Raritan LED KVM Console

(T1700-LED/T1900-LED)
User Guide
Release 1.1

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.

VCCI Information (Japan)

この装置は，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。　　　　VCCI－A

Raritan is not responsible for damage to this product resulting from accident, disaster, misuse, abuse, non-Raritan modification of the product, or other events outside of Raritan's reasonable control or not arising under normal operating conditions.

If a power cable is included with this product, it must be used exclusively for this product.

Rack-mount Safety Instructions

- *Elevated Operating Ambient:*

  If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

- *Reduced Air Flow:*

  Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

- *Mechanical Loading:*

  Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

- *Circuit Overloading:*

  Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

- *Reliable Earthing:*

  Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

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What's New in the LED KVM Console User Guide

The following sections have changed or information has been added to the LED KVM Console Online Help based on enhancements and changes to the equipment and/or user documentation.

Please see the Release Notes for a more detailed explanation of the changes applied to this version of LED KVM Console.

Important Safeguards

Read all these instructions carefully before you use the device. Save this manual for future reference.

What the Warranty Does Not Cover

- Any product, on which the serial number has been defaced, modified or removed.
- Damage, deterioration or malfunction resulting from:
    - Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
    - Repair or attempted repair by anyone not authorized by us.
    - Any damage of the product due to shipment.
    - Removal or installation of the product.
    - Causes external to the product, such as electric power fluctuation or failure.
    - Use of supplies or parts not meeting our specifications.
    - Normal wear and tear.
    - Any other causes which does not relate to a product defect.
- Removal, installation, and set-up service charges.

Safety Instructions

- Unplug equipment before cleaning. Don't use liquid or spray detergent; use a moist cloth.

- Keep equipment away from excessive humidity and heat. Preferably, keep it in an air-conditioned environment with temperatures not exceeding 40º Celsius (104º Fahrenheit).

- When installing, place the equipment on a sturdy, level surface to prevent it from accidentally falling and causing damage to other equipment or injury to persons nearby.

- When the LCD console is in an open position, do not cover, block or in any way obstruct the gap between it and the power supply. Proper air convection is necessary to keep it from overheating.

- Arrange the equipment's power cord in such a way that others won't trip or fall over it.

- If you are using a power cord that didn't ship with the equipment, ensure that it is rated for the voltage and current labeled on the equipment's electrical ratings label. The voltage rating on the cord should be higher than the one listed on the equipment's ratings label.

- Observe all precautions and warnings attached to the equipment.

- If you don't intend to use the equipment for a long time, disconnect it from the power outlet to prevent being damaged by transient over-voltage.

- Keep all liquids away from the equipment to minimize the risk of accidental spillage. Liquid spilled on to the power supply or on other hardware may cause damage, fire or electrical shock.

- Only qualified service personnel should open the chassis. Opening it yourself could irreparably damage the equipment and invalidate its warranty.

- If any part of the equipment becomes damaged or stops functioning, have it checked by qualified service personnel.

Chapter 1 Introduction

This User Guide introduces Raritan's 1U rackmount LED KVM Consoles: T1700-LED and T1900-LED, which are used to operate a KVM switch or server in the data center or server room. A Raritan LED KVM Console features an *LED-backlit LCD display* and a *DVI port*.

T1700-LED and T1900-LED are functionally identical except for the following major differences:

- T1700-LED uses a 17-inch display while T1900-LED uses a 19-inch display.
- T1700-LED supports the video resolution up to 1920 x 1080 while T1900-LED supports up to 1280 x 1024.
- T1700-LED's screen aspect ratio is 16:9 while T1900-LED's is 4:3.

For more details, see *Technical Specifications* (on page 22).
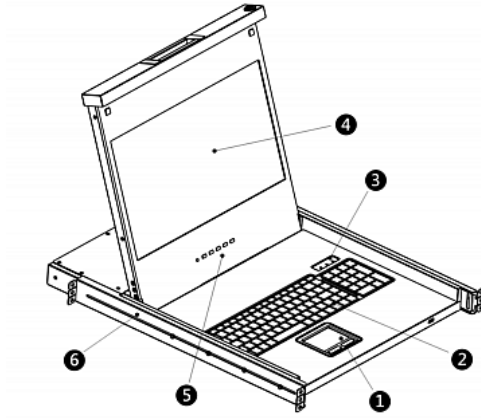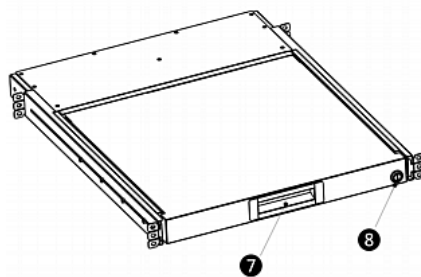
In This Chapter

Package Content

The LED KVM Console comes with standard parts shown below. Check and make sure they are included and in good condition. If anything is missing or damaged, contact Raritan or the local vendor immediately.

- LED KVM Console
- Rackmount brackets
  * Mounting depth adjustable from 520 to 902 mm
- KVM combo cable (VGA, USB, PS/2)
- DVI cable
- Quick Setup Guide
- Warranty card
- Power cord
- Drawer key (to unlock the console)

Structure Diagram

1. Touchpad
2. Keyboard
3. Indicators for Num Lock, Caps Lock and Scroll Lock status
4. LCD display
5. OSD buttons and indicator lamp
6. Adjustable mounting brackets

