Models:

SX42PH-4 - Secure 4P to 2P DP/HDMI Video KVM Mini-Matrix, NIAP PP 4.0 certified
SX42PHU-4 – Secure 4P to 2P DP/HDMI Video KVM Mini-Matrix w/fUSB, NIAP PP 4.0 certified
SX82PH-4 - Secure 8P to 2P DP/HDMI Video KVM Mini-Matrix, NIAP PP 4.0 certified
SX82PHU-4 – Secure 8P to 2P DP/HDMI Video KVM Mini-Matrix w/fUSB, NIAP PP 4.0 certified
SX82PHU-4T – Secure 8P to 2P DP/HDMI Video KVM Mini-Matrix w/fUSB, compliant with NIAP PP 4.0 and TEMPEST
SX42HU-N – Commercial 4P to 2P HDMI Video KVM Mini-Matrix w/sUSB
SX42PHU-N – Commercial 4P to 2P DP/HDMI Video KVM Mini-Matrix w/sUSB
SX82PHU-N – Commercial 8P to 2P DP/HDMI Video KVM Mini-Matrix w/sUSB

HLT31845 Rev. 2.0

TABLE OF CONTENTS

INTRODUCTION

KVM Mini-Matrix

The KVM Mini-Matrix from High Sec Labs optimizes the user experience when working with multiple computers, allowing simultaneous control of two computers and viewing up to four or eight, while securely sharing keyboard, video, mouse, audio, and USB devices. By eliminating the need for purchasing and installing dedicated peripheral sets for each computer, the Mini-Matrix frees up space on the desk. This is ideal for multi-computer environments like meeting rooms and control rooms, where multiple computers need to be displayed and controlled at the same time with as little clutter and confusion as possible.

Features

- **Simultaneous Control of Two Computers, Extended-Screen Viewing of All Computers:**
  Connect four/eight computers and two displays to the Mini-Matrix. Select which computer to present on each of the two attached displays. Displays can be positioned in various layouts (Horizontal / Vertical / Custom). Duplicate the screen of any computer by presenting it on both Mini-Matrix displays at the same time. Extend the screen of any computer to an additional external display.
- **Easy Switching Between Computers:**
  Switch between connected computers simply by moving the cursor from screen to screen; keyboard and audio will automatically switch to follow the mouse.
- **Independently switch the Video/ USB/Audio/Keyboard & Mouse ports between computers:**
  Use the front-panel push buttons to independently switch the peripheral ports between the primary and secondary computers.
- **Built-in Flexibility:**
  The Mini-Matrix has multiple built-in presets to accommodate a wide range of setups, including additional displays and single- or dual-head computers.
- **Ultra-High-Definition Displays:**
  Display all screens at 4K 60Hz UHD 4:4:4 resolution.

INTRODUCTION

Features Exclusive to Secure Models:

- **NIAP Common Criteria PP4.0 Compliant:**
  HSL's Secure Mini-Matrix models qualify to the latest NIAP Common Criteria Protection Profile version 4.0 (PP4.0) certification for Peripheral Sharing Devices (PSD).
- **Prevent information leaks:**
  Prevent threats derived from sharing and switching of vulnerable, untrusted, or unauthorized peripheral devices. Block peripheral exploits, information leaks, eavesdropping, signal transmissions, computer malware. Prevent hardware and firmware tampering attacks by enforcing multi-layered security mechanisms.
- **Filter USB Peripherals:**
  Block unauthorized USB devices while allowing secure switching of smart card and biometric authentication devices between computers. Whitelist and blacklist specific USB devices based on VID/PID characteristics.

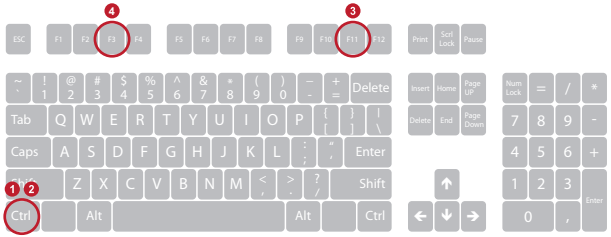
Features Exclusive to Commercial Models:

- **Copy & Paste:**
  Transfer text and files between computers connected to the Mini-Matrix, with no network connection needed between parties.
- **USB 3.0 Support:**
  Connect any USB peripheral device and use the full speed of USB 3.0.
- **Express USB Charging:**
  Rapidly charge USB devices connected to the Mini-Matrix's high-power USB port.

INTRODUCTION

Keyboard Hotkeys

The interface to operate the Mini-Matrix uses keyboard hotkeys that can be entered at any time. These hotkeys are based on a QWERTY keyboard layout. For example, to enter the key combination **Ctrl | Ctrl | F11 | F3**, press the keys in the locations below, regardless of the keyboard layout used:



Keyboard Hotkey Terms

- **|** Separates keys pressed in sequential order. For example, to switch to Preset **F3**, the key combination is two presses of the **Ctrl** key, one press of the **F11** key, and one press of the **F3**, so the combination is shown as **Ctrl | Ctrl | F11 | F3**.
- **+** Press two buttons simultaneously. For example, to temporarily switch to Absolute Mouse Navigation, press and hold **LCtrl + LShift**.
- **[1…]** A range of selectable numbers, such as channels. For example, to select one of the Presets on the Mini-Matrix, enter the combination **Ctrl | Ctrl | F11| [F1...F10]**.

Notes:

- Always use the left Control key (**LCtrl**) unless otherwise specified.
- Do not use the numeric pad for number keys, unless otherwise specified.
- All hotkey combinations are configured using a QWERTY keyboard. When using a non-QWERTY keyboard, use the key location corresponding to the QWERTY layout. For example, on an AZERTY keyboard where the **a** key is in the location of the **q** key on a QWERTY keyboard, the hotkey **Ctrl | Ctrl | q** would be entered as **Ctrl | Ctrl | a**.

Specifications

Secure Models

Part Number	SX42PH/PHU-4	SX82PH/PHU-4	SX82PHU-4T
Number of Sources	4	8	8
Console Ports			
Displays	2 x DP/HDMI	2 x DP/HDMI	2 x DP/HDMI
Max Output Resolution	UHD 4K resolutions up to 3840x2160 @ 60 Hz	UHD 4K resolutions up to 3840x2160 @ 60 Hz	UHD 4K resolutions up to 3840x2160 @ 60 Hz
Mouse and Keyboard	USB Type A	USB Type A	USB Type A
Audio Jack	3.5mm Jack	3.5mm Jack	3.5mm Jack
fUSB Port	USB Type A (U)	USB Type A (U)	USB Type A
Computer Ports			
Display Type	4 x DP/HDMI	8 x DP/HDMI	8 x DP/HDMI
Max Resolution	UHD 4K resolutions up to 3840x2160 @ 60 Hz	UHD 4K resolutions up to 3840x2160 @ 60 Hz	UHD 4K resolutions up to 3840x2160 @ 60 Hz
Mouse and Keyboard	USB Type B	USB Type B	USB Type B
Audio Jack	3.5mm Jack	3.5mm Jack	3.5mm Jack
fUSB Port	USB Type B (U)	USB Type B (U)	USB Type B
Physical			
Dimensions	342x148x42mm/13.4x5.8x1.6in	440x192x48mm/17.3x7.5x1.9in	440x192x48mm/17.3x7.5x1.9in
Weight	1.6kg/3.5lbs	2.6kg/5.7lbs	2.6kg/5.7lbs
Power			
Power Consumption	12V DC, 2.5A	35W Max	35W Max
AC Input	100 to 240V AC	100 to 240V AC	100 to 240V AC
Power Type	External	Internal	Internal
Environmental			
Operating Temperature	0°C to 40°C / 32°F to 104°F	0°C to 40°C / 32°F to 104°F	0°C to 40°C / 32°F to 104°F
Storage Temperature	-20°C to 60°C / -4°F to 140°F	-20°C to 60°C / -4°F to 140°F	-20°C to 60°C / -4°F to 140°F
Humidity	0%-80% RH, non-condensing	0%-80% RH, non-condensing	0%-80% RH, non-condensing
Certification			
Security	Certified for NIAP Common Criteria PP4.0 for Peripheral Sharing Devices (PSD)	Certified for NIAP Common Criteria PP4.0 for Peripheral Sharing Devices (PSD)	Compliant with NIAP Common Criteria PP4.0 for Peripheral Sharing Devices (PSD), TEMPEST Level B Compliant

