



# CPI CenterCade User's Manual

Version 1.0

8/2009



**CHATSWORTH  
PRODUCTS, INC.**

**800-834-4969**

**techsupport@chatsworth.com**

**www.chatsworth.com**

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Chatsworth Products, Inc.  
9353 Winnetka Avenue  
Chatsworth, CA 91311  
800-834-4969

### **CenterCade User's Manual**

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# INTRODUCTION

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## Product Overview

CenterCade by Chatsworth Products, Inc. (CPI) is a series of compact, 1 RMU, keyboard, video and mouse (KVM) switches designed to provide access to up to 16 servers. With the two user versions, two independent users can access any of the servers connected to the switch.

## Features

As server density increases, giving up valuable rack space for management consoles becomes a critical issue. CenterCade in combination with CenterPoint can reduce the space requirements for your KVM switch, monitor, keyboard and mouse to only 1 RMU.

- 16 and 8 port keyboard, video and mouse (KVM) switch
- One-user and two-user models
- Access to any of the 8 or 16 ports
- 1 RMU rack mount chassis – 19"W x 7"D x 1.75"H
- On-screen User Interface for server selection complements CenterPoint operation
- Unique high density cable design reduces cable clutter and eases installation
- Windows 98 or higher, Linux and Solaris compatible
- Includes all rack-mount hardware
- Multiple on-board processors monitor each port to assure availability

The CenterCade line of KVM switches includes one-user and two-user models with 8 and 16 ports. Each model operates the same and has the same feature set. The only difference between the models is the number of ports and whether one or two users can access connected equipment. On two-user models, two users can simultaneously access different ports on the same switch.

## USING THIS MANUAL

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This manual covers the CenterCade 8 port and 16 port, one-user and two-user KVM switches.

There are four models:

- P/N 35930-801 is a one user model with an 8 port KVM switch.
- P/N 35930-161 is a one user model with a 16 port KVM switch.
- P/N 35930-802 is a two user model with an 8 port KVM switch.
- P/N 35930-162 is a two user model with a 16 port KVM switch.

Generally, all of the information in this user manual pertains to all products. However, the number of accessible ports (16 or 8) controls what will be seen on the On-Screen display. For example, in the section on On-Screen controls some of the sample screens show multiple pages to accommodate the 16 ports found on 16 port CenterCades. If you are using the 8 port CenterCades, only one page is required to display all of the available port options. Therefore, you will not see previous and next on those screens and only a single screen will be displayed.

Additionally, two-user models have some additional menu options and a second set of connections for an external set of peripherals (monitor, keyboard and mouse).

## SAFETY WARNINGS AND CAUTIONS

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**WARNING! DO NOT open the top cover, Hazardous Voltages are present!**



**CAUTION! Account for heat when mounting CenterCade!**



**CAUTION! CenterCade must be mounted to ensure the integrity of the rack!**

DO NOT OPEN THE CENTERCADE CASE. There are no user serviceable parts inside and opening or removing covers may expose you to dangerous shock hazards or other risks. Opening CenterCade will void all warranties. Refer all servicing to qualified service personnel.

- Do not spill any liquids into the cabinet or use this equipment near water.
- Do not insert objects of any kind into the cabinet slots, as they may touch dangerous voltage points, which can be harmful or fatal or may cause electric shock, fire or equipment failure.
- Do not place any heavy objects on the power cord. Damage to the cord may cause shock or fire.
- Do not place this product on a sloping or unstable cart, stand or table, as the monitor may fall, causing serious damage to the monitor.

When operating CenterCade with AC 220-240V power supply, use a power supply cord that matches the power supply voltage of the AC power outlet being used. The power supply cord you use must have been approved by and comply with the safety standards of your country.

# RACK-MOUNT INSTRUCTIONS

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## **Warning!**

To reduce the risk of personal injury or damage to the equipment, be sure that the following items are completed **BEFORE** performing any work on the rack:

- The leveling jacks are extended to the floor.
- The full weight of the rack rests on the leveling jacks.
- The stabilizing feet are attached to the rack, if it is a single-rack installation.
- The racks are coupled in multiple-rack installations.
- Only one component is extended at a time.

