# MasterConsole Digital (MCD and MCD-LED17 Series)

Release 2.3.0

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## 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.

Power Safety Guidelines

To avoid potentially fatal shock hazard and possible damage to Raritan equipment:

- Do not use a 2-wire power cord in any product configuration.
- Test AC outlets at your computer and monitor for proper polarity and grounding.
- Use only with grounded outlets at both the computer and monitor. When using a backup UPS, power the computer, monitor and appliance off the supply.

# Safety

- Operation temperature in a closed rack environment may be greater than room temperature. Do not exceed the rated maximum ambient temperature of the appliances. See Specifications (on page 73) in User Guide.
- Ensure sufficient airflow through the rack environment.
- Mount equipment in the rack carefully to avoid uneven mechanical loading.
- Connect equipment to the supply circuit carefully to avoid overloading circuits.
- Ground all equipment properly, especially supply connections, such as power strips (other than direct connections), to the branch circuit.

# Introduction to MasterConsole Digital Series Products

There are two types of MasterConsole Digital (MCD) KVM product models, which are functionally similar.

- MCD KVM switches
- MCD-LED KVM combination switch and KVM drawer

The major difference between the two products is MCD is a normal KVM switch without a built-in keyboard, mouse and display, and MCD-LED is a KVM switch with a built-in keyboard, touchpad and LCD display.

For detailed information on either product model, see MasterConsole Digital KVM Switches (on page 10) or MasterConsole Digital-LED KVM Drawer (on page 17).

**Important: To support audio, you must purchase MCD KVM switches instead of MCD-LED KVM drawers.**

All of MCD Computer Interface Modules (MDCIMs) and MDUTP cables can be used by either product. For detailed information on MDCIMs or MDUTP, see MCD Computer Interface Modules (on page 14) or MDUTP Cables (on page 14).

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### Product Photos

► *MCD KVM switches*

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► *MCD-LED KVM combination switch and KVM drawer*

► *MDCIM-VGA*

► *MDCIM-DVI*

► *MDCIM-HDMI*

► *MDCIM-DP*

► *MDUTP cables*



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## 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 related facilities should be well considered too.

# MasterConsole Digital KVM Switches

A MasterConsole Digital (MCD) switch is a KVM (keyboard/video/mouse) switch that enables you to control multiple servers from a single set of keyboard, mouse, and monitor.

There are four MCD models, which support different numbers of users and servers.

- MCD-108
- MCD-116
- MCD-216
- MCD-232

## In This Chapter

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### MCD Product Overview

Just connect the keyboard, mouse, monitor and all servers to a MCD switch, and you will be able to switch among servers connected to that MCD switch.

If cascading MCD switches to form a two-tier system, the number of accessible servers can be expanded up to 1024 servers. See Two-Tier System (on page 50).

The MCD switch features the use of standard network patch cables (Category 5e/6 UTP) for connecting servers.

One MCD KVM system comprises the following:

- MCD switch
- MCD Computer Interface Modules (MDCIMs) and/or MDUTP cables

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Tip: To access MCD switches and connected servers from anywhere over the Internet, connect MCD switches to Raritan's Dominion KX III or KX2-101-V2. For details, see Integration with Other Raritan Products (on page 80).

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## One-User Models

The one-user model allows only "one" user to access connected servers at a time. These models include MCD-108 and MCD-116.



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MCD-108 has 8 channel ports, and MCD-116 has 16.

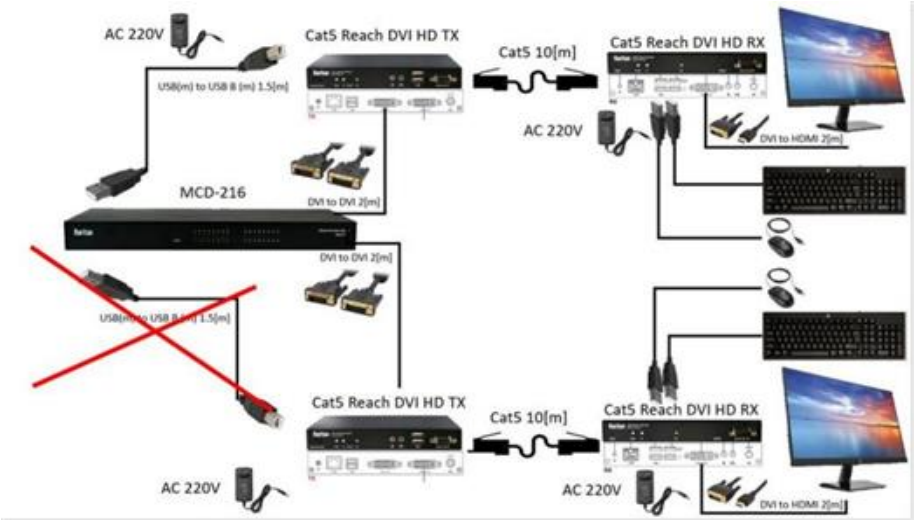
## Dual-User Models

The dual-user model allows up to "two" users to access connected servers at a time. These models include MCD-216 and MCD-232.

MCD-216 has 16 channel ports, and MCD-232 has 32.

You can use C5R-DVI-HD at the local port to extend the length of keyboard, mouse and video connections. On dual-user models, only one user can also add C5R-DVI-HD-TX to extend the KVM cable distance. If both users do this, the keyboard and mouse won't work.

Best practice is to add 1 set of C5R for the first user, and the second user can connect keyboard and mouse directly to MCD, as shown.




### MCD Product Features

- A user can control multiple servers per unit.
  The number of servers is model dependent.
  - MCD-108 supports a maximum of 8 servers
  - MCD-116 supports a maximum of 16 servers
  - MCD-216 supports a maximum of 16 servers
  - MCD-232 supports a maximum of 32 servers
- Total number of accessible servers can be increased up to 1024 servers by cascading MCD switches
- Users can be located away from the servers at a distance up to 150 feet (45.72 meters)
- Support two-user operation on dual-user models -- see Dual-User Models (on page 11)
- Support the PC Share mode on dual-user models
- Support the following keyboard, mouse, video and audio signals transmission

- Standard USB keyboards and mice
- DVI, HDMI, Display Port and VGA
- Analog audio (MDUTP cables)
- Digital audio (MDCIM-HDMI)

- Support the video resolution up to 1920 x 1200 @60Hz (analog) or 1920x1080@60Hz (digital)
- Multi-platform support, including MS-DOS, Windows® 7/8/8.1/10, Linux® (Red Hat, Novell® Suse), Macintosh® OS9, OSX and SCO UNIX®
- With the “keep-alive” technology, you can add, remove, and hot-swap components without interruption to servers
- Simple operation with hot keys and On-Screen Display (OSD) menu
- Support the *Scan* function, which can cycle through either all channels or "active" channels only, and therefore update the channel status

---

*Note: For the definition of an "active" channel, see Active and Inactive Channels (on page 47).*

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- Password protection prevents unauthorized access to MCD switches and servers -- one administrator and 127 user accounts
- Easy firmware upgrade

### MCD Package Contents

- MCD KVM switch x 1
- Power cord x 1
- Rackmount kit x 1 (including brackets and associated screws)
- DVI-I to VGA adapter x 1

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*Note: This adapter can be used for connecting a VGA monitor or for connecting a 2nd-tier MCD switch via "MDUTP" cables. For details, see Step B: Connect the Keyboard/Mouse/Monitor (on page 24) or Establishing a Two-Tier System (on page 51).*

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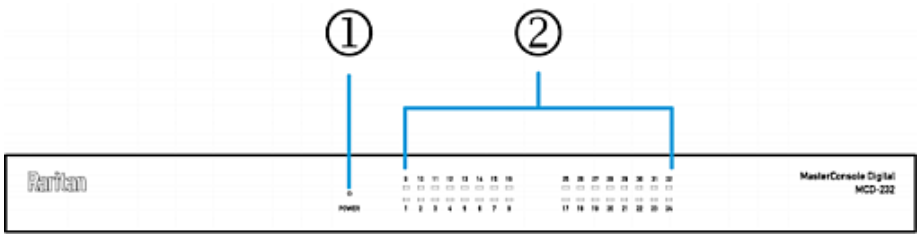
- Quick Setup Guide x 1

### MCD Structure Diagrams

This section provides a brief introduction to the components on the front and rear sides of the MCD switch. The following diagrams illustrate MCD-232.

## Front View



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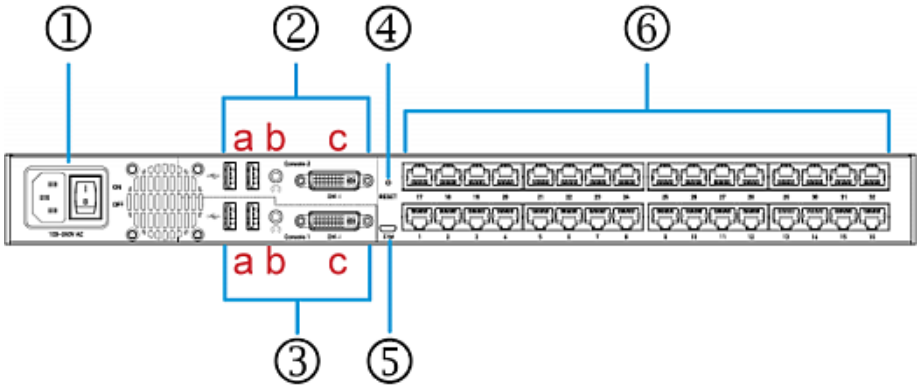
| | | |
|---|---|---|
| 1 | **Power LED** | Turn on after powering on the MCD switch. |
| 2 | **Channel LEDs** | • Turn off for "inactive" channels.<br>• Turn on for "active" channels. The color is white, and will turn green when any channel is being accessed. |

Note: For the definition of inactive and active channels, see Active and Inactive Channels (on page 47).

## Rear View




| | | | |
|---|---|---|---|
| 1 | **Power socket and power switch** | | *Power socket*: Connect the power cord. |
| | | | *Power switch*: Toggle the power on or off. |
| 2 | **'Console 2' connectors** | | Connect the data input/output devices. For details, refer to a, b and c listed below.<br>• 'Console 2' is available on dual-user models only. See Dual-User Models (on page 11). |
| | **a** | **Two USB-A ports** | Connect a USB keyboard and mouse. |
| | **b** | **One audio output** | Connect audio input devices, such as speakers or headphone. |
| | **c** | **One DVI-I connector** | Connect a monitor.<br>• If your monitor does not have a DVI connector, an appropriate video converter or adapter is required. |
| 3 | **'Console 1' connectors** | | Connect the data input/output devices.<br>• 'Console 1' is available on all MCD models. |
| | **a, b, c** | | Refer to a, b, and c shown above. |
| 4 | **Reset button** | | Power cycles the MCD switch.<br>• Note that users are forced to log out on reset. |
| 5 | **Firmware upgrade connector** | | Connect a computer for upgrading the MCD switch's firmware. |

| | | |
|---|---|---|
| 6 | **Channel ports** | Connect servers.<br>• Total of channels depends on your model. |

## MCD Computer Interface Modules

The MCD Computer Interface Module (MDCIM) transmits keyboard, mouse and video signals between the connected server and the MCD switch. One MDCIM is required per server.

There are four types of MDCIMs.

- VGA+USB
  MDCIM-VGA comes with a VGA viedo connector and a USB connector
  This CIM supports analog audio transmission
- DVI + USB
  MDCIM-DVI comes with a DVI video connector and a USB connector.
  This CIM does NOT support audio transmission.
- HDMI + USB
  MDCIM-HDMI comes with an HDMI video connector and a USB connector.
  This CIM supports *digital audio* transmission.
- Display Port + USB
  MDCIM-DP comes with a Display Port video connector and a USB connector.
  This CIM does NOT support audio transmission.
  Please preset the video resolution first. Swapping resolutions frequently may cause the timeout of video sync.

**Important: If the audio functionality is wanted, make sure you turn on the audio feature on your MCD switch in addition to using the audio-capable MDCIM-HDMI or MDUTP cable. See Available Settings and Options (on page 42).**

## MDUTP Cables

One MDUTP cable is a combination of Computer Interface Module (CIM) and standard network patch cable so you can use it in place of the MDCIM.

Raritan provides various MDUTP cables of different lengths.

Each MDUTP cable comes with an HD15 VGA connector, a USB connector and an analog audio connector. Therefore, this cable can transmit analog audio in addition to keyboard, mouse and video signals.

| Model | Cable length |
|---|---|
| MDUTP20-VGA | 2 meters (6.5 feet) |
| MDUTP40-VGA | 4 meters (13 feet) |
| MDUTP60-VGA | 6 meters (20 feet) |
| MDUTP150-VGA | 15 meters (49 feet) |



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**Important: If the audio functionality is wanted, make sure you turn on the audio feature on your MCD switch in addition to using the audio-capable MDCIM-HDMI or MDUTP cable. See Available Settings and Options (on page 42).**

### MCD Rackmount Procedure

MCD switches can be mounted in 1U (1.75", 4.4cm) of vertical space in a standard 19" equipment rack. To rack-mount it, use the brackets and screws that come with the device.

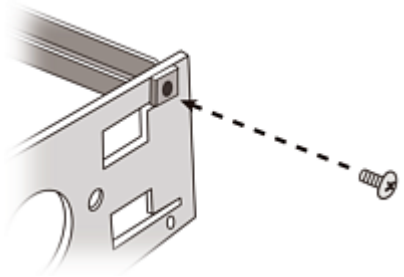
## Step 1: Attach the Cable-Support Bar

You can install the cable-support bar onto the rackmount brackets to bear all cables connected to the MCD switch. The proper position to attach this bar depends on the switch's front panel position in the rack.

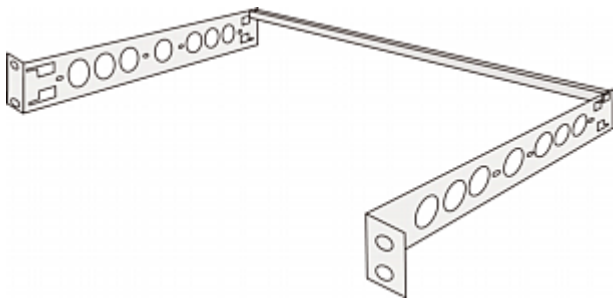
- If the front panel will face the front of the rack, fasten the bar to the L-shaped holes *far from* the ears of the rackmount brackets.
- If the front panel will face the rear of the rack, fasten the bar to the L-shaped holes *close to* the ears of the rackmount brackets.

► *To attach the cable-support bar:*

1. Insert either end of the cable-support bar into one of the L-shaped holes on a rackmount bracket.
2. Align the bar's threaded hole with the threaded hole at the end of the rackmount bracket. Then secure the bar with one of the included cap screws.



3. Repeat the above steps for attaching the other bracket.

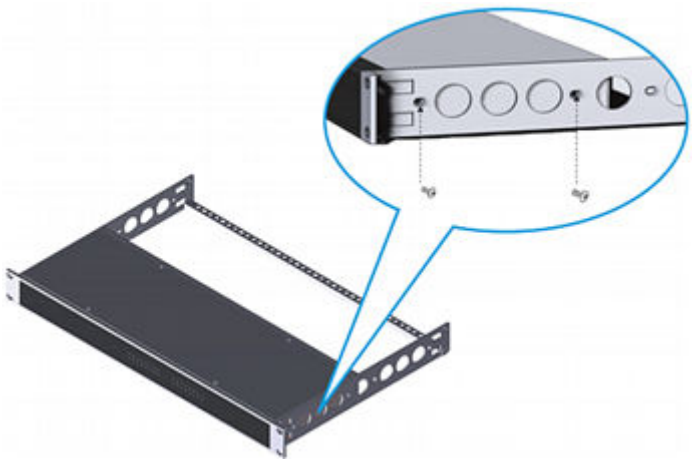


## Step 2: Rack Mount the MCD

When rack-mounting the MCD switch, you can let it face either the front or the rear of the rack to meet your needs.

► *To rack-mount the MCD:*

1. Slide the MCD switch between the two rackmount brackets.
2. Align two little holes of the bracket with two threaded holes on one side of the MCD switch.
3. Secure the bracket to the MCD switch with two of the included screws.



4. Repeat the same steps for attaching the other bracket.
5. Mount the MCD switch in the rack by securing the brackets' ears to the rack's front rails with your own fasteners.



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# MasterConsole Digital-LED KVM Drawer

MasterConsole Digital-LED (MCD-LED) series is a KVM drawer which is functionally similar to MCD KVM switches. For information on MCD KVM switches, see MasterConsole Digital KVM Switches (on page 10).

**Important: MCD-LED KVM drawers do NOT support audio transmission even though an audio-capable MDCIM or MDUTP cable is used.**

MCD-LED includes the following two models. Both models come with a 17" LED LCD display.

- MCD-LED17108
- MCD-LED17116

The adjustable bracket length of either model is up to 908 cm (35.75 inches).

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MCD-LED Rackmount Procedure. . . . . 21

### MCD-LED Product Overview

MCD-LED is a KVM (keyboard/video/mouse) combination switch and KVM drawer that enables you to control multiple servers from a single set of keyboard, touchpad, and monitor.

