



Simply Better Connections

CS724KM

4-Port USB KM 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.



KCC Statement

유선 제품용 / A 급 기기 (업무용 방송 통신 기기)
이 기기는 업무용 (A 급) 전자파적합기기로서 판매자 또는 사용자는 이
점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로
합니다.

Industry Canada Statement

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

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

RoHS

This product is RoHS compliant.

About this Manual

This user manual is provided to help you get the most from your CS724KM 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 CS724KM. 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 CS724KM.

Chapter 4, Hotkey Operation, details all of the concepts and procedures involved in the Hotkey operation of your CS724KM installation.

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

Chapter 6, Boundless Switching Configuration Utility, details installing and using the GUI based software used to configure your CS724KM installation.


Chapter 7, The Firmware Upgrade Utility, explains how to upgrade the CS724KM's firmware with the latest version available.

Chapter 8, RS-232 Commands, provides a complete list of the serial commands used to configure the CS724KM through the RS-232 Serial Port.

An Appendix, provides specifications and other technical information regarding the CS724KM.

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 <i>Start</i> menu, and then select <i>Run</i> . |
|  | Indicates critical information. |

Package Contents

The CS724KM package consists of:

- ◆ 1 CS724KM 4-Port USB KM Switch
- ◆ 4 USB Type-A to USB Type-B cables
- ◆ 4 audio cables
- ◆ 1 user instructions*

*Features may have been added to the CS724KM since this manual was printed. Please visit our website to download the most up-to-date version of the manual.

Check to make sure that all the components are present and that nothing got damaged in shipping. If you encounter a problem, contact your dealer. Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the unit, and/or any of the devices connected to it.

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

User Information

Online Registration

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

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

For telephone support, call this number:

International	886-2-8692-6959
China	86-400-810-0-810
Japan	81-3-5615-5811
Korea	82-2-467-6789
North America	1-888-999-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.**

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Chapter 1

Introduction

Overview

The CS724KM is a 4-port USB KM Switch that enables users to control up to 4 computers with a single keyboard and mouse. Two switches can be daisy-chained to enable control of up to 8 computers from a single console.

The CS724KM features various innovative port selection methods. Users can switch between the connected computers via front panel pushbutton, keyboard hotkey, mouse cursor, mouse wheel, and RS-232 commands. The mouse cursor method adopts ATEN's exclusive Boundless Switching technology, which provides an intuitive way to switch control to another computer by simply moving your mouse cursor across a screen border and onto the target computer display. Move the mouse cursor in any direction to switch the control focus without limitations.

The CS724KM's Boundless Switching function supports extended desktops with up to sixteen monitors total, expediting the process of switching between computers for a smooth and hassle-free user experience. In addition to making multitasking across multiple displays more efficient, this function is especially useful in emergencies that necessitate the immediate monitoring and management of computers.

The CS724KM also provides an intuitive GUI-based configuration utility that allows users to customize their mouse cursor movement paths according to the specific monitor layout at the desktop or workstation. The configuration tool is easy to set up and compatible with Windows operating systems.

Further advanced features of the CS724KM include bus-power mode which means no external power adapter is required, as well as independent switching of the keyboard/mouse, USB peripheral, and audio focus via hotkeys. With a rich feature set, the CS724KM is designed to simplify administrative tasks, save space, and increase work productivity in multi-monitor extended desktop environments, and is especially suitable for complex multitasking applications in control rooms in any industry.

Features

- ◆ Single USB keyboard and mouse controls up to 4 computers
- ◆ Daisy-chain two CS724KM units to control up to 8 computers with a single keyboard and mouse
- ◆ Boundless Switching – simply move the mouse cursor across the display border and onto the corresponding display of the target computer to switch the keyboard/mouse operations from one computer to the next
- ◆ Boundless Switching Configuration Utility¹ – an intuitive GUI tool that enables users to customize monitor layouts
- ◆ Boundless Switching Focus² – a window frame to indicate which computer that it currently has the focus
- ◆ Extended Desktops Boundless Switching up to 16 monitors³
- ◆ Port selection via front panel pushbutton, keyboard hotkey, mouse cursor, mouse wheel⁴, and RS-232 commands
- ◆ Independently switch keyboard/ mouse, USB peripheral, and audio focus via hotkeys
- ◆ Supports RS-232 serial commands
- ◆ Supports Windows and Linux operating systems⁵
- ◆ No software required⁶
- ◆ Bus-powered – no external power adapter required⁷

Note: 1. The utility can be installed on a separate management PC or under the CS724KM.

2. It is required to upgrade the CS724KM firmware and Driver AP software for Boundless Switching Focus to work. See *Software and Firmware Versions*, page 4.
3. It is required to upgrade the CS724KM firmware, the Boundless Switching Configuration Utility, and the Driver AP software. See *Software and Firmware Versions*, page 4.
4. Mouse port switching is only supported under mouse emulation mode with a USB 3-button mouse wheel.
5. It is required to upgrade CS724KM firmware and the Driver AP software to work on a Linux operating system. See *Software and Firmware Versions*, page 4.

6. It is required to download and install the Driver AP software on the connected computers for extended desktops boundless switching to work.
7. The USB bus-powered design allows the switch to get power from the connected computers. It requires connection to at least two computers to get sufficient power supply.

Requirements

Console

- ◆ A USB mouse
- ◆ A USB keyboard
- ◆ Speakers

Computers

The following equipment must be available on each computer:

- ◆ Video Display
- ◆ USB Type-A port
- ◆ Audio ports

Operating Systems

OS		Version
Windows		7 / 10 and higher
Linux	Cent OS	7.0 and higher
	Ubuntu	16.0 and higher
	Red Hat Enterprise	7.0 and higher
	Kylin OS	7.0
	Linx	6.0.80
	Astra Linux	2.12

Note: The CS724KM is only compatible with Linux 64 bit operating system.

Software and Firmware Versions

Below lists some of the key features of the CS724KM. Please upgrade the CS724KM's firmware version, Boundless Switching Configuration Utility, and Driver AP software version as listed below to use these features.

Windows Operating Systems

Features	Firmware	Utility	Driver AP
◆ Extended Desktop Boundless Switching	v1.1.102 or higher	v1.0.067 or higher	v1.0.062 or higher
◆ Extended Desktop Boundless Switching	v1.1.106 or higher	v1.0.068 or higher	v1.0.066 or higher
◆ Boundless Switching Focus			
◆ Keep Awake Option			

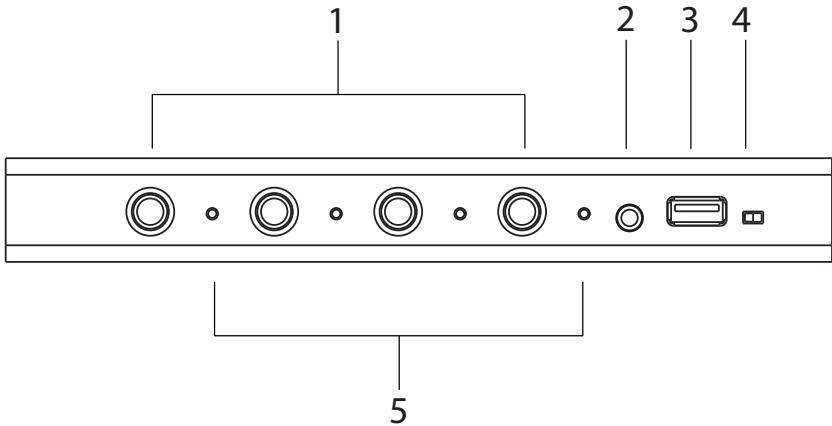
Linux Operating Systems

To work on a Linux operating system, it is required to upgrade CS724KM's firmware version to v1.1.106 or higher, and the Driver AP software v1.0.065 or higher.

Features	Firmware	Utility	Driver AP
◆ Extended Desktop Boundless Switching	v1.1.106 or higher	v1.0.068 or higher	v1.0.065 or higher
◆ Boundless Switching Focus			
◆ Keep Awake Option			

Components

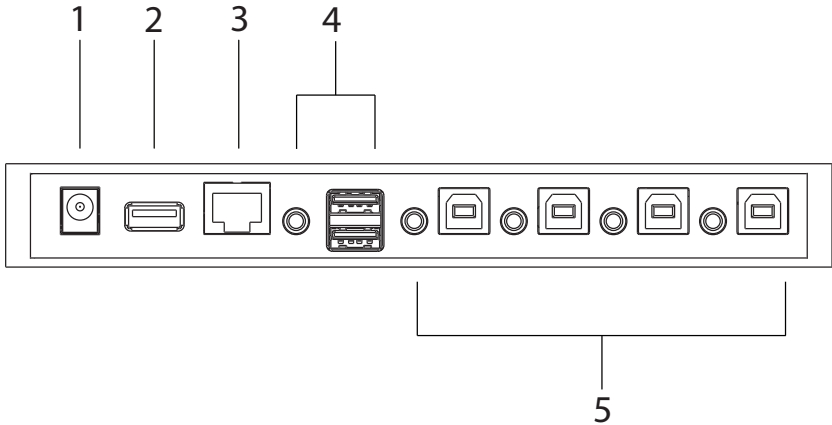
CS724KM Front View



No.	Component	Description
1	port selection pushbuttons	For manual port selection, press a port selection pushbutton to bring the KM focus to the computer attached to its corresponding port. Note: Port selection pushbuttons will be disabled when the Driver AP is running.
2	audio port	The cables from your speakers plug in here. The speakers plugged in here have priority over those on the rear panel.
3	USB peripheral port	USB peripherals (printers, scanners, drives etc.) plug into this port.

No.	Component	Description
4	station switch	<p>The station switch sets the function of the CS724KM. The default position for normal operation is P. The S position is utilized when an RS-45 cable is connected to the serial port and can be used for two separate functions:</p> <ul style="list-style-type: none">◆ Slide the switch to the S position to send RS-232 commands to the unit (see page 63); or◆ Slide the switch to the S position on the second stage unit in a daisy chain installation (see page 12). The first stage unit in a daisy chain installation should be set to P.
5	port LEDs	<p>The four port LEDs are built into the front panel.</p> <ul style="list-style-type: none">◆ Lights green to indicate that the computer attached to its corresponding port is the one that has the keyboard / mouse, USB hub and audio focus.◆ Flashes green once every 0.5 seconds to indicate that the CS724KM is running with insufficient power supply.

