Rackmount KVM Switch (CATx)

1U KVM Switch, 1~2 User Console, 8/16/32 Ports
1920x1200 @60Hz (VGA) / 1920x1080 @60Hz (DVI)

(Image illustration based on Model RKS-FHDI-CX232)

RKS-FHDI-XXXXX Series

Model Information

Model	Features
RKS-FHDI-CX108	1U Rackmount KVM Switch (CATx), 1 User Console, 8 Ports
RKS-FHDI-CX116	1U Rackmount KVM Switch (CATx), 1 User Console, 16 Ports
RKS-FHDI-CX216	1U Rackmount KVM Switch (CATx), 2 User Consoles, 16 Ports
RKS-FHDI-CX232	1U Rackmount KVM Switch (CATx), 2 User Consoles, 32 Ports

Quick Start Guide

Rev. OCT-RKS-QSG01.1

RKS-FHDI Rackmount KVM Switch Series Quick Start Guide

The RKS-FHDI Rackmount KVM Switch Series is a versatile and powerful solution for managing multiple servers with ease and efficiency. Supporting high-definition video resolutions up to 1920x1080 over standard Category 5e/6 cabling, it offers compatibility with various video interfaces, including VGA, DVI, HDMI, and DisplayPort. Designed for single or dual users, it can control up to 8, 16, or 32 servers, and can be expanded to manage up to 1024 servers through cascading. With features like an On-Screen Display (OSD) interface, hotkey support, and front panel LEDs for real-time server monitoring, this KVM Switch ensures quick and secure server access, with password protection for added security. Additionally, OSD naming of servers allows for easy identification and selection of the servers.

This guide will help you install and use your Rackmount KVM Switch for the first time. For additional information on the product features and administration, please refer to the user manual.

Visit https://www.dsgio.com/switches/, select your model and go to the '**Downloads**' tab to download the latest product documentation.

1 Check the Package Contents

RKS-FHDI Rackmount KVM Switch Kit

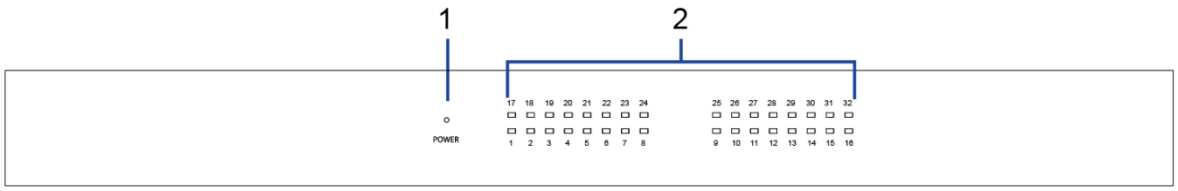
- 1 × Rackmount KVM Switch
- 1 × DVI-I to VGA Adapter
- 1 × Rackmount Kit
- 1 × Quick Start Guide
- 1 × Power Cord

Kindly note that customer needs to purchase the Computer Access Dongles to use with the product.

2 Front and Rear Panel View

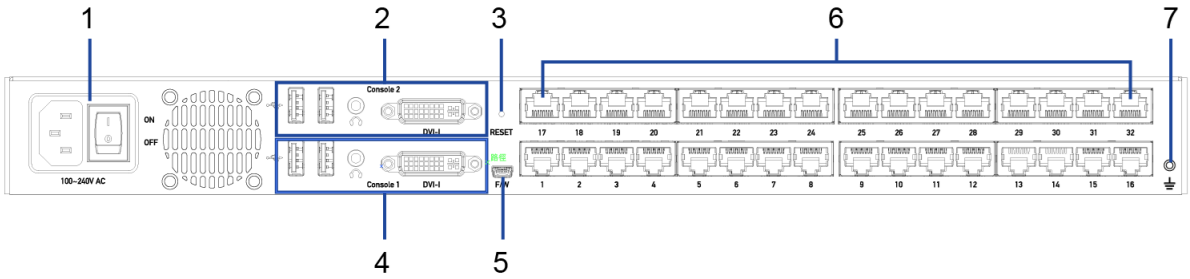
This section provides a brief introduction to the components on the front and rear panel of the KVM Switch. The following diagrams use the Model RKS-FHDI-CX232 to illustrate the components. The console and computer ports configuration will vary between models.

