation.
[F4]	Print the switch's current settings via a text editor or word processor.
[F5]	Performs a reset on all USB devices.
[F6] [nn] [Enter]	Sets the keyboard language. *nn* represents one of the following keyboard language codes: US English: 33; French: 08; Japanese: 15; German: 09.
[F10]	Auto detects the keyboard operating platform.

Chapter 5
Keyboard Emulation

Mac Keyboard

PC-compatible (101/104 key) keyboards can emulate the functions of a Mac keyboard. The emulation mappings are listed in the table below.

PC Keyboard	Mac Keyboard
[Shift]	Shift
[Ctrl]	Ctrl
⊞	⌘
[Ctrl] [1]	🔇
[Ctrl] [2]	🔉
[Ctrl] [3]	🔊
[Ctrl] [4]	⏏
[Alt]	Alt
[Print Screen]	F13
[Scroll Lock]	F14
🗒	=
[Enter]	Return
[Backspace]	Delete
[Insert]	Help
[Ctrl] ⊞	F15

Note: When using key combinations, press and release the first key (Ctrl), then press and release the activation key.

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Chapter 6
The Firmware Upgrade Utility

The Windows-based Firmware Upgrade Utility (FWUpgrade.exe) provides a smooth, automated process for upgrading the KVM switch's firmware. The Utility comes as part of a Firmware Upgrade Package that is specific for each device. Check the web site regularly to find the latest packages and information relating to them: `http://www.aten.com/download/download_fw.php`

Before you Begin

1. From a computer that is not part of your KVM installation, go to our Support & Downloads site and choose the model name that relates to your device (CS1922M / CS1924M) to get a list of available Firmware Upgrade Packages.

2. Choose the Firmware Upgrade Package you want to install (usually the most recent), and download it to your computer.

3. Disconnect the CS1922M / CS1924M from your KVM installation and power it off. Connect the USB cable's Type-A connector to a USB port on your computer.
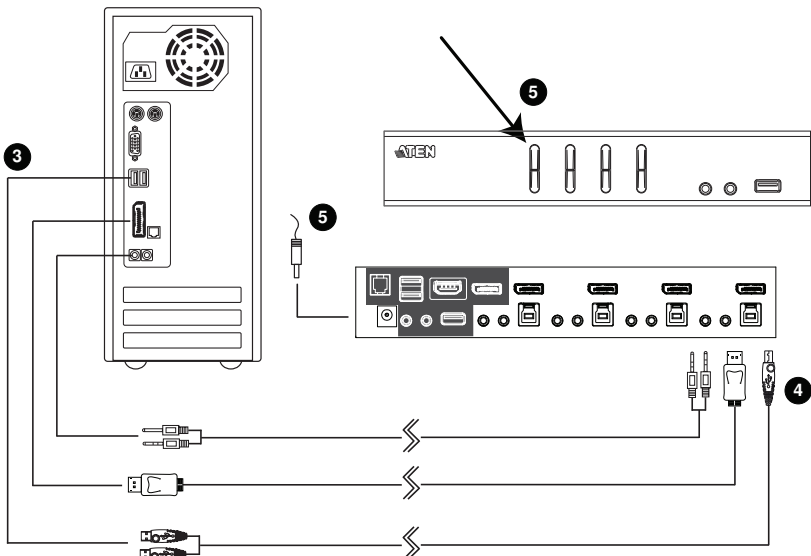
4. At the other end of the USB cable, connect the USB Type-B connector to the USB Type-B port in the port 1 KVM section.

> **Note:** The USB cable's USB Type-B connector can be connected to any KVM port section, but the Port Selection pushbutton in Step 5, below, must be port 1.

5. Press and hold the port 1 selection pushbutton. While you are holding the button, connect the power adapter to the CS1922M / CS1924M to enter Firmware Upgrade Mode. The front panel LEDs flash together to indicate Firmware Upgrade Mode is in effect.