For Installation you will need the following:

- CenterCade
- Power cord
- User Guide
- KVM Signal Cables for connecting video, keyboard, and mouse (ordered separately)

## **Installation Notes**

CenterCade is shipped with the rack brackets already installed on the unit. Attach CenterCade at a level that will accommodate the best configuration of the KVM cables. If mounting with a CenterPoint, CenterCade should be mounted as close to the CenterPoint product as possible. CenterCade may be mounted in the front or rear of the rack and the brackets can be mounted so that the server cable connectors face either direction in the rack. When mounting for use with two users, be sure to position so that the both user connection sections are accessible. One is on the side with the server connectors, the other on the opposite side.

## **Installation Procedure**

1. Align the screw holes on the brackets to the corresponding mounting holes in your rack.
2. Use two screws in each bracket to attach CenterCade to the rack.

## CABLE CONNECTIONS

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### Power

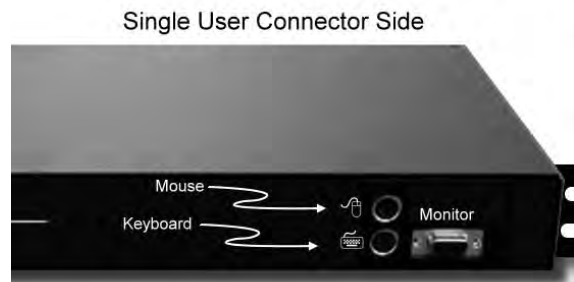
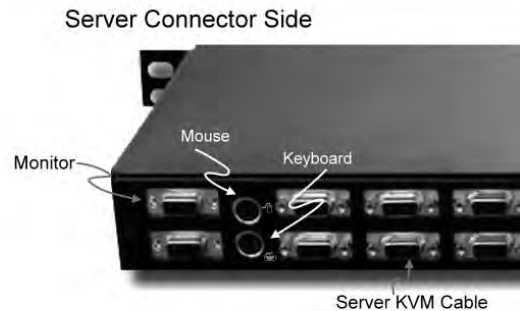
Check that the power switch is in the **OFF** position (O). Connect the included power cable to the receptacle located on the back of the CenterCade unit.

### Video, Keyboard and Mouse Output

A standard video monitor, keyboard and mouse device can be connected to either (or both) of the CenterCade video, keyboard and mouse user ports. One of these ports (available on all models) is located on the Server Connector Side along with the connections to the servers via the KVM cables.

The other user connection (available on two-user models only) is on the opposite side of the unit. In both cases there are PS/2 connectors for the keyboard and mouse and a standard 15-pin SVGA connector for the monitor connections.

When CenterCade is connected to the CenterPoint or CenterView products the user will be able to take advantage of enhancements that were specifically designed for this purpose. CenterCade users are connected to CenterPoint using a KVM Signal Cable (ordered separately). The three connectors on one end (15-pin video, PS/2 keyboard and PS/2 mouse) are connected to the corresponding CenterCade user output ports as shown. The other end (15-pin high density D type) is then connected to one of the KVM input ports on the CenterPoint unit. You may use any of the standard length cables to connect the CenterCade to the CenterPoint unit.



### KVM Signal Cables

CenterCade uses proprietary KVM Signal Cables (P/N 35941-0XX) to connect the unit to PC servers. One end of the cable is a 15-pin connector that attaches to the rear of CenterCade. The other end is split into three connectors; one 15-pin VGA connector for attachment to a server's video output; one PS/2 connector for the keyboard and one PS/2 connector for the mouse. Use a PS/2-to-USB Converter (P/N 35941-121) with the cable for equipment that has USB keyboard and mouse connections.

### Cable Lengths

Cable length affects video quality as well as keyboard and mouse data timing. The maximum cable length is determined in part by the computer and peripherals used. Not all systems give satisfactory results at the maximum length. KVM Signal Cables are available in six-, nine-, 12- and 20-foot lengths. A 12-foot extension cable is also available.

