Cybex™ SCMV Secure Desktop MultiViewer Switch

Installer/User Guide

The information contained in this document is subject to change without notice and may not be suitable for all applications. While every precaution has been taken to ensure the accuracy and completeness of this document, Vertiv assumes no responsibility and disclaims all liability for damages resulting from use of this information or for any errors or omissions. Refer to other local practices or building codes as applicable for the correct methods, tools, and materials to be used in performing procedures not specifically described in this document.

Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit https://www.vertiv.com/en-us/support/ for additional assistance.

TABLE OF CONTENTS

1 Product Overview

With the Vertiv™ Cybex™ SCMV Secure Desktop MultiViewer Switch, you can securely connect to and switch between multiple computers at varying classification levels. You can simultaneously view as many as 16 active computers on one or two displays and seamlessly switch between them by moving the mouse across window borders while pressing the left CTRL key. This feature is called Cursor Navigation Switching (CNS).

The switch utilizes several security features to prevent the transfer of data between connected computers while giving you control to connected computers via a single set of peripherals. The switch supports up to 16 connected computers and the 4- and 8-port models have a Dedicated Peripheral Port (DPP) for secure connection to USB peripherals, including two-factor authentication devices such as CAC smart card readers, fingerprint readers and facial recognition.

WARNING! This product is equipped with tamper-evident seals. Breaking/removing the seals will void the warranty. If the enclosure appears to be tampered with, contact Technical Support.

1.1 Products Supported

- Cybex™ SCMV 245DPH secure universal DP/H desktop MultiViewer switch
- Cybex™ SCMV 285DPH secure universal DP/H desktop MultiViewer switch
- Cybex™ SCMV 2160DPH secure universal DP/H desktop MultiViewer switch

1.2 Features and Benefits

The switch provides the following features and benefits:

- Designed to meet Common Criteria Protection Profile (PP) for Peripheral Sharing Devices (PSD) v.4.0
- Designed to meet Evaluation Assurance Level (EAL) 4+
- Universal video connectors supporting HDMI 1.4 or DisplayPort (DP) 1.2 or DVI-D (with HDMI-to-DVI-D cable)
- Native video support up to UHD 4K (3840x2160) at 30 Hz
- Ability to view up to 16 active computers simultaneously on one or two displays
- Scale any source to 4K or downscale any source from 4K to a lower resolution
- Cursor Navigation Switching (CNS) giving you control to switch from one isolated computer to another by holding the left CTRL key and moving the mouse across borders
- Display classified and unclassified information without compromising security
- Prevents information leaks, transfer or crosstalk between adjacent ports and filters ultrasonic audio frequencies via unidirectional optical data diodes (UODD)
- Maintain situational awareness across multiple security domains
- Filters unwanted USB devices
- Dedicated Peripheral Port (DPP) for secure connection to USB peripherals including two-factor authentication devices such as CAC smart card readers, fingerprint readers, facial recognition, etc. (4 and 8-port models only)
- Isolated ports on the switch provide discrete processing paths to each computer
- USB peripheral isolation via unidirectional optical data diodes controlling data flow from devices to host only
- Unidirectional audio data diode that allows sound to travel in one direction from the PC to the speaker and prevents eavesdropping (4 and 8-port models only)
- Touchscreen support

1.3 System Requirements

Ensure a minimum of one of the following operating systems is installed on the computers to be connected:

- Microsoft Windows 8.1 and 10 or higher
- Red Hat, Ubuntu or any other Linux platform
- Apple Mac OS X Catalina version 10.15.5 or higher

2 Basic Operation

The keyboard and mouse console ports support only USB HID (Human Interface Device) keyboards and mice. Non-standard keyboards, keyboard with integrated USB hubs, or keyboards with other USB-integrated devices may not be supported.

2.1 Switch Overview

The MultiViewer switch is configured and operated via LED buttons on the front panel, an on-screen display (OSD) and various keyboard shortcuts on a connected keyboard.