Connect multiple servers to a MCD-LED KVM drawer, and you will be able to switch among servers connected to the MCD-LED.

You *cannot* establish a two-tier system with MCD-LED KVM drawers, but you can use it as the base switch of any two-tier MCD system. See Two-Tier System (on page 50).

The MCD-LED switch features the use of standard network patch cables (Category 5e/6 UTP) for connecting servers.

One MCD-LED KVM system comprises the following:

- MCD-LED switch
- MCD Computer Interface Modules (MDCIMs) and/or MDUTP cables

Note: You CANNOT connect a MCD-LED KVM drawer to Raritan's Dominion KX III or KX2-101-V2 because it does not have a 'console' port.

## MCD-LED Product Features

- MCD-LED KVM drawers come with a 17" LED LCD display, built-in keyboard and touchpad
- A user can control multiple servers per unit.
- The number of servers is model dependent.
  - MCD-LED17108 supports a maximum of 8 servers
  - MCD-LED17116 supports a maximum of 16 servers
- Support single-user operation only. There are NO dual-user models for MCD-LED series.
- Support the following keyboard, mouse, and video signals transmission
  - Standard USB keyboards and mice
  - DVI, HDMI, Display Port and VGA

  *Note: MCD-LED KVM drawers do NOT support audio transmission even though an audio-capable MDCIM or MDUTP cable is used.*

- Users can be located away from the servers at a distance up to 150 feet (45.72 meters)
- Support the video resolution up to 1920 x 1080 @60Hz
- Multi-platform support, including MS-DOS, Windows® 7/8/8.1/10, Linux® (Red Hat, Novell® Suse), Macintosh® OS9, OSX and SCO UNIX®
- With the “keep-alive” technology, you can add, remove, and hot-swap components without interruption to servers
- Simple operation with hot keys and On-Screen Display (OSD) menu
- Support the *Scan* function, which can cycle through either all channels or "active" channels only, and therefore update the channel status

  *Note: For the definition of an "active" channel, see Active and Inactive Channels (on page 47).*

- Password protection prevents unauthorized access to MCD-LED switches and servers -- one administrator and 127 user accounts
- Easy firmware upgrade

## MCD-LED Package Contents

- MCD-LED KVM combination switch and drawer x 1
- Power cord x 1
- Rackmount kit x 1 (including brackets and associated screws)
- DVI-I to VGA adapter x 1

  *Note: This adapter can be used for connecting a 2nd-tier MCD KVM switch via "MDUTP". For details, see Establishing a Two-Tier System (on page 51).*

- Quick Setup Guide x 1



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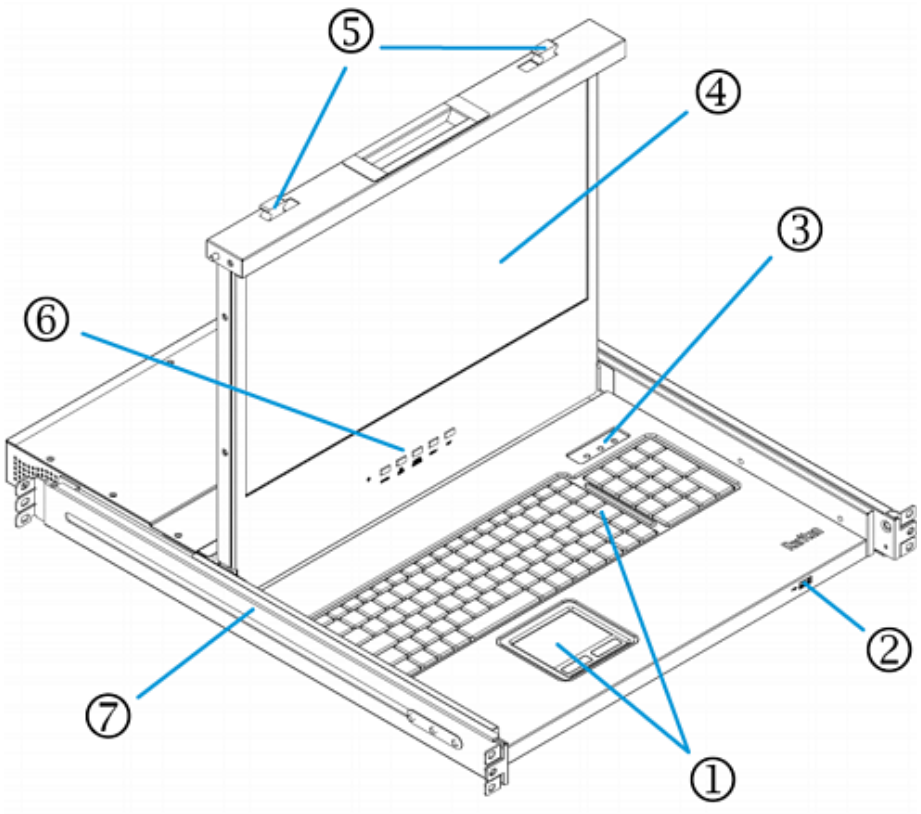
## MCD-LED Structure Diagrams

This section provides a brief introduction to the components on the front and rear sides of the MCD-LED switch. The following diagrams illustrate MCD-LED17116.

# Front View




| | | |
|---|---|---|
| 1 | **Touchpad and keyboard** | Operate the MCD-LED KVM drawer |
| 2 | **USB port** | • This USB port is used to connect an additional wired or wireless USB keyboard and/or mouse.<br>• This USB port does not support a USB storage drive. |
| 3 | **Indicators for Num Lock, Caps Lock and Scroll Lock** | Corresponding indicators are lit to indicate which Lock functionality is turned on. |
| 4 | **TFT LCD display** | Display the OSD and/or server's video output. |
| 5 | **Locking latches** | Lock or unlock the LCD display when it is closed. |

| | | |
|---|---|---|
| 6 | **OSD buttons, power button and indicator lamp** | *OSD buttons*: Display and operate the OSD menu, which adjusts the video or OSD settings of the built-in LCD display.<br>For detailed information, see MCD-LED Display's OSD Menu (on page 56).<br>Note: This OSD menu is different from the OSD for channel selection and system settings, which is described in the chapter titled Using the On-Screen Display Interface (on page 31). |
| | | *LCD power button*: Turn on or off the power supply to the LCD display. |
| | | *LCD power indicator lamp*: The indicator is lit when the LCD power button is turned on. |
| 7 | **Adjustable mounting brackets** | Adjust the mounting bracket to match the length of your rack.<br>• Adjustable length: 523 cm (20.59") to 908 cm (35.75"). |

## Rear View

| | | |
|---|---|---|
| 1 | **Power socket and power switch** | *Power socket*: Connect the power cord. |
| | | *Power switch*: Toggle the power on or off. |
| 2 | **Firmware upgrade connector** | Connect a computer for upgrading the MCD-LED switch's firmware. |
| 3 | **Channel ports** | Connect servers.<br>• Total of channels depends on your model. |

Tip: To reset this product, you can press the power switch.

### MDCIMs and MDTUP Cables

All MDCIMs and MDUTP cables work with either MCD or MCD-LED KVM products.



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► *MDCIMs:*

- See MCD Computer Interface Modules (on page 14).

► *MDUTP cables:*

- See MDUTP Cables (on page 14).

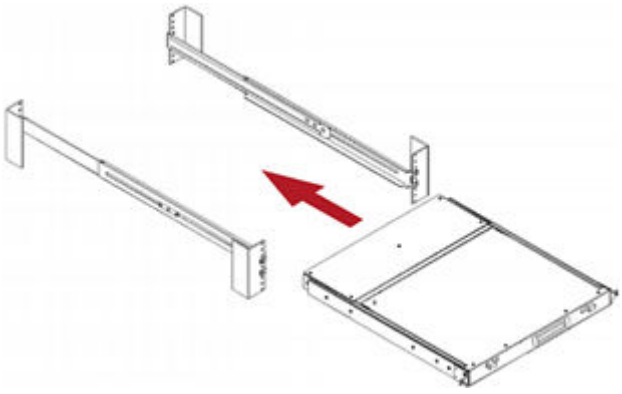
## MCD-LED Rackmount Procedure

MCD-LED KVM drawers can be mounted in 1U (1.75", 4.4cm) of vertical space in a standard 19" equipment rack. To rack-mount it, use the brackets and screws that come with the device.

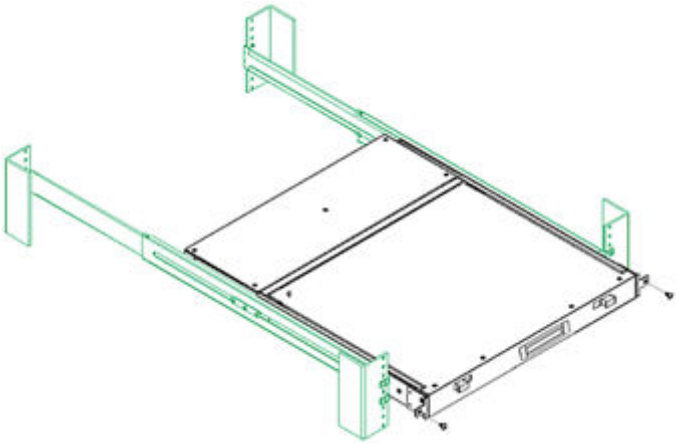
1. Adjust the length of both brackets to match the mounting depth of your rack.

2. Fasten the brackets to the rack rails securely with your own fasteners.

3. Slide the MCD-LED between the brackets.



4. Fasten the MCD-LED to the rack.





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# Quick Start

This section provides instructions on setting up a basic MCD or MCD-LED KVM system and accessing connected servers.

For instructions on rack-mounting each product, see MCD Rackmount Procedure (on page 15) or MCD-LED Rackmount Procedure (on page 21).

► *Major steps for setting up a basic system include:*

1. Connect servers to the MCD or MCD-LED switch. See Basic Installation (on page 23).
2. Unlock and open the MCD-LED. See Using the MCD-LED (on page 26).
   - Skip this step if your product is the MCD KVM switch.
3. Log in to the MCD or MCD-LED switch to access servers, and then log out. See Initial OSD Operation (on page 27).

## In This Chapter

Basic Installation. . . . . 23
Using the MCD-LED. . . . . 26
Initial OSD Operation. . . . . 27

### Basic Installation

Server connection methods are the same for both MCD switches and MCD-LED KVM drawers. The only difference is that you do NOT need to connect a keyboard/mouse/video to MCD-LED.

---

Tip: If preferred, you can connect an additional "wired" or "wireless" USB keyboard and/or mouse to the front USB port of MCD-LED. See Front View (on page 19).

---

► *To connect servers to MCD, perform these steps:*

- Step A: Select Proper MDCIMs or MDUTPs (on page 23)
- Step B: Connect the Keyboard/Mouse/Monitor (on page 24)
- Step C: Connect Servers (on page 25)

► *To connect servers to MCD-LED, perform these steps:*

- Step A: Select Proper MDCIMs or MDUTPs (on page 23)
- Step C: Connect Servers (on page 25)

## Step A: Select Proper MDCIMs or MDUTPs

Choose appropriate MDCIMs or MDUTP cables according to the server's video port and your audio requirements.

| MCD CIM type | Video type | Audio transmission |
|---|---|---|
| MDUTP cables | VGA | Support analog audio |
| MDCIM-VGA | VGA | Support analog audio |
| MDCIM-DVI | DVI | NO support |
| MDCIM-HDMI | HDMI | Support digital audio |
| MDCIM-DP | Display Port | NO support |

Tip: If the MDCIM or MDUTP cable you purchase is not compatible with the video port on your server, the alternative solution is to connect a video converter or adapter to MDCIM or MDUTP.

## Step B: Connect the Keyboard/Mouse/Monitor

Skip this step for MCD-LED series because it has a built-in LCD display, keyboard and touchpad, and does NOT have a 'console' connector.

1. Turn OFF all devices, including the MCD switch and servers.
2. Connect a keyboard, mouse and monitor to the 'Console' connectors on the MCD switch.
   - If using a VGA monitor, a DVI-I to VGA adapter is required.
   - The headphone or speakers are optional.
   - If your MCD is a dual-user model, you can connect an additional keyboard, mouse and monitor to the other 'Console' connectors.


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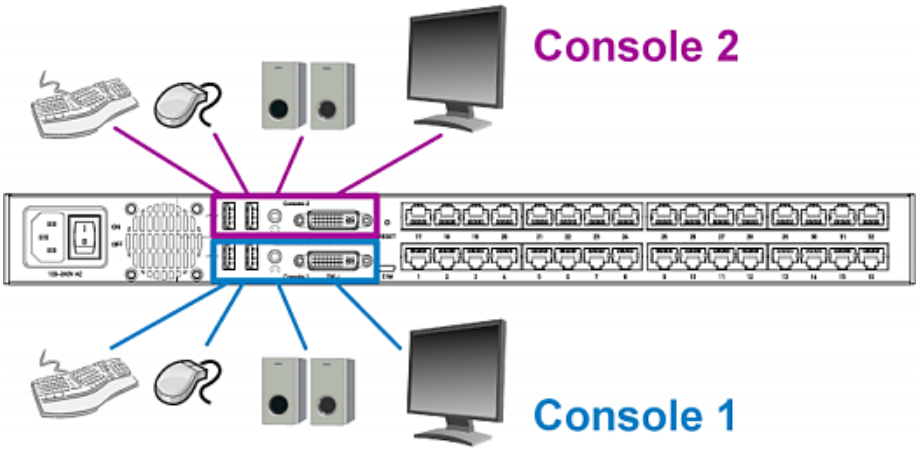
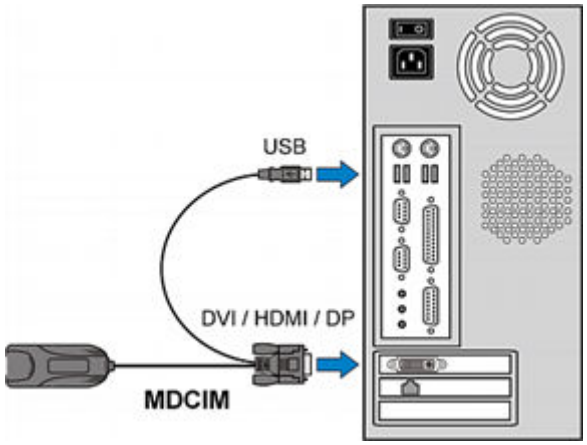


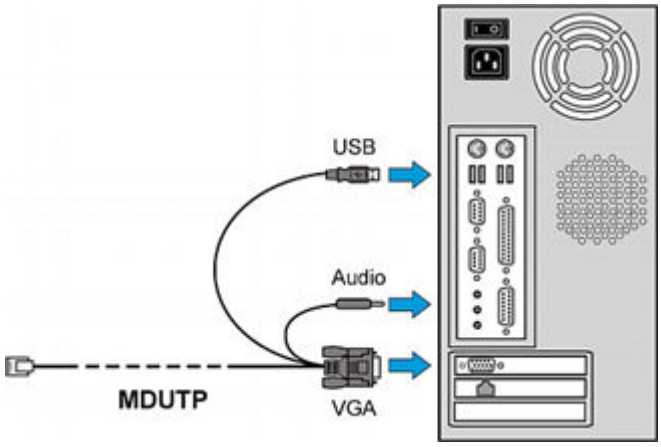

## Step C: Connect Servers

1. Connect one MDCIM or MDUTP cable to the server.
   a. Plug the MDCIM or MDUTP cable's USB connector into one of the server's USB ports.
   b. Plug the MDCIM or MDUTP cable's video connector into the server's video port.

Make sure the MDCIM or MDUTP cable's video type matches your server's. See Step A: Select Proper MDCIMs or MDUTPs (on page 23).



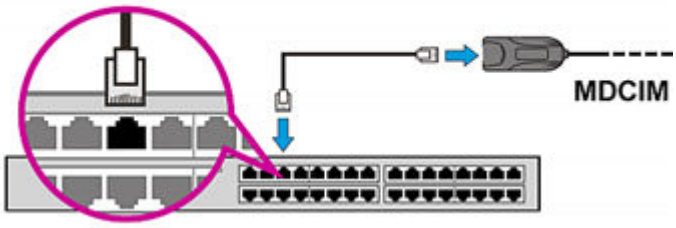

- Optionally, plug the MDUTP cable's audio connector into the server's audio output port.




2. Connect the server to the MCD switch.

The distance can be up to 45 meters (147.6 feet).

- *MDCIM:* Use a standard network patch cable (Cat5e/6 UTP) to connect the MDCIM attached with the server to the MCD channel ports.

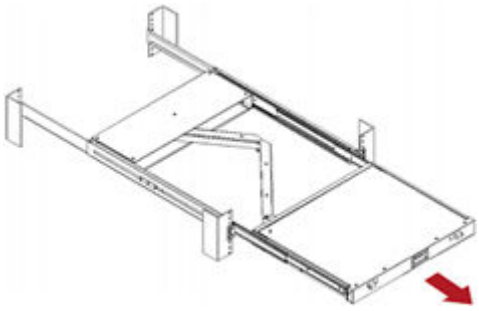



- *MDUTP cable:* Simply plug the RJ-45 end of the MDUTP cable into any channel port.