## CABLE CONNECTIONS

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### Connecting the Cables

First, power up the CenterCade unit and optionally power down any or all computers that will be connected to CenterCade. Then select the port that you wish to connect to on the CenterCade unit and attach the single 15-pin connector. Once this is done, make the proper connections to the server's video, mouse and keyboard receptacles. **IMPORTANT – Insure that the single 15-pin connector of the KVM cable is connected to the CenterCade unit first then connect the other end to the server's keyboard, mouse and video outputs. Failure to do so may result in damage to the server or the CenterCade unit.**

Repeat the above process for each of the servers that you wish to connect to CenterCade. Once all servers are connected you may then power up and boot each of the servers, if they are not already up and running. You may now proceed to configure the CenterCade unit using its On-Screen Menu.

## ON-SCREEN CONTROLS

---

Control of CenterCade functions is accessed through the on-screen controls. To activate the CenterCade Main Menu, press the Pause/Break key (or PrtSc key) in the top right hand corner of the keyboard. This screen displays the current status of the system and provides access to the other functions available on the CenterCade On-Screen Display.

KVM SWITCH PORTS 1-8	
PORT	SERVER
1	▶ PORT-01-SERVERNAMEHERE
2	PORT-02-SERVERNAMEHERE
3	PORT-03-SERVERNAMEHERE
4	PORT-04-SERVERNAMEHERE
5	PORT-05-SERVERNAMEHERE
6	X PORT-06-SERVERNAMEHERE
7	X PORT-07-SERVERNAMEHERE
8	X PORT-08-SERVERNAMEHERE

KVM SWITCH PORTS F1-F8	
PORT	SERVER
F1	X PORT-F1-SERVERNAMEHERE
F2	+ PORT-F2-SERVERNAMEHERE
F3	X PORT-F3-SERVERNAMEHERE
F4	PORT-F4-SERVERNAMEHERE
F5	X PORT-F5-SERVERNAMEHERE
F6	PORT-F6-SERVERNAMEHERE
F7	X PORT-F7-SERVERNAMEHERE
F8	PORT-F8-SERVERNAMEHERE

N-NEXT	F9-S
F10-ABOUT	F11-
	ESC-

P-PREVIOUS	F9-SETUP
F10-ABOUT	F11-RESCAN
	ESC-EXIT

The initial display shows the ports 1 through 8. To view the second 8 ports (F1 through F8) on a 16 port model, type N for next page. On this screen the symbols preceding the Port Name are:

- ▶ : Port is connected and is currently selected (Characters in Green)
- + : [Two-user models only] Port is connected and is currently selected by user two (Characters in Red)
- Blank**: Port is connected and is not currently selected
- X**: No active system is currently attached to that port

On two-user models, when two users are connected and accessing ports, each user is highlighted in a different color. The user's current port selection is displayed in green, the other user's current port selection is displayed in red.

### Exit

Pressing the ESC key exits the program and returns control to the computer system display **without saving any changes**. This ESC key will exit the on-screen system from within any menu option.

## ON-SCREEN CONTROLS

### About

Pressing the F10 function key from the Main Display menu displays the About Screen. This screen has important information about your system including the software release currently installed on your CenterCade.

```
CENTERCADE 2UX16
COPYRIGHT (C) 1998-2002

SOFTWARE VERSIONS
06.09 06.04 06.08
A007

EPICENTER INC
WWW.EPICENTERINC.COM

F11-CONTINUE          ESC-EXIT
```

### Setup Menu

From the Main Menu pressing the F9 function key brings up the SETUP Menu.

Select the item that you want to change by using the up and down arrow keys and then press the Enter Key to change the value of each option item.

```
          SETUP
EDIT SYSTEM NAME          ►
EDIT PORT NAMES 1-8      ►
EDIT PORT NAMES F1-F8    ►
WAKEUP SERVER ..... NONE
MENU POSITION .....      ►
STATUS POSITION .....     ►
MENU ACCESS KEY .....   PAUSE
CHANGE PASSWORD .....   ►
STATUS DISPLAYS .....   NUMBER
STATUS SIZE .....       22
STATUS BACKGROUND ..    OPAQUE
SCREEN TIMEOUT .....    NONE

F10-SAVE F11-DISCARD  ESC-EXIT
```

### Edit System Name

Edit System Name allows you to assign a name to this CenterCade unit. The name appears at the top of the screen.

