ATEN

Simply Better Connections

CS784H

4-Port USB 4K HDMI 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 A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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.

Warning

Operation of this equipment in a residential environment could cause radio interference.

Achtung

Der Gebrauch dieses Geräts in Wohnumgebung kann Funkstörungen verursachen.

CE FC 🗑 20 ⌂ E3914 UKCA

KCC Statement

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Industry Canada Statement

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

CAN ICES (A) / NMB (A)

HDMI Trademark Statement

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

RoHS

This product is RoHS compliant.

KVM+ 多電腦切換器類產品

設備名稱 Equipment Name	4 埠 USB 4K HDMI KVMP^{TM} 多電腦切換器			型號（型式） Type designa- tion (Type)	CS784H	
單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr^{+6})	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
電纜線 Cable	−	○	○	○	○	○
印刷電路部件 PCBA	−	○	○	○	○	○
塑膠／其他部件 Plastic / Other parts	○	○	○	○	○	○
金屬部件 Metal parts	−	○	○	○	○	○

備考 1. 〝超出 0.1 wt %〞及 〝超出 0.01 wt %〞係指限用物質之百分比含量超出百分比含量基準值。
Note 1："Exceeding 0.1 wt %" and "exceeding 0.01 wt %" indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.
備考 2. 〝○〞係指該項限用物質之百分比含量未超出百分比含量基準值。
Note 2：" ○ " indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.
備考 3. 〝−〞係指該項限用物質為排除項目。
Note 3："−" indicates that the restricted substance corresponds to the exemption.

製造商：宏正自動科技股份有限公司
地址：新北市汐止區大同路二段 125 號三樓

警告： 為避免電磁干擾，本產品不應安裝或使用於住宅環境。

最大操作環境溫度： 40ºC

最大額定電壓： DC 5V, 2.6A

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 CS784H package consists of:

- 1 CS784H 4-Port USB 4K HDMI KVMP™ Switch
- 4 HDMI cables*
- 4 USB Type-A to Type-B cables
- 1 remote port selector
- 1 foot pad set (4 pcs)
- 1 power adapter
- 1 user instructions

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

Contents

About this Manual

This user manual is provided to help you get the most from your CS784H 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 CS784H. 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 CS784H.

Chapter 4, Hotkey Operation, details all of the concepts and procedures involved in the Hotkey operation of your CS784H 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 CS784H's firmware with the latest version available.

Appendix, provides specifications and other technical information regarding the CS784H.

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.

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Chapter 1
Introduction

Overview

The ATEN CS784H 4-Port USB 4K HDMI KVMP™ Switch enables users to control up to 4 computers with a single USB keyboard, mouse and HDMI monitor. The CS784H effectively reduces desktop clutter and minimizes the cost and complexity of multi-system setups.

The CS784H provides multiple port selection methods, including a remote port selector, hotkeys, and mouse wheel switching to engineer for maximum flexibility. In addition, the CS784H features USB peripheral sharing, allowing users to share USB 2.0 devices such as printers, storage drives, or scanners, among all connected computers.

The CS784H supports resolutions up to 4096 x 2160 @ 60Hz and ultra-wide to 5120 x 1440 @ 60Hz, ensuring optimized display resolution with exceptional detail and clarity in all conditions. With ATEN's patented Video DynaSync™ technology, the CS784H ensures optimal resolution and consistent window layout during port switching for smooth multi-system workflows.

Designed for easy deployment, the CS784H includes all the necessary HDMI and USB cables and adapters, providing a plug-and-play experience right out of the box. Designed for SOHO environments, remote workstations, or office setups, the CS784H delivers efficient multi-computer control with exceptional video fidelity and operational convenience.

