

LCD KVM Switch
CL5208 / CL5216
User Manual



FCC Information

This is an FCC Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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.

RoHS

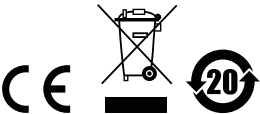
This product is RoHS compliant.

SJ/T 11364-2006

The following contains information that relates to China.

部件名称	有毒有害物质或元素					
	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
电器部件	●	○	○	○	○	○
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- : 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363-2006规定的限量要求之下。
- : 表示符合欧盟的豁免条款，但该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006的限量要求。
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User Information

Online Registration

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

International	http://support.aten.com
North America	http://www.aten-usa.com/product_registration

Telephone Support

For telephone support, call this number:

International		886-2-8692-6959
China		86-10-5255-0110
Japan		81-3-5323-7178
Korea		82-2-467-6789
North America	ATEN TECH	1-888-999-ATEN
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User Notice

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

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

Package Contents

Basic Package

The basic CL5208 or CL5216 package consists of:

- ♦ 1 CL5208 or CL5216 with Standard Rack Mount Kit
- ♦ 2 Custom KVM Cable Sets
- ♦ 1 Power Cord (CL5208L, CL5208M, CL5216L, or CL5216M)
- ♦ 1 Firmware Upgrade Cable
- ♦ 1 User Manual*
- ♦ 1 Quick Start Guide

Optional Equipment

Depending on any optional equipment that you may have purchased, one of the following may be included in your package:

- ♦ Standard Rack Mounting Kit - Long
- ♦ Easy-Installation Rack Mounting Kit - Short
- ♦ Easy-Installation Rack Mounting Kit - Long

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

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

* Features may have been added to the CL5208 / CL5216 since this manual was printed. Please visit our website to download the most up-to-date version of the manual.

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About this Manual

This User Manual is provided to help you get the most from your CL5208 / CL5216 system. It covers all aspects of installation, configuration and operation. An overview of the information found in the manual is provided below.

Chapter 1, Introduction, introduces you to the CL5208 / CL5216 system. Its purpose, features and benefits are presented, and its front and back panel components are described.

Chapter 2, Hardware Setup, describes how to set up your installation. The necessary step – from a basic single stage hookup to a complete 32 switch daisy chained operation are provided.

Chapter 3, Basic Operation, explains the fundamental concepts involved in operating the CL5208 / CL5216.

Chapter 4, OSD Operation, provides a complete description of the CL5208 / CL5216's OSD (on-screen display), and how to work with it.


Chapter 5, Keyboard Port Operation, details all of the concepts and procedures involved in the Hotkey operation of your CL5208 / CL5216 installation.

Chapter 6, The Firmware Upgrade Utility, explains how to use this utility to upgrade the CL5208 / CL5216's firmware with the latest available versions.

An Appendix, provides specifications and other technical information regarding the CL5208 / CL5216.

Conventions

This manual uses the following conventions:

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

Product Information

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

International		http://www.aten.com
North America	ATEN TECH	http://www.aten-usa.com
	ATEN NJ	http://www.aten.com

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Chapter 1

Introduction

Overview

The CL5208 / CL5216 LCD KVM Switches are control units that allow access to multiple computers from a single keyboard, video, and mouse (KVM) console. A single CL5208 or CL5216 can control up to 8 or 16 computers. As many as 31 additional KVM switches can be daisy chained to the CL5208 / CL5216, so that up to 512 computers can be controlled from a single KVM console.

The CL5208 / CL5216 offer a space-saving, streamlined approach to KVM switch technology by integrating a keyboard, 15" or 17" LCD monitor, and touchpad in a 1U rack-mountable sliding housing. The LCD display is built into the cover; the keyboard and touchpad are built into the base. Slide the KVM module section out; flip the cover up; and you are ready to go to work. When finished, flip the cover down and slide the KVM module away.

There are eight models in the series as shown in the following table:

Model	LCD Panel	KVM Ports	Power
CL5208C	15"	8	DC
CL5216C	15"	16	DC
CL5208D	17"	8	DC
CL5216D	17"	16	DC
CL5208L	15"	8	AC
CL5216L	15"	16	AC
CL5208M	17"	8	AC
CL5216M	17"	16	AC

The CL5208 / CL5216 is built on a modular design. The KVM section can be detached from the switch section for convenient maintenance and repair. A special feature of the CL5208 / CL5216 *C* and *D* models is their use of DC power instead of the AC power used by most switch products.

Your CL5208 / CL5216 investment is protected by an included *Firmware Upgrade Utility*. You can stay current with the latest improvements to the Switch by downloading firmware update files from our website as they become available, and using the utility to quickly and conveniently perform the upgrade.

Setup is fast and easy; plugging cables into their appropriate ports is all that is entailed. Because the CL5208 / CL5216 intercepts keyboard input directly, there is no software to configure; no need to get involved in complex installation routines; nor any need to be concerned with incompatibility problems.

Access to any computer connected to the installation is easily accomplished either by entering *Hotkey* combinations from the keyboard, or by means of a powerful, mouse driven, on-screen display (OSD) menu system. A convenient *Auto Scan* feature also permits automatic scanning and monitoring of the activities of all computers running on the installation one by one.

There is no better way to save time and money than with a CL5208 / CL5216 installation. By using the CL5208 / CL5216 with its sliding LCD console to manage your installation, you: (1) eliminate the expense of having to purchase a separate keyboard, monitor, and mouse for each computer; (2) save all the space those extra components would take up; (3) save the space that a keyboard, monitor, and mouse would take with a standard KVM switch; (4) save on energy costs; and (5) eliminate the inconvenience and wasted effort involved in constantly moving from one computer to another.

Features

- ♦ KVM console with 15" or 17" LCD monitor in a sliding housing – top and bottom clearance for smooth operation in a 1U high system rack
- ♦ Standard rack mount kit included – optional *Easy Rack Mounting* (single person installation) rack mount kit available (requires separate purchase)
- ♦ External console support – two console (one bus) access
- ♦ Daisy chain up to 31 additional units – control up to 504 (CL5208) or 512 (CL5216) computers
- ♦ CL5208C / CL5208D / CL5216C / CL5216D run on DC power
- ♦ No software required – convenient computer selection via *Hotkeys* and mouse driven intuitive on-screen display (OSD) menus
- ♦ Auto Scan feature for monitoring user-selected computers
- ♦ Broadcast support – commands from the keyboard can be broadcast to all available computers on the installation
- ♦ Hot Pluggable – add or remove computers without having to power down the switch
- ♦ Two level password security – only authorized users view and control the computers – up to four users plus an administrator with separate profiles for each
- ♦ Video settings of attached computers are automatically adjusted for optimal output to the LCD monitor
- ♦ Upgradable firmware
- ♦ Language support: American English; UK English; German; French; Spanish; Traditional Chinese; Japanese; Korean

Requirements

Computers

The following equipment must be installed on each computer:

- ♦ A VGA, SVGA or multisync card.

Note: The integrated LCD monitor's maximum resolution is 1024 x 768 @ 75 Hz (15") or 1280 x 1024 @ 75 Hz (17"). Make sure that none of the computer resolution settings exceed the LCD monitor's maximum resolution.

- ♦ 6-pin mini-DIN (PS/2 style) keyboard and mouse ports.

Cables

Substandard cables may damage the connected devices or degrade overall performance. For optimum signal integrity and to simplify the layout, we strongly recommend that you use the high quality CS Custom Cable sets described below:

Function	Part Number	Length
KVM Switch to KVM Switch (daisy chaining)	2L-1700	0.6 m
	2L-1701	1.8 m
KVM Switch to Computer	2L-5201P	1.2 m
	2L-5202P	1.8 m
	2L-5203P	3.0 m
	2L-5206P	6.0 m

OS Support

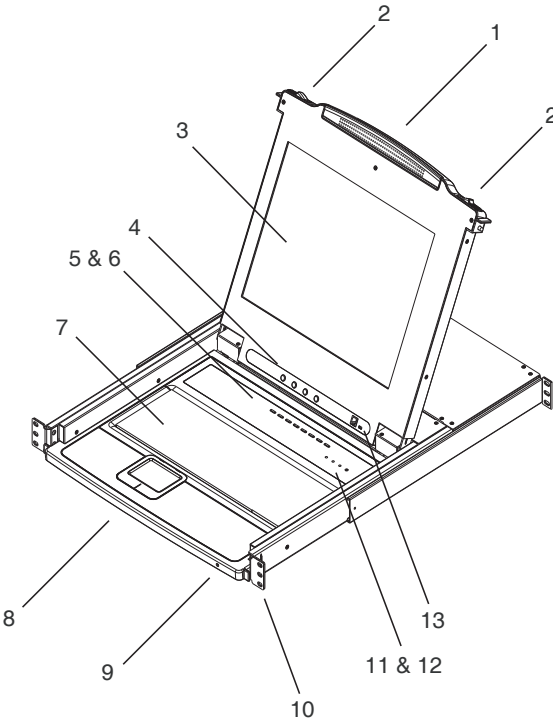
Supported operating systems are shown in the table, below:

OS	Version	
Windows	2000 and higher	
Linux	RedHat	7.1–7.3, 8.0, 9.0, Fedora Core 2–4
	SuSE	8.2, 9.3, 10
	Mandriva (Mandrake)	9, 2005 Limited Edition, 2006
UNIX	IBM	AIX: 4.3, 5L
	FreeBSD	4.2, 4.5
Novell	Netware: 5.0*, 6.0	

* This operating system does not support USB.

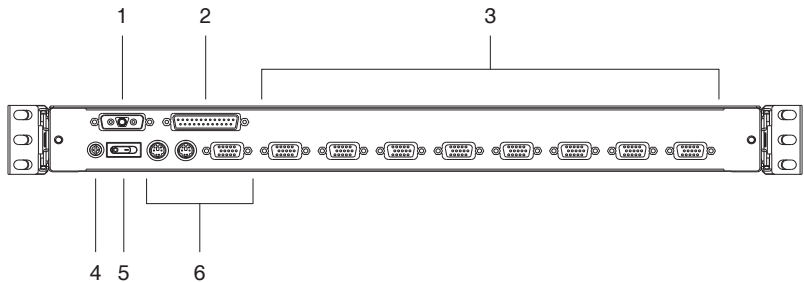
Components

CL5208 / CL5216 Front View

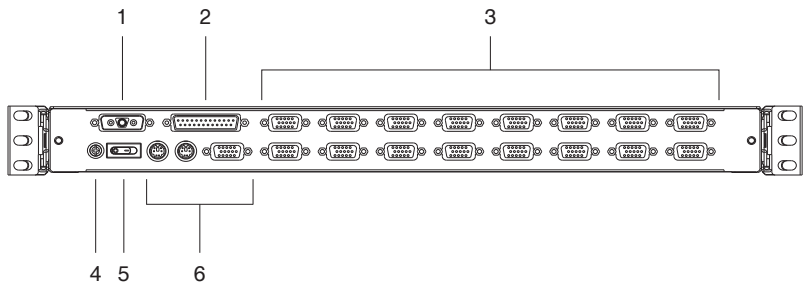


No.	Component	Description
1	Handle	Pull to slide the KVM module out; push to slide the module in (see item 2 in this table).
2	Slide Release	In order to slide the console out, you must first release it by sliding these tabs to the inside. See page 19 for details on sliding the console in and out.
3	LCD Display	After sliding the KVM module out, flip up the cover to access the LCD monitor.
4	LCD Controls	The LCD On/Off switch is located here, as well as buttons to control the position and picture settings of the LCD display. See page 23 for details.
5	Port Switches	Press a switch to bring the KVM focus to the computer attached to its corresponding port. See page 25 for details.
6	Port LEDs	<p>Two port LEDs are built into the port switches. The one on the left is the <i>On Line</i> LED; the one on the right is the <i>Selected Port</i> LED:</p> <ul style="list-style-type: none"> ♦ An <i>On Line</i> LED lights orange to indicate that the computer attached to its corresponding port is up and running. ♦ A <i>Selected</i> LED lights green to indicate that the computer attached to its corresponding port is the one that has the KVM focus. The LED is steady under normal conditions, but flashes when its port is accessed under <i>Auto Scan Mode</i> (see F7: SCAN, page 40).
7	Keyboard	Standard 105-key keyboard
8	Touchpad	Standard mouse touchpad
9	Power LED	Lights blue to indicate that the unit is receiving power.
10	Rack Mounting Brackets	The rack mount brackets located at each corner of the unit secure the chassis to a system rack.
11	Lock LEDs	The Num Lock, Caps Lock, Scroll Lock LEDs are located here.
12	Reset Switch	Located to the right of the Lock LEDs. Press this recessed switch in with a small object to perform a system reset.
13	Firmware Upgrade Section	<ul style="list-style-type: none"> ♦ Firmware Upgrade Port: The firmware upgrade cable that transfers the firmware upgrade data from the administrator's computer to the CL5208 / CL5216 plugs into this RJ-11 connector. ♦ Firmware Upgrade Switch: During normal operation this switch should be in the NORMAL position. See <i>The Firmware Upgrade Utility</i>, page 47 for firmware upgrading details.