CS724KM Rear View



No.	Component	Description
1	power jack	The power adapter cable (not included in the package) plugs into this jack.
2	USB peripheral port	USB peripherals (printers, scanners, drives etc.) plug into this port.
3	serial port	This RJ-45 port is used to send serial commands (see <i>RS-232 Commands</i> , page 63) and setup daisy chain installations (see <i>Daisy Chain Installation</i> , page 12).
4	console ports	The cables from your USB keyboard, USB mouse, and speakers plug in here. Each connector is marked with an appropriate icon to indicate its use. The front panel's audio port has priority over that on the rear panel.
5	PC ports	The cables that link the switch to your computers plug in here. Each KM port section is comprised of a speaker jack, and USB Type-B socket.

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Chapter 2

Hardware Setup



1. Important safety information regarding the placement of this device is provided on page 79. 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.

Single Stage Installation

To set up your installation, refer to the installation diagram on page 11 (the numbers in the diagram 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 speakers into the console speaker jack located on the front panel.
3. (Optional) Plug your secondary speakers into the audio port located on the unit's rear panel. The front audio port has priority over that on the rear.
4. Using the cables provided with this package, plug the USB and speaker connectors into their corresponding ports in the PC ports section.
5. At the other ends of the cables, plug the USB and speaker connectors into their respective ports on the computers. Be sure the monitors are connected to their respective computers.
6. (Optional) Plug your USB peripherals into the USB Type-A ports located on the unit's front and rear panel.
7. (Optional) Plug an RJ-45 cable to the serial port to use RS-232 commands to control the switch (see *RS-232 Commands*, on page 63).

8. (Optional) Plug a power adapter into the switch's power jack and then plug the other end into an AC power source.*

Note: A power adapter is not provided with the package as the USB bus-power allows the switch to get power from the computers. It requires connection to at least two computers to get a sufficient power supply.

9. Power on the computers.

Note: Make sure the computers and devices that the CS724KM connects to are also properly grounded.

Installation Diagram

CS724KM (Front)



CS724KM (Rear)



Daisy Chain Installation

To control even more computers, one additional CS724KM unit can be daisy chained from the first stage unit.

To set up a daisy chain installation, refer to the installation diagram on page 13 (the numbers in the diagram correspond to the steps below), and do the following:

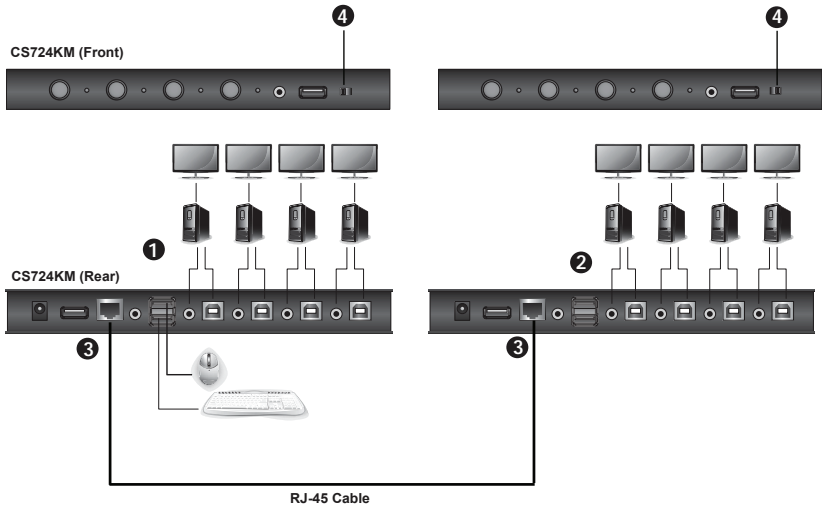
1. Cable up the computers according to the information provided under *Single Stage Installation*, page 9.
2. Repeat the step above for the Second Stage unit. When setting up the second stage unit, there is no need to connect a keyboard and mouse to the console ports (see Note 2, below).
3. Use an RJ-45 cable to connect the serial port on the primary unit to the serial port on the secondary unit.
4. On the primary unit, set the station switch to **P**. On the secondary unit, set the station Switch to **S**.

-
- Note:**
1. In a daisy-chained installation, set one station switch to **P** and the other to **S**. If the station switch on both CS724KM units are set to the same position (**P** or **S**), the console on both CS724KM units will not work.
 2. If two CS724KM units are connected with a console (keyboard/mouse), the console on the primary unit can control all computers connected to the primary and the secondary units; however, the console on the secondary unit will not be able to control any computers on the installation.
 3. The maximum RJ-45 cable length is 150 meters.
-

5. After both units are up, power on the computers.

Note: Make sure the computers and devices that the CS724KM connects to are also properly grounded.

Installation Diagram



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Chapter 3

Basic Operation

Port Selection

There are five 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; Boundless Switching – by moving the mouse cursor across display borders; and RS-232 – by entering serial commands.

Manual Switching

For manual port selection:

- ◆ Press and release a port selection pushbutton to bring the KM, USB hub and audio focus to the computer attached to its corresponding port.

Note: Pushbuttons will be disabled when the Driver AP is running.

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 26, to enable mouse switching.
 3. Mouse Emulation must be enabled. See *Mouse Emulation*, page 26.
 4. Mouse switching will be disabled when the Driver AP is running.
-

Hotkey Switching

For Hotkey port selection: All port switches from the keyboard begin by pressing the Scroll Lock key twice (see *Port Switching*, page 19).

Note: Hotkey switching will be disabled when the Driver AP is running.

Boundless Switching

Boundless Switching is for port selection by moving the cursor across the display borders – when the cursor appears on the next screen, the KM focus switches. Before using Boundless Switching, you must turn off mouse acceleration in the operating system and configure:

- ♦ The screen size of all connected displays via hotkey (page 27), or the Boundless Switching Configuration Utility (page 39); and
- ♦ The monitor layout via hotkey (page 28), or the Boundless Switching Configuration Utility (page 39).

Note: Hotkey [P] and [L] will be removed for extended desktops boundless switching with firmware v1.1.102 or higher.

RS-232 Commands Switching

For RS-232 Serial Command port switching, see *RS-232 Commands*, page 63.

Note: RS-232 command port switching will be disabled when the Driver AP is running.

Port ID Numbering

Each KM port section on the switch is assigned a port number 1 to 4. The port numbers are marked (CPU 1, CPU 2, CPU 3, and CPU 4) on the rear panel of the switch. The Port ID of a computer is derived from the KM port number it is connected to. For example, a computer connected to KM port 2 has a Port ID of 2. The Port ID is used to specify which computer gets the KM, USB hub, and audio focus with the Hotkey port selection method (See *Going Directly to a Port*, page 21 for details).

Under daisy chain installation, the KM port section on the switch is assigned a port number 1 to 4 on a Primary CS724KM, and a Secondary CS724KM with port number (1=5, 2=6, 3=7, and 4=8).

Hot Plugging

The CS724KM 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. Power on the computers.

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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 KM installation from the keyboard. Hotkeys also provide asynchronous independent switching of the keyboard/mouse, USB hub, and audio focus. Therefore, you can give one computer the keyboard/mouse focus, another the USB hub focus, while a third has the audio focus.

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:** 1. 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 23, for details.
2. Port Switching will be disabled for extended desktops boundless switching when the Driver AP is running.
-

Cycling Through the Ports

Hotkey	Action
[Scroll Lock] [Scroll Lock] [Enter]	Brings the KM , USB hub , and audio focus from the port that currently has it to the next port on the installation (1 to 2; 2 to 3; 3 to 4; 4 to 1). The KM, 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 KM focus from the port that currently has it to the next port on the installation. The USB hub and audio focus remain where they are.

Switching the Ports with Mouse Cursor

[Scroll Lock] [Scroll Lock] [K] [U] [Enter]	Brings the KM and USB hub focus from the port that currently has it to the next port on the installation with the mouse cursor. The audio focus remains where it is.
[Scroll Lock] [Scroll Lock] [K] [S] [Enter]	Brings the KM and audio focus from the port that currently has it to the next port on the installation with the mouse cursor. The USB hub focus remains where it is.
[Scroll Lock] [Scroll Lock] [K] [K] [Enter]	Brings only the KM focus from the port that currently has it to the next port on the installation with the mouse cursor. The USB hub and audio focus remains where it is.

Going Directly to a Port

Hotkey	Action
[Scroll Lock] [Scroll Lock] [n] [Enter]	Brings the KM , USB hub , and audio focus to the computer attached to the port corresponding to the specified Port ID. The KM, USB hub, 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 KM focus to the computer attached to the specified port. The USB hub and audio focus remain where they are.
[Scroll Lock] [Scroll Lock] [n] [K] [U] [Enter]	Brings the KM and USB hub focus to the computer attached to the specified port. The audio focus remains where it is.
[Scroll Lock] [Scroll Lock] [n] [K] [S] [Enter]	Brings the KM and audio focus to the computer attached to the specified port. The USB hub focus remains where it is.

- Note:** 1. The **n** stands for the computer's Port ID number (1, 2, 3, or 4). See *Port ID Numbering*, page 16. Replace the **n** with the appropriate Port ID when entering hotkey combinations.
2. Under daisy chain installation, the **n** stands for the computer's Port ID number (1, 2, 3, or 4) from a Primary CS724KM, and Secondary CS724KM with computer's Port ID number (1=5, 2=6, 3=7, and 4=8). See *Port ID Numbering*, page 16. Replace the **n** with the appropriate Port ID when entering hotkey combinations.

Hotkey Setting Mode

Hotkey Setting Mode is used to configure the CS724KM. All operations begin with invoking Hotkey Setting Mode (HSM).

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 23 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**] key.

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 22).
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 22).
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 22).
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. To enable / disable windows keyboard emulation:

1. Bring the KM focus to the port you want to set.
2. Invoke HSM (see page 22).
3. Press and release the Function key (see table below). After completing this procedure, you automatically exit HSM.

Function Key	Operation
[F1]	Sets the SPC mode so that it can work under special operating systems as a standard (104 key) keyboard.
[F2]	Enables Mac keyboard emulation, see page 37, for details.
[F3]	Enables Sun keyboard emulation, see page 38, for details.
[F10]	Enables Windows keyboard emulation.

Note: When the Driver AP is turned on, the [F1], [F2], [F3], and [F10] hotkey operations are disabled.

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 22).
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 22).
2. Press and release **[F5]**.

Keyboard Language

To change the keyboard language, do the following:

1. Invoke HSM (see page 22).
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 22).
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 22).
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 22).
2. Press **[R] [Enter]**.