Features

- Single USB keyboard and mouse control up to 4 PCs, simplifying cables and reducing the cost of multi-computer setups

- Superior video quality – up to 4096 x 2160 @ 60 Hz, 5120 x 1440 @ 60Hz

- Exclusive ATEN technology ensures optimal resolution and consistent window layout during port switching for smooth multi-system workflows

- Computer selection via remote port selector, hotkeys, and USB mouse

- Multiplatform support – Windows, Mac, and Linux

- USB peripheral sharing

- All HDMI / USB cables and adapter included

- Power-on detection automatically switches to the next active computer

- Supports most gaming / multimedia keyboards and multifunction mice with emulation or bypass

- Auto-scan function allows continuous monitoring of connected systems

- Supports RS-232 serial commands

- Plug and play – no software installation or configuration required

- Supports hot-plugging

- Firmware upgradeable

Requirements

Console

- An HDMI monitor capable of the highest possible resolution
- A USB mouse
- A USB keyboard
- A set of speakers

Computers

The following equipment must be available on each computer:

- One HDMI port
- USB Type-A port

Cables

To guarantee video quality we recommend using only ATEN HDMI KVM cables. Four cables are provided with this package.

Note: 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.

<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

CS784H Front View
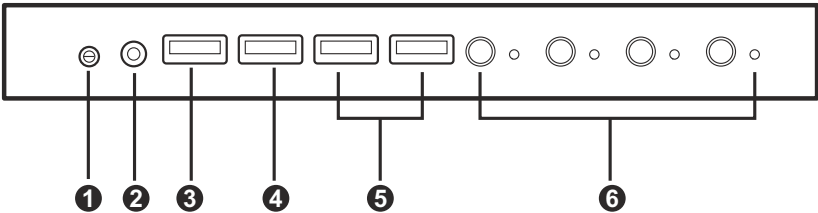
CS784H Rear View
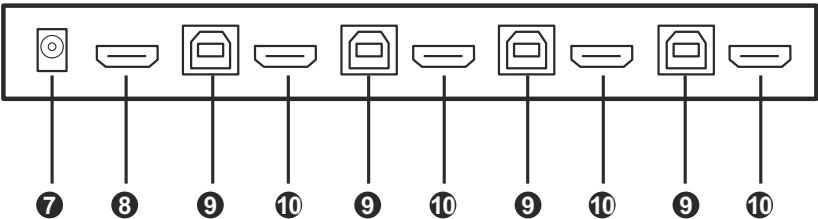
CS784H Side View
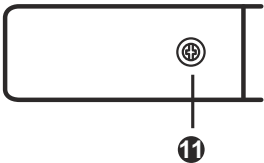
No.	Component	Description
Front View		
1	remote port selector jack	The supplied remote port selector plugs in here. Press the remote port selector pushbutton for 2 seconds to enable or disable keyboard emulation.
2	audio output jack	Your set of speakers plug in here.

No.	Component	Description
3	USB Type-A port (keyboard)	The cables from your keyboard and mouse plug in here. Each connector is marked with an appropriate icon to indicate itself.
4	USB Type-A port (mouse)	
5	USB Type-A ports (USB peripheral)	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.
6	port selection pushbuttons / port LEDs	For manual port selection (see *Manual Switching*, page 11): ◆ 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 port selection pushbutton 1 and 2 simultaneously for 2 seconds to start Auto Scan Mode (see *Auto Scanning*, page 16). ◆ Press port selection pushbutton 3 and 4 simultaneously for 2 seconds to start keyboard and mouse reset (see *USB Reset*, page 19). ◆ Press port selection pushbutton 4 for 2 seconds to enable or disable keyboard emulation.

Rear View

No.	Component	Description
7	power jack	The power adapter cable plugs into this lockable jack.
8	HDMI output port	The cable from your monitor plugs in here. Each connector is marked with an appropriate icon to indicate itself.
9	USB Type-B ports	The USB Type-A to USB Type-B cables that link the switch to your computers plug in here. Each KVM port section is comprised of a USB Type-B port and an HDMI connector.
10	HDMI input ports	The monitor cable that link the switch to your computers plug in here. Each KVM port section is comprised of a USB Type-B port and an HDMI connector.

Side View

No.	Component	Description
11	grounding terminal	The grounding wire used to ground the switch attaches here.

Chapter 2
Hardware Setup

1. Important safety information regarding the placement of this device is provided on page 35. 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.