CL5208C / CL5208D Rear View (DC Power)

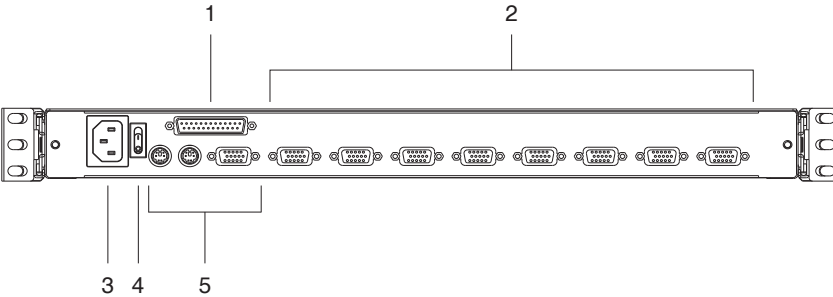


CL5216C / CL5216D Rear View (DC Power)

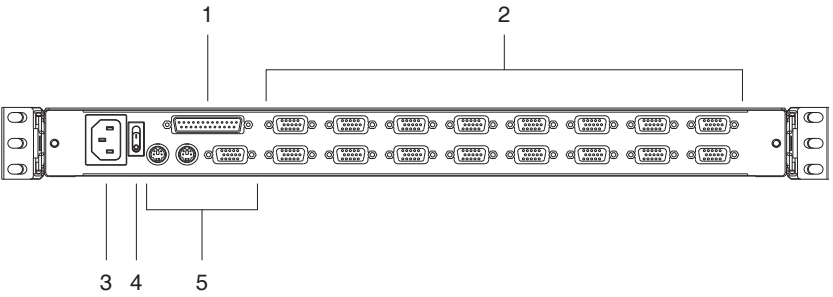


No.	Component	Description
1	Power Socket	The DC power cord plugs in here.
2	Daisy Chain Port	When daisy chaining units, the cable plugs in here.
3	KVM Port Section	The cables that link to the computers plug in here. Note: The shape of these 15-pin connectors has been specifically modified so that only KVM cables designed to work with this switch can plug in (see the <i>Cables</i> section on p. 4, for details). Do NOT attempt to use ordinary 15-pin VGA connector cables to link these ports to the computers.
4	Ground	The grounding wire used to ground the CL5208 / CL5216 attaches here.
5	Power Switch	This is a standard rocker switch that powers the CL5208 / CL5216 on and off.
6	External Console Section	For flexibility and convenience, the CL5208 / CL5216 supports an independent, external, KVM console. The external console's keyboard, monitor, and mouse cables plug in here.

CL5208L / CL5208M Rear View (AC Power)



CL5216L / CL5216M Rear View (AC Power)



No.	Component	Description
1	Daisy Chain Port	When daisy chaining units, the cable plugs in here.
2	KVM Port Section	The cables that link to the computers plug in here. Note: The shape of these 15-pin connectors has been specifically modified so that only KVM cables designed to work with this switch can plug in (see the <i>Cables</i> section on p. 4, for details). Do NOT attempt to use ordinary 15 pin VGA connector cables to link these ports to the computers.
3	Power Socket	This is a standard 3-prong AC power socket. The power cord from an AC source plugs in here.
4	Power Switch	This is a standard rocker switch that powers the CL5208 / CL5216 on and off.
5	External Console Section	For flexibility and convenience, the CL5208 / CL5216 supports an independent, external, KVM console. The external console's keyboard, monitor, and mouse cables plug in here.

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Chapter 2

Hardware Setup

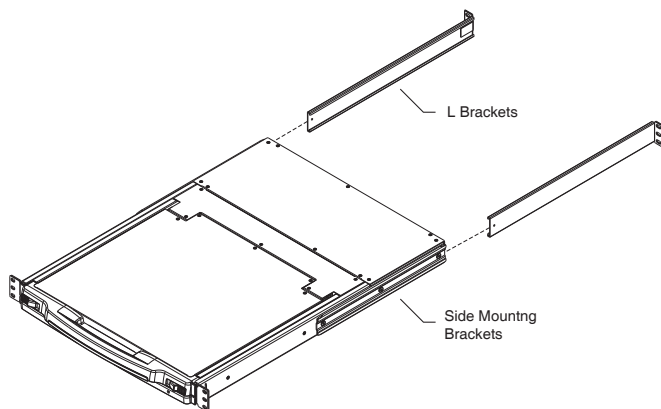
Before you Begin



1. Important safety information regarding the placement of this device is provided on page 53. Please review it before proceeding.
2. Make sure that power to all the devices you will be connecting up has been turned off. You must unplug the power cords of any computers that have the Keyboard Power On function.

Standard Rack Mounting

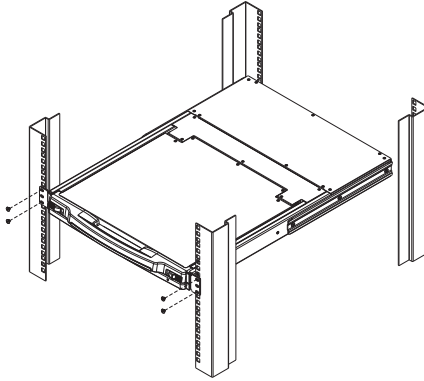
A standard rack mount kit is provided with your CL5208 / CL5216. The kit enables the switch to be mounted in rack with a depth of 42.0–82.0 cm.



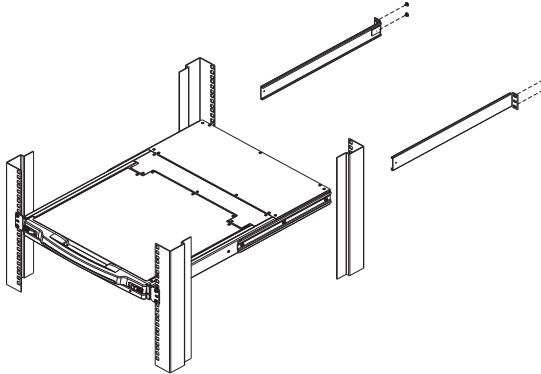
-
- Note:**
1. It takes two people to mount the switch: one to hold it in place, the other to screw it in.
 2. The standard rack mount kit does not include screws or cage nuts. If you need additional screws or cage nuts, contact your rack dealer.
-

To rack mount the switch, do the following:

1. While one person positions the switch in the rack and holds it in place, the second person loosely screws the front brackets to the rack.



2. While the first person still holds the switch in place, the second person slides the L brackets into the switch's side mounting brackets, from the rear until the bracket flanges contact the rack, then screws the L brackets to the rack.



3. After the L brackets have been secured, tighten the front bracket screws.

Note: 1. Allow at least 5.1 cm on each side for proper ventilation, and at least 12.7 cm at the back for the power cord and cable clearance.

2. Optional mounting kits, including single person *Easy Installation* kits, are available with a separate purchase. See *Optional Rack Mounting*, page 65 in the Appendix for details.
-

Single Stage Installation

In a single stage installation, there are no additional switches daisy chained from the first unit. To set up a single stage installation, refer to the installation instructions and diagrams on the following pages (the numbers in the diagrams correspond to the numbers of the installation steps).

DC Power Installation

1. Ground the unit.
2. If you choose to connect an external console to the CL5208 / CL5216, use the console cable provided to plug a keyboard, monitor, and mouse into the *Console Port*.

Note: Use of an external console is optional.

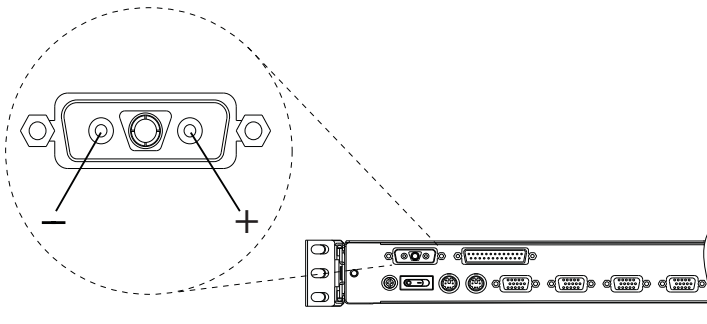
3. For each of the computers you are installing, use a KVM cable set (as described in the *Cables* section on page 4), to connect any available KVM port to the computer's keyboard, video and mouse ports.
4. Plug the power cord into the CL5208 / CL5216 power socket and into a DC power source.

Note: Ignore the daisy chain port at this time. It is only used when daisy chaining additional units. Daisy chaining is described on page 16.

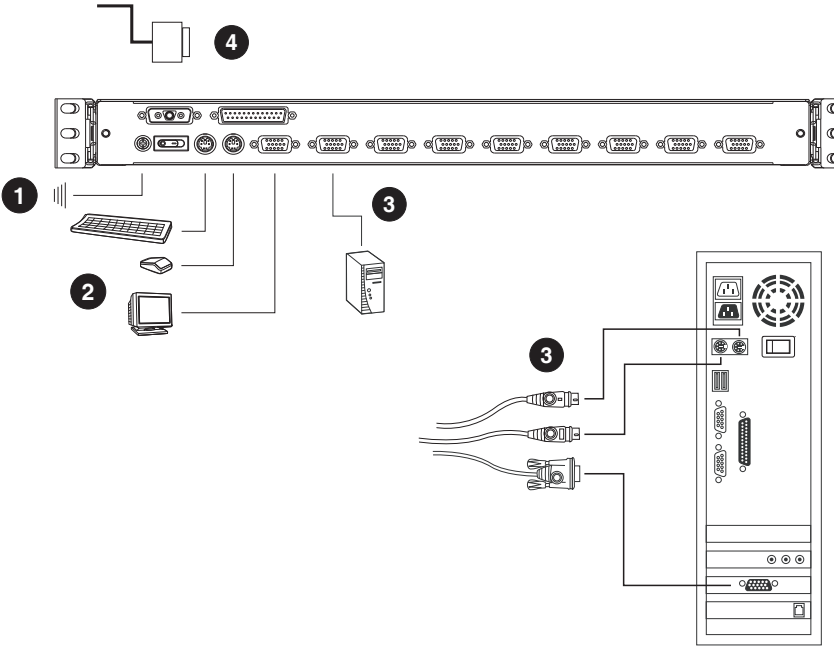
This completes the installation. Now, you can power on the CL5208 / CL5216 (see *Powering Up*, page 22 for details). After the CL5208 / CL5216 is powered on, power on the computers.

