



Models:

SK21x-N / DK22x-N – 2-Port DVI-I / HDMI / DP Video KVM Switch
SX41x-N / DX42x-N – 4-Port DVI-I / HDMI / DP Video KVM Switch
SX81x-N / DX82x-N – 8-Port DVI-I / HDMI / DP Video KVM Switch

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INTRODUCTION

HSL KVM Switches

Share keyboard, video, mouse, USB and audio peripherals to simplify user experience when working with multiple computers.

Users that work with multiple computers such as, financial traders or command & control operators are inconveniently forced to interact with multiple sets of keyboard, video, mouse, USB and audio peripherals.

This guide refers to the following models:

SK21D-N – 2-Port DVI-I Video KVM Switch

SK21H-N – 2-Port 4K HDMI Video KVM Switch

SK21P-N – 2-Port DP to HDMI Video KVM Switch

DK22D-N – 2-Port DVI-I Video DH KVM Switch

DK22H-N – 2-Port 4K HDMI Video DH KVM Switch

DK22P-N – 2-Port DP to HDMI Video DH KVM Switch

DK22PD-N – 2-Port DVI and DP Video DH KVM Switch

SK41DU-N – 4-Port DVI-I Video KVM Switch w/fUSB

SK41HU-N – 4-Port 4K HDMI Video KVM Switch w/fUSB

SK41PU-N – 4-Port DP to HDMI Video KVM Switch w/fUSB

The Keyboard Video Mouse (KVM) switch offered by HSL allows effortlessly sharing a single set of peripherals between multiple computers.

This guide instructs how to install, configure and operate a HSL KVM switch.

DK42DU-N – 4-Port DVI-I Video DH KVM Switch w/fUSB

DK42HU-N – 4-Port 4K HDMI Video DH KVM Switch w/fUSB

DK42PU-N – 4-Port DP to HDMI Video DH KVM Switch w/fUSB

DK42PDU-N – 4-Port DVI and DP Video DH KVM Switch w/fUSB

SK81DU-N – 8-Port DVI-I Video KVM Switch w/fUSB

SK81HU-N – 8-Port 4K HDMI Video KVM Switch w/fUSB

SK81PU-N – 8-Port DP to HDMI Video KVM Switch w/fUSB

DK82DU-N – 8-Port DVI-I Video DH KVM Switch w/fUSB

DK82HU-N – 8-Port 4K HDMI Video DH KVM Switch w/fUSB

DK82PU-N – 8-Port DP to HDMI Video DH KVM Switch w/fUSB

INSTALLATION

Installing the KVM

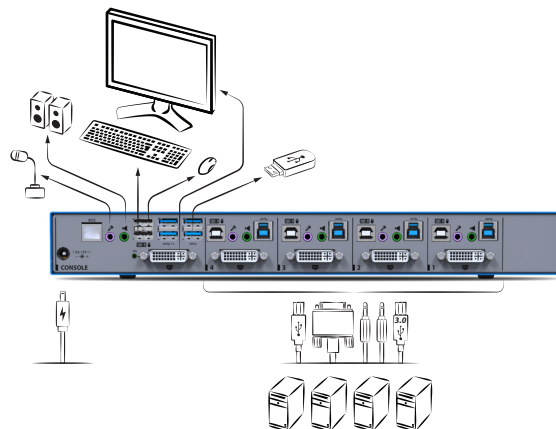
General

- Verify that all peripherals and computers are turned off prior to connecting them to the product.
- The KVM's back panel is divided into Console Ports and Computer Ports sections.
 - Connect peripherals which are due to be shared by the KVM to the Console ports.
 - Connect each computer that requires access to the shared peripherals to a Computer port group.
 - Make sure that every computer is connected to a separate Computer port group.
 - Computer port group numbers are represented by push buttons on the product's front panel.
 - Switch peripherals between computers by pressing the push buttons on the product's front panel.

Step 1 – Connect peripherals to the KVM Console ports:

- **Keyboard:** Connect a USB keyboard to the corresponding KVM console keyboard port.
- **Video:** Connect the monitor cable to the KVM console video port.
- **Mouse:** Connect a USB mouse to the corresponding KVM console mouse port.