Cable Connections

To set up your installation, refer to the installation diagram on the following page (the numbers in the diagram on page 9 correspond to the steps below), and do the following:

1. Ground the CS784H by connecting one end of the a grounding wire to the grounding terminal and the other end to a suitable grounded object.

   Note: Do not omit this step. Proper grounding helps to prevent damage to the unit from power surges or static electricity.

2. Connect your USB keyboard and USB mouse to the unit's USB 2.0 Type-A ports (keyboard / mouse).

3. Connect your HDMI -enabled display to the unit's HDMI output port.

4. Connect your set of speakers to the unit's audio output jack.

5. Using the provided cables, connect the HDMI and USB Type-A ports of up to 4 PCs to the unit's HDMI and USB Type-B ports.
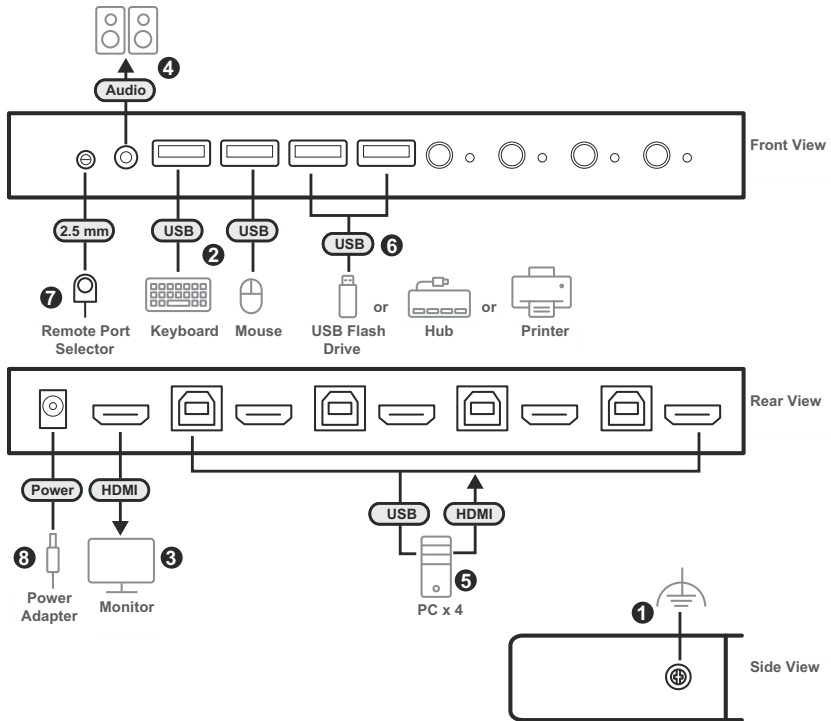
   Note: Make sure that all the connectors from one PC are connected to the same KVM ports section (all in CPU1, all in CPU2, etc.).

6. (Optional) Connect your USB peripherals to the unit's USB Type-A ports.

7. (Optional) To use a remote port selector for port selection, plug its cable into the unit's remote port selector jack.

8. Connect the power adapter to the unit's power jack. Now the CS784H is powered on.

9. Power on the computers, displays, and the other connected devices.

Note: ◆ 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, displays, and other connected devices are also properly grounded.

Installation Diagram

Front View

2.5 mm **USB** **USB** **USB** ❻

❼

Remote Port Selector **Keyboard** **Mouse** **USB Flash Drive** or **Hub** or **Printer**

❷

Rear View

Power **HDMI** **USB** **HDMI**

❽ ❸ ❺ ❶

Power Adapter **Monitor** **PC x 4** **Side View**

Audio ❹

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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 Remote Port Selector – by pressing the remote port selector connected to the unit's remote port selector jack.

Manual Switching

For manual port selection:

* Press and release a port selection pushbutton to bring the KVM (keyboard, video, and mouse) focus, plus the USB and 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 17 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.

* Press and hold port selection pushbutton 3 and 4 for more than 2 seconds to start keyboard and mouse reset, see *USB Reset*, page 19.

* Press port selection pushbutton 4 for 2 seconds to enable or disable keyboard emulation.

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 21, to enable mouse switching.

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

Remote Port Selector

For remote port selector 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.