Specifications

Commercial Models

Part Number	SX42HU-N	SX42PHU-N	SX82PHU-N
Number of Sources	4	4	8
Console Ports			
Displays	2 x HDMI 1.4	2 x DP/HDMI	2 x DP/HDMI
Max Output Resolution	UHD 4K resolutions up to 3840x2160 @ 60 Hz	UHD 4K resolutions up to 3840x2160 @ 60 Hz	UHD 4K resolutions up to 3840x2160 @ 60 Hz
Mouse and Keyboard	USB Type A	USB Type A	USB Type A
Audio Jack	3.5mm Jack	3.5mm Jack	3.5mm Jack
USB 3.0 Port	4xUSB Type A	4xUSB Type A	4xUSB Type A
Computer Ports			
Display Type	4 x HDMI 1.4	4 x DP/HDMI	8 x DP/HDMI
Max Resolution	UHD 4K resolutions up to 3840x2160 @ 60 Hz	UHD 4K resolutions up to 3840x2160 @ 60 Hz	UHD 4K resolutions up to 3840x2160 @ 60 Hz
Mouse and Keyboard	USB Type B	USB Type B	USB Type B
Audio Jack	3.5mm Jack	3.5mm Jack	3.5mm Jack
Microphone Jack	3.5mm Jack	3.5mm Jack	n/a
USB 3.0 Port	USB Type B	USB Type B	USB Type B
Physical			
Dimensions	342x148x42mm/13.4x5.8x1.6in	342x148x42mm/13.4x5.8x1.6in	440x192x48mm/17.3x7.5x1.9in
Weight	1.3kg/2.8lbs	1.3kg/2.8lbs	2.6kg/5.7lbs
Power			
Power Consumption	12V DC, 2.5A	12V DC, 2.5A	35W Max
AC Input	100 to 240V AC	100 to 240V AC	100 to 240V AC
Power Type	External	External	External

INSTALLATION

Before Installation

Before opening the product's sealed packaging, inspect the seal's condition to verify that the product was not accessed or tampered with during delivery. If the packaging seal looks suspicious, contact HSL support and do not use the product.

Tamper-Evident Label

The Mini-Matrix uses a holographic tamper-evident label to provide visual indications in case of enclosure intrusion attempts. These labels display white dots or the text "VOID", once removed. When opening the product's packaging, inspect the tampering evident label.

Once the Mini-Matrix is removed from its packaging materials, carefully inspect the tamper-evident label to verify that the product is properly sealed. If the label is damaged or missing, contact HSL support and do not use the product.

HSL Holographic Tamper-Evident Label

Active Anti-Tampering

The Mini-Matrix is equipped with an always-on active anti-tampering system. If mechanical intrusion is detected by this system, the switch is permanently disabled and the LED blinks continuously.

If the product indicates a tampered state (all LEDs blinking), contact HSL Technical Support and do not use the product.

INSTALLATION

Package Contents

Once the packaging for the Mini-Matrix is opened, inspect the contents of the package to make sure all components are included.

Model	Contents	Qty
SX42PH/PHU-4	Secure 4P to 2P DP/HDMI Video KVM Mini-Matrix w/fUSB, PP4.0	1
	12V Power Supply	1
SX82PH/PHU-4	Secure 8P to 2P DP/HDMI Video KVM Mini-Matrix w/fUSB, PP4.0	1
	Rack Mount Kit	1
	Adapters Kit- Plugs UK/USA/AU/EU to ERC230/C13	1
	C13 Female to C14 Male Power Cable	1
SX82PHU-4T	Secure 8P to 2P DP/HDMI Video KVM Mini-Matrix w/fUSB, PP 4.0 and TEMPEST Level B	1
	Rack Mount Kit	1
	Adapters Kit- Plugs UK/USA/AU/EU to ERC230/C13	1
	C13 Female to C14 Male Power Cable	1
SX42HU-N	Commercial 4P to 2P HDMI Video KVM Mini-Matrix w/sUSB	1
	C13 Power Cable	1
SX42PHU-N	Commercial 4P to 2P DP/HDMI Video KVM Mini-Matrix w/sUSB	1
	Adapters Kit- Plugs UK/USA/AU/EU to ERC230/C13	1
	C13 Female to C14 Male Power Cable	1
SX82PHU-N	Commercial 8P to 2P DP/HDMI Video KVM Mini-Matrix w/sUSB	1
	Rack Mount Kit	1
	Adapters Kit- Plugs UK/USA/AU/EU to ERC230/C13	1
	C13 Female to C14 Male Power Cable	1

Cable Installation

Step 1 – Connect the Console Port Peripherals

- Connect the video displays to the Mini-Matrix primary and secondary display ports.

Note: It is highly recommended to use identical primary and secondary display models. EDID information is taken from the primary console display port (#1) and sent to all connected computers. When using non-identical displays, connect the lower resolution display to the primary console display port.

- Connect keyboard, mouse, and audio peripherals to the Mini-Matrix console ports. These are shared securely between all sources.

Note: The Mini-Matrix's mouse and keyboard USB A ports support only USB HID keyboards and mice. These ports will not support non-standard keyboards, keyboards with USB hubs or other USB-integrated devices, or other USB devices apart from keyboards and mice.

- To support user authentication across multiple isolated sources, connect a smartcard/biometric reader such as HSL's Multi-Domain Reader to the Mini-Matrix's console fUSB secure port.

Step 2 – Connect the Source Port Peripherals

- For each source, connect the video, keyboard, mouse, fUSB, and audio cables to the Mini-Matrix's corresponding source ports.

To receive dual-screen support in MS-Windows OS, download and install HSL's multi-display driver on source computers that have multiple screens (https://highseclabs.com/downloads/km-multi-display-drivers/).

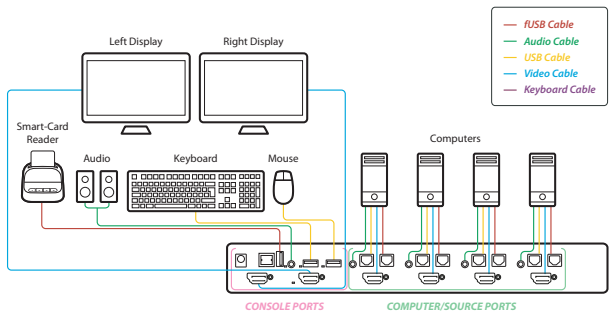


Fig 1: *Cable Installation of a Secure 4-Port Mini-Matrix*

INSTALLATION

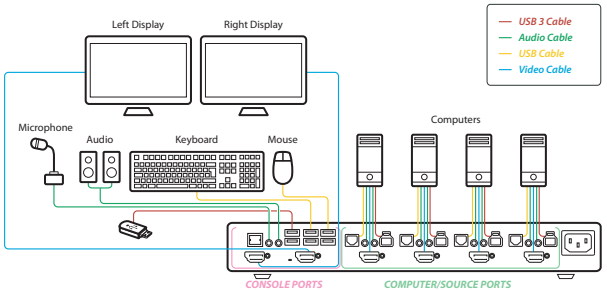


***Fig 2**: Cable Installation of a Commercial 4-Port Mini-Matrix*

Step 3 – Power On the Mini-Matrix

- Power ON all PCs connected to the Mini-Matrix.
- Connect the power supply and power ON the Mini-Matrix (approximate boot time is 10 seconds).

Note: Use only the power supply provided with the Mini-Matrix. If this power supply fails, contact HSL Support to order a replacement.

- The Mini-Matrix boots into Duplicate Mode, where the video of PC #1 is presented on both displays.

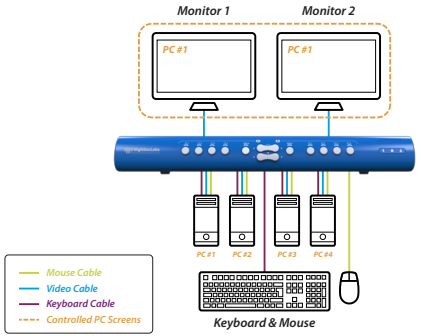


***Fig 3**: KVM Mini-Matrix system booting up with video of PC #1 presented on both displays.*

Note: If no picture is presented after powering ON, switch between the primary and secondary displays, or connect an alternate display, or perform a reset to factory default.

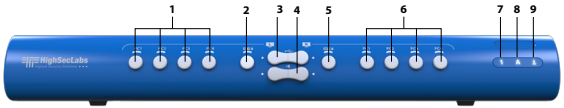
INSTALLATION

Step 4 – System Reset

Performing a system reset restores the device to its factory default configuration. This clears previously stored behavioral characteristics such as mouse settings and display presets. To perform a system reset, enter the key combination **LCtrl | LCtrl | F11 | r** (see "Keyboard Hotkeys" on Page 4).

Display and Control Options

Display and control options define which source to display and control on each screen.



1 No. 1-4 Computer No. 1 display Push-Button
2 Keyboard and Mouse toggle
3 fUSB Freeze toggle
4 Audio Freeze toggle
5 Keyboard and Mouse toggle
6 No. 1-4 Computer No. 2 display Push-Button
7 Num Lock LED
8 Caps Lock LED
9 Scroll Lock LED

***Fig 4**: Front panel of a secure 4-port Mini-Matrix*

- Use the source selection panels to choose which source to display on each screen.
- The left panel controls which source to display on the primary display, while the right panel controls the secondary display. For example, as seen in the illustration, when #1 is selected on the primary panel and #3 is selected on the secondary panel, the selected sources are presented accordingly.
- A source can be duplicated by selecting its number on both panels.
- By default, the mouse, keyboard, audio, and USB peripherals all follow the display association.
- Use the Keyboard/mouse, USB, and Audio Freeze toggles to independently switch the peripheral ports between the primary and secondary computers. This is useful for various scenarios, such as being able to work on one computer while listening to audio from another.
- Additional options are described in the Presets section.