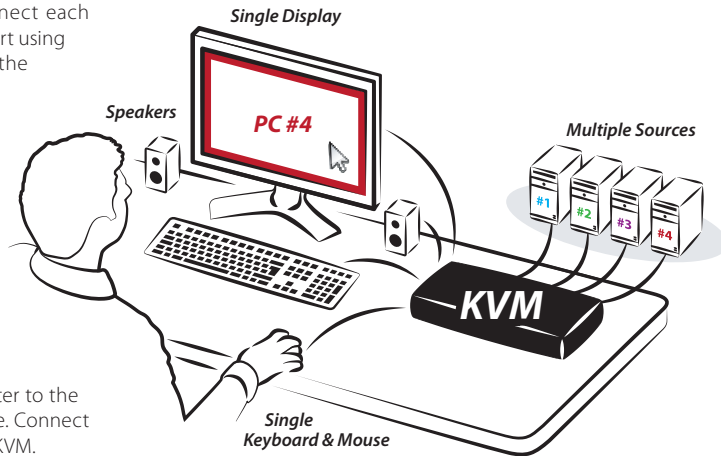
- **Audio out peripherals:** Connect headphones / speakers to the KVM console audio-out ports (colored green).
- **Audio in peripherals:** Connect a microphone to the KVM console audio-in ports (colored pink).
- **USB peripherals:** Connect USB peripherals to the KVM console USB port.



INSTALLATION

Step 2 – Connect computers to the KVM Computer ports:

- **Computer keyboard & mouse connection:** Connect each computer to the KVM keyboard & mouse computer port using a USB A to USB B cable. Connect the USB A end to the computer and the USB B end to KVM.
- **Computer video connection:** Connect each computer to the KVM computer video port using the corresponding video cable (VGA/HDMI/DVI/DP).
- **Computer audio connection:** Connect each computer to the KVM audio ports using an audio cable. Connect one end of the cable to the computer's audio ports using the 1/8" (3.5mm) stereo plug. Connect the other end of the audio cable to the KVM audio-in /audio-out computer port.
- **Computer USB peripherals:** Connect each computer to the KVM USB computer port using a USB A to USB B cable. Connect the USB A end to the computer and the USB B end to KVM.



Note: 4 channel product illustrations shown throughout this manual are applicable to other KVM models.

INSTALLATION

Step 3 – Power ON your system:

- **Power ON the monitor:** Make sure that the monitor is turned ON prior to powering ON the KVM.
- **Power ON the system:** Connect all peripherals and computers to the KVM prior to powering it up. Power ON the KVM by plugging it to the AC wall outlet. By default, after product power-up, the active channel will be computer #1, indicated by the applicable front panel push button LED lit.

Note: Power ON self-test: As the product powers-up it performs a self-test procedure. In case of self- test failure for any reason, including jammed buttons, the product will be Inoperable. Self-test failure will be indicated by abnormal LED behavior – for further information please refer to the KVM setup guide.

Step 4 – Reset to Factory Defaults

Reset to factory defaults clears the device settings and restores the device to its original configuration.

- System reset, clears behavioral characteristics such as mouse settings and display presets. Type { **L CTRL** | **L CTRL** | **F11** | **r** } key combination.
- Complete reset: clears all device settings and resets to factory defaults. From the Terminal menu select the “Reset to Factory Defaults” option (refer to terminal mode guide).

Important Notes:

1. Always use the **left control key (CTRL)** unless otherwise specified.
2. Keyboard shortcut keys are to be pressed sequentially
3. Do not use the numeric keypad for toggling shortcuts unless otherwise specified.
4. ALL KEYBOARD SHORTCUTS REFER TO QWERTY KEYBOARDS. In case a non-qwerty keyboard is in use, keep using the QWERTY layout.



OPERATION

Operating the KVM

Front Panel Push-Buttons

- Following power up, the default channel is #1.
- Select any other channel by pressing the appropriate front panel push button.
- The mouse cursor will be positioned at the center of the selected computer display.
- The currently selected channel is indicated by the illumination of the appropriate push-button.