3. Repeat the above steps to connect more servers.
4. Power on all devices.

## Using the MCD-LED

1. Pull out the MCD-LED.



2. Push the locking latches toward the center.



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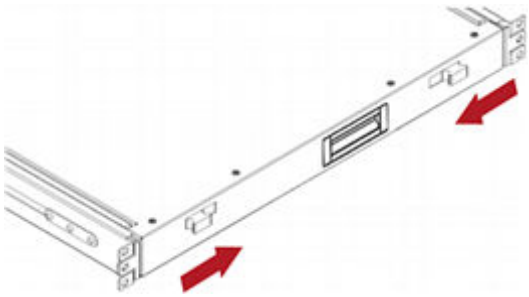
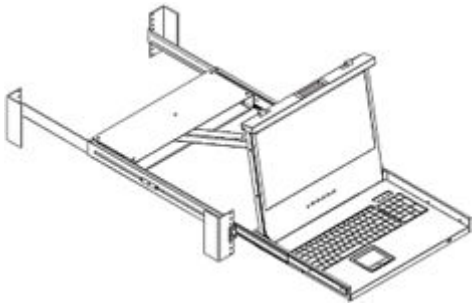


3. Flip up the LCD display, and press the power button on the LCD display.

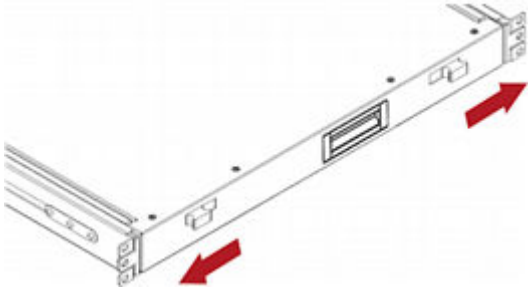


4. To fine tune the video quality after accessing a server, do either below:
   - Press the UP/AUTO button on the LCD display.
   - Press MENU, make sure Auto Adjust has been selected, and press MENU to confirm.

   *Note: For instructions on accessing a server, see Accessing a Server (on page 29).*

5. To close and lock the LCD display, push the locking latches toward the edges.

*Warning: When closing the MCD-LED, keep your fingers clear of it.*



## Initial OSD Operation

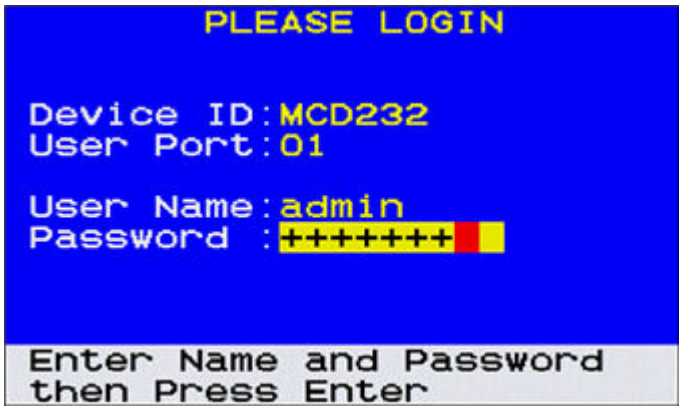
MCD and MCD-LED share the same OSD operations.

## Login

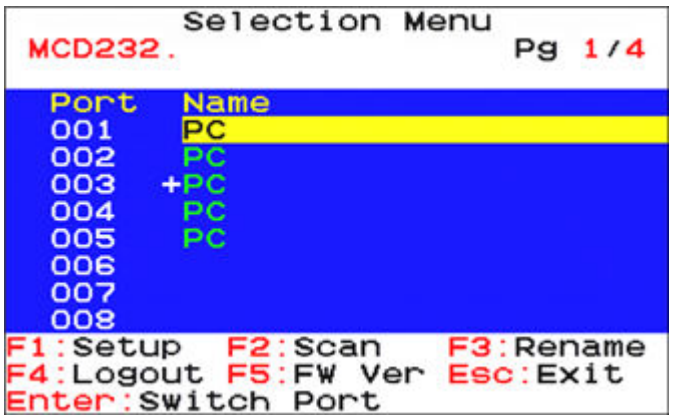
After turning on the device, the login screen displays. For initial login, use the built-in administrator account.

► *To log in:*

1. Type the default user credentials and press Enter. User credentials are case sensitive.
   - User Name: `admin`
   - Default Password: `raritan`




2. The Selection Menu displays, indicating the login is successful.
   - To select a channel, see Using the Channel Selection Menu (on page 29).




**Important: It is strongly recommended to change the default password for the security of your MCD system. For details, refer to "User Management (on page 36)" in the User Guide.**



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# Accessing a Server

After login, you can select any channel to view and/or control the connected server. There are two methods for channel selection.

- Selection Menu of the On-Screen Display (OSD)
- Hot keys

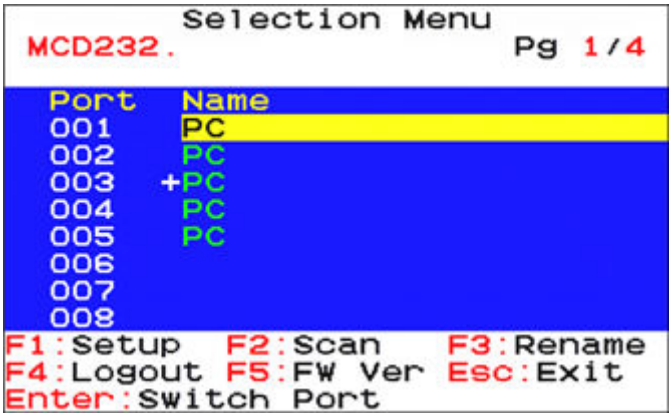
## Using the Channel Selection Menu

You must use the OSD hot key to trigger the OSD. The default hot key is 'Scroll Lock.'

To change the hot key, see System Settings (on page 41).

► *To select a channel via the Selection Menu:*

1. Press 'Scroll Lock' 3 times. The Selection Menu appears, showing a list of channels.




2. If the desired channel is not shown on the current page, press Page Down or Page Up.
3. Press ↓ or ↑ to select one of the "active" channels, and press Enter.
   - Channels with channel names displayed are "active" channels. The default name is 'PC'. See Active and Inactive Channels (on page 47).
   - The channel that is connected to a MCD switch is marked with +. See Establishing a Two-Tier System (on page 51).
4. The Selection Menu disappears. The video of the accessed server displays onscreen. Now you can control the server with the keyboard and mouse.
   - If you select a channel where a 2nd-tier switch is connected, the OSD Selection Menu of that switch displays for you to select its channels.

## Using Hot Keys

You can switch between channels without triggering the OSD.

The default hot key for the first procedure below is 'Scroll Lock,' but you can change the hot key. See System Settings (on page 41).

The hot keys for the second procedure is NOT configurable.

► *To access any channel, using hot keys:*

1. Make sure there is no OSD shown onscreen. If yes, press Esc to exit.
2. To select any channel, press 'Scroll Lock' twice, then the channel number, and press Enter.

For example, to access channel 15, press the following keys.

```
Scroll Lock > Scroll Lock > 15 > Enter
```

---

*Important: If you do not press Enter, no channel switching occurs.*

---

3. The video of the accessed server displays onscreen. Now you can control the server with the keyboard and mouse.

► *To access the next or prior "active" channel, using hot keys:*

1. Make sure there is no OSD shown onscreen.
2. To select the next "active" channel, press the RIGHT 'Ctrl' key twice.
3. To select the prior "active" channel, press the LEFT 'Ctrl' key twice.

## Logout

After completing your tasks, you should log out to prevent unauthorized people from accessing the MCD KVM system.

► *To log out of the MCD KVM system:*

1. If the OSD is not displayed onscreen, press 'Scroll Lock' 3 times.
2. Press F4.
3. The Login screen appears, indicating that you have successfully logged out.



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# Using the On-Screen Display Interface

In this chapter, the name 'MCD' refers to both MCD switches and MCD-LED KVM drawers unless otherwise specified.

The On-Screen Display (OSD) interface offers these functions:

- Channel selection
- System configuration
- Channel scan

Note: The OSD settings described in this chapter are different from those for the MCD-LED's LCD display, which are described in the chapter titled MCD-LED Display's OSD Menu (on page 56).

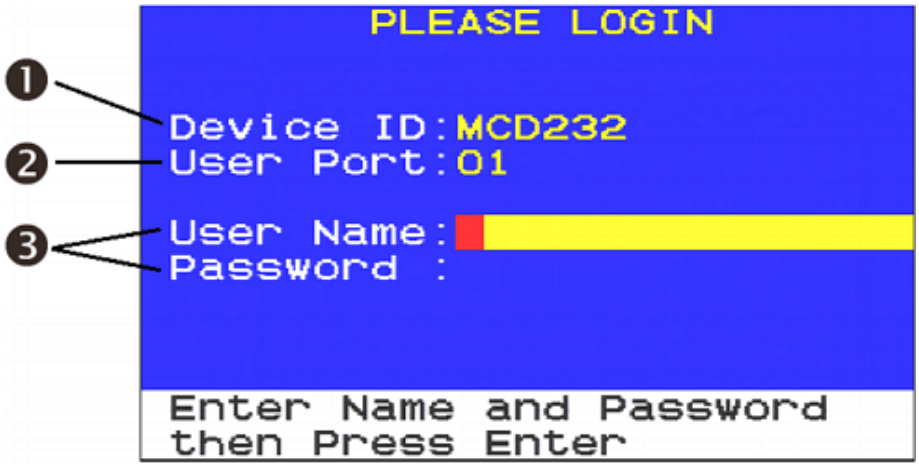
## In This Chapter

OSD Layout. . . . . 31
Specifying Channel Names. . . . . 35
User Management. . . . . 36
System Settings. . . . . 41
Channel Scan. . . . . 44
Video Adjustment. . . . . 45
Viewing Firmware Version. . . . . 46
Resetting to Factory Defaults. . . . . 46
More Channel Information. . . . . 47

### OSD Layout

This section indicates the main elements displayed on the OSD images.

## Login Screen




| | | |
|---|---|---|
| 1 | **Device ID** | The model name of your MCD switch. |
| 2 | **User Port** | The ID number of your console.<br>• 01 refers to Console 1.<br>• 02 refers to Console 2, which is only available on dual-user models. |
| 3 | **User Name, Password** | The fields for entering user credentials.<br>For details, see Login (on page 28). |

## Selection Menu

In addition to the OSD menu's main layout, the Selection Menu provides additional elements, which are helpful for locating and selecting channels.



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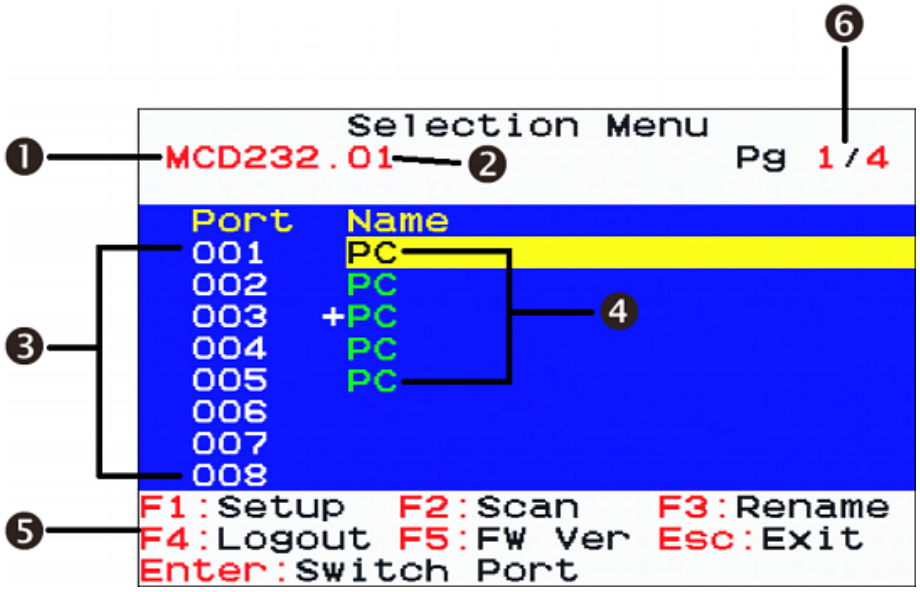
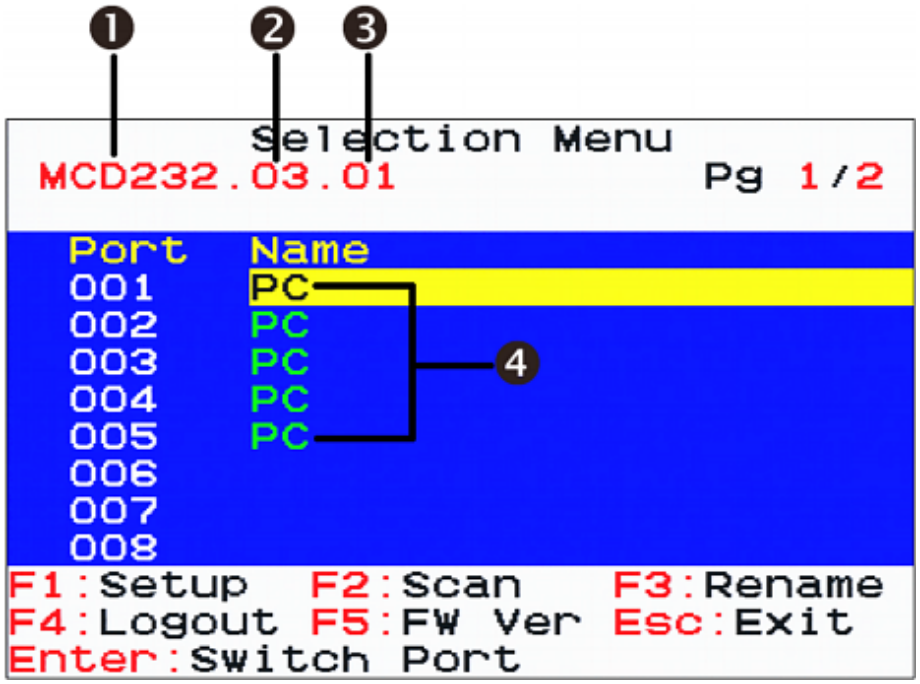



| | | |
|---|---|---|
| 1 | **Model name** | Your MCD switch's model name. |
| 2 | **Selected channel** | The number of the channel that is being accessed. |
| 3 | **Channel numbers** | 8 channel numbers of current page. |
| 4 | **Channel names** | Available channel names of current page.<br>• Per default an active channel's name is 'PC'. You must customize the channel names. See Specifying Channel Names (on page 35).<br>• The channel with a 2nd-tier MCD switch connected rather than a server is marked with the symbol +. For example, '+CH003' in the above diagram.<br>• Channel names change colors according to the channel status. See Channel Colors (on page 47). |
| 5 | **Operation keys** | Frequently-used keys for operating the current OSD. |
| 6 | **Page information** | The current page number and total pages. |

► *2nd-tier Selection Menu:*

After selecting any channel with a 2nd-tier MCD switch connected, the Selection Menu of that switch appears.




| | | |
|---|---|---|
| 1 | **Base switch's model name** | Your 1st-tier MCD switch's model name. |
| 2 | **1st-tier channel** | The number of the 1st-tier channel where the 2nd-tier MCD switch is connected. |
| 3 | **Selected 2nd-tier channel** | The number of the 2nd-tier channel that is being accessed. |
| 4 | **2nd-tier channel names** | 2nd-tier channel names.<br>• Per default an active channel's name is 'PC'. You must customize the channel names. See Specifying Channel Names (on page 35). |

## Channel ID

Whenever you access a channel, a channel ID is displayed onscreen. By default, it displays for only 5 seconds. To extend the display time, see System Settings (on page 41).

If you turn on the channel scan function, the channel IDs are also displayed to indicate the channel that is being scanned.

► *Generic channel ID:*

A channel ID on a standalone switch or on the base switch of a two-tier system looks similar to the following.

---

Note: For information on two-tier systems, see Two-Tier System (on page 50).