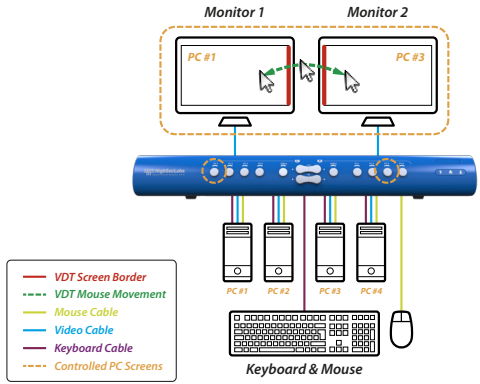


***Fig 5**: Absolute Mouse Mode using VDT to move the mouse cursor between displays*

Mouse Navigation Options

The Mini-Matrix has two options for navigating with a mouse:

- **Relative Mouse (REL):** Relative Mouse Mode confines mouse movement to the selected source's channel. While REL Mode is active, switching channels can be done by using the buttons on the Mini-Matrix's front panel. REL Mode is the default mode upon booting up, and can also be enabled by entering the key combination **LCtrl | LCtrl | F11 | b**.
- **Absolute Mouse (ABS):** Absolute Mouse Mode uses Virtual Display Technology (VDT) to switch seamlessly between sources, simply by moving the cursor across the borders between channels. Depending on the chosen configuration of displays, the VDT mouse cursor movement axis can be either horizontal (where the cursor moves across screens arranged left-to-right) or vertical (where the cursor moves across screens arranged top-to-bottom). ABS Mode can be toggled by entering **Ctrl | Ctrl | F11 | c**, or temporarily enabled from Relative Mouse Mode by holding **Lctrl + LShift**.
  - **ABS Mouse Safety Trigger:** By default on secure models, hold down the **LCtrl** key to switch between channels while in ABS Mode. This prevents uncontrolled switching between source computers.

Copy and Paste (Commercial Models Only)

HSL's Commercial Mini-Matrix models can transfer text or files between connected computers by using the HSL Copy and Paste Tool. To do this, download and install the latest version of the Tool on all connected computers. The Copy and Paste Tool can be found here: https://highseclabs.com/solutions/copypaste/

To enable Copy and Paste, open Notepad on the desired source PC. Then, enter Terminal Mode on the Mini-Matrix by entering **LCtrl | RCtrl | t**. Once Terminal Mode is opened, enter **LCtrl | RCtrl | q**.

Note: The Mini-Matrix will not provide indication that Copy & Paste has been enabled. To confirm it is enabled, open the Device Manager on the source PC and confirm that a new COM port has been created.

This procedure must be performed on each individual source PC on which Copy and Paste is to be enabled.

For further information regarding Terminal Mode, consult the HSL Administrator Guide, which can be found here: https://highseclabs.com/dow_type/admin-guidance/

Predefined Display Layouts (Presets)

The Mini-Matrix has multiple built-in presets, which are predefined layouts reflecting the location and borders of all displayed channels. These presets are designed with the most common multi-computer workflows in mind, allowing easy access to an ideal layout.

Presets enable the Mini-Matrix to correctly associate the mouse with each source, based on the physical display positioning and the respective number of displays associated with each source. This also allows cursor navigation that can switch control between PCs, by moving the mouse cursor across display borders.

Each preset can be selected at any time by entering the key combination **LCtrl | LCtrl | F11 | [F1…F10]**, where **F1** indicates Preset 1, **F2** indicates Preset 2, and so on.

4-Port Preset 1 (Default Configuration)

Ctrl | Ctrl | F11 | F1

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 4 single-display sources (PCs #1-4) are connected to the Mini-Matrix's source ports 1-4.
- Monitors 1 and 2 are arranged horizontally, with the primary display (Monitor 1) on the left and the secondary display (Monitor 2) on the right.
- The VDT mouse cursor movement axis is horizontal.

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on each screen. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1
  - Button 2: PC #2
  - Button 3: PC #3
  - Button 4: PC #4
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 by moving horizontally across the channel borders.

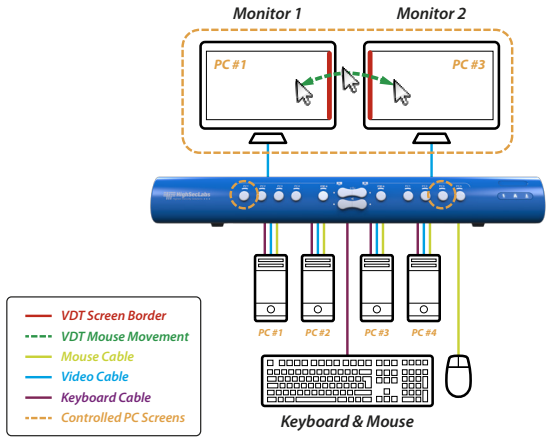


***Fig 6**: 4-Port Preset 1*

4-Port Preset 2

Ctrl | Ctrl | F11 | F2

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 4 single-display sources (PCs #1-4) are connected to the Mini-Matrix's source ports 1-4.
- Monitors 1 and 2 are arranged vertically, with the primary display (Monitor 1) on the bottom and the secondary display (Monitor 2) on the top.
- The VDT mouse cursor movement axis is vertical.

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on each screen. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1
  - Button 2: PC #2
  - Button 3: PC #3
  - Button 4: PC #4
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 by moving vertically across the channel borders.

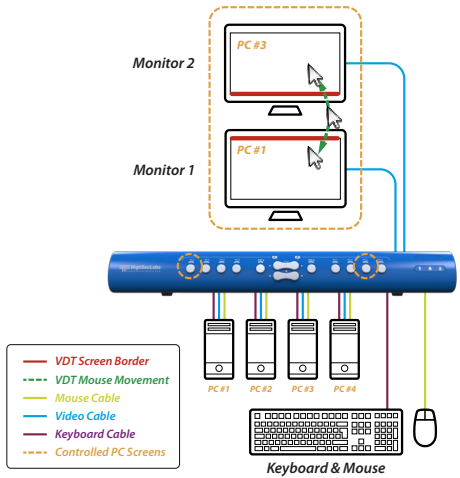


Fig 7: *4-Port Preset 2*

4-Port Preset 3

Ctrl | Ctrl | F11 | F3

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 1 video display (Monitor 3) is not connected to the Mini-Matrix.
- 1 dual display source (PC #1) is connected to Monitor 3 and to the Mini-Matrix's source port 1, with the primary screen (configured in the PC's display options) connected to Monitor 3 and the secondary screen connected to the Mini-Matrix's source port 1.
- Three single-display sources (PCs#2, 3, and 4) are connected to the Mini-Matrix's source ports 2, 3, and 4.
- All video displays are aligned horizontally so that the primary screen of PC#1 (Monitor 3) is on the left, the Mini-Matrix's primary screen (Monitor 1) is in the middle, and the Mini-Matrix's secondary screen (Monitor 2) is on the right.
- The VDT mouse cursor movement axis is horizontal.

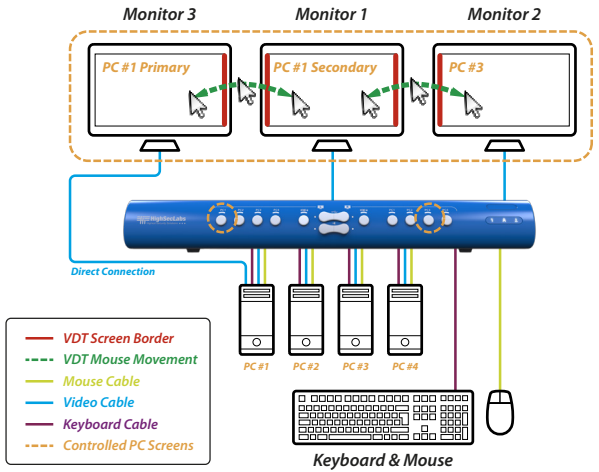


***Fig 8**: 4-Port Preset 3*

OPERATION - PRESETS FOR 4-PORT MINI-MATRIX

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on each screen. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1 secondary screen
  - Button 2: PC #2
  - Button 3: PC #3
  - Button 4: PC #4
- Monitor 3 only displays the primary screen of PC #1.
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1, 2, and 3 by moving horizontally across the channel borders.