Hot Plugging

The CS784H 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 to 4. The port numbers are marked (CPU 1, CPU 2, CPU 3, CPU 4, etc.) on the rear panel of the switch.

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, page 15 for details).

Alternative Manual Port Selection Settings

When Hotkey Setting Mode has been activated (page 23), pressing [S] will invoke the alternative front panel pushbutton manual port selection functions, as explained below:

 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 16 for details.

 Press port selection pushbutton 3 and 4 simultaneously for 2 seconds to start keyboard and mouse reset, see page 19 for details.

 Press port selection pushbutton 4 for 2 seconds to enable or disable keyboard emulation.

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Chapter 4
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.

Hotkey Port Switching

All port switches begin with tapping the **[Scroll Lock]** key twice. The tables below describe the actions that each 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 *Buzzer Control*, page 18, 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 (1 to 2; 2 to 3; 3 to 4, and 4 to 1).
	Example:
	1. P**[Scroll Lock] twice**.
	2. Press **[Enter]**.

Going Directly to a Port

Hotkey	Action
[Scroll Lock] [Scroll Lock] [n] [Enter]	Brings the KVM, USB hub, and audio focus to the computer attached to the port corresponding to the specified Port ID (1, 2, 3, and 4).
	Example:
	1. Press **[Scroll Lock] twice**.
	2. Press **[2]**.
	3. Press **[Enter]**.

Note: The **n** stands for the computer's Port ID number (1, 2, 3, and 4). See *Port ID Numbering*, page 13. Replace the **n** with the appropriate Port ID when using the hotkey port switching.

Auto Scanning

The CS784H'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: 1. The **n** stands for the number of seconds that the CS784H 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.

2. 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.

3. To exit Auto Scan Mode with keyboard emulation enabled, 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 23.

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 18 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 17).

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

> **Note:** 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

An alternate way of activating port switching is by pressing the **[Ctrl]** key twice. To use the alternate port switching hotkeys, do the following:

1. Invoke HSM (see page 17).

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

> **Note:** This procedure is a toggle between the two methods. To revert back to the original **[Scroll Lock] [Scroll Lock]** method, go through the steps above.

Buzzer Control

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

1. Invoke HSM (see page 17).

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

   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 17).

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 25 for details.
[F10]	Enables Windows keyboard emulation.

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 17).

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 17).

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

Keyboard Language

To change the keyboard language, do the following:

1. Invoke HSM (see page 17).

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).

Hotkey Port Switching

To enable/disable hotkey port switching, do the following:

1. Invoke HSM (see page 17).

2. Press **[X] [Enter]**.

When disabled, port switching hotkeys **[Scroll Lock] [Scroll Lock]** (and the alternative **[Ctrl] [Ctrl]**) will not work.

Firmware Upgrade Mode

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

1. Invoke HSM (see page 17).

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

3. Press **[Enter]**. The front panel LEDs flash to indicate the upgrade has started.

> **Note:** 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 17).

2. Press **[R] [Enter]**.

> **Note:** All hotkey settings return to the factory default values (See *Hotkey Default Settings*, page 41).

Mouse Emulation

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

1. Invoke HSM (see page 17).

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 17).

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.

Power on Detection / Hotdesk Mode

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 17).

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

3. Press and release the appropriate Function key (see table below).

Function Key	Operation
0	Disables Power on Detection / Hotdesk Modes.
1	Enables Power on Detection.
2	Enables Hotdesk Mode.

N-Key Rollover Keyboard Supporting Function

To enable/disable N-key rollover keyboard supporting function, do the following:

1. Invoke HSM (see page 17).

2. Press **[K] [Enter]**.

Note: If you encounter any problem when using the BIOS when your computer is starting up, please turn off the N-Key rollover keyboard supporting function and then try again.