Front View:



No.	Feature	Function
1	Power LED Indicator	LED lights on **white** when the unit is powered up.
2	Channel LED Indicators	LED Indicators light **off** when channels are "inactive". LED Indicators light on **white** when channels are "active". LED Indicator(s) light on **green** when channel(s) is/are currently selected.

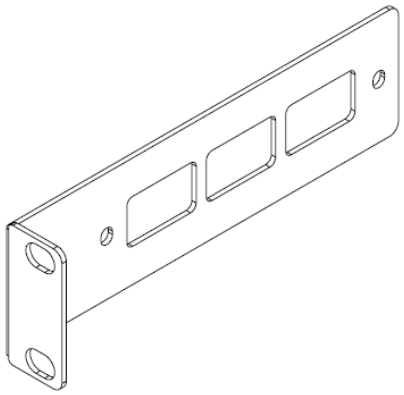
Rear View:



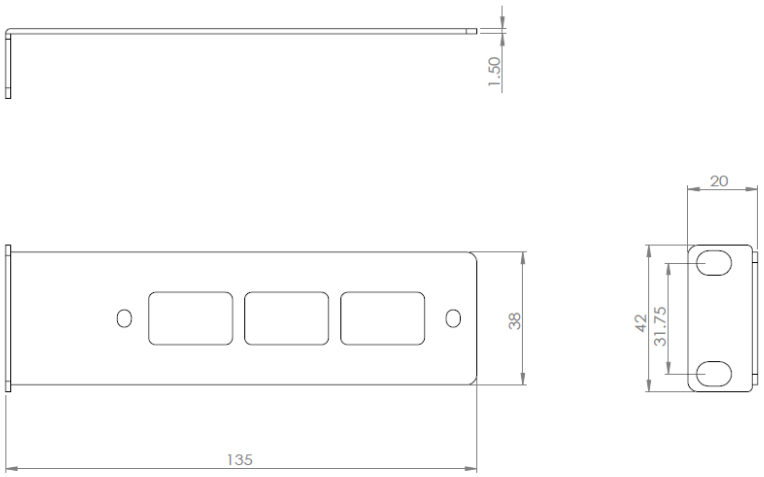
No.	Feature	Function
1	Power Inlet and Power Switch	Power Inlet: Connect the Power Cord. Power Switch: Toggle the power on or off.
2	'Console 2' Connectors	Connect to a/v and data devices. 'Console 2' is available on dual-user models only i.e. CX216 and CX232.
	Two USB-A Ports	Connect a USB keyboard and mouse.
	One Audio Output	Connect to speakers or headphone.
	One DVI-I Connector	Connect to a monitor. If the monitor does not have a DVI connector, an appropriate video converter or adapter is required.
3	Reset Button	Power cycle the KVM Switch. Users will be logged out when resetting.
4	'Console 1' Connectors	Connect to a/v and data devices. 'Console 1' is available on all models.
	Two USB-A Ports	Connect a USB keyboard and mouse.
	One Audio Output	Connect to speakers or headphone.
	One DVI-I Connector	Connect to a monitor. If the monitor does not have a DVI connector, an appropriate video converter or adapter is required.
5	Firmware Upgrade Port	Connect to a computer to upgrade the KVM Switch firmware.
6	Channel Ports	Connect to Servers/Computers via Computer Access Dongles (CADs). Total number of channel ports depends on your model.
7	Chassis Ground	Connect the chassis ground to prevent any electrical shock.