### Edit Port Names

Edit Port Names 1-8 allows the user to assign a name to each of ports 1 through 8. Use the DOWN ARROW key to highlight the port name you wish to change and enter the desired name and/or description of the server up to 22 characters.

For two-user models of CenterCade, Edit Port Names F1-F8 allows the user to assign a name and description to each of ports 9 through 16. Repeat the same steps as Edit Port Names 1-8.

```
          EDIT PORT NAMES

PORT  SERVER NAME
  1  PORT-01-SERVERNAMEHERE
  2  PORT-02-SERVERNAMEHERE
  3  PORT-03-SERVERNAMEHERE
  4  PORT-04-SERVERNAMEHERE
  5  PORT-05-SERVERNAMEHERE
  6  PORT-06-SERVERNAMEHERE
  7  PORT-07-SERVERNAMEHERE
  8  PORT-08-SERVERNAMEHERE

F10-RETURN TO SETUP  ESC-EXIT
```

Use F10 key to go back to the SETUP Menu. NOTE: The changes you make will not take permanent effect until you leave setup using the SAVE key.

## ON-SCREEN CONTROLS

---

### Wakeup Server

Because the server you switch to may have screen saving in effect, we have incorporated a method to automatically wake up the server's display when you switch to it. This setting allows you to select the signals sent to the server to cause it to wake up. You can choose between "None" – no wakeup signal sent to server; "Shift" – a shift key code is sent to the server to wake it up; "CTRL" – sends a control key code to the server; "Mouse" – sends mouse movements, forward and back, to the server. The default setting is "None". Use the Enter key to cycle through the choices.

### Menu Position

Adjust Menu Location displays a submenu that is used to adjust the position of the menu window on the display. It can be set for each port independently or the same setting applied to all of the ports. Use the arrow keys to move the menu box to the desired position on the display.

When you are finished press the F11 to have the new position apply to all ports or the F10 key to apply only to the selected port. After pressing either F11 or F10 keys the SETUP Menu is displayed.

```
ADJUST MENU LOCATION
USE ARROW KEYS TO MOVE MENU
      UP
LEFT          RIGHT
      DOWN
  08          19
F11-APPLY TO ALL PORTS
F10-APPLY TO PORT   ESC-EXIT
```

### Status Position

Adjust Status Location displays a submenu that is used to adjust the position of the status window flag on the display. It can be set for each port independently or the same setting applied to all of the ports. Use the arrow keys to move the menu box to the desired position on the display. (See Adjust Menu Position screen above.)

When you are finished press the F11 to have the new position apply to all ports or the F10 key to apply only to the selected port. After pressing either F11 or F10 keys the SETUP Menu is displayed.

### Menu Access Key

Menu Access Key: Determines which keyboard key will activate the CenterCade selection menu. If set to PAUSE, then the Pause/Break key will activate the CenterCade menu, If set to PRTSCR then the Print Screen/Sys Rq key will activate the CenterCade menu. Use the DOWN ARROW key to highlight the MENU ACCESS KEY field and press the ENTER key to toggle between the two options.

## ON-SCREEN CONTROLS

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### Change Password

Change Password displays a submenu that allows the user to change the password that is needed to save the changes to any of the Setup changes.