Note: Any externally connected display should have the same native resolution as the primary display connected directly to the Mini-Matrix.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

OPERATION - PRESETS FOR 4-PORT MINI-MATRIX

4-Port Preset 4

Ctrl | Ctrl | F11 | F4

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 1 video display (Monitor 3) is not connected to the Mini-Matrix.
- 1 dual display source (PC #4) is connected to Monitor 3 and to the Mini-Matrix's source port 4, with the primary screen (configured in the PC's display options) connected to Monitor 3 and the secondary screen connected to the Mini-Matrix's source port 4.
- Three single-display sources (PCs#1, 2, and 3) are connected to the Mini-Matrix source ports 1, 2, and 3.
- All video displays are aligned horizontally so that the Mini-Matrix's primary screen (Monitor 1) is on the left, the Mini-Matrix's secondary screen (Monitor 2) is in the middle, and the primary screen of PC #4 (Monitor 3) is on the right.
- The VDT mouse cursor movement axis is horizontal.

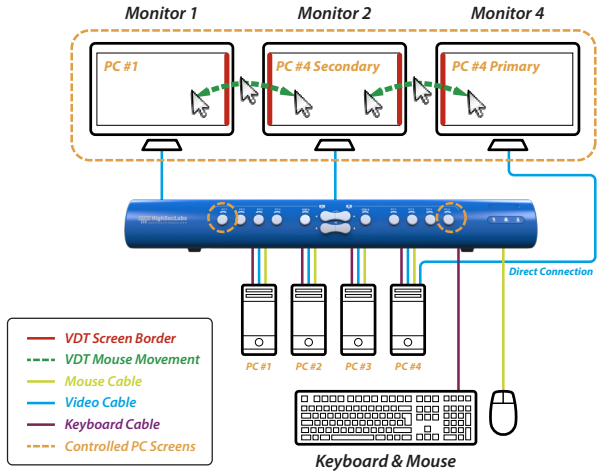


***Fig 9**: 4-Port Preset 4*

OPERATION - PRESETS FOR 4-PORT MINI-MATRIX

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on each screen. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1
  - Button 2: PC #2
  - Button 3: PC #3
  - Button 4: PC #4 secondary screen
- Monitor 3 displays only the primary screen of PC #4.
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1, 2, and 3 by moving horizontally across the channel borders.

Note: Any externally connected display should have the same native resolution as the primary display connected directly to the Mini-Matrix.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

4-Port Preset 5

Ctrl | ***Ctrl*** | ***F11*** | ***F5***

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 2 video displays (Monitors 3 and 4) are not connected to the Mini-Matrix.
- 1 dual display source (PC #1) is connected to Monitor 3 and to the Mini-Matrix's source port 1, with the primary screen (configured in the PC's display options) connected to Monitor 3 and the secondary screen connected to the Mini-Matrix's source port 1.
- 1 dual display source (PC #2) is connected to Monitor 4 and to the Mini-Matrix's source port 4, with the primary screen (configured in the PC's display options) connected to Monitor 4 and the secondary screen connected to the Mini-Matrix's source port 4.
- Two single-display sources (PCs #2 and #3) are connected to the Mini-Matrix's source ports 2 and 3.
- All displays/monitors are aligned horizontally so that the primary screen of PC #1 (Monitor 3) is on the left, right, the primary and secondary screens of the Mini-Matrix (Monitors 1 and 2) are in the middle, and the primary screen of PC #4 (Monitor 4) is on the right.
- The VDT mouse cursor movement axis is horizontal.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

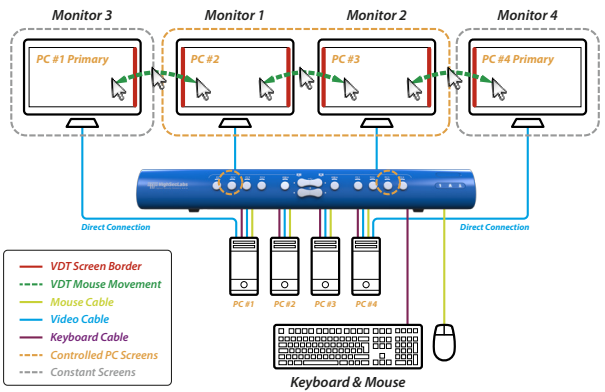


***Fig 10**: 4-Port Preset 5*

OPERATION - PRESETS FOR 4-PORT MINI-MATRIX

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on Monitors 1 and 2. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1 secondary screen
  - Button 2: PC #2
  - Button 3: PC #3
  - Button 4: PC #4 secondary screen
- Monitors 3 and 4 only display the primary screens of PCs# 1 and 4, respectively.
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1-4 by moving horizontally across the channel borders.

Note: Any externally connected display should have the same native resolution as the primary display connected directly to the Mini-Matrix.

4-Port Preset 6

Ctrl | Ctrl | F11 | F6

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 1 dual display source (PC #1) is connected to the Mini-Matrix's source ports 1 and 2, with the primary screen (configured in the PC's display options) connected to port 1.
- 1 dual display source (PC #2) is connected to the Mini-Matrix's source ports 3 and 4, with the primary screen (configured in the PC's display options) connected to port 3.
- Monitors 1 and 2 are arranged vertically, with the primary display (Monitor 1) on the bottom and the secondary display (Monitor 2) on the top.
- The VDT mouse cursor movement axis is vertical.

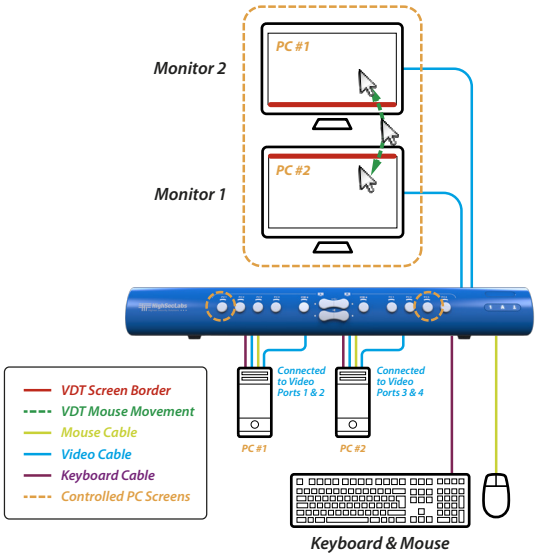


***Fig 11**: 4-Port Preset 6*

OPERATION - PRESETS FOR 4-PORT MINI-MATRIX

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on Monitors 1 and 2. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1 primary screen
  - Button 2: PC #1 secondary screen
  - Button 3: PC #2 primary display
  - Button 4: PC #2 secondary display
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 by moving vertically across the channel borders.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

4-Port Preset 7

Ctrl | Ctrl | F11 | F7

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 1 dual display source (PC #1) is connected to the Mini-Matrix's source ports 1 and 2, with the primary screen (configured in the PC's display options) connected to port 1.
- 1 dual display source (PC #2) is connected to the Mini-Matrix's source ports 3 and 4, with the primary screen (configured in the PC's display options) connected to port 3.
- Monitors 1 and 2 are arranged horizontally, with the primary display (Monitor 1) on the left and the secondary display (Monitor 2) on the right.
- The VDT mouse cursor movement axis is horizontal.

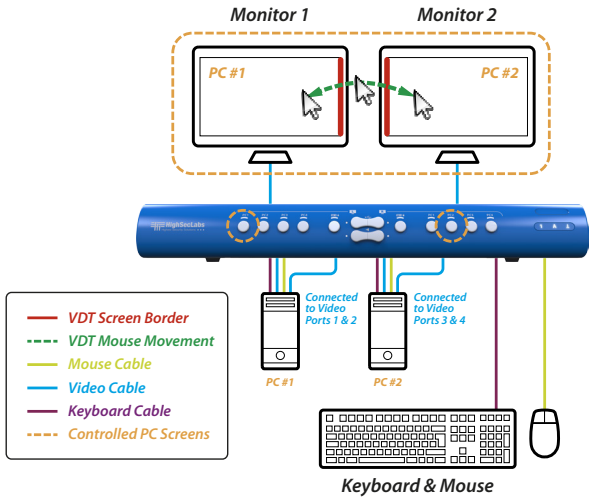


Fig 12: *4-Port Preset 7*

OPERATION - PRESETS FOR 4-PORT MINI-MATRIX

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on Monitors 1 and 2. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1 primary screen
  - Button 2: PC #1 secondary screen
  - Button 3: PC #2 primary screen
  - Button 4: PC #2 secondary screen
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 by moving horizontally across the channel borders.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

4-Port Preset 8

Ctrl | Ctrl | F11 | F8

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 2 single-display sources (PCs #1 and 2) are connected to the Mini-Matrix's source ports 1 and 2.
- 1 dual-display source (PC #3) is connected to the Mini-Matrix's source ports 3 and 4, with the primary screen (configured in the PC's display settings) connected to port 3 and the secondary screen connected to Port 4.
- Monitors 1 and 2 are arranged horizontally, with the primary display (Monitor 1) on the left and the secondary display (Monitor 2) on the right.
- The VDT mouse cursor movement axis is horizontal.