3 Rackmount Procedures

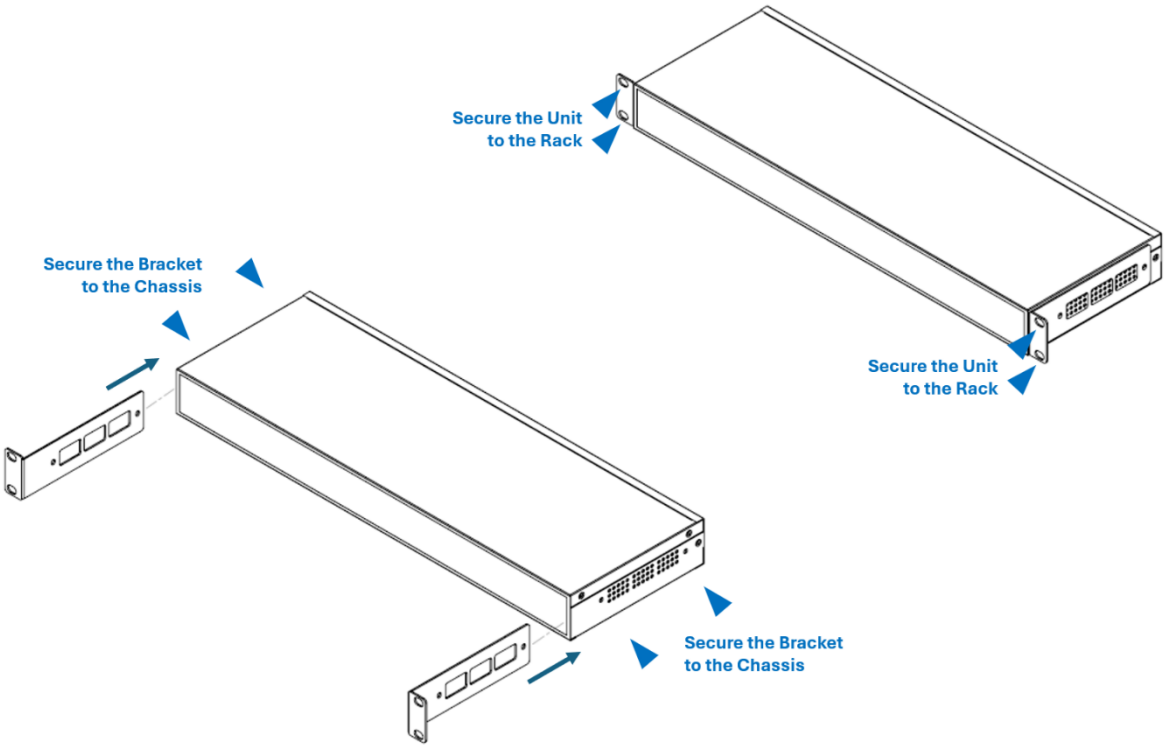
RKS-FHDI switches can be mounted in 1U (1.75", 4.4cm) of vertical space in a standard 19" equipment rack. To rackmount it, use the brackets and screws that come with the package.



The brackets have the following dimensions:



Attach and secure the brackets to the switch chassis with the provided screws and then rack mount the unit to the pillars of the rack, securing it with the rack's screws and cage nuts.



4 Installation of the KVM Switch

You will need the Computer Access Dongle to connect the KVM switch to the server/computer. Installation of the KVM Switch will involve the following steps:

1. Select the appropriate Computer Access Dongles for the Servers
2. Connect the Monitor, Keyboard and Mouse or LCD Console Drawer to the KVM Switch.
3. Connect the Servers.

Step 1: Select the Appropriate Computer Access Dongle (CAD) for the Server

Choose the appropriate CAD according to the server's video port and audio requirements (do note the dongles are purchased separately from the KVM Switch. It is not included in the KVM Switch's package.).