---



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| | |
|---|---|
| 1 | Channel number which is being selected |
| 2 | Channel name of the selected channel |

- *2nd-tier channel ID:*

  On a two-tier system, if you select the channel of a 2nd-tier switch, its channel ID looks like the following.

| | |
|---|---|
| 1 | 1st-tier channel number where the 2nd-tier switch is connected |
| 2 | 2nd-tier channel number which is currently selected |
| 3 | Channel name of the selected 2nd-tier channel |

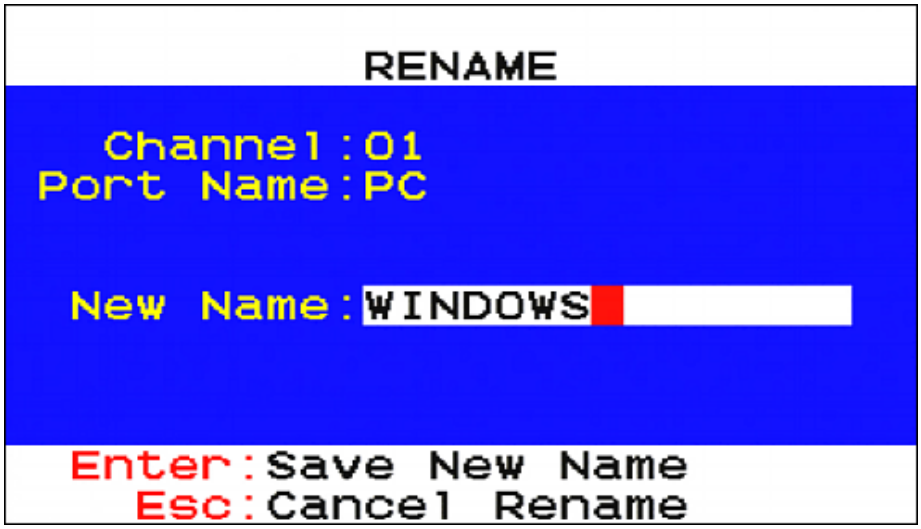
## Specifying Channel Names

Default channel names for active channels are 'PC'. You have to assign unique channel names to identify each connected server.

Note that channel names are stored on each connected MDCIM or MDUTP cable. Therefore, you can only rename an "active" channel where a "powered" MDCIM or MDUTP is available. Besides, the channel name will disappear or be moved to another port if you swap the MDCIM or MDUTP to a different port.

► *To change channel names:*

1. If the OSD is not displayed, press the hot key 3 times.
   - The default hot key is 'Scroll Lock.' To change it, see System Settings (on page 41).
2. On the Selection Menu, select an *active* channel and press F3.
   - If the desired channel is not shown on the current page, press Page Up or Page Down.
3. The RENAME page displays. Type a name up to 14 characters.




4. Press Enter to save the new name, or Esc to cancel it.
5. Repeat the same steps for additional channels.

## User Management

The product provides one administrator and 127 user accounts.

- *Administrator account:*
  Default name: `admin`
  Default password: `raritan`
- *User accounts:*
  Default names: `user001` through `user127`
  Default passwords are NOT available.

You CANNOT remove the built-in administrator and user accounts, but you can change their passwords or rename any user accounts.

Only the administrator can rename user accounts or change passwords.

► *To manage user names and passwords:*

1. Log in as the administrator -- that is, *admin*. For details, see Login (on page 28).
2. On the Selection Menu, press F1. The SETUP page displays.



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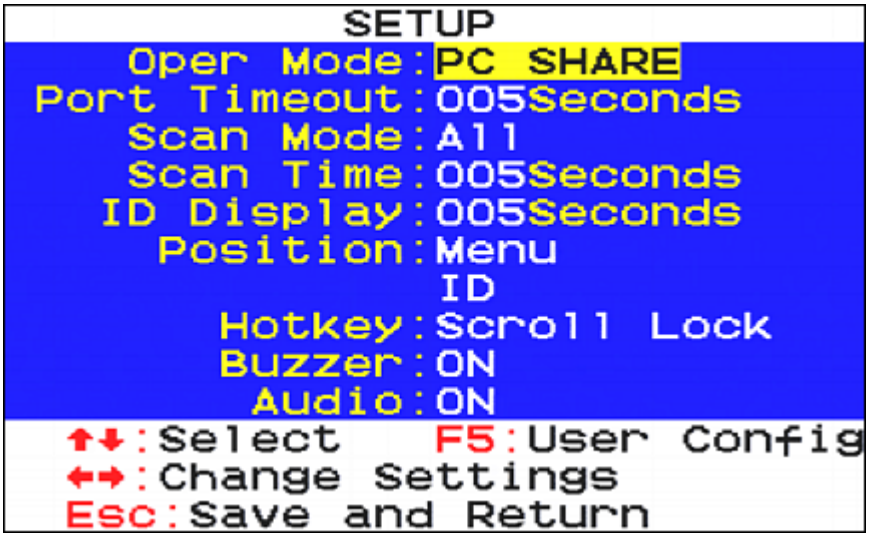
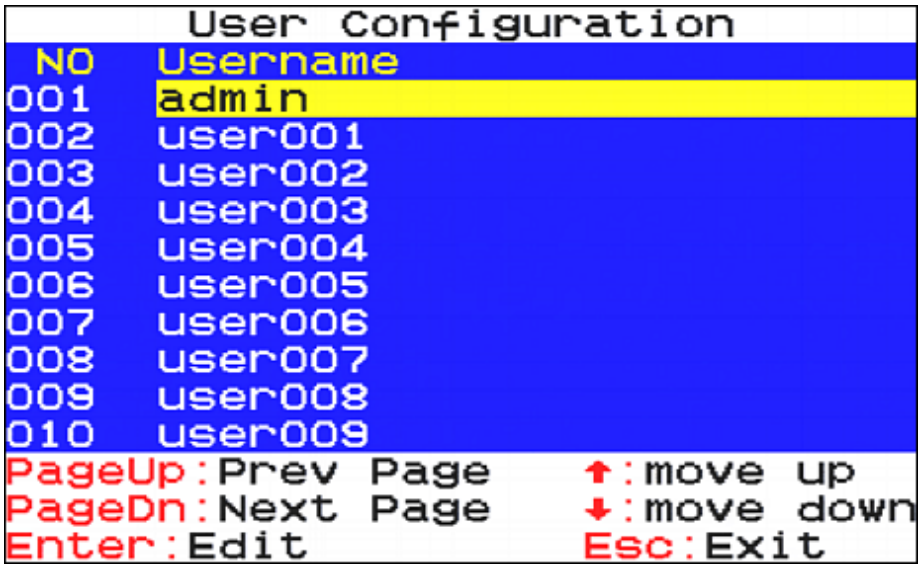



3. On the SETUP page, press F5. The User Configuration page displays.

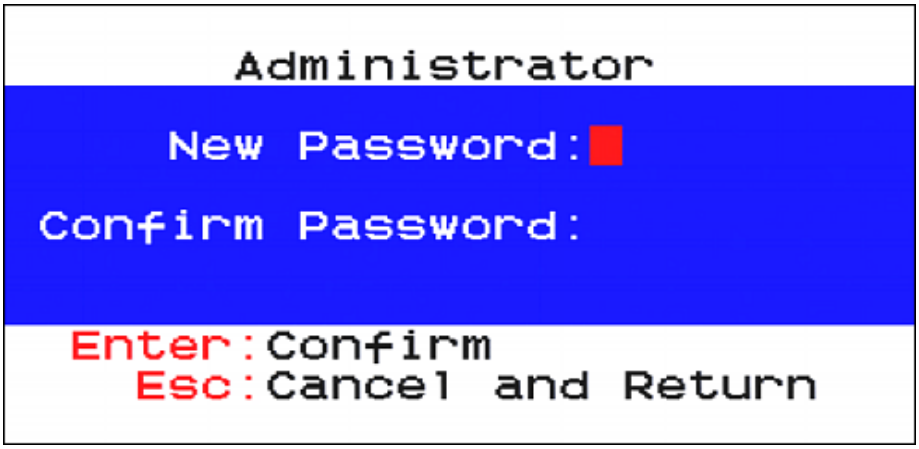



4. Press ↓ or ↑ to select the desired user.
   - Press Page Up or Page Down if the desired user is not shown on the current page.
5. Press Enter, and that user's password change page displays. Then follow either procedure below.
6. After finishing the user accounts changes, press Esc to exit the User Configuration page.

► *To change the administrator's password:*

**Important: It is strongly recommended to change the admin password. Then note it down and keep it in a secure place. If you forget the password, contact the local dealer or Lenovo for RMA service.**

1. In the New Password field, type the new password, and press Enter.
   - A password comprises up to 8 characters.
2. Re-type the password and press Enter.
   - To abort the changes, press Esc instead.




► *To rename a user account and/or change the password:*

1. To rename it, type the new name in the User Name field, and press Enter. The name can comprise up to 16 characters.
   - To keep the user name unchanged, simply press Enter without typing any characters.
2. In the New Password field, type the new password, and press Enter.
   - A password comprises up to 8 characters.
3. Re-type the password, and press Enter.
   - To abort the changes, press Esc instead.



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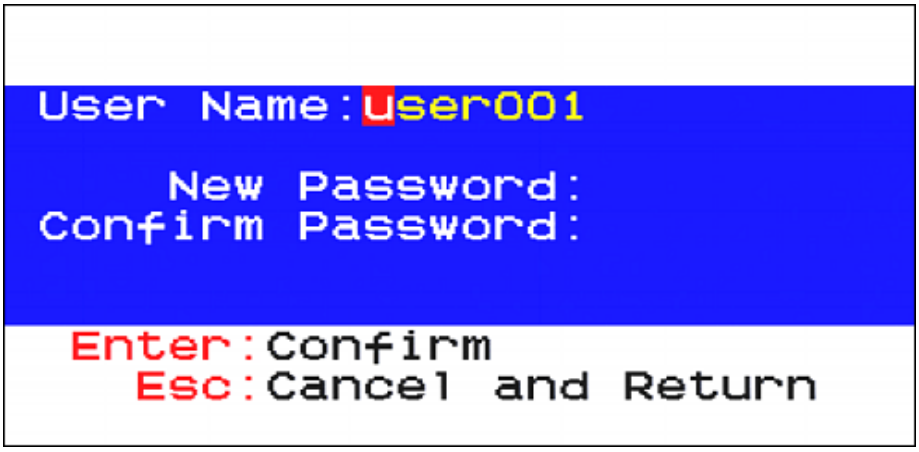


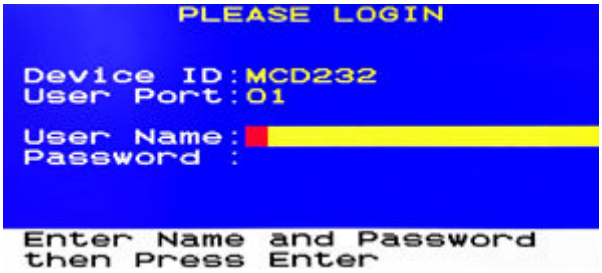

**Important: It is recommended to note down all user names and passwords, and keep the data in a secure location.**

## Setting User Port Access Privileges

You can set user privileges to access each port.

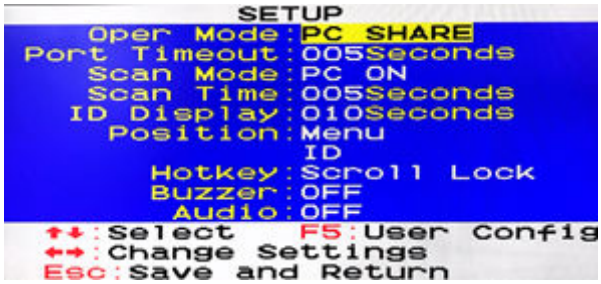
► *To set user privileges to ports:*

1. Login as admin.




2. In the Selection Menu, press F1 to open Setup.

3. In Setup, Press "F5" for User Config.




4. In User Config, choose the user and press “F1” for Security settings.

5. Port Access setup opens.
   - Press the UP and DOWN arrows to select the port.
   - Press the LEFT and RIGHT arrow keys to change the port access authority in the Access column.
   - Press Enter to move to Tier2 level

6. In the Tier2 level:
   - Press the UP and DOWN arrows to select the port.
   - Press the LEFT and RIGHT arrow keys to change the port access authority in the Access column.
   - Press F6 to go back to Tier1 level



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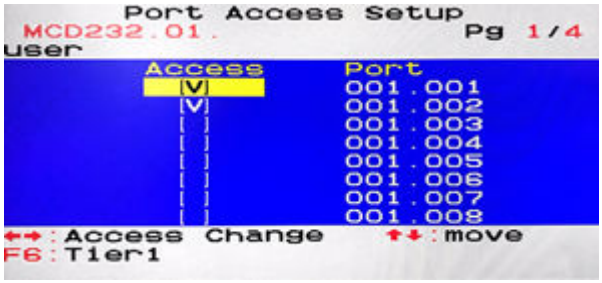



## System Settings

You can adjust the MCD KVM system settings, such as changing the hot key or scan rate. Only the administrator has the permission to change system settings.

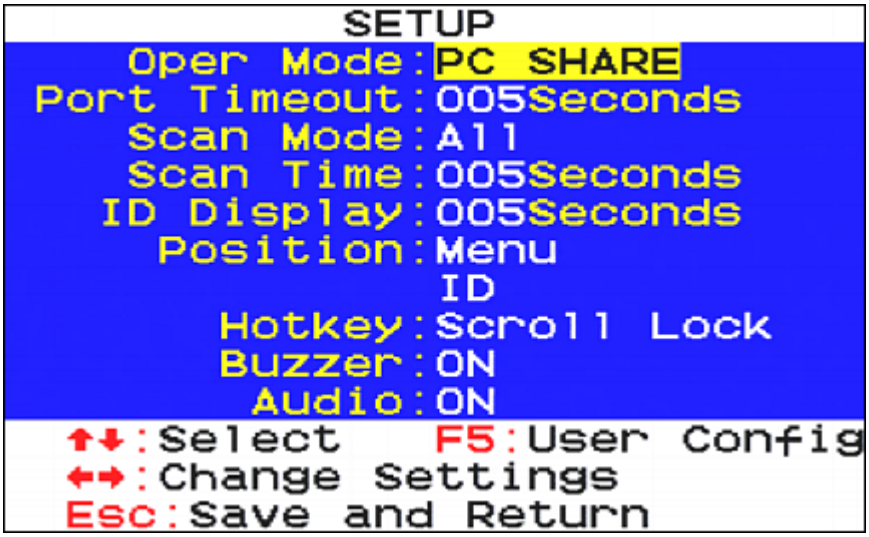
► *To change system settings:*

1. Log in as the administrator -- that is, *admin*. For details, see Login (on page 28).
2. On the Selection Menu, press F1. The SETUP page displays.

---

*Note: The two settings 'Oper Mode' and 'Port Timeout' are available on dual-user models only. One-user models, including MCD-LED series, do NOT have the two fields.*

---




3. Press ↓ or ↑ to select the desired setting. For details, see Available Settings and Options (on page 42).
4. Press ← or → to select the preferred option.
5. To save changes and exit the SETUP page, press Esc.

## Available Settings and Options

This section describes the functions and options of each item on the SETUP page. See System Settings (on page 41).

| Field | Options/values | Function |
|---|---|---|
| **Oper Mode** (for dual-user models) | PC SHARE, or PRIVATE | The operation mode determines whether two users of a "dual-user" model can access the same channel or not.<br>• *PC SHARE*: Both users can access the same channel simultaneously, but only the user who first presses the keyboard or moves the mouse can control the server. The other user can only view the video.<br>Note that the controlling user loses the server control if remaining idle for the period of time defined in the 'Port Timeout' field.<br>• *PRIVATE*: When one user is accessing a channel, the other user cannot access the same channel until the first user exits that channel. |
| **Port Timeout** (for dual-user models) | 5 to 60 seconds | This field determines how long the user can remain idle after accessing any channel. Once the timeout expires, the user loses the server control, and the other user, if available, can gain the server control. |
| **Scan Mode** | All, or PC ON | This determines which servers will be scanned after activating the channel scan function. See Channel Scan (on page 44).<br>• *All*: All channels are scanned.<br>• *PC ON*: Only active channels are scanned. See Active and Inactive Channels (on page 47). |
| **Scan Time** | 5 to 255 seconds (at an interval of 5 seconds) | This determines how long each channel's video is displayed during the channel scan. |
| **ID Display** | 5 to 25 seconds, or ALL | This determines how long each channel's ID appears onscreen after selecting any channel. See Channel ID (on page 34). |
| **Position** | Menu, or ID | Select Menu or ID in order to adjust its position on the screen.<br>• *Menu*: Main OSD pages, such as Selection Menu and the login screen.<br>• *ID*: Channel ID.<br>For instructions, see Adjusting the OSD Position (on page 43). |
| **Hotkey** | Scroll Lock, Caps Lock, or Num Lock | This determines the hot key used for:<br>• Triggering the OSD.<br>• Selecting a channel when the OSD is not shown. |



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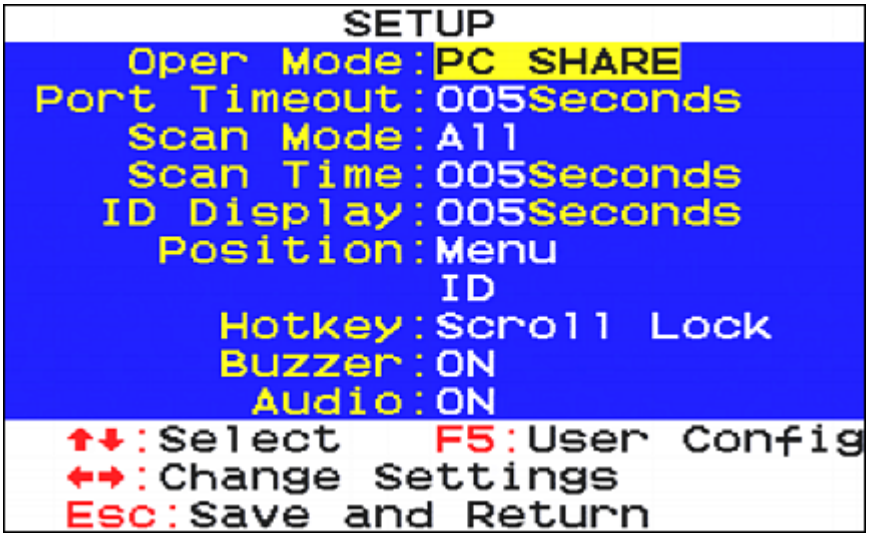
| Field | Options/values | Function |
|---|---|---|
| **Buzzer** | ON or OFF | Turn on or off the buzzer of the MCD switch. |
| **Audio** | ON or OFF | Turn on or off the audio support.<br>• ON: Turn on the audio. This is the default.<br>• OFF: Mute the audio.<br>Note: If you turn off the audio functionality, no audio is available even though you use an audio-capable MDCIM or MDUTP. |

## Adjusting the OSD Position

You can adjust the onscreen position of the main OSD or the channel ID. Only the administrator can determine the OSD position.