Starting the Upgrade

1. Run the downloaded Firmware Upgrade Package file – either by double clicking the file icon, or using a command line to enter the full path.

   The *Firmware Upgrade Utility* Welcome screen appears:
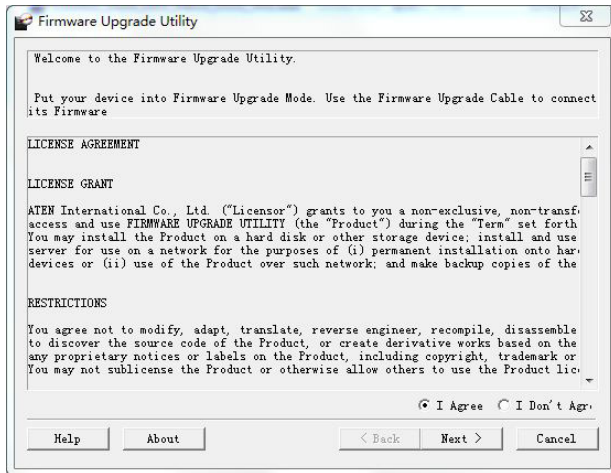
2. Read the License Agreement (click the *I Agree* radio button).

3. Click **Next.** The Firmware Upgrade Utility main screen appears. The Utility inspects your installation. All the devices capable of being upgraded by the package are listed in the *Device List* panel.
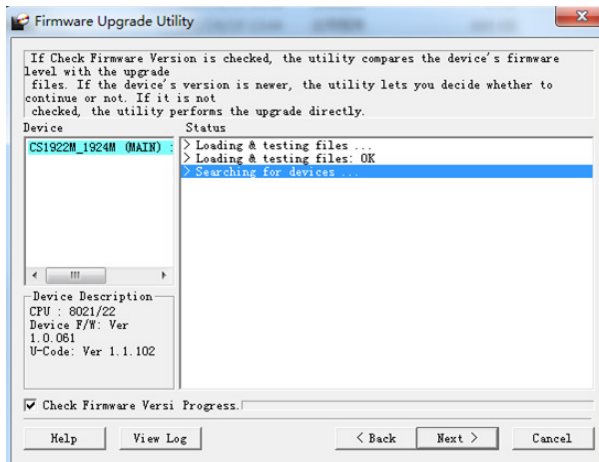
4. As you select a device in the list, its description appears in the Device Description panel.After you have made your device selection(s), click **Next** to perform the upgrade.

   If you enabled Check Firmware Version, the Utility compares the device's firmware level with that of the upgrade files. If the device's version is higher than the upgrade version, a dialog box gives you the option to Continue or Cancel.
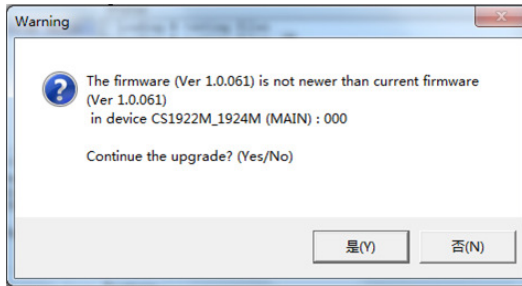

   If you did not enable *Check Firmware Version*, the Utility installs the upgrade files without checking whether they are a higher level, or not.