7. Ergonomic concave handle
8. Lock

Chapter 2   Installation

In This Chapter

Before Installation

- It is very important to locate this product in a suitable environment.
- The surface for placing and fixing this product should be stable and level or mounted into a suitable cabinet.
- Make sure the place has good ventilation, is out of direct sunlight, away from sources of excessive dust, dirt, heat, water, moisture, and vibration.
- Convenience for connecting this product to the related facilities should be well considered too.
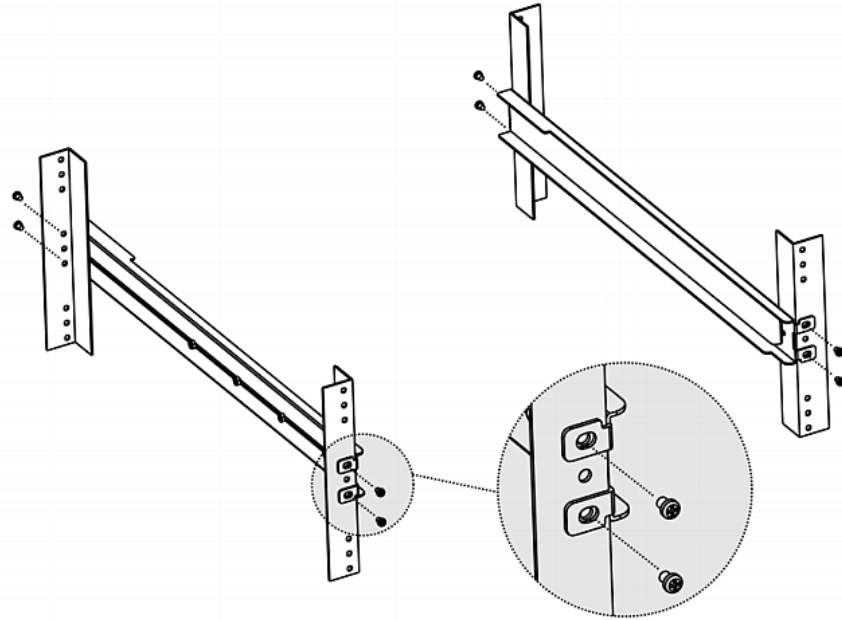
Installing the LED KVM Console

Follow the procedure below to install the LED KVM Console.
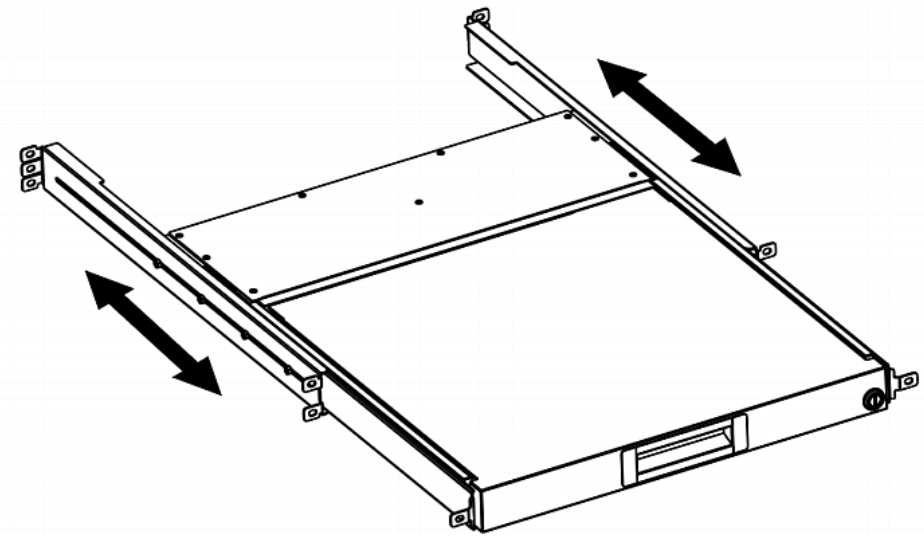
▶ **To rack-mount the LED KVM Console:**