Freeze USB

- Once switching between channels, for example from channel #1 to channel #3, the USB and Audio devices are automatically switched accordingly. This is indicated by channel #3 USB and Audio LEDs turning steady GREEN.
- When switching to a channel that has no USB connection, the USB Port remains mapped to the last channel that had a USB connection.

- Press the freeze USB button on the front panel to assign the USB port to a specific computer. Freeze USB prevents switching the USB port while the keyboard, video, mouse and audio peripherals are switched between computers. Freeze USB is useful for various scenarios, for instance, when a USB disk-on-key must remain mapped to a certain computer.

Freeze Audio

- Press the freeze audio button on the front panel to assign the audio port to a specific computer. Freeze audio prevents switching the audio port while the keyboard, video, mouse and USB peripherals are switched between computers. Freeze audio is useful when a user has to listen to audio originating from one computer while working on another computer.

OPERATION

Smoothly switch between computers (Virtual Display Technology)

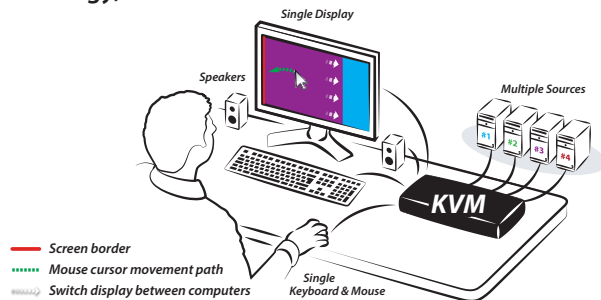
- Automatically switch control from one computer to another by dragging the mouse cursor over the computer's display border.
- Shared peripherals (Keyboard, Audio, USB) switch to the next computer without having to press any buttons once the mouse is passing the display border.

To activate VDT mode:

- Change the mouse mode to Absolute by typing **L CTRL | L CTRL | F11 | c**
- Enable Video Follow Mouse by typing **L CTRL | L CTRL | f**

Switch between computers:

- Press the front panel buttons to manually switch control from one computer to another.
- Use cursor navigation switching (VDT) to automatically switch between computers by dragging the mouse cursor over the computer's display border. Once the mouse is passing the display border, shared peripherals (Keyboard, Audio, USB) switch to the next computer without having to press any buttons.



To deactivate VDT mode:

- Change the mouse mode to Relative by typing **L CTRL | L CTRL | F11 | b**
- Disable Video Follow Mouse by typing **L CTRL | L CTRL | f**

Notes:

- VDT is disabled by default. Resetting the product to factory defaults, disables VDT.
- Multi-monitor computers require driver installation, currently available only for Windows (<http://highseclabs.com/support/downloads/?rid=19>).

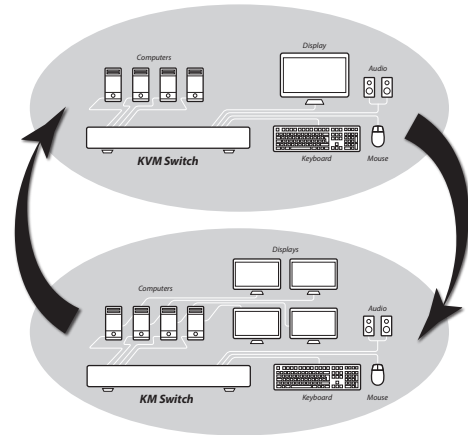
OPERATION

Interchangeable KVM-to-KM Functionality

- In KVM mode (default) one display, keyboard, mouse, USB and audio peripheral set is shared between all computers.
- In KM mode each computer is connected to a separate display while keyboard and mouse are shared.

To change from KVM to KM mode:

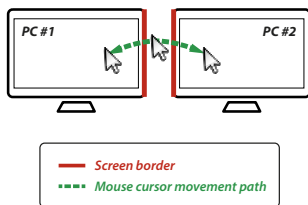
- Disconnect the Display from the KVM Console Port.
- Connect each computer directly to a separate display while keeping the keyboard, mouse, USB and audio peripherals connected to the KVM.
- Change the mouse mode to Absolute by typing **L CTRL | L CTRL | F11 | c**



OPERATION

Switch between computers in KM mode:

- Press the front panel buttons to manually switch control from one computer to another.
- Use cursor navigation switching (VDT) to automatically switch between computers by dragging the mouse cursor over the computer's display border. Once the mouse is passing the display border, shared peripherals (Keyboard, Audio, USB) switch to the next computer without having to press any buttons.