All hotkey settings return to the factory default values (See *Hotkey Default Settings*, page 84).

Note: When the Driver AP is turned on, this hotkey operation will be disabled.

Mouse Emulation

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

1. Invoke HSM (see page 22).
2. Press [M].

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

Note: This hotkey operation will be disabled under daisy chain installation.

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 22).
2. Press [W].

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

Note: 1. 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.

2. This hotkey operation will be disabled for a secondary CS724KM under daisy chain installation.
-

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 22).
2. Press [N].

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

Note: 1. When keyboard emulation is disabled, the [M], [Q], [W], [F2], [F4], [F5], [F6], and [F10] hotkey operations are disabled.

2. This hotkey operation will be disabled under daisy chain installation
-

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 22).
2. Press and release **[E]**.

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

Screen Size

Sets the screen size of each monitor so that the CS724KM knows to switch computers when the mouse cursor moves from one computer's screen to the next. You can also use the Boundless Switching Configuration Utility to set the screen size (see *Configuration Utility*, page 44). To set the screen size, do the following:

1. Bring the KM focus to the port you want to set up.
2. Invoke HSM (see page 22).
3. Press **[L]**.
4. In the upper left corner of the display, click the left mouse button and hold it down while you move the cursor to the bottom right corner of the display, and then release.

Two beeps signify the operation was successful.

5. Repeat this procedure for each monitor connected to your installation.

-
- Note:**
1. If the display's resolution changes, you must reset the screen size to the correct resolution or Boundless Switching may not work correctly.
 2. This hotkey will be removed for extended desktops boundless switching with CS724KM's firmware version v1.1.102 or higher.
-

Monitor Layout

Sets the physical layout of the monitors allowing the CS724KM to switch to the correct computer when the mouse cursor moves off a screen to the right, left, up, down or diagonally (see page 39). Before using Boundless Switching you must first configure the screen size of each display via hotkey (*Screen Size*, page 27), or via the Boundless Switching Configuration Utility (*Resolution*, page 47).

You must disable mouse acceleration in the Windows Control Panel for Boundless Switching to work.

Note: This hotkey will be removed for extended desktops boundless switching with CS724KM's firmware version v1.1.102 or higher.

To set the layout, do the following:

1. Invoke HSM (see page 22).
2. Type in the layout using the parameters below:

Parameter	Row	Monitor	No Monitor
P	A	1, 2, 3, 4	O
	B	1, 2, 3, 4	
	C	1, 2, 3, 4	
	D	1, 2, 3, 4	

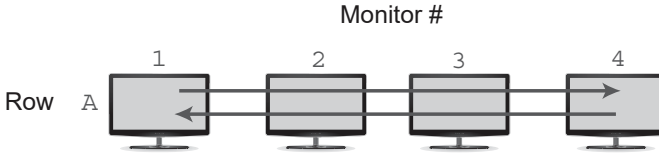
Parameter refers to the letter “P” which all commands must begin with (PA12B34). **Row** refers to a group of displays aligned together, each letter represents a row: A, B, C, D. **Monitor** refers to a display in each row: 1, 2, 3, 4. Enter the number in order as it appears in the layout, left-to-right, beginning with Row A. The number represents the computer connected to a port # on the CS724KM. **No Monitor** is used when displays are stacked in odd numbers, such as 1 display installed above 3 displays, in the first row with one display you must signify where the two empty slots are located with: 0 (example: PA010B234).

Examples are provided beginning on the next page with different layouts and arrows showing where the mouse cursor can cross display borders to switch computers.

Example 1

To key in a layout, enter "P" followed by "A" and a number for each display. If you have four displays in one row, type: **PA1234 [Enter]**.

1 x 4 Monitor Layout

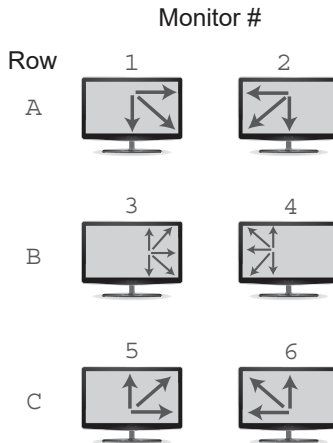


Press: PA1234 [Enter]

Example 2

Additional rows use the next letter (B, C, D) and continue adding displays by number. With six displays, in three rows, type: **PA12B34C56 [Enter]**.

3 x 2 Monitor Layout

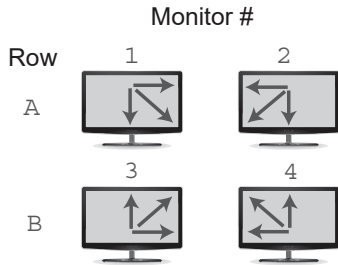


Press: PA12B34C56 [Enter]

Note: The example above requires two CS724KM units in a daisy-chain, as any setup with more than 4 computers (see *Daisy Chain Installation*, page 12).

Example 3

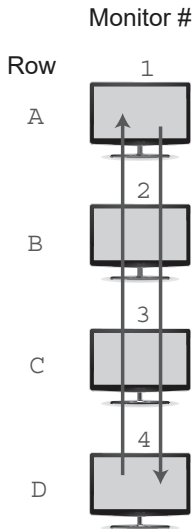
2 x 2 Monitor Layout



Press: PA12B34 [Enter]

Example 4:

4 x 1 Monitor Layout

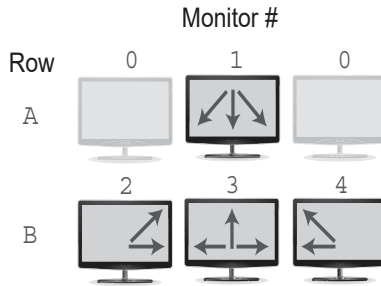


Press: PA1B2C3D4 [Enter]

Example 5:

2 x 3 Monitor Layout

No Monitors 1st & 3rd Slot of Row A

**Press: PA010B234 [Enter]****Keep Awake Option**

To keep the connected computers awake from sleep mode, do the following:

1. Invoke HSM (see page 22).
2. Press **[I] [n] [Enter]**.

Note: *n* is an number that represents a keep awake option.

- ◆ *n* = 1, the connected computers always stay on.
 - ◆ *n* = 2, the connected computers stay on while being operated.
-

Boundless Switching Focus

To toggle between boundless switching focus enabled and disabled, do the following:

1. Invoke HSM (see page 22).
2. Press **[O] [Enter]**.

To set a duration for the enabled boundless switching focus, do the following:

1. Invoke HSM (see page 22).
2. Press **[O] [*n*] [Enter]**.

Note: *n* is an number that represents a boundless switching focus duration.

- ♦ $n = 0$, the boundless switching focus lights and stays on.
 - ♦ $n = 1$, the boundless switching focus lights on for 3 seconds.
 - ♦ $n = 2$, the boundless switching focus lights on for 5 seconds.
 - ♦ $n = 3$, the boundless switching focus lights on for 10 seconds.
-

Cycle Port Switching

The Cycle Port Switching allows the boundless switching to switch port to the next available port before the mouse cursor reach to the edge of the display.

Example is provided below with arrows showing where the mouse cursor can cross display borders to switch computers.

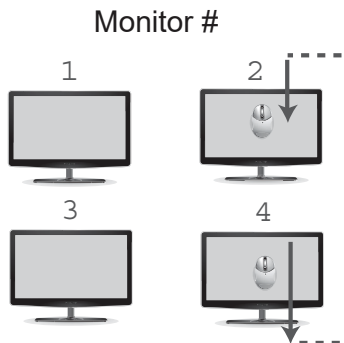
To toggle between cycle port switching enabled and disabled, do the following:

1. Invoke HSM (see page 22).
2. Press [C] [Enter].

-
- Note:**
1. If the Driver AP version is v1.0.062, the Cycle Port Switching enables automatically when the Driver AP is turned on.
 2. If the Driver AP version is v1.0.065 or higher, the Cycle Port Switching can be enabled/disabled.
 - Enable: The Cycle Port Switching enables automatically when the Driver AP is turned on.
 - Disable: The Cycle Port Switching remain disabled when the Driver AP is turned on.
-

Example 1

Moving the mouse cursor to the bottom of monitor 4 to switch port to monitor 2.



HSM Summary Table

After invoking HSM (see page 22), key in one of the following keys to perform the corresponding function:

Note: For hotkey default settings, *Hotkey Default Settings*, page 84.

Key	Function
[B]	Toggles the beeper On and Off.
[C]	<p>Enable/Disable the Cycle Port Switching feature.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. If the Driver AP version is v1.0.062, the Cycle Port Switching enables automatically when the Driver AP is turned on. 2. If the Driver AP version is v1.0.065 or higher, the Cycle Port Switching can be enabled/disabled. <ol style="list-style-type: none"> a) Enable: The Cycle Port Switching enables automatically when the Driver AP is turned on. b) Disable: The Cycle Port Switching remain disabled when the Driver AP is turned on.
[E]	Enable/Disable the Power on Detection feature.
[H]	Toggles between the default and alternate HSM invocation keys.
[I] [n] [Enter]	<p>Enable/Disable the Keep Awake Option, the [n] sets an option to keep the connected computers awake from sleep mode.</p> <ul style="list-style-type: none"> ◆ n = 1, the connected computers always stay on ◆ n = 2, the connected computers stay on while being operated.
[L]	<p>Start screen size configuration.</p> <p>Note: This hotkey will be removed for extended desktops boundless switching with CS724KM's firmware version v1.1.102 or higher.</p>
[M]	<p>Enable/Disable mouse emulation.</p> <p>Note: This hotkey will be disabled under daisy chain installation.</p>

Key	Function
[N]	Enable/Disable keyboard emulation. Note: This hotkey will be disabled under daisy chain installation.
[O]	Enable/Disable the Boundless Switching Focus.
[O] [n] [Enter]	Enable/Disable the boundless switching focus, the [n] sets a duration for the boundless switching focus. <ul style="list-style-type: none"> ◆ n = 0, the boundless switching focus lights and stays on ◆ n = 1, the boundless switching focus lights on for 3 seconds ◆ n = 2, the boundless switching focus lights on for 5 seconds ◆ n = 3, the boundless switching focus lights on for 10 seconds
[P] [Layout Formula]	Configures the physical monitor layout for Boundless Switching. Note: This hotkey will be removed for extended desktops boundless switching with CS724KM's firmware version v1.1.102 or higher.
[R] [Enter]	Resets the hotkey settings to their default statuses. Note: This hotkey will be disabled when the Driver AP is turned on.
[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. Note: This hotkey will be disabled for a secondary CS724KM under daisy chain installation.
[X] [Enter]	Enable/Disable the Port Switching keys.
[F1]	Sets the keyboard and mouse to SPC mode so that it can work under special operating systems as a standard (104 key) keyboard and mouse. Note: This hotkey will be disabled when the Driver AP is turned on.









