

**Drawer**

---

# User Manual

**TZ1500**

**KVM**

*This page intentionally left blank.*

# Drawer

---

## User Manual

### TZ1500

# KVM

Copyright ©2003 Raritan Computer, Inc.

KVM\_TZ1500-0A-E

March 2003

255-37-0050



---

Raritan Computer Inc.  
400 Cottontail Lane  
Basking Ridge, NJ 07005

Raritan Computer Europe, B.V.  
Eglantierbaan 16  
3852 LG, The Netherlands

Raritan Computer Japan, Inc.  
Kuga Building 7F  
1-1-1, Higashi-Shinjuku  
Shinjuku-Ku, Tokyo 162-8502, Japan

Raritan Computer Taiwan, Inc.  
5F, 121, Lane 235,  
Zhongxing Rd., Beitou, Taipei, Taiwan

*This page intentionally left blank.*

## **FCC Information**

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 in a commercial installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential environment may cause harmful interference.

## **Trademark Information**

Product names mentioned in this document are trademarks or registered trademarks of their respective companies. KVM Drawer, Paragon, and their respective logos are trademarks or registered trademarks of Raritan Computer, Inc. All other marks are the property of their respective owners.

## **Japanese Approvals**

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

*This page intentionally left blank.*

# Table of Contents

<b>CHAPTER 1: INTRODUCTION .....</b>	<b>1</b>
KVM Drawer TZ1500 Overview .....	1
Product Photos .....	2
Product Features .....	3
Package Contents.....	3
<b>CHAPTER 2: KVM DRAWER AND Z-CIM INSTALLATION .....</b>	<b>5</b>
KVM Drawer Rack Mount Instructions.....	5
Z-CIM Connection.....	7
Naming Attached Computers.....	8
Additional Z-CIM Connections .....	9
Z-CIM Cabling Information .....	11
Z-CIM On-Screen User Interface (OSUI) Functions.....	12
Help Menu .....	13
Selection Menu.....	13
Edit Menu .....	14
System Profile Menu .....	14
System Profile Menu .....	15
LCD Panel.....	17
Factory Preset Timing for Reference.....	17
Power Indicator.....	17
Other Rear Panel Ports .....	18
Video Adjustment .....	18
Admin.....	18
<b>CHAPTER 3: KVM DRAWER OPERATING INSTRUCTIONS.....</b>	<b>19</b>
LCD Panel and OSD Controls .....	19
OSD Main Menu Functions .....	21
Auto Tune.....	21
Brightness .....	22
Contrast.....	22
Color.....	23
Quality .....	25
Position.....	27
Language .....	30
Recall .....	30
Exit .....	31
<b>APPENDIX A: SPECIFICATIONS .....</b>	<b>33</b>
KVM Drawer TZ1500 .....	33

Z-CIM Specifications.....	33
LCD Panel.....	34
Model Differentiation.....	34
<b>APPENDIX B: TROUBLESHOOTING.....</b>	<b>35</b>
Z-CIM Troubleshooting.....	36
<b>APPENDIX C: FREQUENTLY ASKED QUESTIONS.....</b>	<b>37</b>
<b>APPENDIX D: GLOSSARY .....</b>	<b>41</b>



## Safety Instructions

1. Please read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from the electrical outlet before cleaning. Do not use liquid or spray detergent for cleaning. Use moisture sheet or cloth for cleaning.
4. For plug-in equipment, the outlet should be located near the equipment and should be easily accessible.
5. Keep this equipment from humidity.
6. Rest this equipment on a reliable surface when installing. A drop or a fall could cause injury.
7. Do not leave this equipment in an unconditioned environment where storage temperatures rise above 40° C; it may damage the equipment.
8. The ventilation openings on the equipment are for air convection to keep it from overheating. DO NOT COVER THE OPENINGS.
9. Make sure the voltage of the power source connecting to the equipment is appropriate.
10. Place the power cord in such a way that people cannot step on it. Do not place anything over the power cord. The power cord must be rated for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cord should be greater than the voltage and the current rating marked on the product.
11. Please note all cautions and warnings on the equipment.
12. If the equipment is not in use for an extended time period, disconnect the equipment to avoid being damaged by transient over-voltage.
13. Never pour any liquid into ventilation openings. This could cause fire or electrical shock.
14. If one of the following situations arises, get the equipment checked by service personnel.
  - The power cord or plug is damaged.
  - Liquid has gotten into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment is not working well, or you cannot get it to work according to this User Manual.
  - The equipment has dropped and is damaged.
  - The equipment has obvious signs of breakage.
15. Never open the equipment. Only qualified service personnel should open the equipment.

*This page intentionally left blank.*

# Chapter 1: Introduction

## **KVM Drawer TZ1500 Overview**

---

Raritan's KVM Drawer Model TZ1500 is the first in the industry to offer the convenience of using standard UTP cabling to connect servers up to 1,000 feet away. The KVM Drawer TZ1500 is a 1U 19" rack mount KVM console with built-in keyboard, touchpad, and LCD monitor. It offers highly integrated Raritan Z-Series server management and enables control of up to 42 servers via industry standard UTP cabling.

The KVM Drawer TZ1500 has a built in Z-Series KVM switch with Cat5 Simplicity and enables quick and efficient access to servers and other network devices, as well as allowing you to manage the setup, administration, and maintenance of rackmount servers in data centers, server rooms, and other space-critical industrial environments.

Raritan's innovative Z-CIM technology, built into the KVM Drawer TZ1500, enables access and control of multiple servers from the single-user console of the KVM Drawer without consuming valuable rack space. Through the TZ1500, you can control up to 42 servers and eliminate the traditional KVM switch box and all extraneous cable. Z-CIM technology replaces the traditional KVM switch-to-multiple-server cabling configuration with an innovative chain-like server-to-server arrangement. Servers can be added at any time without interrupting server operation.

## Product Photos

---



*KVM Drawer TZ1500*



*UKVMSPD Z-CIM Unit*

## Product Features

---

- 1U 19" rack mount KVM drawer that meets EIA RS-310C standard
- 15" Active-Matrix LCD Flat Panel Display Color Monitor
- Tempered glass protecting the LCD panel
- Compact design enabling the unit to be mounted in most cabinets
- Industrial grade ultra-low-profile compact keyboard with integrated touchpad
- Zero-U design to support up to 42 computers
- Add a computer anywhere in the chain at any time
- Hot connect a user console to any server
- Hot-swap components with no impact on server operation
- Select computers by name from on-screen menus
- Supports high-resolution video—to 1600 x 1200
- Locate user up to 1,000 feet away with Category 5e UTP cable
- Administration (Admin.) Port for on-site firmware upgrades

## Package Contents

---

The complete KVM Drawer TZ1500 package consists of:

- (1) 1U 19" Rack Mount KVM Drawer console
- (1) Mounting Kit (includes short and long brackets for customized fit)
- (1) TER-RJ45 Z-CIM Terminator
- (1) User Manual
- (1) Warranty Card

The complete KVM Drawer TZ1500 KIT package consists of:

- (1) 1U 19" Rack Mount KVM Drawer console
- (1) Mounting Kit (includes short and long brackets for customized fit)
- (3) Cat5e Cables
- (3) UKVMSPD Z-CIM units
- (1) TER-RJ45 Z-CIM Terminator
- (1) User Manual
- (1) Warranty Card

Check to make sure that the unit was not damaged in shipping. If you encounter a problem, contact your reseller.