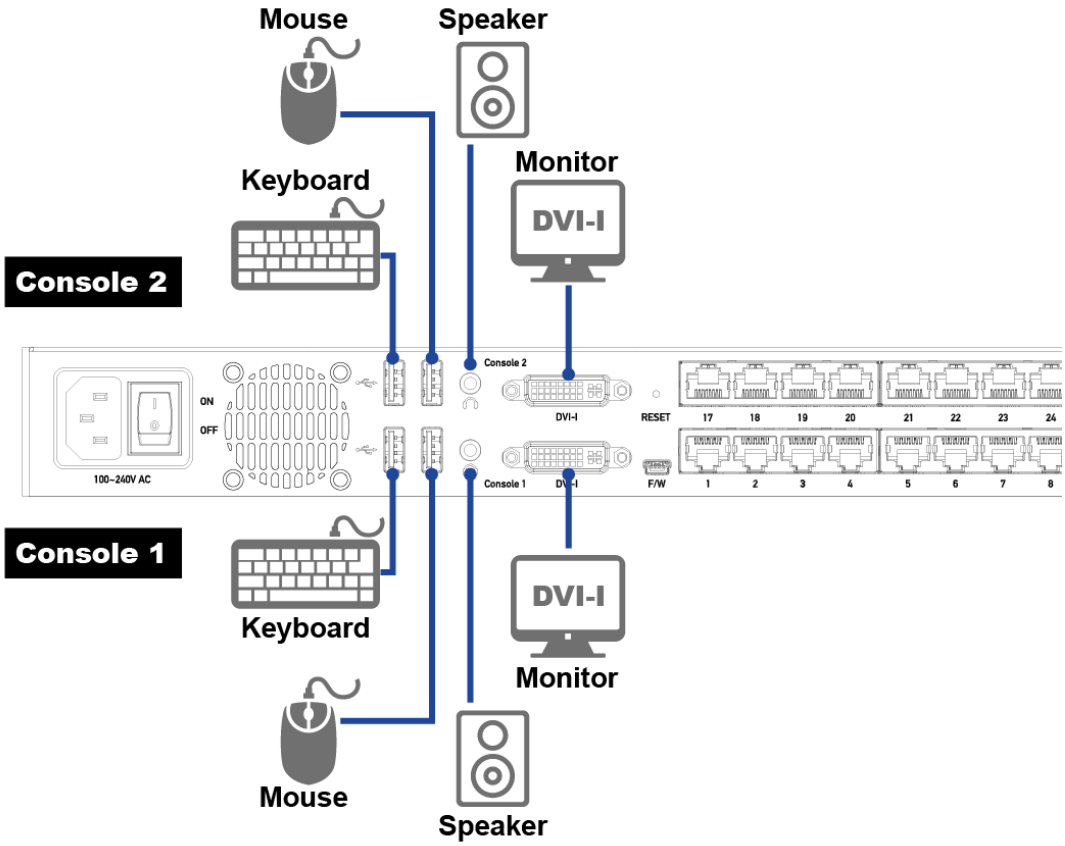
CAD Type	Video Interface	Audio Transmission
RKS-CAD-DP	DisplayPort	Not supported
RKS-CAD-DVI	DVI	Not supported
RKS-CAD-HDMI	HDMI	Support digital audio
RKS-CAD-VGA	VGA	Support analog audio (using 3.5mm audio jack)

Note:

i. If the dongle you purchased is not compatible with the video port on your computer, the alternative solution is to use a video converter or adapter to connect the dongle.
ii. If audio functionality is required, make sure you turn on the audio feature on the KVM switch in addition to using the audio-capable HDMI or VGA dongles.

Step 2: Connect the Monitor, Keyboard and Mouse or LCD Console Drawer

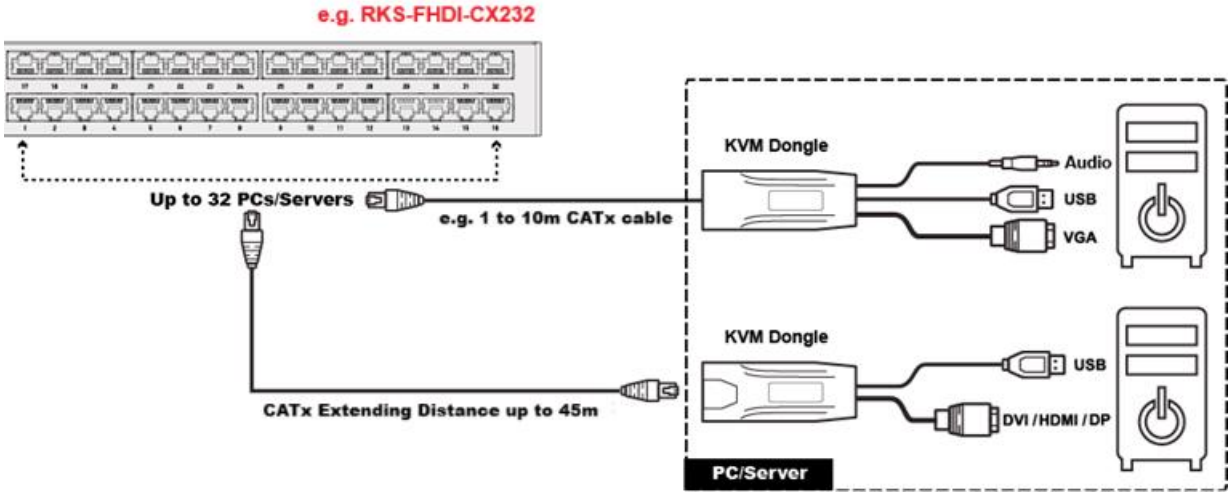
1. Power off all equipment i.e. KVM switch, monitor, servers/computers and peripherals before system installation.
2. Connect a monitor, keyboard and mouse to the 'Console' connectors on the switch.
   - A DVI-I to VGA adapter is required if connecting to a VGA monitor.
   - Audio speakers are optional.
3. For dual-user model, you can connect the second monitor, keyboard and mouse to 'Console 2' connectors.