► *To adjust the OSD position:*

1. Log in as the administrator -- that is, *admin*. For details, see Login (on page 28).
2. On the Selection Menu, press F1. The SETUP page displays.




3. Press ↓ or ↑ to select the desired option in the Position field - Menu or ID.
   - *Menu*: Main OSD pages, such as Selection Menu and the login screen.
   - *ID*: Channel ID.
4. Press ← or → to enter the position-moving mode, which is indicated by the presence of either diagram shown below:
   - *Menu:*

- *ID:*

5. Now move it to the position you prefer by pressing the arrow keys.
6. To confirm the new position, press Esc. Then the OSD returns to the SETUP page shown in step 2.
7. To exit the SETUP page, press Esc.

## Channel Scan

You can turn on the Scan function to have the MCD switch automatically display the video of every channel one by one on the screen. If the system scans a channel port where a 2nd-tier switch is connected, it will scan all channels of the 2nd-tier switch first before proceeding with the next channels on the base switch.

Before turning on the scan function, make sure the Scan Mode and Scan Rate settings meet your needs. See Available Settings and Options (on page 42).

► *To activate the channel scan:*

1. If the OSD is not displayed, press the hot key 3 times.
   - The default hot key is 'Scroll Lock.' To change it, see System Settings (on page 41).
2. On the Selection Menu, press F2 to activate the scan mode.
3. The scan starts from the channel next to the currently-selected channel.

A channel ID including the word 'SCAN' will be displayed for each scanned channel. The following illustrates the channel IDs during scanning.

- Generic channel ID comprising the word 'SCAN', channel number and name



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- 2nd-tier channel ID comprising the word 'SCAN', 1st-tier channel number, 2nd-tier channel number and 2nd-tier channel name

► *To end the channel scan:*

1. Press any key on the keyboard.
2. The channel ID's format returns back to normal, indicating the scan mode ends. For details on channel IDs, see Channel ID (on page 34).
   - Generic channel ID

   - 2nd-tier channel ID

### Video Adjustment

You can adjust the following video properties of the channel that is being accessed.

- Brightness
- Contrast

► *To adjust a channel's video:*

1. Select the desired channel to have its video shown on the screen. See Accessing a Server (on page 29).
2. Press the hot key twice, then the letter "c" and finally press Enter.

With the default hot key "Scroll Lock", you should press:

```
Scroll Lock > Scroll Lock > C > Enter
```

3. The following video properties appear onscreen.

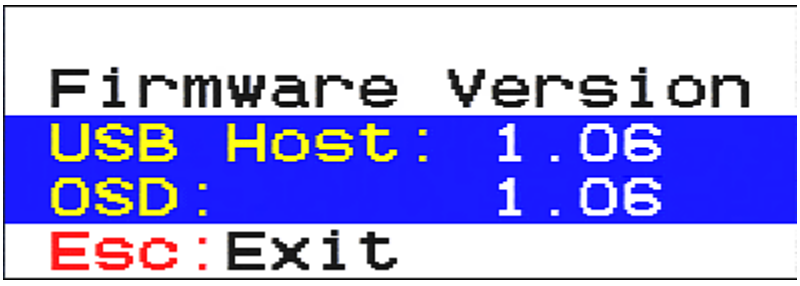
4. Press ↑ or ↓ to select the video brightness or contrast.
   - : Brightness
   - : Contrast
5. Press ← or → to adjust the value after the cursor is located in the desired video property.
6. Press Esc to save the changes and exit.

### Viewing Firmware Version

You can check the current versions of OSD and USB driver implemented on the MCD switch to determine whether it is necessary to update your MCD switch. See Firmware Upgrade (on page 62).

► *To view the current firmware version:*

1. If the OSD is not displayed, press the hot key 3 times.
   - The default hot key is 'Scroll Lock.' To change it, see System Settings (on page 41).
2. On the Selection Menu, press F5. The firmware information displays.




3. To exit, press Esc.

### Resetting to Factory Defaults

You may clear current system settings and have all settings return to factory defaults. These settings include:

- All settings on the SETUP page.
- All user accounts on the User Configuration page.

Restoring factory defaults does NOT require the administrator permission.

---

Exception: Channel names are NOT reset to factory defaults.

---

► *To reset system settings:*

1. Log out to show the Login screen. See Logout (on page 30).
2. Press Ctrl + Shift + F10. The following message appears.



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3. Press Enter to proceed with the factory reset. The following message appears.
   - To cancel instead, press Esc.

4. Wait until the Login screen re-appears, indicating the reset is completed.

### More Channel Information

Active and inactive channels are determined with the power status of the connected MDCIM or MDUTP cable.

The default color of an active channel is green, but on a dual-user model, an "active" channel may change its colors to indicate that it is being accessed by the other user.

## Active and Inactive Channels

An active channel shows its channel name, while an inactive channel does not show any channel name.

► *Active channels:*

The MCD switch recognizes a channel as being active when it detects that the channel port is connected to a "powered" MDCIM or MDUTP cable.

A MDCIM or MDUTP cable is powered as long as it receives power via the USB connector. Therefore, it is always powered when plugged into a server that is turned ON, but may or may not be powered when the server is turned OFF, which depends on the server's design.

► *Inactive channels:*

The MCD switch recognizes a channel as being inactive when it does *not* detect the presence of a powered MDCIM or MDUTP cable, which involves these scenarios:

- No MDCIM or MDUTP cable is connected to that channel port.
- A MDCIM or MDUTP cable is connected to that channel port, but it is unpowered because the server is turned OFF.
- A MDCIM or MDUTP cable is connected to that channel port, but it is unpowered because its USB connector is not plugged into any server.

## Channel Colors

Colors of active channels' names on a *dual-user* model may change. See Dual-User Models (on page 11).

| Color | Channel status |
|---|---|
| **Green** | This is an active channel that you can access.<br>• In the Private mode, active channels are green as long as the other user is NOT accessing them.<br>• In the PC Share mode, every active channel is green no matter the other user is accessing it or not. |
| **Red** | This is a channel which you *cannot* access.<br>• In the Private mode, a channel turns red when the other user is accessing it.<br>If the accessed channel is on a 2nd-tier switch, the tiered channel turns red and you cannot access any channel on that 2nd-tier switch.<br>• In the PC Share mode, the tiered channel turns red when the other user is accessing a channel on the 2nd-tier switch. Then you cannot access any channel on that 2nd-tier switch.<br>Tip: In the PC Share mode, the tiered channel does not turn red if the other user is only viewing the 2nd-tier channel list and has not accessed any 2nd-tier channel. At this time, you can select the same 2nd-tier switch and even access any 2nd-tier channel. |

For information on Private and PC Share modes, see Available Settings and Options (on page 42).

## Releasing a Channel in the PC Shard Mode

This section applies to dual-user models only.

The product provides two operation modes: Private and PC Share mode. Private mode allows only one user to access a channel at a time, but PC Share mode allows two users to access the same channel simultaneously.

PC Share mode functions when the administrator has turned on the PC Share mode. See Available Settings and Options (on page 42).



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► *To share access to servers:*

1. Ensure that the PC Share mode is activated or applied.
2. Now you can share the same channel with the other user. Depending on the channel access sequence, you may or may not be able to control the server.
   - If you access the channel earlier than the other user — you can control the server, and the other user can only view the video.
   - If you access the channel later than the other user — the other user can control the computer, and you can only view the video.

► *To release the server control:*

1. If you are the controlling user, you can release the server control by doing one of these:
   - Exit from the current channel by selecting another channel or logging out.
   - Both of you and the other user who accesses the same channel stop using the keyboard and mouse for 5 seconds.
2. After the server control is released, any user who first presses any key or moves the mouse gains the server control.

# Two-Tier System

You can connect multiple MCD KVM switches to organize a two-tier system, expanding the number of available channels. Different MCD models can be mixed in the system. If the system completely comprises MCD-232 models, the number of connected servers can be expanded to 1024.

## In This Chapter


Overview. . . . . 50
Establishing a Two-Tier System. . . . . 51
Accessing or Exiting 2nd-Tier Channels. . . . . 55

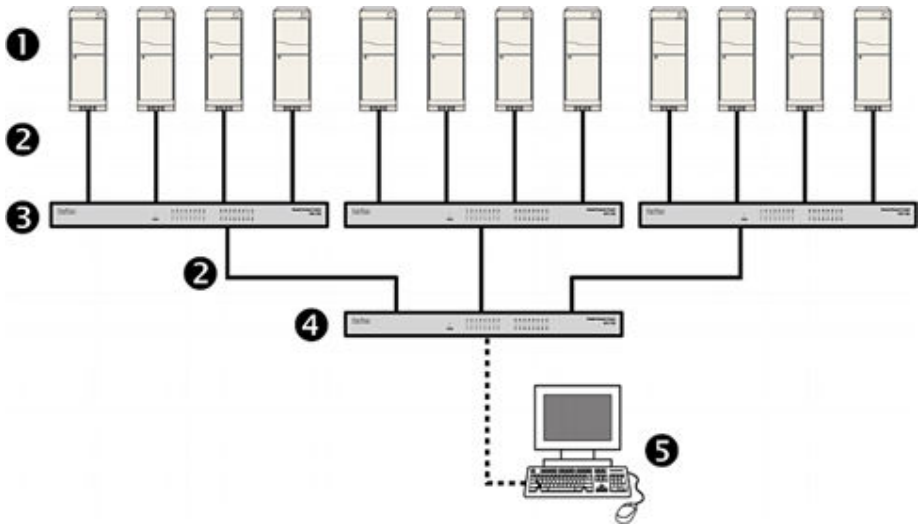

### Overview

To organize a "two-tier" system, just connect one or multiple MCD switches to a MCD switch.

All MCD switches connected to the same MCD switch are the SECOND-TIER devices, and the FIRST-TIER MCD switch that connects these second-tier devices is the "base switch".

You can also connect multiple MCD switches to one MCD-LED KVM drawer to form a two-tier system. However, the MCD-LED KVM drawer can never be a 2nd-tier device.

Servers can be connected to any available channel ports in the system, including channel ports on the base switch.




| | |
|---|---|
| 1 | Servers or computers |
| 2 | Cat5 UTP cables |

| | |
|---|---|
| 3 | 2nd-tier MCD switches |
| 4 | MCD KVM switch (or MCD-LED KVM drawer) as the base switch |
| 5 | Keyboard, mouse, and monitor |

## Limitations of the Two-Tier System

The two-tier system has several limitations.

- There is only one path (Cat5e/6 UTP cable) between the base switch and each 2nd-tier switch. When a user from the base switch is accessing any channel of a 2nd-tier switch, there are no other paths left for the other user from the base switch to access the same 2nd-tier switch's channels.
- When using a dual-user model as the 2nd-tier switch, the base switch must be connected to this 2nd-tier switch's 'Console 1' connector. You cannot connect the base switch to its 'Console 2' connector.
- When a dual-user model operates as a 2nd-tier switch, its 'Console 2' connector is automatically disabled so DO NOT connect a local keyboard/mouse/monitor to its 'Console 2'.

### Establishing a Two-Tier System

Major steps include:

- STEP (a): Connect the 2nd-tier switch(es) to the base switch
- STEP (b): Connect the keyboard, mouse, monitor and audio devices to the base switch
- STEP (c): Connect servers to the two-tier system

## Step (a): Connect 2nd-Tier Switches to the Base Switch

You can mix identical or different MCD models in a two-tier system. For example, you may connect a MCD-116 switch to a MCD-232 base switch.

► *To cascade MCD switches:*

1. Turn OFF all MCD switches, including the base switch.
2. Connect the 2nd-tier MCD switch to the base switch via one MDCIM-DVI.

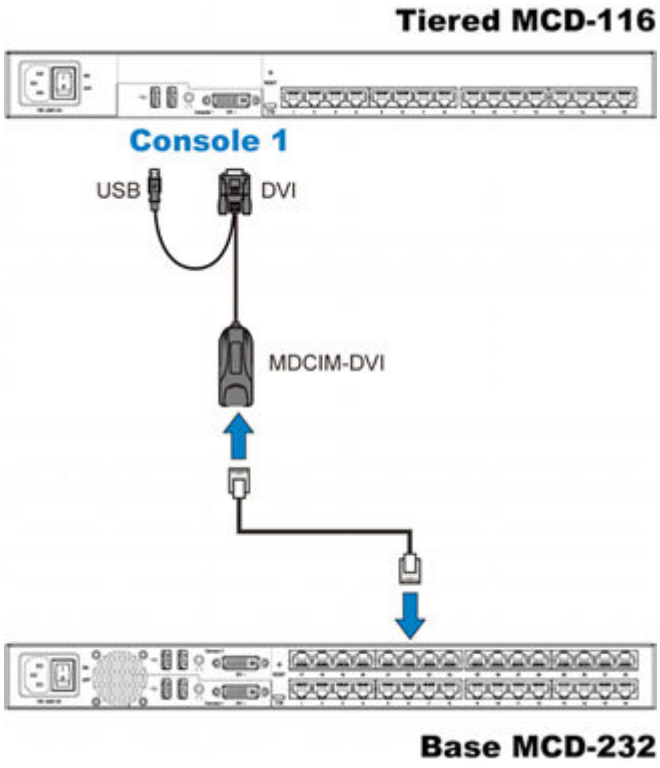
---

*Note: If support for audio transmission with the 2nd-tier switch is required, you must use the MDUTP cable and a Raritan's DVI-I to VGA adapter to connect the 2nd tier.*

---

a. Plug the connectors of the MDCIM or MDUTP into the 'Console 1' connectors of the 2nd-tier switch. <var10>

b. Use a standard network patch cable (Cat5e/6 UTP) to connect the 2nd-tier MDCIM to any channel port of the base switch.




3. Repeat the above step to connect more 2nd-tier switches to the base switch.
4. Turn on all "2nd-tier" switches.
5. Turn on the base switch.

**Important: Turn on 2nd-tier switches prior to the base switch so that the base switch downloads up-to-date channel data from the 2nd tier.**

## Step (b): Connect Keyboards, Mice, Monitors and Audio Devices

You must connect one or two sets of keyboards, mice and monitors to the base switch.

For details on connecting keyboards, mice, monitors and optional audio input devices, see Step B: Connect the Keyboard/Mouse/Monitor (on page 24).