Please read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the KVM Drawer, and/or any of the devices that connect to it.



## Chapter 2: KVM Drawer and Z-CIM Installation

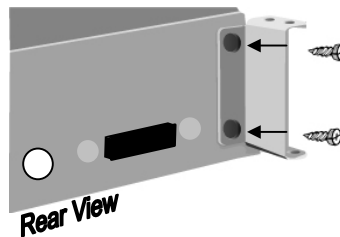
Before you begin, make sure that power to all devices you will be connecting has been turned off. To prevent damage to your KVM Drawer due to ground potential difference, make sure that all devices on the installation are properly grounded. Please consult your vendor for any technical issues if necessary or contact Raritan Technical Support at (732) 764-8886 or via email at support@raritan.com, Monday through Friday, 8:00am to 8:00pm, EST.

### KVM Drawer Rack Mount Instructions

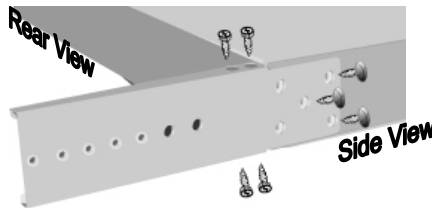
---

Before attaching pieces to your KVM Drawer, determine whether you will be using the short brackets with the two-grid sliders or the longer brackets with the four-grid sliders. Select the pieces according to the depth of the rack in which the unit will be mounted.

1. With the rear of the KVM Drawer facing you, use two screws to secure each small bracket piece to the corners of the unit, as illustrated below.



2. Select the appropriate bracket arms and attach them to the sides of the KVM Drawer as shown below. This bracket will fit over the small bracket piece attached in Step 1, and must be secured with two screws from above and two screws from below.

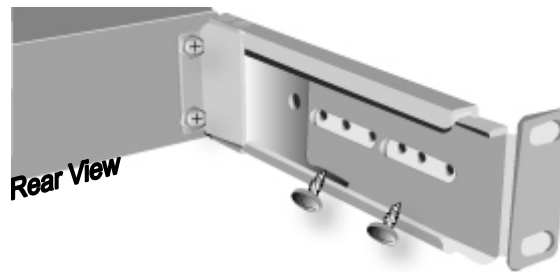



---

*Note:* Notice that there are five openings (in the form of an "X") at one end of the bracket arm and there are two screws already in the KVM Drawer at two points of the "X"; you can remove the two screws in the KVM drawer and attach the bracket arm using five screws to fill all five holes.

---

3. With the rear of the KVM Drawer facing you, insert the slider into the bracket arm so that the rack mount openings are aimed away from the unit. Attach the slider to the bracket arm using the larger-head screws included in the kit.



---

***Note:** Leave the screws loose so that you can adjust the slider to the depth of the rack when mounting the unit.*

---

4. Secure the entire assembly to a rack using eight large rack screws (not included). Remember to support the KVM Drawer until the assembly is securely fastened to the rack.

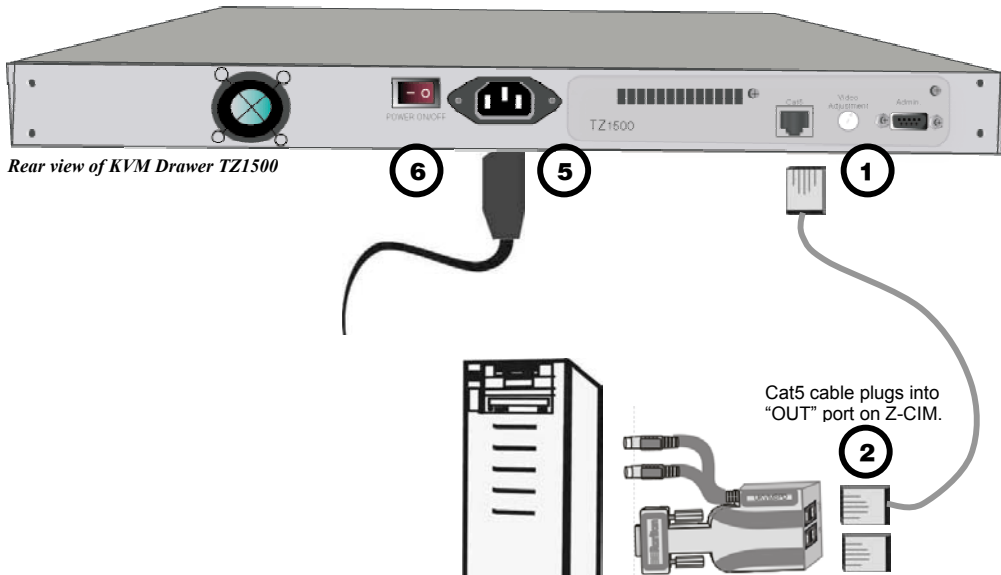


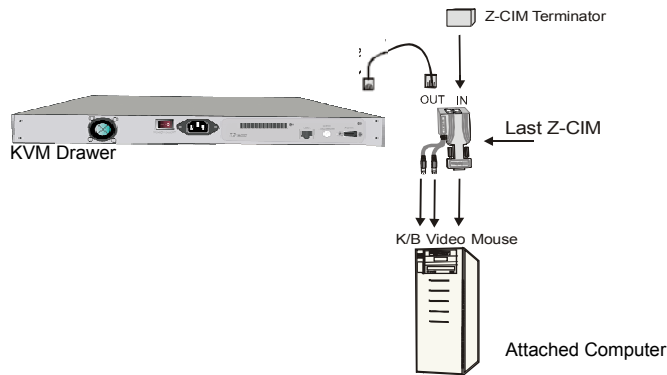
## Z-CIM Connection

**Important!** The KVM Drawer unit and the component being attached via Z-CIM must be powered OFF prior to installation.

1. Connect the Category 5e UTP cable to the Cat5 port on the rear of the KVM Drawer
2. Connect the other end of Cat5e cable to UTP OUT port on a Z-CIM.
3. Place the Z-CIM terminator in the UTP IN port of the Z-CIM.
4. Connect the HD15 video port connector of the Z-CIM to the video port of the computer being connected to the KVM Drawer, and then connect the 6-pin mini-DIN keyboard and mouse connectors on the Z-CIM to the computer's keyboard and mouse ports.
5. Plug the power cord into the KVM Drawer's power jack, then plug the power cord into an AC power source.
6. Power ON the KVM Drawer.
7. Name the newly connected computer (please refer to the section that follows, *Naming Attached Components*, for further information).

*Note:* If you are connecting more than one computer/Z-CIM to your KVM Drawer, please see the section that follows, **Additional Z-CIM Connections**, for additional information.





*KVM Drawer attached to one Z-CIM and Computer*

## Naming Attached Computers

You must name the computer attached to the KVM Drawer via Z-CIM, and test for proper operation.

1. On the KVM Drawer keyboard, press the **<Scroll Lock>** key twice rapidly to view the **Z-CIM Selection Menu**. A factory name and serial number for the Z-CIM will display on the menu in your LCD Panel. The name represents the connected computer.
2. While the **Selection Menu** is displayed, press the **<F3>** key to open the **Edit Menu**.
3. The **Edit Menu** will appear and the name of the computer just added will be displayed in a yellow highlight.
4. Press the **<Enter>** key; the highlight turns green
5. Type in a desired computer name and press the **<Enter>** key; the highlighted area will turn yellow.
6. Press the **<S>** key to save the new name.
7. Press the **<F2>** key to return to the **Selection Menu**.
8. The **Selection Menu** will display the new computer name highlighted in white.
9. Press the **<Enter>** key to switch to the selected computer.
10. Normal computer access and operation indicates a successful connection.