If you are connecting to an LCD Console Tray, use an appropriate video cable and USB 2.0 Type A Male – Type B Male cable to connect the 'Console' connectors to the LCD Console Tray (video converter or adapter may be required for different video interface).

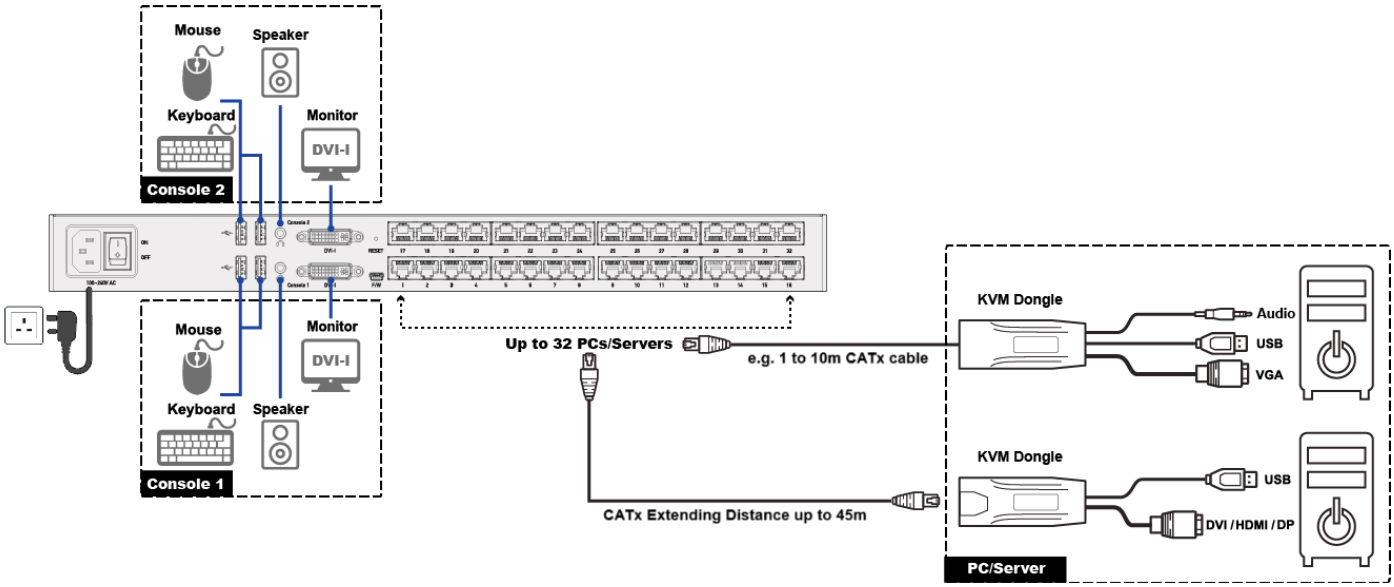
Step 3: Connect the Servers

i. Connect the video interface of the Computer Access Dongle to the server/computer's video port.
ii. Plug the USB interface of the Computer Access Dongle into one of the USB ports.
iii. Optionally, for the VGA CAD, plug the audio interface of the dongle into the server/computer's audio output port.
iv. Connect the CAD to one of the Channel Ports on the KVM switch using standard CAT 5e/6/6a network cable. The maximum length of the cat cable is 45m (148 ft). Note, direct cable connection of the switch and CAD device is required. Using Shielded Twisted Pair (STP) cable is strongly recommended.
v. Repeat the above steps to connect more servers.
vi. Power on all devices.



5 Connection Diagram

Overview of a full system connection is illustrated using the model RKS-FHDI-CX232 below:



Note: *S/FTP cable is recommended to provide protection against internal crosstalk, alien crosstalk, EMI, ESD and RFI.*

6 OSD Operation

KEYBOARD LAYOUT

Before logging into the OSD, you may need to set the keyboard language layout if you are not using U.S. Keyboard Layout with the KVM Switch.