The submenu will prompt for the old password and then the new password twice. Highlight the OLD PASSWORD entry field and type the old password (default is blank). Then highlight the NEW PASSWORD entry field and type a password of 11 characters or less. Highlight the TYPE AGAIN entry field and retype the new password. Highlight the ACCEPT NEW PASSWORD and press the ENTER key to go back to the SETUP Menu.

```
OLD PASSWORD ► ◀
NEW PASSWORD ► ◀
TYPE AGAIN ► ◀

ACCEPT NEW PASSWORD
CANCEL
ESC-EXIT
```

### Status Displays

Status Displays selects the information that will be displayed in the status window flag. If set to NUMBER, then upon closing the menu, a small status window flag will display the port number 1 through 8 or F1 through F8 indicating the active port. If set to NAME, then the name assigned to that port (Edit Port Names) will be displayed in the status window flag. Use the DOWN ARROW key to highlight the STATUS DISPLAYS field and press the ENTER key to display different options.

```
SETUP
EDIT SYSTEM NAME ►
EDIT PORT NAMES 1-8 ►
EDIT PORT NAMES F1-F8 ►
WAKEUP SERVER . . . . NONE
MENU POSITION . . . . ►
STATUS POSITION . . . . ►
MENU ACCESS KEY . . . . PAUSE
CHANGE PASSWORD . . . . ►
STATUS DISPLAYS . . . . NUMBER
STATUS SIZE . . . . . 22
STATUS BACKGROUND . . OPAQUE
SCREEN TIMEOUT . . . . NONE
F10-SAVE F11-DISCARD ESC-EXIT
```

### Status Size

Status Size determines the size of the status window flag in number of characters: the minimum is 2 and maximum is 22. Use the DOWN ARROW key to highlight the STATUS SIZE field and press the ENTER key to display different options.

### Status Background

Status Background determines if the status window flag should be opaque or translucent in showing the port name or number. If set to TRANSL then the status window flag is translucent. If set to OPAQUE then the status window flag is opaque. Use the DOWN ARROW key to highlight the STATUS BACKGROUND field and press the ENTER key to toggle between the two options.

## ON-SCREEN CONTROLS

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### Screen Timeout

Screen timeout sets the number of minutes of inactivity after which the CenterCade will invoke a sleep signal to the TFT. Setting a value of 0 disables the Timeout (not recommended).

Pressing the Enter key changes the Timeout value. If the Timeout is less than 10, it increments in single units: between 10 and less than 60, it increments in units of 5: between 60 and less than 240, it increments in units of 10: and if it is 240 or greater, it returns to 0. In order to maximize the lifetime of the backlight we recommend the Timeout be set to 10 or less.

```
          SETUP
EDIT SYSTEM NAME           ►
EDIT PORT NAMES 1-8       ►
EDIT PORT NAMES F1-F8     ►
WAKEUP SERVER ..... NONE
MENU POSITION .....        ►
STATUS POSITION.....       ►
MENU ACCESS KEY..... PAUSE
CHANGE PASSWORD.....      ►
STATUS DISPLAYS..... NUMBER
STATUS SIZE..... 22
STATUS BACKGROUND... OPAQUE
SCREEN TIMEOUT..... NONE

F10-SAVE F11-DISCARD ESC-EXIT
```

### F10-SAVE

Pressing the F10 key prompts the user for a password match in order to save changes made in the setup menu. Type your password and enter to save all of your changes. Highlighting CANCEL will exit and return you to the SETUP Menu.

### F11-DISCARD

Pressing the F11 key will cause all of your changes to be discarded, fall back to the last saved configuration and return to the Main Menu.

# ON-SCREEN CONTROLS

---

## When CenterCade Is Used As An Expansion Unit With CenterPoint/CenterCade

When the CenterCade unit is cascaded (used as an expansion unit) from a CenterPoint or another CenterCade, all the on-screen menus change to a purple color with some subtle differences noted below:

### Main Menu

There is an added F12-TOP LEVEL command that allows the port selection menu to pop up to the top level port selection controlled by a CenterPoint or another CenterCade master.

```
                KVM SWITCH
                PORTS 1-8
PORT  SERVER
 1 ► PORT-01-SERVERNAMEHERE
 2   PORT-02-SERVERNAMEHERE
 3   PORT-03-SERVERNAMEHERE
 4   PORT-04-SERVERNAMEHERE
 5   PORT-05-SERVERNAMEHERE
 6 X PORT-06-SERVERNAMEHERE
 7 X PORT-07-SERVERNAMEHERE
 8 X PORT-08-SERVERNAMEHERE

N-NEXT          F9-SETUP
F10-ABOUT      F11-RESCAN
F12-TOP LEVEL   ESC-EXIT
```