---

***Note:** Function keys <F1>, <F2>, <F3>, and <F4> are used to switch among menus. Pressing <F1> while OSUI is active invokes the Help Menu. This menu lists all available menu options. Whenever the OSUI is invoked, the user console keyboard's <Scroll Lock> LED indicator blinks. Section 4. Operating Z4200U gives more detail on OSUI menus and operations.*

---

## Additional Z-CIM Connections

---

Additional Z-CIMS can be added to the your KVM Drawer to allow control of up to 42 devices from one central location. Repeat steps 1 through 3 below to add computers to the Z-Series chain. Name and test each computer as it is added.

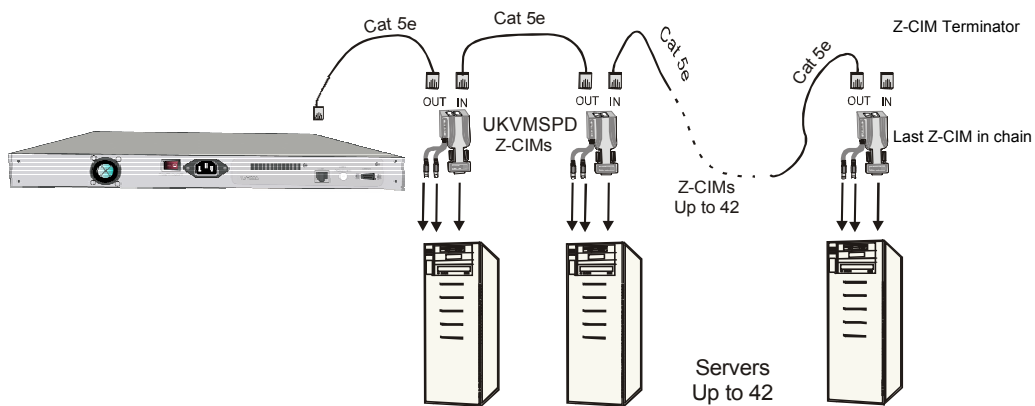
---

***Note:** Z-Series installation requires that each computer be assigned a channel name as it is added to the Z-CIM chain. Computer channels are organized alphabetically by assigned name (or the default name which is the Z-CIM's serial number), rather than in the order of their placement within the chain. Connecting all computers first and then attempting to assign channel names can cause difficulty when trying to locate the respective channel for each computer.*

---

1. Attach Z-CIM to computer to be added:
  - a. Connect the HD15 video port connector on the Z-CIM to the computer.
  - b. Connect the 6-pin mini-DIN keyboard and mouse connectors on the UKVMSPD Z-CIM to computer's keyboard and mouse ports.
2. Attach Z-CIM to chain:
  - a. Remove Z-CIM Terminator from the last Z-CIM's UTP IN port and set aside.
  - b. Connect a Category 5e UTP cable to the UTP IN port on the Z-CIM that is currently last in the chain.
  - c. Connect the other end of this Category 5e UTP cable to the UTP OUT port on the next Z-CIM/computer currently being added to the chain.
  - d. Place the Z-CIM Terminator in the added Z-CIM's UTP IN port.
  - e. Power ON computer.
  - f. Press the default hot key <Scroll Lock> twice rapidly at the KVM Drawer console to bring up the OSUI.
  - g. Press <F2> to bring up the Selection Menu.
  - h. The new computer will appear as a new channel on the Selection Menu on the LCD Panel of the KVM Drawer. A factory name and serial number for the Z-CIM will display.
3. Name Computer and Test Operation:
  - i. At the **Edit Menu** on the LCD panel, the name of the computer just added will be displayed in a yellow highlight.
  - j. Press the <Enter> key; the highlight turns green
  - k. Type in a desired computer name and press the <Enter> key; the highlighted area will turn yellow.
  - l. Press the <S> key to save the new name.

- m. Press the <F2> key to return to the **Selection Menu**.
- n. The **Selection Menu** will display the new computer name highlighted in white.
- o. Press the <Enter> key to switch to the selected computer.
- p. Normal computer access and operation indicates a successful connection.



***KVM Drawer attached to multiple Z-CIMs and Computers***

## Z-CIM Cabling Information

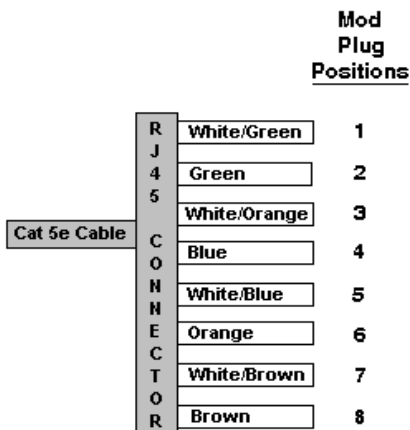
Raritan certifies the following Category 5e UTP and Category 6 UTP cable products for use with the Z-series Z4200U system:

Category 5e UTP Cable:	Belden DataTwist 350 UT	#1700A	Solid
	Belden DataTwist 350 patch	#1752A	Stranded
Category 6 UTP Cable:	Belden MediaTwist	#1872A	Solid

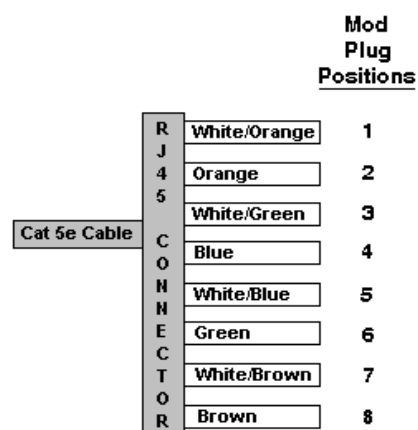
Use of non-certified cabling can result in video and data degradations that users may find unsatisfactory. Certified Raritan cable products listed above are widely available and competitively priced. When using certified cable, users can transmit video signals at distances up to 1,000 feet at 1024x768 @75Hz.

### Category 5e Unshielded Twisted Pair (UTP) Cable Mod Plug Requirements For use with Raritan Category 5e UTP Products

#### T568A



#### T568B




---

*Note: Raritan does not have any marketing relationship with Belden, nor does Raritan receive any financial incentive for recommending Belden products.*

---

## Z-CIM On-Screen User Interface (OSUI) Functions

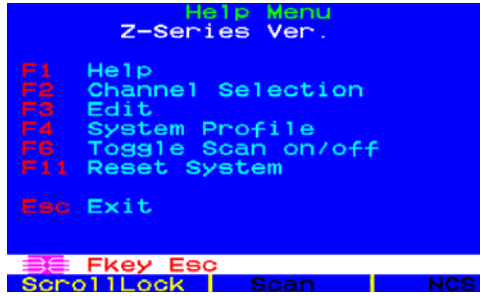
The Z-CIM On-Screen User Interface allows you to control, configure, and operate all facets of Z-series functionality.

Press <Scroll Lock> twice rapidly to invoke the OSUI.