DC Power Socket

The DC Power Socket (located on the unit's rear panel) has its negative left pin and positive right pin arranged as shown in the diagram below:



DC Power Installation Diagram



AC Power Installation

1. If you choose to connect an external console to the CL5208 / CL5216, use the console cable provided to plug a keyboard, monitor, and mouse into the *Console Port*.

Note: Use of an external console is optional.

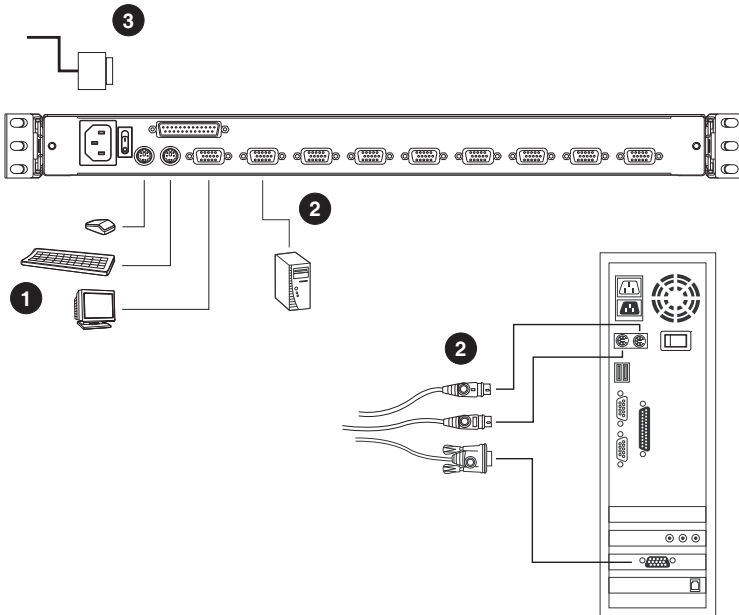
2. For each of the computers you are installing, use a KVM cable set (as described in the *Cables* section on page 4), to connect any available KVM port to the computer's keyboard, video and mouse ports.

Note: Ignore the daisy chain port at this time. It is only used when daisy chaining additional units. Daisy chaining is described on page 16.

3. Use the power cord provided with this package to connect the CL5208 / CL5216 power socket to an AC power source.

This completes the installation. Now, you can power on the CL5208 / CL5216 (see *Powering Up*, page 22 for details). After the CL5208 / CL5216 is powered on, power on the computers.

AC Power Installation Diagram



Daisy Chaining

To control even more computers, up to 31 ACS-1208A or ACS-1216A KVM switches can be daisy chained down from the CL5208 / CL5216.

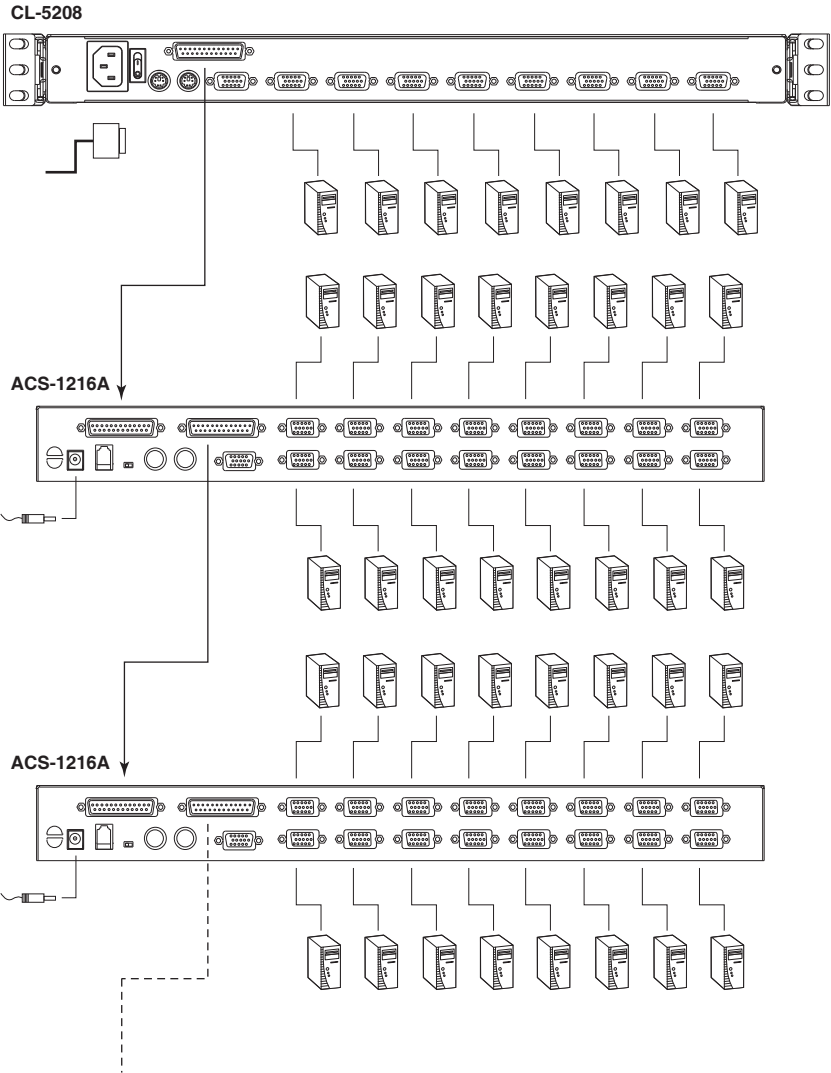
In a complete installation, as many as 512 computers can be controlled from the CL5208 / CL5216. Tables showing the relation between the number of computers and the number of units needed to control them are provided on page 53 in the Appendix.

To set up a daisy chained installation, first make sure that power to all the devices you will be connecting to the CL5208 / CL5216 have been turned off. Then, refer to the daisy chain installation diagram on the next page as you do the following:

1. Use a daisy chain cable set (described in the *Cables* section, page 4), to connect the *Chain Out* port of the parent unit to the *Chain In* port of the child unit (first station out to second station in, second station out to third station in, etc.).
2. Use compatible KVM cable sets to connect any available KVM port on the daisy chained switch to the keyboard, video and mouse ports of the computers you are installing.
3. Repeat the above steps for any additional units you wish to add to the chain.
4. Power up the installation according to the following procedure:
 - a) Power on the CL5208 / CL5216.
 - b) Power on each station on the installation in turn (second station, then third station, etc.).

In each case, wait for the station ID to be ascertained and displayed on the current station before powering on the next one.
 - c) After all the stations are turned on, power on the computers.

Daisy Chain Installation Diagram



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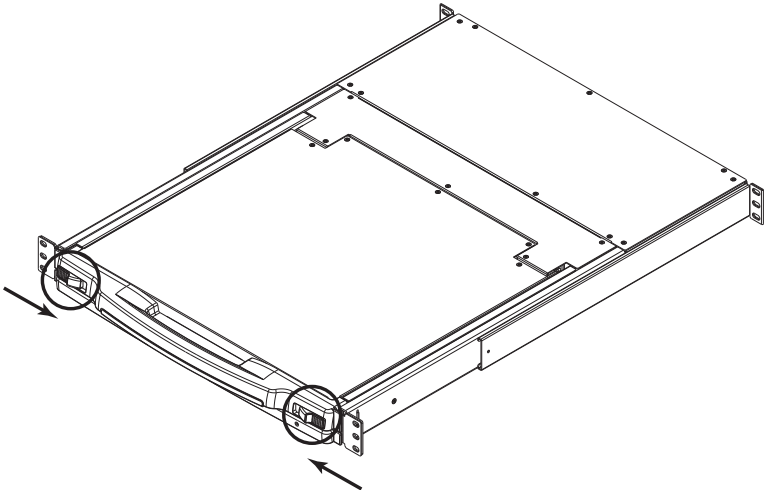
Chapter 3

Basic Operation

Opening the Console

The CL5208 / CL5216's console is located under the top cover. To access the console, slide the console module out and raise the cover.

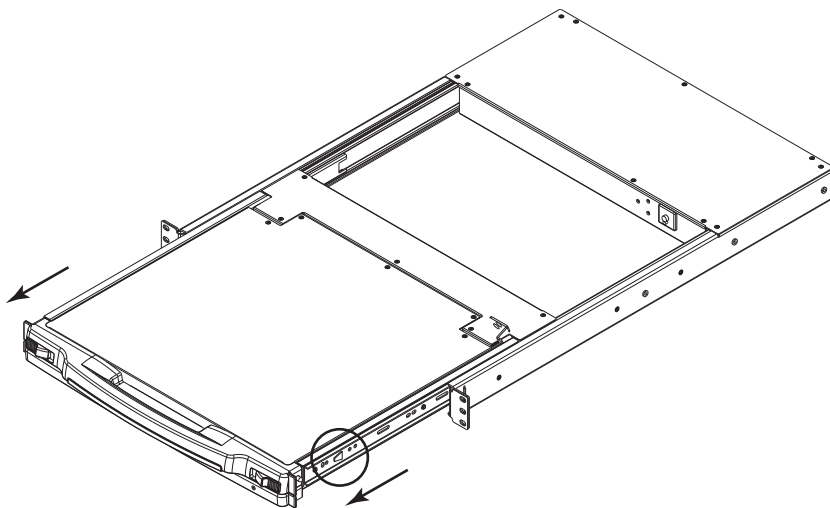
Note: As a safety precaution, to keep the console from accidentally sliding out, the console is locked into the *In* position. Before you can pull the console module out, you must release it by pushing the catches on the unit's front panel toward the center of the switch.



Closing the Console

To slide the console module back in, close the cover and do the following:

1. Pull the safety catches on the unit's side rails toward you and push the module in until it stops.
2. Release the catches; pull the module slightly toward you; then push it all the way in.

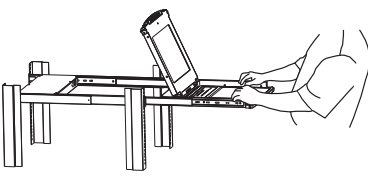
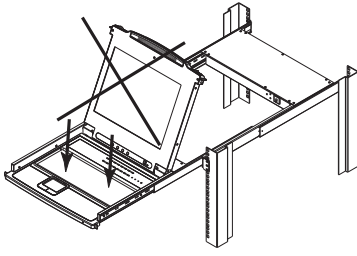


Note: The reason for the two step procedure is to minimize the chances of you pinching your fingers when sliding the module in.

Operating Precautions



The maximum load bearing capacity of the keyboard module is 30kg. Failure to heed the information below can result in damage to the keyboard module.

	<p>Right!</p> <p>Rest your hands and arms lightly on the keyboard module as you work.</p>
	<p>Wrong!</p> <ul style="list-style-type: none">◆ DO NOT lean your body weight on the keyboard module.◆ DO NOT place heavy objects on the keyboard module.

Powering Up

Power up the installation according to the following procedure:

1. Power on the first station (CL5208 / CL5216) and wait a few seconds for the unit to ascertain its station ID.

2. Plug in the power adapters for each daisy chained station on the installation in turn (second station, then third station, etc.).

Each ACS-1208A / ACS-1216A has an LED display on its front panel to indicate its station ID (the station ID for the first stage unit is 01, the ID for the second stage unit is 02, etc.).

In each case, wait for the station ID to be ascertained and displayed on the Station ID LED before plugging in the next station.

3. After all the stations are up, power on the computers.

Powering Off and Restarting

If it becomes necessary to Power Off one of the ACS-1208A units, unplug the power adapter cable from the rear panel. Before starting it back up you must do the following:

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

Note: You must unplug the power cords of any computers that have the *Keyboard Power On* function. Otherwise, the switch will still receive power from the computers.