Key	Function
[F2]	Enables Mac keyboard emulation. Note: This hotkey will be disabled when the Driver AP is turned on.
[F3]	Enables Sun keyboard emulation. Note: This hotkey will be disabled when the Driver AP is turned on.
[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. <i>nn</i> represents one of the following keyboard language codes: US English: 33; French: 08; Japanese: 15; German: 09.
[F10]	Enables/Disables Windows keyboard emulation. Note: This hotkey will be disabled when the Driver AP is turned on.

Chapter 5

Keyboard Emulation

Mac Keyboard








The PC compatible (101/104 key) keyboard can emulate the functions of the 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.

Sun Keyboard

The PC compatible (101/104 key) keyboard can emulate the functions of the Sun keyboard when the control key [Ctrl] is used in conjunction with other keys. The corresponding functions are shown in the table below.

PC Keyboard	Sun Keyboard
[Ctrl] [T]	Stop
[Ctrl] [F2]	Again
[Ctrl] [F3]	Props
[Ctrl] [F4]	Undo
[Ctrl] [F5]	Front
[Ctrl] [F6]	Copy
[Ctrl] [F7]	Open
[Ctrl] [F8]	Paste
[Ctrl] [F9]	Find
[Ctrl] [F10]	Cut
[Ctrl] [1]	
[Ctrl] [2]	
[Ctrl] [3]	
[Ctrl] [4]	
[Ctrl] [H]	Help
	Compose
	

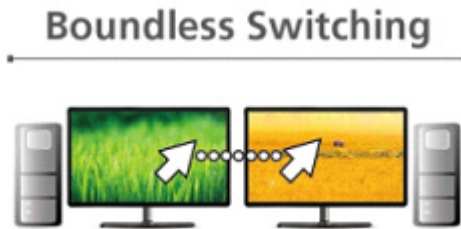
Note: When using key combinations, press and release the first key (Ctrl), then press and release the activation key.

Chapter 6

Boundless Switching Configuration Utility

Boundless Switching

Boundless Switching allows the CS724KM to switch computers by sliding the mouse cursor across the screen borders. Just move the mouse cursor over the screen border of one computer to access the desktop of another.



The mouse cursor can be moved **up**, **down**, **left**, **right**, or **diagonal** – off one screen and onto another to switch keyboard/mouse control to the adjacent computer. The audio and USB hub focus is also switched to the new computer.

The Boundless Switching Configuration Utility is a GUI-based application that provides management of the physical layout of displays. The utility tells the CS724KM where the monitors are located in your setup so that it can switch to the correct computer when the mouse cursor moves off one screen and onto another.

Before using Boundless Switching you must first configure the screen size of each display. You can configure the screen size via hotkey (see *Screen Size*, page 27), or via the Boundless Switching Configuration Utility (see *Resolution*, page 47).

You must disable mouse acceleration in the Windows Control Panel for Boundless Switching to work. A boundless switching focus appears on a computer that it currently has the focus, to indicate which computer the user is working on. The boundless switching focus can be disabled and adjusted via hotkey, and Boundless Switching Configuration Utility. For more information, see page 32 for hotkey, page 46, and page 53 for Boundless Switching Configuration Utility.

For extended desktops boundless switching, it is required to upgrade CS724KM's firmware version to v1.1.102 or higher, and the Boundless Switching Configuration Utility version to v1.0.067 or higher, and also download and install the Driver AP software on the connected computers.

Download and Install

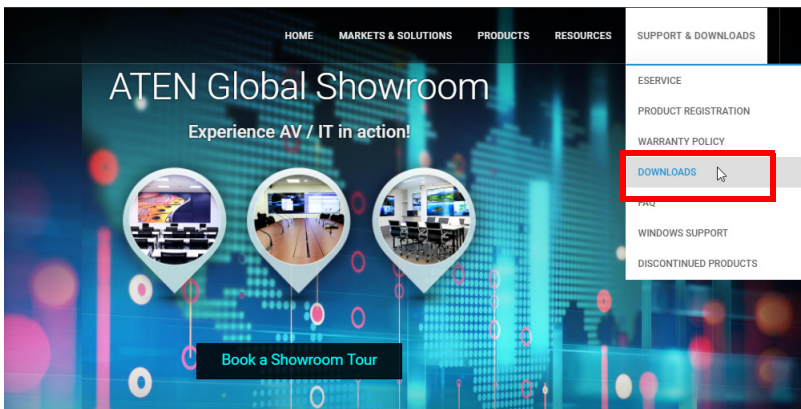
You can download the *Boundless Switching Configuration Utility* software for free from the ATEN website.

Note: You can install the Boundless Switching Configuration Utility software on a separate management PC or under the CS724KM.

Windows Operating System

To download and install the software, do the following:

1. Visit our website and click **Support & Downloads** → **Downloads**.



2. Under *Download materials for other products*, type **CS724KM**.

Download materials for other products

[? How to find the product series number on products](#)

Or

Find your products by product category

3. Click **Go**.
4. Below *Software& Drivers*, download the required Boundless Switching Configuration Utility version.

Note: 1. If you wish to use extended desktops boundless switching, please download the Boundless Switching Configuration Utility version v1.0.067 or higher.

2. Boundless Switching Configuration Utility version v1.0.066 and v1.0.067 are incompatible due to the extended desktops boundless switching capability, users must reconfigure separately after the upgrades.
-

5. Unzip the files, and double-click:
Aten_CS724KM_Boundless_Switching_Configuration_Utility.exe
6. Follow instructions to install the Boundless Switching Configuration Utility.
7. (Optional) If you are using the extended desktops boundless switching, continue onto step 8.
8. Below *Firmware*, download the and install the CS724KM's firmware version v1.1.102 or higher. For more information, see *The Firmware Upgrade Utility*, page 57.

Note: Hotkey [P] and [L] will be removed for extended desktops boundless switching with CS724KM's firmware version v1.1.102 or higher.

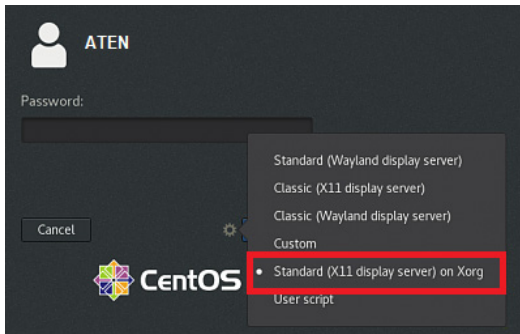
9. Below *Software & Drivers*, download and install the Driver AP software v1.0.062 to the connected computers.

-
- Note:**
1. The Driver AP software is for Window operating system only.
 2. Pushbuttons and hotkey switching will be disabled when the Driver AP is running.
 3. The Driver AP enables automatically when the Driver AP installed computer is powered on.
 4. For extended desktop boundless switching, Driver AP must be installed to all the connected computers.
-

Installing the Driver AP for Linux

To install the Driver AP on a 64 bit Linux operating system, do the following:

Note: For Linux Cent OS 8 users, please switch to *Standard (X11 display server) on Xorg* instead of the default Standard (Wayland display server).



1. Open a terminal from your Linux PC, and log in as a root user by entering *su* and password, then press enter.

```
root@administrator-A790GXM-AD3: /home/administrator/Desktop/CS724KM_Extended_AP_V1.0.065/Extended_Driver_AP
administrator@administrator-A790GXM-AD3:~/Desktop/CS724KM_Extended_AP_V1.0.065/Extended_Driver_AP$ su
root@administrator-A790GXM-AD3: /home/administrator/Desktop/CS724KM_Extended_AP_V1.0.065/Extended_Driver_AP#
```

2. Unzip the files.
3. From the terminal, enter *./install.sh*, then press enter.

```
root@administrator-A790GXM-AD3: /home/administrator/Desktop/CS724KM_Extended_AP_V1.0.065/Extended_Driver_AP
administrator@administrator-A790GXM-AD3:~/Desktop/CS724KM_Extended_AP_V1.0.065/Extended_Driver_AP$ su
Password:
root@administrator-A790GXM-AD3:/home/administrator/Desktop/CS724KM_Extended_AP_V1.0.065/Extended_Driver_AP# ./install.sh
Start installing..
(Reading database ... 203057 files and directories currently installed.)
Preparing to unpack libxd3_3.20160805-1.4_and64.deb ...
Unpacking libxd3:amd64 (1:3.20160805-1.4) over (1:3.20160805-1.4) ...
Setting up libxd3:amd64 (1:3.20160805-1.4) ...
Processing triggers for libc-bin (2.24-9ubuntu2.2) ...
(Reading database ... 203057 files and directories currently installed.)
Preparing to unpack xdotool_3.20160805-1.4_and64.deb ...
Unpacking xdotool (1:3.20160805-1.4) over (1:3.20160805-1.4) ...
Setting up xdotool (1:3.20160805-1.4) ...
Processing triggers for man-db (2.7.6-1-2) ...
Install success!
Please Restart your PC and Run Extended AP.
root@administrator-A790GXM-AD3:/home/administrator/Desktop/CS724KM_Extended_AP_V1.0.065/Extended_Driver_AP#
```

4. After the installation process is complete, restart your PC.
5. Open a terminal, enter `./Extended_Driver_AP`, and press enter to run the utility.