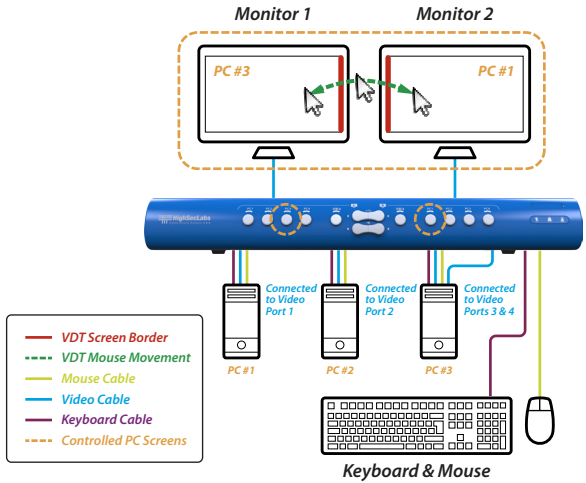


Fig 13: *4-Port Preset 8*

OPERATION - PRESETS FOR 4-PORT MINI-MATRIX

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on Monitors 1 and 2. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1
  - Button 2: PC #2
  - Button 3: PC #3 primary screen
  - Button 4: PC #3 secondary screen
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 by moving horizontally across the channel borders.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

4-Port Preset 9

Ctrl | Ctrl | F11 | F9

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 2 single-display sources (PCs #2 and #3) are connected to the Mini-Matrix's source ports 3 and 4.
- 1 dual-display source (PC #1) is connected to the Mini-Matrix's source ports 1 and 2, with the primary screen (configured in the PC's display settings) connected to port 1 and the secondary screen connected to Port 2.
- Monitors 1 and 2 are arranged horizontally, with the primary display (Monitor 1) on the left and the secondary display (Monitor 2) on the right.
- The VDT mouse cursor movement axis is horizontal.

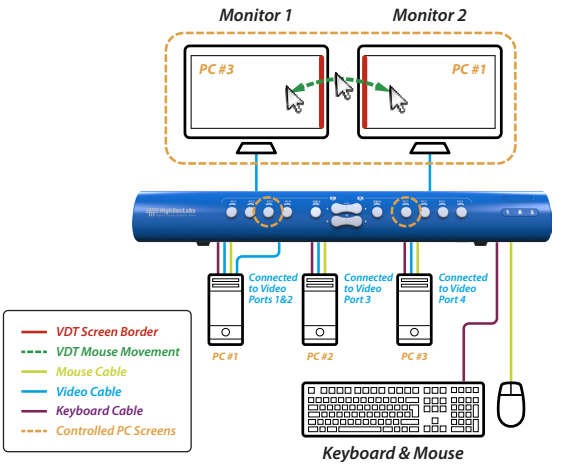


***Fig 14**: 4-Port Preset 9*

OPERATION - PRESETS FOR 8-PORT MINI-MATRIX

Operation:

- Use the source selection panel to choose which combination of sources to display:
  - Button 1: PC#1 primary screen
  - Button 2: PC #1 secondary screen
  - Button 3: PC #2
  - Button 4: PC #3
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 by moving horizontally across the channel borders.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

4-Port Preset 10

Ctrl | Ctrl | F11 | F10

Setup:

- 1 video display (Monitor 2) is connected to the Mini-Matrix's primary console port.
- 1 video display (Monitor 1) is not connected to the Mini-Matrix
- 3 single-display sources (PCs #2,3, and 4) are connected to the Mini-Matrix's source ports 2, 3, and 4.
- 1 dual display source (PC #1) is connected to Monitor 1 and to the Mini-Matrix's source port 1, with the primary screen (configured in the PC's display options) connected to Monitor 1 and the secondary screen connected to the Mini-Matrix's source port 1.
- Monitors 1 and 2 are arranged horizontally, with the PC #1 display (Monitor 1) on the left and the Mini-Matrix's primary display (Monitor 2) on the right.
- The VDT mouse cursor movement axis is horizontal.

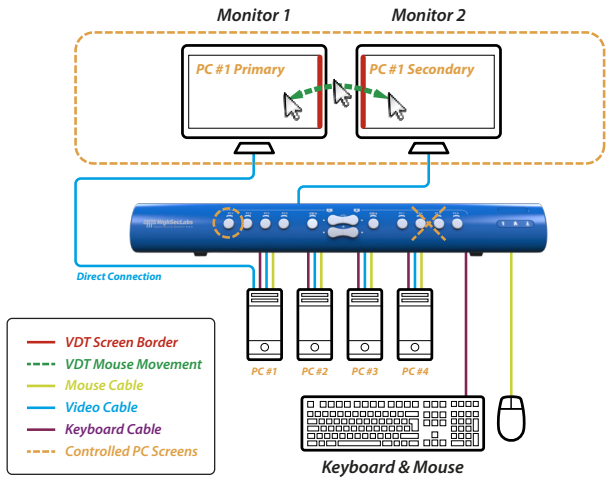


Fig 15: *4-Port Preset 10*

OPERATION - PRESETS FOR 8-PORT MINI-MATRIX

Operation:

- Use the left side of the source selection panel to switch between sources on Monitor 1.
  - Button 1: PC #1 secondary screen
  - Button 2: PC #2
  - Button 3: PC #3
  - Button 4: PC #4
  - The right side of the source selection panel is disabled.
- Monitor 2 displays only the primary video display of PC #1.
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 by moving horizontally across the channel borders.

Note: Any externally connected display should have the same native resolution as the primary display connected directly to the Mini-Matrix.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

OPERATION - PRESETS FOR 8-PORT MINI-MATRIX

8-Port Preset 1 (Default Configuration)

Ctrl | Ctrl | F11 | F1

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 8 single-display sources (PCs #1-8) are connected to the Mini-Matrix's source ports 1-8.
- Monitors 1 and 2 are arranged horizontally, with the primary display (Monitor 1) on the left and the secondary display (Monitor 2) on the right.
- The VDT mouse cursor movement axis is horizontal.

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on each screen. The left panel controls which computer to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1
  - Button 2: PC #2
  - Button 3: PC #3
  - Button 4: PC #4
  - Button 5: PC #5
  - Button 6: PC #6
  - Button 7: PC #7
  - Button 8: PC #8
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 by moving horizontally across the channel borders.

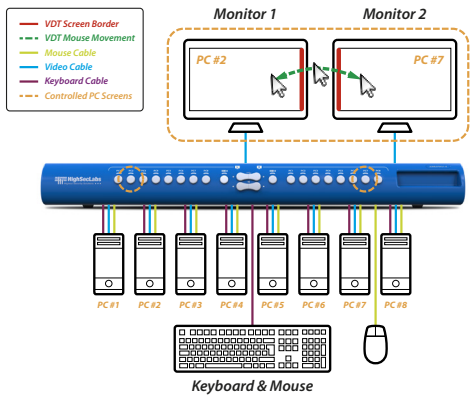


***Fig 16**: 8-Port Preset 1*

OPERATION - PRESETS FOR 8-PORT MINI-MATRIX

8-Port Preset 2

Ctrl | Ctrl | F11 | F2

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 8 single-display sources (PCs #1-8) are connected to the Mini-Matrix's source ports 1-8.
- Monitors 1 and 2 are arranged vertically, with the primary display (Monitor 1) on the bottom and the secondary display (Monitor 2) on the top.
- The VDT mouse cursor movement axis is vertical.

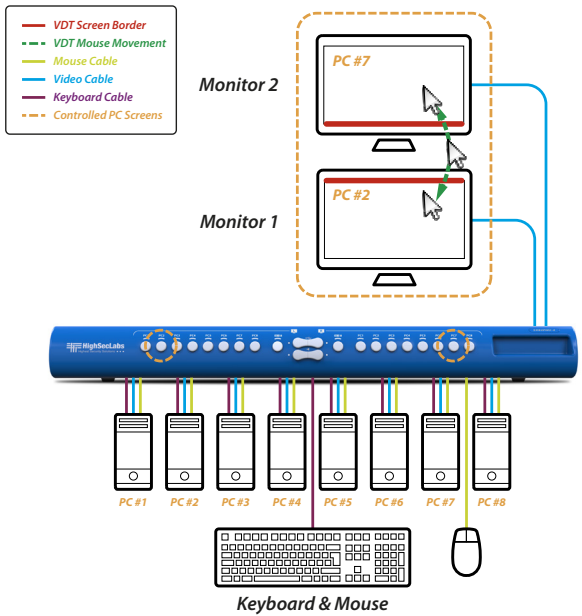


***Fig 17**: 8-Port Preset 2*

OPERATION - PRESETS FOR 8-PORT MINI-MATRIX

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on each screen. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1
  - Button 2: PC #2
  - Button 3: PC #3
  - Button 4: PC #4
  - Button 5: PC #5
  - Button 6: PC #6
  - Button 7: PC #7
  - Button 8: PC #8
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 by moving vertically across the channel borders.

