Pacific MS

HDMI/DVI, SDI and HDBaseT KVM Matrix Switcher

AVITECH

ABOUT THIS MANUAL

This manual contains information on how to use the Avitech Pacific MS KVM (Keyboard Video Mouse) matrix switcher. There are 6 chapters in this manual.

- ✓ **Getting Started** introduces features and specifications as well as external components of the Pacific MS.
- ✓ **Hardware and System Configuration** introduces the process of setting up your Pacific MS.
- ✓ **Basic Routing Operations** introduces video and mouse/keyboard switching via front panel control and in-system GUI.
- ✓ **Basic Setup Using the In-System GUI** introduces all functions and components of the in-system GUI.
- ✓ **Basic Workstation Operations** introduces basic operations on single-monitor workstations.
- ✓ **Multi-monitor Workstation Configurations and Operations** introduces configurations and operations on multi-monitor workstations.

The following conventions are used to distinguish elements of text throughout the manual.

provides additional hints or information that require special attention.

identifies warnings which must be strictly followed.

Any name of a menu, command, icon or button displayed on the screen is shown in a bold typeset.
For example: On the **Start** menu select **Settings**.

To assist us in making improvements to this user manual, we welcome any comments and constructive criticism. Please email us at: sales@avitechvideo.com.

WARNING
Do not attempt to disassemble the Pacific MS. Doing so may void the warranty. There are no serviceable parts inside. Please refer all servicing to qualified personnel.

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1. Getting Started

Avitech Pacific Matrix Switcher (MS) series is a fully modular HDMI/DVI, SDI and HDBaseT-based KVM (Keyboard Video Mouse) matrix switcher integrated with multiviewer. With the non-blocking switching architecture, hot-swapping modular setup and a variety of I/O combinations, the Pacific MS incorporates versatile signal switching and routing, multiview monitoring, as well as discrete workstation operation and centralized administration into a single enclosure. Two chassis sizes (2RU for Pacific MS-2 and 3RU for MS-3) are currently supported for different installation demands.

The Pacific MS offers easy system setup and routing control via its in-system Graphical User Interface (GUI). With drag-and-drop simplicity, sources can be switched to any one or multiple destinations, where any sources and routed outputs can be directly monitored from the GUI in real-time.

Well-suited for workstations of various scopes, the Pacific MS features scalable configuration and enables creating custom multi-monitor consoles by grouping a mix of outputs. It ensures intuitive user experience at the workstation, allowing streamlined access to an array of computers simultaneously from a single mouse/keyboard console.

Highly integrated, control easing and flexible for module expansion, the Pacific MS is ready to adapt to various control room and IT installations.

This chapter will continue to introduce more features and specifications as well as external components of your Pacific MS.

📄 *The information in this manual applies to Pacific MS-2 and Pacific MS-3, plus input, output, and KM cards, which can be ordered to create custom systems. All cards are compatible with any Pacific MS enclosure.*

1.1 Package Contents

The following standard items are included in the shipping package:

Pacific MS-2 / Pacific MS-3

Utility Disc (user manual)

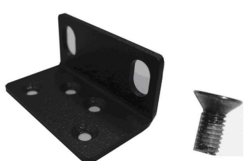**12 V DC Power Adapter (optional)**

HDMI® Cable (length 1.8 m – 1 piece) (optional)

HDMI to DVI Adapter (optional)

USB A/B Cable (optional)

Ear with Screw (4 pieces each)

Table 1-1 Package Contents

1.2 Product Features

Model	Rack Space	Input Card Slots	Output Card Slots	Max. Input Ports	Max. Output Ports	Max. KM Card Slots	Max. KM Ports
Pacific MS-2	2RU	3	2	12	8	2	12
Pacific MS-3	3RU	5	4	20	16	3	20

Table 1-2 Pacific MS Series Comparison

The Pacific MS series of KVM matrix switcher incorporates digital (HDMI/DVI, 3G/HD/SD-SDI, and HDBaseT) and analog (NTSC/PAL) signal switching, multiview monitoring, and mouse/keyboard operation into a single enclosure. Depending on scopes of installations, the Pacific MS is currently available as 2RU and 3RU rack mount (MS-2 and MS-3) and delivers fully non-blocking 12x8 and 20x16 matrix switching solution.

The Pacific MS features a modular architecture with hot-swappable input and output cards, allowing for custom and in-service system configuration. It supports field-serviceable fan modules and redundant power supply when paired with Avitech PSS (Power Supply Station), ensuring optimized system uptime and mission-critical reliability. The Pacific MS chassis currently supports three input and four output card types, with more card selections to be included in the future.

Within the system, source signals (including HDCP) can be switched to any or routed to multiple destinations. Multiviewer output cards, SOB-QPW (quad-view) and SOB-HPW (dual-view), are capable of displaying multiple routed outputs simultaneously on a single screen, with support for essential on-screen displays (OSD) and free-scaling windows for custom adjustment.

Incorporating independent USB mouse/keyboard switching, the Pacific MS provides USB connectivity on output cards (SOB-QPW and SOB-HPW) and enables control signals transmitting to source computers through the USB Keyboard/Mouse (KM) card. With integrated multiviewing and mouse/keyboard switching, the Pacific MS facilitates controlling numerous routed computers from a single monitor and mouse/keyboard console. HDBaseT input and output cards (SIB-T and SOB-T) used in conjunction with Avitech Pacific extenders allow computers to be installed out-of-sight at central, air-conditioned equipment rack and accessed remotely.

Intuitive signal switching and routing can be achieved through the Pacific MS' front push-button panel (FPB), or via the in-system GUI. The in-system GUI provides full configurations for system switching, allowing bundled / independent signal switching/routing for video, microphone audio and mouse/keyboard control. The in-system GUI also features real-time video preview for proactive monitoring of any sources and outputs. User can freely switch to view and remotely control any sources through the preview displays, performing centralized management over all connected devices.

Easily adaptable to workstation operation of various scopes, the Pacific MS features grouping individual display outputs and creating multi-monitor workstations. User can seamlessly switch control from one computer to another by simply moving the mouse cursor across any two adjacent displays. When multiple multiviewer outputs are grouped into a single workstation, the Pacific MS enables streamlined control of up to 16 computers across four displays, all managed from a single mouse/keyboard console.

Up to three Pacific MS chassis can be cascaded ("daisy-chained") for meeting additional routing, monitoring, and workstation requirements. This enables the configuration of very large switcher and operation solution well-suited for more complex installations. Controlling of the cascaded modules (mix of any Pacific MS-2 and MS-3) remains intuitive in the same manner as managing a single module. Scalable system architecture flexibly allows multiple Pacific MS units to be administered discretely in separate groups or in one centralized administration.

1.3 Specifications

1.3.1 Physical Specification

Others	
Input Video Types	Configurable via mix-and-match of input cards; currently supports HDMI, DVI (with adapter), 3G/HD/SD-SDI and CVBS (NTSC/PAL).
Output Video Types	Configurable via mix-and-match of output cards; currently supports HDMI and DVI (with adapter).
Power	Pacific MS-2 ❖ *Power consumption: Max. 110W* ❖ *Power supply (adapter):12V DC / 10A* Pacific MS-3 ❖ *Power consumption: Max. 220W* ❖ *Power supply (adapter):12V DC / 20A*
Dimensions/Weight	Pacific MS-2 ❖ *2RU rack mount* ❖ *Dimension: 247×439×89 mm (9.70×17.30×3.50 inch)* ❖ *Weight: Max. 5.13 kg (11.34 lb)* Pacific MS-3 ❖ *3RU rack mount* ❖ *Dimension: 287×439×133 mm (11.30×17.30×3.50 inch)* ❖ *Weight: Max. 7.25 kg (15.98 lb)* <u>Note</u>: *Actual weights may differ in accordance with card configurations.*
Environment/Safety	Temperature: ❖ *Operating: 0 ℃ (32 ℉) to 40 ℃ (104 ℉)* ❖ *Storage: –10 ℃ (14 ℉) to 50 ℃ (122 ℉)* Humidity: 0% to 80% relative, non-condensing Safety: FCC/CE/C-Tick/Class A

Table 1-3 Pacific MS Series – Physical Specifications
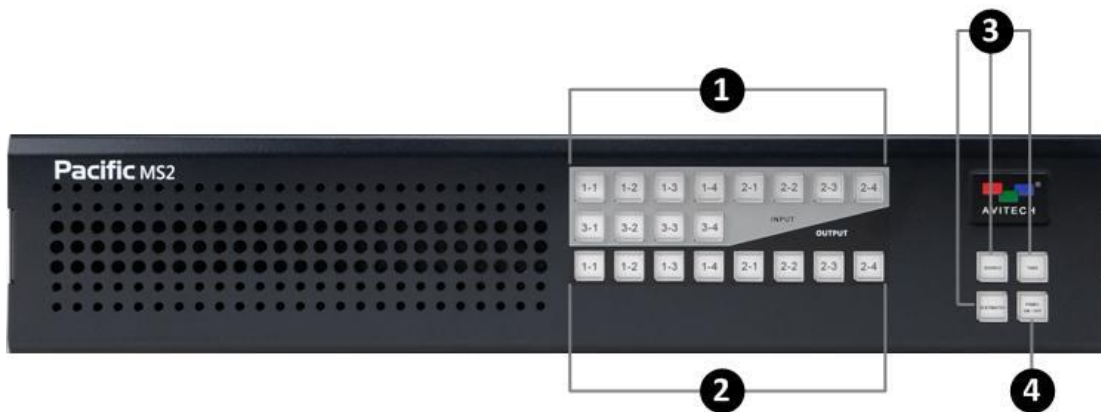
1.3.2   Connections to the Pacific MS Series

Figure 1-1 Pacific MS Series (MS-2 Model) Front Panel Components

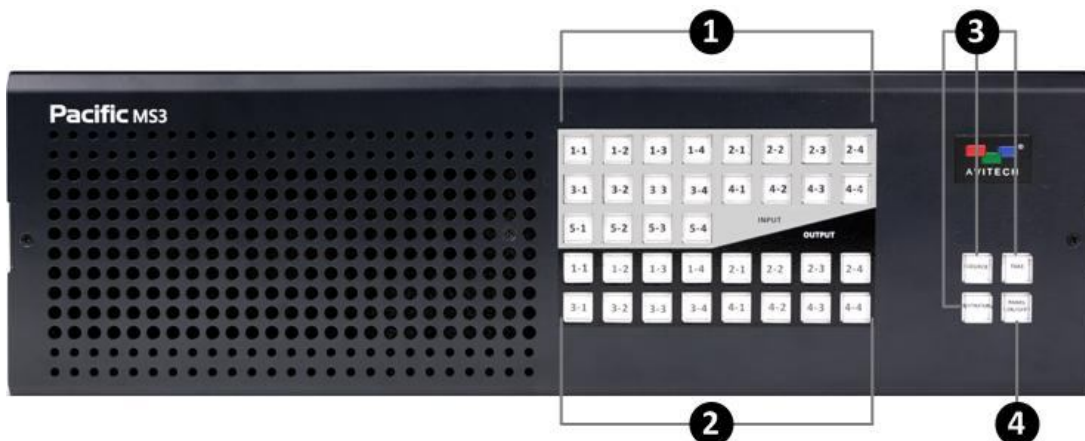**Figure 1-2** Pacific MS Series (MS-2 Model) Rear Panel Components

Figure 1-3 Pacific MS Series (MS-3 Model) Front Panel Components

Figure 1-4 Pacific MS Series (MS-3 Model) Rear Panel Components

Front Panel	
❶ **Input Button**	For selecting the input signal to be switched/routed; each button corresponds to an input port ❖ The Pacific MS-2 has 12 input buttons (**1-1** to **3-4**) ❖ The Pacific MS-3 has 20 input buttons (**1-1** to **5-4**)
❷ **Output Button**	For selecting the output signal(s) as the router's destination(s); each button corresponds to an output port or a window of a multiview display ❖ The Pacific MS-2 has 8 output buttons (**1-1** to **2-4**) ❖ The Pacific MS-3 has 16 output buttons (**1-1** to **4-4**)
❸ **Routing Execution Button**	Command sequence to carry out a complete routing action ❖ **SOURCE** To designate the source to be switched or routed ❖ **DESTINATION** To designate the destination where the selected source will be switched, or multiple destinations when routing the source ❖ **TAKE** To confirm and execute a switching/routing action
❹ **Panel On/Off Button**	For locking/unlocking the front panel control

Table 1-4 Pacific MS Series: Front Panel Component Description

*On the front panel, each push-button "**A-B**" corresponds to an input or output port where **A** describes the card slot location while **B** describes the port number (E.g., Input 3-2 corresponds to input port 2 on card slot 3). The same convention is also used in the Pacific MS' in-system GUI.*

Rear Panel	
❶ **Input Card Slot**	Slots for input cards installation; hot-swappable ❖ The Pacific MS-2 has 3 input card slots for a maximum of 12 inputs ❖ The Pacific MS-3 has 5 input card slots for a maximum of 20 inputs <u>Note</u>: Input card slot numbering begins from the bottom to the top.
❷ **Output Card Slot**	Slots for output cards installation; hot-swappable ❖ The Pacific MS-2 has 2 output card slots for a maximum of 8 outputs ❖ The Pacific MS-3 has 4 output card slots for a maximum of 16 outputs <u>Note</u>: Output card slot numbering begins from the bottom to the top.
❸ **USB Mouse/Keyboard Card Slot**	Slots for KM cards installation; hot-swappable ❖ The Pacific MS-2 has 2 KM card slots for a maximum of 12 USB connection ❖ The Pacific MS-3 has 3 KM card slots for a maximum of 20 USB connection <u>Note</u>: KM card slot numbering begins from the left to the right.
❹ **Power Supply**	12V DC power supply
❺ **Control Card**	The control unit of the Pacific MS; supports in-system GUI display and control for routing configurations and advanced setups

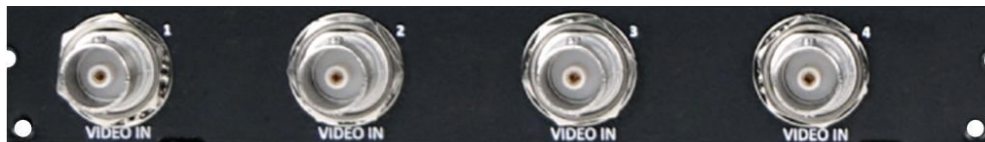**Table 1-5** Pacific MS Series: Rear Panel Component Description

1.3.3   Input Card

HDMI Input Card (SIB-H)

SIB-H	
Signal Type	HDMI 1.4
Connectors	❖ 4 HDMI type A connectors for HDMI/DVI input sources (DVI to HDMI adapters may be needed) ❖ 4 stereo phono jacks for analog microphone outputs (audio line-out)
Resolution	Support for any resolution up to 1920x1200 @60Hz allowed by HDMI based on the EDID automatically obtained from the connected display
HDCP Compliant	Yes
Cable Equalization	Yes (adaptive up to 40 meters at 1080p @60 Hz)

Table 1-6 Pacific MS Series: SIB-H Specifications

SDI/CVBS Input Card (SIB-BNC)

SIB-BNC	
Signal Type	SDI (3G/HD/SD) / CVBS (NTSC/PAL) SMPTE 424M/292M/344M/259M compliant
Connectors	4 BNC connectors for SDI/CVBS input sources (auto-sensing)
Resolution	Automatic sensing: ❖ *3G-SDI (SMPTE 424M) Level A and Level B: 1080p50, 1080p59.94, 1080p60* ❖ *HD-SDI (SMPTE 292M): 720p25, 720p29.97, 720p30, 720p50, 720p59.94, 720p60, 1080i23.97, 1080i24, 1080i25, 1080i50, 1080i59.94, 1080i60, 1080p23.97, 1080PsF24, 1080p25, 1080p29.97, 1080p30* ❖ *SD-SDI (SMPTE 259M): 525i60, 625i50* ❖ *NTSC/PAL*

Table 1-7 Pacific MS Series: SIB-BNC Specifications

HDBaseT Input Card (SIB-T)

SIB-T	
Signal Type	HDMI 1.4 over HDBaseT

Connectors	❖ 2 RJ-45 connectors for connecting Avitech Pacific X-HDUT via CAT5e/6 Ethernet cables
	  ✓ Transmission of HDMI/DVI (with adapter) video, embedded audio and USB mouse/keyboard control signals
	  ✓ Each LED indicator "LINK" glows green when the connection with Avitech Pacific X-HDUT is established
	
	❖ 2 HDMI type A connectors for HDMI/DVI input sources (DVI to HDMI adapters may be needed)
	
	❖ 2 stereo phono jacks for analog microphone outputs (audio line-out)

Resolution	Support for any resolution up to 1920x1200 @60Hz allowed by HDMI based on the EDID automatically obtained from the connected display
HDCP Compliant	Yes
Max. Distance	100 meters over standard CAT5e/6 cable at 1080p @60 Hz *Note: Avitech recommends using CAT6 cables or better (shielded cables) for optimum performance*
Transmitter	Pacific X-HDUT (sold separately)

Table 1-8 Pacific MS Series: SIB-T Specifications

1.3.4 Output Card

📄 *Avitech strongly recommends using monitors (or other types of display/destination devices) with HDCP support for output connection.*

HDMI Output Card (SOB-H)

SOB-H	
Signal Type	HDMI 1.4
Connectors	❖ 4 HDMI type A connectors for HDMI/DVI monitors (HDMI to DVI adapters may be needed) ❖ 4 stereo phono jacks for analog microphone inputs (audio line-in)

SOB-H	
Resolution	Automatic sensing and supporting any resolution up to 1920x1200 @60Hz allowed by HDMI based on the EDID obtained from the connected display Supported resolutions include (but not limited to): ❖ *1920×1200 (WUXGA) at 50Hz/60Hz* ❖ *1920×1080 (HD1080) at 50Hz/60Hz* ❖ *1680×1050 (WSXGA+) at 50Hz/60Hz/75Hz* ❖ *1600×1200 (UXGA) at 50Hz/60Hz/75Hz* ❖ *1440×900 (WSXGA, WXGA) at 50Hz/60Hz/75Hz* ❖ *1400×1050 (SXGA+) at 50Hz/60Hz/75Hz* ❖ *1360×768 (WXGA) at 50Hz/60Hz/75Hz* ❖ *1280×1024 (SXGA) at 50Hz/60Hz/75Hz* ❖ *1280×768 (WSGA) at 50Hz/60Hz/75Hz* ❖ *1280×720 (HD 720) at 50Hz/59.94Hz/60Hz/75Hz* ❖ *1024×768 (XGA) at 50Hz/60Hz/75Hz* ❖ *800×600 (SVGA) at 50Hz/60Hz/75Hz* ❖ *640×480 (VGA) at 60Hz* *Note: Transmission of embedded audio signal is not supported when passing an output signal through the HDMI to DVI adapter.*
HDCP Compliant	Yes
Color Depth	8 bit /10 bit Deep Color

Table 1-9 Pacific MS Series: SOB-H Specifications

1. *The SOB-H automatically detects monitor's EDID (for information including supported optimum video resolution, refresh rate, and audio formats) and passes the information to the source device connected to the SIB-H or SIB-T input card. The source reads the EDID and adjusts its output accordingly for optimum display.*
2. *If the monitor's EDID is not detected (when EDID auto detection is active), the connected source will automatically configure its output to 1080p.*
3. *When a source signal is routed to multiple destinations connecting to SOB-H or SOB-T output card, the Pacific MS will automatically assess all obtained EDID and pass the optimum format that is available in all of the display devices to the source device. This ensures that any video signal coming in from the source will be shown on all displays. Refer to section 4.4 "Right-Click Menu" for information on turning off/on the EDID auto detect feature.*

HDMI Output Card with Dual-View (SOB-HPW)

SOB-HPW	
Signal Type	HDMI 1.4
Connectors	❖ 2 HDMI type A connectors for HDMI/DVI monitors (HDMI to DVI adapters may be needed) ❖ 4 USB type A ports for 2 pairs of USB mouse/keyboard; transmit mouse/keyboard control through KM card's USB ports to source computers
Resolution	Automatic sensing and supports any resolution up to 1920x1200 @60Hz allowed by HDMI based on the EDID obtained from the connected display device(s)

SOB-HPW

Supported resolutions include (not limited to):
- ❖ *1920×1200 (WUXGA) at 50Hz/60Hz*
- ❖ *1920×1080 (HD1080) at 50Hz/60Hz*
- ❖ *1680×1050 (WSXGA+) at 50Hz/60Hz/75Hz*
- ❖ *1600×1200 (UXGA) at 50Hz/60Hz/75Hz*
- ❖ *1440×900 (WSXGA, WXGA) at 50Hz/60Hz/75Hz*
- ❖ *1400×1050 (SXGA+) at 50Hz/60Hz/75Hz*
- ❖ *1360×768 (WXGA) at 50Hz/60Hz/75Hz*
- ❖ *1280×1024 (SXGA) at 50Hz/60Hz/75Hz*
- ❖ *1280×768 (WSGA) at 50Hz/60Hz/75Hz*
- ❖ *1280×720 (HD 720) at 50Hz/59.94Hz/60Hz/75Hz*
- ❖ *1024×768 (XGA) at 50Hz/60Hz/75Hz*
- ❖ *800×600 (SVGA) at 50Hz/60Hz/75Hz*
- ❖ *640×480 (VGA) at 60Hz*

Note: Transmission of embedded audio signal is not supported when passing an output signal through the HDMI to DVI adapter.

HDCP Compliant	Yes
Color Depth	8 bit
Display Mode	<u>Dual</u> mode: simultaneously displays 2 routed videos on a single monitor (supports free-scaling windows, custom layout, and OSD for control) <u>Seamless</u> mode: supports seamless switching between routed videos *Note: You can alternate between <u>Dual</u> mode and <u>Seamless</u> mode by right-clicking anywhere on the SOB-HPW's output icons in the GUI, and then selecting your preferred mode.*

Table 1-10 Pacific MS Series: SOB-HPW Specifications

1. *The SOB-HPW automatically detects monitor's EDID (for information including optimum video resolution and refresh rate) and outputs accordingly.*
2. *If the monitor's EDID is not detected, the SOB-HPW will automatically output at 1080p @60 Hz.*

HDMI Output Card with Quad-View (SOB-QPW)

SOB-QPW

Signal Type	HDMI 1.4
Connectors	❖ One HDMI type A connector for HDMI/DVI monitor (an HDMI to DVI adapter may be needed) ❖ 2 USB type A ports for a set of USB mouse/keyboard; transmit mouse/keyboard control from KM card's USB ports to source computers
Resolution	Automatic sensing and supports any resolution up to 1920x1200 @60Hz allowed by HDMI based on the EDID obtained from the connected display device(s) Supported resolutions include (not limited to):

SOB-QPW	
	❖ *1920×1200 (WUXGA) at 50Hz/60Hz*
	❖ *1920×1080 (HD1080) at 50Hz/60Hz*
	❖ *1680×1050 (WSXGA+) at 50Hz/60Hz/75Hz*
	❖ *1600×1200 (UXGA) at 50Hz/60Hz/75Hz*
	❖ *1440×900 (WSXGA, WXGA) at 50Hz/60Hz/75Hz*
	❖ *1400×1050 (SXGA+) at 50Hz/60Hz/75Hz*
	❖ *1360×768 (WXGA) at 50Hz/60Hz/75Hz*
	❖ *1280×1024 (SXGA) at 50Hz/60Hz/75Hz*
	❖ *1280×768 (WSGA) at 50Hz/60Hz/75Hz*
	❖ *1280×720 (HD 720) at 50Hz/59.94Hz/60Hz/75Hz*
	❖ *1024×768 (XGA) at 50Hz/60Hz/75Hz*
	❖ *800×600 (SVGA) at 50Hz/60Hz/75Hz*
	❖ *640×480 (VGA) at 60Hz*
	<u>*Note*</u>*: Transmission of embedded audio signal is not supported when passing an output signal through the HDMI to DVI adapter.*
HDCP Compliant	Yes
Color Depth	8 bit
Display Mode	Multiview (quad-view): simultaneously displays 4 routed videos on a single monitor (supports free-scaling windows, custom layout, and OSD control)

Table 1-11 Pacific MS Series: SOB-QPW Specifications

1. *The SOB-QPW automatically detects monitor's EDID (for information including optimum video resolution and refresh rate) and outputs accordingly.*
2. *If the monitor's EDID is not detected, the SOB-QPW will automatically output at 1080p @60 Hz.*

HDBaseT Output Card (SOB-T)

| SOB-T	
Signal Type	HDMI 1.4 over HDBaseT

Connectors	❖ 4 RJ-45 connectors for connecting Avitech Pacific X-HDUR via CAT5e/6 Ethernet cables
	  ✓ Transmission of video, embedded audio and USB mouse/keyboard control signals
	  ✓ Each LED indicator "LINK" glows green when the connection with Avitech Pacific X-HDUR is established
	
	<u>*Note*</u>*: Only HDBaseT 1 and HDBaseT 3 ports can receive USB mouse/keyboard control signals from the respective Avitech Pacific X-HDUR; HDBaseT 2 and HDBaseT 4 transmit video signals only.*

Resolution	Automatic sensing and supports any resolution up to 1920x1200 @60Hz allowed by HDMI based on the EDID obtained from the connected display device(s) Supported resolutions include (not limited to): ❖ *1920×1200 (WUXGA) at 50Hz/60Hz* ❖ *1920×1080 (HD1080) at 50Hz/60Hz*

SOB-T	
	❖ 1680×1050 (WSXGA+) at 50Hz/60Hz/75Hz
	❖ 1600×1200 (UXGA) at 50Hz/60Hz/75Hz
	❖ 1440×900 (WSXGA, WXGA) at 50Hz/60Hz/75Hz
	❖ 1400×1050 (SXGA+) at 50Hz/60Hz/75Hz
	❖ 1360×768 (WXGA) at 50Hz/60Hz/75Hz
	❖ 1280×1024 (SXGA) at 50Hz/60Hz/75Hz
	❖ 1280×768 (WSGA) at 50Hz/60Hz/75Hz
	❖ 1280×720 (HD 720) at 50Hz/59.94Hz/60Hz/75Hz
	❖ 1024×768 (XGA) at 50Hz/60Hz/75Hz
	❖ 800×600 (SVGA) at 50Hz/60Hz/75Hz
	❖ 640×480 (VGA) at 60Hz
	Note: Transmission of embedded audio signal is not supported when passing an output signal through the HDMI to DVI adapter (from Avitech Pacific X-HDUR to the monitor).
HDCP Compliant	Yes
Max. Distance	100 meters over standard CAT5e/6 cable at 1080p @60 Hz *Note: Avitech recommends using CAT6 cables or better (shielded cables) for optimum performance*
Color Depth	8 bit / 10 bit Deep Color
Receiver	Pacific X-HDUR (sold separately)

Table 1-12 Pacific MS Series: SOB-T Specifications

1. *The SOB-T automatically detects monitor's EDID (for information including supported optimum video resolution, refresh rate, and audio formats) and passes the information to the source device connected to the SIB-T or SIB-H input card. The source reads the EDID and adjusts its output accordingly for optimum display.*
2. *If the monitor's EDID is not detected (when EDID auto detection is active), the connected source will automatically configure its output to 1080p.*
3. *When a source signal is routed to multiple destinations connecting to SOB-T or SOB-H output card, the Pacific MS will automatically assess all obtained EDID and pass the optimum format that is available in all of the display devices to the source device. This ensures that any video signal coming in from the source will be shown on all displays. Refer to section 4.4 "Right-Click Menu" for information on turning off/on the EDID auto detect feature.*

1.3.5 Keyboard/Mouse Card

Keyboard/Mouse Card (KM Card)
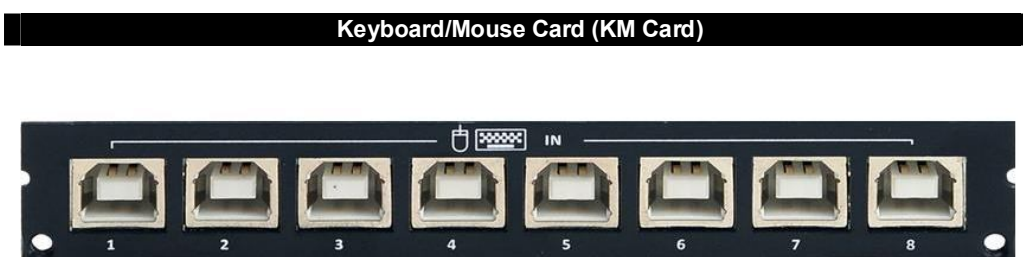
KM	
Signal Type	USB 2.0
Connectors	8 USB type B ports for connecting computers' USB type A ports via standard USB A/B cables; transmit mouse/keyboard control signals to source computers

Table 1-13 Pacific MS Series: KM Specifications

1.3.6   Control Card

Control card	
❶ **RS-485**	Reserved for future control option or third-party control
❷ **HDMI IN**	Takes the HDMI output signal from an upstream Pacific MS' **HDMI OUT** during cascading; or takes a local computer's video output for switching display between the Pacific MS' in-system GUI and the local computer
❸ **HDMI OUT**	Connects to a HDMI/DVI monitor for accessing the Pacific MS' in-system GUI; or displays the local computer's bypassed video output entering from **HDMI IN** During cascading, the **HDMI OUT** of the upstream Pacific MS will be fed as the HDMI input signal to the downstream Pacific MS' **HDMI IN**
❹ **HDBaseT**	Connects to Avitech Pacific X-HDUR for accessing the Pacific MS' in-system GUI (or the local computer) over distance via a CAT5e/6 Ethernet cable *Note: Avitech recommends using CAT6 cables or better (shielded cables) for optimum performance.*
❺ **IP**	For controlling the Pacific MS using Avitech HTTP commands on a separate computer's browser
❻ **Ref In**	Connects to the external reference sync for genlocking video outputs; reserved for future output cards' video wall display functions (not available for Pacific MS-2)
❼ **RS-232**	Reserved for future control option or third-party control
❽ **Mouse/Keyboard**	Connects to a set of USB mouse/keyboard for in-system GUI control (or local computer control); or connects to an upstream Pacific MS for bypassing mouse/keyboard control
❾ **PC**	Takes the bypassed mouse/keyboard control from a downstream Pacific MS or a local computer

Table 1-14 Control Card Component Description

The Pacific MS outputs the in-system GUI at 1080p and requires connecting to a monitor with 1080p full HD and HDCP support.