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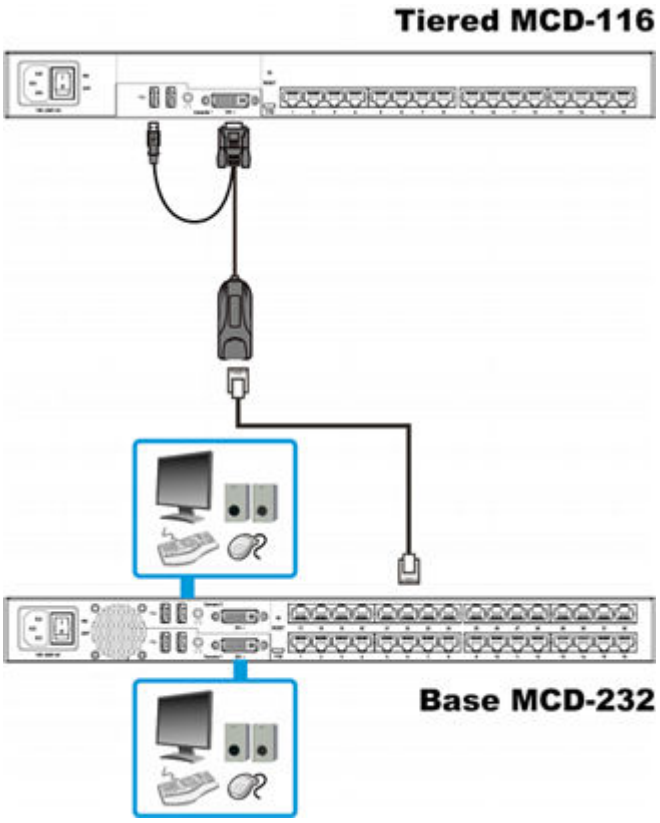
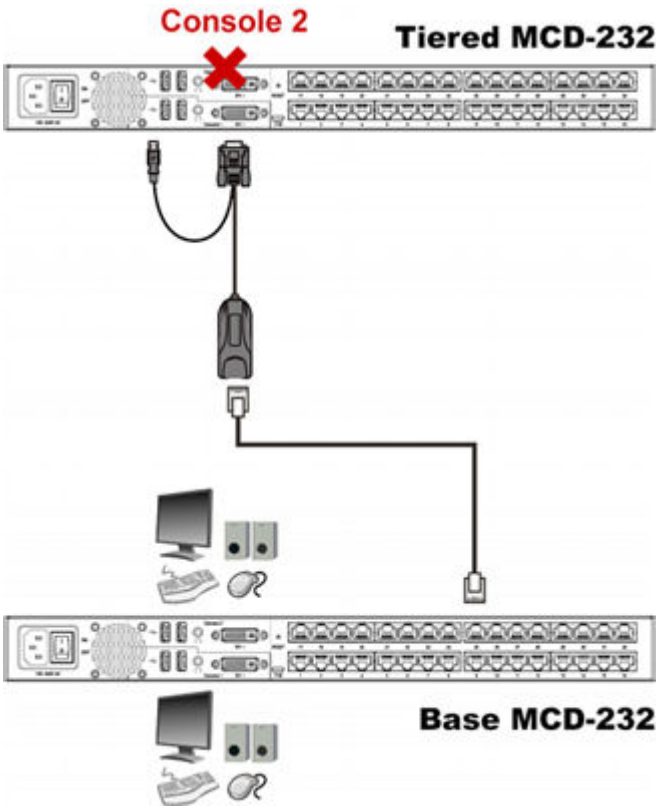
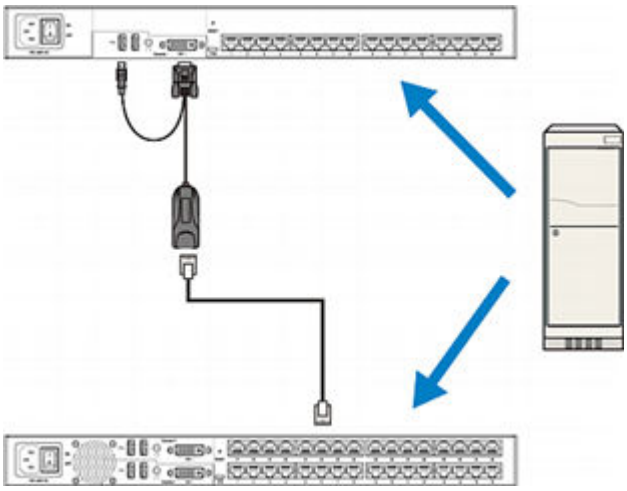



Warning: If any 2nd-tier switch is a dual-user MCD model, DO NOT connect a keyboard, mouse and monitor to Console 2 because Console 2 is disabled.




## Step (c): Connect Servers

You can connect servers to any channel ports in the two-tier system, including those on the base and second-tier switches.



For details on server connections, see Basic Installation (on page 23).



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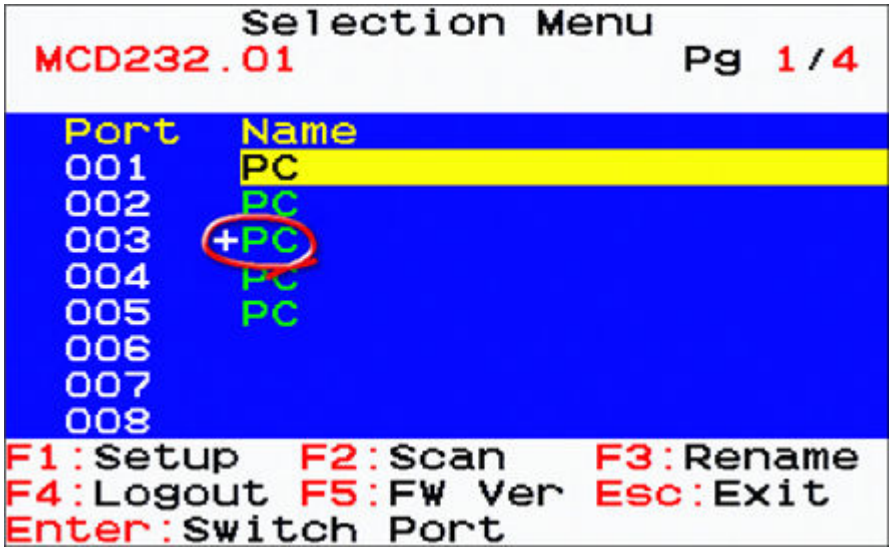
### Accessing or Exiting 2nd-Tier Channels

The only method to access the 2nd-tier channels is the OSD's Selection Menu. To return to the base switch's channels, you also have to operate the Selection Menu.

► *To access the 2nd-tier channels:*

1. If the OSD is not displayed, press the hot key 3 times.
   - The default hot key is 'Scroll Lock.' To change it, see System Settings (on page 41).
2. On the Selection Menu, press ↓ or ↑ to select the channel where the 2nd-tier switch you want to access is connected.
   - A channel connected to a 2nd-tier switch is marked with the symbol +.
   - If the desired 2nd-tier switch is not listed on the current page, press Page Down or Page Up.




3. Press Enter. The Selection Menu of the selected 2nd-tier switch appears, showing a list of 2nd-tier channels.
   - To identify a 2nd-tier switch's Selection Menu, see Selection Menu (on page 32).
4. Select the desired channel and press Enter.
5. The video of the selected channel displays on the screen, with its channel ID shown for seconds. See Channel ID (on page 34).
   - Now you can view or control the server being accessed.

► *To return to the base switch from a 2nd-tier channel:*

1. If the OSD is not displayed, press the hot key 3 times.
1. On the Selection Menu, press the letter 'R'.
   - You can press the uppercase 'R' or lowercase 'r' because this hot key is NOT case sensitive.
2. The Selection Menu of the base switch appears, showing a list of the base switch's channels.

# MCD-LED Display's OSD Menu

You can customize the video properties of the LED display of a MCD-LED KVM drawer by configuring the OSD menu for the LED LCD display.

In the following context, the name 'LED OSD' refers to the OSD menu for the LED display, not the OSD for channel selection and system settings.

---

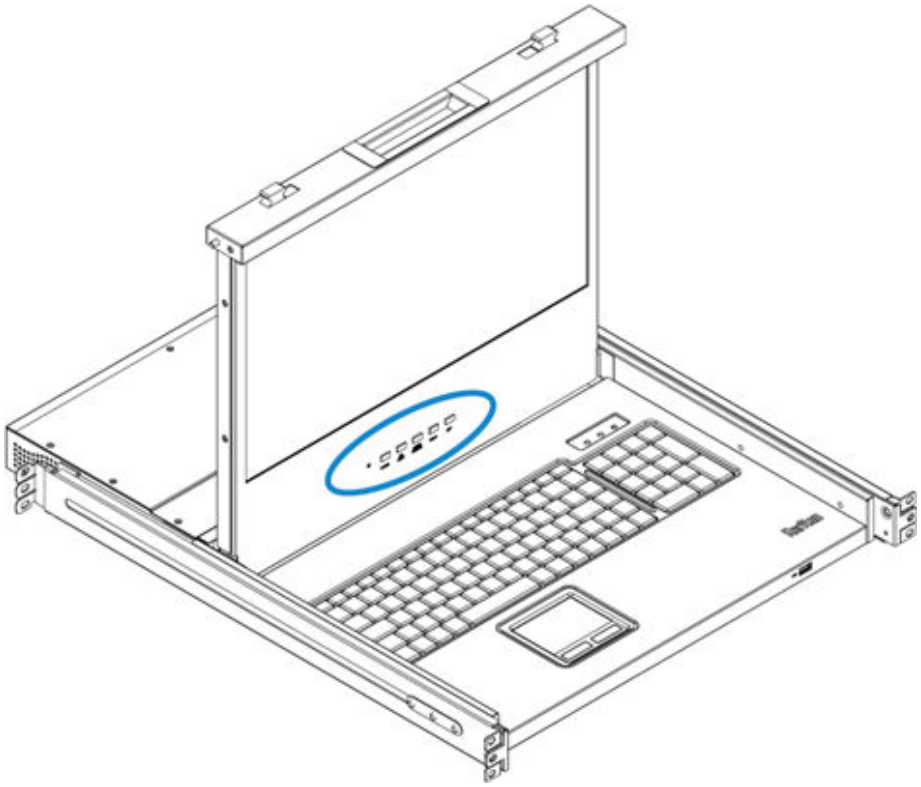
Note: The OSD settings described in this chapter are different from those for channel selection and system settings, which are described in the chapter titled Using the On-Screen Display Interface (on page 31).

---

## In This Chapter

OSD Buttons on the LED Display. . . . . 56
Onscreen Menu. . . . . 57
Selecting the Preferred Video Output. . . . . 61

### OSD Buttons on the LED Display





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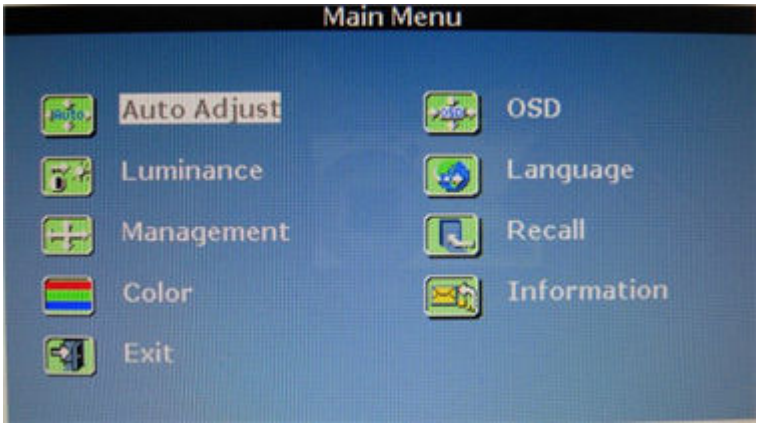
| Buttons | Function |
|---|---|
| **POWER** | Power on/off the built-in LED display. The LED indicator lamp indicates the current power on/off status.<br>• Light off = LED display power off<br>• Light on = LED display power on |
| **UP/AUTO** | This button has two functions:<br>• When no 'LED OSD' is displayed, pressing this button optimizes the visual settings.<br>• While the 'LED OSD' is being displayed, pressing this button moves up the selection. |
| **DOWN/ SOURCE** | This button has two functions:<br>• When no OSD is displayed, this button is used to select the video signal output - VGA or DVI. For details, see Selecting the Preferred Video Output (on page 61).<br>• While the 'LED OSD' is being displayed, pressing this button moves down the selection. |
| **MENU** | This button has two functions:<br>• When no 'LED OSD' is displayed, pressing this button triggers the 'LED OSD' menu.<br>• While the 'LED OSD' is being displayed, this button functions as the Enter key and can be used to confirm the selection. |
| **EXIT** | Quit the current 'LED OSD' setup page or menu. |

## Onscreen Menu

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



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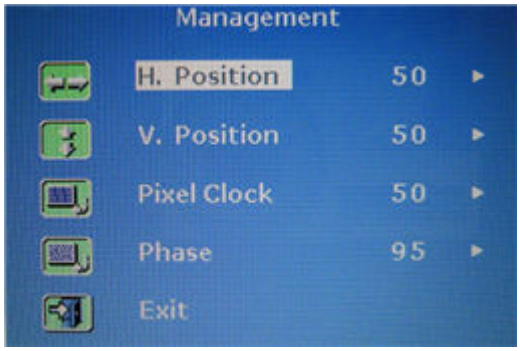
## Management




- H. Position:

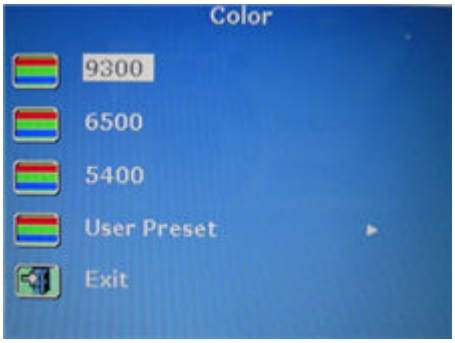
  Move the screen image left or right.
- V. Position:

  Move the screen image up or down.
- Pixel Clock:

  Adjust the clock/pitch to synchronize the sampling clock of the LED display 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 LED display 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.

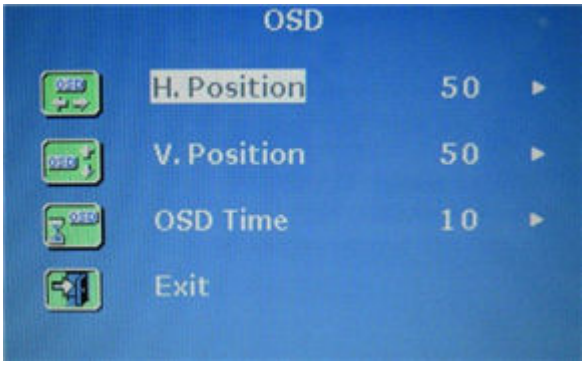
- 5400:

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

- User Preset:

  Adjust red, green and blue colors respectively.

## OSD




- H. Position:

  Adjust the horizontal position of the 'LED OSD'.

- V. Position:

  Adjust the vertical position of the 'LED OSD'.

- OSD Time:

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

## Language

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



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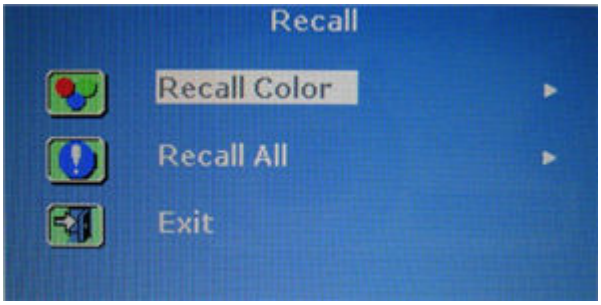
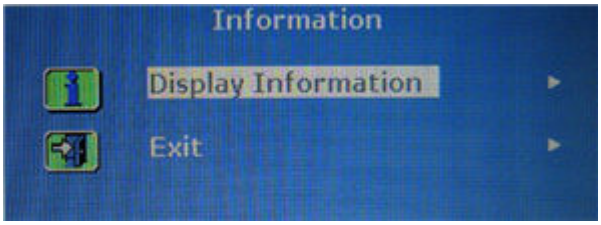
## Recall




- 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 Preferred Video Output

The MCD-LED converts the video input signals to both VGA and DVI video signals. By default all video is displayed with VGA signals on the LCD display. You can switch to DVI signals if higher video quality is preferred.

► *To switch between VGA or DVI signals:*

1. Make sure there is no 'LED OSD' shown onscreen.
2. Press the DOWN/SOURCE button on the LCD panel. The 'LED OSD' appears, showing two options - VGA and DVI.
3. Press the UP/AUTO or DOWN/SOURCE button to select a video output type.
4. Press MENU to confirm your selection.

# Firmware Upgrade

You can upgrade the firmware of the MCD switch, MCD-LED KVM drawer, or MDCIM/MDUTP to benefit from the latest enhancements and features whenever new firmware is released on the Raritan website.

Note that the firmware upgrade utilities and firmware files for the KVM switch and MDCIM/MDUTP are different.

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Step 2: Connect the Desired Switch to the Computer Running the Upgrade Utility. . . . . 63
Step 3: Launch the Upgrade Utility for the Switch. . . . . 64
Step 2A: Launch the Upgrade Utility and Connect MDCIM/MDUTP. . . . . 67


### Upgrade Procedure Overview

MCD and MCD-LED share the same firmware upgrade procedure and firmware files. In this chapter, the name 'MCD' refers to both MCD switches and MCD-LED KVM drawers unless otherwise specified.

► *Procedure to upgrade the MCD switch:*


Step 1: Download the Latest Firmware and Upgrade Utility (on page 62)

Step 2: Connect the Desired Switch to the Computer Running the Upgrade Utility (on page 63)

Step 3: Launch the Upgrade Utility for the Switch (on page 64)


To upgrade more MCD switches, just repeat steps 2 and 3 for each additional switch.

► *Procedure to upgrade the MDCIM or MDUTP:*


Step 1: Download the Latest Firmware and Upgrade Utility (on page 62)

Step 2A: Launch the Upgrade Utility and Connect MDCIM/MDUTP (on page 67)

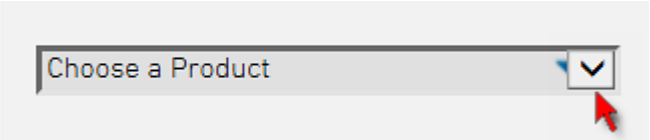

To upgrade more MDCIM or MDUTP cables, just repeat step 2A for each additional MDCIM or MDUTP.

### Step 1: Download the Latest Firmware and Upgrade Utility

The latest firmware and upgrade utilities for both the MCD switch and MDCIM/MDUTP can be downloaded from the Raritan website's Support page.

► *To download the firmware and upgrade utilities:*

1. Visit the Raritan website (www.raritan.com).
2. Click Support on the top.
3. Choose the MasterConsole Digital (MCD) series product from the 'Choose a Product' list.