1. Slightly loosen the fasteners on the brackets, adjust the length of the brackets to match the mounting depth of the rack, and then tighten the fasteners.
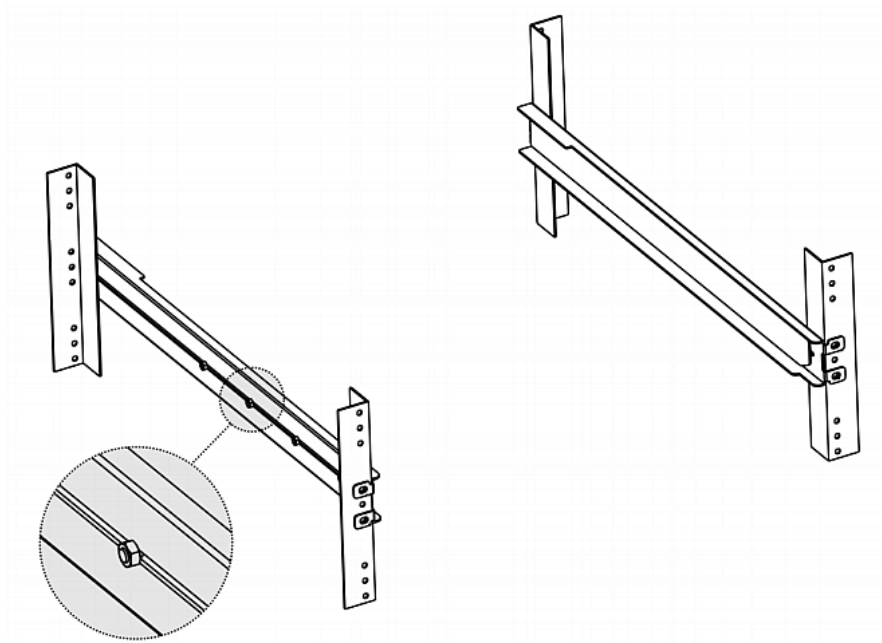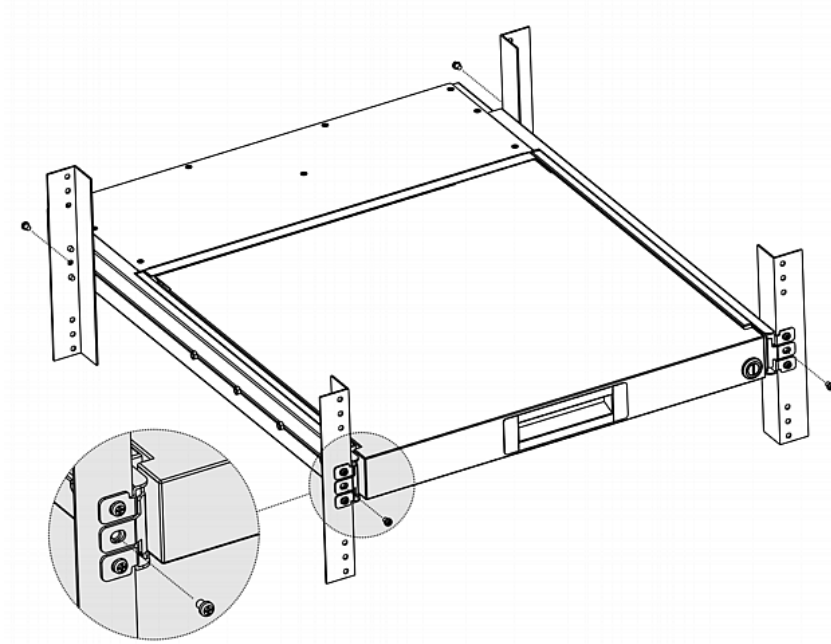
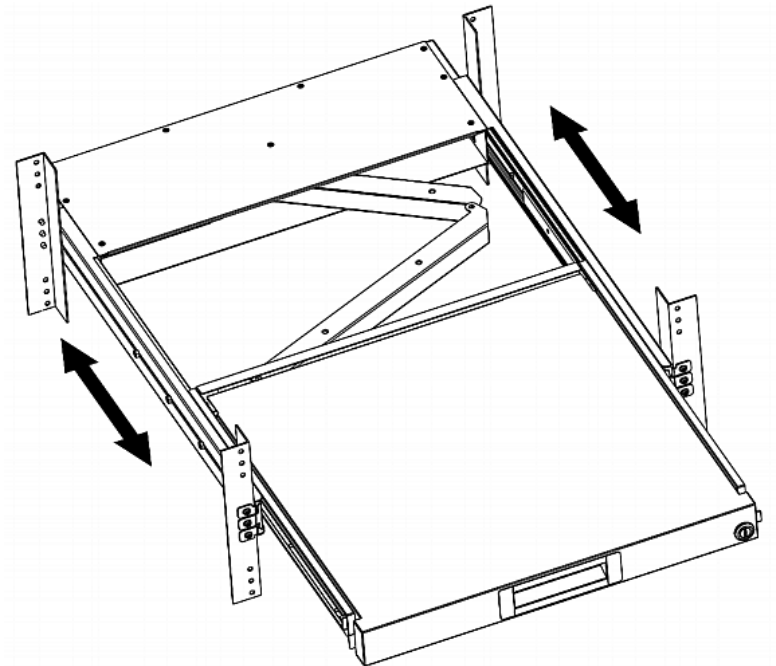2. Fastens the brackets to the rack rails securely with your own screws or cage nuts.

3. Slide the LED KVM Console between the brackets as shown below.

4. Fasten the LED KVM Console to the rack.

The diagram below illustrates how the LED KVM Console moves between the brackets.

Connecting a Server or KVM Switch

The LED KVM Console can be connected to either a KVM (keyboard/video/mouse) switch or a server.

You must always use the Raritan-provided KVM combo cable to make the connection.

A DVI cable is required if the server's or KVM switch's video port is a DVI port, or if you prefer using the DVI port.

Connections via VGA and USB or PS/2

You can make a connection to any *VGA-based* server or KVM switch via VGA and USB or PS/2.

Do NOT connect both USB and PS/2 connectors simultaneously.
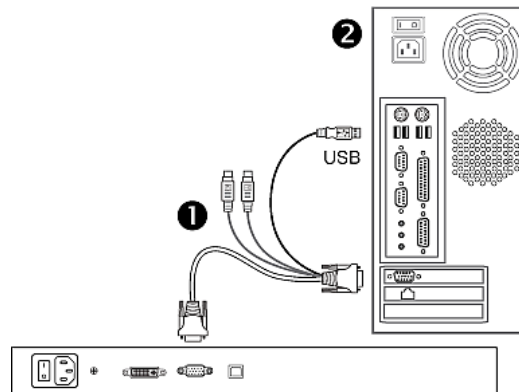
Do NOT use a USB-A to USB-B cable for the keyboard and touchpad of the LED KVM Console.

If connecting Raritan's MCCAT28/216 KVM switch, the LED KVM Console only supports the PS/2 connection.

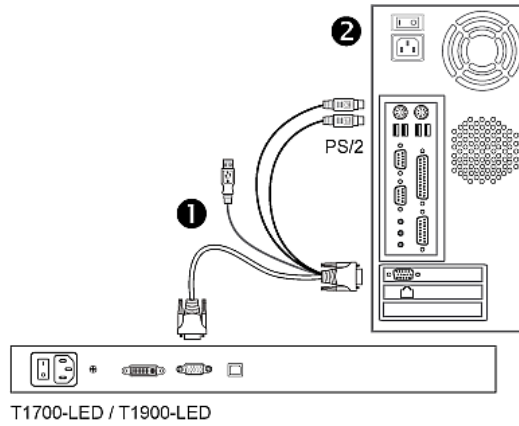Warning: Raritan's MasterConsole II (MCC) KVM switch is NOT supported so do not connect any MCC device to it.