   As the Upgrade proceeds, status messages appear in the Status Messages panel, and the progress toward completion is shown on the *Progress* bar.
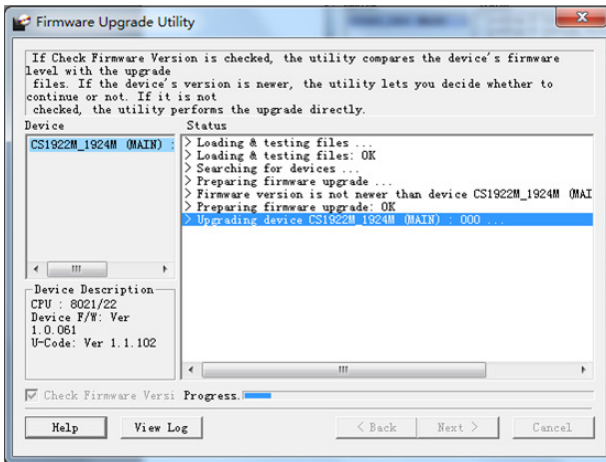
Upgrade Successful

After the upgrade has completed, a screen appears to inform you that the procedure was successful:
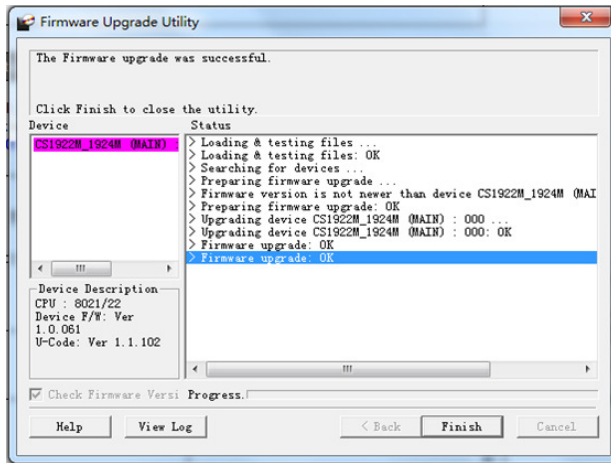
Click **Finish** to close the Firmware Upgrade Utility.

After a successful completion, the CS1922M / CS1924M exits Firmware Upgrade Mode, and resets itself.

Upgrade Failed

If the *Upgrade Successful* screen does not appear, it means that the upgrade failed to complete successfully, and you should repeat the upgrade procedure from the beginning.

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Appendix

Safety Instructions

- Read all of these instructions. Save them for future reference.

- This device is for indoor use only.

- Follow all warnings and instructions marked on the device.

- 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.

- 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 doesn't already exist. Circuit overloads can cause a fire and destroy equipment.

- To prevent damage to your installation, it is important that all devices are properly grounded.

- 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.

- 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.

◆ Do not connect the RJ-11 connector to a public telecommunication network.

Troubleshooting

Operation problems can be due to a variety of causes. The first step in solving them is to make sure that all cables are securely attached and seated completely in their sockets.

In addition, updating the product's firmware may solve problems that have been discovered and resolved since the prior version was released. If your product is not running the latest firmware version, we strongly recommend that you upgrade. See *The Firmware Upgrade Utility*, Chapter 6, for upgrade details.

Symptom	Possible Cause	Action
Erratic behavior.	Unit not receiving enough power.	Use a DC 5V power adapter if you are not already using one. If you are already using a power adapter, check that it matches the system specifications, and that it is plugged in and functioning properly.
	Keyboard and/or mouse need to be reset.	Unplug the cable(s) from the console port(s), then plug it/them back in.
	No connection to the computer.	Check the cable from the switch to the computer to make sure it is properly connected.
	KVM switch needs to be reset.	Power off all devices on the installation; power off the KVM switch; wait five seconds; then power up.
USB devices not responding.	USB ports need to be reset.	Unplug the device's USB cable from the USB port on the switch's rear panel, then plug it back in.
		Use the USB Reset hotkey combination (see page 28), to reset the USB ports.