PRESS	WHEN YOU WANT TO
<F1>	View the Help Menu – list all function keys.
<F2>	View the Selection Menu – list of available channels, serial numbers, and scan rates. Selection Menu is used to select and then switch between selected channels to access computers.
<F3>	View the Edit Menu – change computer name or scan rate. Can also be used to designate the <Home> computer/channel.
<F4>	View the System Profile Menu – view and change user-specific operating parameters
<F6>	Toggle scan on/off. The bottom of the OSUI menu indicates that the Scan function is ON when the word “Scan” is highlighted in yellow.
<F11>	Reset User Station – Reloads USTS – searches all connected Z-CIMs, updating all user names and IDs
<Esc>	Exit the OSUI

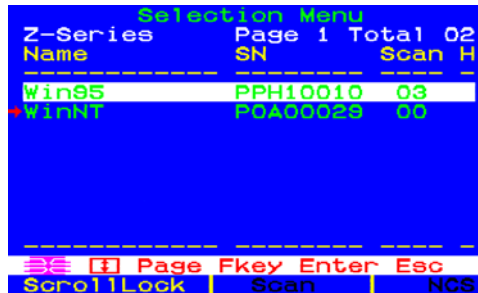
## Help Menu

The **Help Menu** lists all the functions keys for quick and easy reference.



## Selection Menu

The **Selection Menu** lists connected computers, serial numbers, scan rates, and the number of servers currently detected by the system, sorted by computer name in alphabetical order. Use the <↑>, <↓>, <PageUp> or <PageDown> keys to select a computer. Press <Enter> to switch to the selected computer.



As an alternative: Switch between computers without using the OSUI by using the UP Arrow ▲ and DOWN Arrow ▼ buttons to the left of the LCD Panel on the KVM Drawer. These buttons switch between computers by name in alphabetical order.

---

*Note:* The OSUI must be closed (press <Esc>) in order for the Up Arrow ▲ and Down Arrow ▼ buttons to function. The OSUI will appear momentarily, the previous or the next computer will be chosen, and the OSUI will close.

---

## Edit Menu

The **Edit Menu** <F3> can be used to make changes to the computer channel name and its scan rate. Scan rate is the time interval, measured in seconds, that a computer will remain displayed on monitor during scanning. The **Edit Menu** can also designate a channel as a <Home> computer.

1. Press <↑>, <↓>, <←>, or <→> to highlight (in yellow) the field to be edited
2. Press <Enter>. Highlight turns green.
3. Edit name and/or scan time.
4. Press <Enter> when completed. Highlighted area will turn yellow
5. Press <S> to save changes and exit, or <ESC> and then <N> to exit without saving changes.
6. Press the <Home> key if you wish to designate this computer as your home computer. An “H” will appear in the column on the right of the menu. This designation will enable the user to quickly select or switch directly to the home computer. At the Selection Menu, pressing the <Home> key once highlights the home channel. With no OSUI displayed, rapidly pressing the <Home> key twice automatically switches the user to the designated home computer.
7. Press <F2> to return to **Selection Menu**.
8. Verify that new name appears on **Selection Menu** in green and/or the “H” appears in the right-most column.

Edit Menu			
Z-Series	Page 1	Total	O2
Name	SN	Scan	H
Win95	PPH10010	03	H
WinNT	POA00028	00	

-----

⏏ ⏏ Enter S Esc  
 ScrollLock | Scan | NCS



## System Profile Menu

The **System Profile Menu** <F4> can be used to make changes to parameters that effect overall system functionality.

Select fields to be edited by pressing <Tab> (moves forward) <Shift-Tab> (moves backward), <↑>, <↓>, <←>, or <→> keys to move to desired field. Press <Enter> to begin editing. Highlighted area will turn green. Use the <↑>, <↓> keys to select choices in each field or make entries as explained below. Press <Enter> when editing is done. Highlighted area will turn from green to yellow. Press <S> to save changes, and <Esc> to exit **System Profile Menu**. To exit System Profile Menu without saving changes, press <Esc> and then <N> or <Esc> again.



- **Scan Mode:** By pressing <F6> to toggle ON scan mode, the user station can scan through all attached computer channels at a specified time interval. Global or Individual scanning is available. Default setting is Global. When scan mode is activated the word “Scan” at the bottom of the OSUI is highlighted in yellow.
  - **Global:** Scans each channel for the same amount of time, as indicated under **Global Scan Rate**.
  - **Individual:** Scans each channel for the specified time set per channel, as shown in **Selection Menu**. (Setting each channel’s individual scan rate is a function of the Edit Menu <F3>, where individual channel scan times can be set between 03 and 30 seconds. Default is 03 seconds.)
- **Global Scan Rate:** Sets the **time** duration for which each channel will be scanned. Use the <↑> and <↓> keys to set between 03 and 30 seconds. Default setting is 03 seconds.
- **ID Display:** The **ID Display** is a small window that shows the computer name when switching or scanning between computers. **Two** fields control it:
  - **On/Off:** Use <↑> and <↓> keys to toggle between on and off.
  - **Time:** Use <↑> and <↓> keys to increment or decrement the desired time period. A “-” indicates the ID window will be shown all the time. Default setting is On/03 seconds.

- **Green Mode (PowerSave Mode)**: Turns off the video at the LCD panel if the user console is idle for a pre-specified amount of time. Two fields control it:
    - **On/Off**: Use <↑> and <↓> keys to toggle between on and off.
    - **Time**: Use <↑> and <↓> keys to increment or decrement. Default setting is Off/03 minutes.
  - **Display Position**: For changing the position of the On-Screen Menu and ID Display Window. Highlight Menu or ID and press the <Enter> key. Use <↑>, <↓>, <←>, and <→> keys to change position. Press the letter <S> to save.
  - **Hot Key**: Use <↑>, <↓> keys to select <ScrollLock>, <CapsLock>, <NumLock> or <Left-Alt> or <Left-Shift>. Default setting is <ScrollLock>. Rapidly pressing selected Hot Key twice activates Z4200U's OSUI.
  - **Previous Channel Key**: Use <↑>, <↓> keys to select <ScrollLock>, <CapsLock>, <NumLock>, <Left-Alt> or <Left-Shift>. Default setting is <NumLock >. Rapidly pressing the selected Previous Channel key twice enables user to go back to previously selected computer without going through the OSUI.
- 
- Note: Previous Channel Key and Hot Key cannot share the same key selection.*
- 
- **Scrolling Help**: Use <↑> and <↓> keys to toggle between on and off. The message banner can be displayed as scrolling (On) or non-scrolling (Off). Default is On (and scrolling).

## LCD Panel

---

### Factory Preset Timing for Reference

RESOLUTION	H. FREQ. (KHz)	V. FREQ. (Hz)	SCAN TYPE	PIXEL FREQ. (MHz)
640 x 350	31.469	70	Non-interlaced	25.175
640 x 350	37.861	85	Non-interlaced	31.50
640 x 400	37.861	85	Non-interlaced	31.50
720 x 400	31.469	70	Non-interlaced	28.322
720 x 400	37.927	85	Non-interlaced	35.50
640 x 400	24.83	56	Non-interlaced	21.053
640 x 480	31.469	60	Non-interlaced	25.175
640 x 480	35.000	66.67	Non-interlaced	30.24
640 x 480	37.861	72	Non-interlaced	31.50
640 x 480	37.500	75	Non-interlaced	31.50
640 x 480	43.269	85	Non-interlaced	36.00
800 x 600	37.879	60	Non-interlaced	40.00
800 x 600	48.077	72	Non-interlaced	50.00
800 x 600	46.875	75	Non-interlaced	49.50
800 x 600	53.674	85	Non-interlaced	56.25
836 x 624	49.715	74.536	Non-interlaced	57.272
960 x 720	44.80	60	Non-interlaced	56.00
*1024 x 768	48.363	60	Non-interlaced	65.00
1024 x 768	56.476	70	Non-interlaced	75.00
1024 x 768	60.023	75	Non-interlaced	78.75
**1024 x 768	35.522	86.959	Interlaced	44.90
1024 x 768	68.677	85	Non-interlaced	94.50

\* Panel factory recommended operation timing.