2. Wait 10 seconds, then plug the station back in.
3. After the station is up, power on the computers.

Note: If you have shut down more than one station, power up the highest station first and work your way down to the lowest one.

LCD OSD Configuration

The LCD Buttons

The LCD OSD allows you to set up and configure the LCD display. Four buttons are used to perform the configuration, as described in the table, below:

Button	Function
MENU	<ul style="list-style-type: none"> ◆ When you have not entered the LCD OSD Menu function, pressing this button invokes the Menu function, and brings up the Main Menu. ◆ When you have entered the LCD OSD Menu function, and have reached a setting choice with the navigation buttons, pressing this button brings up its adjustment screen.
	When navigating through the menus, this button moves you Right or Up. When making an adjustment, it increases the value.
	When navigating through the menus, this button moves you Left or Down. When making an adjustment, it decreases the value.
EXIT	<ul style="list-style-type: none"> ◆ When you have not entered the LCD OSD Menu function, pressing this button performs an auto adjustment. An auto adjustment automatically configures all the settings for the LCD panel to what the OSD considers their optimum values to be. ◆ When you have entered the LCD OSD Menu function, pressing this button exits the current menu and returns you to the previous menu. Use it to leave an adjustment menu when you are satisfied with the adjustment you made. ◆ When you are at the Main Menu, pressing this button exits the LCD OSD.

LCD Adjustment Settings

An explanation of the LCD OSD adjustment settings is given in the table below:

Setting	Explanation
Brightness	Adjusts the background black level of the screen image.
Contrast	Adjusts the foreground white level of the screen image.
Phase	Adjusts the vertical size of the screen image.
Clock	Adjusts the horizontal size of the screen image.
H-Position	Positions the display area on the LCD panel horizontally (moves the display area left or right).
V-Position	Positions the display area on the LCD panel vertically (moves the display area up or down).
Color Temperature	Adjusts the color quality of the display. You can adjust the warmth value, color balance, etc. The <i>Adjust Color</i> selection has a further submenu that lets you fine tune the RGB values.
Language	Selects the language that the OSD displays its menus in.
OSD Duration	Lets you set the amount of time the OSD displays on the screen. If there is no input for the amount of time you choose, the OSD display turns off.
Reset	Resets the adjustments on all menus and submenus to their factory default settings. Note: The <i>Language</i> setting does not return to the factory default, but remains at the one that you have set it to.

Port ID Numbering

Each KVM port on the installation is assigned a unique port ID. The port ID is made up of two parts: a *Station Number*, and a *Port Number*:

- ♦ The *Station Number* is a two digit number which reflects the switch's position in the daisy chain sequence.

Note: 1. The CL5208 / CL5216 has a station number of 01. The first daisy chained unit (ACS-1208A) has a station number of 02, etc.

2. The daisy chained ACS-1208A have front panel LEDs that display their station IDs.

- ♦ The *Port Number* is a two digit number which reflects the port on the station that the computer is connected to.
- ♦ The station number precedes the port number.
- ♦ Station and port numbers from 1–9 are padded with a preceding zero, so they become 01–09.

For example, a computer attached to **Port 6** of **Station 12** would have a port ID of: **12-06**.

Port Selection

The CL5208 / CL5216 provides three port selection methods you can use to access the computers on the installation: manual; OSD (on-screen display) menus, and hotkey. Manual port switching is discussed below; OSD operation is discussed in the next chapter; hotkey port selection is discussed detail in chapter 4.

Manual Port Switching

- ♦ Press a switch to bring the KVM focus to the computer attached to its corresponding port.
- ♦ Press buttons 1 & 2 simultaneously for two seconds to perform a keyboard and mouse reset.
- ♦ Press buttons 7 & 8 (CL5208), or 15 & 16 (CL5216) simultaneously for two seconds to invoke *Auto Scan Mode* (see page 43).

Hot Plugging

The CL5208 / CL5216 supports *hot plugging*. Components can be removed and added back into the installation by unplugging their cables from the ports without the need to shut the unit down. In order for hot plugging to work properly, the procedures described below must be followed:

Switching Station Positions

You can switch station positions by simply unplugging from the old parent and plugging into a new one. After you do, in order for the OSD menus to correspond to the change, you must reset the station IDs in the OSD. See *RESET STATION IDS*, page 37, for details.

Hot Plugging KVM Ports

You can add or remove computers by plugging/unplugging them into/from a switch's KVM ports. In order for the OSD menus to correspond to the change, however, you must manually reconfigure the OSD to reflect the new port information. See *F3: SET*, page 32, and *F4: ADM*, page 34, for details.

Note: If the computer's operating system does not support hot plugging, this function may not work properly.

Chapter 4

OSD Operation

OSD Overview

The on-screen display (OSD) is a menu driven method to handle computer control and switching operations. All procedures start from the OSD Main Screen.

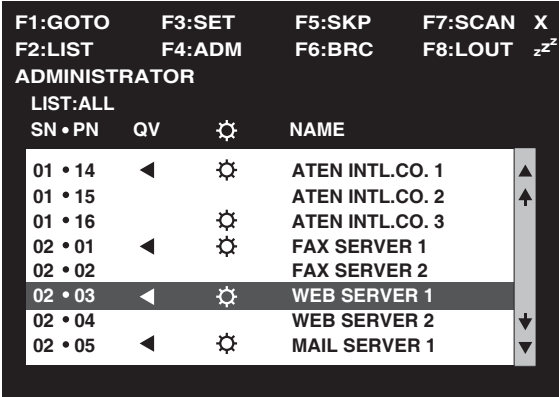
To pop up the Main Screen, tap the **OSD** key (see page 69), or tap the **[Scroll Lock]** key twice.

Note: You can optionally change the Hotkey to the Ctrl key, in which case you would tap **[Ctrl]** twice (see *OSD Hotkey*, p. 32). With this method, the **[Ctrl]** keys must be on the same side (both left, or both right).

The OSD incorporates a two level (Administrator / User) password system. Before the OSD Main Screen comes up, a login dialog box appears that asks you to provide your username password. If the password function has been set, you must provide a valid username and password in order to access the OSD Main Screen.

If this is the first time that the OSD is being run, or if the password function has not been set, simply press **[Enter]**. The OSD Main Screen comes up in Administrator Mode. In this mode, you have Administrator privileges, with access to all Administrator and User functions, and can set up operations (including password authorization for the future), as you would like.

When you invoke the OSD, a screen similar to the one below appears:




-
- Note:** 1. The diagram depicts the Administrator's Main Screen. The User Main Screen does not show the **F4** and **F6** functions, since these are reserved for the Administrator and can't be accessed by ordinary Users.
2. The OSD always starts in List view, with the highlight bar at the same position it was in the last time it was closed.
3. Only the ports that have been set accessible by the Administrator for the currently logged in User are visible (see *SET ACCESSIBLE PORTS*, p. 36, for details).
-

OSD Navigation

- ♦ To dismiss the menu, and deactivate the OSD, Click the **X** at the upper right corner of the OSD Window; or press **[Esc]**.
- ♦ To Logout, click **F8** or the **ZZZ** symbol at the top of the Main Screen, or press **[F8]**.
- ♦ To move up or down through the list one line at a time, click the up and down triangle symbols (**▲▼**) or use the up and down arrow keys. If there are more list entries than there is room for on the Main Screen, the screen will scroll.
- ♦ To move up or down through the list one screen at a time, click the up and down arrow symbols (**↑↓**), or use the **[pg up]** and **[pg dn]** keys. If there are more list entries than there is room for on the Main Screen, the screen will scroll.
- ♦ To bring the KVM focus to a port, double-click it, or move the highlight bar to it then press **[Enter]**.
- ♦ After executing any action, you automatically go back to the menu one level above.

OSD Main Screen Headings

Heading	Explanation
SN-PN	This column lists the Port ID numbers (Station Number - Port Number) for all the KVM ports on the installation. The simplest method to access a particular computer is to Click it, or move the Highlight Bar to it, then press [Enter] .
QV	If a port has been selected for Quick View scanning (see <i>Set Quick View Ports</i> , p. 36), an arrowhead displays in this column to indicate so.
	The computers that are powered on and are On Line have a Sun symbol in this column to indicate so.
NAME	If a port has been given a name (see <i>Edit Port Names</i> , p. 35), its name appears in this column.

OSD Functions

OSD functions are used to configure and control the OSD. For example, you can: rapidly switch to any port; scan selected ports only; limit the list you wish to view; designate a port as a Quick View Port; create or edit a port name; or make OSD setting adjustments.

To access an OSD function:

1. Either click a function key field at the top of the Main Screen, or press a function key on the keyboard.
2. In the Submenus that appear make your choice either by double-clicking it, or moving the highlight bar to it, then pressing **[Enter]**.
3. Press **[Esc]** to return to the previous menu level.

F1: GOTO

GOTO allows you to switch directly to a port either by keying in the port's *Name*, or its *Port ID*.

- ♦ To use the Name method, key in **1**; key in the port's Name; then press **[Enter]**.
- ♦ To use the Port ID method, key in **2**; key in the *Port ID*; then press **[Enter]**.

Note: You can key in a partial name or port ID. In that case, the screen will show all the computers that the User has *View* rights to (see *SET ACCESSIBLE PORTS*, p. 36), that match the name or port ID pattern, regardless of the current List settings (see *F2 LIST*, p. 31, for details).

To return to the OSD Main Screen without making a choice, press **[Esc]**.

F2: LIST

This function lets you broaden or narrow the scope of which ports the OSD displays on the Main Screen. Many of the OSD functions only operate on the computers currently selected for Listing on the Main Screen with this function. The submenu choices and their meanings are given in the table below:

Choice	Meaning
ALL	Lists all of the ports on the installation.
QUICK VIEW	Lists only the ports that have been selected as Quick View Ports (see <i>SET ACCESSIBLE PORTS</i> , p. 36).
POWERED ON	Lists only the ports that have their attached computers Powered On.
QUICK VIEW + POWERED ON	Lists only the ports that have been selected as Quick View Ports (see <i>SET QUICK VIEW PORTS</i> , p. 36), and that have their attached computers Powered On.

Double-click the choice you want, or move the highlight bar to it, then press **[Enter]**. An icon appears before the choice to indicate that it is the currently selected one.

F3: SET

This function allows the Administrator and each User to set up their own, individual, working environment. A separate profile for each is stored by the OSD and is activated according to the username provided during login.

To change a setting:

1. Double-click it; or move the highlight bar to it, then press **[Enter]**.
2. After you select an item, a submenu with further choices appears. To make a selection, either double-click it; or move the highlight bar to it, then press **[Enter]**. An icon appears before the selected choice to indicate which one it is. The settings are explained in the following table:

Setting	Function
OSD HOTKEY	Selects which Hotkey activates the OSD function: [Scroll Lock] [Scroll Lock] or [Ctrl] [Ctrl] . Since the Ctrl key combination may conflict with programs running on the computers, the default is the Scroll Lock combination.
PORT ID DISPLAY POSITION	Allows you to position where the Port ID appears on the monitor. The default is the upper left corner, but you can have it appear anywhere on the screen. Use the Mouse or the Arrow Keys plus Pg Up, Pg Dn, Home, End, and 5 (on the numeric keypad with Num Lock off), to position the Port ID display, then Click or press [Enter] to lock the position and return to the Set submenu.
PORT ID DISPLAY DURATION	Determines how long a Port ID displays on the monitor after a port change has taken place. The choices are: User Defined – lets you select the amount of time (from 1–255 sec.); and Always On – displays the Port ID at all times. If you select <i>User Defined</i> , key in the number of seconds, then press [Enter] . The default is 3 seconds. A setting of 0 (zero) disables this function.