2. Hardware and System Configuration

This chapter provides instructions on installing and removing a modular card into and out of the Pacific MS chassis. It also contains detailed information about setting up the Pacific MS in solo and in cascaded systems.

2.1 Installing a New Card on Blank Slot

The Pacific MS chassis accepts the following hot-swappable cards:

Input Cards:

- ✓ SIB-H Card
- ✓ SIB-BNC Card
- ✓ SIB-T Card

Output Cards:

- ✓ SOB-H Card
- ✓ SOB-T Card
- ✓ SOB-HPW Card
- ✓ SOB-QPW Card

Mouse/Keyboard Card:

- ✓ KM Card

📄 | *Because the Pacific MS are available as custom systems, the illustrations in this chapter and those used throughout the manual may differ from the model(s) you purchased.*

Viewed from the rear of the enclosure, the Pacific MS' input card slots are on the left, and the output card slots are in the center. The KM card slots are located near the bottom of the rear panel.

The Pacific MS-2 chassis (2RU) houses 3 input card slots and 2 output card slots. Each card supports up to 4 connectors, allowing for a maximum routing configuration of 12x8. Up to 2 KM cards (with a total of 12 USB connections) can be installed.

The Pacific MS-3 chassis (3RU) houses 5 input card slots and 4 output card slots. Each card supports up to 4 connectors, allowing for a maximum routing configuration of 20x16. Up to 3 KM cards (with a total of 20 USB connections) can be installed.

Installation and removal of the input, output, and KM cards follow the same procedures. In this section, an output card is used as an example.

To install an output card on a blank slot, perform the following steps:

Step 1. *Remove the two screws securing the back plate.*
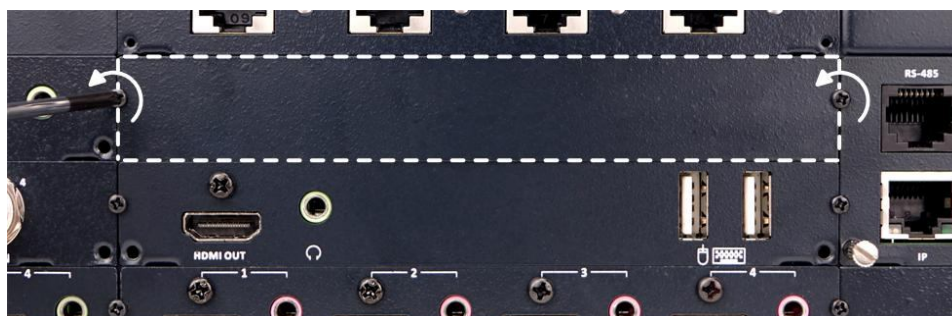
Figure 2-1 Remove the Two Plate Screws

Step 2.   Remove the back plate.

Figure 2-2 Remove the Back Plate

Step 3.   Align both sides of the card to the rails of the slot, and then slide the card all the way into the chassis.

Figure 2-3 Align the New Card to the Rail on Both Sides

Input, output, and KM card slot locations will determine the respective source number, output number, and KM number used for routing assignment. Refer to section 2.3 for information on port number in detail.

Step 4.   Secure the screws on both sides to fix the newly installed card to the chassis.
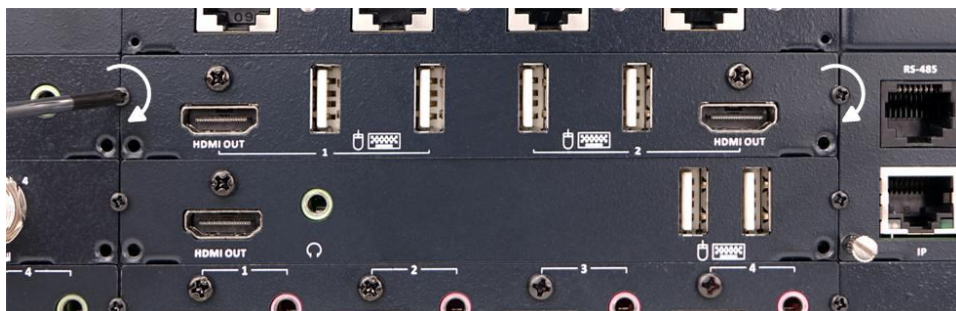
Figure 2-4 Secure the Card Screws on Both Sides

2.2 Removing a Previously Installed Card

To remove or replace an installed card, perform the following steps:

Step 1. Use a flat screw driver to unscrew both puller screws from the control card.
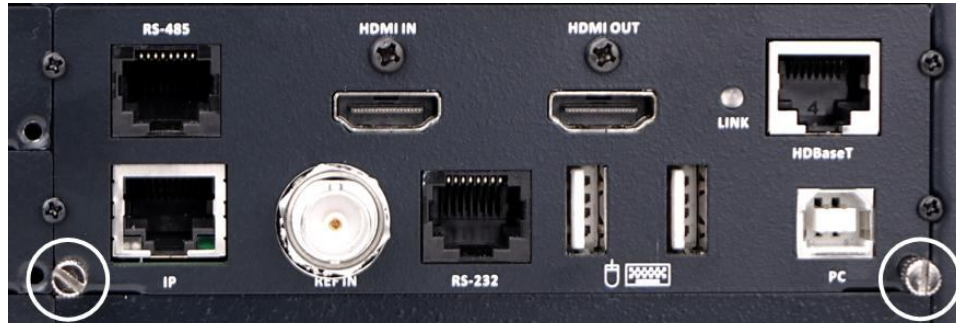
Figure 2-5 Remove Puller Screws from Control Card

Step 2. Use the just-removed puller screws and screw them to both sides of the card to be removed.
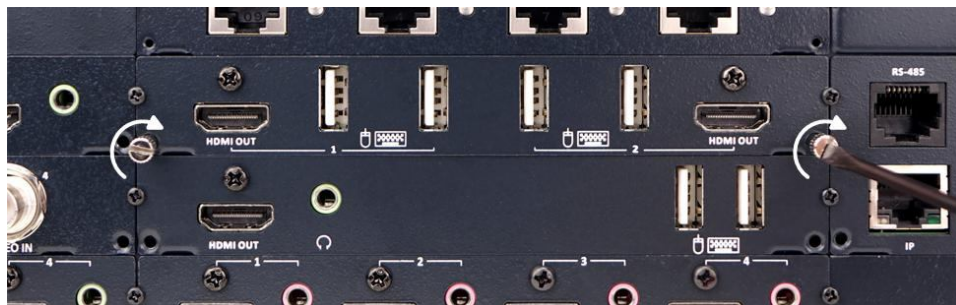
Figure 2-6 Screw Puller Screws to Card to be Removed

Step 3. Remove the two screws securing the card from the chassis.
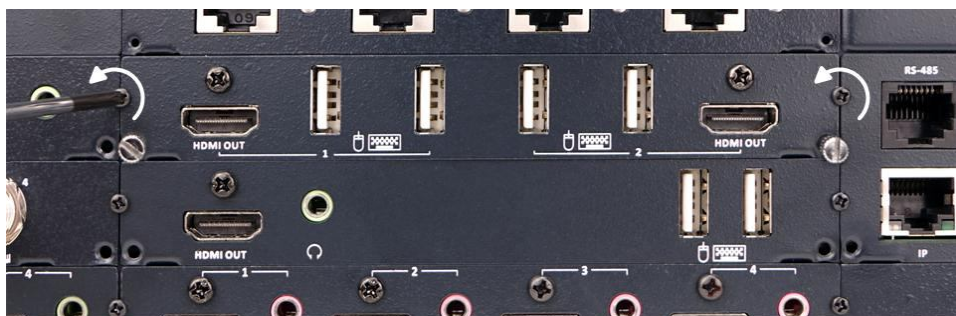
Figure 2-7 Remove the Two Card Screws

Step 4. Grasp both left and right puller screws and pull the card away from the chassis.

Figure 2-8 Remove the Modular Card

Step 3.   Install another card (or a back plate cover) to the chassis and secure both screws.

All Input, output and KM cards are hot-swappable and can be installed or removed without powering down the Pacific MS.

2.3 Connecting Video Sources to Pacific MS' Input Cards

Connect the input sources to the input cards using the appropriate signal cables. Keep in mind that the input card's slot location, card type, and port number will determine the default naming of the signal in the in-system GUI. For each input port, numbering is consecutive from left to right on each card, and from the bottom card to the top.

Below are examples showing the Pacific MS-2 and MS-3's input cards with their respective input names in Red (E.g., "SIB-H (**5**)" corresponds to the source at input card slot 2, input port 1).
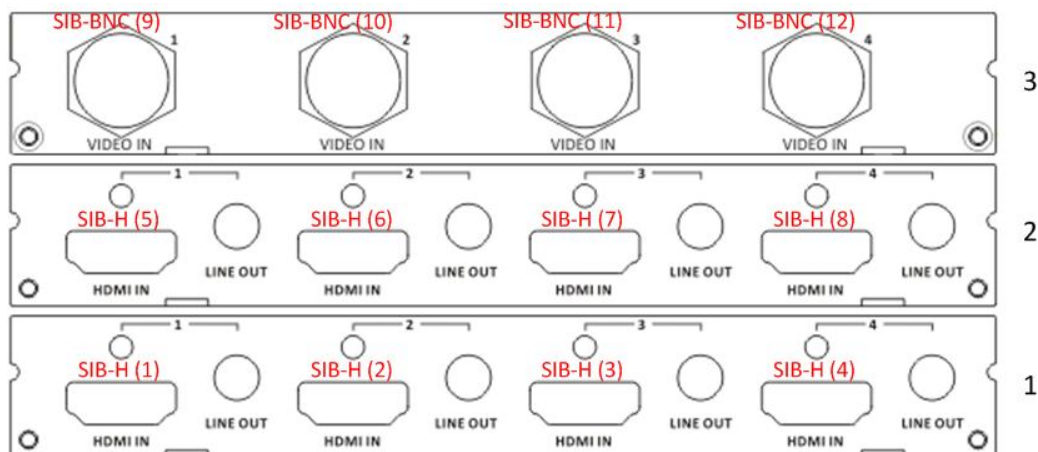
Figure 2-9 Pacific MS-2 Input Cards and Default Source Names
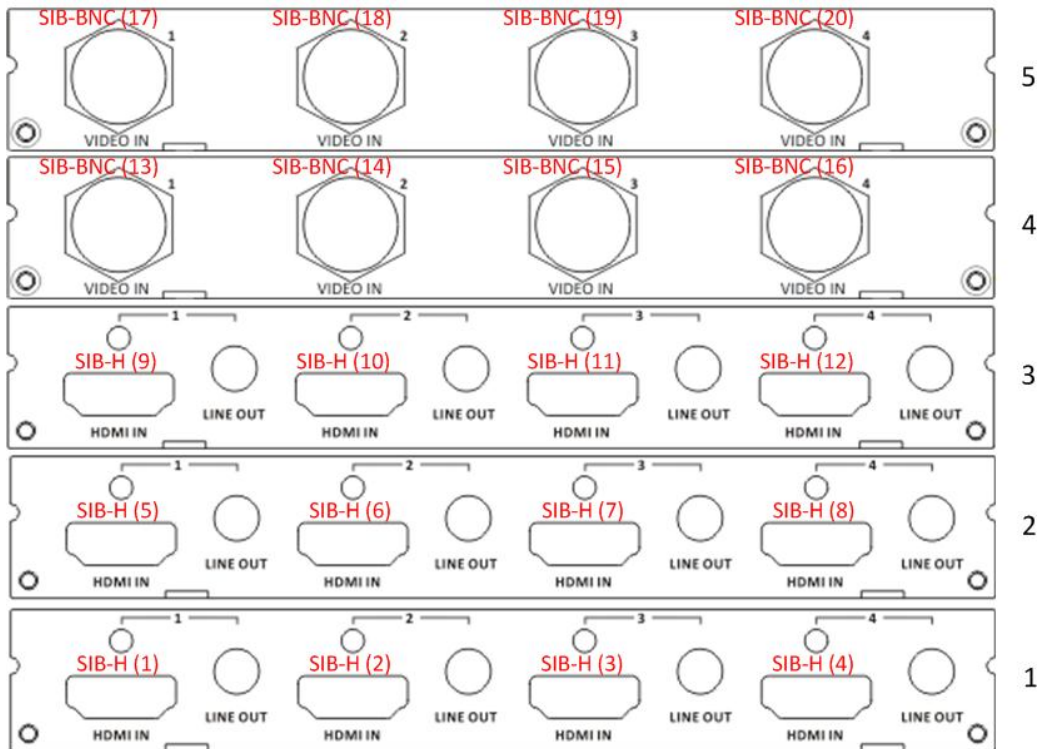
Figure 2-10 Pacific MS-3 Input Cards and Default Source Names

2.4 Connecting Monitors to Pacific MS' Output Cards

Connect the outputs to monitors using the appropriate signal cables. Keep in mind that the output card's slot location, card type, and port number will determine the default naming of the signal in the in-system GUI. For each output port, numbering is consecutive from left to right on each card, and from the bottom card to the top. For multiviewer outputs (SOB-QPW or SOB-HPW in Dual mode), each output number corresponds to a source window.

Below are some examples showing the Pacific MS-2 and MS-3's output cards and their respective output names in Red (E.g., "SOB-H (**3**)" corresponds to the output at output card slot 1, output port 3).
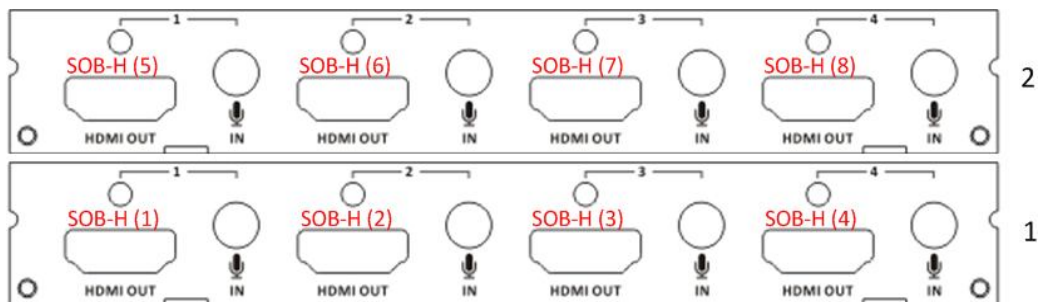
Figure 2-11 Pacific MS-2 Output Cards and Default Output Names
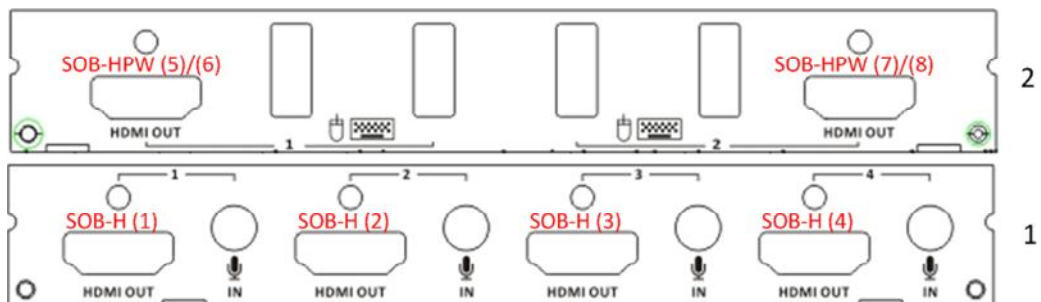
Figure 2-12 Pacific MS-2 Output Cards and Default Output Names
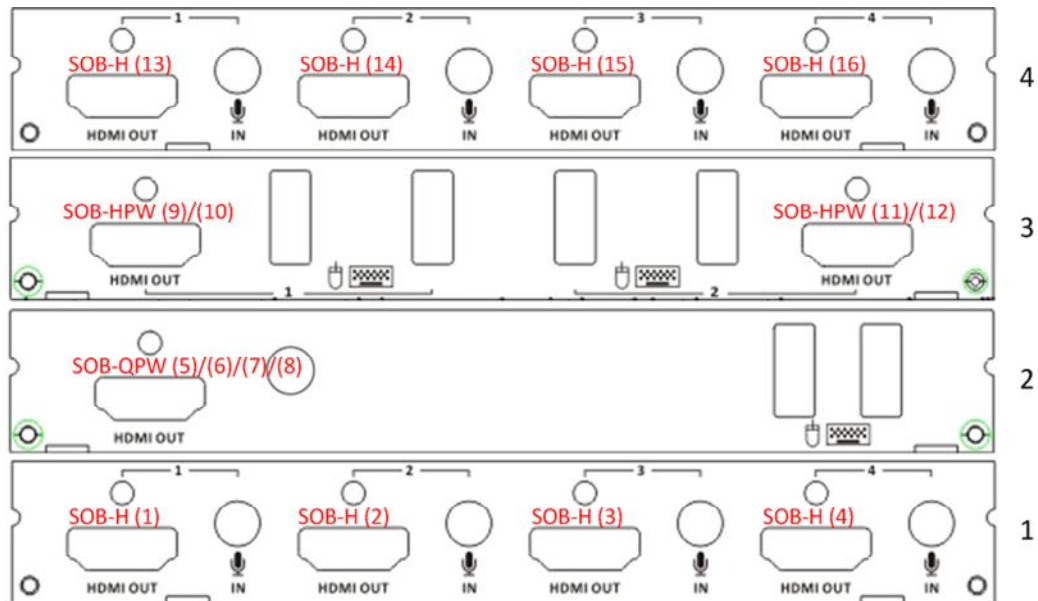
Figure 2-13 Pacific MS-3 Output Cards and Default Output Names

2.5 Connecting Pacific MS to Source Computers' USB Ports

Connect the KM card's USB type B ports to the source computers' USB type A ports using standard USB A/B cables to bypass mouse/keyboard control. Keep in mind that the KM card's slot location and port number will determine the naming of the signal in the in-system GUI. For each USB type B port, numbering is consecutive from left to right on each KM card, and from the left card to the right one.

Below is an example showing the KM card and its USB port names in Red (E.g., "KM (**5**)" corresponds to the USB type B port on KM card slot 1, port 5).
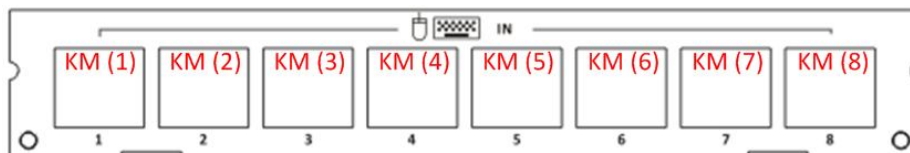
Figure 2-14 KM Cards and Names

To achieve plug-and-play KVM switching upon using the Pacific MS for the first time, connect the SIB-H (**1**) and KM (**1**) to the same computer, SIB-H (**2**) and KM (**2**) to the same computer, and so on. This will allow you to monitor and control any source computer routed to your console without the need for manual configurations.

Alternatively, you can connect source computers' video outputs and USB type A ports to any SIB-H and KM cards' HDMI and USB ports. You can then flexibly bundle mouse/keyboard control with any designated video input according to your installation to achieve instant KVM switching. Refer to section 3.2.2 "Keyboard and Mouse Control Routing" in detail.

📄 *When the Pacific MS-2 is loaded with two KM cards, only the first four (1 - 4) USB ports on KM card slot 2 are functional. Likewise, when the Pacific MS-3 is loaded with three KM cards, only the first four (1 - 4) USB ports on KM card slot 3 are functional.*

2.6 Connecting Pacific MS to Sources' Audio Ports (Microphone Function)

Connect external microphones to the SOB-H's stereo phono jacks. Then connect the corresponding SIB-H's stereo phono jacks (**LINE OUT**) to the source devices' analog audio input ports using standard audio cables. Microphone audio signals will be transmitted from the SOB-H to connected sources through the SIB-H card.

Below is an example showing the Pacific MS's input and output card (SIB-H and SOB-H) with their respective names in Red, and the source "SIB-H (3)" is switched to the destination "SOB-H (2)". Audio signal entering the SOB-H's microphone input (port 2) will then be switched to the source device connected to SIB-H's **Line Out** port (port 3).
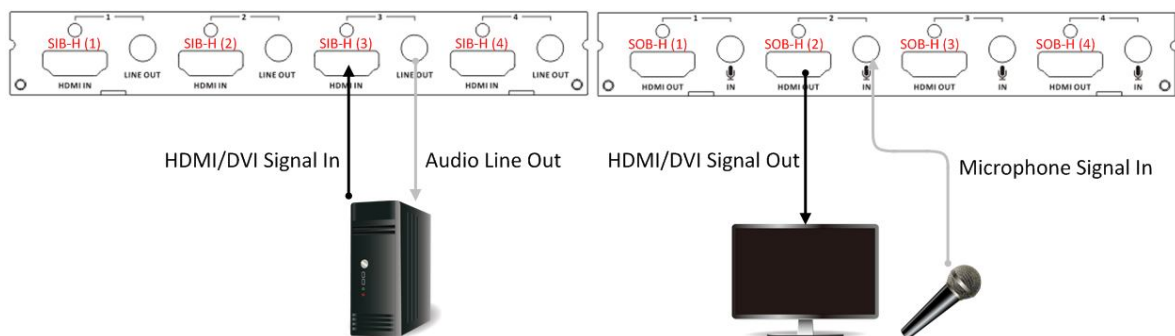
Figure 2-15 Microphone In and Audio Line Out

2.7 Connecting Monitor for In-System GUI and Local Computer Management

Locate the control card on the Pacific MS. The control card manages all workflows of the Pacific MS.

⚠️ | *The control card is not hot-swappable and must not be removed during system uptime.*

Connect the control card's **HDMI OUT** to a monitor using the appropriate signal cable. The monitor will display the Pacific MS' in-system GUI.

Connect a set of mouse and keyboard to the control card's USB type A ports 🔲 to control the in-system GUI.

📄 | 1. *The Pacific MS' in-system GUI is outputted at 1920 x 1080p and requires connecting to a monitor with full HD and HDCP support.*
2. *Non-standard keyboards (E.g., keyboards with a USB hub, keyboards that need driver installation and programmable keyboard, etc.) are not supported.*
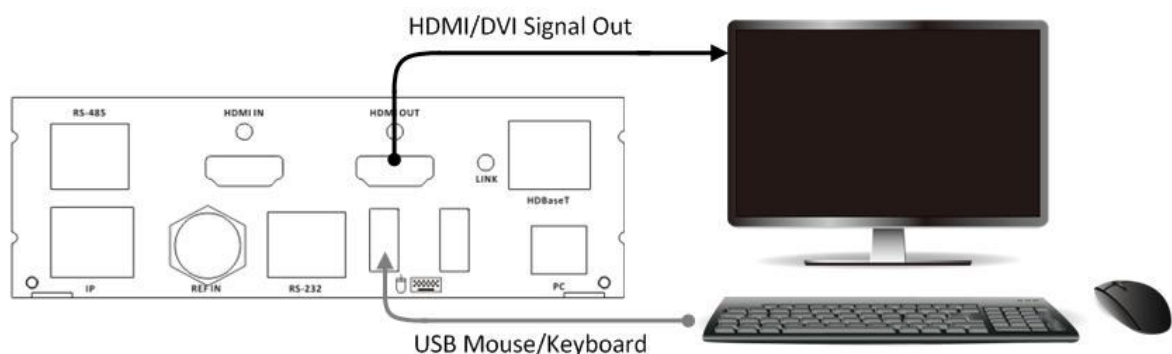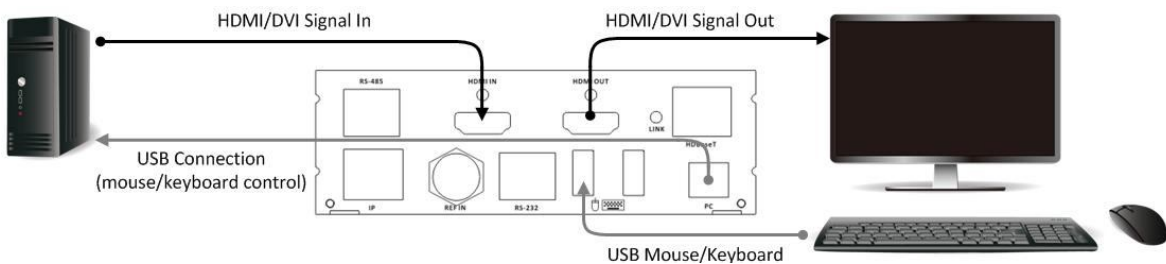

Figure 2-16 Control Card Cabling for In-system GUI Display and Control

The Pacific MS also enables bypassing the video and control signal of a local computer through the control card, allowing the in-system GUI and the local computer to be operated interchangeably using the same set of monitor, mouse, and keyboard.

To have a local computer set up with the Pacific MS, connect the local computer's HDMI (or DVI with DVI to HDMI adapter) output to the control card's **HDMI IN**. Then connect the local computer's USB type A port to the USB type B port (**PC**) of the control card using a standard USB A/B cable.