### Setup Menu

MENU ACCESS KEY, CHANGE PASSWORD, STATUS DISPLAYS, STATUS SIZE, and STATUS BACKGROUND are not available anymore since it is controlled and provided by the master.

```
                SETUP
EDIT SYSTEM NAME          ►
EDIT PORT NAMES 1-8      ►
EDIT PORT NAMES F1-F8    ►
WAKEUP SERVER ..... NONE
MENU POSITION .....      ►
STATUS POSITION.....      ►

F10-SAVE F11-DISCARD ESC-EXIT
```

## OPERATION

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### **Invoke CenterCade On-Screen Display**

Press the Pause/Break key (or PrtSc if defined in SETUP menu) from the connected keyboard to bring up the MAIN MENU screen of the CenterCade. From within the MAIN MENU the user can select a server by one of two ways; arrow keys and enter or to press the corresponding port key to immediately jump to that server.

### **Two User Configuration**

When two users are connected to the CenterCade unit, each will invoke their own Main Menu. When displayed the current user's selected port appears in green with a '▶' preceding it. If the other user is active on the CenterCade, its selected port will appear with a '+' preceding and the text will be in red. A user MAY NOT select the same server as another user.

## FACTORY DEFAULT SETTINGS

---

System Name = KVM Switch

Port Names 1- 8

PORT-01-SERVERNAMEHERE  
PORT-02-SERVERNAMEHERE  
PORT-03-SERVERNAMEHERE  
PORT-04-SERVERNAMEHERE  
PORT-05-SERVERNAMEHERE  
PORT-06-SERVERNAMEHERE  
PORT-07-SERVERNAMEHERE  
PORT-08-SERVERNAMEHERE

Port Names F1-F8

PORT-F1-SERVERNAMEHERE  
PORT-F2-SERVERNAMEHERE  
PORT-F3-SERVERNAMEHERE  
PORT-F4-SERVERNAMEHERE  
PORT-F5-SERVERNAMEHERE  
PORT-F6-SERVERNAMEHERE  
PORT-F7-SERVERNAMEHERE  
PORT-F8-SERVERNAMEHERE

Wake Up Server = None

Adjust Menu Offset Xpos=10 Ypos=8 for all ports

Adjust Status Position Offset Xpos = 10 Ypos = 8 for all ports

Menu Access Key = PAUSE

Password = (BLANK)

Status Shows Port = NUMBER

Status Size = 2

Status Background = OPAQUE

Screen Timeout = 20

## INSTALLING UPGRADES

---

As new features become available CPI will occasionally release updates to the CenterCade software. You may want to update the CenterCade firmware or software to take advantage of these improvements.

The upgrade procedure can be completed quickly and easily via a Window-based application. The CenterCade product is configured to allow direct downloading from a PC or a laptop that is connected to the CenterCade through the serial port (RS232) located next to the external mouse and keyboard connectors.

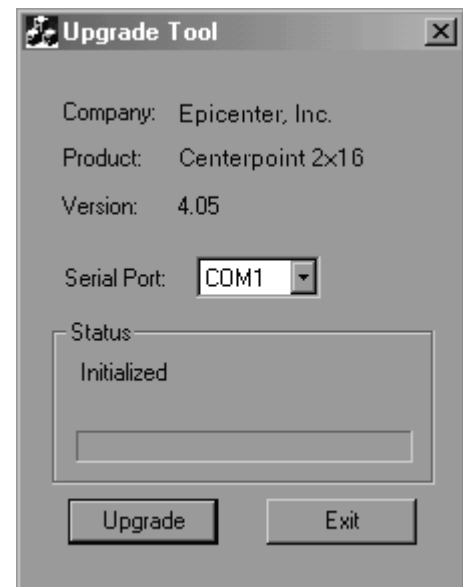
To update the firmware you need the following items:

- Laptop or PC with available serial communication port
- Standard serial cable (male DB9) that connects between CenterCade and the PC or laptop computer
- The Upgrade.exe Software provided by CPI Technical Support on the floppy or a hard drive

Leave the CenterCade power on. Disconnect or shut down all servers from the CenterCade to be upgraded. Connect the serial upgrade (RS232) cable between the CenterCade serial port to the Laptop or the PC's serial port.