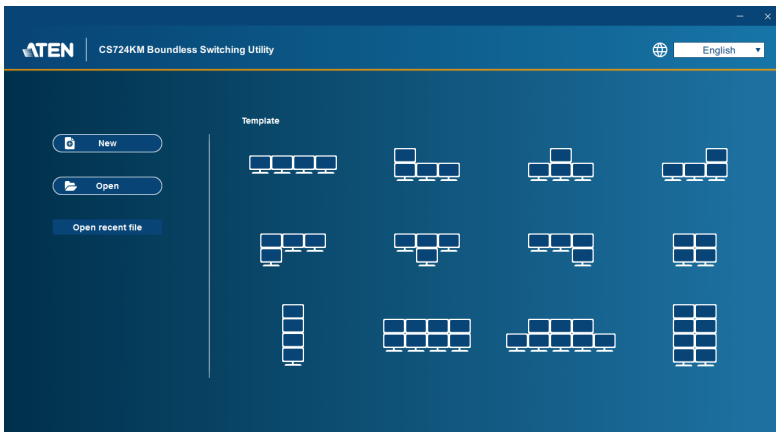
```
root@administrator-A790GXM-AD3: /home/administrator/Desktop/CS724KM_Extended_AP_V1.0.065/Extended_Driver_AP
root@administrator-A790GXM-AD3:/home/administrator/Desktop/CS724KM_Extended_AP_V1.0.065/Extended_Driver_AP# ./Extended_Driver_AP
```

Configuration Utility

Boundless Switching

The *Boundless Switching Configuration Utility* helps you configure the layout **position** and **screen size** of each display. The Boundless Switching Configuration Utility can operate on a computer not connected to the CS724KM, but profiles cannot be uploaded for use unless the computer is physically connected to the CS724KM.

Double-click the *Aten CS724KM Boundless Switching Configuration Utility.exe* application to open the Main page:

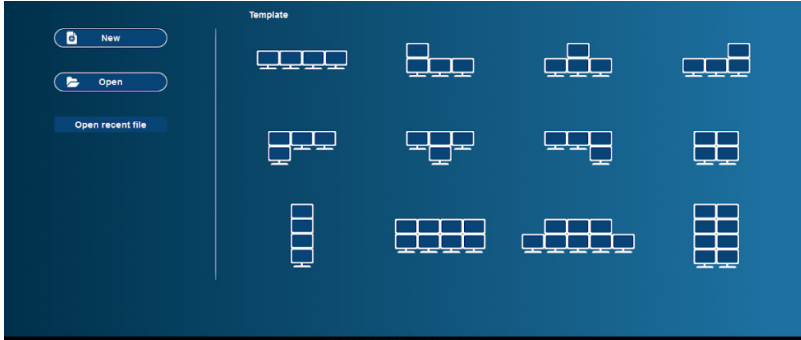


Item	Description
New	Click to create a new Layout. This brings you to the configuration page where you can customize the layout position and screen size of your displays.
Open	Click to open a previously saved Layout.
Open Recent	Lists recently saved Layouts. Select a layout in the list and click the folder icon to open it.
Language	Use the drop-down menu at the top right corner of the screen to select the interface language.
Template	Lists 12 display layouts. Click the template that matches your physical monitor setup to begin configuring the displays.

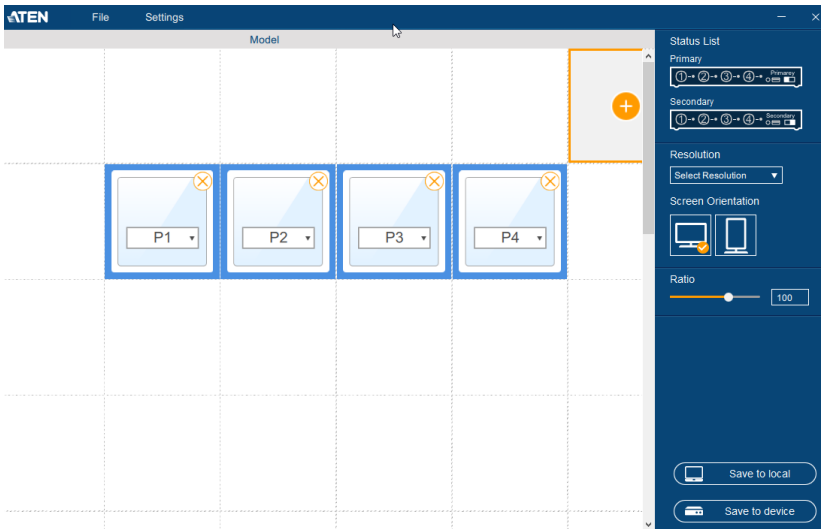
Adding/Applying a Layout for Boundless Switching

To add and apply a layout, do the following:


1. On a computer connected to the CS724KM, open the *Boundless Switching Configuration Utility*.




2. On the *Main* page, click a **Template** that matches your physical monitor setup or click **New** to create your own.
3. A screen appears to modify the layout and configure the displays. If *New* was clicked, the page will be blank. Click the **Add** icon to add new displays to create a layout that resembles your physical monitor setup.

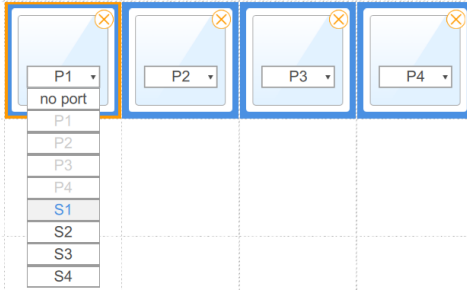


The table on the next page explains how to use this screen to configure the displays. Instructions continue on page 47.

Item	Description
File	<p>Click to open the File menu:</p> <ul style="list-style-type: none"> ◆ New: clears all <i>Displays</i> allowing you to create a new layout. ◆ Load File: opens a browse window to select and load a previously created Layout (*.KM) file. ◆ Save as: opens a browse window to save the current layout (*.KM) file. ◆ Quit: closes the <i>Boundless Switching Configuration Utility</i>.
Settings	<p>Click to open the Settings menu:</p> <ul style="list-style-type: none"> ◆ Mouse Acceleration: sets the rate at which the cursor speed increases as the speed of the cursor moves faster across the display. ◆ Mouse Position: sets the default cursors position for when you switch from one computer to another. When the mouse cursor leaves to switch to another computer, the cursor on the previous computer will automatically move to this position on the monitor. ◆ Boundless Switching Focus: disable/enable, and sets a duration for the boundless switching focus from 3, 5, 10 seconds, or always. <ul style="list-style-type: none"> Note: This setting is only available with Boundless Switching Configuration Utility version v1.0.068 or higher. ◆ Keep Awake Option: disable or sets an option between always and while working to keep the computer awake from sleep mode. <ul style="list-style-type: none"> Note: This setting is only available with Boundless Switching Configuration Utility version v1.0.068 or higher.
	<p>Click the Add icon over empty blocks to add a new display. After adding a display you are prompted to enter the screen resolution of the display. It is important that the resolution setting is correct (see <i>Resolution</i>, below). After setting the resolution a <i>Display</i> icon appears. Add icons to match the physical monitor setup of your installation.</p>

Item	Description
	<p>The Display icon defines the position of a display in the layout and allows you to configure the port. Use the drop-down menu to select the port.</p> <p>If your installation has one CS724KM, only Primary ports (P1, P2, P3, P4, or no port) should be used. When two CS724KM's are installed (refer to page 12), computers connected to the First Stage unit use Primary ports (P1, P2, P3, P4, or no port), and computers connected to the Second Stage unit use the Secondary ports (S1, S2, S3, S4, or no port).</p> <p>Click the X to delete the Display icon.</p>
Status List	<p>The Status List provides an easy way to select and configure displays connected to each port. Click a port (1~4) on either the Primary or Secondary switch to highlight the connected <i>Display</i> in the main panel.</p>
Resolution	<p>Select a Display in the left panel and use the drop-down menu to configure the screen size. This setting must be configured correctly for each display so that the CS724KM knows when to switch computers. You must reconfigure this setting whenever the resolution of the display changes.</p> <p>Note: You can also use the Screen Size hotkey to configure the displays (see <i>Screen Size</i>, page 27).</p>
Screen Orientation	<p>Select a Display in the left panel and click to set the screen orientation: Portrait or Landscape.</p>
Ratio	<p>Use the Ratio sidebar to zoom in and zoom out of the page.</p>
Save to local	<p>Click Save to local to save the current layout configuration to the local disk drive.</p>
Save to device	<p>This uploads the layout configuration and applies it to the CS724KM.</p> <p>Click Save to device when the CS724KM is attached to the computer running the <i>Boundless Switching Configuration Utility</i>. If no CS724KM is connected, you will be prompted to connect one.</p>

- After adding Display icons to represent the physical monitor setup, use the drop-down menu of each Display to set the port.



In a *Single Stage Installation* (page 9) choose option: **P1, P2, P3, P4**, or **no port**.

In a *Daisy Chain Installation* (page 12) choose options according to the *Station Switch* – Primary: **P1, P2, P3, P4**; or Secondary: **S1, S2, S3, S4**.

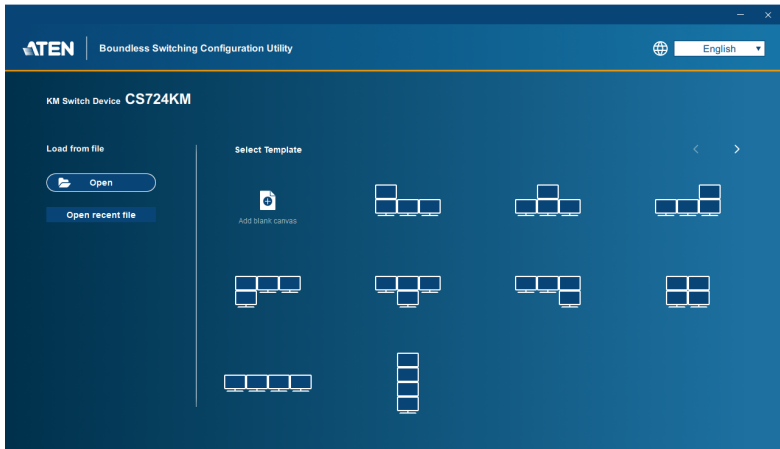
- Click **Save to local** to save the layout configuration file to disk; or **Save to device** to upload and apply the layout to the CS724KM.

Extended Desktops Boundless Switching

The *Boundless Switching Configuration Utility* helps you configure the layout **position** and **screen size** of each display. The Boundless Switching Configuration Utility can operate on a computer not connected to the CS724KM, but profiles cannot be uploaded for use unless the computer is physically connected to the CS724KM.