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Setting	Function
PORT ID DISPLAY MODE	Selects how the Port ID is displayed: the Port Number alone (PORT NUMBER); the Port Name alone (PORT NAME); or the Port Number plus the Port Name (PORT NUMBER + PORT NAME). The default is PORT NUMBER + PORT NAME .
SCAN DURATION	Determines how long the focus dwells on each port as it cycles through the selected ports in Auto Scan Mode (see <i>F7 SCAN</i> , p. 40). Key in a value from 1 - 255 seconds, then press [Enter] . Default is 5 seconds; a setting of 0 disables the Scan function.
SCAN/SKIP MODE	Selects which computers will be accessed under Skip Mode (see <i>F5 SKP</i> , p. 38), and Auto Scan Mode (see <i>F7 SCAN</i> , p. 40). Choices are: ALL – All the Ports which have been set Accessible (see <i>SET ACCESSIBLE PORTS</i> , p. 36); QUICK VIEW – Only those Ports which have been set Accessible and have been selected as Quick View Ports (see <i>SET QUICK VIEW PORTS</i> , p. 36); POWERED ON – Only those Ports which have been set Accessible and are Powered On; QUICK VIEW + POWERED ON – Only those Ports which have been set Accessible and have been selected as Quick View Ports and are Powered On. The default is ALL .
SCREEN BLANKER	If there is no input from the console for the amount of time set with this function, the screen is blanked. Key in a value from 1–30 minutes, then press [Enter] . A setting of 0 disables this function. The default is 0 (disabled).
HOTKEY COMMAND MODE	Enables / Disables the Hotkey Command function. If the hotkey combinations conflict with programs running on the computers, you may want to disable hotkey operation by turning Hotkey Command Mode Off. The default is ON, allowing hotkey operation.

F4: ADM

F4 is an Administrator only function. It allows the Administrator to configure and control the overall operation of the OSD. To change a setting double-click it; or use the up and down arrow keys to move the highlight bar to it and then press **[Enter]**.

After you select an item, a submenu with further choices appears. Double-click the choice you want, or move the Highlight Bar to it then press **[Enter]**. An icon appears before the selected choice so that you know which one it is. The settings are explained in the following table:

Setting	Function
SET USERNAME AND PASSWORD	<p>This function is used to set Usernames and Passwords for the Administrator and Users:</p> <ul style="list-style-type: none">◆ One Administrator and four User passwords can be set.◆ After you select the Administrator field or one of the User fields, a screen that allows you to key in your username and password appears. The username and password may be up to 15 characters long, and can consist of any combination of letters and numbers (A - Z, 0 - 9).◆ For each individual, key in the Username and Password, then press [Enter].◆ To modify or delete a previous Username and/or Password, use the backspace key to erase individual letters or numbers.
SET LOGOUT TIMEOUT	<p>If there is no input from the console for the amount of time set with this function, the Operator is automatically logged out. A login is necessary before the console can be used again.</p> <p>This enables other Operators to gain access to the computers when the original Operator is no longer accessing them, but has forgotten to log out. To set the timeout value, key in a number from 1 - 180 minutes, then press [Enter]. If the number is 0 [zero], this function is disabled. Default is 0 (disabled).</p>

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Setting	Function
EDIT PORT NAMES	<p>To help remember which computer is attached to a particular port, every port can be given a name. This function allows the Administrator to create, modify, or delete port names. To Edit a port name:</p> <ol style="list-style-type: none"> Click the port you want, or use the Navigation Keys to move the highlight bar to it, then press [Enter]. Key in the new Port Name, or modify/delete the old one. The maximum number of characters allowed for the Port Name is 12. Legal characters include: <ul style="list-style-type: none"> ♦ Alpha characters: A - Z ♦ All numeric characters: 0 - 9 ♦ + - / . and Space <p>Case does not matter; the OSD displays the Port Name in all capitals no matter how they were keyed in.</p> When you have finished editing, press [Enter] to have the change take effect. To abort the change, press [Esc].
RESTORE DEFAULT VALUES	<p>This function is used to undo all changes and return the setup to the original factory default settings (see <i>OSD Factory Default Settings</i>, page 64) - except for the <i>Names</i> settings that were assigned to the Ports, which are saved.</p>
CLEAR THE NAME LIST	<p>This function is similar to Restore Default Values. The difference is that it also clears the <i>Names</i> settings along with undoing all changes and returning the setup to the original factory default settings.</p>
ACTIVATE BEEPER	<p>Choices are Y (for Yes), or N (for No). When activated, the beeper sounds whenever a Port is changed; when activating the Auto Scan function (see <i>F7 SCAN</i>, p. 40); or an invalid entry is made on an OSD menu. The default is Y (activated).</p>

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Setting	Function
SET QUICK VIEW PORTS	<p>This function lets the Administrator select which Ports to include as Quick View ports.</p> <ul style="list-style-type: none"> ♦ To select/deselect a port as a Quick View Port, use the Navigation Keys to move the highlight bar to it, then press the [Spacebar]. ♦ When a port has been selected as a Quick View Port, an arrowhead displays in the QV column of the LIST on the Main Screen to indicate so. When a port is deselected, the arrowhead disappears. ♦ If one of the Quick View options is chosen for the LIST view (see <i>F2 LIST</i>, p. 31), only a Port that has been selected here will display on the List. ♦ If one of the Quick View options is chosen for Auto Scanning (see <i>SCAN/SKIP MODE</i>, p. 33), only a Port that has been selected here will be Auto Scanned. <p>The default is for no ports to be selected.</p>
SET ACCESSIBLE PORTS	<p>This function allows the Administrator to define User access to the computers on the installation on a Port-by-Port basis.</p> <p>For each User, select the target Port; then press the [Spacebar] to cycle through the choices: F (Full access), V (View only), or blank. Repeat until all access rights have been set, then press [Enter]. The default is F for all users on all ports.</p> <p>Note: A blank setting means that no access rights are granted. The port will not show up on the User's LIST on the Main Screen.</p>

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Setting	Function
RESET STATION IDS	<p>If you change the position of one of the Stations in the daisy chain, the OSD settings will no longer correspond to the new situation. This function directs the OSD to rescan the Station positions of the entire installation and updates the OSD so that the OSD Station information corresponds to the new physical layout.</p> <p>Note: Only the Station Numbers get updated. Except for the Port Names, all Administrator settings (such as Set Accessible Ports, Set Quick View Ports, etc.), for all of the computers affected by the change, have to be manually redone.</p>
FIRMWARE UPGRADE	<p>In order to upgrade the CL5208 / CL5216's firmware (see Chapter 6), you must first enable <i>Firmware Upgrade Mode</i> with this setting.</p> <p>When you bring up this menu, the current firmware version levels display. Select Y to enable Firmware Upgrade Mode, or N to leave this menu without enabling it.</p>
SET CONSOLE MODE	<p>This setting selects which consoles (internal/external) are enabled:</p> <p>0 – Both consoles enabled 1 – LCD console only 2 – External console only</p> <p>Use the spacebar to cycle to the choice you want. The default is 0.</p>

F5: SKP

This function enables you to easily skip backward or forward, switching the KVM focus from the currently active computer port to the previous or next available one.

- ♦ The selection of computers available for Skip Mode switching is made with the *Scan/Skip Mode* setting under the **F3 SET** function (see p. 32).
- ♦ When you are in Skip Mode, press:

- ← To skip to the previous port in the List.
- To skip to the next port in the List.
- ↑ To skip to the last port of the previous station in the List.
- ↓ To skip to the first port of the next station in the List.

Note: When you skip, you only skip to the previous or next available computer that is in the *Scan/Skip Mode* selection (see p. 33).

- ♦ If a Port has been selected for *Scan/Skip Mode*, when the focus switches to that port a Left/Right Triangle symbol appears before its Port ID Display to indicate so.
- ♦ While Skip Mode is in effect, the console will not function normally. You must exit Skip Mode in order to regain control of the console.
- ♦ To exit Skip Mode, press **[Spacebar]** or **[Esc]**.

F6: BRC

F6 is an Administrator only function. When this function is in effect, commands sent from the console are broadcast to all available computers on the installation.

This function is particularly useful for operations that need to be performed on multiple computers, such as performing a system wide shutdown, installing or upgrading software, etc.

BRC works in conjunction with the **F2 LIST** function. The LIST function (see p. 31), is used to broaden or narrow the focus of which Ports appear on the OSD Main Screen. When you Broadcast a command, it only goes to the Ports currently selected to be listed on the OSD Main Screen.

- ♦ While BRC Mode is in effect, a Speaker symbol appears before the Port ID Display of the port that currently has the console focus.
- ♦ While BRC Mode is in effect, the mouse will not function normally. You must exit BRC Mode in order to regain control of the mouse.
- ♦ To exit BRC Mode, invoke the OSD (with the OSD Hotkey), then click the **F6** field, or press [**F6**], to turn BRC Mode off.

F7: SCAN

This function automatically switches among the available computers at regular intervals so that you can monitor their activity without having to take the trouble of switching manually.

- ♦ The selection of computers to be included for Auto Scanning is made with the *Scan/Skip Mode* setting under the **F3 SET** function (see p. 32).
- ♦ The amount of time that the focus stays on each Port is set with the *Scan Duration* setting under the **F3 SET** function (see p. 32).
- ♦ As each computer is accessed, an “S” appears in front of the Port ID display to indicate that it is being accessed under *Auto Scan Mode*.
- ♦ While you are in Auto Scan Mode, you can pause the scanning in order to keep the focus on a particular computer either by pressing **P**, or with a left click of the mouse. To resume scanning, press any key or left click, again. See *Invoking Auto Scan*, page 43, for further details.
- ♦ To stop scanning and stay at a particular location, press the [Spacebar] to exit *Auto Scan Mode*. If the scanning stops on an empty port, or one where the computer is attached but is powered Off, the monitor screen will be blank, and the mouse and keyboard will have no effect. Simply wait – after the *Scan Duration* time is up, the Scan function will move to the next port.
- ♦ While Auto Scan Mode is in effect, the console will not function normally. You must exit Auto Scan Mode in order to regain control of the console.
- ♦ To exit Auto Scan Mode, press the [**Spacebar**] or [**Esc**].

F8: LOUT

Clicking the **F8** field or, or pressing [**F8**] logs you out of the OSD, and blanks the console screen. This is different from simply deactivating the OSD when you are at the Main Screen by pressing [**Esc**].

With this function you must log in again to regain access to the OSD, whereas with [**Esc**], all you have to do to reenter the OSD is tap the OSD Hotkey.

-
- Note:** 1. When you reenter the OSD after logging out, the screen stays blank except for the OSD Main Screen. You must input your password before you can continue.
2. If you reenter the OSD after logging out, and immediately use [**Esc**] to deactivate the OSD without having selected a port from the OSD menu, a Null Port message displays on the screen. The OSD Hotkey will bring up the Main OSD Screen.
-

Chapter 5

Keyboard Port Operation

Hotkey Port Access

Hotkey port access allows you to provide the KVM focus to any computer on your installation directly from the keyboard. The CL5208 / CL5216 provides three hotkey port access features:

- ♦ Selecting the Active Port
- ♦ Auto Scanning
- ♦ Skip Mode Switching

Note: The hotkey function must be enabled to use hotkey operations. See *HOTKEY COMMAND MODE*, page 33 for details.

Invoking Hotkey Mode

All hotkey operations begin by invoking *Hotkey* mode. There are two methods to invoke *Hotkey* mode. The first is to tap the **Hotkey** key on the keyboard (see , page 69); the second, is as follows:

1. Press and hold the **Num Lock** key;
2. Press and release the **minus** key;
3. Release the **Num Lock** key:

[Num Lock] + [-] ;

When Hotkey Mode is active:

- ♦ The Caps Lock, and Scroll Lock LEDs flash in succession. They stop flashing and revert to normal status when you exit *Hotkey* mode.
- ♦ A command line appears on the monitor screen. The command line prompt is the word *Hotkey:* in yellow text on a blue background, and displays the subsequent hotkey information that you key in.
- ♦ Ordinary keyboard and mouse functions are suspended. Only hotkey compliant keystrokes and mouse clicks can be input (described in the sections that follow).
- ♦ Pressing [Esc] exits *Hotkey* mode.