\*\* Not recommended for normal operation.

---

*Note: When your KVM Drawer is shipped, the LCD Panel is covered with sheet of clear plastic. You may leave this plastic in place or remove it when you set up and start to operate the KVM Drawer.*

---

### Power Indicator

- Green = On
- Orange = Off

## Other Rear Panel Ports

---

### Video Adjustment

The Video Adjustment port allows you to adjust video gain/amplification, and eliminate video ghosting or shadowing in Z-CIM configurations employing long distance video runs (250 feet or more), or unusually high refresh rates.

### Admin.

The Admin. Port is a proprietary serial port used to upgrade KVM Drawer firmware. When new firmware is available, it will be posted on the Raritan website:

[http://www.raritan.com/public/support/firmware\\_updates.aspx](http://www.raritan.com/public/support/firmware_updates.aspx).







## Chapter 3: KVM Drawer Operating Instructions

### LCD Panel and OSD Controls

Buttons on the TZ1500 LCD front panel:

CONTROLS	DESCRIPTION
Power On/Off button	Soft power on/off button on front of the KVM Drawer (there is also an on/off switch on the rear panel of the KVM Drawer). Adjacent LED is lit green when unit is turned on and orange when unit is turned off via the on/off button.
Up Arrow button (at left of LCD Panel)	Press to call up Z-CIM Selection Menu and scroll upward through it.
Down Arrow button (at left of LCD Panel)	Press to call up Z-CIM Selection Menu and scroll downward through it.
Menu button	Press to access to On-Screen Main Menu and to save settings (if any).
Up Arrow button	Press to move upward in an On-Screen Display menu list.
Down Arrow button	Press to move downward in an On-Screen Display menu list.
Auto button	Press to Auto-synchronize and scale down display to any valid factory preset timings.

Use the buttons located below the LCD panel to view the **On Screen Display (OSD)**. The menu functions on the OSD allow you to optimize working with and viewing screen images on the KVM Drawer.

			
MENU	UP ARROW	DOWN ARROW	AUTO

- Press the **MENU** button to display the **OSD Main Menu**. Options on the OSD Main Menu allow you to adjust visual functions of the LCD panel including Brightness, Contrast, Color, Quality, and Position.
- Press the **UP ARROW** (▲) or **DOWN ARROW** (▼) buttons to highlight an OSD Menu option, and then press the **MENU** button to execute the highlighted option.
- Press the **AUTO** button to allow the KVM Drawer to automatically configure all aspects of visual display. The message **AUTO CONFIGURE!** appears and the LCD panel will flicker momentarily until the KVM Drawer finds the ideal profile.
- To close the OSD Main Menu, highlight the **EXIT** function on the Main Menu using the ▲ or ▼ buttons, and then press the **MENU** button.
- To manually close the OSD Main Menu, press the **MENU** button **twice**.

---

***Note:** The OSD Menu disappears after 20 seconds if no activity is registered on the keyboard or touchpad.*

---



---

***Note:** When using the KVM Drawer keyboard, be aware that the numeric keypad is integrated into the alphabet keys; if the <Num Lock> key is activated, you will type numbers instead of letters. If you have trouble typing letters, check that the Num Lock key is not activated. The LEDs for <Num Lock>, <Scroll Lock>, and <Caps Lock> are located above and to the right of the keyboard.*

---

## OSD Main Menu Functions

- Press the **MENU** button to display the **OSD Main Menu**.
- Press the **UP ARROW** (▲) or **DOWN ARROW** (▼) button to highlight an OSD Menu option, and then press the **MENU** button to execute the highlighted option.



*OSD Main Menu*

## Auto Tune

Select the **Auto Tune** function to allow the KVM Drawer to automatically adjust all aspects of LCD panel display. When you select **Auto Tune**, the LCD panel will flicker momentarily until the KVM Drawer finds the ideal profile for on-screen display.

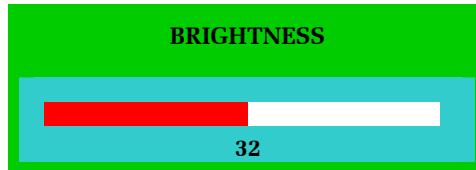


*Auto Tune Display*

## Brightness

Select the **Brightness** function to dim or brighten the backlighting of the LCD panel.

1. Press the **MENU** button to activate the OSD Main Menu.
2. Press the **▲** or the **▼** button to highlight **Brightness** and then press the **MENU** button to view the Brightness control panel.



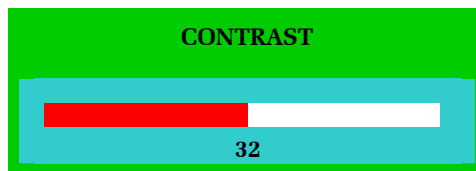
*Brightness Control Panel*

3. Press the **▲** or the **▼** button again to increase or decrease the video raster luminance.
4. Press the **MENU** button to return to the OSD Main Menu.

## Contrast

Select the **Contrast** function to change the difference in brightness between the light and dark areas of the LCD panel.

1. Press the **MENU** button to activate the OSD Main Menu.
2. Press the **▲** or the **▼** button to highlight **Contrast** and then press the **MENU** button to view the Contrast control panel.



*Contrast Control Panel*

3. Press the **▲** or the **▼** button again to increase or decrease the back light luminance.
4. Press the **MENU** button to return to the OSD Main Menu.



## Color

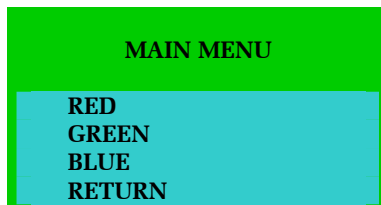
Select the **Color** function to adjust the amount of Red, Green, and Blue in the LCD panel in the same way you would adjust the RGB values on a television set.

1. Press the **MENU** button to activate the OSD Main Menu.
2. Press the **▲** or the **▼** button to highlight **Color** and then press the **MENU** button to view the Color Main Menu.



*Color Main Menu*

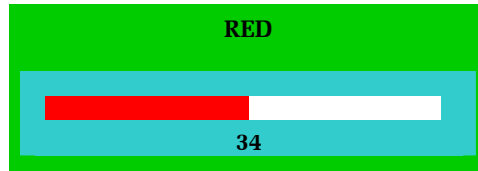
3. Press the **▲** or the **▼** button to select the desired color temperature for the LCD panel display.
  - a. Highlight the **User** function and then press the **MENU** button to adjust color levels manually.



*User Main Menu*

- i. On the User Main Menu, use the **▲** or the **▼** button to highlight the color you wish to adjust and press the **MENU** button.

- ii. Use the ▲ and ▼ buttons to increase or decrease the color in the selected color's control panel.