Once the connection is made, you will be able to freely switch monitoring and control between the Pacific MS' in-system GUI and your local computer on the same monitor and mouse/keyboard. Refer to section 4.5 "Module Switching in a Cascaded System" for more information in detail.

Figure 2-17 Control Card Cabling for In-system GUI/Local Computer Display and Control

2.8 Basic Setup for Video Switching and Routing

The following shows a typical setup with a single Pacific MS connected to computer/video sources and monitors for video switching/routing.

⚠️ | *DO NOT place any object on the top or side panels of the Pacific MS.*
Doing so could affect its internal components and/or its heat dissipation.
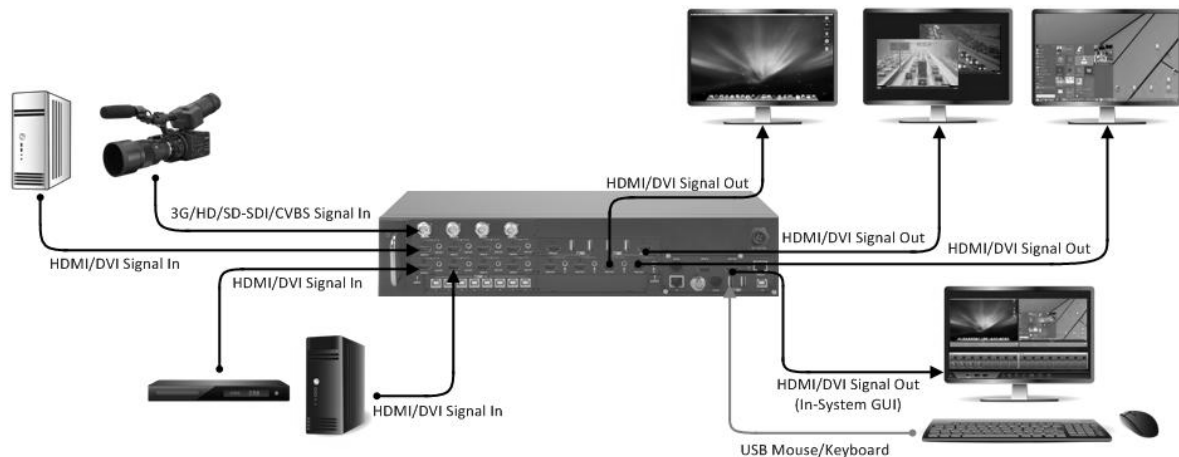
Figure 2-18 Pacific MS with Video Routing Setup

Step 1. *Connect a computer or video source to the HDMI or BNC connector of the Pacific MS' input card. Repeat the step for all source devices.*

Step 2. *Connect a HDMI or DVI (through a HDMI to DVI adapter) monitor to the HDMI port of the Pacific MS' output card. To simultaneously view multiple sources on a single monitor, connect that monitor to one of the multiviewer output (SOB-HPW or SOB-QPW). Repeat the step for all monitors.*

Step 3. *Connect a HDMI or DVI (through a HDMI to DVI adapter) monitor to the **HDMI OUT** of the Pacific MS' control card for in-system GUI display.*

Step 4. *Connect a set of mouse and keyboard to the USB type A ports* ⬛ *on the Pacific MS' control card for in-system GUI control.*

Step 5. *Connect the 12V DC power adapter to your Pacific MS to power it on. All connected monitors will load the Avitech logo upon system power-on.*

Step 6. *After the boot logo on the **HDMI OUT** monitor finishes loading, the in-system GUI will appear and the Pacific MS is ready for video switching/routing operation.*

📄 | *Non-standard keyboards (E.g., keyboards with a USB hub, keyboards that need driver installation and programmable keyboard, etc.) are not supported.*

2.9 Basic Setup for KVM (Keyboard Video Mouse) Switching

The following shows a typical setup with a Pacific MS connected to computer sources for video and mouse/keyboard control switching.

⚠️ | *DO NOT place any object on the top or side panels of the Pacific MS.*
Doing so could affect its internal components and/or its heat dissipation.
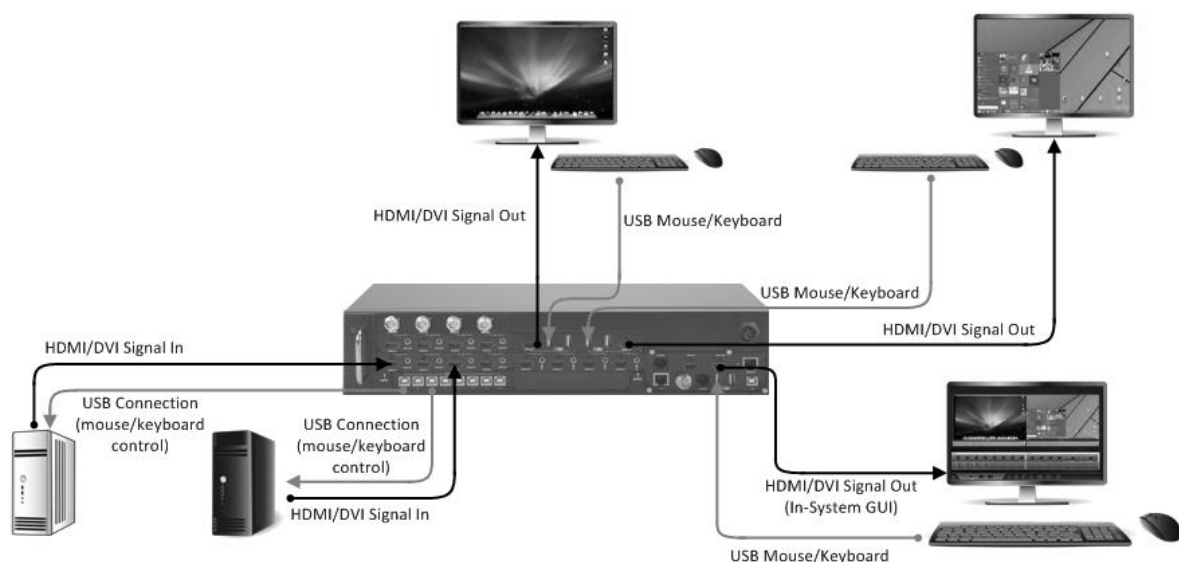
Figure 2-19 Pacific MS with Video and Mouse/Keyboard Switching Setup

Step 1. *Connect a computer to the HDMI port of the Pacific MS' input card. Repeat the step for all source computers.*

Step 2. *Connect a USB A/B cable to the computer's USB type A port, and connect the other end to the USB type B port* ⬛ *of the Pacific MS' KM card. Refer to section 2.5 "Connecting Pacific MS to Source Computers' USB Ports" for more detailed information on the KM card and its ports. Repeat this step for all source computers.*

Step 3. *Connect a HDMI or DVI (through a HDMI to DVI adapter) monitor to the HDMI port of the Pacific MS' SOB-HPW or SOB-QPW card. Repeat the step for all monitors.*

Step 4. *Connect a set of mouse and keyboard to the USB type A ports* ⬛ *of the SOB-HPW or SOB-QPW card that will be routed from the source computer.*

Step 5. Connect a HDMI or DVI (through a HDMI to DVI adapter) monitor to the **HDMI OUT** of the Pacific MS' control card for in-system GUI display.

Step 6. Connect a set of mouse and keyboard to the USB type A ports ⬚⌨ on the Pacific MS' control card for in-system GUI control.

Step 7. Connect the 12V DC power adapter to your Pacific MS to power it on. All connected monitors will load the Avitech logo upon system power-on.

Step 8. After the boot logo on the **HDMI OUT** monitor finishes loading, the in-system GUI will appear and the Pacific MS is ready for video and mouse/keyboard control switching operation.

> 📄 *Non-standard keyboards (E.g., keyboards with a USB hub, keyboards that need driver installation and programmable keyboard, etc.) are not supported.*

2.10 Basic Setup in Cascading

The following shows a typical setup with two Pacific MS modules in cascade with a local computer. This allows user to freely access connected modules' in-system GUI to control any Pacific MS as well as the local computer from the same monitor, mouse, and keyboard console.

> ⚠️ *DO NOT place any object on the top or side panels of the Pacific MS.*
> *Doing so could affect their internal components and/or heat dissipation.*
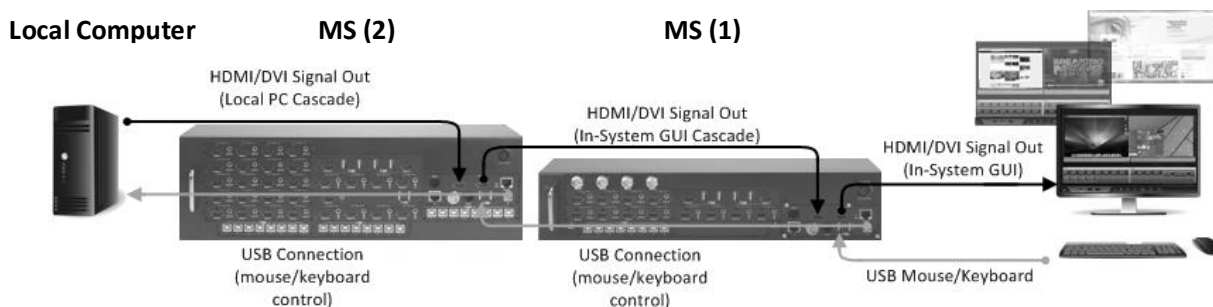
Figure 2-20 Pacific MS in Cascade with a Local System Setup

Step 1. For setting up individual Pacific MS modules, follow step 1 – 4 as outlined in the previous section (2.9) "Basic Setup for KVM Switching".

Alternatively, follow step 1 – 2 as outlined in section (2.8) "Basic Setup for Video Switching and Routing" if no mouse/keyboard functions we be needed.

Step 2. Connect the HDMI or DVI (through a DVI to HDMI adapter) output of the local computer to the **HDMI IN** on the Pacific MS (**2**)'s control card.

Step 3. Connect a USB A/B cable to the local computer's USB type A port, and connect the other end to the USB type B port (**PC**) on the Pacific MS (**2**)'s control card.

Step 4. Connect the **HDMI OUT** on the Pacific MS (**2**)'s control card to the **HDMI IN** on the Pacific MS (**1**)'s control card using the HDMI cable.

Step 5. Connect a USB A/B cable to the USB type A port on the Pacific MS (**2**)'s control card, and connect the other end to the USB type B port (**PC**) on the Pacific MS (**1**)'s control card.

Step 6. Connect a HDMI or DVI (through a HDMI to DVI adapter) monitor to the **HDMI OUT** of the Pacific MS (**1**)' control card for in-system GUI display.

Step 7. Connect a set of mouse and keyboard to the USB type A ports ⬚⌨ on the Pacific MS (**1**)' control card for in-system GUI control.

Step 8. *Connect 12V DC power adapters to both Pacific MS modules to power them on. All connected monitors will load the Avitech logo upon system power-on.*

Step 9. *After the boot logo on the **HDMI OUT** monitor finishes loading, the Pacific MS (**1**)'s in-system GUI will be shown and both modules are ready to operate. Through the MS (**1**)'s in-system GUI menu and/or keyboard hot-keys, you can freely switch to operate on MS (**2**) or the local computer using the same monitor, mouse, and keyboard. Refer to section 4.5 "Module Switching in a Cascaded System" for more information in detail.*

Non-standard keyboards (e.g., keyboards with a USB hub, keyboards that need driver installation and programmable keyboard, etc.) are not supported.

2.11 Basic Setup with Remote Source Devices and Monitors

The following shows a typical setup with the Pacific MS' SIB-T, SOB-T and control card working in conjunction with the Pacific X-HDUP extender (transmitter) and the Pacific X-HDUR (receiver).

⚠️ *DO NOT place any object on the top or side panels of the Pacific MS and Pacific X-HDUP. Doing so could affect their internal components and/or heat dissipation.*
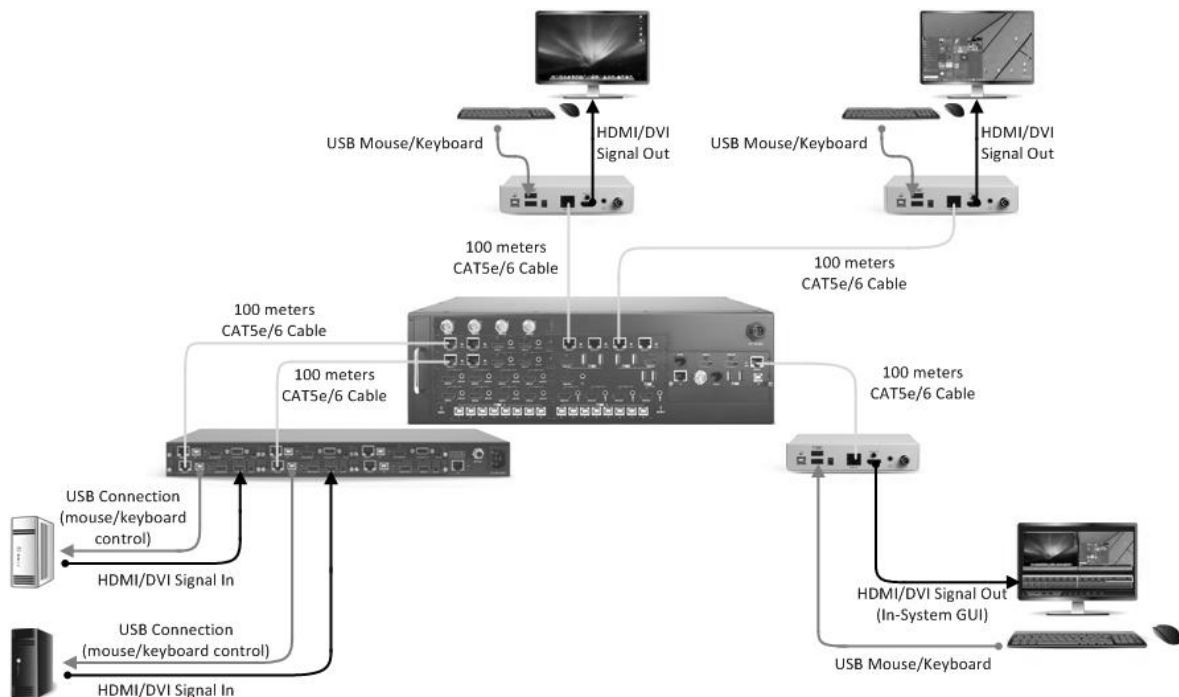
Figure 2-21 Pacific MS with Extended Video and Mouse/Keyboard Switching Setup

Connect remote sources to Pacific MS:

Step 1. *Connect a computer or video source to the HDMI input port of the Pacific X-HDUP. Repeat the step for all source devices.*

Step 2. *For a source computer, connect a USB A/B cable to the computer's USB type A port, and connect the other end to the USB type B port (**PC**) of the Pacific X- HDUTP (modular card of the Pacific X-HDUP chassis). Repeat this step for all source computers.*

Step 3. Connect a standard CAT5e/6 Ethernet cable to the HDBaseT (Ethernet) port of the Pacific X-HDUTP, and connect the other end to the HDBaseT (Ethernet) port of the Pacific MS' SIB-T card. The distance between the two devices can be up to 100 meters. Repeat the step for all outputs from the Pacific X-HDUP chassis.

Connect Pacific MS to remote monitors:

Step 4. Connect a standard CAT5e/6 Ethernet cable to the HDBaseT (Ethernet) port of the Pacific MS' SOB-T card, and connect the other end to the HDBaseT (Ethernet) port of the Pacific X-HDUR. The distance between the two devices can be up to 100 meters. Repeat the step for all outputs from the SOB-T card.

Step 5. Connect a HDMI or DVI (through a HDMI to DVI adapter) monitor to the HDMI port of each Pacific X-HDUR.

Step 6. Connect a set of mouse and keyboard to the USB type A ports ⌨ on the Pacific X-HDUR for remote access to the routed computer. Only the Pacific X-HDUR connected to HDBaseT **1** or **3** of the SOB-T card requires mouse/keyboard connection.

Connect Pacific MS' in-system GUI to remote display:

Step 7. Connect a standard CAT5e/6 Ethernet cable to the HDBaseT (Ethernet) port on the Pacific MS' control card, and connect the other end to the HDBaseT (Ethernet) port of the Pacific X-HDUR. The distance between the two devices can be up to 100 meters.

Step 8. Connect a HDMI or DVI (through a HDMI to DVI adapter) monitor to the HDMI port of the Pacific X-HDUR for extended in-system GUI display.

Step 9. Connect a set of mouse and keyboard to the USB type A ports ⌨ of the Pacific X-HDUR for extended in-system GUI control.

Step 10. Connect the 12V DC power adapter to your Pacific MS to power it on. Also power on the Pacific X-HDUP and X-HDUR with their own power supplies. All connected monitors will load the Avitech logo upon system power-on.

Step 11. After the boot logo on the **HDMI OUT** monitor finishes loading, the in-system GUI will appear and the Pacific MS is ready to operate.

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1. Avitech recommends using CAT6 cables or better (shielded cables) for optimum performance.
2. For the SOB-T card, only HDBaseT **1** and HDBaseT **3** are capable of receiving USB mouse/keyboard control signals from the Pacific X-HDUR; HDBaseT **2** and HDBaseT **4** transmit video signals only.
3. Non-standard keyboards (E.g., keyboards with a USB hub, keyboards that need driver installation and programmable keyboard, etc.) are not supported.

3. Basic Routing Operations

The Pacific MS provides intuitive signal switching/routing methods via the in-system GUI. Alternatively, one can perform simple video switching/routing using the front push-button panel for local operation. The front push-button panel will be referred as the "**FPB**" in the following sections of this chapter.

This chapter contains information on video (including embedded audio) switching and routing using the FPB, followed by full routing configurations in video (including embedded audio) and USB mouse/keyboard control via the Pacific MS' in-system GUI.

3.1 Basic Routing Operation via the Front Push-Button Panel

The Pacific MS-2 and MS-3's FPB function identically, but have input and output button support respective to their size. Each panel has three execution push buttons (**SOURCE**, **DESTINATION**, and **TAKE**) to carry out a complete signal switching/routing operation. The **PANEL ON/OFF** button locks the FPB control and can prevent accidentally pushing any button that may alter the established routing.
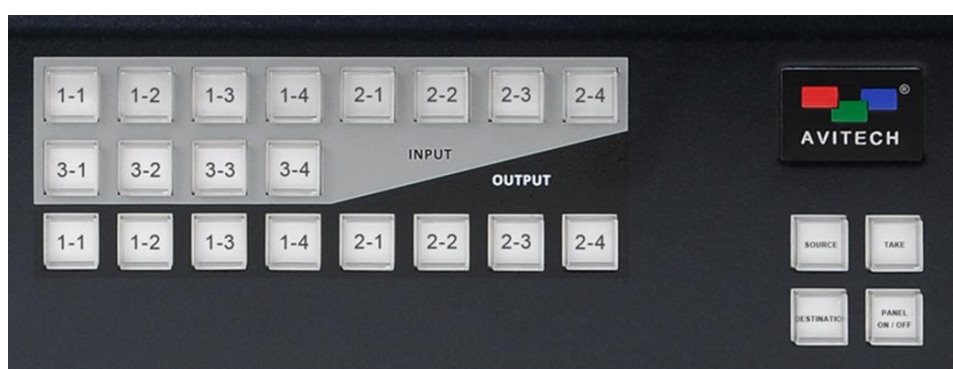
Figure 3-1 Pacific MS-2 Front Push-Button Panel (FPB)
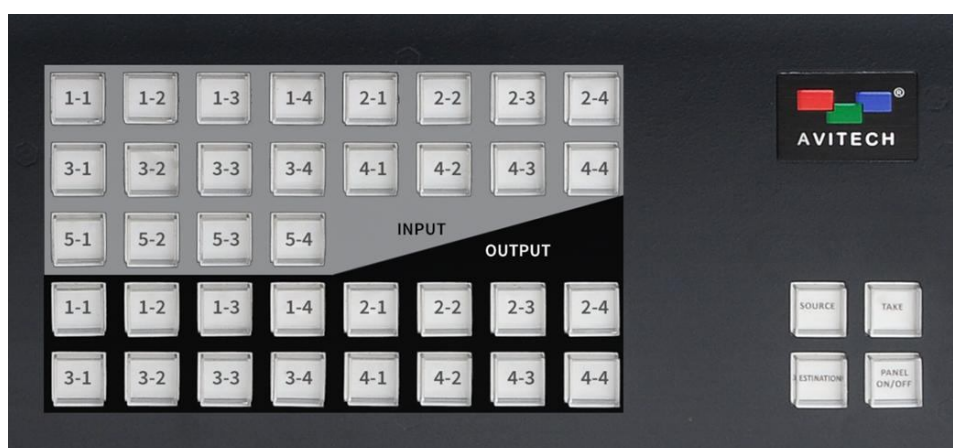
Figure 3-2 Pacific MS-3 Front Push-Button Panel (FPB)

To switch a source to any one or route to multiple destinations using the FPB, perform the following steps:

The following sequence needs to be followed strictly to carry out a complete switching/routing action.

*Step 1. Press the **Panel On/Off** button to activate FPB control. This button will illuminate indicating that the FPB has been unlocked.*

*Step 2. Press the **SOURCE** button to initiate video switching/routing.*

Step 3. Select the target source to be switched/routed by pressing the corresponding input button. The pressed button will illuminate.

*Step 4. Press the **DESTINATION** button to begin assigning destination(s) where the selected source will be switched/routed.*

Step 5. Select the target destination(s) by pressing the corresponding output button(s). Multiple destinations can be selected for routing (the order of selection will not affect the routing result). The pressed button(s) will illuminate; press the illuminated output button(s) to cancel the assignment to the respective destination.

> *Depending on types of output cards, a video signal can be switched to display in full screen (SOB-H, SOB-T, or SOB-HPW in <u>Seamless</u> mode), or switched to a window of a multiview display (SOB-QPW or SOB-HPW in <u>Dual</u> mode).*

*Step 5. Press the **TAKE** button to confirm and execute the switching/routing operation.*

Figure 3-3 FPB Control Sequence Diagram

Step 6. Verify the routing status on the FPB by pressing the target input or output button. Pressing an input button will illuminate the button itself and all of the outputs that it is routed to. Likewise, pressing an output button will illuminate the button itself, the input it is routed from, and all the other outputs routed from the same input.

> *1. Switching or routing a source to the destination(s) in which the source has already been routed to will cancel the original routing (only through FPB control).*
> *2. The FPB is used to control video switching/routing (along with embedded audio and bundled mouse/keyboard control). For separate mouse/keyboard routing configuration, use the Pacific MS' in-system GU instead.*
> *3. The FPB control will be automatically locked upon sensing an idle period of 30 seconds.*

The following examples demonstrate video routing on the Pacific MS-3 using the FPB. The MS-3 chassis below includes five SIB-H input cards. Also installed in the chassis are one SOB-H, SOB-QPW, SOB-H, and SOB-HPW output card in output card slot 1, 2, 3, and 4 respectively.

Figure 3-4 Pacific MS-3 Rear Panel for FPB Routing Demonstration

3.1.1   Example 1: Route Source 1-1 to Output 3-2

✓   Output 3-2 corresponds to port 2 of the SOB-H card in slot 3.

Use the following push-button sequence to achieve the resulted routing shown in the figure below:

SOURCE → 1-1(INPUT) **→ DESTINATION → 3-2** (OUTPUT) **→ TAKE**

Figure 3-5 Pacific MS-3: Route Source 1-1 to Destination 3-2

3.1.2 Example 2: Route Source 1-2 to Output 1-2, 2-3, and 4-3.

✓   Output 1-2 corresponds to port 2 of the SOB-H card in slot 1.

✓   Output 2-3 corresponds to window 3 of the SOB-QPW card in slot 2.

✓   Output 4-3 corresponds to window 1, port 2 of the SOB-HPW card in slot 4.

Use the following push-button sequence to achieve the resulted routing shown in the figure below:

SOURCE → 1-2 (INPUT) **→ DESTINATION → 1-2, 2-3, 4-3** (OUTPUT) **→ TAKE**

Figure 3-6 Pacific MS-3: Route Source 1-2 to Destination 1-2, 2-3, and 4-3

3.1.3 Example 3 (continues from Example 2): Cancel Source 1-2 routed to Output 2-3 and 4-3

✓   Output 2-3 corresponds to window 3 of the SOB-QPW card in slot 2

✓   Output 4-3 corresponds to window 1, port 2 of the SOB-HPW card in slot 4.

Use the following push-button sequence to achieve the resulted routing shown in the figure below:

SOURCE → 1-2 (INPUT) **→ DESTINATION → 2-3, 4-3** (OUTPUT) **→ TAKE**

Figure 3-7 Pacific MS-3: Cancel Source 1-2 Routed to Destination 2-2 and 4-3

3.2 Basic Routing Operation via In-System GUI

The Pacific MS' in-system GUI offers a comprehensive set of control for video, audio (microphone line-out), and USB mouse/keyboard (KM) switching. Any source can be directly viewed on the in-system GUI's preview windows for real-time signal monitoring to ensure routing with confidence. User can also remotely operate any source computers through the preview displays with the mouse/keyboard connected for in-system GUI control.

The in-system GUI is the primary configuration tool for the Pacific MS. This section discusses two routing configurations (video and KM). For a more in-depth understanding of other in-system GUI's functions, refer to Chapter 4.

Figure 3-8 Pacific MS Series In-System GUI Routing Component and Description

In-System GUI	
❶ **Input Control Bar**	Automatic sensing of installed input cards and port status: ❖ **Input Ports** ✓ Pacific MS-2: input port from (1) up to (12) ✓ Pacific MS-3: input port from (1) up to (20) *Note: Input signal icons vary in accordance with different types of input cards/ports (HDMI, BNC, or RJ-45 ports).* ❖ **Color indicators** (3 independent indicators per input port) ✓ Glows blue when detecting video signal presence ✓ Glows green when detecting embedded audio signal presence and the input port has been previewed on the in-system GUI ✓ Glows amber when detecting USB connection with the source computer (for bypassing mouse/keyboard control)
❷ **Output Control Bar**	Automatic sensing of installed output cards and port status ❖ **Output ports** ✓ Pacific MS-2: output port from (1) up to (8) ✓ Pacific MS-3: output port from (1) up to (16) *Note: Output signal icons vary in accordance with different types of output cards (HDMI or RJ-45 ports).* ❖ **Color indicator** ✓ Glows blue when detecting monitor presence
❸ **Preview Windows**	For real-time monitoring of any selected input (source preview) or output video signal (output confirmation). Supports remote access and control of the source computer currently monitored on the preview window.

The menu contains a collective of settings for configuring the Pacific MS. In this chapter, two of them are discussed:

❹ **GUI Menu**

❖ **KM Assign** allows bundling USB mouse/keyboard signals with designated video inputs (from source computers) when switched
✓ Pacific MS-2: KM port from (1) up to (12)
✓ Pacific MS-3: KM port from (1) up to (20)

❖ **Audio Assign** allows setting for audio (microphone audio line-out) signal routing (reserved for future)

Table 3-1 Pacific MS Series In-System GUI Routing Component Description

3.2.1 Video Routing

The in-system GUI comprises an input and output control bar displaying all I/O ports in consecutive order according to card installations. Video switching can be achieved through simple drag-and-drop of input onto the target output, or multiple outputs for video routing.

The input and output control bar can be freely repositioned using the on-screen mouse cursor. Before proceeding to video switching/routing, be sure to have both control bars expanded by clicking the expansion icon on the respective top-right corner.