Steps:

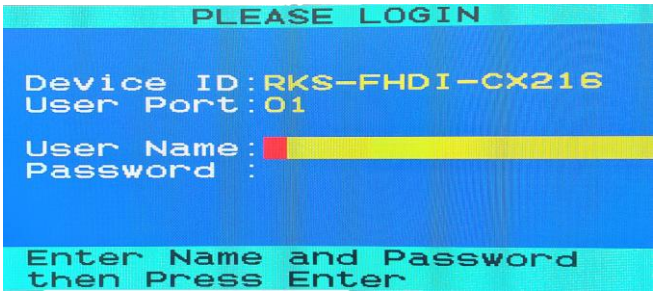
1. Press **Ctrl + F1** to modify the keyboard language layout. (33: English US, 08: French, 09: German)
2. Press the language number, followed by the '**ESC**' key to finish the setting. For example, to choose "English US "Keyboard, press the following keys: 33 > ESC.

LOGIN

After turning on the device, the login screen will be displayed. 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: admin



2. The **Selection Menu** will be displayed to indicate that the login is successful.

Important: It is strongly recommended to change the default password of the built-in administrator account of your system. The system provides one built-in administrator account and 15 user accounts. These accounts cannot be removed but you can change their passwords or rename any user accounts. Only the administrator can rename user accounts or change passwords.

To change the administrator password, on the **Selection Menu**, press **F1** to enter **Setup Menu**. Then, press **F5** to enter the **User Configuration Menu**. Press **Enter** to select the account to change the password.

ACCESSING THE REQUIRED PORT CHANNEL / SERVER

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

- From the **Selection Menu** of the On-Screen Display (OSD)
- Hotkeys

Using the Port Channel Selection Menu

You must use the OSD hotkey to bring out the OSD. The default hotkey is 'Scroll Lock.'

To select a port (computer) via the Selection Menu:

i. Press **'Scroll Lock'** 3 times. The Selection Menu appears, showing a list of Port Channels.
ii. Press ↑ or ↓ to select the desired "active channels" (powered dongle with server connected) and press **Enter** to select. Press **Page Up** or **Page Down** if the required port (channel) is not shown on the current page. (*Ports with channel names displayed are "active" channels. The default name is 'PC'. Press **F3** on the Selection Menu to access the Rename Page and change the Channel Name to identify the server connected to the port.*)

Using Hotkeys

You can switch between port channels/servers without bringing out the OSD.

To access required port channel/server using hotkeys:

i. Make sure there is no OSD shown onscreen. If yes, press Esc to exit.
ii. To select desired port channel/server, press **'Scroll Lock'** twice, then the port number, and press **Enter**.

    For example, to access Port Channel 15, press the following keyboard keys sequence:

    Scroll Lock > Scroll Lock > 1 > 5 > Enter

    Note: Port Channel switching will not occur if you do not press **Enter** to complete the hotkeys sequence.

iii. The video of the accessed server will be displayed onscreen once the hotkey command is executed, and you can control the server with the keyboard and mouse.

To access the next or prior "active" channel using hotkeys:

i. Make sure the OSD is not shown onscreen.
ii. To select the next "active" port channel, press the **RIGHT 'Ctrl'** key twice.
iii. To select the prior "active" port channel, press the **LEFT 'Ctrl'** key twice.

VIDEO ADJUSTMENT

If the video appears dark, you can adjust the brightness and contrast of the channel that is being accessed.

To adjust a Channel's video:

i. Select the desired Channel to have its video shown on the screen.
ii. Press the hotkey **twice**, then the letter "**C**" and finally press **Enter**. With the default hotkey **'Scroll Lock'**, you should press: Scroll Lock > Scroll Lock > C > Enter.
iii. The video properties will appear onscreen.

iv. Press ↑ or ↓ to select the brightness or contrast.
v. Press ← or → to adjust the value of brightness or contrast (15 is the maximum).
vi. Press **Esc** to save changes and exit.

Note: If the video is flickering, image is "shaky" or has ghosting effects, replace the CAT cable with a high-quality shielded twisted pair (STP) cable.

LOGOUT

After completing your work, you should log out to prevent unauthorised people from using the KVM Switch to access the servers.