Selecting the Active Port

Each KVM port is assigned a unique port ID (see *Port ID Numbering*, page 25). You can directly access any computer on the installation with a hotkey combination that specifies the port ID of the KVM port that the computer is connected to. The steps involved are:

1. Invoke *Hotkey* mode (see p. 41).

2. Key in the port ID

The port ID numbers display on the command line as you key them in. If you make a mistake, use **[Backspace]** to erase the wrong number.

3. Press **[Enter]**

After you press **[Enter]**, the KVM focus switches to the designated computer and you automatically exit *Hotkey* mode.

Auto Scanning

Auto Scan automatically switches among all the active KVM ports that are accessible to the currently logged on User at regular intervals, allowing automatic monitoring of computer activity. (See *Scan/Skip Mode* of the OSD **F3 SET** function, p. 32 for information regarding accessible ports.)

Setting the Scan Interval

The amount of time Auto Scan dwells on each port is set with the *Scan Duration* setting of the OSD **F3 SET** function (see p. 32). You can change the scan interval before activating hotkey auto scanning, if you wish, with the following hotkey combination:

1. Invoke *Hotkey* mode (see p. 41).

2. Key in **[T] [n]**

Where **[T]** is the letter **T**, and **[n]** is a number from 1–255 that is the number of seconds the system dwells on a port before going on to the next.

The letter **T** and the numbers display on the command line as you key them in. If you make a mistake, use **[Backspace]**.

3. Press **[Enter]**

After you press **[Enter]**, you automatically exit *Hotkey* mode, and are ready to invoke auto scanning.

Invoking Auto Scan

To start auto scanning, key in the following hotkey combination:

1. Invoke *Hotkey* mode (see p. 41).
2. Press **[A]**.

When you press **A**, you automatically exit *Hotkey* mode; enter *Auto Scan* mode; and auto scanning begins.

- ♦ While you are in *Auto Scan* mode, you can pause the scanning in order to keep the focus on a particular computer either by pressing **P** or with a left click of the mouse. During the time that auto scanning is paused, the command line displays: **Auto Scan: Paused.**

Pausing when you want to keep the focus on a particular computer is more convenient than exiting *Auto Scan* mode because when you resume scanning, you start from where you left off.

If you exit *Auto Scan* mode when you restart scanning, you start over from the beginning with the very first computer on the installation.

To resume auto scanning after pausing, press any key or left click. Scanning continues from where it left off.

- ♦ 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 press **[Esc]** or **[Spacebar]**. Auto scanning stops when you exit *Auto Scan* mode.

Skip Mode

This feature allows you to switch between computers in order to monitor them manually. You can dwell on a particular port for as long or as little as you like, as opposed to auto scanning, which automatically switches after a fixed interval. To invoke *Skip* mode, key in the following Hotkey combination:

1. Invoke *Hotkey* mode (see p. 41).
2. Key in **[Arrow]**
 - ♦ Where [Arrow] refers to one of the arrow keys. After you press [Arrow], you automatically exit *Hotkey* mode, and enter *Skip* mode where you can switch ports as follows:

←	Skips to the first accessible port previous to it. (See <i>SCAN/SKIP MODE</i> , page 33, for information regarding accessible ports.)
→	Skips to the next accessible port.
↑	Skips to the last accessible port of the previous station. If you are at a port on the first station you cycle backward to the last accessible port on the last station.
↓	Skips to the first accessible port of the next station. If you are at a port on the last station you cycle forward to the first accessible port on the first station.

- ♦ Once you are in *Skip* mode, you can keep on skipping by pressing the arrow keys. You don't have to invoke *Hotkey* mode again.
 - ♦ While *Skip* mode is in effect, ordinary keyboard and mouse functions are suspended. Only *Skip* mode compliant keystrokes can be input. You must exit *Skip* mode to regain normal control of the console.
3. To exit *Skip* mode, press **[Esc]** or **[Spacebar]**.

Hotkey Beeper Control

The Beeper can be hotkey toggled on and off (see *ACTIVATE BEEPER*, page 35). To toggle the beeper, key in the following hotkey combination:

1. Invoke *Hotkey* mode (see p. 41).
2. Press **[B]**

After you press **B**, the beeper toggles on or off. The command line displays *Beeper On* or *Beeper Off* for one second; then the message disappears and you automatically exit *Hotkey* mode.

Hotkey Summary Table

[Num Lock] + [-]	[Port ID] [Enter]	Switches the KVM focus to the computer that corresponds to that Port ID
	[A]	<p>Invokes <i>Auto Scan</i> mode.</p> <ul style="list-style-type: none"> ◆ When <i>Auto Scan</i> mode is in effect, [P] or left click pauses auto scanning. ◆ When auto scanning is paused, pressing [P] or left clicking again resumes auto scanning. <p>Note: Pressing almost any of the keys will resume scanning.</p>
	[←]	Skips to the first accessible port previous to it. (See <i>SCAN/SKIP MODE</i> , page 33, for information regarding accessible ports.)
	[→]	Skips to the next accessible port.
	[↑]	Skips to the last accessible port of the previous station. If you are at a port on the first station you cycle backward to the last accessible port on the last station.
	[↓]	Skips to the first accessible port of the next station. If you are at a port on the last station you cycle forward to the first accessible port on the first station.
	[B]	Toggles the beeper on and off.

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Chapter 6

The Firmware Upgrade Utility

Overview

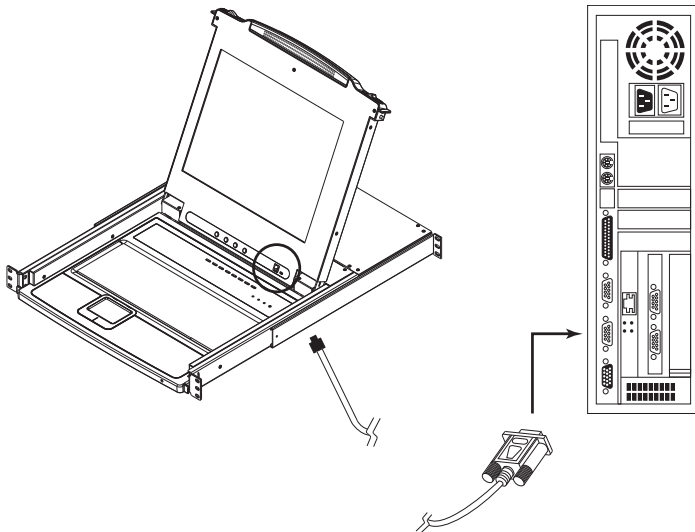
The Windows-based firmware upgrade utility (FWUpgrade.exe) provides a smooth, automated process for upgrading the KVM switch's firmware.

The utility comes as part of a firmware upgrade package that is specific for each device. New firmware upgrade packages are posted on our web site as new firmware revisions become available. Check the web site regularly to find the latest packages and information relating to them.

Preparation

To prepare for the firmware upgrade, do the following:

1. From a computer that is not part of your KVM installation go to our Internet support site and choose the model name that relates to your device 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. Use the firmware upgrade cable (provided with this unit), to connect a COM port on your computer to the firmware upgrade port of your switch.



Note: On a daisy chained installation, the chained stations will automatically receive the upgrade via the daisy chain cables.

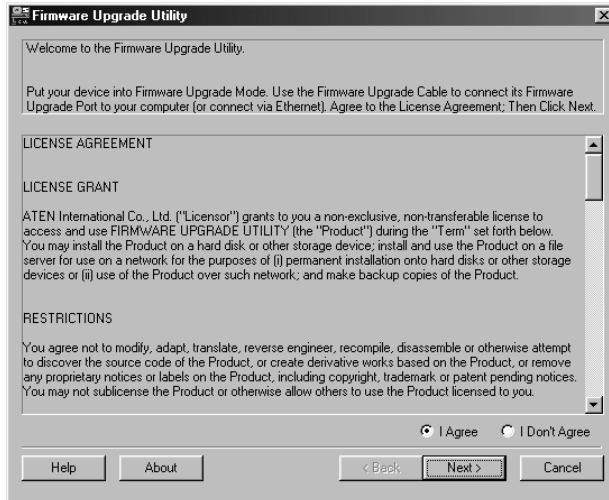
4. Shut down all of the computers, but not the stations, on your KVM installation.
5. From your KVM switch console, bring up the OSD (see page 27) and select the **F4: ADM** function.
6. Scroll down to **FIRMWARE UPGRADE**. Press **[Enter]**, then press **[Y]** to invoke *Firmware Upgrade Mode* (see page 37) For your reference, the current firmware upgrade version displays on the screen.

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.

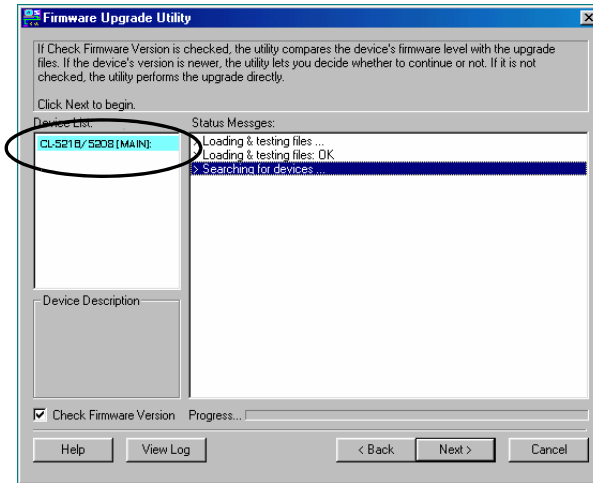
The Firmware Upgrade Utility *Welcome* screen appears:



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.

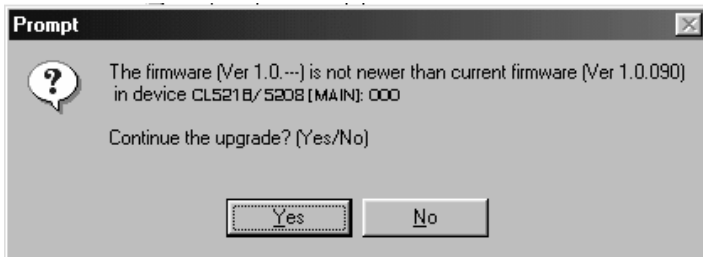
2. Read and agree to the license agreement.
3. Click **Next** to continue.

The firmware upgrade utility main screen appears:



The utility inspects your installation. The devices capable of being upgraded are listed in the *Device List* panel.

4. After all the devices have been listed, 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.

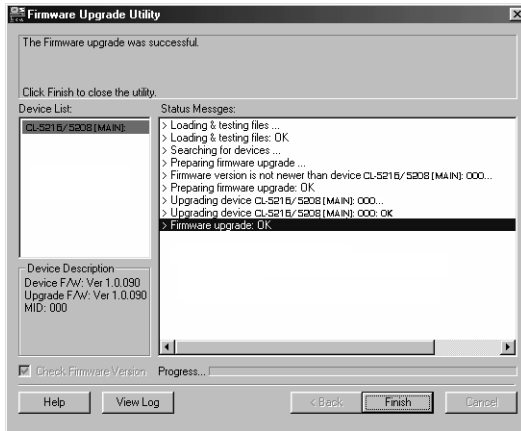
- ♦ As the upgrade proceeds status messages appear in the *Status Messages* panel, and the progress toward completion is shown on the *Progress* bar.
- ♦ To abort the upgrade procedure before it completes, click **Cancel**.