To switch or route a video source to a destination(s), perform the following steps:

Step 1. Select the target video source by holding the mouse left-button on its input signal icon.
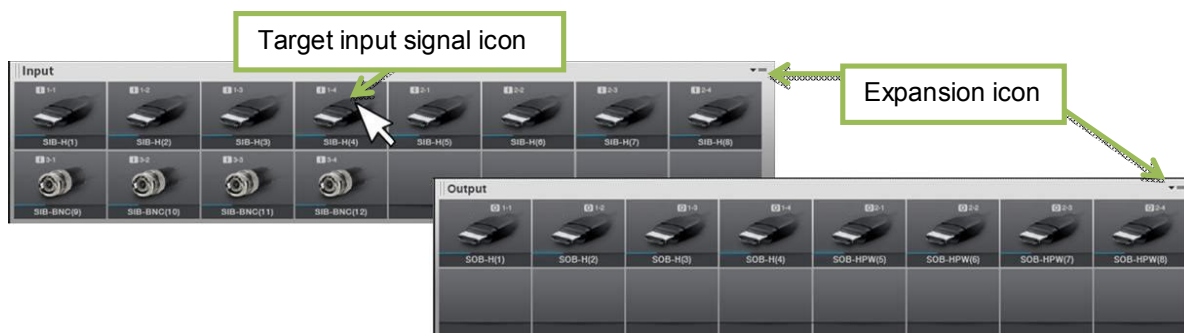
Figure 3-9 In-System GUI: Input and Output Control Bar

Step 2. Drag and drop the selected source onto the target output signal icon. The output signal icon will show the input port it is routed from on its top-right corner.

1. *Depending on types of output cards, a video signal can be switched to display in full screen (SOB-H, SOB-T, or SOB-HPW in Seamless mode), or switched to a window of a multiview display (SOB-QPW or SOB-HPW in Dual mode).*
2. *Embedded audio is switched/routed following the video signal (supporting HDMI and SDI input with up to 8-channel and 16-channel embedded audio respectively).*

Figure 3-10 In-System GUI: Input and Output "Drag-and-Drop"

The SOB-HPW card has two display modes: <u>Dual</u> mode (default) and <u>Seamless</u> mode.

In <u>Dual</u> mode, two sources can be routed to one display and simultaneously monitored. Dual-view layouts are fully customizable with free-scaling windows and OSD (on-screen display). When <u>Dual</u> mode is active, the SOB-HPW shows four output signal icons on the output control bar. Each icon corresponds to a window of a dual-view display.
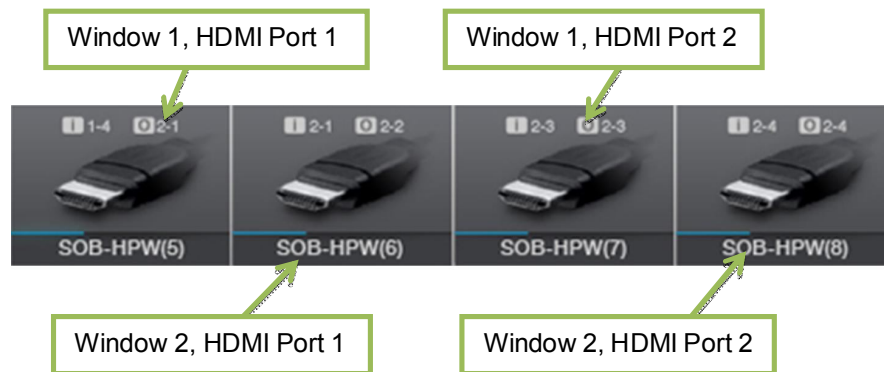
Figure 3-10 Output Control Bar – SOB-HPW in <u>Dual</u> Mode

In <u>Seamless</u> mode, SOB-HPW outputs in full screen. Switching signals to the SOB-HPW is seamless with no black intervals. When <u>Seamless</u> mode is active, the SOB-HPW shows two output signal icons on the output control bar. Each icon corresponds to a HDMI output port of the SOB-HPW card.
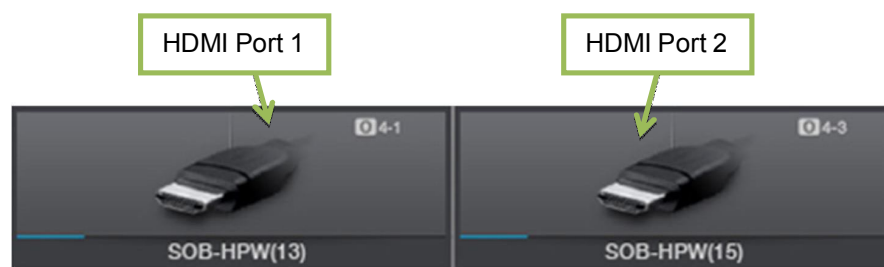
Figure 3-11 Output Control Bar – SOB-HPW in <u>Seamless</u> Mode

To switch between <u>Dual</u> mode and <u>Seamless</u> mode, right-click anywhere on the SOB-HPW's output signal icons, and then select the desired display mode.

Currently in Seamless mode

Dual mode

Seamless mode

Currently in Dual mode
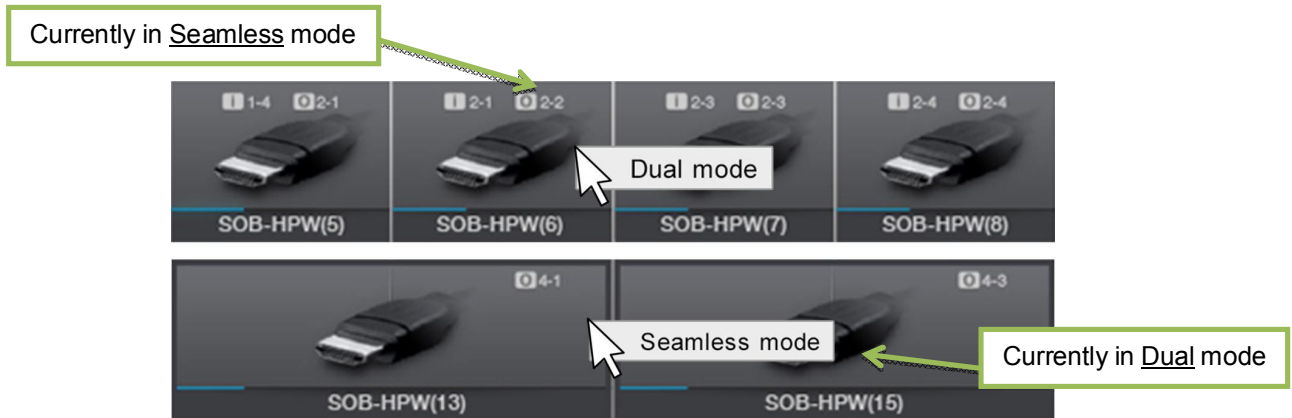
Figure 3-12 Right Click to Switch Between SOB-HPW's Display Mode

1. Display mode setting will be simultaneously applied to both HDMI output ports of the SOB-HPW card.
2. Please note the following behavior when switching between Seamless and Dual mode:
   a. When switched from Dual mode to Seamless mode, Source 1 window will automatically be selected to be the full screen output.

   b. When switched from Seamless mode to Dual mode, both Source 1 and Source 2 window will be routed from the same source used during Seamless mode.

The SOB-QPW card delivers a quad multiview solution that allows four sources to be routed to a single display and simultaneously monitored. Quad-view layouts are fully customizable with free-scaling windows and OSD (on-screen display). On the control bar, the SOB-QPW shows four output signal icons, each corresponding to a window of a quad-view display.

Window 1

Window 4

Window 1

Window 2

Window 3

Window 4

Figure 3-13 Output Control Bar – SOB-QPW

Step 3. To route a video source to multiple destinations, simply repeat step 1 – 2 for all target outputs.

Step 4. Verify the video routing status on the in-system GUI by clicking the target input or output signal icon. Clicking an input will highlight the icon itself and all of the outputs that it is routed to. Likewise, clicking an output will highlight the icon itself, the input it is routed from, and all the other outputs routed from the same input.

Figure 3-14 Input and Output Control Bar: Routing Status Verification

3.2.2 Keyboard and Mouse Control Routing (KM Routing)

The Pacific MS allows user to flexibly bundle mouse/keyboard control with designated video signals. This makes KVM (Keyboard Video Mouse) switching easily accomplished while enhancing video and USB cabling flexibility between the Pacific MS and source computers.

By default, any video signal is bundled with the mouse/keyboard control bypassed through the corresponding USB port on the KM card (E.g., SIB-H (**1**), (**2**)…, (**20**) is bundled with KM (**1**), (**2**)…, (**20**) respectively). No additional configuration for KM routing is needed when connecting the Pacific MS and source computers in this manner as shown in the below figure.

Figure 3-15 SIB-H and KM Card: Point-to-Point Connection

If the source computers and the Pacific MS are connected differently from the aforementioned method, perform the following steps to customize KM routing to match your installation:

*Step 1. Locate **KM Assign** on the GUI menu and click on it. The **KM Assign** screen will appear and display the default KM routing as shown below.*
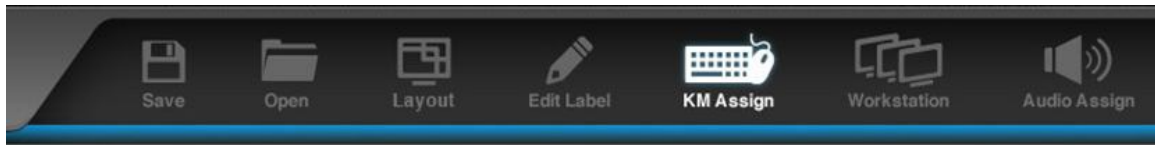
Figure 3-16 In-System GUI: Default KM Assign for Pacific MS-2

Step 2. *To change KM routing for **Input 1-1** (**SIB-H (1)** in this case) from the default, select the KM port from its drop-down menu that matches the actual cabling setup. A rule of thumb to set KM routing is to ensure that a video input and the to-be-assigned KM port are connected to the same source computer. For example, with the following installation, the KM routing should be configured accordingly:*
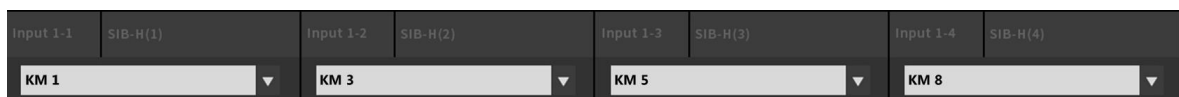
Figure 3-17 In-System GUI: Custom KM Assign following Cabling Setup

Step 3. *Repeat step 2 for any other KM routes to be changed.*

Step 4. *Click **Apply** to confirm changes made to KM routing (or click **OK** to confirm and exit the **KM Assign** screen directly).*

1. *KM ports that have already been assigned will not appear on the drop-down menu for selection.*
2. *Clicking **Clear** on the KM Assign screen will disable all existing KM routes ("**UNUSED**"). To restore to default KM settings, click **Default** on the same screen and then click **Apply** (or **OK**).*

3. *KM routing is fixed and not configurable for inputs entering the RJ-45 (Ethernet) ports of the SIB-T cards. In addition, with SIB-T card(s) installed, the corresponding KM ports cannot be assigned to other video inputs (for example, when SIB-T (1) and SIB-T (2) are present in the system, KM (1) and KM (2) will not be selectable from other inputs' drop-down menus).*
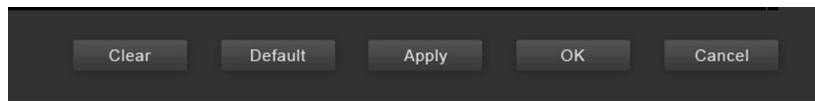
Figure 3-18 In-System GUI: KM Assign "Clear" and "Default"

Figure 3-19 In-System GUI: KM Assign after "Clear"
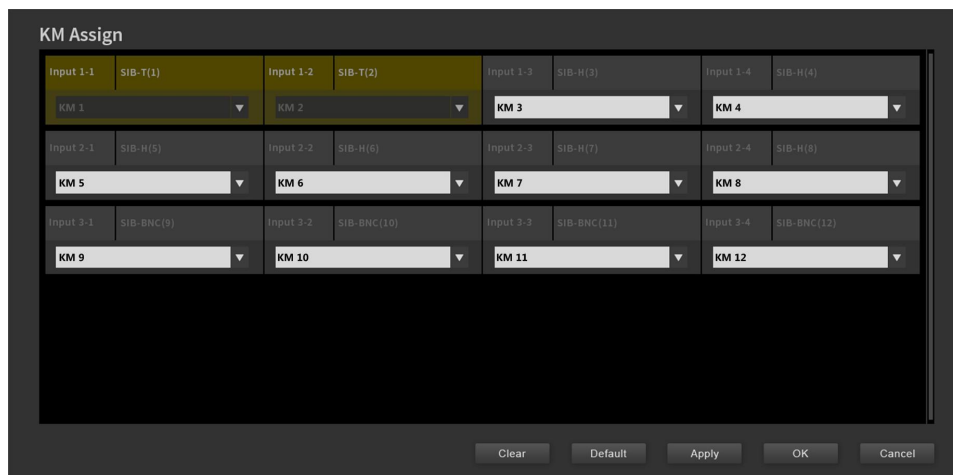
Figure 3-20 In-System GUI: KM Assign with Fixed SIB-T Inputs (RJ-45)

3.2.3 Source Signal Preview, Output Confirmation, and Remote Control

The Pacific MS' in-system GUI consists of two preview windows that allow real-time monitoring of any source or routed output. Preview windows are independent, fully customizable in layout, size, and position, and enable 2-channel audio monitoring via the HDMI monitor. Additionally, user can remotely access and control any source computer through the preview display.

Figure 3-21 In-System GUI: Preview Windows Unassigned

To view any source or routed output on the preview window(s), and to remotely control the corresponding source, perform the following steps:

Step 1. Select the target input or output to monitor by holding the mouse left-button on its signal icon.

Step 2. Drag and drop the selected input or output from the respective control bar anywhere onto either preview window.

Figure 3-22 Assign Preview via Drag and Drop

In addition to real-time video monitoring, the Pacific MS detects and displays information regarding the input signals' video and audio formats at the bottom of the preview window. Detected information includes:

✓ *Signal type: HDMI, DVI, or SDI*
✓ *HDCP state*
✓ *Source signal's resolution and refresh rate*
✓ *Source signal's color format*
✓ *Number of embedded audio channel(s) from the source signal*

To switch monitoring a different source or routed output, simply repeat step 1 - 2 for any desired input/output port.

Step 3. *To reposition either preview window, left-click anywhere on the window and then drag to the desired position after the drag cursor appears. To resize the window, move the mouse cursor to the window's edge and when the directional arrow appear, drag the window to the desired size (to switch to full screen, click on the "full screen" pop-up icon located on the top-right corner of the preview window).*

Step 4. *On the preview window, click the audio switch to enable audio output via the HDMI monitor (green indicates audio "on").*

Audio on/off switch

Video/Audio information

Figure 3-23 Preview Window: Audio On/Off Switch

When the source's output signal type is detected as DVI mode, audio monitoring will not be supported through the in-system GUI.

Step 5. *To remotely access and control the source computer through the preview display, double-click the mouse left-button anywhere on the preview window. The mouse/keyboard used for in-system GUI configuration will transfer control to the source computer. You can then control the computer as you regularly would on the preview window (window border changes to yellow).*

Step 6. *To return mouse/keyboard control from the remote computer to the in-system GUI, double-click the mouse-wheel button, or press the **Pause/Break** keyboard hot-key.*

Be sure to have the correct KM routing set up before attempting to control any source computer via the preview display. Refer to 3.2.2 "Keyboard and Mouse Control Routing (KM Routing)" in detail.

The following table provides a summary of available hot-key combinations for changing the layout of your preview display:

Hot-keys	
Ctrl + **F1**	Switches the first preview window (the right window by default layout) to full screen.
Ctrl + **F2**	Switches the second preview window (the left window by default layout) to full screen.
Alt + **F**	Returns from full screen display to the previous dual-view layout.

Table 3-2 Available Hot-keys for Preview Display

4. Basic Setup Using the In-System GUI

The in-system GUI contains a collective of settings for the Pacific MS. It provides routing control for video (including embedded audio) and USB mouse/keyboard. Additionally, it offers a real-time monitoring interface – two fully customizable preview windows for source preview and output confirmation. Other advanced configurations include grouping of workstations, custom labeling, and remote layout adjustment for multiviewer outputs.

The following table gives an overview of all the in-system GUI's components and their function descriptions in brief.

Figure 4-1 In-system GUI Component

In-System GUI	

❶ **Input Control Bar**	Automatic sensing of installed input cards and port status:
	❖ **Input Ports**
	  ✓ Pacific MS-2: input port from (1) up to (12)
	  ✓ Pacific MS-3: input port from (1) up to (20)
	Note: Input signal icons vary in accordance with different types of input cards/ports (HDMI, BNC, or RJ-45 ports).
	
	❖ **Color indicators** (3 independent indicators per input port)
	  ✓ Glows blue when detecting video signal presence
	  ✓ Glows green when detecting embedded audio signal presence and the input port has been previewed on the in-system GUI
	  ✓ Glows amber when detecting USB connection with the source computer (for bypassing mouse/keyboard control)

❷ **Output Control Bar**	Automatic sensing of installed output cards and port status
	❖ **Output ports**
	  ✓ Pacific MS-2: output port from (1) up to (8)
	  ✓ Pacific MS-3: output port from (1) up to (16)
	Note: Output signal icons vary in accordance with different types of output cards (HDMI or RJ-45 ports).
	
	❖ **Color indicator**
	  ✓ Glows blue when detecting monitor presence

❸ **Preview Windows**	For real-time monitoring of any selected input (source preview) or output video signal (output confirmation)
	Supports remote access and control of the source computer currently monitored on the preview window
❹ **Audio Assign**	For routing microphone input signal to designated input card's stereo phono jack(s) for audio line-out (reserved for future)
❺ **Workstation**	Customizes multi-monitor console(s) by grouping individual display outputs into workstation(s)
❻ **KM Assign**	Sets mouse/keyboard signal routing to follow designated video signals for KVM switching
❼ **Edit Label**	Customizes video input and output names appearing on the in-system GUI; or assigns custom names that will follow input sources upon routing for easy source identification
❽ **Layout**	For remote layout adjustment for SOB-QPW and SOB-HPW's multiviewer outputs
❾ **Open**	For loading a user-defined system file to recall previously saved configurations (reserved for future)
❿ **Save**	For saving all user-defined configurations to a system file that can be recalled later or used on different Pacific MS modules (reserved for future)
⓫ **Module**	Switches in-system GUI monitoring and control to another selected Pacific MS module in a cascaded system
⓬ **Right-click Menu**	For preview windows' layout adjustment settings, EDID management, and firmware update

Table 4-1 Complete Pacific MS in-system GUI Component Description

Please refer to section 3.2 for detailed information on video routing, KM routing, and preview functions (component ❶, ❷, ❸, and ❻). For detailed information about multi-monitor workstation configurations (component ❺), refer to Chapter 6.

4.1 Edit Label

The **Edit Label** function allows user to designate a custom name to each video input and output port according to actual installations. This enables more straightforward identification of each source and destination viewed from the in-system GUI, facilitating centralized management and easy switching/routing operation.

In addition, custom source names can be set to follow videos upon being switched or routed to the SOB-QPW and SOB-HPW cards. The SOB-QPW and SOB-HPW (in Dual mode) support quad- and dual-view display respectively with an on-screen label for each window indicating the respective source it is routed from. This helps operator to quickly identify and track the source signals routed onto multiview displays

To customize names for input and output ports appearing on the in-system GUI, perform the following steps:

*Step 1. Locate **Edit Label** on the GUI menu and click on it. The **Edit Label** screen will appear displaying all input and output ports of the Pacific MS and their default names.*
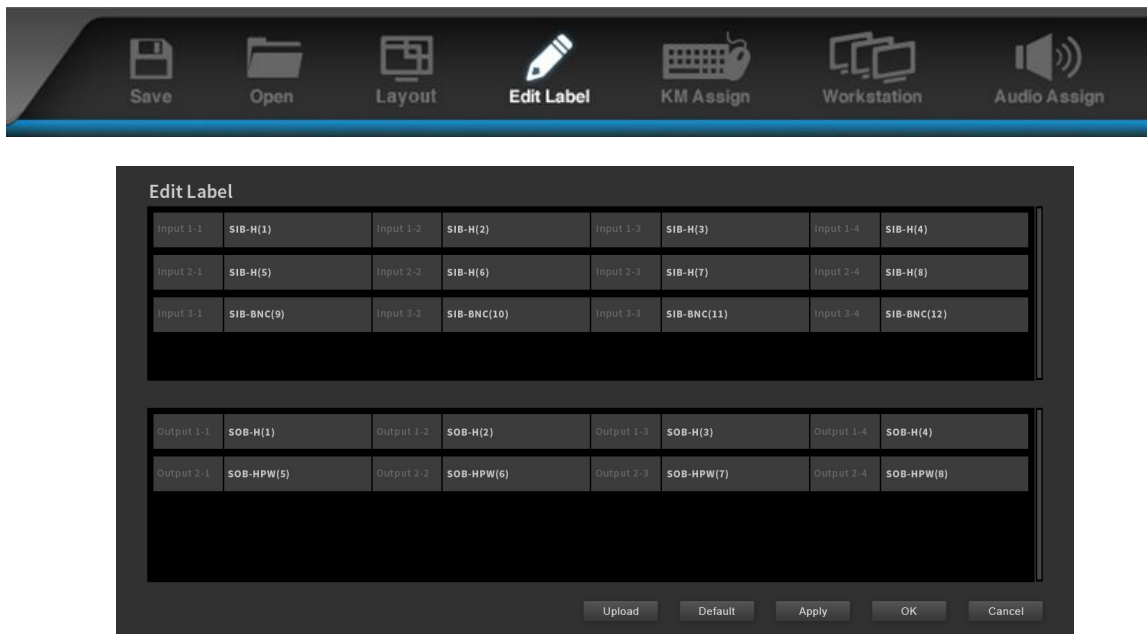
Figure 4-2 In-system GUI Edit Label: Default Names

Step 2. Click to highlight the target port and directly modify its name with the keyboard. Repeat the step for any port that requires its name to be edited.
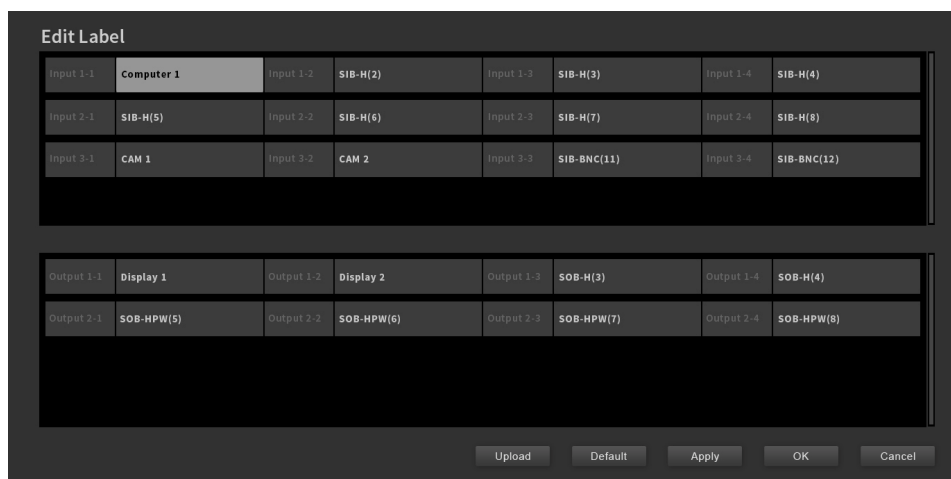
Figure 4-3 In-system GUI Edit Label: User-defined Names

The maximum length of each port name is 32 characters.