8-Port Preset 3

Ctrl | Ctrl | F11 | F3

Setup:

- Two video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 1 dual-display source (PC #1) is connected to the Mini-Matrix's source ports 1 and 2, with the primary screen (configured in the PC's display settings) connected to port 1 and the secondary screen connected to Port 2.
- 6 single-display sources (PCs#2-7) are connected to the Mini-Matrix's source ports 3-8.
- Monitors 1 and 2 are arranged horizontally, with the primary display (Monitor 1) on the left and the secondary display (Monitor 2) on the right.
- The VDT mouse cursor movement axis is horizontal.

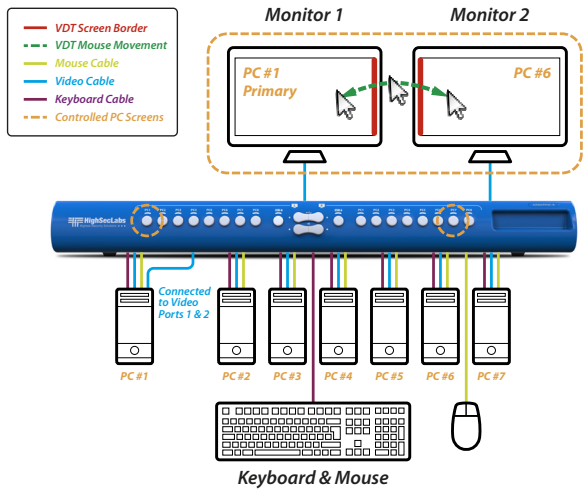


***Fig 18**: 8-Port Preset 3*

OPERATION - PRESETS FOR 8-PORT MINI-MATRIX

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on each screen. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1 primary screen
  - Button 2: PC #1 secondary screen
  - Button 3: PC #2
  - Button 4: PC #3
  - Button 5: PC #4
  - Button 6: PC #5
  - Button 7: PC #6
  - Button 8: PC #7
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 by moving horizontally across the channel borders.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

8-Port Preset 4

Ctrl | Ctrl | F11 | F4

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 2 video displays (Monitors 3 and 4) are not connected to the Mini-Matrix.
- 1 dual-display source (PC #1) is connected to the Mini-Matrix's source ports 1 and 2, with the primary screen (configured in the PC's display settings) connected to port 1 and the secondary screen connected to Port 2.
- 1 single-display source (PC #6) is connected to the Mini-Matrix's keyboard/mouse port 7 and connected via video directly to Monitor 3.
- 1 single-display source (PC #7) is connected to the Mini-Matrix's keyboard/mouse port 8 and connected via video directly to Monitor 4.
- Four single-display sources (PCs #2, 3, 4, and 5) are connected to the Mini-Matrix's source ports 3, 4, 5, and 6.
- Monitors 1 and 2 are aligned horizontally so the Mini-Matrix's primary display (Monitor 1) is on the left, and the secondary display (Monitor 2) is on the right. Monitor 3 is aligned vertically above Monitor 1. Monitor 4 is aligned vertically above Monitor 2 and right of Monitor 3.
- The VDT mouse cursor movement has 2 horizontal axes, between Monitors 1 and 2 and between Monitors 3 and 4.
- The VDT mouse cursor movement has 2 vertical axes, between Monitors 1 and 3 and between Monitors 2 and 4.

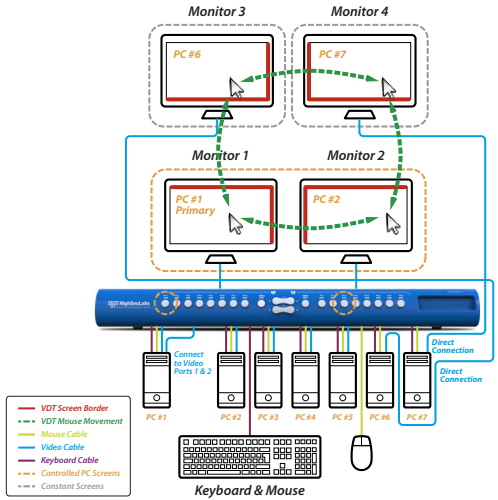


***Fig 19**: 8-Port Preset 4*

OPERATION - PRESETS FOR 8-PORT MINI-MATRIX

Operation:

Use the source selection panels on the front of the Mini-Matrix to choose which source to display on Monitors 1 and 2. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.

- Button 1: PC #1 primary screen
- Button 2: PC #1 secondary screen
- Button 3: PC #2
- Button 4: PC #3
- Button 5: PC #4
- Button 6: PC #5
- Button 7: Mouse/Keyboard, Audio, and USB of PC #6
- Button 8: Mouse/Keyboard, Audio, and USB of PC #7

- Monitors 3 and 4 only display the primary video displays of PCs #6 and 7, respectively.
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 or 3 and 4 by moving horizontally across the channel borders. The mouse also switches between Monitors 1 and 3 or 2 and 4 by moving vertically across the channel borders.

Note: Any externally connected display should have the same native resolution as the primary display connected directly to the Mini-Matrix.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

8-Port Preset 5

Ctrl | Ctrl | F11 | F5

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 1 video display (Monitor 3) is not connected to the Mini-Matrix.
- 1 dual-display source (PC #1) is connected to the Mini-Matrix's source ports 1 and 2, with the primary screen (configured in the PC's display settings) connected to port 1 and the secondary screen connected to Port 2.
- 1 single-display source (PC #7) is connected to the Mini-Matrix's keyboard/mouse port 8 and connected via video directly to Monitor 3.
- 5 single-display sources (PCs #2, 3, 4, 5, and 6) are connected to the Mini-Matrix's source ports 3, 4, 5, 6, and 7.
- The Monitors are arranged horizontally, with the primary display (Monitor 1) on the left, the secondary display (Monitor 2) in the center, and Monitor 3 on the right.
- The VDT mouse cursor movement axis between Monitors 1-3 is horizontal.

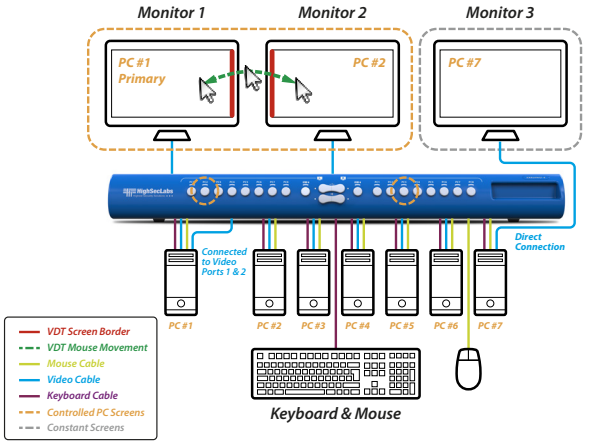


***Fig 20**: 8-Port Preset 5*

OPERATION

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on Monitors 1 and 2. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1 primary screen
  - Button 2: PC #1 secondary screen
  - Button 3: PC #2
  - Button 4: PC #3
  - Button 5: PC #4
  - Button 6: PC #5
  - Button 7: PC #6
  - Button 8: mouse/keyboard, audio, and USB of PC #7.
- Monitor 3 displays only the primary video display of PC #7.
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1-3 by moving horizontally across the channel borders.

Note: Any externally connected display should have the same native resolution as the primary display connected directly to the Mini-Matrix.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

8-Port Preset 6

Ctrl | Ctrl | F11 | F6

Setup:

- 1 video display (Monitor 2) is connected to the Mini-Matrix's primary console port.
- 1 video display (Monitor 1) is connected directly to the PC #1 primary display adapter.
- 1 dual display source (PC #1) is connected to Monitor 1 and to the Mini-Matrix's source port 1, with the primary screen (configured in the PC's display options) connected to Monitor 1 and the secondary screen connected to the Mini-Matrix's source port 1.
- 7 single-display sources (PCs #2-8) are connected to the Mini-Matrix's source ports 2-8.
- Monitors 1 and 2 are aligned horizontally so that the primary screen of PC #1 (Monitor 1) is on the left, and the Mini-Matrix primary screen (Monitor 2) is on the right.
- The VDT mouse cursor movement axis between Monitors 1 and 2 is horizontal.

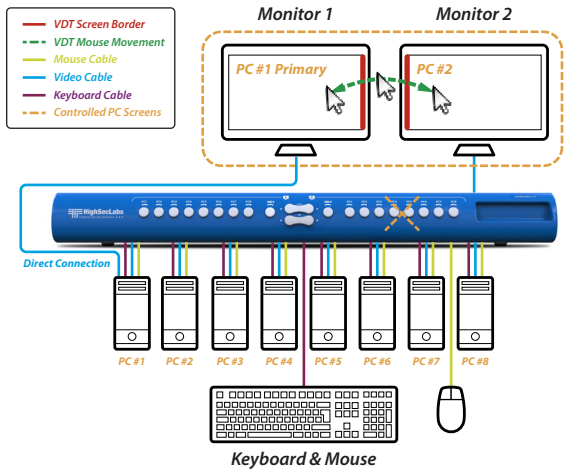


***Fig 21**: 8-Port Preset 6*

OPERATION

Operation:

- Use the left side of the source selection panel to switch between sources on the Mini-Matrix's primary display (Monitor 1).
  - Button 1: PC #1 secondary screen
  - Button 2: PC #2
  - Button 3: PC #3
  - Button 4: PC #4
  - Button 5: PC #5
  - Button 6: PC #6
  - Button 7: PC #7
  - Button 8: PC #8
  - The right side of the source selection panel is disabled.
- Monitor 2 displays only the primary video display of PC #1.
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 by moving horizontally across the channel borders.