*'Red' Control Panel*

- iii. Press the **MENU** button to return to the Color Main Menu.
  - iv. Select the **Return** option and press the **MENU** button to return to the Color Main Menu.
- b. Select the **Auto Color** function on the Color Main Menu to allow the KVM Drawer to automatically adjust the amount of Red, Green, and Blue on the LCD panel. When you select Auto Color, the LCD panel will flicker momentarily until the KVM Drawer finds the ideal color profile for on-screen display.



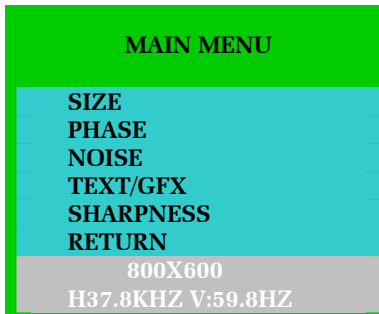
*Auto Color Panel*

- c. On the Color Main Menu, select **Return** and press the **MENU** button to return to the OSD Main Menu.

## Quality

Select the **Quality** function on the OSD Main Menu to adjust the size and clarity of the appearance of text and graphics displayed on the LCD panel. **Quality** options include Size, Phase, Noise, Text/Graphics, and Sharpness.

1. Press the **MENU** button to activate the OSD Main Menu.
2. Press the **▲** or the **▼** button to highlight **Quality** and then press the **MENU** button to view the Quality Main Menu.



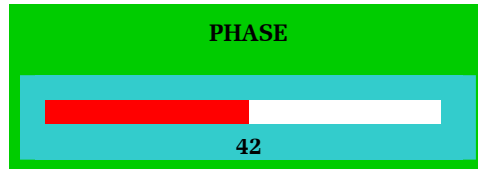
*Quality Main Menu*

3. Press the **▲** or the **▼** button to highlight the option you wish to change and then press the **MENU** button to view the sub-menu for that option.
  - a. **Size:** On the Size control panel, use the **▲** and **▼** buttons to adjust the size of images or text on the LCD panel. Press the **MENU** button to return to the Quality Main Menu.



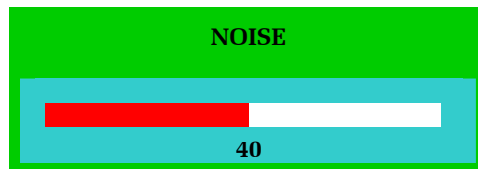
*Size Control Panel*

- b. **Phase:** On the Phase control panel, use the ▲ and ▼ buttons to adjust the vertical timing of images on the LCD panel. Press the **MENU** button to return to the Quality Main Menu.



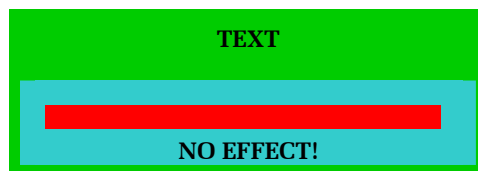
*Phase Control Panel*

- c. **Noise:** On the Noise control panel, use the ▲ and ▼ buttons to adjust electrical interference or “snow” that appears on the LCD Panel. Press the **MENU** button to return to the Quality Main Menu.



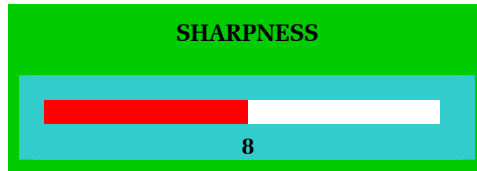
*Noise Control Panel*

- d. **Text:** This function is not enabled at this time.



*Text Panel*

- e. **Sharpness:** On the Sharpness control panel, use the ▲ and ▼ buttons to increase or decrease the crispness of the image edges on the LCD panel. Press the **MENU** button to return to the Quality Main Menu.



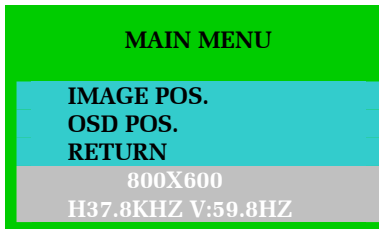
*Sharpness Control Panel*

4. On the Quality Main Menu, select **Return** and press the **MENU** button to return to the OSD Main Menu.

## Position

Select the **Position** function to change the location of graphics displayed on the LCD panel.

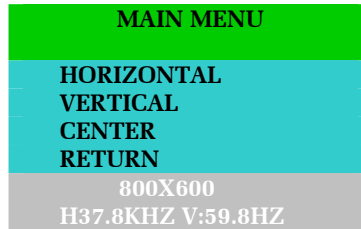
1. Press the **MENU** button to activate the OSD Main Menu.
2. Press the ▲ or the ▼ button to highlight **Position** and then press the **MENU** button to view the Position Main Menu.



*Position Main Menu*

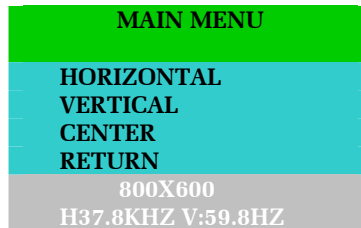
3. Press the ▲ or the ▼ button to highlight the option you wish to change and then press the **MENU** button to view the sub-menu for that option.

- a. Select **Image Pos.** to adjust the position of the images on the LCD Panel.



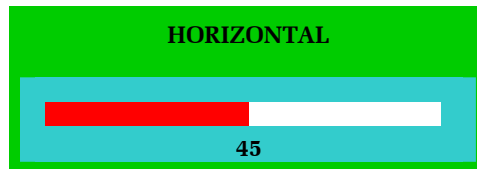
*Image Position Main Menu*

- b. Select **OSD Pos.** to adjust the position of the On Screen Display panel on the LCD panel.



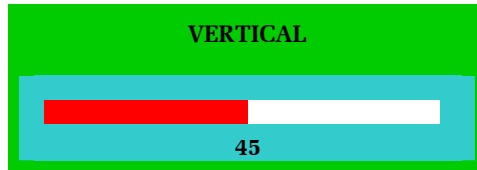
*OSD Position Main Menu*

- i. Select the **Horizontal** function to move images left or right. When the Horizontal control panel appears, use the ▲ or the ▼ buttons adjust the image(s) and then press the **MENU** button to return to the Image Position or OSD Position Main Menu.



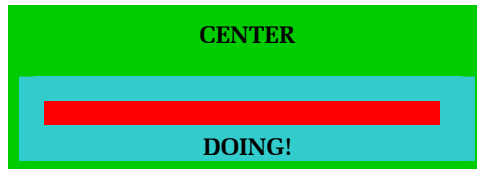
*Horizontal Control Panel*

- ii. Select **Vertical** to move the entire contents of the LCD panel up or down. When the Vertical control panel appears, use the ▲ or the ▼ button adjust the image(s) and then press the **MENU** button to return to the Image Position or OSD Position Main Menu.



*Vertical Control Panel*

- iii. Select the **Center** function if you want the KVM Drawer to center the image(s) on the LCD panel automatically.



*Centering Panel*

- iv. On the Image Position or OSD Position Main Menu, select the **Return** option and press the **MENU** button to return to the Position Main Menu.
4. On the Position Main Menu, select **Return** and press the **MENU** button to return to the OSD Main Menu.

## Language

Select the **Language** function to display all OSD menus in your preferred language. Options on the KVM Drawer include English, German, French, Italian, and Spanish.