-
- Note:**
1. Hotkey [P] and [L] will be removed for extended desktops boundless switching with CS724KM's firmware version v1.1.102 or higher.
 2. Port selection pushbuttons will be disabled when Driver AP is running.
-

Double-click the *Aten CS724KM Boundless Switching Configuration Utility.exe* application to open the Main page:

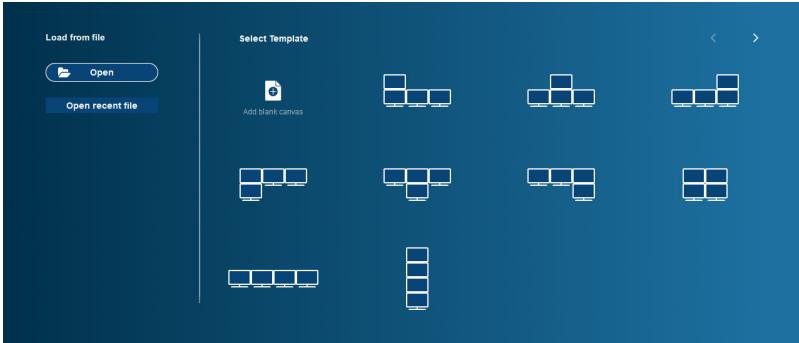


Item	Description
Open	Click to open a previously saved Layout.
Open Recent	Lists recently saved Layouts. Select a layout in the list and click the folder icon to open it.
Language	Use the drop-down menu at the top right corner of the screen to select the interface language.
Template	Lists 20 display layouts. Click the template that matches your physical monitor setup to begin configuring the displays.

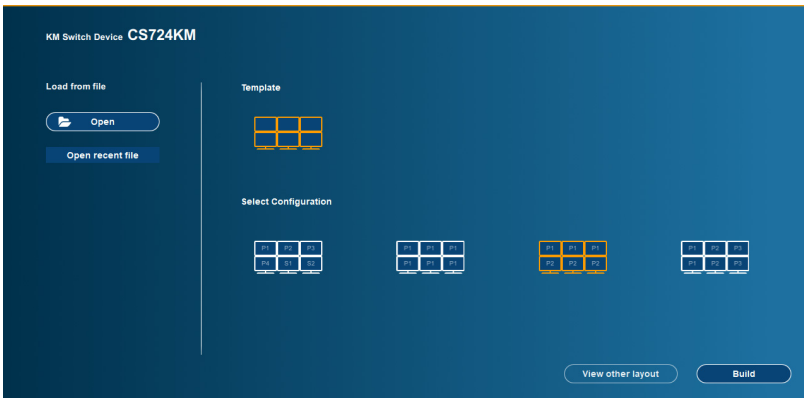
Adding/Applying a Layout for Extended Desktops Boundless Switching

To add and apply a layout, do the following:

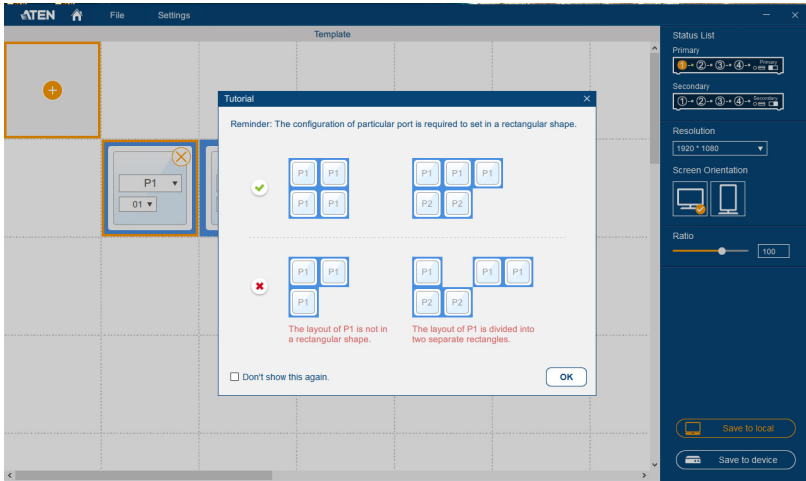
1. On a computer connected to the CS724KM, open the *Boundless Switching Configuration Utility*.



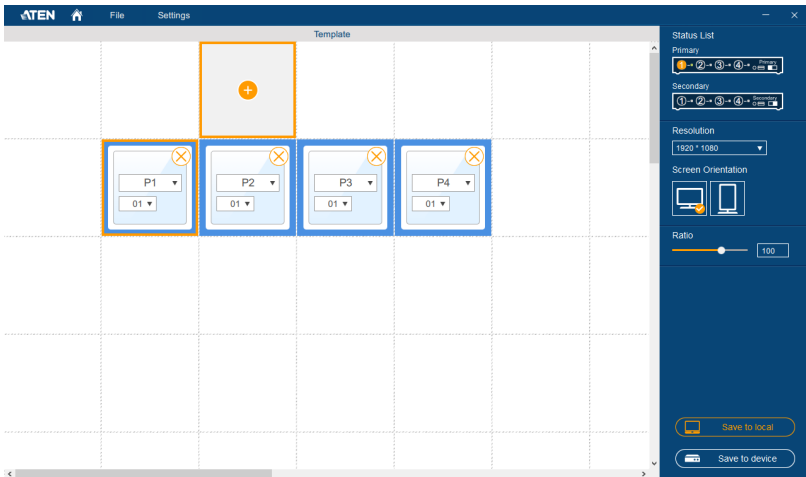
2. On the *Main* page, click a **Template** that matches your physical monitor setup.
3. Select a configuration and click **Build**.



4. A reminder appears, click **OK**.



- Now the screen appears to modify the layout and configure the displays. Click the **Add** icon to add new displays to create a layout that resembles your physical monitor setup.

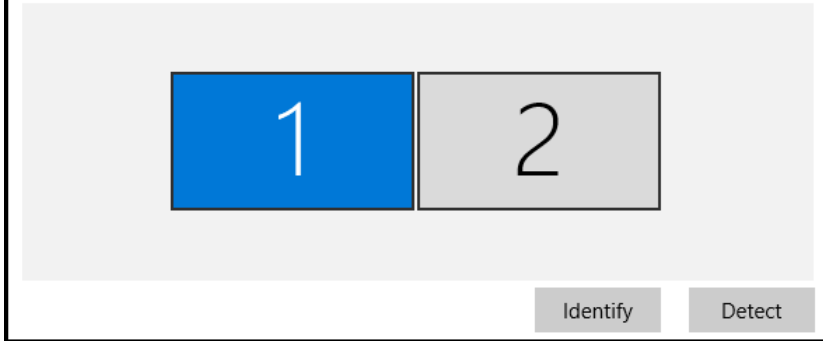


- Note:**
- The main PC display has to be configured on the top-left corner for the layout position, and it is required to set in a rectangular shape.
 - The configuration of main and extended display on Windows and/or Linux OS has to be identical with the Utility.

Display


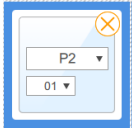
Select and rearrange displays

Select a display below to change its settings. Some settings are applied to all displays.



The table below explains how to use this screen to configure the displays. Instructions continue on page 47.

Item	Description
File	Click to open the File menu: <ul style="list-style-type: none"> ◆ New: clears all <i>Displays</i> allowing you to create a new layout. ◆ Load File: opens a browse window to select and load a previously created Layout (*.KM) file. ◆ Save as: opens a browse window to save the current layout (*.KM) file. ◆ Quit: closes the <i>Boundless Switching Configuration Utility</i>.

Item	Description
Settings	<p>Click to open the Settings menu:</p> <ul style="list-style-type: none"> ◆ Mouse Acceleration: sets the rate at which the cursor speed increases as the speed of the cursor moves faster across the display. ◆ Mouse Position: Sets the default cursors position for when you switch from one computer to another. When the mouse cursor leaves to switch to another computer, the cursor on the previous computer will automatically move to this position on the monitor. ◆ Boundless Switching Focus: disable/enable, and sets a duration for the boundless switching focus from 3, 5, 10 seconds, or always. <ul style="list-style-type: none"> Note: This setting is only available with Boundless Switching Configuration Utility version v1.0.068 or higher. ◆ Keep Awake Option: disable or sets an option between always and while working to keep the computer awake from sleep mode. <ul style="list-style-type: none"> Note: This setting is only available with Boundless Switching Configuration Utility version v1.0.068 or higher.
	<p>Click the Add icon over empty blocks to add a new display. After adding a display you are prompted to enter the screen resolution of the display. It is important that the resolution setting is correct (see <i>Resolution</i>, below). After setting the resolution a <i>Display</i> icon appears. Add icons to match the physical monitor setup of your installation.</p>
	<p>The Display icon defines the position of a display in the layout and allows you to configure the port. Use the drop-down menu to select the port.</p> <p>If your installation has one CS724KM, only Primary ports (P1, P2, P3, P4, or no port) should be used. When two CS724KM's are installed (refer to page 12), computers connected to the First Stage unit use Primary ports (P1, P2, P3, P4, or no port), and computers connected to the Second Stage unit use the Secondary ports (S1, S2, S3, S4, or no port).</p> <p>Click the X to delete the Display icon.</p>
Status List	<p>The Status List provides an easy way to select and configure displays connected to each port. Click a port (1~4) on either the Primary or Secondary switch to highlight the connected <i>Display</i> in the main panel.</p>

Item	Description
Resolution	Select a Display in the left panel and use the drop-down menu to configure the screen size. This setting must be configured correctly for each display so that the CS724KM knows when to switch computers. You must reconfigure this setting whenever the resolution of the display changes. Note: You can also use the Screen Size hotkey to configure the displays (see <i>Screen Size</i> , page 27).
Screen Orientation	Select a Display in the left panel and click to set the screen orientation: Portrait or Landscape .
Ratio	Use the Ratio sidebar to zoom in and zoom out of the page.
Save to local	Click Save to local to save the current layout configuration to the local disk drive.
Save to device	This uploads the layout configuration and applies it to the CS724KM. Click Save to device when the CS724KM is attached to the computer running the <i>Boundless Switching Configuration Utility</i> . If no CS724KM is connected, you will be prompted to connect one.

- After adding Display icons to represent the physical monitor setup, use the drop-down menu of each Display to set the port.



In a *Single Stage Installation* (page 9) choose option: **P1, P2, P3, P4**, or **no port**.

In a *Daisy Chain Installation* (page 12) choose options according to the *Station Switch* – Primary: **P1, P2, P3, P4**; or Secondary: **S1, S2, S3, S4**.

7. After setting the port, use the drop-down menu of each Display to set the monitor number.



8. Click **Save to local** to save the layout configuration file to disk; or **Save to device** to upload and apply the layout to the CS724KM.
9. Enable the Driver AP software on each connected PC to synchronize the monitor layout with the CS724KM.
10. To change the layout of the monitors, close Driver AP on each connected PC and redo step 1 ~ 8.