Figure 2.1 Cybex SCMV245DPH Secure MultiViewer Switch

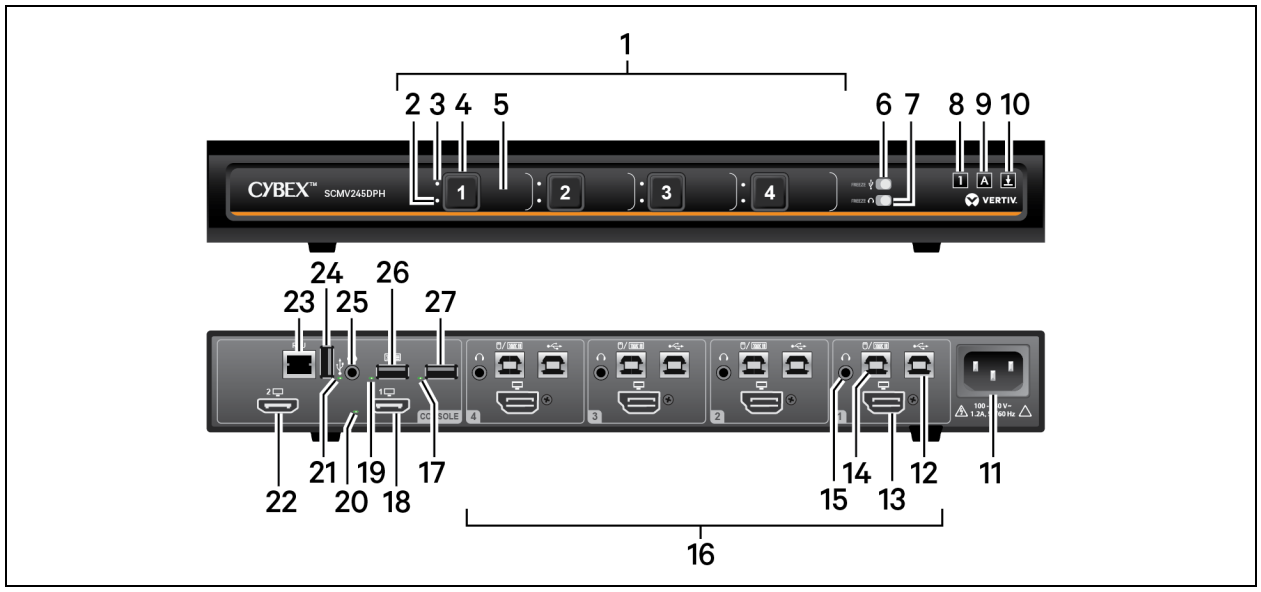


Table 2.1 Cybex SCMV245DPH Secure MultiViewer Switch

Item	Description	Item	Description	Item	Description
1	Computer channel 1-4 selectors	10	Scroll lock indicator; illuminates when activated	19	Console USB keyboard status LED indicator
2	Audio freeze indicator	11	Power input	20	Console video diagnostic LED indicator
3	DPP freeze indicator	12	DPP USB Type-B connector for computer 1	21	Console DPP diagnostic LED indicator
4	Channel selector	13	DP/HDMI video input for computer 1	22	Secondary HDMI video output
5	Channel label	14	Keyboard and mouse USB Type-B connector for computer 1	23	RCU port; used with AFP
6	DPP freeze toggle	15	Speaker input for computer 1	24	DPP console input
7	Audio freeze toggle	16	Computer connections; the switch shown supports up to four computers	25	Console speaker output
8	Num lock indicator; illuminates when activated	17	Console USB mouse status LED indicator	26	Console USB console keyboard input
9	Caps lock indicator; illuminates when activated	18	Primary HDMI video output	27	Console USB console mouse input