1. Press the **MENU** button to activate the OSD Main Menu.
2. Press the **▲** or the **▼** button to highlight **Language** and then press the **MENU** button to view the Language Main Menu.
3. Press the **▲** or the **▼** button to highlight your language of choice – the menu will reflect the current highlighted option – and press the **MENU** button to change all OSD menus to the chosen language.



*Language Main Menu*

## Recall

Select the **Recall** function to revert any changed LCD panel settings to the original factory settings set by Raritan before shipment.

1. Press the **MENU** button to activate the OSD Main Menu.
2. Press the **▲** or the **▼** button to highlight **Recall** and press the **MENU** button to view the Recall Control Panel.



*Recall Control Panel*

3. Press the **▲** or the **▼** button to highlight **YES** or **NO** and press the **MENU** button to execute the recall.



## Exit

Select the **Exit** function to close the OSD Main Menu.

1. Press the **MENU** button to activate the OSD Main Menu.
2. Press the **▲** or the **▼** button to highlight **Exit** and press the **MENU** button to close the OSD Main Menu.

---

***Note:** The OSD Menu disappears after 20 seconds if no activity is registered on the keyboard or touchpad.*

---



## Appendix A: Specifications

### KVM Drawer TZ1500

---

Standard	Meets EIA RS-310C 1U 19" rack mount standard
Dimension (W x H x D)	17.34" x 1.73" x 19.5" (440mm x 44mm x 495 mm)
Display Type	LCD, TFT panel display, 15" (381mm) diagonal
Tempered Glass for LCD	.08" x 9.8" x 13.1" (2mm x 249mm x 333 mm)
Maximum Resolution	XGA (1024 x 768)
Input signal format	RGB Analog Video
Keyboard	PS/2 notebook style with touchpad
Touchpad	Integrated touchpad with two-button control
Gross Weight	37.5 lb. (17 kg)
Power	90~264VAC 47~63Hz, auto-switching
Warranty	2 Years
Certification	CE, UL

### Z-CIM Specifications

---

Dimensions	1.625" (W) x 3.5" (D) x 0.75" (H)
	41mm (W) x 89mm (D) x 19mm (H)
Weight	0.2 lbs (0.09 kg)
Ports	RJ45 in and out

## LCD Panel

---

- LCD Panel: 15.1" AM TFT
- Input Signal Format: RGB analog video
- Frequency: FH 30Khz – 70Khz, FV 50hz – 85hz
- Maximum Resolution: 1024 (H) x 768 (V)
- Input Power: 88VAC – 264VAC, 50 – 60hz

## Model Differentiation

---

Raritan offers three KVM Drawer models: the T1500, the TZ1500, and the TP1500.

- The T1500 allows management of data center and server room servers directly from the racks in which they are installed while maximizing rack space for the servers.
- The TZ1500 integrates Raritan's Z-Series switchless KVM switch and enables selection and control of up to 42 servers. It is ideal for server management where space is at a premium or where access distance is up to 1,000 feet in areas such as corporate data centers, ISPs, co-location, web hosting facilities, computer test labs, call centers, help desks and training room.
- The TP1500 offers another way to access the power of Paragon, Raritan's all Category 5 UTP cable-based KVM switch, which is built for small to mid-sized data centers, server rooms, call centers and hardware/software test labs.

## Appendix B: Troubleshooting

PROBLEM/DESCRIPTION	SUGGESTION
<b>Blank Screen</b>	<ul style="list-style-type: none"> <li>• Press soft power button. Check if power LED is lit.</li> <li>• If LED turns green, check if PC has been powered on. Confirm that all cables are connected.</li> <li>• If LED turns orange, check if PC is in the power saving mode by pressing any key on the keyboard.</li> </ul>
<b>Rolling Screen</b>	<ul style="list-style-type: none"> <li>• Change PC display resolution to 1024x768 at 60hz. (Refer to video card manual.)</li> <li>• Unplug power adapter to monitor and plug it back in.</li> <li>• Press monitor power button.</li> <li>• Recall factory setting (see <b>Chapter 3: KVM Drawer Operating Instructions; Recall</b> for more information).</li> <li>• Press the <b>AUTO</b> button.</li> </ul>
<b>Unstable Screen</b>	<ul style="list-style-type: none"> <li>• Check if PC display resolution is no greater than 1024 x 768 at 85hz.</li> <li>• Check if PC display resolution matches the factory preset timings.</li> <li>• Change PC display resolution to 1024x768 at 60hz. (Refer to video card manual.)</li> <li>• Recall factory setting (see <b>Chapter 3: KVM Drawer Operating Instructions; Recall</b> for more information).</li> <li>• Press the <b>AUTO</b> button.</li> </ul>
<b>Screen is not perfect</b>	<ul style="list-style-type: none"> <li>• Check if PC display resolution matches the factory preset timings.</li> <li>• Recall factory setting (see <b>Chapter 3: KVM Drawer Operating Instructions; Recall</b> for more information).</li> <li>• Fine-tune the screen by first adjusting Pitch, then Phase, and finally, Position.</li> <li>• Refer to <b>Chapter 3: KVM Drawer Operating Instructions</b> and review all OSD functions to see which adjustment will help LCD panel appearance.</li> </ul>

## Z-CIM Troubleshooting

PROBLEM/DESCRIPTION	SUGGESTION
<p>The Z-Series chain is installed, but there is no indication of active computers on the Selection Menu (no green channels).</p>	<p>Be sure the computers are powered ON and that each Z-CIM requiring a power supply is also plugged in. Be sure the KVM Drawer is plugged in.</p> <p>Ensure that the Z-CIM Terminator is in place in the last Z-CIM's UTP IN port.</p> <p>Ensure that the Z-Series chain has been constructed properly with regard to the Z-CIM's IN and OUT UTP ports.</p>
<p>A Z-Series chain is directly connected to a Paragon UMT8, however, there is no indication of active computers on the Selection Menu (no green channels).</p>	<p>Ensure that the Z-CIM Terminator is in place in the last Z-CIM's UTP IN port.</p>
<p>I have located the second channel on the Selection Menu, but it is not connecting to the second computer in the Z-CIM chain.</p>	<p>Computer channels are organized alphabetically by assigned name, rather than in the order of their placement within the Z-CIM chain. The second channel on the Selection Menu represents the computer or channel name that is second alphabetically, not second physically in the chain.</p>
<p>The mouse and/or keyboard do not respond properly.</p>	<p>Make sure all UTP cables throughout the system are category 5e UTP cable produced by the same cable manufacturer.</p>
<p>The Z-CIM's indicator light is flashing rapidly, rather than blinking steadily, after connection to the computer and the Z-Series chain. In addition, there is no indication of an active computer on the Selection Menu (no green channel).</p>	<p>Ensure that the cables connected the Z-CIM to the computer, and the cables connecting the Z-CIM to the Z-Series chain, are connected properly and securely</p>