▶ **Server - VGA and USB connection**

❶	KVM combo cable
❷	VGA-based server

T1700-LED / T1900-LED

▶ **Server - VGA and PS/2 connection**

T1700-LED / T1900-LED

▶ **KVM switch - VGA and USB connection**

❶	KVM combo cable
❷	VGA-based KVM switch

T1700-LED / T1900-LED
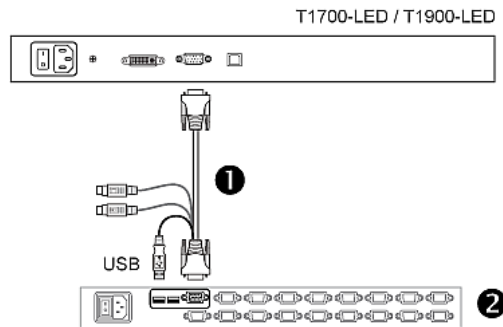
▶ **KVM switch - VGA and PS/2 connection**

T1700-LED / T1900-LED
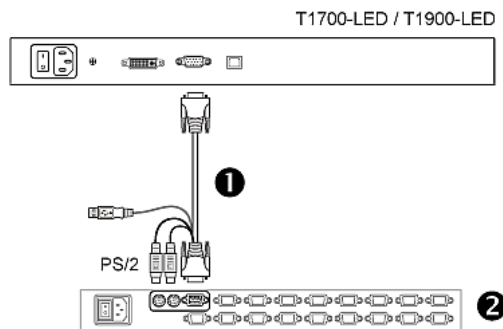
Connections via DVI and USB or PS/2

You can make a connection to a *DVI-based* server or KVM switch, such as Raritan's Dominion KX III KVM switch, via a combination of DVI and USB or PS/2 interface.

Do NOT connect both USB and PS/2 connectors simultaneously.
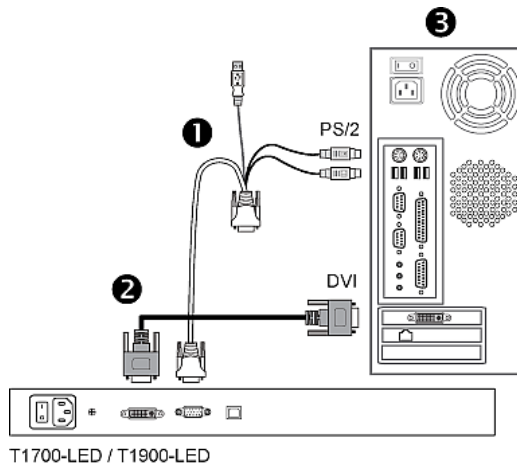
Do NOT use a USB-A to USB-B cable for the keyboard and touchpad of the LED KVM Console.

▶ **Server - DVI and USB connection**

|	
❶	KVM combo cable
❷	DVI cable
❸	DVI-based server

T1700-LED / T1900-LED
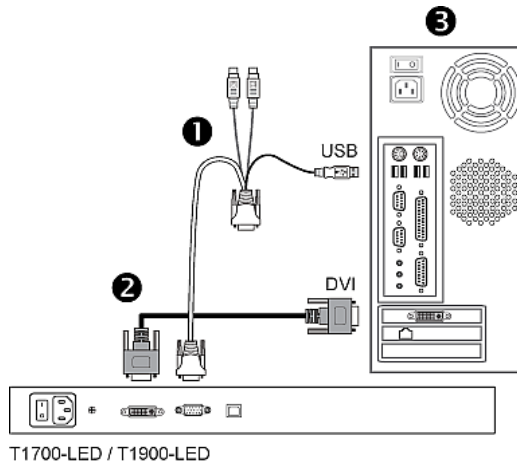
▶ **Server - DVI and PS/2 connection**

T1700-LED / T1900-LED

Tip: If both DVI and VGA ports are available on the server, you may make connections to both ports, and then press the DOWN/SOURCE button to switch between different video sources.

▶ **KX III KVM switch - DVI and USB connection**

❶	KVM combo cable
❷	DVI cable
❸	KX III or any DVI-based KVM switch with USB ports
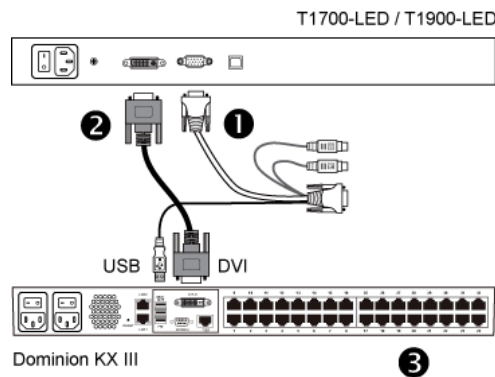
Note: If your DVI-based KVM switch provides only PS/2 ports, connect PS/2 rather than the USB connector of the KVM combo cable to the KVM switch.

Connecting an External USB Device (Optional)

The LED KVM Console provides an additional USB interface that functions as the extension of the USB-A interface of the server connected to it, therefore facilitating the use of an external USB device with the server, such as a USB keyboard, mouse or a USB disk.

This additional USB interface comprises a USB-B port on the rear panel of the LED KVM Console and a USB-A port on the front panel. The USB connection between the server and the LED KVM Console is required in order to use this USB interface.
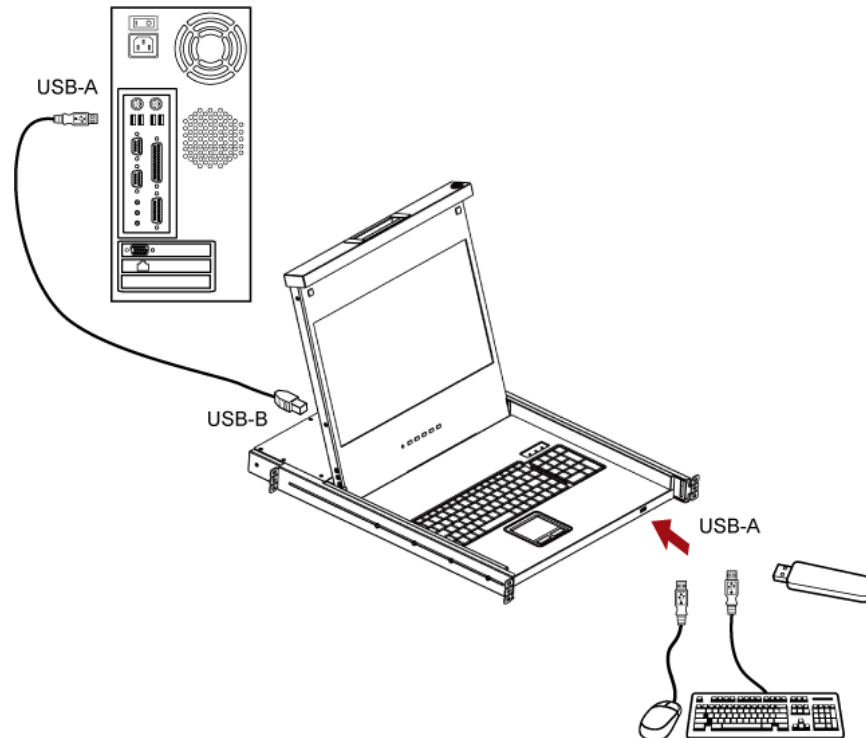
▶ **To connect an external USB device:**