To log out of the KVM Switch:

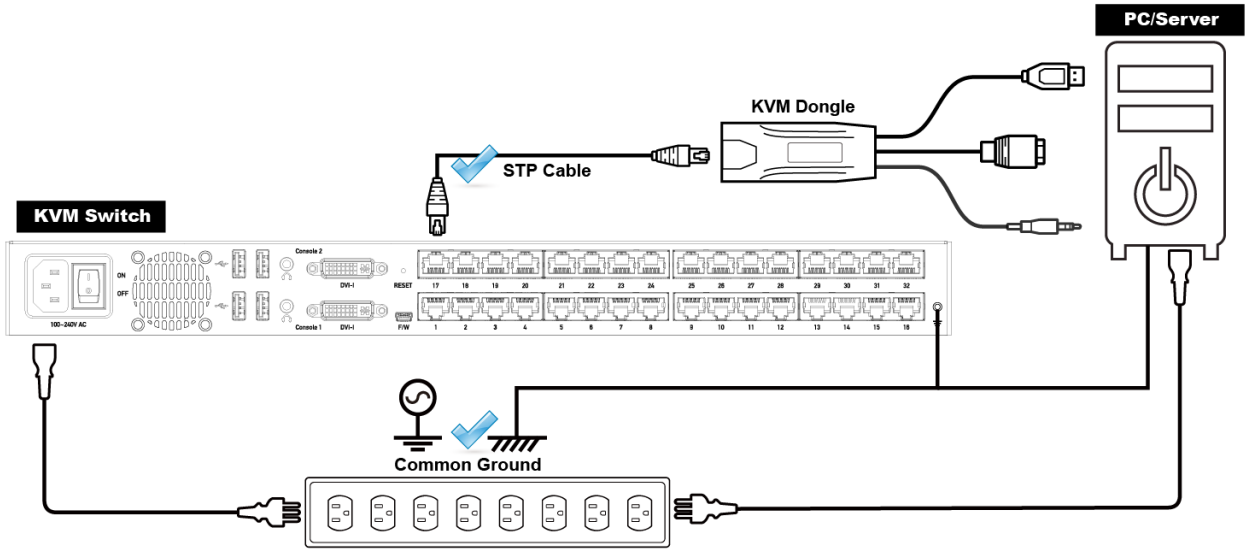
i. If the OSD is not displayed onscreen, press **'Scroll Lock'** 3 times.
ii. Press **F4**.
iii. The Login screen will appear, indicating that you have successfully logged out.

7 Grounding and Cabling Tips

If the KVM switch and connected computers do not share a common chassis ground, or if there are discrepancies in their power ground loops, the video output may experience malfunctions, exhibiting issues such as flickering, blurring, or interference.

To address this, you can implement the following solutions:

1. Utilise STP (Shielded Twisted Pair) e.g., S/FTP cables for connecting the KVM switch and KVM dongles.
2. Ensure that the KVM Switch, and the connected computers share a common ground.



8 Troubleshooting Tips

Following these steps can help identify and resolve common issues when using the rackmount KVM switch:

1. Ensure the KVM switch is powered on (check that the power indicator is lit) and that all cables (video, keyboard, mouse, USB and CAT cables) are securely connected to both the KVM switch and the respective devices. If any cable appears damaged, replace it and test with a known working cable.
2. Verify that the connected peripherals are compatible with the KVM switch. Use only **HID-compliant** Keyboard and Mice (not USB 2.0) and a monitor with a native resolution of up to **1920x1080 at 60Hz**.
3. Test peripherals directly on the target devices (servers) to rule out issues with the KVM switch. If necessary, try using a different port on the KVM switch or a different dongle.
4. Power cycle the KVM switch and wait a few minutes before turning it back on.
5. When using hotkey, confirm that the hotkey combinations are correct and check for conflicts with other devices connected to the KVM switch.
6. Check the LED indicators for status and warnings.
7. Verify user account settings and note that credentials are case-sensitive.
8. Ensure the operating environment is within the specified temperature range and free from electronic interference caused by other devices in the rack.
9. Video quality is highly susceptible to electromagnetic and radio interference, as well as the quality of the CAT cable. To minimize signal degradation, use shielded cables, ensure proper electrical grounding, and keep cables away from potential sources of interference. If the image appears dull in colour, unstable, or experience ghosting effects, replace the cable with a high-quality shielded twisted pair (STP) cable.

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