Note: Any externally connected display should have the same native resolution as the primary display connected directly to the Mini-Matrix.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

8-Port Preset 7

Ctrl | Ctrl | F11 | F7

Setup:

- 1 video display (Monitor 1) is connected to the Mini-Matrix's primary console port.
- 1 video display (Monitor 2) is connected to the Mini-Matrix's secondary console port.
- 1 video display (Monitor 3) is not connected to the Mini-Matrix.
- 1 dual display source (PC #1) is connected to Monitor 3 and to the Mini-Matrix's source port 1, with the primary screen (configured in the PC's display options) connected to Monitor 3 and the secondary screen connected to the Mini-Matrix's source port 1.
- 8 single-display sources (PCs #2-8) are connected to the Mini-Matrix's source ports 2-8.
- All displays/monitors are aligned horizontally so that the primary screen of PC #1 (Monitor 3) is on the left, the Mini-Matrix's primary screen (Monitor 1) is in the middle, and the Mini-Matrix's secondary screen (Monitor 2) is on the right.
- The VDT mouse cursor movement axis between Monitors 1, 2, and 3 is horizontal.

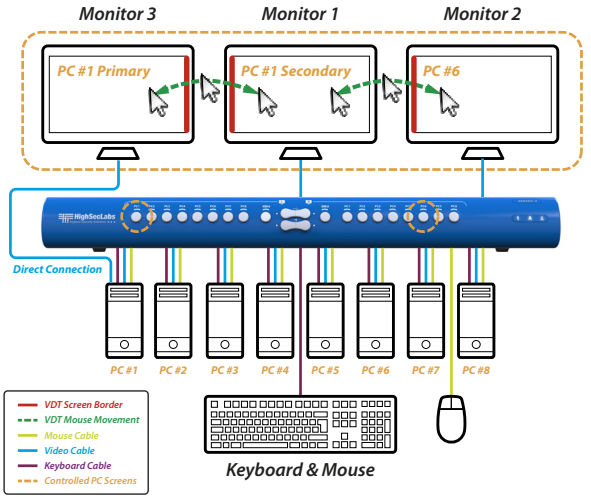


***Fig 22**: 8-Port Preset 7*

OPERATION

Operation:

- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on Monitors 1 and 2. The left panel controls which source to display on Monitor 1. The right panel controls Monitor 2.
  - Button 1: PC #1 secondary screen
  - Button 2: PC #2
  - Button 3: PC #3
  - Button 4: PC #4
  - Button 5: PC #5
  - Button 6: PC #6
  - Button 7: PC #7
  - Button 8: PC #8
- Monitor 3 displays only the primary video display of PC #1.
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1, 2, and 3 by moving horizontally across the channel borders.

KVM Mode Preset

LCtrl | RCtrl | m

(Applicable to 4-port and 8-port models)

Setup:

- 1 video display (Monitor 1) is connected to the Mini-Matrix's primary console port.
- 4/8 single-display sources (PCs #1-4/#1-8) are connected to the Mini-Matrix's source ports 1-4/1-8.

Operation:

- In this preset, the Mini-Matrix functions like a traditional KVM.
- Use the left side of the source selection panel to switch between sources on the Mini-Matrix's primary display (Monitor 1).
  - Button 1: PC #1
  - Button 2: PC #2
  - Button 3: PC #3
  - Button 4: PC #4
  - Button 5: PC #5
  - Button 6: PC #6
  - Button 7: PC #7
  - Button 8: PC #8
  - The right side of the source selection panel is disabled.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

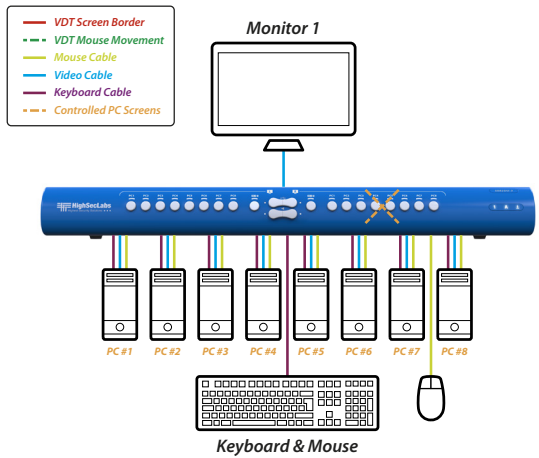


***Fig 23**: KVM Mode Preset*

Dual-Head KVM Mode Preset

Ctrl | Ctrl | F11 | d

(Applicable to 4-port and 8-port models)

Setup:

- 2 video displays (Monitors 1 and 2) are connected to the Mini-Matrix's primary and secondary console ports.
- 1 dual-display source (PC #1) is connected to the Mini-Matrix's source ports 1 and 2.
- 1 dual-display source (PC #2) is connected to the Mini-Matrix's source ports 3 and 4.
- On an 8-port model, up to 2 more dual-display sources (PC#s 3 and 4) are connected to the Mini-Matrix's source ports 5-6 and 7-8, respectively.
- The VDT mouse cursor movement axis between Monitors 1 and 2 is horizontal.

Operation:

- In this preset, the Mini-Matrix functions like a traditional dual-head KVM.
- Use the source selection panels on the front of the Mini-Matrix to choose which source to display on Monitors 1 and 2.
  - Button 1: PC#1 primary screen on Monitor 1, secondary screen on Monitor 2
  - Button 3: PC #2 primary screen on Monitor 1, secondary screen on Monitor 2

  On an 8-Port Mini-Matrix
  - Button 5: PC #3 primary screen on Monitor 1, secondary screen on Monitor 2
  - Button 7: PC #4 primary screen on Monitor 1, secondary screen on Monitor 2
- When using Absolute Mouse Mode, the mouse cursor switches between Monitors 1 and 2 by moving horizontally across the channel borders.

Note: Download and install HSL's Multi-Display Driver for source computers that have multiple screens. This is currently available only for Windows PCs, and can be found here: https://highseclabs.com/dow_type/drivers-tools/

OPERATION

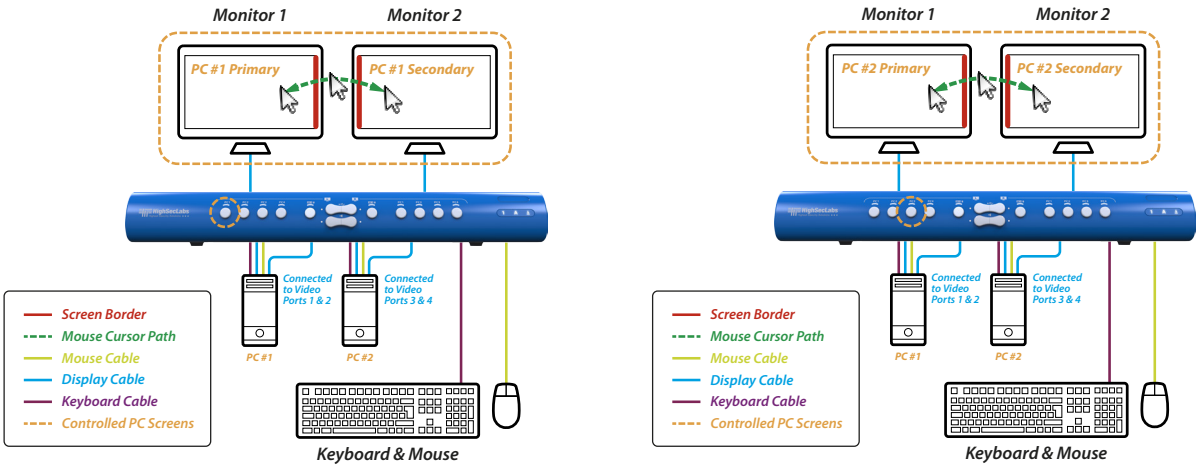


***Fig 24**: Dual-Head KVM Preset*

Uploading a Custom Preset

In addition to the Mini-Matrix's built-in presets, it is also possible to have a custom preset created and load it onto the Mini-Matrix. This is done using HSL's Mini-Matrix Loading Tool, which can be found here: https://highseclabs.com/downloads/matrix-loader/

Note: This manual provides instructions on uploading a custom preset file; to have a custom preset file created for a desired layout, please contact HSL Support: https://highseclabs.com/submit-support-case/

Hardware Requirements

- HSL Mini-Matrix
- PC running Windows 7 or higher
- Standard keyboard
- USB A-to-A cable

Software Requirements

- Custom Mini-Matrix XML configuration file, created by HSL support
- Mini-Matrix Loading Tool

Download the Required Software

- On the PC, download the Mini-Matrix Loading Tool, found at HSL's website: https://highseclabs.com/downloads/matrix-loader/
- The Mini-Matrix Loading Tool will appear in a compressed folder labeled "Matrix Loader" followed by the current version number.
- Right-click on the compressed folder and select "**Extract All**."
- Extract the Mini-Matrix Loading Tool to the Desktop or another convenient location on the PC.
- Contact HSL Support requesting a custom Mini-Matrix XML configuration file. HSL Support will create a file for the exact specifications of the desired preset.
- Download the custom preset file to the desktop or another convenient location on the PC.