Locate the Upgrade.exe program. It can be on the floppy or the hard drive. Double click on the Upgrade.exe icon or file name. When it appears, use the pull-down to select Serial Port number on you laptop or the PC. For example: COM1, COM2

- Click on the Upgrade button.
- Click OK to close the Work on Progress window when the procedure is finished.
- Click the Exit button to exit the Upgrade.exe program.
- Reconnect or boot up all servers connected to the CenterCade.



## FUSE REPLACEMENT AND MAINTENANCE

---

### Fuse Replacement

CenterCade is equipped with fuse protection located next to the on-off switch. To assure proper operation of the unit and prevent possible damage or fire, always replace the fuse with the same specifications:

**Fuse Value: 250V, 2.0A Maximum**



### **Warning!**

As with any electrical or electronic equipment, the CenterCade power switch must be in the off position and unplugged before replacing the fuse. Failure to do so may cause damage to the equipment or injury to the operator.

### Care and Cleaning

Clean the unit surface with a lint-free, non-abrasive cloth. Avoid using any cleaning solution or glass cleaner!

## REGULATORY INFORMATION

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### **Intended Use of Product:**

- Keyboard, Video, Mouse Switch
- Indoor Central Office Location

CenterCade is compliant with the following standards and specifications:

### **European Union:**

Directive No. 89/336/EEC Electromagnetic Compatibility (EMC) as amended by 92/31/EEC and 93/68/EEC

- EN 55022: 1998 +A1 +A2 Class A
- CISPR 22: 1997
- EN 61000-3-2: 1995
- EN 61000-3-3: 1995
- EN 55024: 1998,
- EN 61000-4-2: 1995
- EN 61000-4-3: 1995
- EN 61000-4-4: 1995
- EN 61000-4-5: 1995
- EN 61000-4-6: 1995
- EN 61000-4-11: 1994

Directive No. 73/23/EEC Low-Voltage-Directive (LVD), as amended by 93/68/EEC for CE Marking

- EN/IEC 60950:1992 +A1, +A2, +A3, +A4

The Technical Construction File is held by Epicenter, Inc., 211B Calle Pintoresco, San Clemente, CA 92672

### **International:**

- CISPR 22: 1997 Class A
- CISPR 24: 1997
- IEC 950: 1992 +A1, +A2, +A3, +A4

### **United States Of America:**

- UL Listed for I.T.E, E212076
- FCC CFR 47 Part 15 Subpart B, Section 15.107(a) and Section 10.103(a), Class B Digital Device

# SPECIFICATIONS

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## **Environmental**

### **Temperature**

- Operating: 32° to 104° F (0° to 40° C).
- Non-operating: -4° to 140° F (-20° C to 60° C).

### **Humidity**

- Non-condensing, operating: 10 to 90%
- Non-condensing, non-operating: 5 to 95%

### **Altitude**

- Operating: 0 to 10,000 ft (0 to 3048 m)
- Non-operating: 0 to 30,000 ft (0 to 9144 m)

### **Audible Noise**

- Less than 60 dbA.

### **Heat Dissipation**

- 30 BTU/hr maximum

### **Shock**

- Operating: 5 to 500 Hz, 0.5 g (0.1 oct/min)
- Non-operating: 5 to 100 Hz, 1 g (0.1 octave/min); 100 to 500 Hz, 1.5g (0.2 octave/min); 500 to 1000 Hz, 1.5 g (0.2 octave/min)

## **Electrical**

### **Grounding**

- Chassis grounded.

### **Voltage**

- 100 to 240V AC.

### **Current**

- 0.5 Amps at 240V AC up to 1 Amps at 100V AC.

### **Line Frequency**

- Single phase 50 or 60 Hz.

### **Compatibility**

XVGA 1024 x 768

SVGA 800 x 600

VGA 640 x 480

PS/2 Keyboard

PS/2 Mouse