**To change from KM to KVM mode:**

- Connect a Display to the KVM Console Port.
- Connect each computer to its corresponding KVM Computer Video Port.
- Change the mouse mode to Relative by typing **L CTRL | L CTRL | F11 | b**

Note: Resetting the product to factory defaults, disables the KM mode.

OPERATION

Keyboard shortcut options

#	Action Description	Keyboard
1	Toggle between mouse modes	(Absolute) - L CTRL L CTRL F11 c (Relative) - L CTRL L CTRL F11 b
2	System Reset to factory defaults	L CTRL L CTRL F11 r
3	Enter Terminal-Mode	L CTRL R CTRL t
4	Video Follow Mouse (toggle ON/OFF)*	L CTRL L CTRL f

* (Use in conjunction with Absolute mouse mode to switch sources by moving the mouse across the display border - in KVM mode)

OPERATION

Copy & Paste

Transfer text and files between all the computers that are connected to the KVM through the KVM (no network connection is needed between parties). Use standard copy and paste keyboard key combinations (CTRL+C / CTRL+V) or mouse context-menu commands to transfer data between computers that are connected to the KVM.

Copy & Paste operational modes:

Operational modes determine where copied data is buffered (KVM model dependent).

USB Device mode:

- Applicable only to 4 port KVM models that include USB 3.0 ports with external USB storage device support.
- Copied data is stored on an external USB storage device, connected to the KVM's USB port.
- Both text and file copy & paste operations are supported.
- Fast data transfer rates are achievable through USB 3.0 SuperSpeed technology.
- Copied data size is determined by the amount of available free space on the USB storage device.
- Requires installing the HSL Virtual Clipboard Agent application on each computer.

COM Device Mode

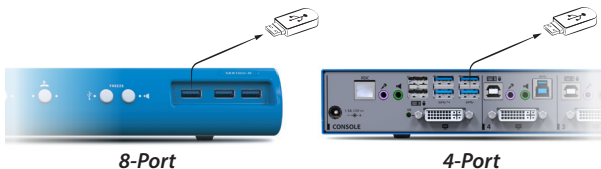
- Copied data is stored on the KVM's internal memory.
- 2 port models support copying only text.
- 4 port models support copying text and files.
- Copied data size is limited to 12KB.
- Requires installing the HSL Virtual Clipboard Agent application on each computer.

OPERATION

Copy & Paste Setup

Note: For COM port setup skip to step 3.

1. Connect a USB storage device to one of the USB 3.0 ports situated on the product's front facing panel.
2. Connect each computer to the KVM USB computer port using a USB A to USB B cable. Connect the USB A end to the computer and the USB B end to KVM.
3. Download the Virtual Clipboard Agent application setup file from HSL website (<URL>). (Currently available only for Windows).
4. Run the setup file and follow the on-screen instructions to install the Virtual Clipboard Agent on each computer that requires Copy & Paste access. Click INSTALL when prompted by the Windows Security pop-up window during the driver installation.



Copy & Paste Configuration

Once the installation is complete, right click the system tray Clipboard Manger icon and select Setting to open the Clipboard Manager setting window.



HSL Clipboard Manager setting

- **Operational mode:** select where copied data is stored (USB/COM).
- **System tray notifications:** select when to display notifications.
- **Copy/Paste settings:** limit file size and type.
- **COM/USB settings:** setup advanced port settings.

Working with Copy & Paste

To copy text or files from one computer to another, use standard copy keyboard key combination or mouse gestures.

For example:

1. On the source computer (where the data that you want to copy resides) use (CTRL+C) to copy the data into the KVM buffer (USB/COM).
2. Press the corresponding KVM button to switch to the target computer (where you want to copy the data to).
3. Use standard paste keyboard key combination (CTRL+V) or mouse gesture to paste the data to the the destination computer.



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