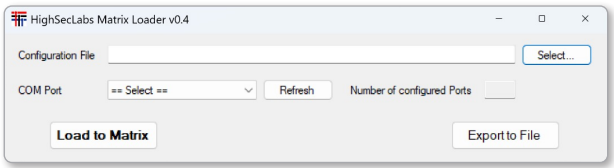
Connect the Mini-Matrix and PC

- Power ON the Mini-Matrix and PC.
- Use the USB A-to-A cable to connect the PC to the Mini-Matrix via the Mini-Matrix's console mouse port. Ensure no other devices are connected to the Mini-Matrix.
- Connect the keyboard to the Mini-Matrix's console keyboard port to enter keyboard commands directly to the Mini-Matrix.

OPERATION

Open the Mini-Matrix Loading Tool

- On the PC, navigate to the desktop or other location where the Mini-Matrix Loading Tool had been extracted.
- Double-click the program "MatrixLoader.exe."
- The Mini-Matrix Loading Tool will open.



Select the Custom Preset File

- Click **Select…** to select a file to load onto the Mini-Matrix.
- Select the custom preset file created by HSL support.
- In the drop-down menu labeled "**COM Port**," select the COM Port connected to the Mini-Matrix.

The correct COM Port can be located using the PC's Device Manager.

Note: Programs such as High Sec Labs' Copy & Paste Tool also connect via a COM port and will cause the Matrix Loader to time out. Make sure the PC is not running any other programs that connect via a COM port before proceeding.

Enter Loading Mode

- Using the keyboard connected to the Mini-Matrix, enter the key combination **LCtrl | RCtrl | l** to enter Loading Mode.
  - The Mini-Matrix's LEDs will begin flashing to indicate it is now in Loading Mode.

Load the Custom Preset File to the Mini-Matrix

- On the PC, click **Load to Matrix**.
  - While the configuration is loading, the field labeled "number of configured Ports" will populate automatically to 4 or 8.
- The Mini-Matrix's LEDs will flash to indicate the file has successfully loaded.

Reset the Mini-Matrix

- Disconnect the USB A-to-A cable between Mini-Matrix and the PC.
- Perform a power cycle on the Mini-Matrix by disconnecting and reconnecting the Mini-Matrix's power supply.

Note: Do not perform a system reset, as this will reset the Mini-Matrix to its factory defaults and clear the custom preset.

Apply the Custom Preset

- Using the keyboard connected to the Mini-Matrix, enter the key combination **LCtrl | LCtrl | F11 | F12** to apply the new settings.

Keyboard Shortcuts

Action	Keyboard Shortcut
Select Preset [1…10]	**Ctrl | Ctrl | F11 | [F1…F10]**
Select KVM Mode Preset	**LCtrl | RCtrl | m**
Select Dual-Head KVM Mode Preset	**Ctrl | Ctrl | F11 | d**
Activate Absolute Mouse Navigation	**Ctrl | Ctrl | F11 | c**
Activate Relative Mouse Navigation	**Ctrl | Ctrl | F11 | b**
Temporarily Activate Absolute Mouse Navigation	**Ctrl + Shift (Press and Hold)**
Enable/Disable Keyboard Shortcut Forwarding	**LCtrl | RCtrl | END**
Reset to Factory Defaults	**Ctrl | Ctrl | F11 | r**
Enable/Disable Copy & Paste (Commercial Models Only)	**LCtrl | RCtrl | q (in terminal of each host)**
Loading Custom Preset (Keyboard is connected directly to Mini-Matrix)	
Enter Loading State	**LCtrl | RCtrl | l**
Apply Custom Preset (External Loading)	**LCtrl | LCtrl | F11 | F12**

Remote Control Device Settings

The KVM Mini-Matrix can be controlled using an external remote control, PC, or any other device with RS-232 capability (referred to hereafter as the Remote Control Unit or RCU).

Connect the Controlling Device to the Mini-Matrix

- Connect the Remote Control Unit to the Mini-Matrix via the RJ14 port labeled RCU.
  - Some legacy models may have this port labeled as RDC (Remote Device Control).
  - It may be necessary to connect the devices using a USB to RJ14 cable (Part CUS18RJ, sold separately)
  - The specific method of connecting the RCU to the Mini-Matrix may vary depending on the type of device being used. For full instructions on how to connect a controlling device, consult the RS-232 Remote Control Administrator Guide, which can be found here: https://highseclabs.com/dow_type/admin-guidance/

Remote Control Commands

The buttons on an RCU replicate the buttons on the Mini-Matrix's front panel. This is done by entering keepalive commands via a serial terminal program (e.g. PuTTY).

Keepalive events are used by the Mini-Matrix to periodically communicate its status to the RCU, using the RS-232 protocol. Entering an RS-232 command program updates the keepalive event. Because these events are related to the buttons on the Mini-Matrix's front panel, they are constructed as **#AFP_ALIVE** followed by the command argument corresponding to the selected channel.

For example, to switch to Channel 4 on the left side of a 4-port Mini-Matrix, enter the command **#AFP_ALIVE FFF7**.

Note: While using a Remote Control Unit, the Mini-Matrix's front panel buttons are deactivated. This is because the Mini-Matrix is receiving commands from the RCU instead of the front panel buttons.

APPENDIX

To replicate the Mini-Matrix's front panel buttons using RS-232, enter the **#AFP_ALIVE** command with the following arguments:

4-Port Mini-Matrix		
Front Panel Button	**Left Side**	**Right Side**
Channel 1	**FFFE**	**FFEF**
Channel 2	**FFFD**	**FFDF**
Channel 3	**FFFB**	**FFBF**
Channel 4	**FFF7**	**FF7F**
Keyboard/Mouse Freeze Toggle	**FDFF**	**FEFF**
Audio Freeze Toggle	**FBFF**	**F7FF**
USB Freeze Toggle	**EFFF**	**DFFF**
8-Port Mini-Matrix		
Front Panel Button	**Left Side**	**Right Side**
Channel 1	**FFFFFE**	**FFFEFF**
Channel 2	**FFFFFD**	**FFFDFF**
Channel 3	**FFFFFB**	**FFFBFF**
Channel 4	**FFFFF7**	**FFF7FF**
Channel 5	**FFFFEF**	**FFEFFF**
Channel 6	**FFFFDF**	**FFDFFF**
Channel 7	**FFFFBF**	**FFBFFF**
Channel 8	**FFFF7F**	**FF7FFF**
Keyboard/Mouse Freeze Toggle	**FEFFFF**	**FDFFFF**
Audio Freeze Toggle	**FBFFFF**	**F7FFFF**
USB Freeze Toggle	**EFFFFF**	**DFFFFF**

Note: To freeze the keyboard/mouse, audio, or fUSB to the left or right side, enter the respective toggle command twice. Entering the command a third time will unfreeze.

For example, to freeze the audio to the left side of a 4-port Mini-Matrix, enter the command **#AFP_ALIVE FBFF** twice. Entering **#AFP_ALIVE FBFF** again will unlock the audio.

Command Structure for Kramer, Extron, Crestron Remote Controls

Depending on the manufacturer, some Remote Control Units may require certain characters when entering a keepalive command. The following are command structures for the most common RCUs.

Action	Description	Kramer	Extron	Crestron
Carriage Return	Return text cursor to beginning of line	**<cr>**	**<cr>**	**\x0d**
Line Feed	Move text cursor to new line	**<lf>**	**<lf>**	**\x0a**
Command Start	Begin a new command			**#**
Space	Separate multiple strings			**\x**

APPENDIX

Examples:

The following examples all enter a command into the keepalive sequence for an 8-port Mini-Matrix's front panel "**AFP_ALIVE**" to switch to Channel 1 "**FFFFFE**" ending with a carriage return.

- Kramer or Extron: **#AFP_ALIVE FFFFFE <cr>**
- Crestron: **##AFP_ALIVE FFFFFE\x0d**

For further information on programming a Remote Control Unit to enter RS-232 commands, consult the Programmable Remote Control User Manual, which can be found here: https://highseclabs.com/product/auxiliary-front-panel-afp/#dow_man

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