Figure 2.2 Cybex SCMV285DPH Secure MultiViewer Switch Descriptions

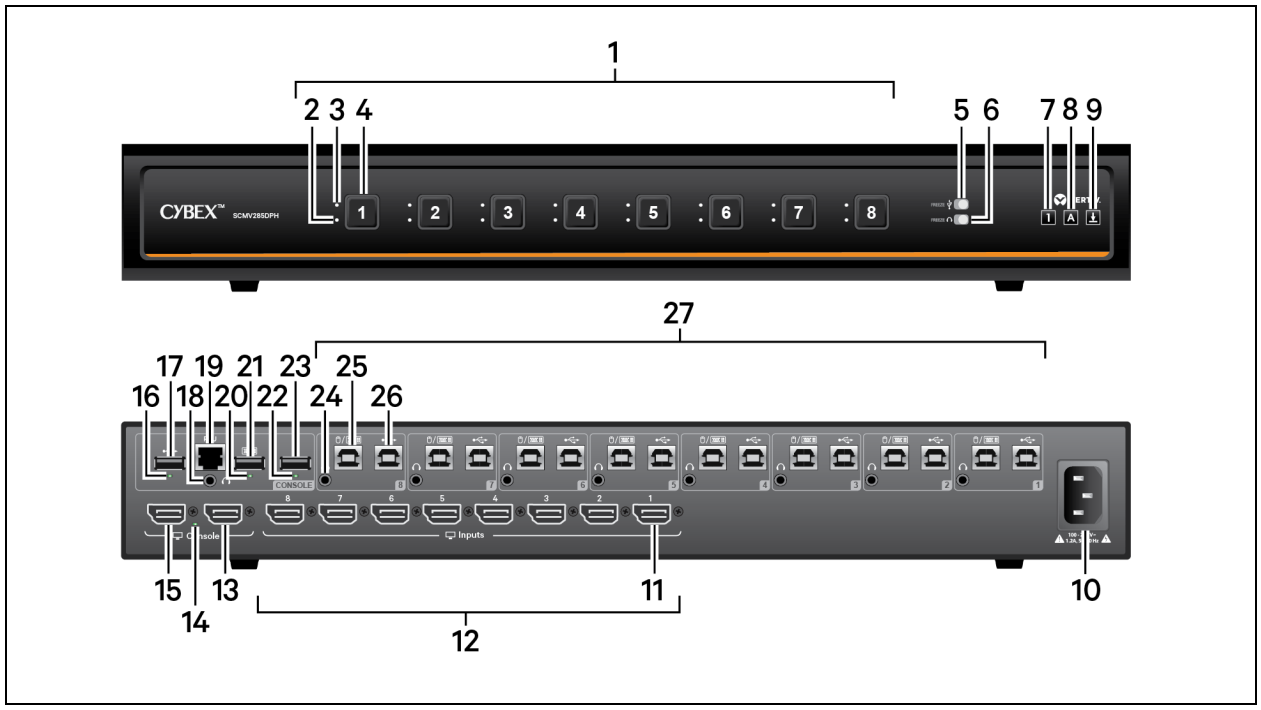


Table 2.2 Cybex SCMV285DPH Secure MultiViewer Switch

Item	Description	Item	Description	Item	Description
1	Computer channel 1-8 selectors	10	Power input	19	RCU port; used with AFP
2	Audio freeze indicator	11	DP/HDMI video input for computer 1	20	Console USB keyboard status LED indicator
3	DPP freeze indicator	12	Computer DP/HDMI video connections for up to eight computers	21	Console USB console keyboard input
4	Channel selector	13	Primary DP/HDMI video output	22	Console USB mouse status LED indicator
5	DPP freeze toggle	14	Console video diagnostic LED indicator	23	Console USB console mouse input
6	Audio freeze toggle	15	Secondary DP/HDMI video output	24	Speaker input for computer 8
7	Num lock indicator; illuminates when activated	16	Console DPP diagnostic LED indicator	25	Keyboard and mouse USB Type-B connector for computer 8
8	Caps lock indicator; illuminates when activated	17	DPP console input	26	DPP USB Type-B connector for computer 8
9	Scroll lock indicator; illuminates when activated	18	Console speaker output	27	Computer USB keyboard/mouse and DPP connections for up to eight computers