## Appendix C: Frequently Asked Questions

QUESTION:	ANSWER:
What is Z-Series technology?	Z-Series replaces the traditional KVM switch box with an innovative chain-like server-to-server arrangement, significantly reducing cable clutter. Small Computer Interface Modules (Z-CIMs) connected to the keyboard, video, and mouse ports of each server are linked with standard Category 5e UTP cable and transmit keyboard, video, and mouse signals to a User Station. A keyboard, monitor, and mouse plug into the User Station, enabling the user to select and control up to 42 servers via simple on-screen user interface menus. Since Z-Series components are plug and play, servers can be added at any time with no interruption of server operation.
How is Z-Series unique?	Raritan's innovative Z-Series offers a switchless solution that enables access and control of multiple servers from a single user console (keyboard, monitor, and mouse), without consuming precious rack space. Z-CIMs employ Raritan's unique communication technology to control up to 42 servers and eliminate the traditional KVM switch box and all hard-to-manage server-to-switch cable. It is designed to support the most challenging demands of server management where space is at a premium or where systems to be accessed are up to 1,000 feet away via Category 5 UTP cable.
What are the components of a Z-Series system?	A Z-Series system consists of two components: the KVM Drawer and Computer Interface Modules (Z-CIMs). Computer Interface Module (CIM)—connects to the keyboard, video, and mouse ports of each computer and provides failsafe computer access with Raritan's dedicated keyboard/mouse emulation. Z-CIMs are linked one to the next with a single Category 5e UTP cable; the last Z-CIM in the chain is linked to the KVM Drawer. KVM Drawer – enables a user console (keyboard, mouse, and monitor) to select and control up to 42 servers via a simple, on-screen user interface.
Can the Z-Series chain be added directly to Paragon without the KVM Drawer?	Yes. Z-Series is Paragon Ready™, for convenient, clustered access and control of high-density rack mounted servers in large-scale data centers. Connect the first Z-CIM in the chain directly to Raritan's Paragon with a single Category 5 UTP cable.

## UTP Cabling Frequently Asked Questions

QUESTION:	ANSWER:									
<p>What UTP cable does Raritan recommend for use with Paragon<sup>®</sup>, Paragon Ready<sup>™</sup>, and Cat5 Reach<sup>™</sup> products?</p>	<p>Raritan certifies the following Category 5e UTP and Category 6 UTP cable products for use with its family of industry-leading data center solutions:</p> <p>Certified Cables for Use with Raritan Products</p> <p>Category 5e UTP Cables:</p> <table border="0"> <tr> <td>Belden DataTwist 350 UTP</td> <td>#1700A</td> <td>Solid</td> </tr> <tr> <td>Belden DataTwist 350 patch</td> <td>#1752A</td> <td>Stranded</td> </tr> </table> <p>Category 6 UTP Cables:</p> <table border="0"> <tr> <td>Belden MediaTwist</td> <td>#1872A</td> <td>Solid</td> </tr> </table> <p>Use of non-certified cabling can and will result in video and data degradations that users may find unsatisfactory. Certified Raritan cable products listed above are widely available and competitively priced. When using certified cable, users can transmit video signals at distances up to 1,000 feet at 1024x768 @75Hz; and up to 600 feet at 1600x1200 @75Hz. Note that Raritan does not have any marketing relationship with Belden, nor does Raritan receive any financial incentive for recommending Belden products.</p>	Belden DataTwist 350 UTP	#1700A	Solid	Belden DataTwist 350 patch	#1752A	Stranded	Belden MediaTwist	#1872A	Solid
Belden DataTwist 350 UTP	#1700A	Solid								
Belden DataTwist 350 patch	#1752A	Stranded								
Belden MediaTwist	#1872A	Solid								
<p>Can I use plain Cat 5 cable, instead of Cat 5e?</p>	<p>Yes, however, you may not get the same performance as you would with Raritan certified Category 5e UTP or Category 6 UTP cables. Standard Category 5 UTP cable may not have the necessary characteristics for transmitting high-quality video over long distances.</p>									
<p>Can I use standard Ethernet (10BASE-T) cable?</p>	<p>No. Standard Ethernet cable does not have the necessary bandwidth characteristics for transmitting high-quality video over long distances.</p>									
<p>Can I use non-certified Cat 5e cable?</p>	<p>Yes, however, you may not get the same performance as you would with Raritan certified Category 5e UTP or Category 6 UTP cables. Using non-certified Category 5e UTP cable with Raritan products results in degraded video performance ranging from mildly irritating to severely unusable.</p> <p>The only occasion when a non-certified cable may be used with Raritan products without negative effects on system usability is when the total cable distance between any user console and any connected device is less than 300 feet.</p> <p>Because cable products certified by Raritan do not cost more than competing cable offerings, Raritan strongly recommends</p>									



QUESTION:	ANSWER:
	that users utilize Raritan certified cables for maximum performance with Raritan product applications.
Can I use Cat 6 cable?	Yes. Currently only one Category 6 UTP cable product is Raritan certified for use with Raritan products. Raritan continues to test new Category 6 UTP cabling products as they are released to the market. However, at the present time, no Category 6 standard currently exists; all products currently available in the marketplace claiming to be Category 6 UTP cable actually conform to a <i>proposed</i> standard, not an established one. As a result, great variation in cable types and performance exist.
What happens if I do not use Raritan certified cable?	Cable products that are not specifically certified by Raritan will likely cause your video to look blurry; in particular if the video signal is of high-resolution, or if the video signal must be transmitted over long distances. Furthermore, LCD monitors can become unusable



## Appendix D: Glossary

PHRASE	DEFINITION
Active Channel	A channel is active when a connected device is powered on. See also <i>Channel</i> .
Channel	There are up to 42 “channels” in a Z-series configuration. A channel represents the path to a certain computer on the Selection Menu. See also Active Channel and Inactive Channel.
Computer Name (Channel Name)	A label of up to 12 characters assigned by an administrator for a device connected to a Z-Series channel.
Edit Menu	For editing computer names, changing channel scan times, and assigning a home channel.
Global Scan Rate	Scan rate used for all channels when Scan Mode field in System Profile Menu is set to Global. See also <i>Scan Rate</i> .
Green Mode	A field in System Profile Menu for toggling PowerSave feature on and off.
Home Channel	The channel designated as the users Home computer via the Edit Menu <F3>. This designation will enable the user to quickly select or switch directly to the home computer. At the Selection Menu, pressing the <Home> key once highlights the home channel. With no OSUI displayed, rapidly pressing the <Home> key twice automatically switches the user to the computer designated as the home computer
Hot Key	For activating On-Screen User Interface (OSUI). To activate the OSUI, press the <b>Hot Key</b> twice rapidly – the default Hot Key is <ScrollLock>.
ID Display	A single-line display shown on monitor to identify a channel that has just been selected.
Individual Scan Rate	Scan rate specified for each channel when Scan Mode field in System Profile Menu is set to Individual. Individual per channel scan rates are set in the Edit Menu. See also <i>Scan Rate</i> .

PHRASE	DEFINITION
Local Console	Keyboard, monitor, and mouse (KVM Drawer) plugged into local Z-CIM port.
Menu	A Z-Series On-Screen User Interface (OSUI) display.
Menu <F> Keys	Function keys for On-Screen User Interface (OSUI) menus. (<F1>, <F2>, etc.)
PowerSave	Allows a properly equipped monitor to operate in energy save mode. See also <i>Green Mode</i> .
Scan	Toggle Function key <F6> for activating AutoScan.
Scan Mode	Field in System Profile Menu. Can be set to either Global or Individual.
Scan Rate	Time interval –in seconds- that a channel’s computer is to remain displayed on monitor when AutoScan is activated <F6>. See also <i>Global Scan Rate</i> and <i>Channel Specific (Individual) Scan Rate</i> .
Selection Menu	On-Screen User Interface (OSUI) Menu used for selecting and accessing a computer or device.
Terminator	RJ45 Z-CIM terminating plug. To be inserted in the UTP IN port on the last Z-CIM in the Z4200U chain.