Technical Support

Technical support is available both by email and online (with a browser over the web):

International

- ◆ For online technical support – including troubleshooting, documentation, and software updates: http://support.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://www.aten-usa.com/support
Telephone Support		1-888-999-ATEN ext 4988
		1-949-428-1111

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			CS1922M	CS1924M
Connections	Computer		2	4
	Console		1	
Port Selection			Pushbuttons, Hotkey, Mouse*, RS-232 Commands	
Connectors	Console Ports	Keyboard	1 x USB Type A	
		Video	1 x DisplayPort 1 x HDMI	
		Mouse	1 x USB Type A	
		Speakers	1 x 3.5 mm Mini Stereo Jack (Green; Front) 1 x 3.5 mm Mini Stereo Jack (Green; Rear)	
		Mic	1 x 3.5 mm Mini Stereo Jack (Pink; Front) 1 x 3.5 mm Mini Stereo Jack (Pink; Rear)	
	KVM Ports	KB / Mouse	2 x USB 3.1 Gen 1 Type B	4 x USB 3.1 Gen 1 Type B
		Video	2 x DisplayPort	4 x DisplayPort
		Speakers	2 x 3.5 mm Mini Stereo Jack (Green)	4 x 3.5 mm Mini Stereo Jack (Green)
		Mic	2 x 3.5 mm Mini Stereo Jack (Pink)	4 x 3.5 mm Mini Stereo Jack (Pink)
	USB Hub		1 x USB 3.1 Gen 1 Type A (Front) 1 x USB 3.1 Gen 1 Type A (Rear)	
	Serial		1 x RJ-11 Female	
	Power		1 x DC Jack	
Switches	Selected		2 x Pushbutton	4 x Pushbutton
LEDs	On Line / Selected		2 (Orange)	4 (Orange)
	USB Link		2 (Green)	4 (Green)
Emulation	Keyboard / Mouse		USB	
Video			4096 x 2160 @ 60 Hz (4K DCI)	
Scan Interval			1–99 secs. (5 secs. default)	
Power Consumption			DC5V:4.09W:62BTU	DC5V:4.89W:66BTU
Environment	Operating Temp.		0–50º C	
	Storage Temp.		-20–60º C	
	Humidity		0–80% RH, Non-condensing	

Function		CS1922M	CS1924M
Physical Properties	Housing	Metal	
	Weight	0.73 kg (1.61 lb)	0.92 kg (2.03 lb)
	Dimensions (L x W x H)	21.00 x 8.80 x 5.55 cm (8.27 x 3.46 x 2.19 in)	27.00 x 8.80 x 5.55 cm (10.63 x 3.46 x 2.19 in)

* Port switching only works with 3-key USB mouse wheel in emulation mode.

Hotkey Default Settings

The hotkey factory default settings are as follows:

Setting	Default
Port Switching	[Scroll Lock] [Scroll Lock]
Invoking HSM	[Number Lock] [-]
Auto Scan Interval	5 Seconds
Beeper	On
Multi-Stream Transport (MST)	Enabled
Keyboard Operating Platform	PC-Compatible
Port Switching Keys	Enabled

ATEN Standard Warranty Policy

Limited Hardware Warranty

ATEN warrants its hardware in the country of purchase against flaws in materials and workmanship for a Warranty Period of two [2] years (warranty period may vary in certain regions/countries) commencing on the date of original purchase. This warranty period includes the LCD panel of ATEN LCD KVM switches. For UPS products, the device warranty is two [2] years but battery is one [year]. Select products are warranted for an additional year (see *A+ Warranty* for further details). Cables and accessories are not covered by the Standard Warranty.

What is covered by the Limited Hardware Warranty

ATEN will provide a repair service, without charge, during the Warranty Period. If a product is detective, ATEN will, at its discretion, have the option to (1) repair said product with new or repaired components, or (2) replace the entire product with an identical product or with a similar product which fulfills the same function as the defective product. Replaced products assume the warranty of the original product for the remaining period or a period of 90 days, whichever is longer. When the products or components are replaced, the replacing articles shall become customer property and the replaced articles shall become the property of ATEN.

To learn more about our warranty policies, please visit our website:
http://www.aten.com/global/en/legal/policies/warranty-policy/

<u>MEMO</u>