4. In this product's section, look for the desired firmware upgrade file and click it to start the download.
5. (Optional) If the downloaded file does not include the 'release notes' document, locate the release notes in the same section, and click it to download it.
6. Read the release notes prior to start the firmware upgrade.

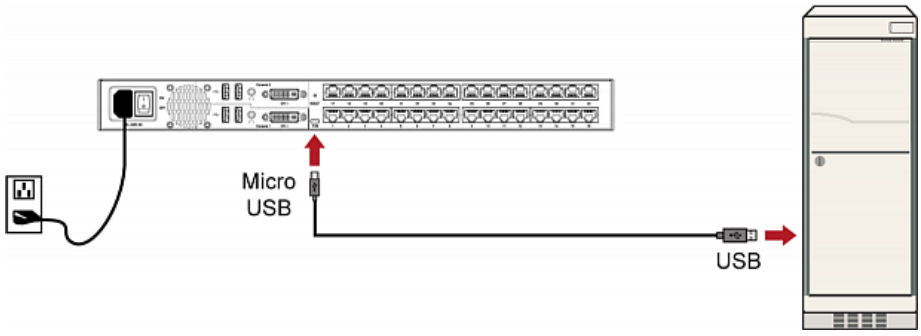
### Step 2: Connect the Desired Switch to the Computer Running the Upgrade Utility

You must connect the desired KVM switch to the USB port of the computer where the firmware file and upgrade utility is available.

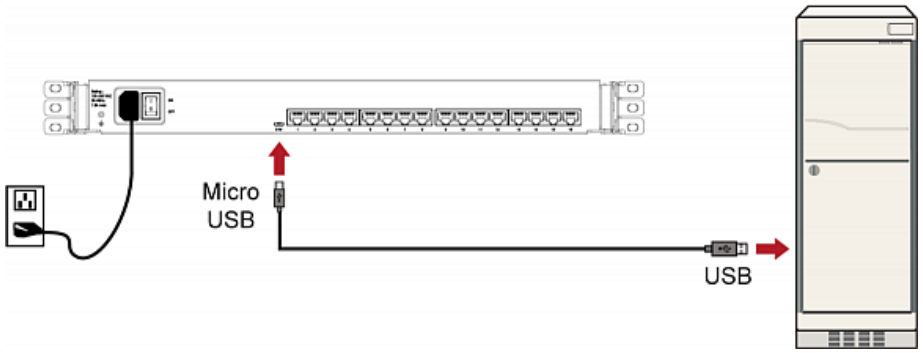
A Micro-USB to USB-A cable is required.

► *To connect the switch to the computer:*

1. Make sure the MCD switch you will upgrade has been powered ON.
2. Connect the computer and the switch via a Micro-USB to USB-A cable.
   a. Plug the Micro-USB end of the cable into the firmware upgrade connector on the switch.
   b. Plug the USB-A end of the cable into the USB port on the computer.
      - MCD switch:




      - MCD-LED KVM drawer:




## Step 3: Launch the Upgrade Utility for the Switch

The following procedure applies to MCD switches and MCD-LED KVM drawers, but NOT to MDCIM/ MDUTP.

To ensure the success of the upgrade, always use the latest upgrade utility downloaded along with the MCD firmware.

There are two MCD firmware files available for the switch.

| Filename | Description |
|---|---|
| MCD_USB_HOST_XXX.usb (XXX is the version number) | This file upgrades the USB functionality of the switch. |
| MCD_OSD_XXX.osd | This file upgrades the OSD functionality of the switch. |

► *To perform firmware upgrade for the switch:*

1. Double-click the upgrade utility — `Prog182S.exe`. The upgrade utility opens.



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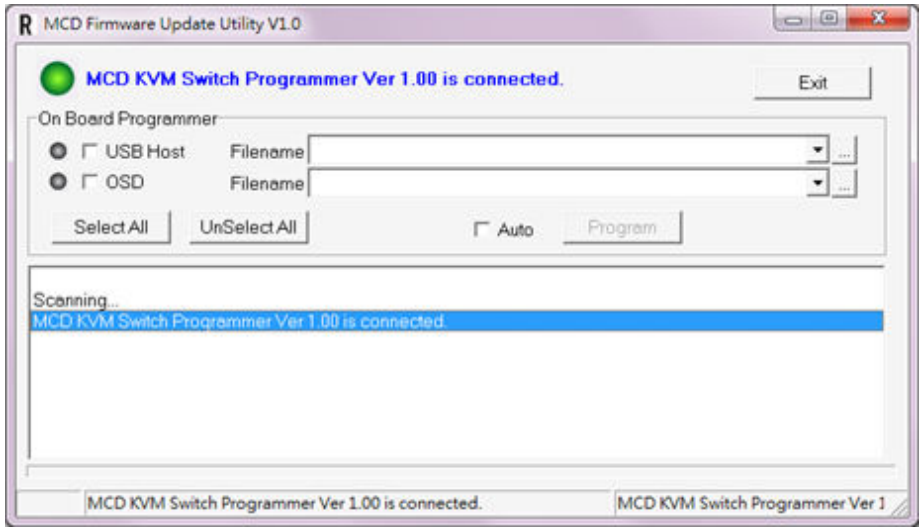
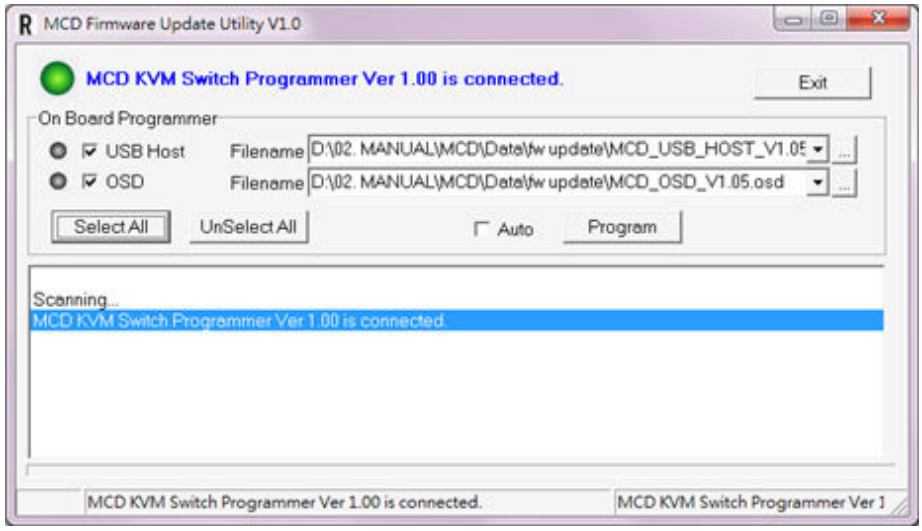
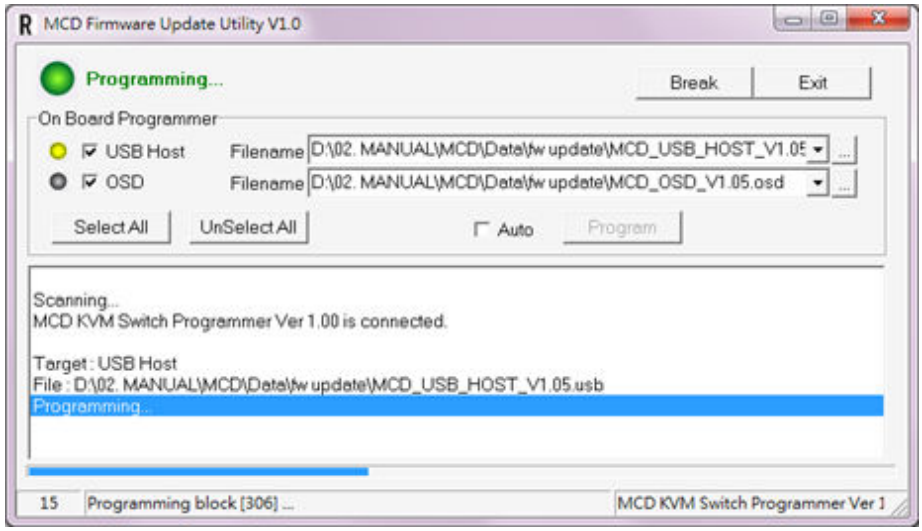


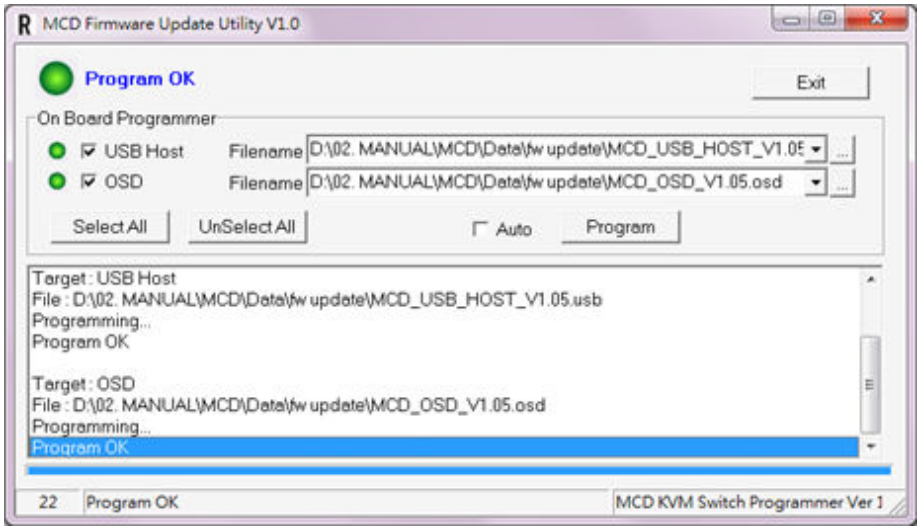

2. Verify whether the utility detects the connected MCD switch. If yes, a green bullet and blue text as shown above is displayed on the top of the utility.
   - If not, the top-left bullet does not turn green, and the red text is displayed on the top instead.
3. To upgrade the USB functionality, click ... in the row of the "USB Host" to select the appropriate MCD USB file.
4. To upgrade the OSD functionality, click ... in the row of the "OSD" to select the appropriate MCD OSD file.
5. Select the checkbox of the functionality that you want to upgrade. To upgrade both functionalities, simply click Select All.




6. Click Program to start the upgrade. The upgrade progress is displayed at the bottom.




7. When the upgrade completes, verify the upgrade result. If it is successful, a green bullet and blue text 'Program OK' is displayed on the top of the utility.
   - If the upgrade fails, the top-left bullet does not turn green, and red text is displayed on the top instead.




8. If there are more MCD switches to upgrade, keep the utility open, remove the currently-connected switch, and reconnect a new one to the computer. Then repeat steps 6 to 8 until all switches are upgraded.
9. After updating, you must restore the device. Power on the device, then press "Ctrl+Shift+F10" before log-in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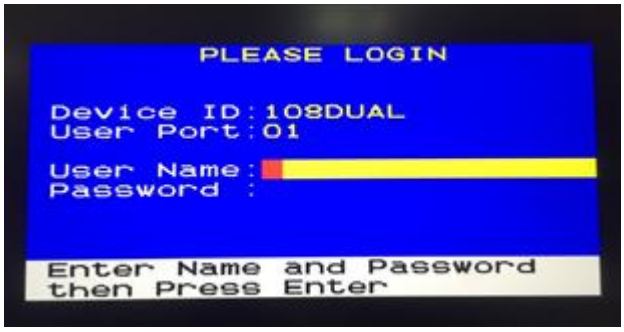
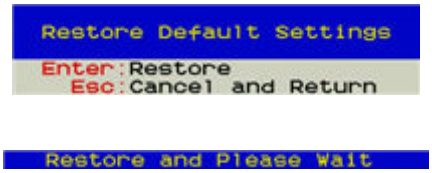



10. Press "Enter" to restore the device.




## Step 2A: Launch the Upgrade Utility and Connect MDCIM/MDUTP

---

The following procedure applies to MDCIMs and MDUTP cables, but NOT to MCD switches and MCD-LED KVM drawers.

---

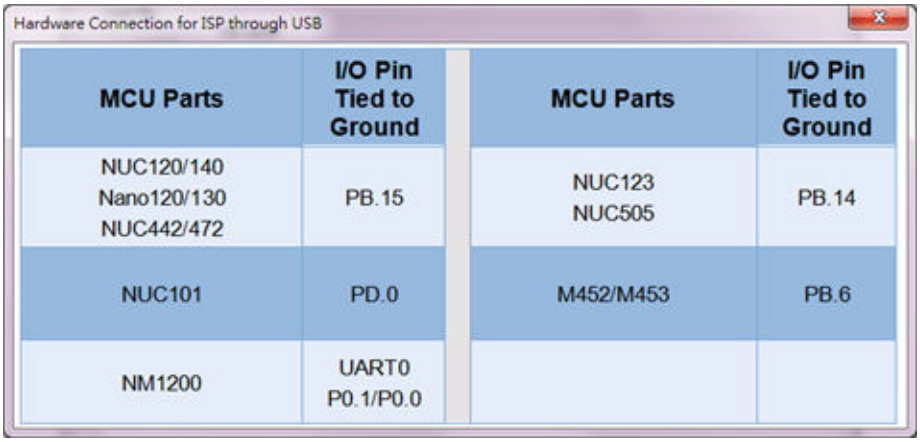
To ensure the success of the upgrade, always use the latest upgrade utility downloaded along with the MDCIM/MDUTP firmware.

There is only one firmware file available for MDCIM/MDUTP: *MCD_Dongle_XXX.bin*, where XXX is the version number.

► *To perform firmware upgrade for MDCIM/MDUTP:*

1. Double-click the CIM upgrade utility — `NuvoISP.exe`. The upgrade utility opens.

2. If the USB radio button is NOT selected yet in the 'Connection type' section, select it. A window similar to the following then appears. Simply close this window.




3. Perform all actions of this step within 5 seconds since the utility is launched. Otherwise, the utility may not be able to detect the connected MDCIM or MDUTP.
   a. Plug the USB-A connector of the MDCIM or MDUTP into the USB port on the computer.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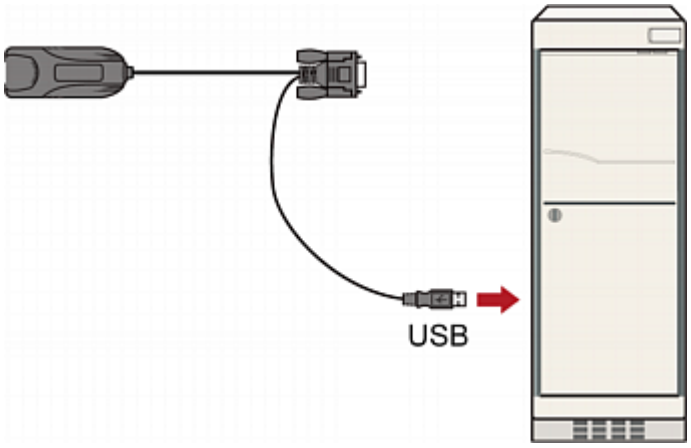
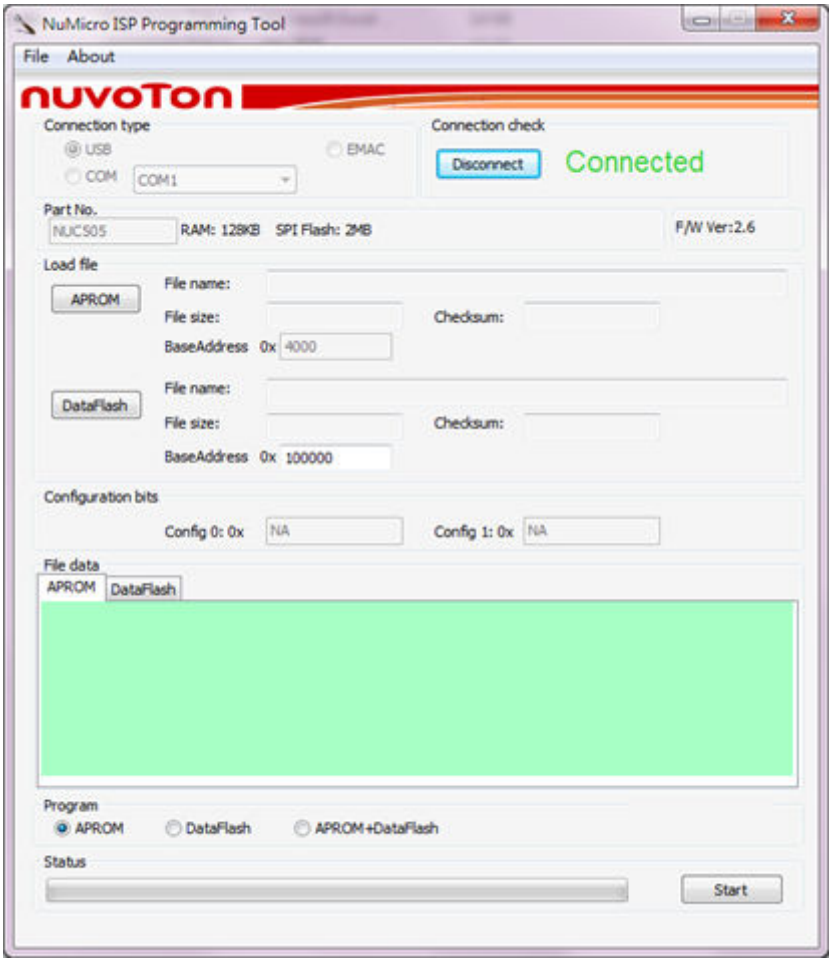



b. Click Connect in the firmware upgrade utility.