1. Use a regular USB-A to USB-B cable to connect the LED KVM Console and the server.

   a. Plug the USB-A connector into one of the available USB-A ports on the server.

b. Plug the USB-B connector into the USB-B port on the rear side of the LED KVM Console.

Note: Raritan does not provide the USB-A to USB-B cable.

2. Connect any USB device to the front panel USB-A port of the LED KVM Console.

USB-A

USB-B

USB-A

Now the server should detect the connection of this external USB device. If necessary, install the driver for the detected USB device.

Chapter 3 Operation

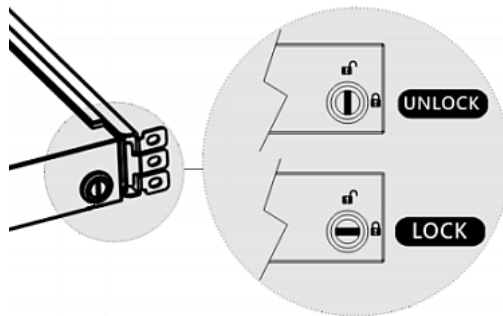## In This Chapter

Locking or Unlocking the LED KVM Console

The LED KVM Console has a lock to the right side. When locked, you cannot draw this product out of the rack.

Use the drawer key or a coin-shaped object to turn the lock.
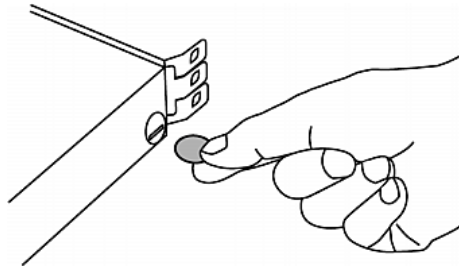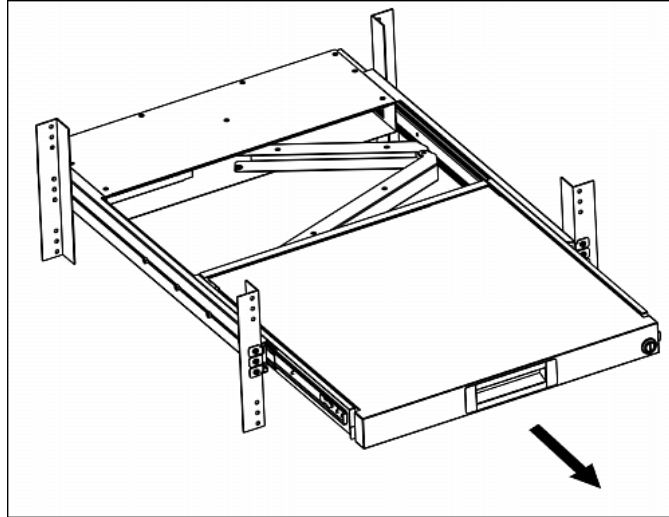

- To unlock this product, turn the lock counterclockwise.
- To lock this product, turn the lock clockwise.

Operating the LED KVM Console

1. Gently pull the concave handle toward the front of the LCD display.

2. Flip up the LCD display to a suitable angle.
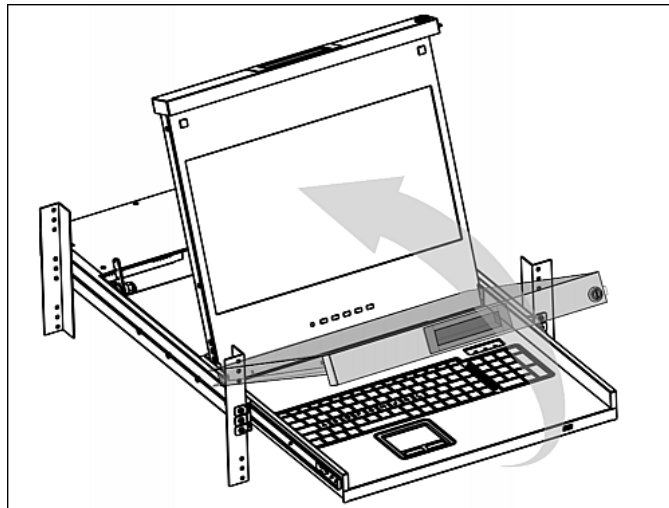
3. Operate the LED KVM Console. For information on LCD buttons and onscreen menu, see **Using the OSD Menu** (on page 15).