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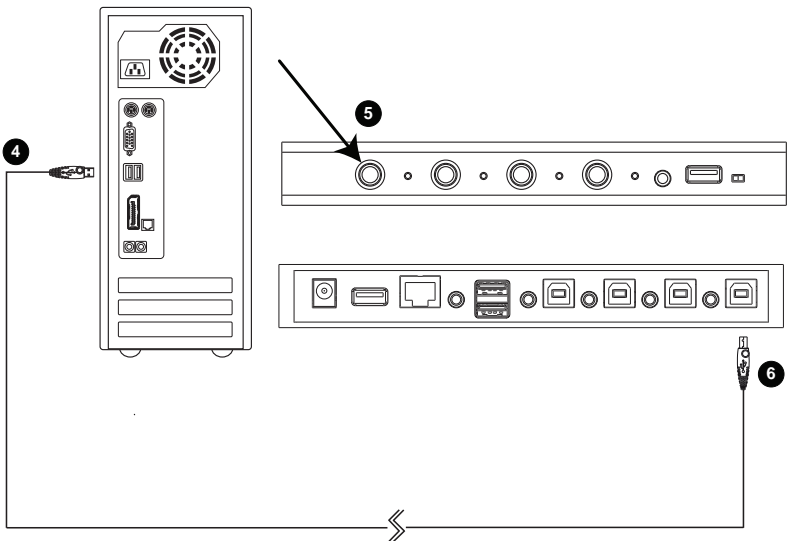
Chapter 7

The Firmware Upgrade Utility

The Windows-based Firmware Upgrade Utility (FWUpgrade.exe) provides a smooth, automated process for upgrading the 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 KM installation, go to our [Support & Download → Downloads](#) site and choose the model name that relates to your device (CS724KM) 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 CS724KM from your KM installation and remove all cable connections, including the power adapter.



4. Connect the USB Type-A connector to a USB Type-A port on the computer.
5. Press and hold port selection pushbutton 1.
6. While holding port selection pushbutton 1, connect the USB Type-B connector into PC port 1. The four front panel LEDs all flash together to indicate Firmware Upgrade Mode is in effect.

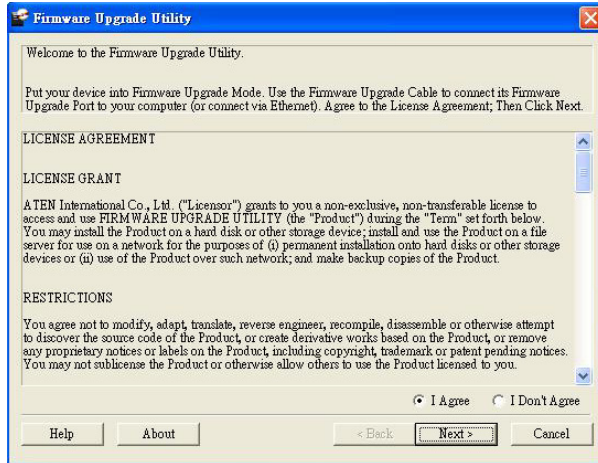
You can also connect a keyboard to the console port and invoke the firmware upgrade mode via hotkey (see *Firmware Upgrade Mode*, page 25).

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

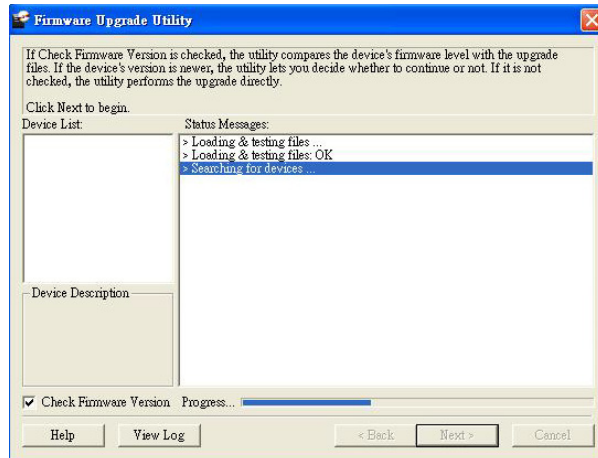
Starting the Upgrade

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:

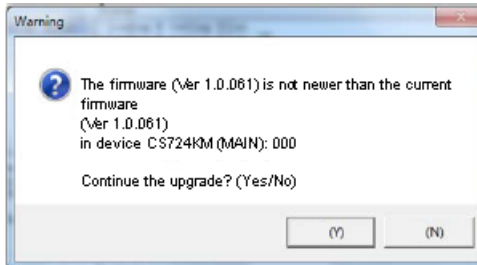


2. Read the License Agreement (click the *I Agree* radio button).
3. Click **Next**. The Firmware Upgrade Utility main screen appears. The Utility inspects your installation. All the devices capable of being upgraded by the package are listed in the *Device List* panel.



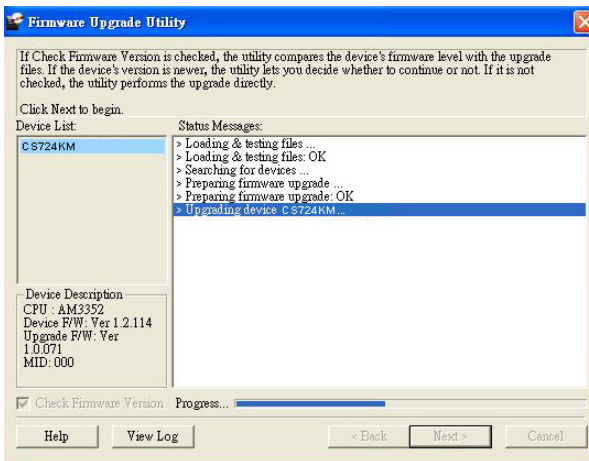
- As you select a device in the list, its description appears in the Device Description panel. After you have made your device selection(s), click **Next** to perform the upgrade.

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.



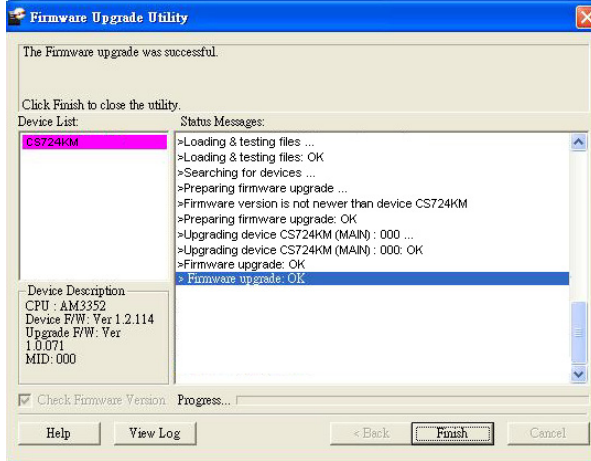
If you did not enable *Check Firmware Version*, the Utility installs the upgrade files without checking whether they are a higher level, or not.

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 CS724KM 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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Chapter 8

RS-232 Commands

Serial Control

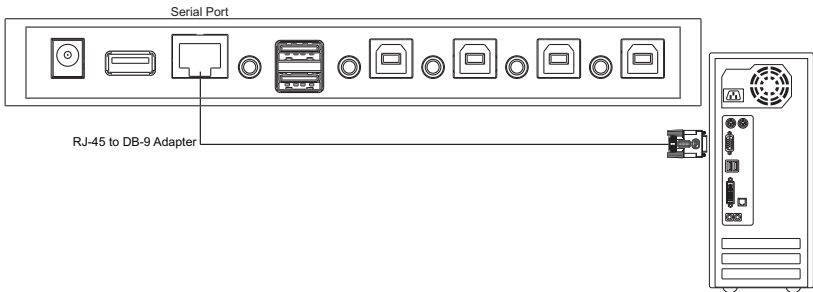
The CS724KM's built-in bi-directional RS-232 serial interface allows system control through a high-end controller or PC. This control feature can be accessed via HyperTerminal connection through a computer connected to the CS724KM.

- Note:**
1. Please use HyperTerminal as the terminal emulator for serial control.
 2. HyperTerminal is used for the serial control examples / diagrams in the following sections.
-

Serial Connection

Use a RJ-45 to DB-9 serial adapter to connect a computer's serial port to the serial port on the CS724KM, as shown below:

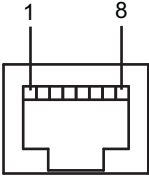
- Note:** Slide the station switch to the S position (secondary) to allow the KVM switch to receive RS-232 commands.
-



RS-232 Pin Assignments

Pin assignments for the CS724KM's rear Serial Port that is used for connecting to a serial terminal are given in the table, below:

Pin	Assignment
1	N/A
2	N/A
3	RXD: Receive Data
4	N/A
5	GND: Signal Ground
6	TXD: Transmit Data
7	N/A
8	N/A



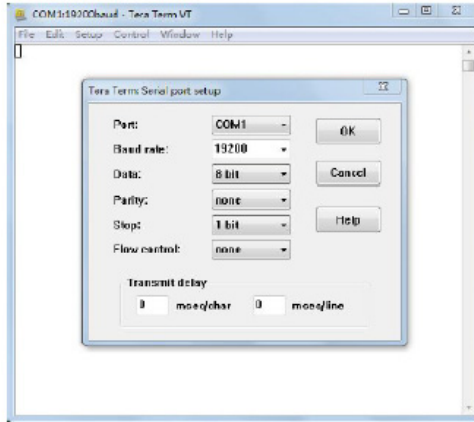
The diagram shows a top-down view of an RJ-45 female connector. It is a rectangular component with a central opening. Eight pins are visible along the top edge. Two lines with arrows point to the first and eighth pins from the left, labeled '1' and '8' respectively.

RJ-45 Female

Console Login - HyperTerminal

Once a physical connection from the computer to the CS724KM has been made and the *Station Switch* on the front panel is set to the **S** position (see *station switch*, page 6), you can establish a HyperTerminal session using the instructions below.

1. Open the *HyperTerminal* application, and configure the port settings for the appropriate COM port number, then click **OK**.



Bits per Second: **19200**, Data Bits: **8**, Parity: **None**, Stop bits: **1**, Flow Control: **None**.

2. The *Set Baud Rate* command allows you to set the baud rate of the computers connected to the CS724KM's ports. Use the **Formula** - to set **Parameters** - to create a **Command**.