EDID

Extended Display Identification Data (EDID) is a data that contains a display's basic information and is used to communicate with the video source. The EDID mode allows you to set a pre-configured EDID for your connected display. To select a EDID mode, do the following:

1. Invoke HSM (see page 17).

2. Press **[V]**.

3. Press and release the appropriate Function key (see the table below).

4. Press **[Enter]**

Function Key	Operation
1	Sets the monitor EDID.
2	Sets the FHD mode EDID 1920 x 1080 @ 60 Hz.
3	Sets the 4K UHD mode EDID 3840 x 2160 @ 60 Hz.
4	Sets the 4K DCI mode EDID 4096 x 2160 @ 60 Hz.

HSM Summary Table

After invoking HSM (see page 17), key in one of the following keys to perform the corresponding function:

Key	Function
[B]	Enables/disables the buzzer.
[E] [n]	Enables/disables the power on detection feature or hotdesk mode. ◆ n = 0, disables power on detection / hotdesk modes. ◆ n = 1, enables Power on Detection. ◆ n = 2, enables Hotdesk Mode.
[H]	Toggles between the default and alternate HSM invocation keys.
[K] [Enter]	Enables/disables N-key rollover keyboard supporting function.
[M]	Enables/disables mouse emulation.
[N]	Enables/disables keyboard emulation.
[R] [Enter]	Resets the hotkey settings to their default statuses.
[T]	Toggles between the default and alternate Port Switching keys.
[U][P][G][R][A][D][E] [Enter]	Invokes Firmware Upgrade Mode.
[V] [n] [Enter]	Sets the EDID mode for the KVM switch. ◆ n = 1, sets the monitor EDID. ◆ n = 2, sets the FHD mode EDID 1920 x 1080 @ 60 Hz. ◆ n = 3, sets the 4K UHD mode EDID 3840 x 2160 @ 60 Hz. ◆ n = 4, sets the 4K DCI mode EDID 4096 x 2160 @ 60 Hz.
[W]	Enables/disables mouse port switching
[X] [Enter]	Enables/disables Hotkey Port Switching.
[F1]	Allows the keyboard and mouse to work under special operating systems as a standard (104 key) keyboard/mouse.

Key	Function
[F2]	Enables Mac keyboard emulation.
[F4]	Prints 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]	Enables Windows keyboard emulation.

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/global/en/support-and-downloads/downloads/

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 CS784H 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. Unzip the downloaded firmware upgrade package.

4. Power off the CS784H. Connect the USB cable's Type-A connector to a USB Type-A port on your computer.
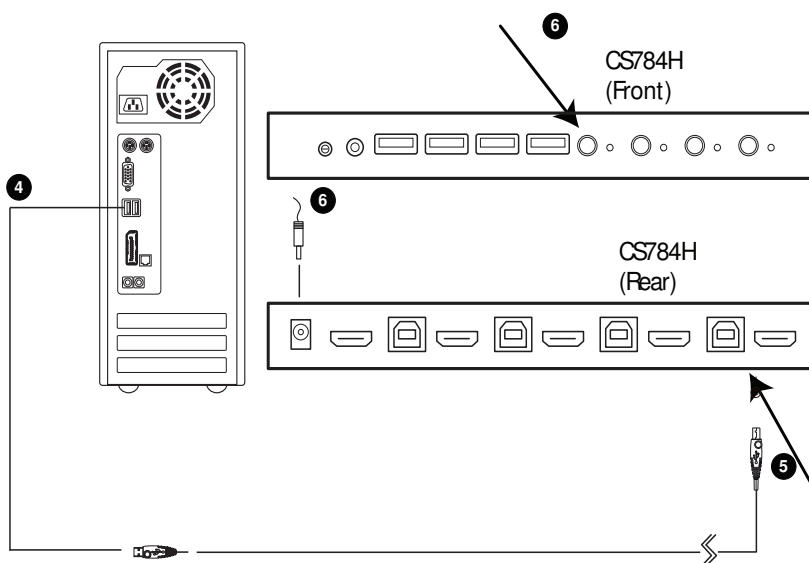
5. At the other end of the USB cable, connect the USB Type-B connector to the USB Type-B port in the Port 1 KVM section.

> **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.

6. Press and hold the Port 1 selection pushbutton. While you are holding the button, connect the power adapter to the CS784H to enter Firmware Upgrade Mode. The front panel LEDs flash together to indicate Firmware Upgrade Mode is in effect.