If you cancel before completion, a dialog box appears warning you that quitting at this point may cause the device's firmware to be lost, and you are given the option to proceed or abort the cancel operation.

To recover from a “lost firmware” situation, see *Firmware Upgrade Recovery*, page 52.

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.

Upgrade Failed

If the *Upgrade Succeeded* screen doesn't appear, it means that the upgrade failed to complete successfully. See the next section, *Firmware Upgrade Recovery*, for how to proceed.

Firmware Upgrade Recovery

There are basically three conditions that call for firmware upgrade recovery:

- ♦ When you invoke *Firmware Upgrade* mode (see *Preparation*, page 48), but decide not to proceed with the upgrade.
- ♦ When the mainboard firmware upgrade fails.
- ♦ When the I/O firmware upgrade fails.

To perform a firmware upgrade recovery, do the following:

1. Power off the switch. If the switch is part of a daisy chain, disconnect it from the chain.
2. Connect the firmware upgrade cable to its firmware upgrade port.
3. Slide the firmware upgrade recovery switch to the **Recover** position.
4. Power the switch back on and repeat the upgrade procedure.
5. After the switch has been successfully upgraded, power it off, and slide the firmware upgrade recovery switch back to the **Normal** position.
6. If the switch is part of a daisy chain, replace it in the chain.
7. Power the switch back on.

Safety Instructions

General

- ♦ Read all of these instructions. Save them for future reference.
- ♦ 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.
- ♦ The device is designed for IT power distribution systems with 230V phase-to-phase voltage.
- ♦ To prevent damage to your installation it is important that all devices are properly grounded.
- ♦ The device is equipped with a 3-wire grounding type plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not attempt to defeat the purpose of the grounding-type plug. Always follow your local/national wiring codes.
- ♦ Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.

- ♦ If an extension cord is used with this device make sure that the total of the ampere ratings of all products used on this cord does not exceed the extension cord ampere rating. Make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
- ♦ To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or un-interruptible power supply (UPS).
- ♦ Position system cables and power cables carefully; Be sure that nothing rests on any cables.
- ♦ Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.
- ♦ Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.
- ♦ If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair.
 - ♦ The power cord or plug has become damaged or frayed.
 - ♦ Liquid has been spilled into the device.
 - ♦ The device has been exposed to rain or water.
 - ♦ The device has been dropped, or the cabinet has been damaged.
 - ♦ The device exhibits a distinct change in performance, indicating a need for service.
 - ♦ The device does not operate normally when the operating instructions are followed.
- ♦ Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.
- ♦ Do not connect the RJ-11 connector marked “UPGRADE” to a public telecommunication network.

Rack Mounting

- ♦ Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.
- ♦ Always load the rack from the bottom up, and load the heaviest item in the rack first.
- ♦ Make sure that the rack is level and stable before extending a device from the rack.
- ♦ Use caution when pressing the device rail release latches and sliding a device into or out of a rack; the slide rails can pinch your fingers.
- ♦ After a device is inserted into the rack, carefully extend the rail into a locking position, and then slide the device into the rack.
- ♦ Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.
- ♦ Make sure that all equipment used on the rack – including power strips and other electrical connectors – is properly grounded.
- ♦ Ensure that proper airflow is provided to devices in the rack.
- ♦ Ensure that the operating ambient temperature of the rack environment does not exceed the maximum ambient temperature specified for the equipment by the manufacturer
- ♦ Do not step on or stand on any device when servicing other devices in a rack.
- ♦ **Caution:** Slide/rail (LCD KVM) mounted equipment is not to be used as a shelf or a work space.



Technical Support

International

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

North America

Email Support		ATEN TECH	support@aten-usa.com
		ATEN NJ	sales@aten.com
Online Support	Technical Support	ATEN TECH	http://www.aten-usa.com/support
		ATEN NJ	http://support.aten.com
	Troubleshooting Documentation Software Updates	ATEN TECH	http://www.aten-usa.com
		ATEN NJ	http://www.aten.com
Telephone Support		ATEN TECH	1-888-999-ATEN
		ATEN NJ	1-732-356-1703

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			CL5208C	CL5208D
Computer Connections	Direct		8	
	Max		256 (via 32-level daisy chain)	
Console Connections			1	
Port Selection			OSD; Hotkey; Pushbutton Switches	
Connectors	External Console Ports	Keyboard	1 x 6-pin Mini-DIN F (Purple)	
		Video	1 x HDB-15 F	
		Mouse	1 x 6-pin Mini-DIN F (Green)	
	KVM Ports		8 x SPHD-15 F	
	Daisy Chain		1 x DB-25 M	
	FW Upgrade		1 x FW Upgrade Port	
	Power		1 x 3W3	
Switches	Reset		1 x Semi-recessed Pushbutton	
	Power		1 x Rocker	
	F/W Upgrade.		1 x Slide	
	LCD Adjust		4 x Pushbutton	
	Port Selection		8 x Pushbutton	
LEDs	On Line		8 (Orange)	
	Selected		8 (Green)	
	Power		1 (Blue)	
	Lock	Num	1 (Green)	
		Caps	1 (Green)	
		Scroll	1 (Green)	
Emulation	Keyboard / Mouse		PS/2	
Video			1024 x 768 @ 75 Hz; DDC2B	1280 x 1024 @ 75 Hz; DDC2B
Scan Interval (OSD Select)			1–255 sec.	
I/P Rating			36–75 V DC, 1 A	36–72 V DC, 1.5 A
Power Consumption			DC 48 V; 17.8 W	DC 48 V; 19.7 W
Environment	Operating Temp.		0–40° C	
	Storage Temp.		-20–60° C	
	Humidity		0–80% RH	
Physical Properties	Housing		Metal	
	Weight		12.6 kg	13.1 kg
	Dimensions (L x W x H)		63.4 x 48 x 4.4 cm (19" / 1U)	

Function			CL5208L	CL5208M
Computer Connections	Direct		8	
	Max		256 (via 32-level daisy chain)	
Console Connections			1	
Port Selection			OSD; Hotkey; Pushbutton Switches	
Connectors	External Console Ports	Keyboard	1 x 6-pin Mini-DIN F (Purple)	
		Video	1 x HDB-15 F	
		Mouse	1 x 6-pin Mini-DIN F (Green)	
	KVM Ports		8 x SPHD-15 F	
	Daisy Chain		1 x DB-25 M	
	FW Upgrade		1 x FW Upgrade Port	
	Power		1 x 3-prong AC socket	
	Switches	Reset		1 x Semi-recessed Pushbutton
Power		1 x Rocker		
F/W Upgrade.		1 x Slide		
LCD Adjust		4 x Pushbutton		
Port Selection		8 x Pushbutton		
LEDs	On Line		8 (Orange)	
	Selected		8 (Green)	
	Power		1 (Blue)	
	Lock	Num	1 (Green)	
		Caps	1 (Green)	
		Scroll	1 (Green)	
Emulation	Keyboard / Mouse		PS/2	
Video			1024 x 768 @ 75 Hz; DDC2B	1280 x 1024 @ 75 Hz; DDC2B
Scan Interval (OSD Select)			1–255 sec.	
I/P Rating			100–240 V AC; 50/60 Hz; 1 A	
Power Consumption			120V, 21W; 230V, 23W	120V, 30W; 230V, 37W
Environment	Operating Temp.		0–40° C	
	Storage Temp.		-20–60° C	
	Humidity		0–80% RH	
Physical Properties	Housing		Metal	
	Weight		12.6 kg	13.1 kg
	Dimensions (L x W x H)		63.4 x 48 x 4.4 cm (19" / 1U)	

Function			CL5216C	CL5216D
Computer Connections	Direct		16	
	Max		512 (via 32-level daisy chain)	
Console Connections			1	
Port Selection			OSD; Hotkey; Pushbutton Switches	
Connectors	External Console Ports	Keyboard	1 x 6-pin Mini-DIN F (Purple)	
		Video	1 x HDB-15 F	
		Mouse	1 x 6-pin Mini-DIN F (Green)	
	KVM Ports		16 x SPHD-15 F	
	Daisy Chain		1 x DB-25 M	
	FW Upgrade		1 x FW Upgrade Port	
	Power		1 x 3W3	
Switches	Reset		1 x Semi-recessed Pushbutton	
	Power		1 x Rocker	
	F/W Upgrade.		1 x Slide	
	LCD Adjust		4 x Pushbutton	
	Port Selection		16 x Pushbutton	
LEDs	On Line		16 (Orange)	
	Selected		16 (Green)	
	Power		1 (Blue)	
	Lock	Num	1 (Green)	
		Caps	1 (Green)	
		Scroll	1 (Green)	
Emulation	Keyboard / Mouse		PS/2	
Video			1024 x 768 @ 75 Hz; DDC2B	1280 x 1024 @ 75 Hz; DDC2B
Scan Interval (OSD Select)			1–255 sec.	
I/P Rating			36–75 V DC, 1A	36–72 V DC, 1.5 A
Power Consumption			DC 48 V; 19.2 W	DC 48 V; 21.1 W
Environment	Operating Temp.		0–40° C	
	Storage Temp.		-20–60° C	
	Humidity		0–80% RH	
Physical Properties	Housing		Metal	
	Weight		12.8 kg	13.3 kg
	Dimensions (L x W x H)		63.4 x 48 x 4.4 cm (19" / 1U)	

Function			CL5216L	CL5216M
Computer Connections	Direct		16	
	Max		512 (via 32-level daisy chain)	
Console Connections			1	
Port Selection			OSD; Hotkey; Pushbutton Switches	
Connectors	External Console Ports	Keyboard	1 x 6-pin Mini-DIN F (Purple)	
		Video	1 x HDB-15 F	
		Mouse	1 x 6-pin Mini-DIN F (Green)	
	KVM Ports		16 x SPHD-15 F	
	Daisy Chain		1 x DB-25 M	
	FW Upgrade		1 x FW Upgrade Port	
	Power		1 x 3-prong AC socket	
	Switches	Reset		1 x Semi-recessed Pushbutton
Power		1 x Rocker		
F/W Upgrade.		1 x Slide		
LCD Adjust		4 x Pushbutton		
Port Selection		16 x Pushbutton		
LEDs	On Line		16 (Orange)	
	Selected		16 (Green)	
	Power		1 (Blue)	
	Lock	Num	1 (Green)	
		Caps	1 (Green)	
		Scroll	1 (Green)	
Emulation	Keyboard / Mouse		PS/2	
Video			1024 x 768 @ 75 Hz; DDC2B	1280 x 1024 @ 75 Hz; DDC2B
Scan Interval (OSD Select)			1–255 sec.	
I/P Rating			100–240 V AC; 50/60 Hz; 1 A	
Power Consumption			120V, 22W; 230V, 26W	120V, 30W; 230V, 37W
Environment	Operating Temp.		0–40° C	
	Storage Temp.		-20–60° C	
	Humidity		0–80% RH	
Physical Properties	Housing		Metal	
	Weight		12.8 kg	13.3 kg
	Dimensions (L x W x H)		63.4 x 48 x 4.4 cm (19" / 1U)	

Connection Tables

The following tables indicate the relationship between the number of units and the number of computers that they control on a daisy chained installation:

CL5208 – ACS1208A

No.	Computers	No.	Computers	No.	Computers	No.	Computers
1	1–8	9	65–72	17	129–136	25	193–200
2	9–16	10	73–80	18	137–144	26	201–208
3	17–24	11	81–88	19	145–152	27	209–216
4	25–32	12	89–96	20	153–160	28	217–224
5	33–40	13	97–104	21	161–168	29	225–232
6	41–48	14	105–112	22	169–176	30	233–240
7	49–56	15	113–120	23	177–184	31	241–248
8	57–64	16	121–128	24	185–192	32	249–256