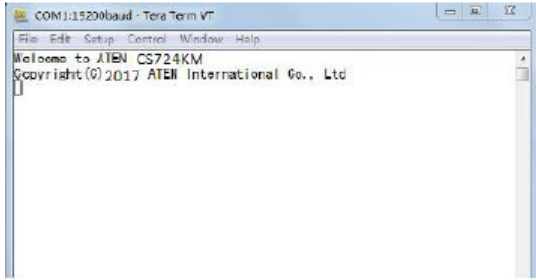
Formula:

Command + Input Command + [Enter]

Parameters:

Command	Description
open	Open the serial command line
close	Close the serial command line
Enter	Description
[Enter]	Send the command

3. When configured correctly a login prompt like the one below appears:



4. Continue in the sections that follow to send commands to control the CS724KM.

RS-232 Commands

After you login via HyperTerminal (see *Console Login - HyperTerminal*, page 65), you can use the instructions below to send RS-232 commands to control the CS724KM from a remote system.

When the RS-232 link is opened, the CS724KM will no longer accept commands from front panel buttons and most hotkey functions (excluding mouse cursor shift and monitor layout).

For more detailed instructions and information about each of the RS-232 commands listed below, please refer to the previous chapters of the CS724KM user manual.

Rules for each command:

- ◆ Each command string can be separated with a space.
- ◆ The ASCII code for Enter is 0x0D0A.
- ◆ Use the **Formula** - to set **Parameters** - to create a **Command**.

Verification

After sending a command, a verification message appears at the end of the command line.

Response Message	Description
command OK	Command or parameter is correct.
command incorrect	Command or parameter is incorrect.

Set Baud Rate

The Set Baud Rate command allows you to set the baud rate.

The formula for Set Baud Rate commands is as follows:

Command + Input Command + [Enter]

To set the baud rate to 38400, type the following:

baud 38400 [Enter]

To set the baud rate to 57600, type the following:

baud 57600 [Enter]

The tables show the values for the Set Baud Rate commands.

Command	Description
baud	Setup device baud rate

Input Command	Description
19200	Set baud rate to 19200 (default setting)
38400	Set baud rate to 38400
57600	Set baud rate to 57600
115200	Set baud rate to 115200

Enter	Description
[Enter]	Send command

Switch Port

The Switch Port command allows you to switch ports.

The formula for Switch Port commands is as follows:

Command + Input Command + [Enter]

To switch to the computer connected to port 04, type the following:

sw i04 [Enter]

To switch to the computer connected to port 01, type the following:

sw i01 [Enter]

The tables show the values for the Switch Port commands.

Command	Description
sw	Switch ports

Input Command	Description
ixx	Switch to input port number: xx=01~04

Enter	Description
[Enter]	Send command

Note: Switch port will be disabled when the Driver AP is running.

Keyboard Language Layout

The Keyboard Language Layout command allows you to set the language layout of the keyboard.

The formula for Keyboard Language Layout commands is as follows:

Command + Input Command + [Enter]

To change the keyboard language layout to French, type the following:

layout fr [Enter]

To change the keyboard language layout to Japanese, type the following:

layout jp [Enter]

The tables show the values for the Keyboard Language Layout commands.

Command	Description
layout	Keyboard Language Layout command

Input Command	Description
en	Set the keyboard language layout to English (default setting)
fr	Set the keyboard language layout to French
jp	Set the keyboard language layout to Japanese
ge	Set the keyboard language layout to German

Enter	Description
[Enter]	Send command

Hotkey Settings

The Hotkey Settings command allows you to change the hotkey used to invoke the HSM (Hotkey Settings Mode).

The formula for Hotkey Settings commands is as follows:

Command + Input Command + [Enter]

To change the HSM hotkey to [Ctrl] + [F12], type the following:

hotkey f12 [Enter]

To change the HSM hotkey to [Num Lock] + [-], type the following:

hotkey num [Enter]

The tables show the values for the Hotkey Settings commands.

Command	Description
hotkey	Hotkey Settings command
Input Command	Description
num	Change the invoke HSM hotkey to: [Num Lock] + [-] (Default setting)
f12	Change the invoke HSM hotkey to: [Ctrl] + [F12]
Enter	Description
[Enter]	Send command

Hotkey Switching

The Hotkey Switching command allows you to change the hotkey switching mode.

The formula for Hotkey Switching commands is as follows:

Command + Input Command + [Enter]

To change the hotkey switching mode to [Ctrl] + [Ctrl], type the following:

switch scroll [Enter]

To change the hotkey switching mode to [Num Lock] + [-], type the following:

switch ctrl [Enter]

The tables show the values for the Hotkey Switching commands.

Command	Description
switch	Hotkey Switching command

Input Command	Description
scroll	Change the hotkey switching mode to: [Scroll Lock] [Scroll Lock] (default setting)
ctrl	Change the hotkey switching mode to: [Ctrl] [Ctrl]

Enter	Description
[Enter]	Send command

USB Reset

The USB Reset command allows you to reset the USB connections.

The formula for USB Reset commands is as follows:

Command + Input Command + [Enter]

To reset the USB connections, type the following:

usbreset on [Enter]

The tables show the values for the USB Reset commands.

Command	Description
usbreset	USB Reset command

Input Command	Description
on	Enable USB reset connection

Enter	Description
[Enter]	Send command

Restore Default Settings

The Restore Default Settings command resets the CS724KM back to the factory default settings.

The formula for Restore Default Settings commands is as follows:

Command + Input Command + [Enter]

To restore the CS724KM back to the factory default settings, type the following:

reset on [Enter]

The tables show the values for the Restore Default Settings commands.

Command	Description
reset	Restore Default Settings command

Input Command	Description
on	Enable restoration of default settings

Enter	Description
[Enter]	Send command

Firmware Upgrade

The Firmware Upgrade command allows you to enable firmware upgrade mode.

The formula for Firmware Upgrade commands is as follows:

Command + Input Command + [Enter]

To enable firmware upgrade mode, type the following:

upgrade on [Enter]

The tables show the values for the Firmware Upgrade commands.

Command	Description
upgrade	Firmware Upgrade command

Input Command	Description
on	Enable firmware upgrade mode

Enter	Description
[Enter]	Send command

KM Status

The KM Status command allows you to display read-only information about the CS724KM's current status.

The formula for KM Status commands is as follows:

Command + Input Command + [Enter]

To view the KM status information, type the following:

status on [Enter]

The tables show the values for the KM Status commands.

Command	Description
status	KM Status command

Input Command	Description
on	Enable KM status

Enter	Description
[Enter]	Send command

When the KM Status command is sent a message similar to the one below appears:

hotkey: [numlock]+[-] / [scrolllock],[scrolllock]

os setting: pc

keyboard emulation: on

keyboard layout: English

mouse emulation: on

monitor layouts:

a010

b111

Monitor Layout

The Monitor Layout command allows you to configure the layout of displays.

The formula for Monitor Layout commands is as follows:

Command + Input Command + [Enter]

To configure a 1x4 monitor layout, type the following:

monitor a1234 [Enter]

To configure a 4x1 monitor layout, type the following:

monitor a1b2c3d4 [Enter]

To configure a two row layout with 1 monitor above 3 monitors, type the following:

monitor a010b234 [Enter]

The tables show the values for the Monitor Layout commands.

Command	Description
monitor	Monitor command
Input Command	Description
x	An letter that represents the column where a monitor resides: x= a, b, c or d
y	A number that represents a monitor that resides in a column y= 1, 2, 3, or 4
Enter	Description
[Enter]	Send command

Note: Monitor layout will be disabled when the Driver AP is running.

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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-45 connector to a public telecommunication network.

Technical Support

International

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

North America

Email Support		support@aten-usa.com
Online Technical Support	Troubleshooting Documentation Software Updates	http://eservice.aten.com
Telephone Support		1-888-999-ATEN ext 4988 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		CS724KM	
Computer Connections	Direct	4	
	Max	8 via Daisy Chain	
Port Selection		Pushbuttons, Hotkeys, Mouse Wheel*, Mouse Cursor, RS-232 Commands	
Connectors	Console Ports	Keyboard	1 x USB Type A Female (Black)
		Mouse	1 x USB Type A Female (Black)
		Speakers	1 x 3.5 mm Audio Jack Female (Green; Front) 1 x 3.5 mm Audio Jack Female (Green; Rear)
	KM Ports	KB / Mouse	4 x USB Type B Female (Black)
		Speakers	4 x 3.5 mm Audio Jack Female (Green)
	USB Hub		1 x USB Type A Female (Black; Front) 1 x USB Type A Female (Black; Rear)
	Daisy Chain / Serial		1 x RJ-45 Female
Power		1 x DC Jack	
Switches	Port Selection	4 x Pushbutton	
	Station Selection	1 x Slide Switch	
LEDs	Selected	4 (Green)	
Emulation	Keyboard / Mouse	USB	
Scan Interval		1-99 seconds (Default: 5 seconds)	
Power Consumption		DC5V : 1.69 W: 33BTU	
Environment	Operating Temp.	0–50° C	
	Storage Temp.	-20–60° C	
	Humidity	0–80% RH, Non-condensing	
Physical Properties	Housing	Metal, Plastic	
	Weight	0.5 kg (1.1 lb)	
	Dimensions (L x W x H)	20.00 x 8.06 x 2.50 cm (7.87 x 3.17 x 0.98 in)	

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

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*, page 57, 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.
	KM switch needs to be reset.	Power off all devices on the installation; power off the KM 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 24), to reset the USB ports.
Boundless switching is abnormal.	Commonly behavior for the KVM switch to switch port before mouse cursor reaching the edge of the display.	Define each port video resolution by utilizing utility from the Boundless Switching Utility, see <i>Resolution</i> , page 54.
		Go to <i>Mouse Properties</i> from your PC system settings. <ol style="list-style-type: none"> 1. Disable Mouse acceleration. 2. Disable Enhance the pointer precision.

Hotkey Default Settings

The hotkey factory default settings are as follows:

Setting	Default
Port Switching	[Scroll Lock] [Scroll Lock]
Invoking HSM	[Num Lock] [-]
Keyboard Emulation	Enabled
Mouse Emulation	Enabled
Keyboard Language	English
Keyboard Mapping	Auto Detect
Beeper	On
Boundless Switching Focus	Disabled
Boundless Switching Focus Duration	3 seconds
Cycle Port Switching	Enabled
Keep Awake Option	Disabled
Mouse Wheel Switching	Disabled

Limited 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](#). 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 defective, 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/>

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