Starting the Upgrade

To upgrade your firmware:

1. Run the downloaded Firmware Upgrade Package file – either by double clicking the file icon, or by opening a command line and entering the full path to it.

   The *Firmware Upgrade Utility* Welcome screen appears:
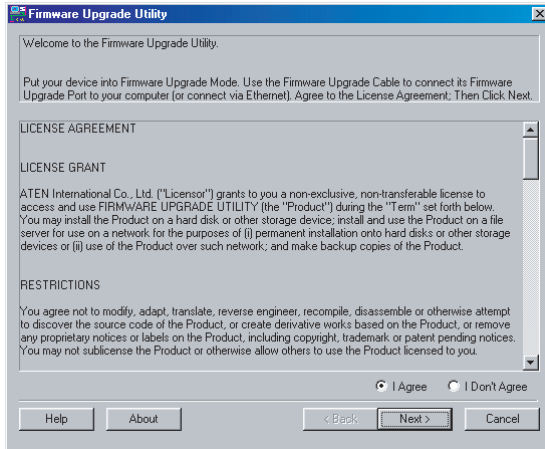
   Note: The screens shown in this section are for reference only. The wording and layout of the actual screens put up by the Firmware Upgrade Utility may vary slightly from these examples.
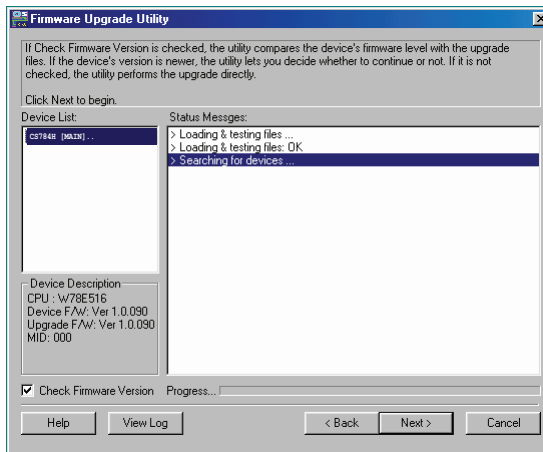
2. Read the License Agreement (enable the *I Agree* radio button).

3. Click **Next** to continue. The Firmware Upgrade Utility main screen appears:
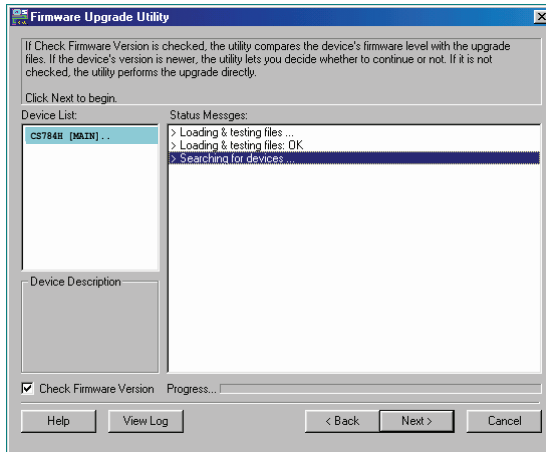
The Utility inspects your installation. All the devices capable of being upgraded by the package are listed in the *Device List* panel.

4. As you select a device in the list, its description appears in the Device Description panel.

5. After you have made your device selection(s), Click **Next** to perform the upgrade.
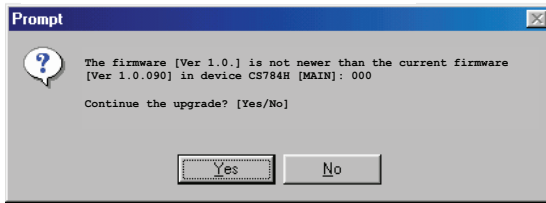
If you enabled Check Firmware Version, the Utility compares the device's firmware level with that of the upgrade files. If it finds that the device's version is higher than the upgrade version, it brings up a dialog box informing you of the situation and gives you the option to Continue or Cancel.