Closing the LED KVM Console

1. Locate a gray-arrow release button on two sides of the LED KVM Console.
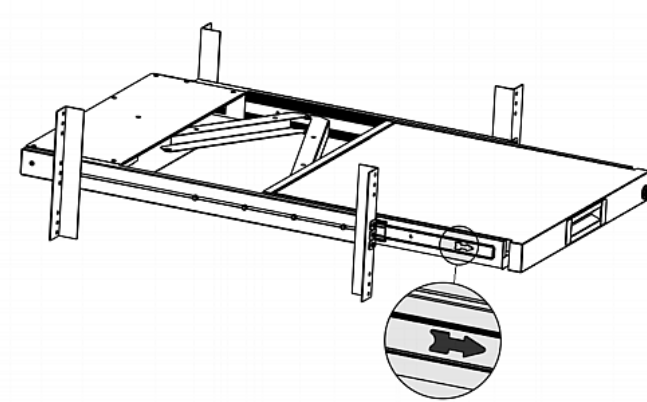
2. Push both gray-arrow buttons in the direction as indicated by the arrow head before pushing the LED KVM Console into the rack.

3. Keep pushing the gray-arrow buttons until this product is completely moved into the rack.

Chapter 4 Using the OSD Menu

You can customize the video properties of the built-in LCD display, such as colors and image position, and the OSD settings, such as the language displayed in the OSD, by changing the settings of the OSD menu.

In This Chapter

Onscreen Display Operation
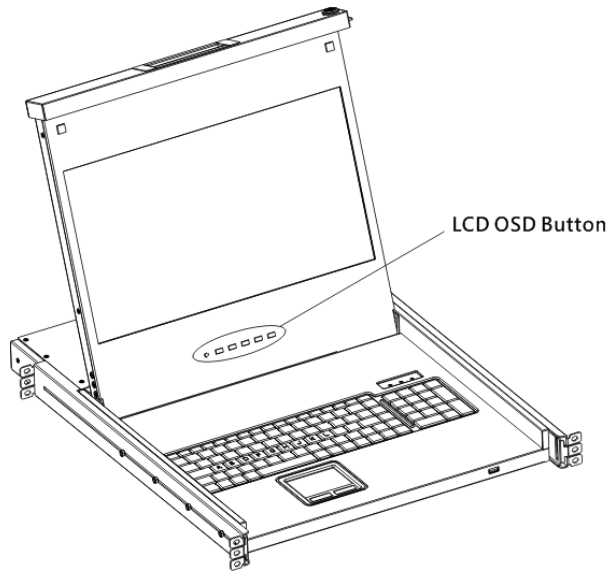
Buttons	Function
POWER	Power on/off the LCD panel. The LCD indicator lamp indicates the current power on/off status. ○ Light off = LCD power off ● Blue = LCD power on

| Buttons	Function
UP/AUTO	This button has two functions: • When no OSD is displayed, pressing this button optimizes the visual settings. • While the OSD is being displayed, pressing this button moves up the selection.
DOWN/SOURCE	This button has two functions: • When no OSD is displayed, this button is used to select the video source - VGA or DVI. • While the OSD is being displayed, pressing this button moves down the selection.
MENU	This button has two functions: • When no OSD is displayed, pressing this button triggers the OSD menu. • While the OSD is being displayed, this button functions as the Enter key and can be used to confirm the selection.
EXIT	Quit the current OSD setting page or the OSD menu.

Onscreen Menu

The onscreen menu contains eight items: four are related to the visual quality, two are related to the OSD settings, one is to show the current video information, and one is used to restore the settings to factory defaults.

Auto Adjust
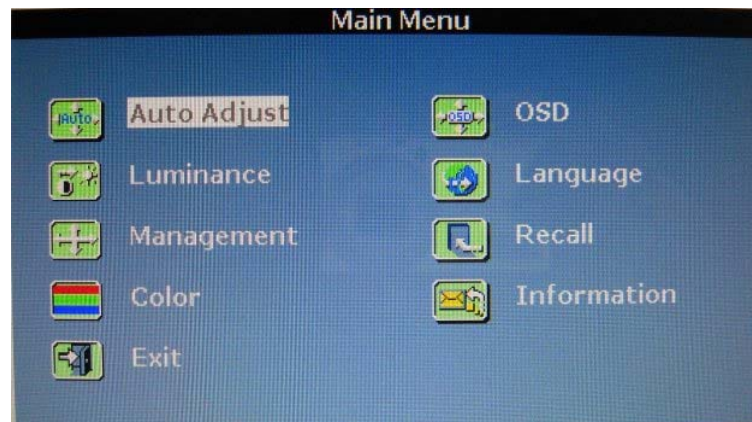
- Auto Adjust:

  Fine tune the video signals to eliminate waviness and distortion. An "Auto Adjusting" message is displayed during the process.

Luminance
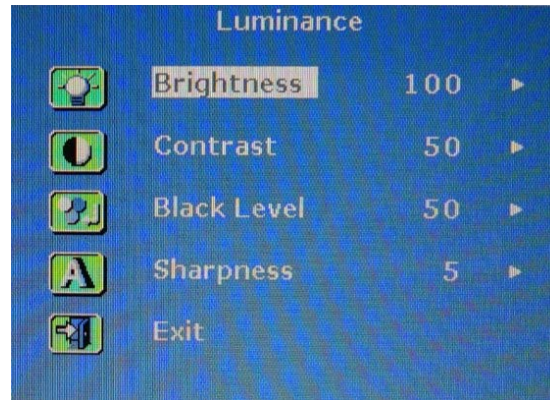
- Brightness:

  Make the screen image brighter or darker.

- Contrast:

  Adjust the difference between the background black level and foreground white level.

- Black Level:

  Adjust the black level of the screen image.

- Sharpness:

  Fine tune the sharpness of the screen image.

Management
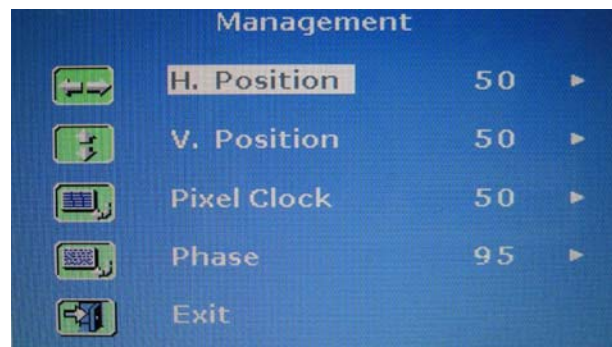
- H. Position:

  Move the screen image left or right.