*Step 3. Click **Apply** to confirm changes made to all the ports (or click **OK** to confirm and exit the **Edit Label** screen directly). The input and output ports' names shown on the respective control bar and preview windows will be updated accordingly.*

📄 *In case of inserting an input or output card to a slot that previously housed a different type of card, the name of the new card may be shown incorrectly on the in-system GUI. To resolve this, simply modify the incorrect port names manually, or click **Default** to allow all port names to return to the default ones based on the current card constitution.*

To customize source names to be shown as windows' on-screen labels on a SOB-QPW and SOB-HPW display, perform the following steps:

*Step 1. Locate **Edit Label** on the GUI menu and click on it. The **Edit Label** screen will appear displaying all input and output ports of the Pacific MS and their default names.*
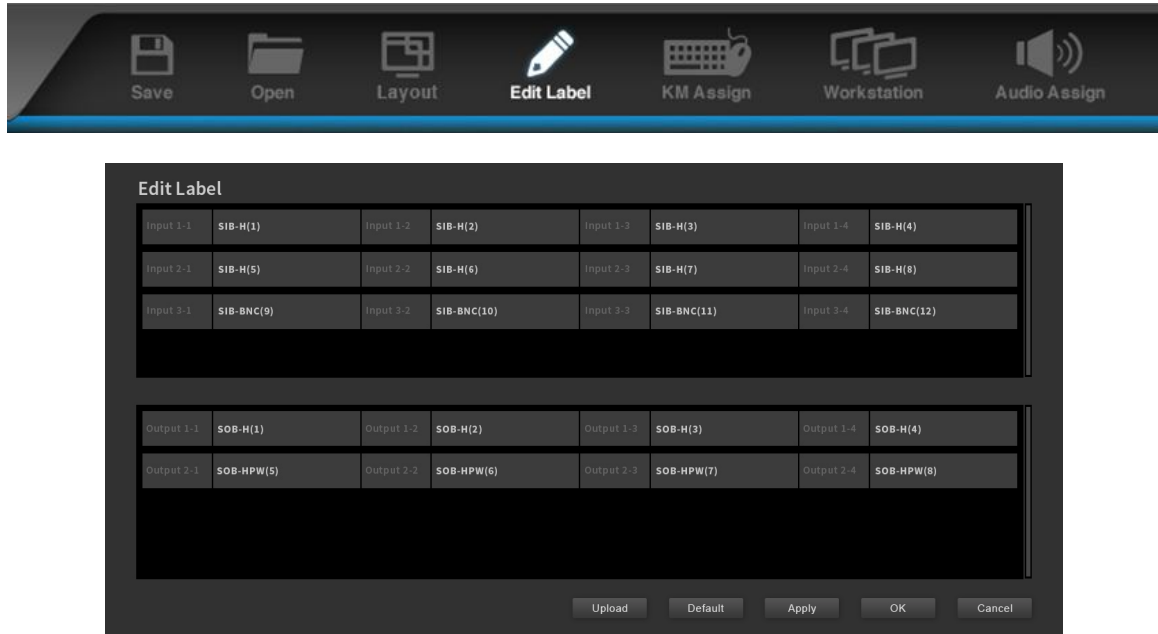
Figure 4-4 In-system GUI Edit Label: Default Names

Step 2. Click to highlight the target port and directly modify its name using the keyboard. Repeat the step for any port that requires its name to be edited.
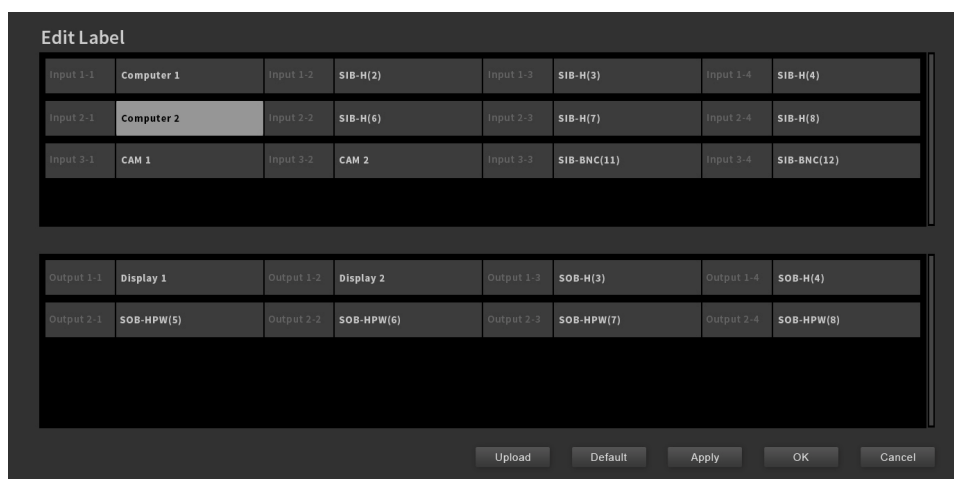
Figure 4-5 In-system GUI Edit Label: User-defined Names

Step 3. Click **Apply** to confirm changes made to all the ports. Then click **Upload** and the following screen will appear. Select the input ports you wish to have their names uploaded to multiviewer outputs' on-screen labels by checking their respective checkboxes (or click **Select All** to select all of the input ports).
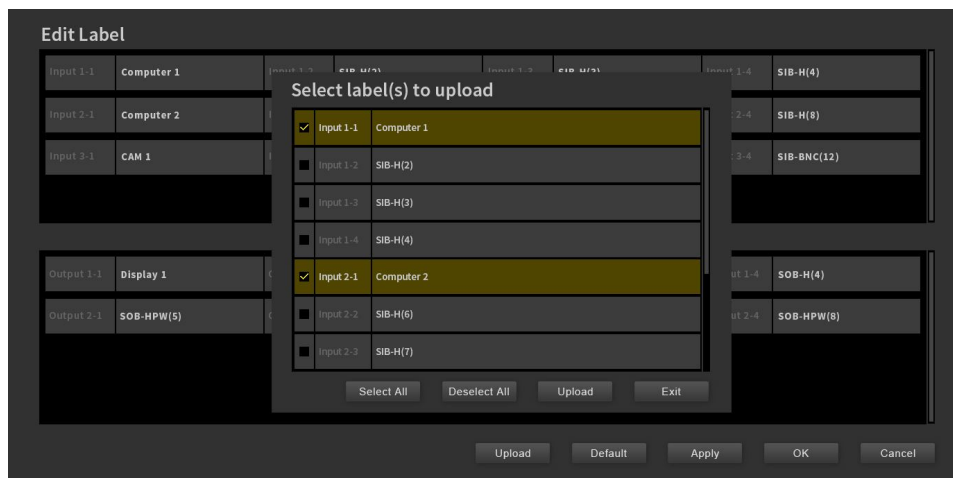
Figure 4-6 In-system GUI Edit Label: Select Label(s) to Upload

*Notice that only input ports are available for selection on the **Upload** screen. Customized output port names are only viewable from the in-system GUI.*

Step 4. Click **Upload** to send the updated input ports' names to all multiviewer output cards. The progress bar will appear indicating the progress of data being uploaded.
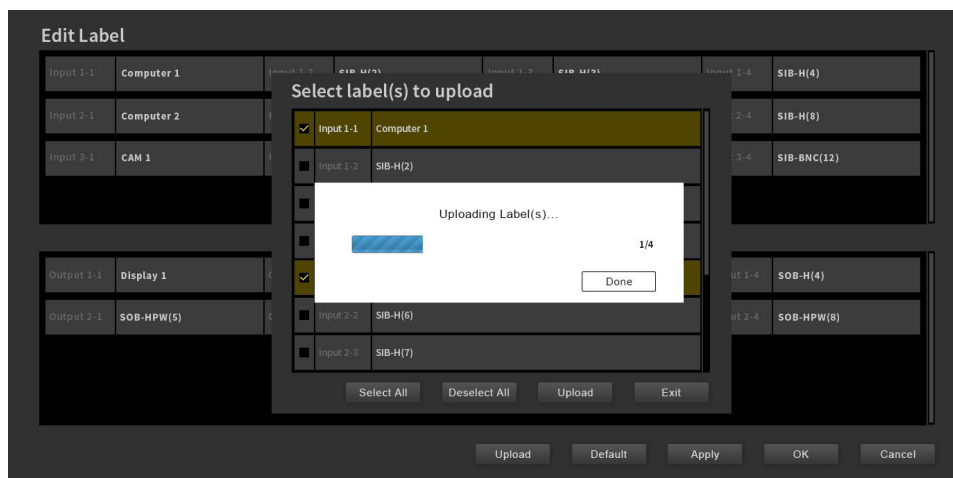
Figure 4-7 In-system GUI Edit Label: Source Label(s) Upload in Progress

Step 5. Once the progress bar finishes loading, click **Done** and then **Exit** to return to the **Edit Label** screen. Click **OK** once completing label editing.
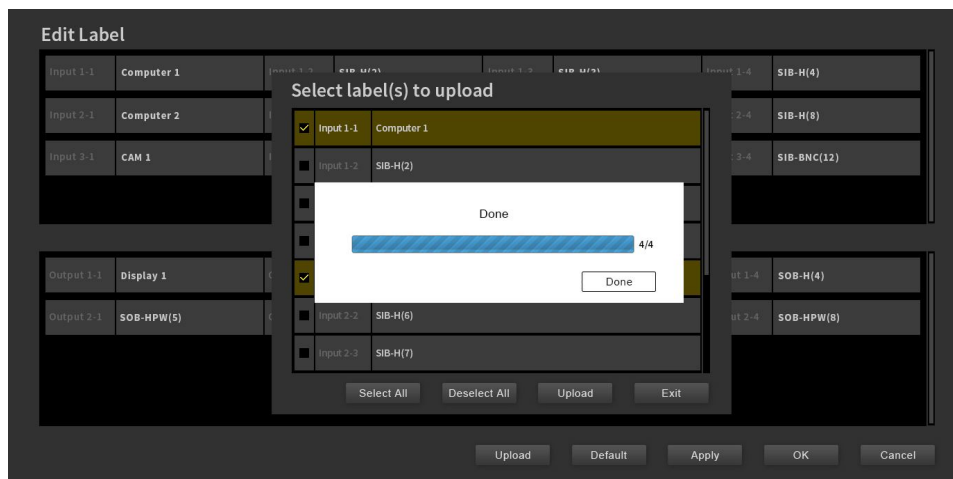
Figure 4-8 In-system GUI Edit Label: Source Label(s) Upload Complete

The uploaded source names will then be displayed on windows' labels upon switching/routing the corresponding sources to the SOB-QPW or SOB-HPW (Dual mode) card.

Figure 4-9 SOB-QPW Output with Custom Labels for Routed Sources

4.2 Layout

Layout allows user to remotely adjust the multiview window layout of the SOB-QPW and SOB-HPW (Dual mode) outputs from the in-system GUI, providing an administrative interface for managing all multiviewer outputs of the Pacific MS.

To remotely adjust multiview layout, perform the following steps:

*Step 1. Locate **Layout** on the GUI menu and click on it; the **Layout** screen will appear.*
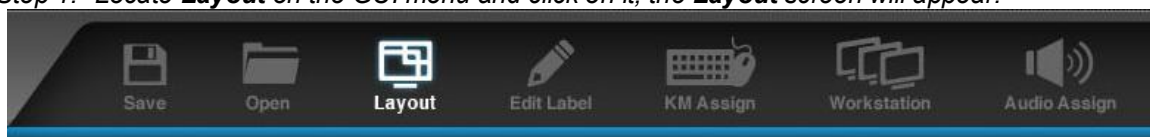
*Step 2. Under **Board Information**, select the target output card by double-clicking on it. The center screen will show the window layout detected from the selected output card. The table below provides detailed information about each component of **Layout**.*
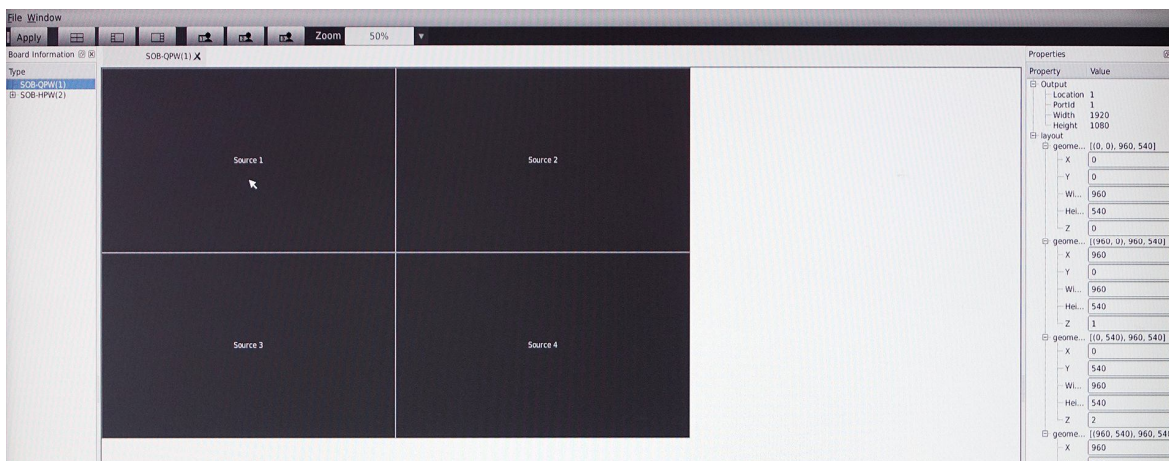
Figure 4-10 Layout Control Interface and Component

Layout	
❶ **Window Layout**	This shows the latest quad-view or dual-view layout of the selected SOB-QPW or SOB-HPW outputs (detected from the respective output cards); supports free-scaling layout adjustment in window position, size, and layer
❷ **Board Information**	Displays all SOB-QPW and/or SOB-HPW cards installed in the chassis
❸ **Property**	For window adjustment by pixel; configurable properties include: ❖ **X** and **Y** for adjusting the window's starting position (top-left corner) ❖ **Width** and **Height** for adjusting the window's size ❖ **Z** value (**0** to **3**) shows the priority (layer) for each window; **0** represents the top-most layer
❹ **Top Bar**	Allows user to instantly: ❖ **Apply** the adjusted layout to the respective output ❖ Load factory-default layouts, or three most used user-defined presets ❖ Zoom in/out to increase/decrease the view size of Window Layout (Default: 50%)
❺ **File and Window**	Contains more advanced setups for saving/loading user-defined presets and Layout's user interface

Table 4-2 Layout Component and Description

Step 3. To rearrange any window's position, click and hold the mouse left-button on the window and move to the desired position. To resize a window, move the cursor to the border of the window and drag to the desired size when the directional arrow appears.

The window layout can also be configured by adjusting individual window's position, width, and height utilizing the **Properties** menu. Simply use the mouse to adjust each property by pixel, or type in the desired value using the keyboard.
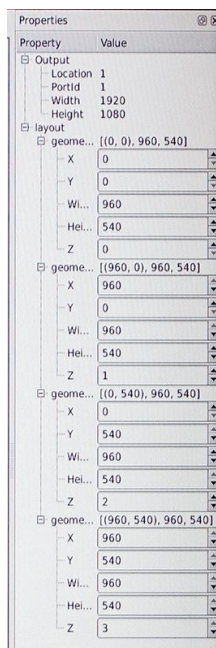
Figure 4-11 Layout: Set Window Property

Alternatively, select one of the factory-default layouts by clicking on the corresponding icon.

Figure 4-12 Layout: Factory-Default Quad-view Layouts

Step 4. *Once completing the layout adjustment, locate **Apply** on the top-left corner and click on it. This will apply the multiview layout you have configured to the respective output.*
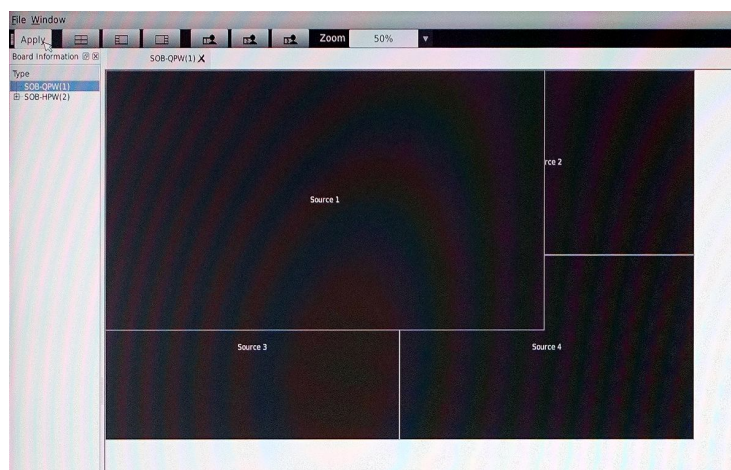
Figure 4-13 Layout: Apply

*Alternatively, locate **File** on the top-left corner of the screen, and then select **Apply**.*
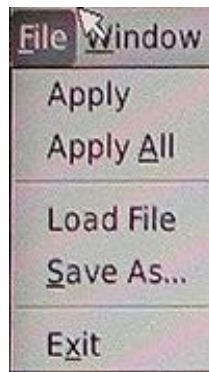
Figure 4-14 Layout: File -> Apply

*Multiple multiviewer layouts can be configured simultaneously. Once completing all the layout changes, apply them to their respective outputs by clicking **File** and **Apply All**.*

Step 5. *To save a configured layout as a preset for later recall, select **File** and **Save As**. Under the directory "**/mnt**", designate the name for the preset and then click **Save**.*
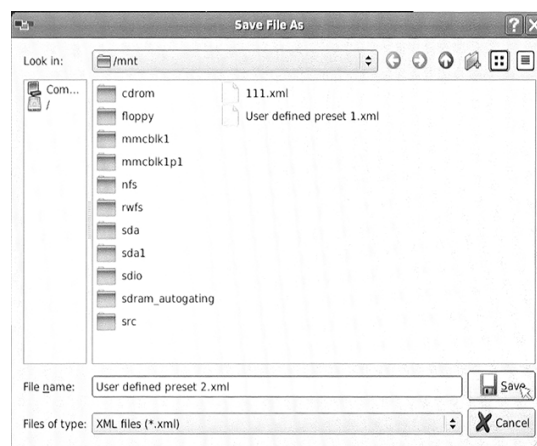
Figure 4-15 File-> Save As

Step 6. *You can load the user-defined preset by clicking **File** and **Load File**. Locate the target preset file and click **Open**.*
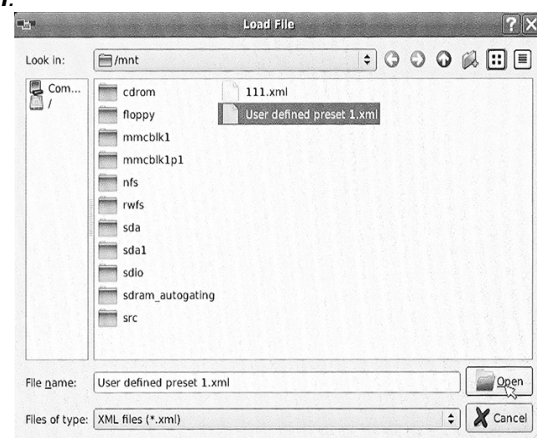
Figure 4-16 File-> Load Preset

A preview of the resulted layout after loading the target preset will be shown on a separate window. This allows you to view the saved layout in advance and assess whether to proceed loading the preset.

On the **Load Layout** window, **Output Screen** corresponds to the current output resolution of the multiview display being adjusted. If the resolution is different from that of the preset (shown under **Preview Window**), be sure to check the **Scale the Sources** checkbox to allow automatic scaling of the preset layout to fit the current resolution. It is strongly recommended to check this checkbox to ensure the correct display.

📄 *The **Scale the Sources** checkbox is not available (grayed-out) when the current output resolution matches that of the preset.*
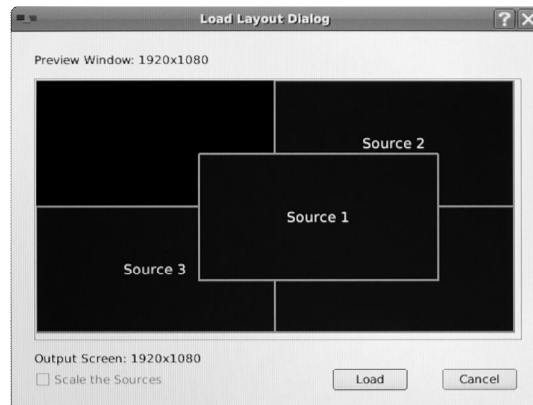
Figure 4-17 Load Layout Window

Click **Load** to confirm loading a preset. *Your **Layout's** multiview windows will be configured accordingly.*

📄 *Quad-view presets can only be loaded to SOB-QPW outputs. Likewise, dual-view presets can only be loaded to SOB-HPW outputs.*

4.3 Save And Open

The **Save** function allows user to store multiple configurations of the Pacific MS for later recall, or export them for different Pacific MS modules. Components including video routing, mouse/keyboard control assignments, as well as multi-monitor workstation configurations will be stored into a singles system file that can be instantly recalled (**Open**ed) to suit the dynamic control room environments.

The **Save** and **Open** functions are reserved for the next release.

4.4 Right-Click Menu

The on-screen right-click menu contains a number of display setups for the in-system GUI's preview windows. Other functions accessible from the right-click menu include EDID management and firmware updates.

To access the menu, right-click anywhere on either of the preview window and then select the desired sub-menu for configuration.
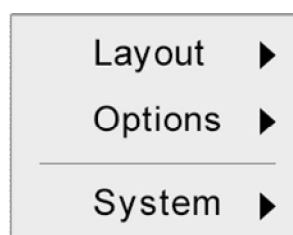
Figure 4-18 Right-click Menu

| **Right-click Menu** | |

Picture over Picture
Picture in Picture
Picture by Picture
Fullscreen mode

Layout

Contains factory-default presets for setting the two preview windows' display layout into **Picture over Picture**, **Picture in Picture**, or **Picture by Picture**; or **Fullscreen** for the selected window.

When in full screen mode, select **Window mode** from the same menu to return to the former layout.

Keep aspect ratio ▶
Aspect ratio ▶
Show window border ▶
Show signal information ▶
EDID auto detection ▶

Contains a collective of display settings for each preview window, as well as system's EDID management:

❖ **Keep aspect ratio** confines the preview window to a fixed width-to-height ratio. Any window that is resized will follow the aspect ratio. By default, the aspect ratio of a window is set to match that of its corresponding video source
  ✓ On (default)
  ✓ Off
❖ **Aspect ratio** allows customizing the aspect ratio of the preview window
  ✓ 1:1
  ✓ 4:3
  ✓ 16:9
  The default aspect ratio of the preview window follows that of the source selected for preview.

Options

❖ **Show window border** displays/hides the preview window's border
  ✓ On (default)
  ✓ Off
❖ **Show signal information** displays/hides video and audio information of the signal selected for preview
  ✓ On (default)
  ✓ Off
❖ **EDID Auto Detection** enables/disables automatic detection of EDID from the display device(s)

  ✓ On (default)
  Upon switching a signal to a display device connected to SOB-H or SOB-T's output port, the Pacific MS will detect the preferred EDID of that display device and automatically update the information to the respective source (connected to SIB-H or SIB-T input port). The source device will then configure its output based on the obtained EDID.

  When routing a signal to multiple display devices connected to SOB-H or SOB-T's output ports, the Pacific MS will assess the preferred EDID of each display device and automatically update the information to the respective source (connected to SIB-H or SIB-T input port). The source device will then configure its output based on the assessed EDID and outputs at the optimum format supported by all displays.

  Note: Upon changing the existing routes, the Pacific MS will

automatically re-assess the EDID of each display device and update the information to the respective source (connected to SIB-H input port).

✓ Off

The preferred EDID of the connected display device (connected to SOB-H or SOB-T's output port) will not be detected. The source device (connected to SIB-H or SIB-T input port) will configure its output based on the latest obtained EDID.

Note: If there is no EDID obtained from a display device, the source device (connected to SIB-H or SIB-T input port) will configure its output based on the default EDID (1080p).

✓ Manual (reserved for manually programming the EDID for each input port in the future)

System	Firmware updater Allows access to the **Firmware Updater** screen for updating components of the Pacific MS upon any system upgrade released by Avitech. Refer to Avitech Pacific Matrix Switcher Firmware Upgrade Reference Guide for relevant information in detail.

Table 4-3 Right-click Menu Component and Description

*Avitech recommends turning on the **EDID Auto Detection** switch (if disabled) after changes have been made to the Pacific MS' output configuration (E.g., adding more monitors to the system) to prevent possible abnormal display.*

4.5 Module Switching in a Cascaded System

Multiple Pacific MS modules can be cascaded (also known as "daisy-chained") which enables the configuration of very large and complex monitoring and operation systems to accommodate more users and workstations. Up to three modules can be cascaded and managed from a single monitor, mouse, and keyboard console.

In the cascaded system as illustrated below, Pacific MS (1)'s control card is directly connected to the monitor and mouse/keyboard for in-system GUI control. To access any of the modules in cascade, perform the following steps:

Pacific MS (3)
(Module 3)

Pacific MS (2)
(Module 2)

Pacific MS (1)
(Module 1)

— Video
— Mouse/Keyboard Control
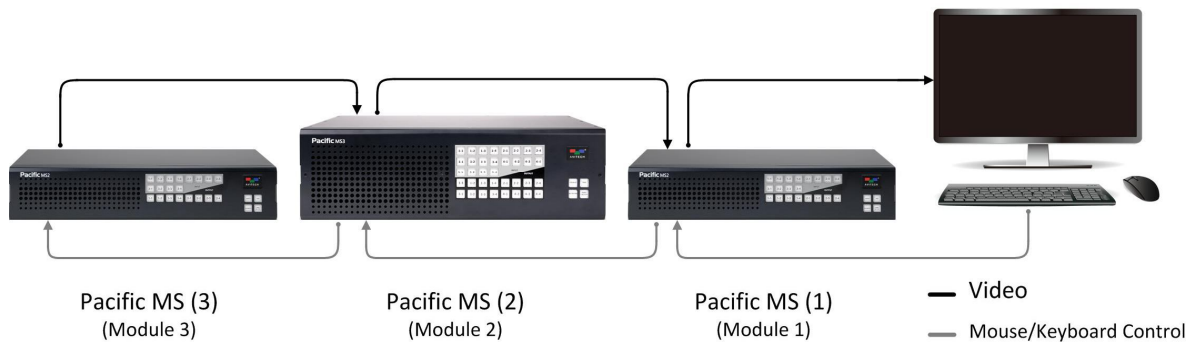
Figure 4-19 Cascaded System with Three Pacific MS Modules

Step 1. *Locate **Loop Connection** on the GUI menu. Notice that **Module 1** is highlighted. This indicates the module (in this case, Pacific MS (1)) currently in control. Source computers connected to the Pacific MS Module 1 can be remotely accessed via Module 1's in-system GUI preview windows.*
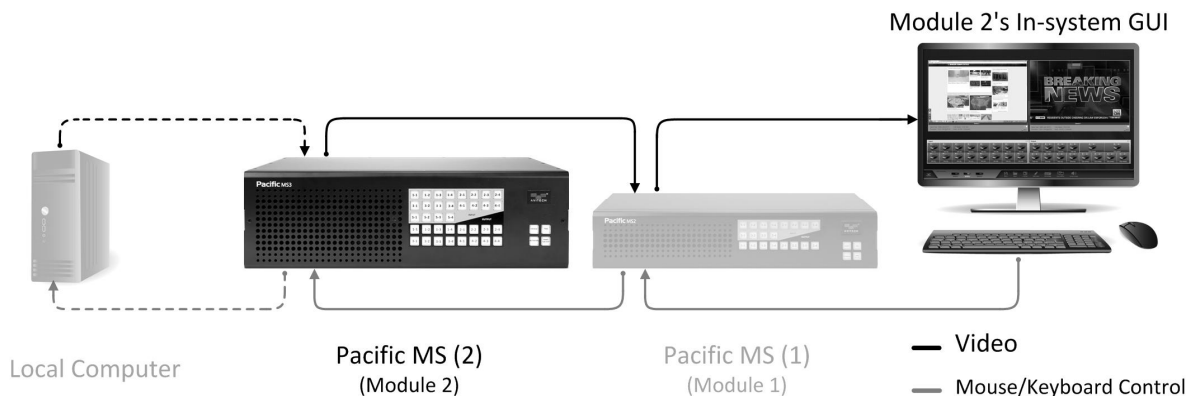

Module 1's In-system GUI

Pacific MS (3)
(Module 3)

Pacific MS (2)
(Module 2)

Pacific MS (1)
(Module 1)

— Video
— Mouse/Keyboard Control
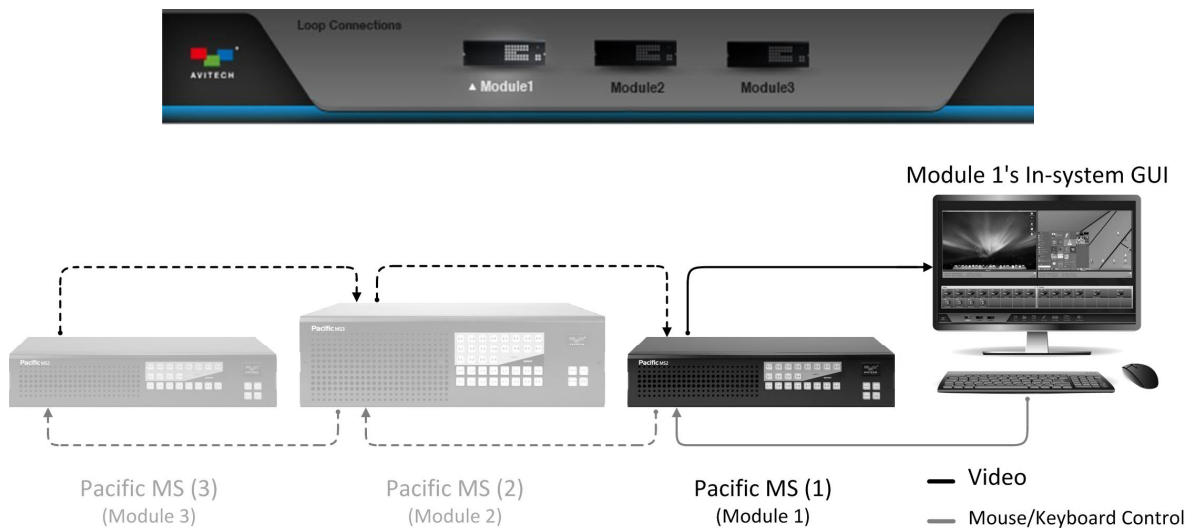
Figure A-20 In-System GUI Display and Control for Pacific MS Module 1

*In a cascaded system, the Pacific MS module with in-system GUI (**HDMI OUT**) directly connected to the monitor will be recognized as **Module 1**. The Pacific MS module with in-system GUI output fed to **Module 1**'s **HDMI IN** will be recognized as **Module 2**, and so on.*