If you didn't 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 Succeeded

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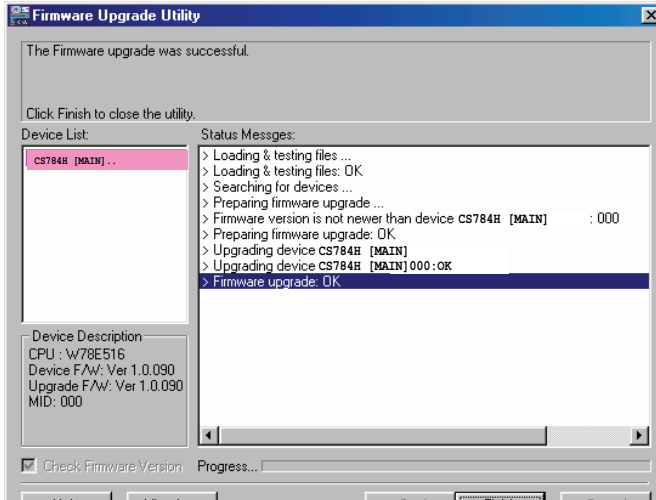
Click **Finish** to close the Firmware Upgrade Utility.

After a successful completion, the switches exit Firmware Upgrade Mode, and reset themselves.

Upgrade Failed

If the *Upgrade Succeeded* screen doesn't appear, it means that the upgrade failed to complete successfully, in which case you should do the following:

1. Power off the CS784H by removing the power jack.

2. Invoke Firmware Upgrade Mode by holding down the *Port 1 Selection* pushbutton on the front panel (see *port selection pushbuttons / port LEDs*, page 6) and power on the CS784H. The orange LEDs flash together.

3. Do the firmware upgrade procedure again.

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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 19), 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 v:

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			CS784H
Connections	Computer		4
	Console		1
Port Selection			Hotkey, Pushbutton, Mouse*, Remote Port Selector
Connectors	Console Ports	Keyboard	1 x USB Type-A Female
		Video	1 x HDMI Female (Black)
		Mouse	1 x USB Type-A Female
		Audio	1 x 3.5 mm Audio Jack Female (Green; Front)
	KVM Ports	KB / Mouse	4 x USB 2.0 Type-B Female (Blue)
		Video	4 x HDMI Female (Black)
	Power		1 x DC Jack
	USB Hub		2 x USB 2.0 Type-A Female (White; Front)
	Remote Port Selector		1 x 2.5 mm Audio Jack Female (Black)
Switches	Selected		4 x Pushbutton
LEDs	On Line / Selected		4 (Orange)
Emulation	Keyboard / Mouse		USB
Video			Up to 4096 x 2160 @ 60 Hz; 5120 x 1440 @ 60 Hz
Scan Interval			1-99 Seconds (Default: 5 secs)
Power Consumption			DC5V:1.73W:34BTU/h **Note:** ◆ The measurement in Watts indicates the typical power consumption of the device with no external loading. ◆ The measurement in BTU/h indicates the power consumption of the device when it is fully loaded.
Environment	Operating Temp.		0–40º C
	Storage Temp.		-20–60º C
	Humidity		0–80% RH, Non-condensing

Function		CS784H
Physical Properties	Housing	Metal, Plastic
	Weight	0.47 kg (1.04 lb)
	Dimensions (L x W x H)	20.23 x 8.17 x 2.50 cm (7.96 x 3.22 x 0.98 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] + [n] / [Scroll Lock] [Scroll Lock] + [Enter]
Invoking HSM	[Number Lock] [-]
Keyboard Emulation	Enabled
Mouse Emulation	Enabled
Auto Scan Interval	5 Seconds
Mouse Wheel Switching	Disabled
Power On Detection / Hotdesk Mode	Disabled
Keyboard Language Layout	English
Beeper	Enabled
Keyboard Operating Platform	Windows
Port Switching Keys	Enabled
Firmware Upgrade Mode	Disabled
N-Key Rollover	Enabled

ATEN Warranty Policy

The warranty policy may vary by roduct category and region of purchase. For details, please visit ATEN's official website, select your purchase counties/ regions and then go to the Support Center, or contact your local ATEN sales representative for further assistance.