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- V. Position:

  Move the screen image up or down.

- Pixel Clock:

  Adjust the clock/pitch to synchronize the sampling clock of the LCD with the pixel clock of the connected equipment. This adjustment is needed only for VGA signals when Auto Tune does not get the optimum video performance and vertical dark bands are visible on the screen.

- Phase:

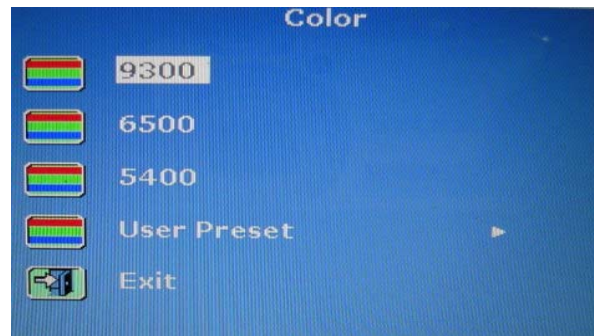 Adjust the phase to synchronize the frequency settings of the LCD with the frequency output of the connected equipment. Perform this adjustment only when horizontal streaking is seen on the screen.

Color

Select the screen color temperatures. The factory default is 6500K.

- 9300:

  Add blue to the screen image, making the white cooler.

- 6500:

  Add red to the screen image, making the white warmer.

- 5400:

  Add green to the screen image, making the white cooler.

- User Preset:

  Adjust red, green and blue colors respectively.

OSD
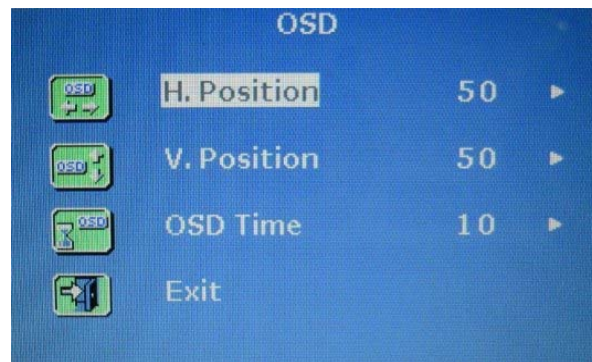
- H. Position:

  Adjust the OSD's horizontal position.

- V. Position:

  Adjust the OSD's vertical position.

- OSD Time:

  Set the time duration in seconds for which the OSD remains visible after the last button is pressed. The factory default is 10 seconds.

Language

Select the language in which the OSD menu is displayed. Available options include English, Chinese, Japanese, Deutsch, Français, Español, Italiano, Korean, Portuguese and Russian.

Recall
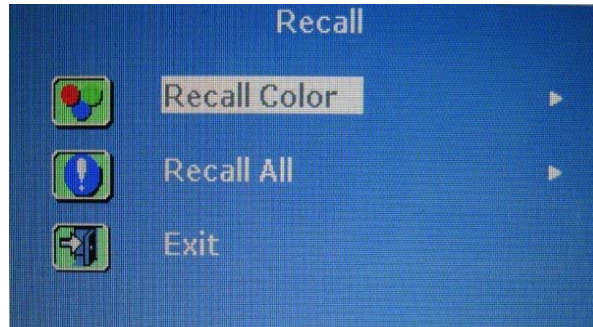
- Recall Color:
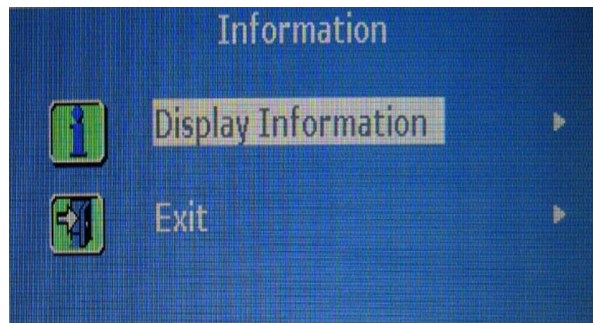
  Reset all colors to factory defaults.

- Recall All:

  Reset all settings to factory defaults except for the language setting.

A confirmation message appears after selecting either Recall option. Press UP/AUTO to select Yes and then press MENU to confirm the operation.

Information

- Display Information:

  Display the current resolution and frequency information on the screen.

Selecting the Video Source (Optional)

If both VGA and DVI ports are available on the server, you can make connections to both ports through the 3-in-1 and DVI cables respectively. When both video ports are used, you can switch between these two video sources by operating the OSD.

▶   **To switch between VGA or DVI signals:**

1. Press the DOWN/SOURCE button on the LCD panel. An OSD appears, showing two options - VGA and DVI.

2. Press the UP/AUTO or DOWN/SOURCE button to select a video source.

3. Press MENU to confirm your selection.

Appendix A Specifications

In This Chapter

Technical Specifications

T1700-LED

Item	Description
Form factor	1U rack mounting on slide-out rails
Diagonal size	17.3" TFT
Screen aspect ratio	16:9
Max. resolution	1920 x 1080
Brightness (cd/m²)	300
Color support	16.7M
Contrast ratio (typ.)	650:1
Viewing angle (H/V)	70° x 70°
Display area (mm)	337 x 270
Response time (ms)	2
Resolution	720 x 400, 70Hz (IBM VGA)
	640 x 480, 60Hz (IBM VGA)
	640 x 480, 72 / 75Hz (VESA)
	800 x 600, 56 / 60 / 72 / 75Hz (VESA)
	1024 x 768, 60 / 70 / 75Hz (VESA)
	1152 x 864, 75Hz (VESA STD)
	1280 x 1024, 60 /70Hz (VESA STD)
	1280 x 1024, 75Hz (VESA)