Step 2. *To switch control to Pacific MS (2)/MS (3), simply click on* **Module 2/Module 3**. *The in-system GUI of the selected module will be bypassed and displayed on the monitor through HDMI cabling. Mouse/keyboard control signals will automatically transfer to the corresponding module through USB cabling. Notice that the highlighted* **Module** *is also switched accordingly indicating the Pacific MS module currently in control.*
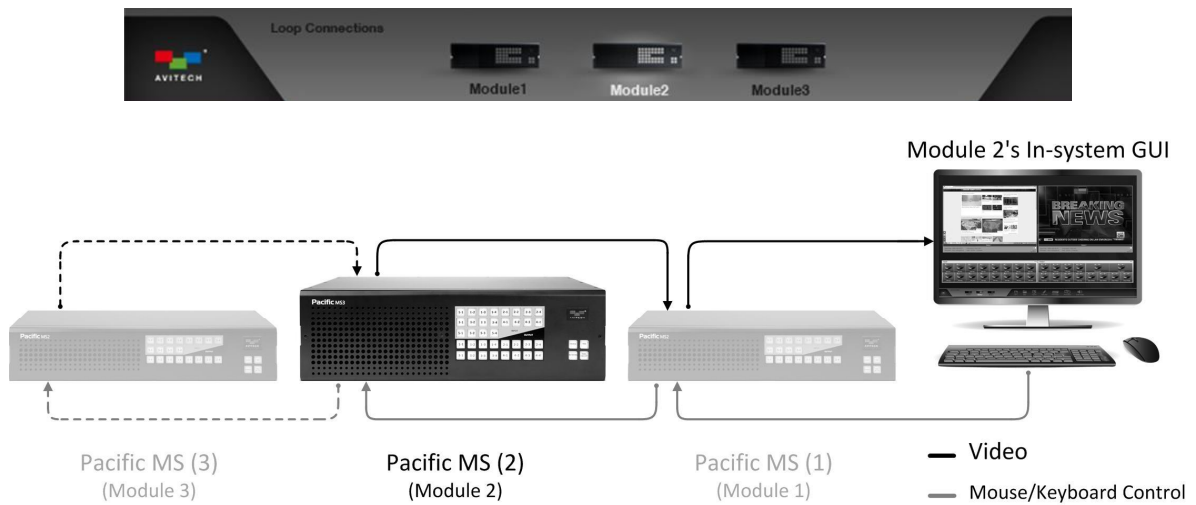
Figure A-21 In-System GUI Display and Control for Pacific MS Module 2
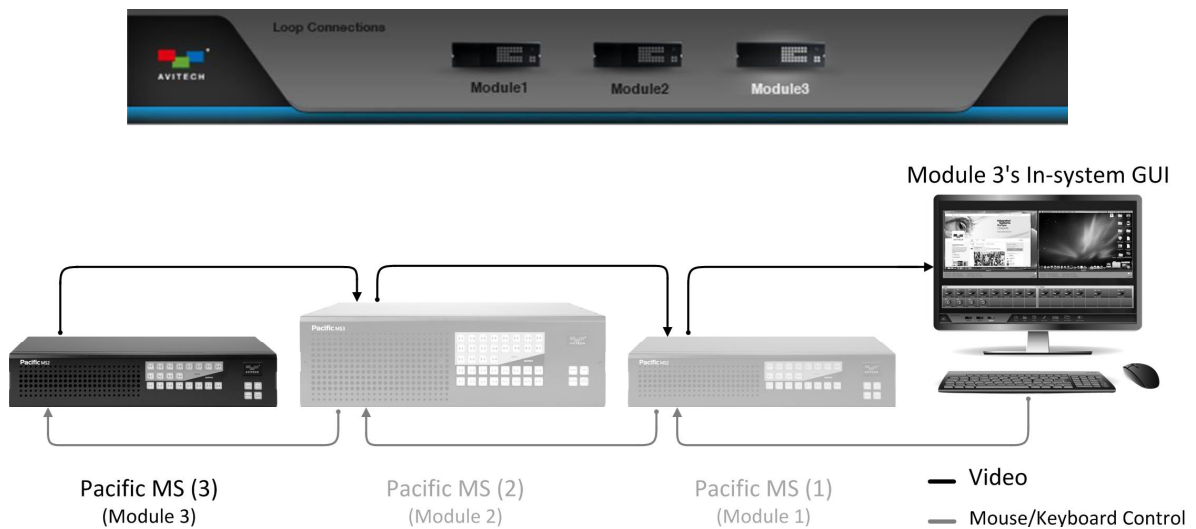
Figure A-22 In-System GUI Display and Control for Pacific MS Module 3

. *Source computers connected to Pacific MS (2)/MS (3) can be remotely accessed via* **Module 2/Module 3**'s *in-system GUI preview windows respectively.*

Step 3. *Alternatively, switch control to Pacific MS (1)/(2)/(3) by using* **Ctrl** + **Shift** + **F1/F2/F3** *keyboard hot-key combinations respectively.*

In the cascaded system as illustrated below, Pacific MS (1)'s control card is directly connected to the monitor and mouse/keyboard for in-system GUI control. A local computer is connected as part of the cascaded system. To access either of the modules or the local computer, perform the following steps:
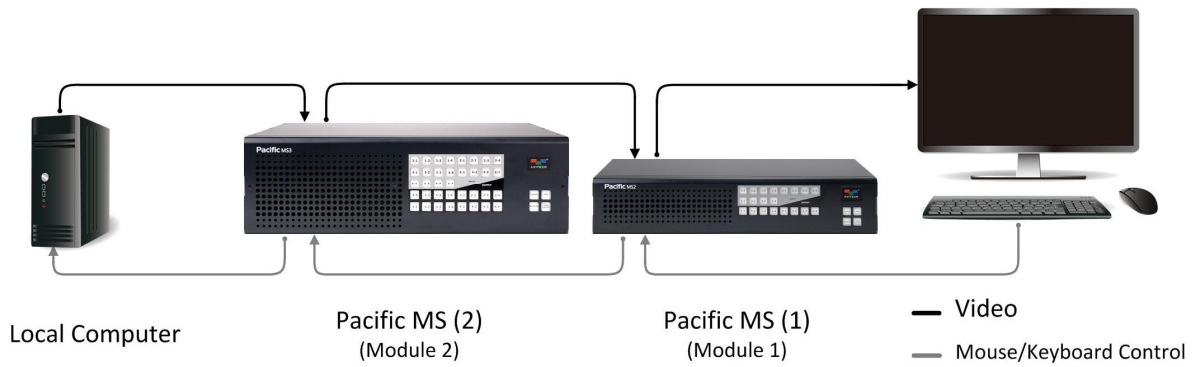
Figure 4-23 Cascaded System with Two Pacific MS Modules and a Local Computer

Step 1. *Locate **Loop Connection** on the GUI menu. Notice that **Module 1** is highlighted. This indicates the module (in this case, Pacific MS (1)) currently in control. Source computers connected to the Pacific MS Module 1 can be remotely accessed via Module 1's in-system GUI preview windows.*
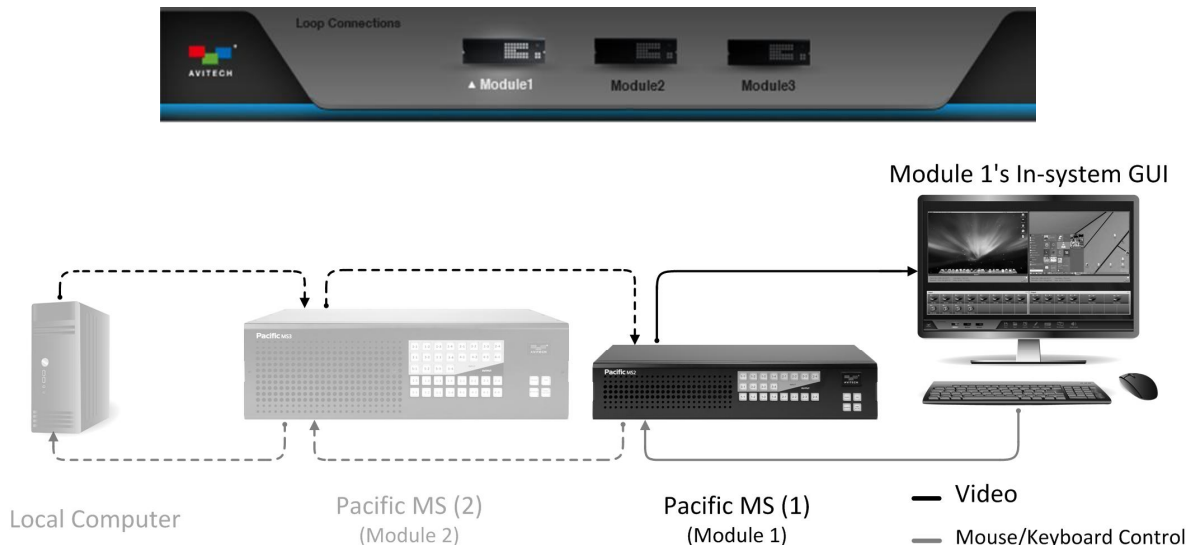
Figure 4-24 In-System GUI Display and Control for Pacific MS Module 1

Step 2. *To switch control to Pacific MS (2), simply click on **Module 2**. The Pacific MS (2)'s in-system GUI will be bypassed and displayed on the monitor through HDMI cabling. Mouse/keyboard control signals will automatically transfer to Pacific MS (2) through USB cabling. Notice that the highlighted **Module** is also switched accordingly indicating the Pacific MS module currently in control.*

*You can also utilize keyboard hot-key combinations (**Ctrl + Shift + F1/F2)** to switch control between the two modules.*

Module 2's In-system GUI

Local Computer   Pacific MS (2)   Pacific MS (1)   ▬ Video
                  (Module 2)   (Module 1)   ▬ Mouse/Keyboard Control

Figure 4-25 In-System GUI Display and Control for Pacific MS Module 2

1. *The local computer in cascade with the Pacific MS is detected as an external device rather than a Pacific MS module. As a result, a different hot-key combination is used for switching control to this computer.*
2. *In case of having fewer than three Pacific MS modules in a cascaded system, clicking the unused module(s) on the GUI menu will not incur display nor control switching.*

Step 3. *To switch control to the local computer, use the **Ctrl** + **Shift** + **F12** keyboard hot-key combination. The monitor will switch to display the local computer while mouse/keyboard control will automatically transfer to the computer. Use hot-key combinations in step 2 and 3 to switch control between the Pacific MS modules and the local computer.*

Local Computer Display

Local Computer   Pacific MS (2)   Pacific MS (1)   ▬ Video
                  (Module 2)   (Module 1)   ▬ Mouse/Keyboard Control
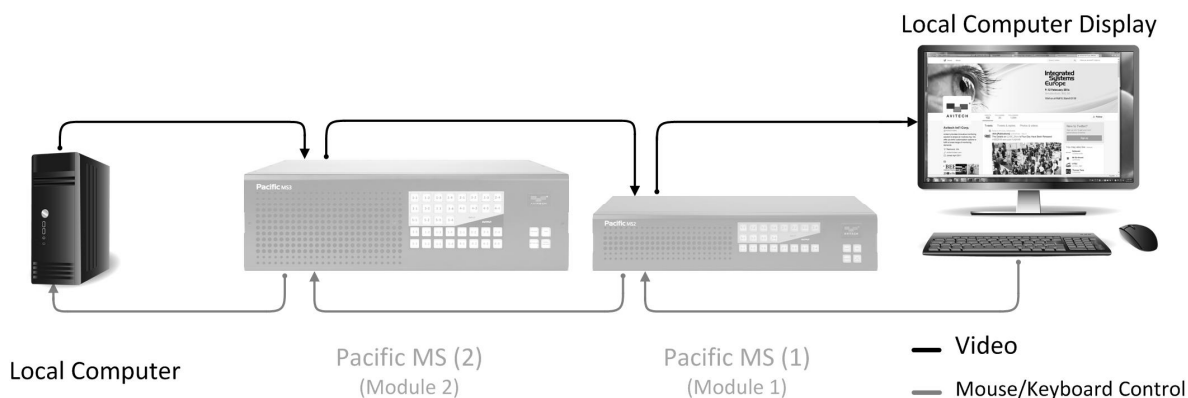
Figure 4-26 Local Computer Display and Control

The following table provides a summary of available hot-key combinations for switching between the Pacific MS or the local computer in a cascaded system:

Hot-keys	
Ctrl + **Shift** + **F1**	Switches monitoring and mouse/keyboard control to the first Pacific MS module in cascade.
Ctrl + **Shift** + **F2**	Switches monitoring and mouse/keyboard control to the second Pacific MS module in cascade.
Ctrl + **Shift** + **F3**	Switches monitoring and mouse/keyboard control to the third Pacific MS module in cascade.
Ctrl + **Shift** + **F12**	Switches monitoring and mouse/keyboard control to the local computer system.

Table 4-4 Available Hot-keys for a Cascaded System

5. Basic Workstation Operation

The Pacific MS currently supports four types of output cards: SOB-H, SOB-T, SOB-HPW, and SOB-QPW. When routing signals with distinct signal types from input cards, the Pacific MS automatically converts the formats to match those of the output cards.

✓ SOB-H card: Contains 4 HDMI outputs for connecting to 4 HDMI/DVI (with adapters) monitors.

✓ SOB-T card: Contains 4 RJ-45 (Ethernet) outputs for extension of videos and USB mouse/keyboard control signals (mouse/keyboard control signals are only passed through HDBaseT 1 and HDBaseT 3) over CAT5e/6 Ethernet cables.

✓ SOB-HPW card: Contains 2 HDMI outputs, each is paired with 2 USB type A ports for mouse/keyboard control of routed source systems.

✓ SOB-QPW card: Contains one HDMI output port and 2 USB type A ports for mouse/keyboard control of routed source systems.

The SOB-T card (used in conjunction with Avitech Pacific X-HDUR) extends video and USB mouse/keyboard control (only via HDBaseT 1 and HDBaseT 3) for up to 100 meters. Control of any routed source computer at the remote display location remains the same as controlling one locally.

The SOB-HPW and SOB-QPW cards support multiview display for monitoring multiple routed video signals simultaneously on a single screen. Additionally, they provide mouse/keyboard connectivity which enables multiview layout customization and remote access to a number of routed computers where only one set of mouse/keyboard is needed.

This chapter continues to discuss basic operations when having SOB-HPW and SOB-QPW cards installed.

5.1 Basic Operation on SOB-HPW

The SOB-HPW incorporates two display modes: Seamless mode and Dual mode.

To gain access to the source computer routed to SOB-HPW in Seamless mode, simply connect a USB mouse/keyboard to the corresponding USB type A ports on the card. With the proper USB cabling set up and KM routing configured, the mouse/keyboard control will be bypassed to the source computers via the KM card's USB ports. You can then control the routed source computer as you regularly would at the display location.

📄 *The two HDMI output ports of the SOB-HPW function independently and each requires connecting to its own mouse/keyboard set.*

When switched to display in Dual mode, the SOB-HPW card will operate in one of the two operating modes: Host and Remote mode. Users are allowed to freely switch between these two operating modes anytime during the operation. The following sections discuss these operating modes, their functions, and hot-keys in detail.

✓ ***Host Mode***

When your SOB-HPW operates in Host mode, the Host cursor appears on the screen upon connecting a mouse device to the corresponding USB type A port of the SOB-HPW card. The cursor will be controlled by this locally connected mouse. Host mode provides a monitoring solution for the incoming computer/video signals. Users can use the Host cursor to select and adjust window size, position, and display layout directly through the on-screen interface.

✓ **_Remote_ _Mode_**

When the SOB-HPW card enters <u>Remote</u> mode, the <u>Host</u> cursor disappears, and your SOB-HPW transfers the mouse/keyboard control to the selected source computer. You can then control this computer as you regularly would via the corresponding window. Your SOB-HPW can only enter <u>Remote</u> mode to take control of a computer when the following conditions are met:

❖ *USB connection (with standard USB A/B cable) between the Pacific MS and the source computers is established, or between the source computers and Avitech Pacific X-HDUT transmitters when using SIB-T. Refer to section 2.9 "Basic Setup for KVM Switching" and section 2.11 "Basic Setup with Remote Source Devices and Monitors" for more information on USB connection.*

❖ *Proper KM routing is configured (refer to section 3.2.2 "Keyboard and Mouse Control Routing" for more information).*

❖ *Only the window corresponding to a computer system (as opposed to a video system, e.g., a DVD player) can be accessed through <u>Remote</u> mode.*

<u>Tips on Navigating the SOB-HPW in Dual Mode</u> :

❖ *A maximum of two computers can be routed to a single HDMI output of the SOB-HPW. The SOB-HPW puts the images of the routed sources onto two windows and simultaneously displays them on the monitor (dual-view).*

❖ *When <u>Host</u> mode is active, use the mouse connected to your SOB-HPW to freely resize and reposition windows on the display.*

❖ *To switch from <u>Host</u> mode to <u>Remote</u> mode, move the <u>Host</u> cursor to the top-right corner of the target window and then click the ↵ "enter" icon (or double-click your mouse's left button anywhere on that window).*

❖ *When entering <u>Remote</u> mode, your SOB-HPW automatically transfers its mouse/keyboard control to the selected computer. Use the mouse/keyboard to control the computer as you regularly would.*

❖ *To switch back to <u>Host</u> mode, use the keyboard hot-key **Pause/Break**, or double-click the mouse-wheel button. The SOB-HPW will return to <u>Host</u> mode and the <u>Host</u> cursor will reappear.*

5.2 SOB-HPW <u>Host</u> Mode

When operating in <u>Host</u> mode, user can monitor routed computers and adjust windows using the provided pop-up selections or hot-key combinations. Basic <u>Host</u> mode operations are introduced in this section.

5.2.1 Pop-up Selections

Upon moving the <u>Host</u> cursor to the top-right corner of a window, the following pop-up selections will appear:

❖ S *Swap: enables a window to switch its position with the other window*

❖ ↵ *Enter: enters <u>Remote</u> mode to control the computer corresponding to the window*

❖ ⛶ *Full screen: sets a window to full screen*

❖ ⊞ *Restore: returns from a full-screen view to the previous dual-view layout*

5.2.2 Functions

The SOB-HPW allows any window to be freely resized and repositioned via simple drag-and-drop on the screen. The following is a list of functions of the SOB-HPW in <u>Host</u> mode managed by the <u>Host</u> cursor.

Function	
Window resizing	Drag any of the four corners or edges of a window to a desired size. Upon moving the <u>Host</u>-cursor to a corner/edge, an arrow head will appear indicating that the window is ready for resize.
Window repositioning	Drag a window to a desired position
Window position swapping	Move the <u>Host</u> cursor to the top-right corner of one of the window and click the S icon to swap the two windows' positions.
Full screen window	Move the <u>Host</u> cursor to the top-right corner of a window and click the ⛶ icon to maximize the window to full screen. Click the ⛶ icon to return from full screen to the earlier dual-view layout.
Access a remote computer	Method 1: Move the <u>Host</u> cursor to the top-right corner of a window and click the ↵ icon to enter <u>Remote</u> mode and access the corresponding remote computer. Method 2: Double-click anywhere on the window of the target remote computer.
Enable/Disable audio output	Double-click the audio tally 🟩 (audio OFF) to enable the window's audio output through HDMI monitor. Activated audio tally 🟥 turns red. Double-click the activated audio tally to turn audio off. *Note: Activating the audio tally of a window will automatically disable the audio tally of the other window.*

Table 5-1 SOB-HPW <u>Host</u> Mode Functions

📄 | *The minimum window size for the SOB-HPW to process and display: width = ? pixel, height = ? pixel.*

5.2.3 Hot-keys

Hot-keys are available when utilizing the SOB-HPW under <u>Host</u> mode.
Detailed below are the <u>Host</u> mode hot-keys and their functions.

Keys	
Alt + F	Toggles on/off a window's full screen mode. *Note: The window where the <u>Host</u> cursor currently resides will be selected.*
Ctrl + F# (F1 or F2)	This loads the selected window to full screen mode. Switching between full screen views is seamless. **F#** is the source window number (E.g., **Ctrl + F1** will call up the source **1** window).
Ctrl + S	Saves the window layout to the SOB-HPW as a preset; on the next boot-up, the latest preset will be automatically loaded as the default layout. *Note: Also saves the latest preset confined within the SOB-HPW in a cascaded system.*
F# (F1 or F2)	Enters <u>Remote</u> mode to access a remote computer. **F1** corresponds to the source **1** window, and **F2** corresponds to the source **2** window. *Note: Remote computers can also be accessed by double-clicking their corresponding source windows.*
Page Up/Down	Loads factory-default presets to change the dual-view layout (four factory default presets).

Table 5-2 SOB-HPW Hot-keys of <u>Host</u> Mode

5.3 SOB-HPW Remote Mode

Hot-key is also available when utilizing the SOB-HPW under Remote mode. Detailed below is the Remote mode hot-key and its function.

Key	
Pause	Exits from Remote mode and returns to Host mode
Break	(same function as double-clicking the mouse-wheel button).

Table 5-3 SOB-HPW Hot-key of Remote Mode

*When using an Apple's MacBook computer, use **control** + **option (Alt)** + **shift** + **k** to perform Host/Remote mode switch since there is no **Pause/Break** key.*

5.4 Basic Operation on SOB-QPW

The SOB-QPW card features a single quad-multiviewer output and allows up to four sources to be routed and simultaneously monitored. One set of USB mouse/keyboard connected to the card's USB type A ports can be used to customize multiview display layout and access all routed source computers.

The SOB-QPW operates in one of two operating modes: Host and Remote mode. Users are allowed to freely switch between these two modes anytime during the operation. The following sections discuss these operating modes, their functions, and hot-keys in detail.

✓ *Host Mode*

When your SOB-QPW operates in Host mode, the Host cursor appears on the screen upon connecting a mouse device to the USB type A port of the SOB-QPW card. The cursor will be controlled by this locally connected mouse. Host mode provides a monitoring solution for the incoming computer/video signals. Users can use the Host cursor to select and adjust window size, position, and display layout directly through the on-screen interface.

✓ *Remote Mode*

When the SOB-QPW card enters Remote mode, the Host cursor disappears, and your SOB-QPW transfers the mouse/keyboard control to the selected remote computer. You can then control this computer as you regularly would via the corresponding window on the display. Your SOB-QPW can only enter Remote mode to take control of a computer when the following conditions are met:

❖ *USB connection (with standard USB A/B cable) between the Pacific MS and the source computers is established, or between the source computers and Avitech Pacific X-HDUT transmitters when using SIB-T. Refer to section 2.9 "Basic Setup for KVM Switching" and section 2.11 "Basic Setup with Remote Source Devices and Monitors" for more information on USB connection.*

❖ *Proper KM routing is configured (refer to section 3.2.2 "Keyboard and Mouse Control Routing" for more information).*

❖ *Only the window corresponding to a computer system (as opposed to a video system, e.g., a DVD player) can be accessed through Remote mode.*

Tips on Navigating the SOB-QPW:

❖ *A maximum of four computers can be routed to the HDMI output of the SOB-QPW. The SOB-QPW puts the images of the routed sources onto four windows and simultaneously displays them on the monitor (quad-view).*

❖ *When Host mode is active, use the mouse connected to your SOB-QPW to freely resize and reposition windows on the display.*

❖ *To switch from Host mode to Remote mode, move the Host cursor to the top-right corner of the target window and then click the ↵ "enter" icon (or double-click your mouse's left button anywhere on that window).*

❖ *When entering Remote mode, your SOB-QPW automatically transfers its mouse/keyboard control to the selected computer. Use the mouse/keyboard to control that computer as you regularly would.*

❖ *To switch back to Host mode, use the keyboard hot-key **Pause/Break**, or double-click the mouse-wheel button. The SOB-QPW will return to Host mode and the Host cursor will reappear.*

5.5 SOB-QPW Host Mode

In Host mode, user can monitor images of the connected computers and adjust windows using the provided pop-up selections, hot-key combinations, or Host cursor control. Basic operations allowed in Host mode are introduced in this section.

5.5.1 Pop-up Selections

Upon moving the Host cursor to the top-right corner of a window, the following pop-up selections will appear:

❖ S *Swap: enables a window to switch its position with another selected window*

❖ ↵ *Enter: enters Remote mode to control the computer corresponding to the window*

❖ 🔳 *Full screen: sets a window to full screen*

❖ 🔳 *Restore: returns from a full-screen view to the previous quad-view layout*

5.5.2 Functions

The SOB-QPW allows any window to be freely resized and repositioned via simple drag-and-drop on the screen. The following is a list of functions of the SOB-QPW in Host mode managed by the Host cursor.

Function	
Window resizing	Drag any of the four corners or edges of a window to a desired size. Upon moving the Host-cursor to a corner/edge, an arrow head will appear indicating that the window is ready for resize.
Window repositioning	Drag a window to a desired position
Window position swapping	Move the Host cursor to the top-right corner of the target window, click the S icon, and then move the cursor (now a capital letter S) to the destination window and left-click to swap the two windows' positions.
Full screen window	Move the Host cursor to the top-right corner of a window and click the 🔳 icon to maximize the window to full screen. Click the 🔳 icon to return from full screen to the earlier quad-view layout.

Access a remote computer	Method 1:
	    Move the Host cursor to the top-right corner of a window and click the ↵ icon to enter Remote mode and access the corresponding remote computer.
	Method 2:
	    Double-click anywhere on the target remote computer's window.

Enable/Disable audio output (left tally)	Double-click the audio tally 🟩 (audio OFF) to enable the window's audio output through the HDMI monitor. Activated audio tally 🟥 turns red. Double-click the activated audio tally to turn off audio. *Note: Activating the left audio tally on a window will automatically disable*

Function	
	the left audio tally on another window.
Enable/Disable audio output (right tally)	Double-click the audio tally ▇ (audio OFF) to enable the window's audio output through SOB-QPW's stereo phono jack (for external headphone/speaker). Activated audio tally ▇ turns red. Double-click the activated audio tally to turn off audio. *Note: Activating the right audio tally on a window will automatically disable the right audio tally on another window.*

Table 5-4 SOB-QPW <u>Host</u> Mode Functions

📄 | *The minimum window size for the SOB-QPW to process and display: width = 132 pixels, height = 115 pixels.*

5.5.3 Hot-keys

Hot-keys are available when utilizing the SOB-QPW under <u>Host</u> mode.
Detailed below are the <u>Host</u> mode hot-keys and their functions.

Keys	
Alt + F	Toggles a particular window's full screen mode on/off. *Note: The window where the <u>Host</u> cursor currently resides will be selected.*
Ctrl + F# (F1 – F4)	This loads the selected window to full screen mode. Switching between full screen views is seamless. **F#** is the source window number (E.g., **Ctrl + F1** will call up the source **1** window).
Ctrl + S	Saves the window layout to the SOB-QPW as a preset; on the next boot-up, the latest preset will be automatically loaded as the default layout. *Note: Also saves the latest preset confined within the SOB-QPW in a cascaded system.*
F# (F1 – F4)	Enters <u>Remote</u> mode to access a remote computer. **F1** corresponds to the source **1** window, **F2** corresponds to the source **2** window, and so on. *Note: Remote computers can also be accessed by double-clicking their corresponding source windows.*
Page Up/Down	Loads factory-default presets to change the quad-view layout (three factory default presets).

Table 5-5 SOB-QPW Hot-keys of <u>Host</u> Mode

5.6 SOB-QPW <u>Remote</u> Mode

A hot-key is also available when utilizing the SOB-QPW under <u>Remote</u> mode. Detailed below is the <u>Remote</u> mode hot-key and its function.

Keys	
Pause Break	Exits from <u>Remote</u> mode and returns to <u>Host</u> mode (same function as double-clicking the mouse-wheel button).

Table 5-6 SOB-QPW Hot-key of <u>Remote</u> Mode

📄 | *When using Apple's MacBook computer, use "**control** + **option (Alt)** + **shift** + **k**" to perform <u>Host</u>/<u>Remote</u> mode switch because there is no "**Pause/Break**" key.*

6. Multi-Monitor Workstation Configuration and Operation

The Pacific MS supports grouping display outputs and forming multi-monitor workstations. By grouping individual outputs into a single workstation, user can then operate on an array of computers across up to four monitors through a single mouse/keyboard. Switching of control to any workstation computer is intuitive by simply moving the controlling mouse cursor from one display to another.