*Warning: If the sequence of step 3 is NOT followed or the button 'Connect' is NOT clicked within 5 seconds, the utility may fail to detect the connected MDCIM or MDUTP. If this issue occurs, close the utility, disconnect the MDCIM/MDUTP from the computer, and then repeat all of the above steps until the MDCIM/MDUTP is detected successfully.*

4. The utility indicates that it detects the connected MDCIM/MDUTP by showing the green message 'Connected'.




5. Click APROM to select the appropriate MDCIM/MDUTP firmware file.



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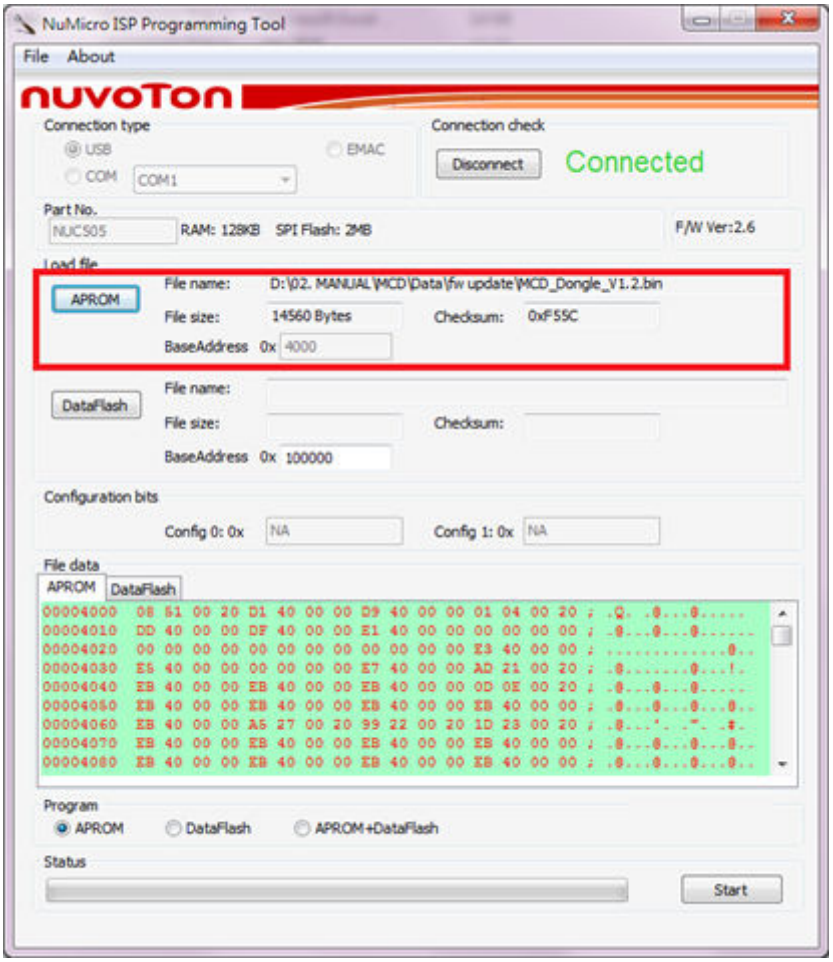
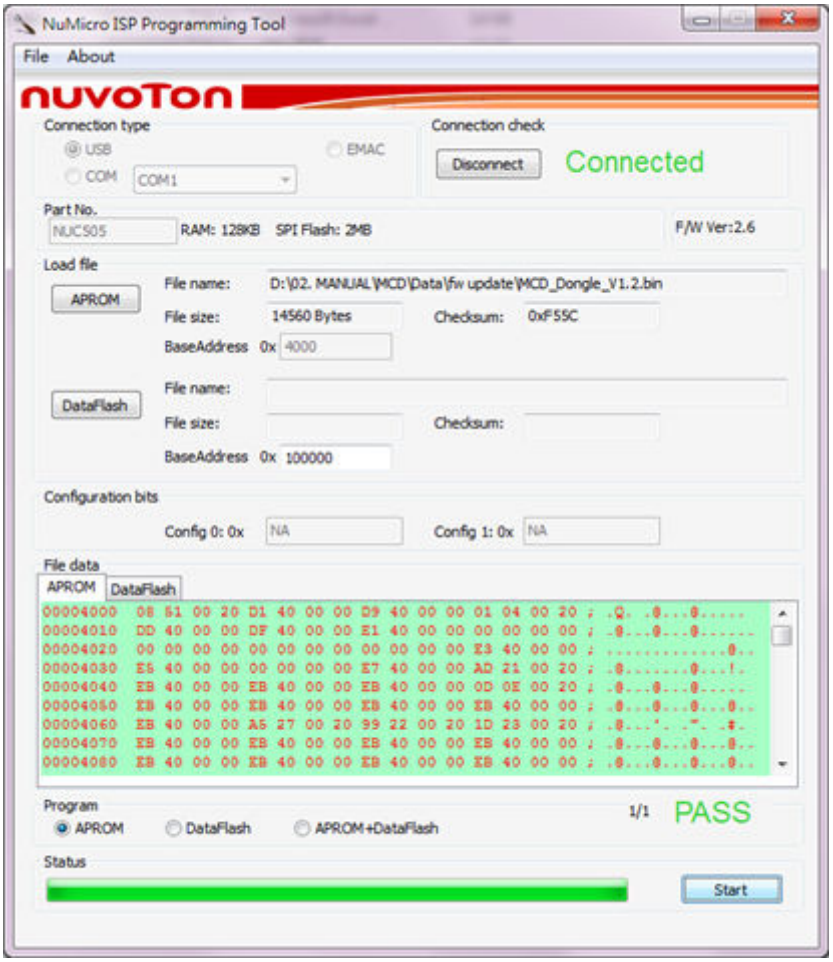



6. Click Start to start the firmware upgrade.
7. When the firmware upgrade is completed successfully, a green message 'PASS' is displayed at the bottom.




8. If there are more MDCIMs or MDUTP cables to upgrade, keep the utility open, remove the currently-connected MDCIM/MDUTP and reconnect a new one to the computer. Then repeat steps 6 to 8 until all MDCIMs and MDUTP cables are upgraded.



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# Appendix A Specifications

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### One-User MCD Models

| Items | MCD-108 | MCD-116 |
|---|---|---|
| **Supported console users** | 1 | 1 |
| **Channel ports (female RJ-45)** | 8 | 16 |
| **Female USB-A ports (for keyboard/ mouse)** | 2 | 2 |
| **Female DVI-I ports (for video output)** | 1 | 1 |
| **Female 3.5mm audio jack (for audio output)** | 1 | 1 |
| **Female Micro USB (for firmware upgrade)** | 1 | 1 |
| **Reset button (for power cycle)** | 1 | 1 |
| **AC socket** | 1 | 1 |
| **Power switch** | 1 | 1 |
| **Channel LEDs (white, but turn green when accessed)** | 8 | 16 |
| **Power LED (blue)** | 1 | 1 |
| **Maximum number of servers with a two-tier system comprising the same models** | 128 | 256 |
| **Video support** | 1920 x 1200 @60Hz (VGA)<br>1920 x 1080 @60Hz (DVI)<br>DDC2B<br>For details on supported video resolutions, see Supported VGA and DVI Resolutions of MCD (on page 76). | |
| **Max. power input** | AC100-240V/1.5A, DC12V/5.42A | |

| Items | MCD-108 | MCD-116 |
|---|---|---|
| **Power consumption** | DC 12V/5.42A (65W) | |
| **Operating temperature** | 0 to 50°C | |
| **Storage temperature** | -20°C to 60°C | |
| **Humidity** | 0-80% RH , Non-condensing | |
| **Dimension (L x W x H)** | 440 x 150 x 44 mm | |
| **Weight (g)** | 1963 | 1993 |
| **Safety** | CE/FCC/VCCI/UL | |
| **MTBF** | > 300,000 Hours | |

## Dual-User MCD Models

| Items | MCD-216 | MCD-232 |
|---|---|---|
| **Supported console users** | 2 | 2 |
| **Channel ports (female RJ-45)** | 16 | 32 |
| **Female USB-A ports (for keyboard/ mouse)** | 4 | 4 |
| **Female DVI-I ports (for video output)** | 2 | 2 |
| **Female 3.5mm audio jack (for audio output)** | 2 | 2 |
| **Female Micro USB (for firmware upgrade)** | 1 | 1 |
| **Reset button (for power cycle)** | 1 | 1 |
| **AC socket** | 1 | 1 |
| **Power switch** | 1 | 1 |
| **Channel LEDs (white, but turn green when accessed)** | 16 | 32 |
| **Power LED (blue)** | 1 | 1 |
| **Maximum number of servers with a two-tier system comprising the same models** | 512 | 1024 |
| **Video support** | 1920 x 1200 @60Hz (VGA)<br>1920 x 1080 @60Hz (DVI)<br>DDC2B<br>For details on supported video resolutions, see Supported VGA and DVI Resolutions of MCD (on page 76). | |



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| Items | MCD-216 | MCD-232 |
|---|---|---|
| **Max. power input** | AC100-240V/1.5A, DC12V/5.42A | |
| **Power consumption** | DC 12V/5.42A (65W) | |
| **Operating temperature** | 0 to 50°C | |
| **Storage temperature** | -20°C to 60°C | |
| **Humidity** | 0-80% RH , Non-condensing | |
| **Dimension (L x W x H)** | 440 x 150 x 44 mm | |
| **Weight (g)** | 2009 | 2276 |
| **Safety** | CE/FCC/VCCI/UL | |
| **MTBF** | > 300,000 Hours | |

## One-User MCD-LED Models

| Items | MCD-LED17108 | MCD-LED17116 |
|---|---|---|
| **Supported console users** | 1 | 1 |
| **Channel ports (female RJ-45)** | 8 | 16 |
| **Built-in 104-key keyboard** | 1 | 1 |
| **Built-in touchpad** | 1 | 1 |
| **Female USB-A ports (for external keyboard/mouse)** | 1 | 1 |
| **Female Micro USB (for firmware upgrade)** | 1 | 1 |
| **Ground screw** | 1 | 1 |
| **AC socket** | 1 | 1 |
| **Power switch** | 1 | 1 |
| **Push buttons for the LCD display** | 5 buttons<br>(1 for power, and 4 for operating the LCD display's OSD menu) | |
| **Power LED (white) for the LCD display** | 1 | 1 |
| **Num Lock indicator (green)** | 1 | 1 |
| **Caps Lock indicator (green)** | 1 | 1 |
| **Scroll Lock indicator (green)** | 1 | 1 |

| Items | MCD-LED17108 | MCD-LED17116 |
|---|---|---|
| **Video support** | 1920 x 1080 @60Hz<br>DDC2B<br>For details, see Supported Video Resolutions of MCD-LED (on page 77). | |
| **Built-in LCD display** | 17.3" TFT LCD with LED backlight unit<br>• Pixel pitch: 0.1989 (H) x 0.1989 (V) mm<br>• Max. resolution: 1920 x 1080 @60Hz (Full HD 1080P)<br>• Supported colors: 262,144<br>• Brightness (cd/m2): 300 nits<br>• Contrast ratio -- 650 : 1<br>• MTBF: 15,000 Hours | |
| **Max. power input** | AC100-240V/1.5A, DC12V/5.42A | |
| **Power consumption** | DC 12V/5.42A (65W) | |
| **Operating temperature** | 0 to 50°C | |
| **Storage temperature** | -20°C to 60°C | |
| **Humidity** | 0-80% RH , Non-condensing | |
| **Dimension (W x D x H)** | • Product: 562.71 x 484.7 x 41.5 mm<br>• Packing: 742 x 602 x 178 mm | |
| **Net weight (kg)** | 12 kg<br>(26.4 lb) | 18 kg<br>(39.6 lb) |
| **Safety** | CE/FCC/VCCI/UL | |
| **MTBF** | > 300,000 Hours | |

## Supported VGA and DVI Resolutions of MCD

| VGA resolutions (analog) | DVI resolutions (digital) |
|---|---|
| 640 x 480 @60/70/75Hz | 640 x 480 @60/70/75Hz |
| 720 x 400 @70Hz | --- |
| 720 x 576 @60Hz | --- |
| 848 x 480 @60Hz | --- |
| 800 x 600 @60/70/75Hz | 800 x 600 @60/70/75Hz |
| 1024 x 768 @60/70/75Hz | 1024 x 768 @60/70/75Hz |
| 1152 x 864 @60/70/75Hz | 1152 x 864 @60/70/75Hz |
| 1280 x 720 @60/70/75Hz | 1280 x 720 @60/70/75Hz |

| VGA resolutions (analog) | DVI resolutions (digital) |
|---|---|
| --- | 1280 x 768 @60/75Hz |
| 1280 x 800 @60/70/75Hz | 1280 x 800 @60/75Hz |
| 1280 x 960 @60/70/75Hz | 1280 x 960 @60Hz |
| 1280 x 1024 @60/70/75Hz | 1280 x 1024 @60/75Hz |
| 1360 x 768 @60Hz | 1360 x 768 @60Hz |
| 1440 x 900 @60Hz | --- |
| --- | 1600 x 900 @60Hz |
| 1680 x 1050 @60Hz | 1680 x 1050 @60Hz |
| 1920 x 1080 @60Hz | 1920 x 1080 @60Hz |
| 1920 x 1200 @60Hz | --- |

## Supported Video Resolutions of MCD-LED

The following lists the video resolutions supported by the LCD panel of MCD-LED.

| Available video resolutions |
|---|
| 640 x 350 @70Hz |
| 640 x 480 @60/67/72/75Hz |
| 720 x 400 @70Hz |
| 800 x 600 @56/60/72/75Hz |
| 832 x 624 @75Hz |
| 1024 x 768 @60/70/75Hz |
| 1152 x 864 @75Hz |
| 1152 x 870 @75Hz |
| 1280 x 720 @60Hz |
| 1280 x 960 @60Hz |
| 1280 x 1024 @60/75Hz |
| 1360 x 768 @60Hz |
| 1366 x 768 @60Hz |
| 1440 x 900 @60Hz |
| 1600 x 900 @60Hz |

| Available video resolutions |
| --- |
| 1600 x 1200 @60Hz |
| 1680 x 1050 @60Hz |
| 1920 x 1080 @60Hz |

Note:DVI monitors takes longer time to swap resolutions, so it is recommended to preset the resolutions. The delay is caused by video signals slow process due to swapping from digital to analog then back again to digital.



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# Appendix A 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.

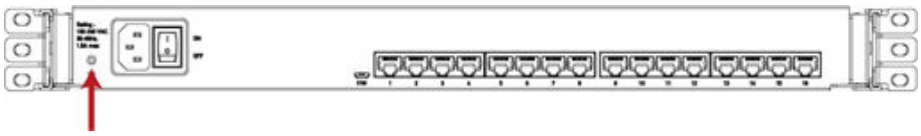
---

Note: Currently only MCD-LED KVM drawers have the ground screw while MCD switches do NOT have it.

---

► *To prevent any potential shock hazard:*

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



# Appendix A Integration with Other Raritan Products

MCD switches can work with the following Raritan products. Always connect the *console connector* of the MCD switch to another Raritan product you choose when any integration is wanted.

**Note: MCD-LED KVM drawers CANNOT work with the following Raritan products because it does not have the console connector.**

This section briefly introduces the connection methods and benefits of integration with other Raritan products. For detailed information, refer to each product's user documentation, which is available on the Raritan website's Support page.

► *Dominion KX III/DLX2:*

- Benefit:

  You can access the MCD switch from anywhere over the Internet.
- Connection:

  Connect the MCD switch to any channel port of the Dominion KX III or DLX2. A D2CIM-VUSB or D2CIM-DVUSB is required.

► *Dominion KX4-101:*

- Benefit:

  You can access the MCD switch from anywhere over the Internet.
- Connection:

  Connect the MCD switch to Dominion KX4-101.

► *Cat5 Reach DVI HD:*

- Benefit:

  You can access MCD user console (USB keyboard, USB mouse, video and audio control)using Cat5 Reach DVI HD via ethernet switch (daisy-chaining).The supported cable distance from MCD and remote device can vary from 100 meter/330 feet to 1,000 meter/ 3,300 feet.
- Connection:

  Connect the MCD switch to the transmitter unit of Cat5 Reach DVI HD.

► *LED KVM Console (T1700-LED and T1900-LED series):*

- Benefit:

  Turn the console of the MCD switch into a KVM drawer, which can be put inside the cabinet or rack.
- Connection:

  Connect the MCD switch to the LED KVM console. A Raritan's KVM combo cable and DVI cable (shipped with the LED KVM console) are required.



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