Item	Description
	1440 x 900, 60 / 75Hz (VESA STD)
	1680 x 1050, 60Hz (VESA STD)
	1920 X 1080, 60Hz (VESA STD)
DDC support	DDC, DDC2, and DDC2B
Plug & play DDC	EDID 1.3
Console port (combo)	3-in-1 DB-15 connector for VGA / keyboard / mouse Support USB & PS/2 servers or KVM switches
Power input	Auto-sensing 100 to 240VAC, 50 / 60Hz
Power consumption	Max. 12.2 Watt, Standby 3.2 Watt
Compatibility	Multi-platform - Mix PCs, SUNs, IBMs, HPs
Regulation approval	FCC, CE, UL, VCCI and RoHS

T1900-LED

Item	Description
Form factor	1U rack mounting on slide-out rails
Diagonal size	19" TFT
Screen aspect ratio	4:3
Max. resolution	1280 x 1024
Brightness (cd/m²)	250
Color support	16.7M
Contrast ratio (typ.)	1000:1
Viewing angle (H/V)	80° x 80°
Display area (mm)	376 x 301
Response time (ms)	5
Resolution	640 x 350, 70Hz
	640 x 400, 70Hz
	640 x 480, 60Hz (IBM VGA)
	640 x 480, 72 / 75Hz (VESA)
	720 x 400, 70Hz (IBM VGA)
	800 x 600, 56 / 60 / 72 / 75Hz (VESA)
	1024 x 768, 60 / 70 / 75Hz (VESA)
	1280 x 1024, 60 / 70 Hz (VESA STD)
	1280 x 1024, 75Hz (VESA)

Item	Description
DDC support	DDC, DDC2, and DDC2B
Plug & play DDC	EDID 1.3
Console port (combo)	3-in-1 DB-15 connector for VGA / keyboard / mouse Support USB & PS/2 servers or KVM switches
Power input	Auto-sensing 100 to 240VAC, 50 / 60Hz
Power consumption	Max. 16.2 Watt, Standby 3.6 Watt
Compatibility	Multi-platform - Mix PCs, SUNs, IBMs, HPs
Regulation approval	FCC, CE, UL, VCCI and RoHS

Environmental Specifications

All LED KVM Console models share the same environmental specifications.

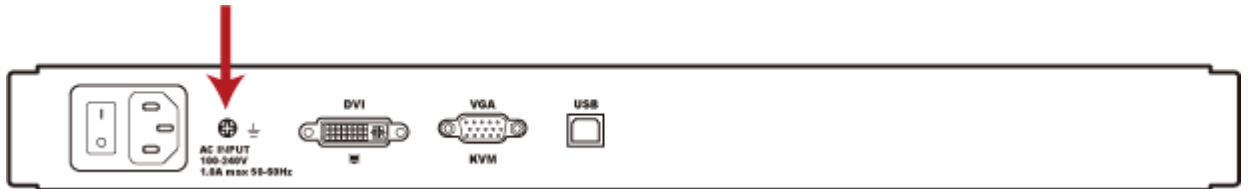| Item	Description
Operation	0° to 40°C degrees
Storage	-5° to 60°C degrees
Relative humidity	5~90%, non-condensing
Shock	10G acceleration (11ms duration)
Vibration	5~500Hz 1G RMS random vibration

Dimensions

Model	Product dimension (W x D x H)	Packing dimension (W x D x H)	Net weight	Gross weight
T1700-LED	434 x 569 x 43.5 mm 17.1 x 22.4 x 1.71"	742 x 602 x 178 mm 29.2 x 23.7 x 7.0"	16 kg 35.3 lb	17.6 kg 38.8 lb
T1900-LED	434 x 569 x 43.5 mm 17.1 x 22.4 x 1.71"	750 x 615 x 185 mm 29.5 x 24.2 x 7.3"	17 kg 37.5 lb	18.6 kg 41 lb

Appendix B Ground Screw

If you want to prevent any electrical shock, you can use the ground screw on the rear panel to provide a safe electrical path to the ground.

▶ **To prevent any potential shock hazard:**

- Connect the ground screw to a wiring system or wiring device.

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≡≡ Raritan.

▶ **U.S./Canada/Latin America**

Monday - Friday
8 a.m. - 6 p.m. ET
Phone: 800-724-8090 or 732-764-8886
For CommandCenter NOC: Press 6, then Press 1
For CommandCenter Secure Gateway: Press 6, then Press 2
Fax: 732-764-8887
Email for CommandCenter NOC: tech-ccnoc@raritan.com
Email for all other products: tech@raritan.com

▶ **China**

Beijing
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9 a.m. - 6 p.m. local time
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9 a.m. - 6 p.m. local time
Phone: +86-21-5425-2499

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Phone: +86-20-8755-5561

▶ **India**

Monday - Friday
9 a.m. - 6 p.m. local time
Phone: +91-124-410-7881

▶ **Japan**

Monday - Friday
9:30 a.m. - 5:30 p.m. local time
Phone: +81-3-5795-3170
Email: support.japan@raritan.com

▶ **Europe**

Europe
Monday - Friday
8:30 a.m. - 5 p.m. GMT+1 CET
Phone: +31-10-2844040
Email: tech.europe@raritan.com

United Kingdom
Monday - Friday
8:30 a.m. to 5 p.m. GMT
Phone +44(0)20-7090-1390

France
Monday - Friday
8:30 a.m. - 5 p.m. GMT+1 CET
Phone: +33-1-47-56-20-39

Germany
Monday - Friday
8:30 a.m. - 5:30 p.m. GMT+1 CET
Phone: +49-20-17-47-98-0
Email: rg-support@raritan.com

▶ **Melbourne, Australia**

Monday - Friday
9:00 a.m. - 6 p.m. local time
Phone: +61-3-9866-6887

▶ **Taiwan**

Monday - Friday
9 a.m. - 6 p.m. GMT -5 Standard -4 Daylight
Phone: +886-2-8919-1333
Email: support.apac@raritan.com