Figure 6-1 Multi-monitor Workstation Controlled by One Mouse/Keyboard

This chapter discusses the process of configuring multi-monitor workstations via the in-system GUI, followed by their operations.

6.1 Configuration of Multi-Monitor Workstation

The Pacific MS allows user to freely group outputs of different card types into multi-monitor workstation(s). A single workstation can accommodate up to four mixed multiviewer and full screen displays. Output grouping is easily configurable by simple drag-and-drop operation via the in-system GUI.

The following examples demonstrate step-by-step procedures of setting up multi-monitor workstations using different combinations of outputs.

6.1.1   Example 1: Two triple monitor workstations from Pacific MS-2

The following output cards are installed in the Pacific MS-2:

✓ SOB-H

✓ SOB-HPW

Figure 6-2 MS-2 Rear Panel: Multi-monitor Workstation Setup Example 1

To configure a multi-monitor workstation, perform the following steps on the MS' in-system GUI:

*Step 1. Locate **Workstation** on the GUI menu and click on it to call the following screen.*
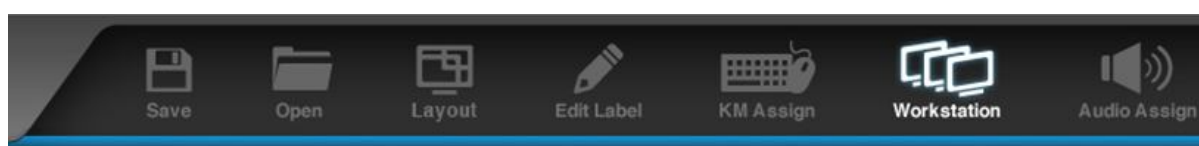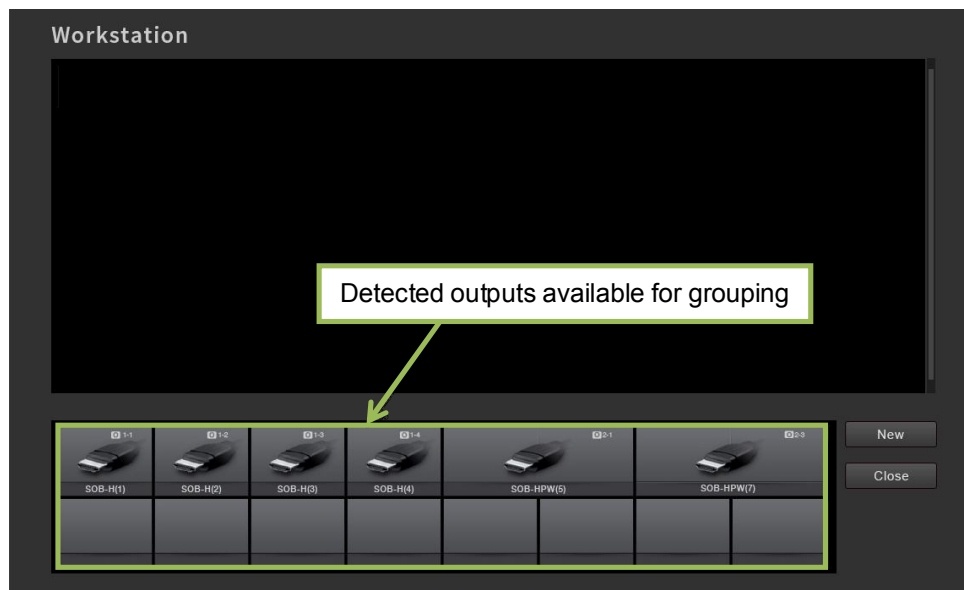
Figure 6-3 Workstation: Default Workstation Screen

Step 2. *Click **New** to create an empty workstation. You can rename the workstation by clicking to highlight the default name ("**New Workstation**") and then type in the desired one.*
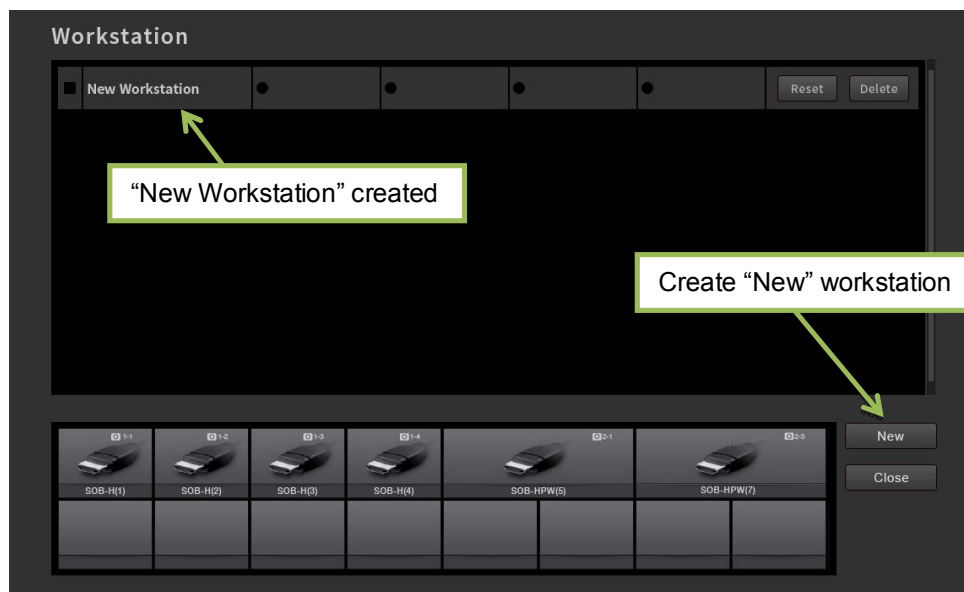
Figure 6-4 Workstation: New Workstation

Step 3. *To configure the first triple monitor workstation, first drag and drop SOB-H (1) anywhere onto the empty workstation. This output will automatically be set as the left-most display of the workstation.*

Figure 6-5 Workstation: Triple Monitor Workstation 1, Display 1

Step 4. Drag and drop SOB-H (2) anywhere onto the same workstation. This output will automatically be set to the right of SOB-H (1).

Figure 6-6 Workstation: Triple Monitor Workstation 1, Display 2

Step 5. Drag and drop SOB-HPW (5) anywhere onto the same workstation. This output will automatically be set to the right of SOB-H (2).
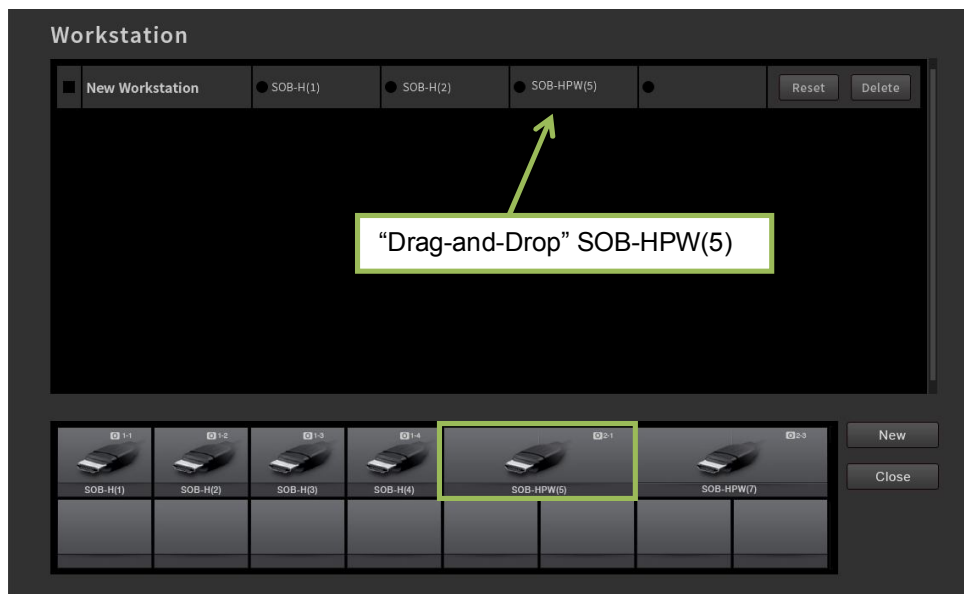
Figure 6-7 Workstation: Triple Monitor Workstation 1, Display 3

📄 *Keep in mind that the display order set from **Workstation** will determine the arrangement of the actual displays. Be sure to configure the display layout in the same order as how actual displays will be arranged at the workstation.*

Step 6. Click SOB-HPW (5) to designate its corresponding USB type A ports for mouse/keyboard connection.

Figure 6-8 Workstation: Designation of Mouse/Keyboard Connection

📄 *Only output cards providing USB mouse/keyboard connectivity (SOB-HPW and SOB-QPW) or functions (SOB-T's HDBaseT **1** and HDBaseT **3** ports) can be assigned for mouse/keyboard connection. Thus, it is required that there is at least one of the above mentioned outputs within the group.*

Step 7. Apply workstation setting by checking the corresponding checkbox. This completes setting the first triple monitor workstation.
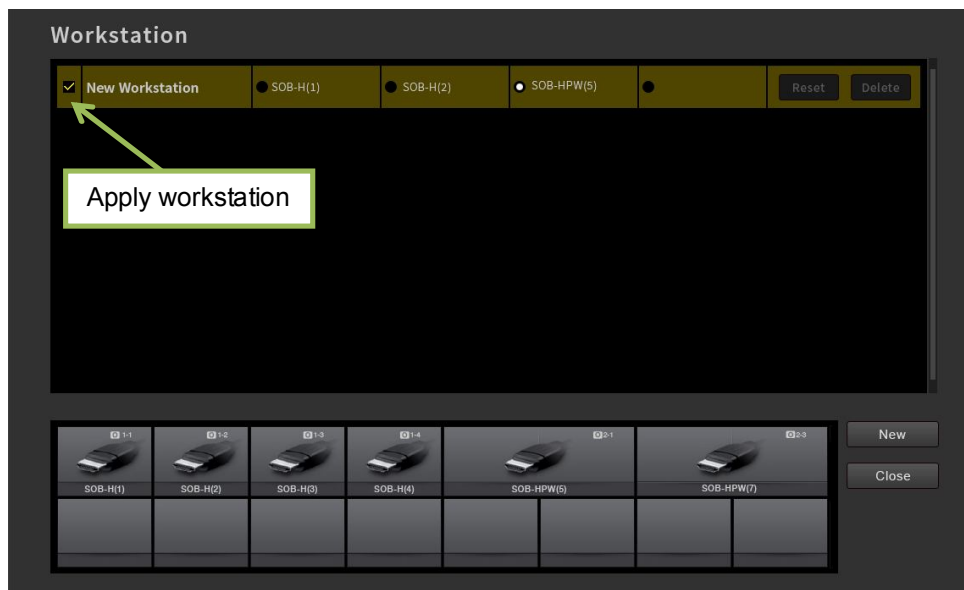
Figure 6-9 Workstation: Apply Workstation

Step 8. Click **New** *to create another empty workstation. Repeat step 2 – 7 while selecting outputs in the order of SOB-HPW (7), SOB-H (3) and SOB-H (4) for grouping instead, and then designate SOB-HPW (7) for mouse/keyboard connection. This will complete setting the second triple monitor workstation.*
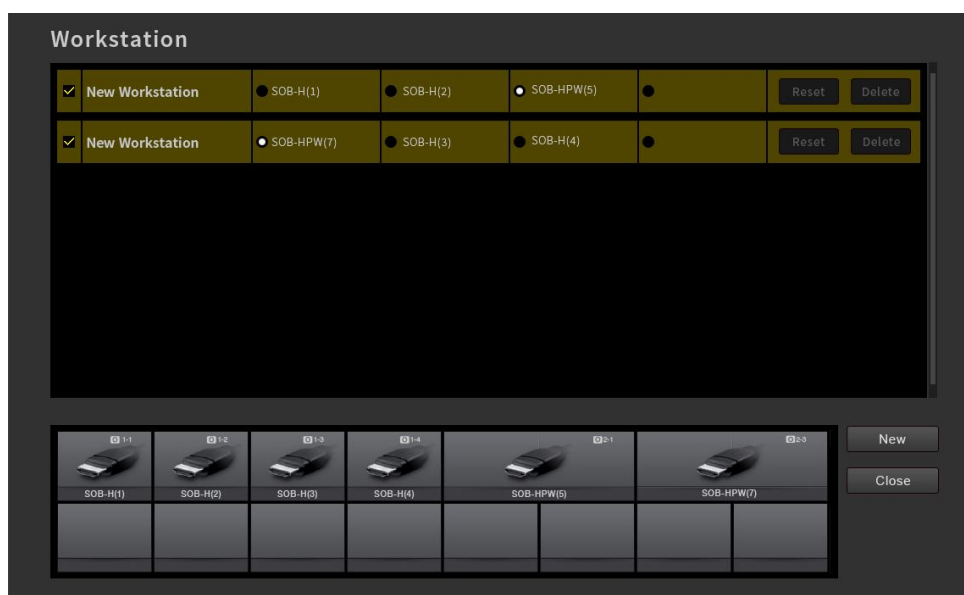
Figure 6-10 Workstation: Multiple Workstations in Configuration

*Multiple workstations can be created and configured simultaneously. However, only workstations with outputs that do not overlap can be applied and operate simultaneously. When attempting to apply a workstation containing an output(s) that has already been grouped in another applied workstation, you will see the following alert message "**Port # was already in use**".*
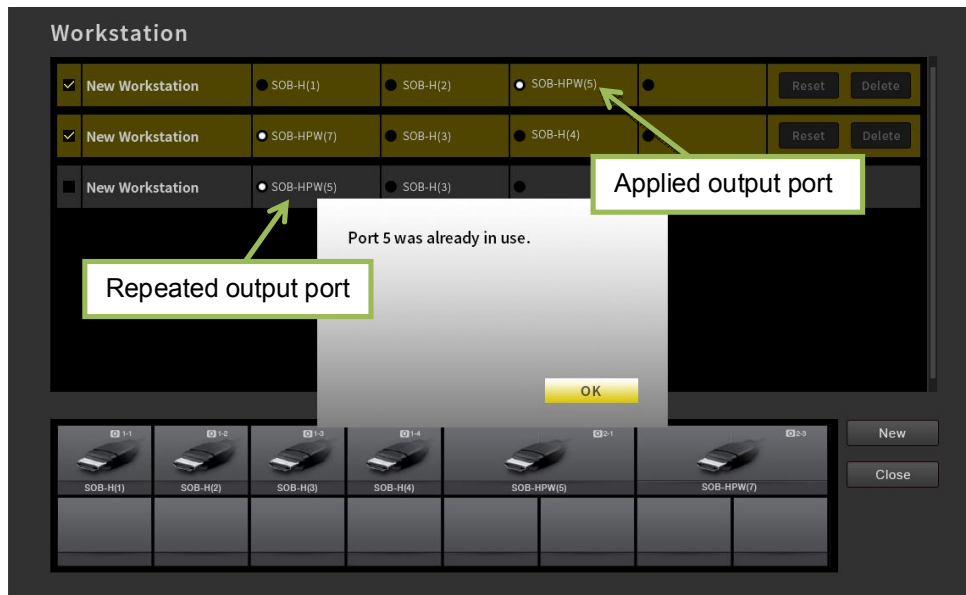
Figure 6-11 Workstation: Port Already in Use

*Step 9. To reconfigure any created workstation, click the corresponding **Reset** to return to the empty state (you will need to first uncheck the checkbox if the workstation has been applied). Clicking **Delete** will remove the workstation from the list.*

*Step 10. Once completing workstation configurations, exit by clicking **Close**. The figure below illustrates the multi-monitor workstations configured in Example 1:*
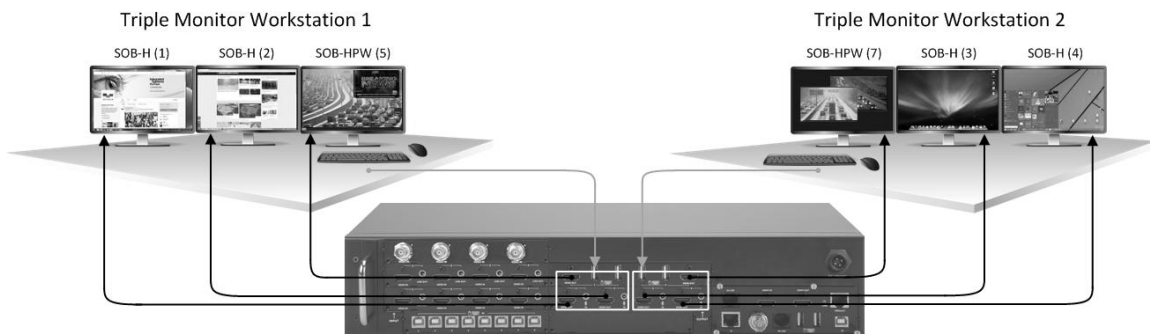
Figure 6-12 Configured Triple Monitor Workstations

6.1.2   Example 2: One quad monitor workstations from Pacific MS-3

The following output cards are installed in the Pacific MS-3:

✓ SOB-H

✓ SOB-HPW

✓ SOB-QPW

Figure 6-13 MS-3 Rear Panel: Multi-monitor Workstation Demonstration 2

Perform the following steps on the MS' in-system GUI:

*Step 1.   Locate **Workstation** on the GUI menu and click on it to call the following screen.*

Detected outputs available for grouping
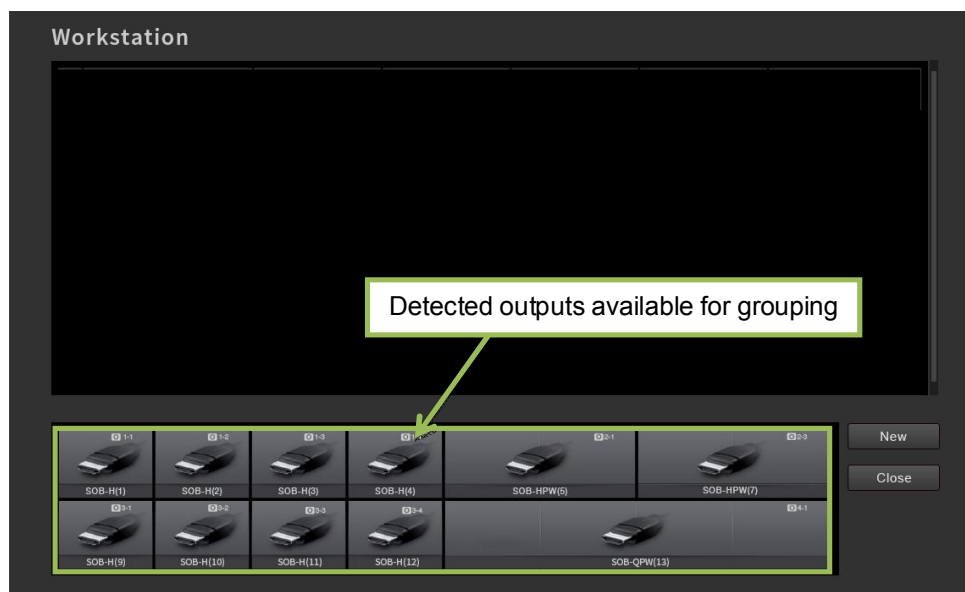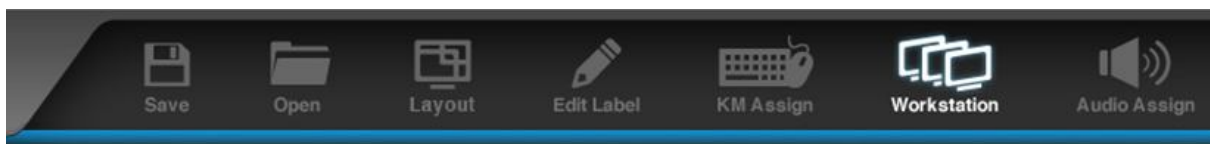
Figure 6-14 Workstation: Default Workstation Screen

*Step 2.   Click **New** to create an empty workstation. You can rename the workstation by clicking to highlight the default name ("**New Workstation**") and then type in the desired one.*
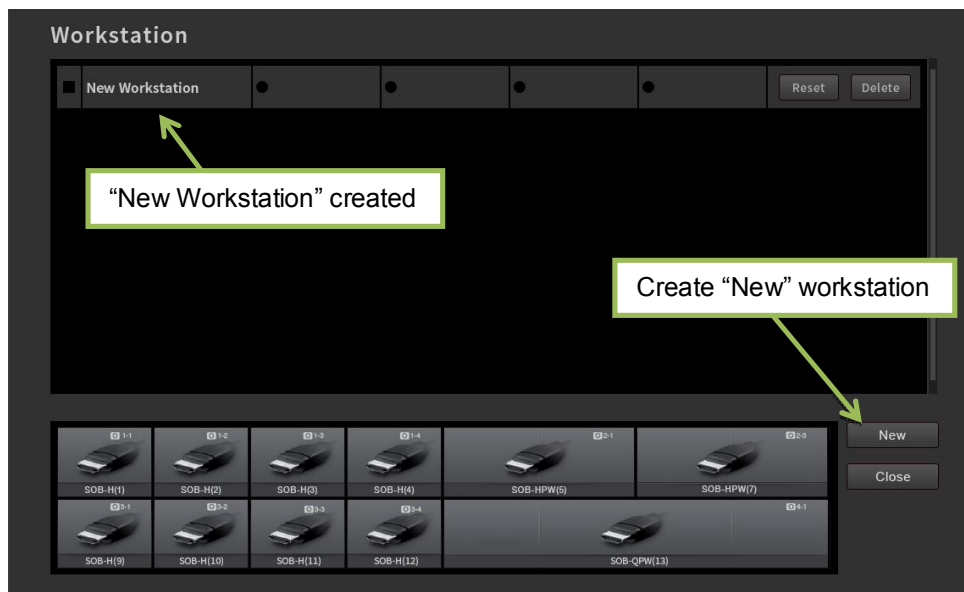
Figure 6-15 Workstation: New Workstation

Step 3. *To configure a quad monitor workstation, first drag and drop SOB-H (1) anywhere onto the empty workstation. This output will automatically be set as the left-most display of the workstation.*

Figure 6-16 Workstation: Quad Monitor Workstation Display 1

Step 4. *Drag and drop SOB-HPW (5) anywhere onto the same workstation. This output will automatically be set to the right of SOB-H (1).*
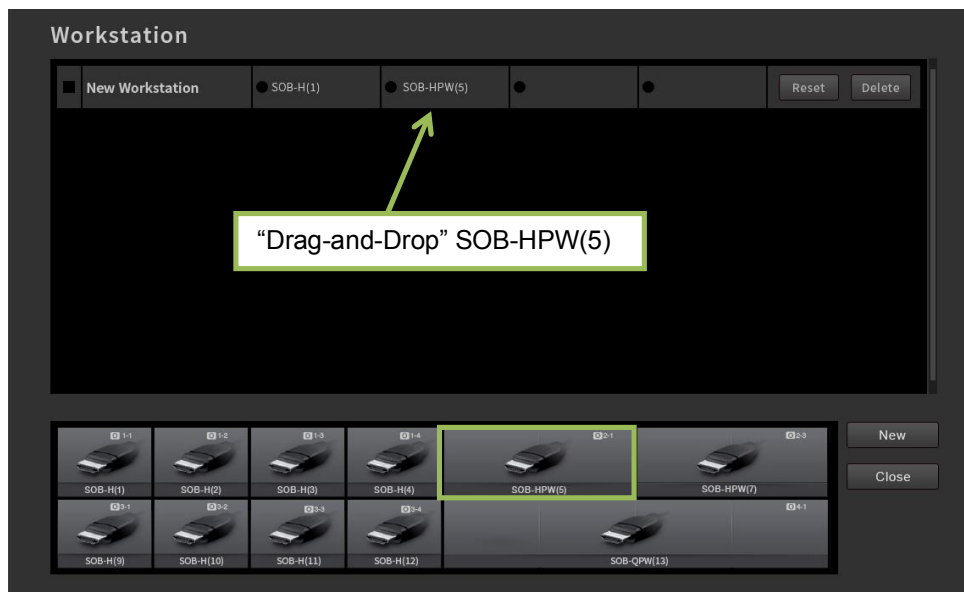
Figure 6-17 Workstation: Quad Monitor Workstation Display 2

Step 5. *Drag and drop SOB-QPW (13) anywhere onto the same workstation. This output will automatically be set to the right of SOB-HPW (5).*

Figure 6-18 Workstation: Quad Monitor Workstation Display 3

Step 6. *Drag and drop SOB-H (12) anywhere onto the same workstation. This output will automatically be set as the right-most display of the workstation.*

Figure 6-19 Workstation: Quad Monitor Workstation Display 4

*Keep in mind that the display order set from **Workstation** will determine the arrangement of the actual displays. Be sure to configure the display layout in the same order as how actual displays will be arranged at the workstation.*

Step 7. Click SOB-QPW (13) to designate its corresponding USB type A ports for mouse/keyboard connection.

Figure 6-20 Workstation: Designation of Mouse/Keyboard Connection

*1. Only output cards providing USB mouse/keyboard connectivity (SOB-HPW and SOB-QPW) or functions (SOB-T's HDBaseT **1** and HDBaseT **3** ports) can be assigned for mouse/keyboard. Thus, it is required that there is at least one of the above mentioned outputs within the group.*

2. When multiple output cards with mouse/keyboard connectivity or functions are grouped together, it is strongly recommended to only connect one mouse/keyboard set to the respective USB ports of the designated output.