CL5208 – ACS1216A

No.	Computers	No.	Computers	No.	Computers	No.	Computers
1	1–8	9	121–136	17	249–264	25	377–392
2	9–24	10	137–152	18	265–280	26	393–408
3	25–40	11	152–168	19	281–296	27	409–424
4	41–56	12	169–184	20	297–312	28	425–440
5	57–72	13	185–200	21	313–328	29	441–456
6	73–88	14	201–216	22	329–344	30	457–472
7	89–104	15	217–232	23	345–360	31	473–488
8	105–120	16	233–248	24	361–376	32	489–504

CL5216 – ACS1208A

No.	Computers	No.	Computers	No.	Computers	No.	Computers
1	1–16	9	73–80	17	137–144	25	201–208
2	17–24	10	81–88	18	145–152	26	209–216
3	25–32	11	89–96	19	153–160	27	217–224
4	33–40	12	97–104	20	161–168	28	225–232
5	41–48	13	105–112	21	169–176	29	233–240
6	49–56	14	113–120	22	177–184	30	241–248
7	57–64	15	121–128	23	185–192	31	249–256
8	65–72	16	129–136	24	193–200	32	257–264

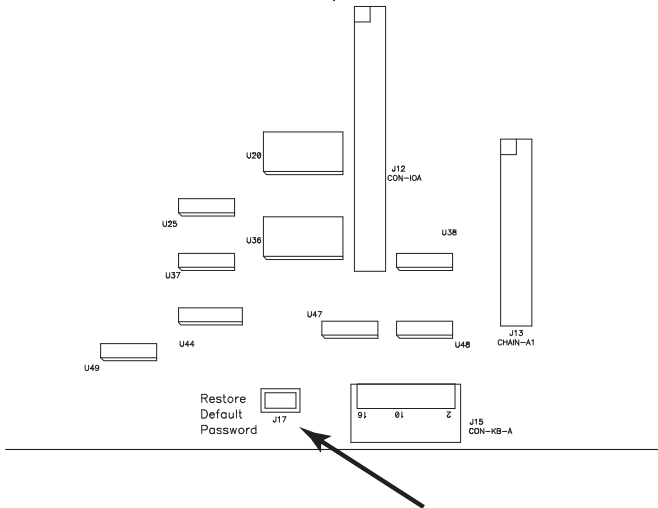
CL5216 – ACS1216A

No.	Computers	No.	Computers	No.	Computers	No.	Computers
1	1–16	9	129–144	17	257–272	25	385–400
2	17–32	10	145–160	18	273–288	26	401–416
3	33–48	11	161–176	19	289–304	27	417–432
4	49–64	12	177–192	20	305–320	28	433–448
5	65–80	13	193–208	21	321–336	29	449–464
6	81–96	14	209–224	22	337–352	30	465–480
7	97–112	15	225–240	23	353–368	31	481–496
8	113–128	16	241–256	24	369–384	32	497–512

Clear Login Information

If you are unable to perform an administrator login (because the username and password information has become corrupted, or you have forgotten it, for example), you can clear the login information with the following procedure:

1. Power off the switch and remove the top cover from the unit chassis.
2. Short the jumper labeled *Default Password* on the switch's main board



3. Power on the switch.

When you power the switch on, the following message appears on the LCD display:

```

USERNAME AND PASSWORD INFORMATION HAS BEEN CLEARED.
PLEASE POWER OFF THE SWITCH, REMOVE THE JUMPER, CLOSE
THE CASE, THEN RESTART.
  
```

4. After you start back up, the OSD login function acts exactly the way it did the first time the switch was run (see *OSD Overview*, page 27) and you can reset passwords for the administrators and users.

OSD Factory Default Settings

The factory default settings are as follows:

Setting	Default
OSD Hotkey	[Scroll Lock] [Scroll Lock]
Port ID Display Position	Upper Left Corner
Port ID Display Duration	3 Seconds
Port ID Display Mode	The Port Number plus the Port Name
Scan Duration	5 Seconds
Scan/Skip Mode	All
Screen Blanker	0 (Disabled)
Logout Timeout	0 (Disabled)
Beeper	Y (Activated)
Accessible Ports	F (Full) For all Users on all Ports

Optional Rack Mounting

For convenience and flexibility, three optional rack mounting kits are available:

- ♦ A long bracket standard rack mounting kit for 68.0–110.0 cm racks;
- ♦ A short bracket Easy-Installation rack mount kit for 52.0–70.0 cm racks;
- ♦ A long bracket Easy-Installation rack mount kit for 68.0–105.0 cm racks.

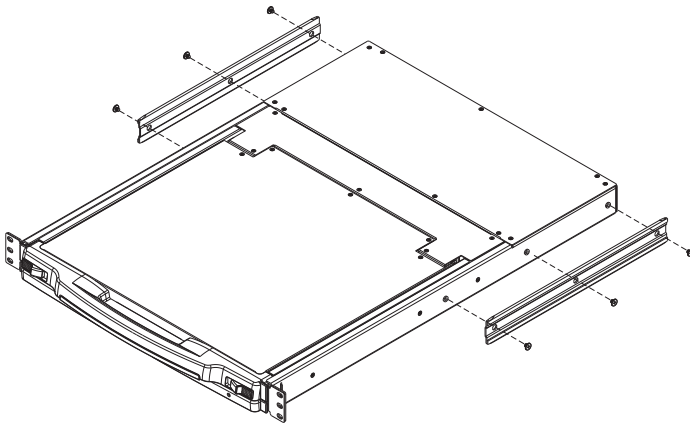
Standard – Long

To install the long bracket standard rack mount kit, simply replace the short L brackets on the standard rack mount kit with the long ones, and mount the switch according to the instructions given for *Standard Rack Mounting*, page 11.

Easy Installation

With an *Easy-Installation*, kit, one person can mount the switch. To install the *Easy-Installation* kit, do the following:

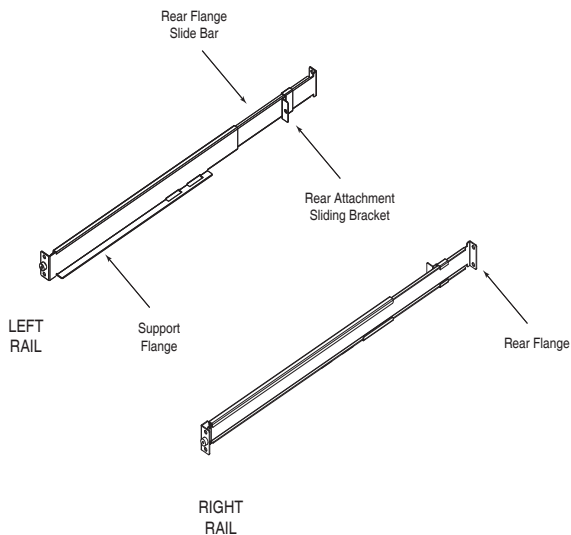
1. Remove the standard L brackets, and the side mounting brackets from both sides of the switch.



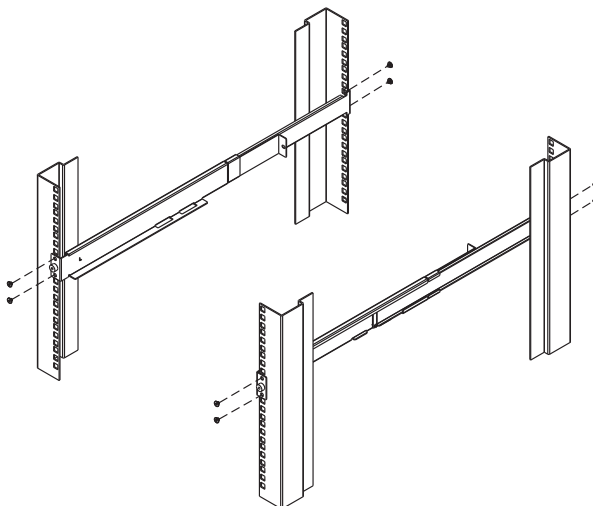
(Continues on next page.)

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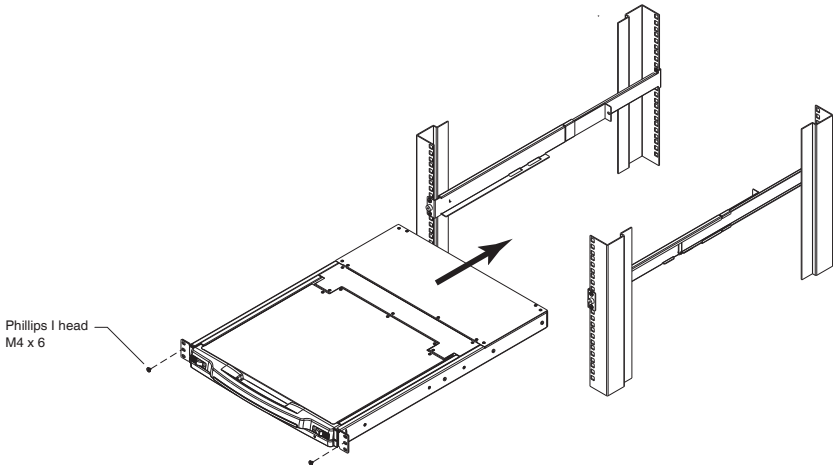
2. Attach the left and right *easy-installation* mounting rails to the inside of the rack. The flange that supports the switch will be to the inside.



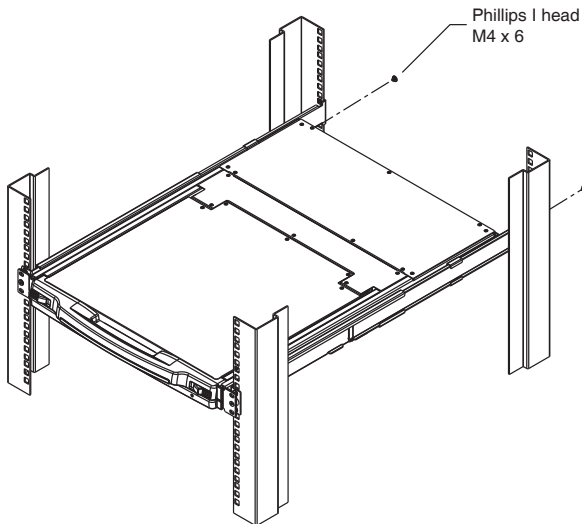
- a) Screw the front flanges to the rack first.
- b) Slide the bars with the rear flanges toward the rack until the flanges make contact with the rack, then screw the rear flanges to the rack.



- Slide the switch onto the support flanges. Use the screws supplied with this package to loosely attach the front of the switch to the front of the rack (only tighten the screws part way).



- Slide the rear attachment sliding brackets along the slide bars until they contact the rear of the switch, then use the screws supplied with this package to attach the bars to the rear of the switch (tighten the screws all the way).



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5. Slide the switch open and closed a couple of times to be sure that it is properly aligned and operating smoothly. (See p. 19 for opening and closing procedures.)
6. After determining that the switch is properly lined up and operating correctly, finish up by fully tightening down the partially tightened front attachment screws inserted in step 3.

Troubleshooting

Overview

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 47, for upgrade details.

Problem	Solution
There are ghost images on the external monitor.	The distance between the external console and the CL5208 / CL5216 is too great. The maximum VGA cable distance should not exceed 20 m and, in some cases, may need to be shorter. Replace the VGA cable with one of an appropriately short length.

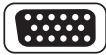
Dedicated Invocation Keys

Two dedicated keys are provided on the keyboard module to make it easy to invoke Hotkey Mode and the OSD, as shown in the diagram, below.



Note: These keys are toggles. Press them once to invoke the feature, press them again to exit.

About SPHD Connectors



This product uses SPHD connectors for its KVM and/or Console ports. We have specifically modified the shape of these connectors so that only KVM cables that we have designed to work with this product can be connected.



Limited Warranty

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

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