Step 8. Apply workstation setting by checking the corresponding checkbox. This completes setting the quad monitor workstation.
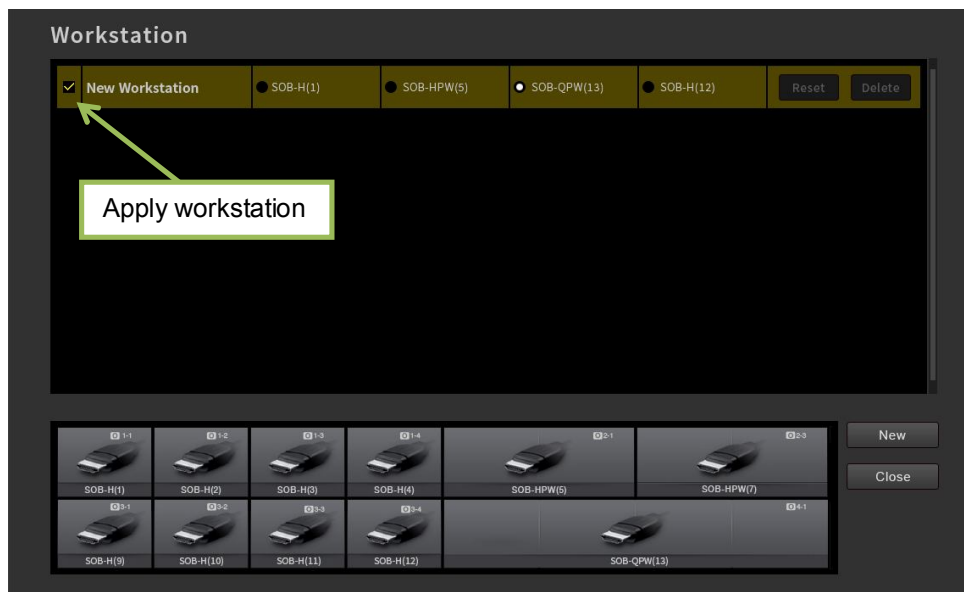
Figure 6-21 Workstation: Apply Workstation

Step 9. *To reconfigure any created workstation, click the corresponding **Reset** to return to the empty state (you will need to first uncheck the checkbox if the workstation has been applied). Clicking **Delete** will remove the workstation from the list.*

Step 10. *Once completing workstation configurations, exit by clicking **Close**. The figure below illustrates the multi-monitor workstation configured in Example 2:*
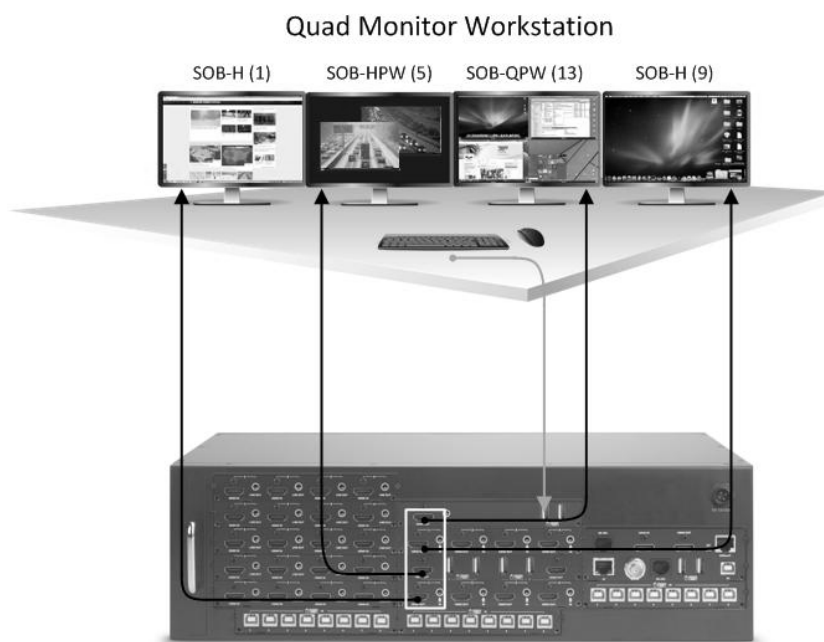
Figure 6-22 One quad monitor workstation

*When the card composition of the Pacific MS chassis is altered and the workstation(s) in configuration (or applied) is no longer supported (for example, removal of an output card from the chassis), the following alert message will appear. Any invalid workstation will automatically be removed from the **Workstation** list.*

Figure 6-23 Workstation: Invalid Configuration

6.2 Multi-Monitor Workstation Operation

A multi-monitor workstation can contain various combinations of up to four displays grouped from outputs of SOB-QPW, SOB-HPW, SOB-H, or SOB-T.

In a multi-monitor workstation, the operation on each SOB-QPW and SOB-HPW's output remains the same as operating on a single monitor workstation. Refer to Chapter 5 "Basic Workstation Operation" for detailed instructions.

To switch control from the SOB-QPW or SOB-HPW (Dual mode) display to another one, simply move the Host cursor to the right or left side of the current display; the mouse/keyboard control will automatically transfer from the current display to the adjacent one. The Host cursor will reappear on the newly entered screen when switched into another SOB-QPW or SOB-HPW (Dual mode) display.

When switched into a SOB-H, SOB-T, or SOB-HPW (Seamless mode) display, the mouse/keyboard control will be automatically transferred to the corresponding source computer. Moving the mouse cursor residing in your operating system to the display's right or left side (similar to moving the Host cursor of the SOB-QPW/SOB-HPW) also transfers mouse/keyboard control to the adjacent display.

Upon moving the cursor to either end of the workstation (the left/right side of the left-most/right-most display respectively), the cursor will be cycled and reappear on the opposite side of the workstation.
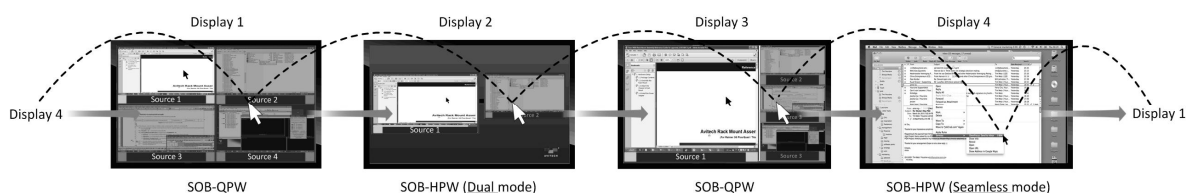
Figure 6-24 Multi-monitor (Quad) Workstation Operation: White cursor represents the Host cursor; dark cursor represents the cursor of the operating system
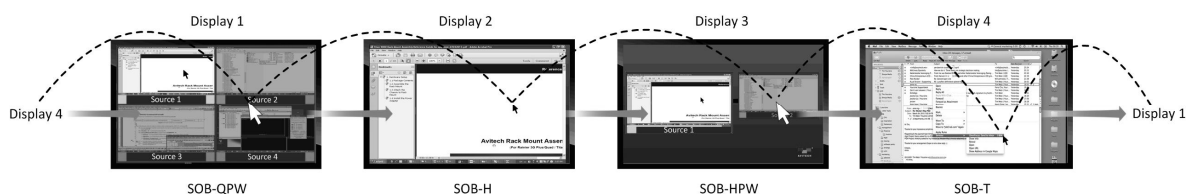
Figure 6-25 Multi-monitor (Quad) Workstation Operation: White cursor represents the Host cursor; dark cursor represents the cursor of the operating system

On multiviewer outputs (SOB-QPW or SOB-HPW), an additional tally (blue) will appear on each window when the respective outputs are configured as part of a multi-monitor workstation. Blue tallies of each display will activate and stay on when user transfers the respective mouse/keyboard control to another display.

6.2.1 Multi-monitor Workstation with Quad-view Display

In a multi-monitor workstation where SOB-QPW is grouped with other full-screen outputs (SOB-H, SOB-T, or SOB-HPW in Seamless mode), the Pacific MS allows any of the quad-view source window to be duplicated onto selected full-screen display(s). This enables simultaneous and continuous monitoring over numerous sources, where any source requiring additional attention can be closely monitored and controlled on a separate full-screen display.

The Pacific MS automatically senses the constitution of the configured multi-monitor workstation. When the workstation consists of any combination of SOB-QPW and other full-screen outputs, upon moving the Host cursor to the top-right corner of a window, the following pop-up selections will appear instead of the conventional ones:

❖ 🖥¹ *1: duplicates a window onto the first full-screen display*

❖ 🖥² *2: duplicates a window onto the second full-screen display*

❖ 🖥³ *3: duplicates a window onto the third full-screen display*

❖ ⛶ *Full screen: sets a window to full screen*

❖ ▨ *Restore: returns from a full-screen view to the previous quad-view layout*

The followings give examples of assigning selected source windows from the quad-view display(s) to other full-screen displays of the same workstation using the 🖥¹, 🖥², and 🖥³ pop-up selections.

Figure 6-26 Multi-monitor Workstation with One Quad and One Full Screen Display

Figure 6-27 Multi-monitor Workstation with One Quad and Two Full Screen Displays

Figure 6-28 Multi-monitor Workstation with Two Quad and Two Full Screen Displays


Figure 6-29 Multi-monitor Workstation with One Quad and Three Full Screen Displays

Operations of the aforementioned workstations with quad-view source window(s) duplicated are identical to those of other multi-monitor workstation. Simply move the Host cursor (or the cursor of the operating system) to the right or left side of your current display to transfer mouse/keyboard control to the adjacent one.

Figure 6-30 Multi-monitor Workstation with One Quad and Three Full Screen Displays: White cursor represents the Host cursor; dark cursor represents the cursor of the operating system

1. *The on-screen pop-up selections for window "swapping" (S) and "enter" (⏎) will be replaced by ▣¹, ▣², and ▣³ when SOB-QPW is configured into a multi-monitor workstation with other full-screen outputs. User can still remotely access a source computer through Remote mode by double-clicking on the corresponding window.*
2. *Pop-up icons ▣¹, ▣², and ▣³ will appear in accordance with the number of full-screen outputs grouped with SOB-QPW. For instance, when grouped with two SOB-H outputs, the SOB-QPW only displays ▣¹ and ▣² on its pop-up selections.*

Appendix A   Using the "Surfer" Feature

The "Surfer" feature is designed for ease of switching the mouse and keyboard control from one computer to another by simply moving the mouse cursor to the window of that computer. This streamlined KVM switch feature of the SOB-QPW and SOB-HPW cards is best used when an operation requires frequent switch of control between multiple computers.

When controlling a computer under Remote mode, user can move the mouse cursor toward the nearest edge(s) of another window also routed from a source computer. The system will automatically transfer the mouse/keyboard control to the corresponding computer when the cursor leaves the former window to the later one. This saves the extra step of returning to Host mode when a switch is needed, providing an intuitive KVM switching method for streamlined access to a number of remote computers. The "Surfer" feature can also be used to seamlessly switch monitoring and control between the remote computers in full screen.

This appendix discusses multiple "Surfer" scenarios when operating on independent SOB-QPW and SOB-HPW displays, followed by using the "Surfer" in a multi-monitor workstation. It should be noted that "Surfer" is a Remote mode feature, and the following scenarios presume that your respective output cards are in Remote mode.

> *The "Surfer" feature is enabled by default. Upon entering Remote mode to a remote computer, the corresponding window border will turn yellow. To disable "Surfer", hold the mouse-wheel button for approximately 1.5 seconds during Remote mode operation. The window border will turn red, indicating that "Surfer" has been disabled. Moving the cursor to the edge(s) of your current window will no longer incur switching of mouse/keyboard control. To reactivate the "Surfer" feature, simply hold the mouse-wheel button again during Remote mode operation until the window border turns yellow.*

A.1   "Surfer" Feature on Uniform Dual Layout (SOB-HPW)

❖   *The figure below shows a typical control switching action upon moving the mouse cursor toward the border of Source 1 window (indicated by the shaded arrow). Moving the cursor from Source 1 window to Source 2 window transfers mouse and keyboard control from the former to the latter (transfer occurs upon the cursor touches the edge shared by both windows).*
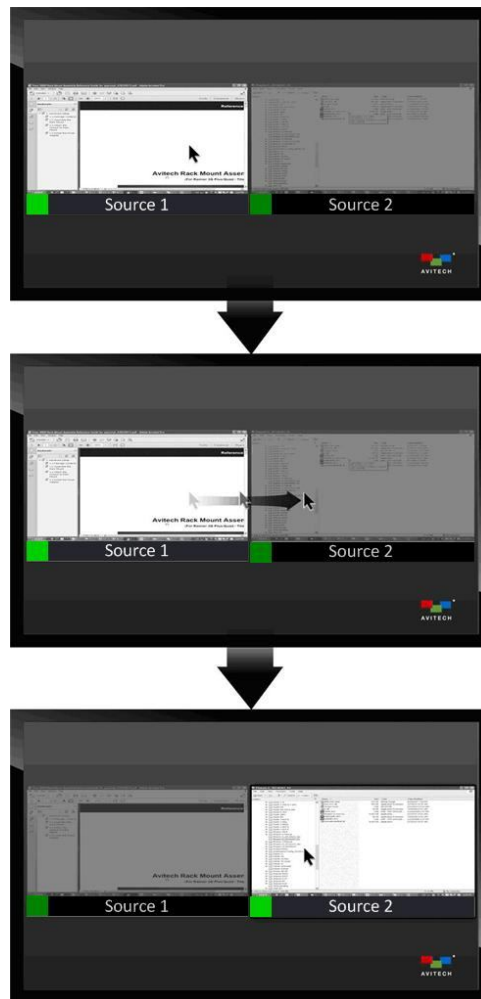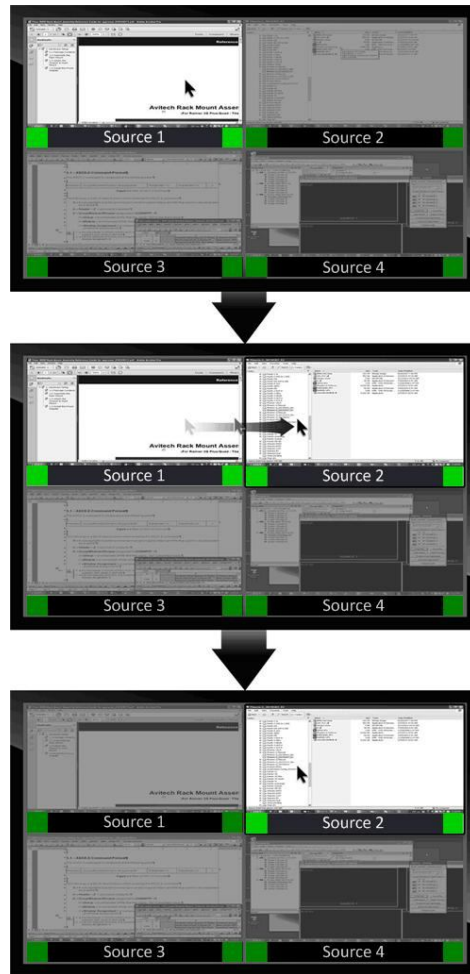
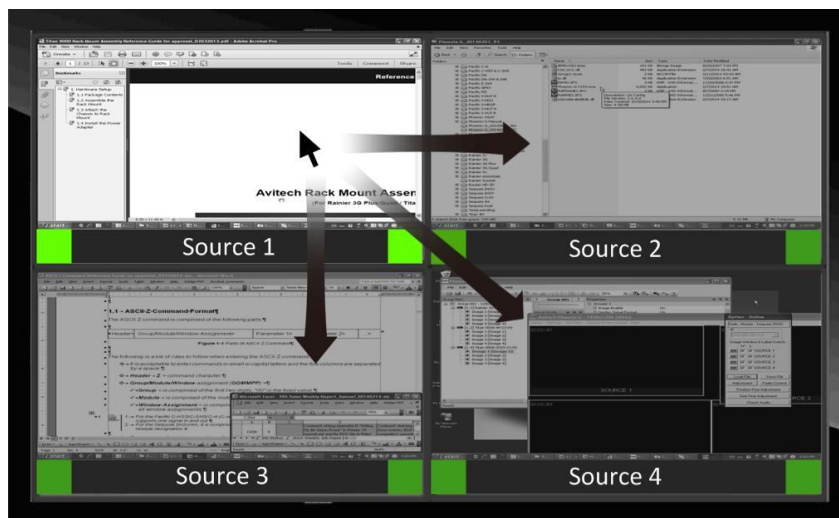**Figure A-1** "Surfer" Feature on Uniform Dual Layout

A.2 "Surfer" Feature on Uniform Quad Layout (SOB-QPW)

❖ *The figure below shows a typical control switching action upon moving the mouse cursor toward the border of Source 1 window (indicated by the shaded arrow). Moving the cursor from Source 1 window to Source 2 window transfers mouse and keyboard control from the former to the latter (transfer occurs upon the cursor touches the edge shared by both windows).*
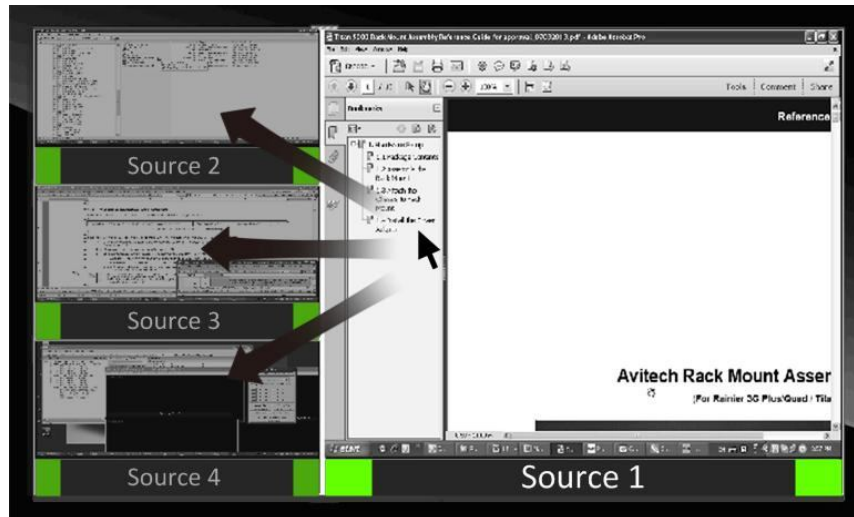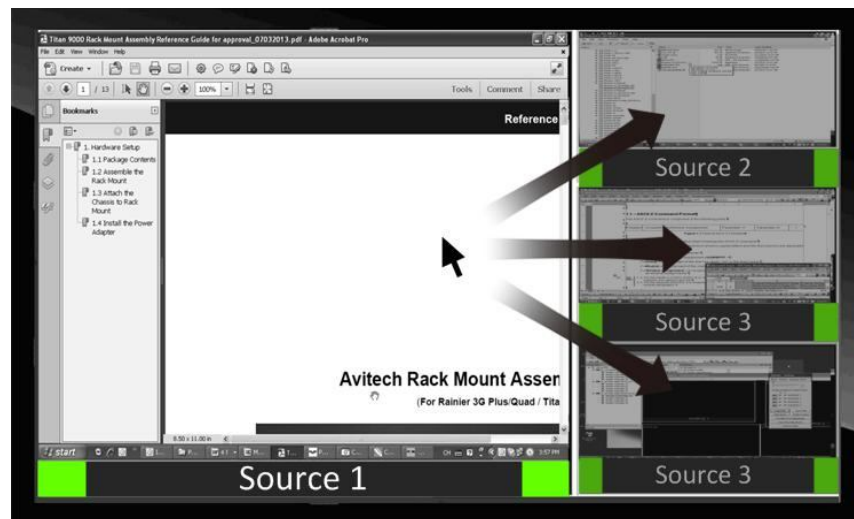
Figure A-2 "Surfer" Feature on Uniform Quad Layout

❖ *Figures below show a number of typical control switching actions upon moving the mouse cursor toward the border of Source 1 window (indicated by shaded arrows). Moving the cursor from Source 1 window to Source 2, Source 3, or Source 4 window transfers mouse and keyboard control from the former to the latter (transfer occurs upon the cursor touches the edge shared by two windows).*
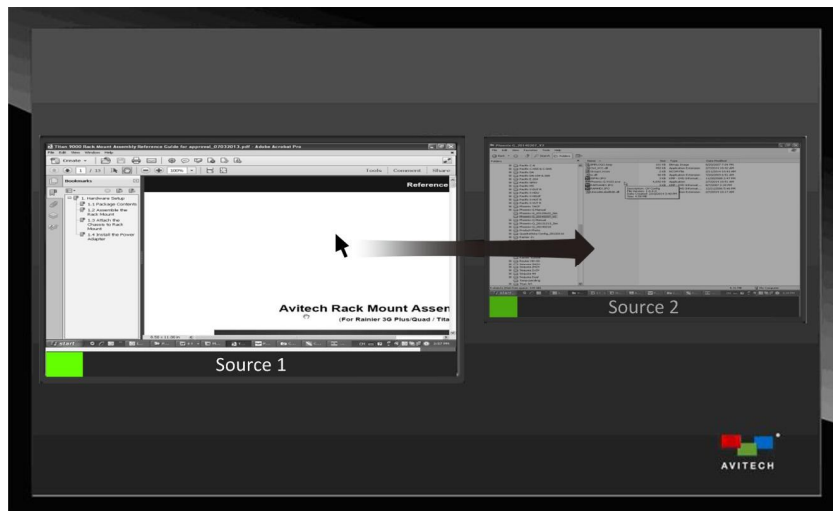

Figure A-3 "Surfer" Feature on Uniform Quad Layout

Figure A-4 "Surfer" Feature on Adjoined, Non-uniformed Quad Layout

Figure A-5 "Surfer" Feature on Adjoined, Non-uniformed Quad Layout

A.3 "Surfer" Feature on Non-adjoining Dual Layout (SOB-HPW)

❖ *The figure below shows a typical control switching action upon moving the mouse cursor toward the border of Source 1 window (indicated by the shaded arrow). Moving the cursor from Source 1 window to Source 2 window transfers mouse and keyboard control from the former to the later (transfer occurs upon the cursor leaves the right edge of Source 1 window).*
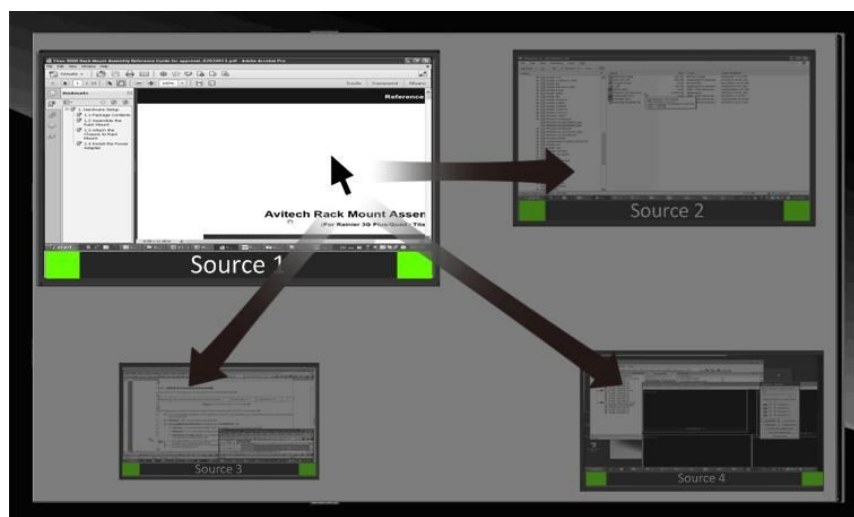
Figure A-6 "Surfer" Feature on Non-uniform, Non-adjoining Dual Layout

In case of overlaying source windows, switching of control will occur when the mouse cursor has left the area where the two windows overlay (toward the targeted window).

A.4 "Surfer" Feature on Non-adjoining Quad Layout (SOB-QPW)

❖ *The figure below shows a number of typical control switching actions upon moving the mouse cursor toward the border of Source 1 window (indicated by shaded arrows). Moving the cursor from Source 1 window to Source 2, Source 3, or Source 4 window transfers mouse and keyboard control from the former to the later (transfer occurs upon the cursor leaves the edge of Source 1 window toward another window).*


Figure A-7 "Surfer" Feature on Non-uniform Quad Layout

In case of overlaying source windows, switching of control will occur when the mouse cursor has left the area where the four source windows overlay.
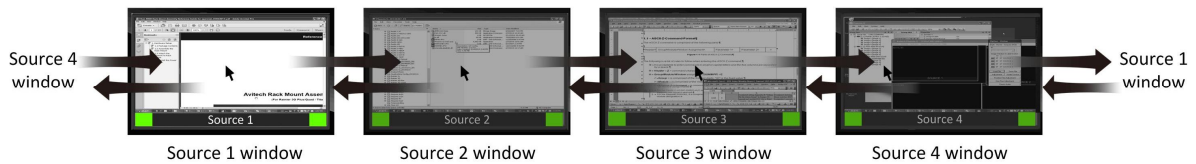
A.5   "Surfer" Feature on Full Screen Window (SOB-HPW and SOB-QPW)

❖ *The figure below shows some typical control switching actions upon moving the mouse cursor to the left or right edge of a SOB-HPW's full-screen window (indicated by shaded arrows). Moving the cursor in such ways seamlessly switches the full-screen window to the other one and transfers mouse and keyboard control from the former to the latter.*
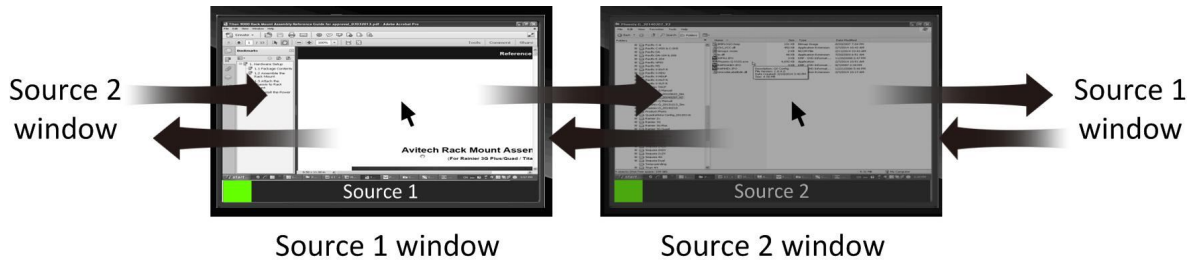
Figure A-8 "Surfer" Feature on Full Screen Source Window (SOB-HPW)

❖ *The figure below shows some typical control switching actions upon moving the mouse cursor to the left or right edge of a SOB-QPW's full-screen window (indicated by shaded arrows). Moving the cursor in such ways seamlessly switches the full-screen window to another window and transfers mouse and keyboard control from the former to the latter. Notice that the direction (left/right) the cursor is moved will determine which source to be switched on.*

Figure A-9 "Surfer" Feature on Full Screen Source Window (SOB-QPW)

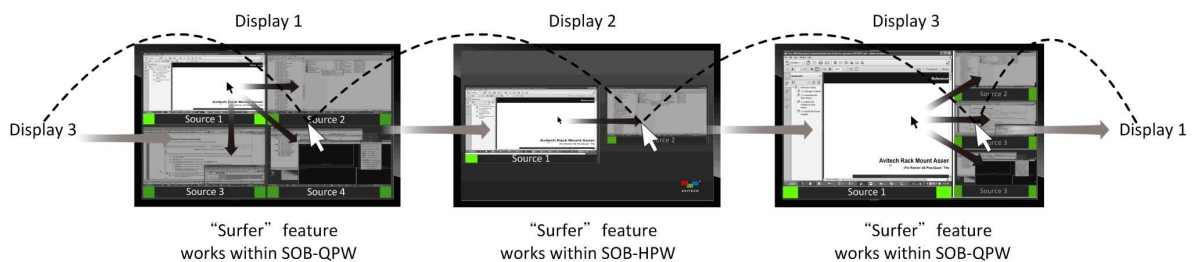## A.6 "Surfer" Feature on Multi-monitor Workstation

❖ *When operating on a multi-monitor workstation consisting of SOB-QPW and/or SOB-HPW outputs as shown in the below figure, the "Surfer" feature is confined within each SOB-QPW and SOB-HPW display (refer to earlier illustrations on using the "Surfer" feature within individual SOB-QPW and SOB-HPW displays).*

❖ *For example, if user is currently in control of Source 1 window on the left-most SOB-QPW display (Remote mode) and wishes to switch control to Source 2 window on the center SOB-HPW display (Remote mode), perform the following steps:*

*Step 1. Press the **Pause/Break** key (or double-click the mouse-wheel) to exit Remote mode and re-enter SOB-QPW's Host mode. Control of Source 1 window on SOB-QPW has now been disengaged.*

Step 2. Move the Host cursor to the right edge of the SOB-QPW display to allow the Host cursor to jump to the left edge of the SOB-HPW display.

Step 3. Move the Host cursor over to the top-right corner of Source 2 window on the SOB-HPW display and click the ↵ "enter" icon on the pop-up selections S ↵ ⊠. Or, double-click the mouse left button anywhere on the window to switch control to Source 2 window (enter Remote mode).

The "Surfer" feature can now be used within the center SOB-HPW display to switch control between Source 1 window and Source 2 window.

Legend:
Host mode action (moving between multiple displays): dotted lines and gray arrows
Remote mode action (moving within each display of SOB-QPW or SOB-HPW): dark shaded arrows

Figure A-10 "Surfer" Feature on Multi-monitor Workstation

The Pacific MS supports grouping up to four display outputs in a workstation (quad monitor workstation).