Figure 2.3 Cybex SCMV2160DPH Secure MultiViewer Switch

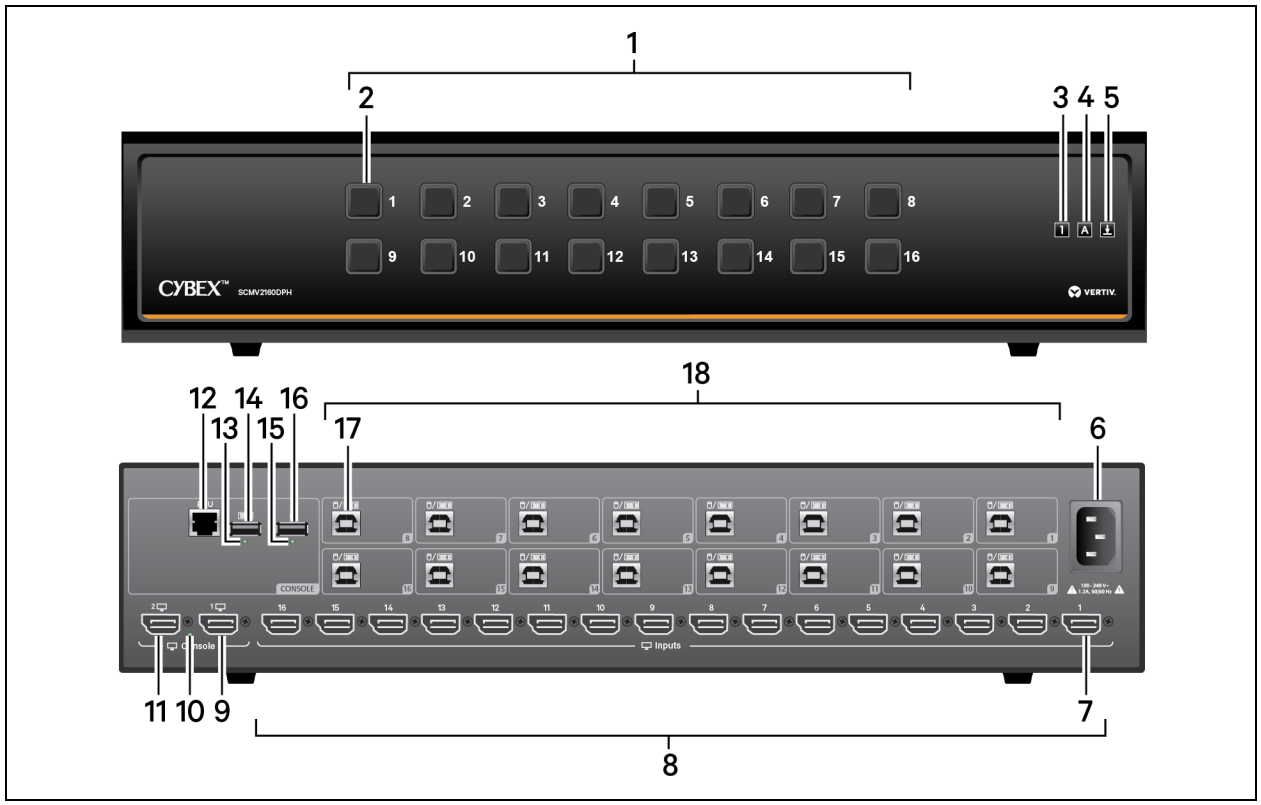


Table 2.3 Cybex SCMV2160DPH Secure MultiViewer Switch Descriptons

Item	Description	Item	Description
1	Computer channel 1-16 selectors	10	Console video diagnostic LED indicator
2	Channel selector	11	Secondary DP/HDMI video output
3	Num lock indicator; illuminates when activated	12	RCU port; used with AFP
4	Caps lock indicator; illuminates when activated	13	Console USB keyboard status LED indicator
5	Scroll lock indicator; illuminates when activated	14	USB console keyboard input
6	Power input	15	Console USB mouse status LED indicator
7	DP/HDMI video input for computer 1	16	USB console mouse input
8	Computer DP/HDMI video connections for up to sixteen computers	17	Keyboard and mouse USB Type-B connector for computer 1
9	Primary DP/HDMI video output	18	Computer USB keyboard/mouse connections for up to sixteen computers

2.2 Control Options

LED indicators on the front and back panels of the switch allow you to view the status of the switch and its connected computers, displays and peripherals.

2.2.1 Rear panel status LED indicators

The keyboard and mouse ports only accept USB HID (human interface device) keyboard and mouse devices. The 4- and 8-port models offer a Dedicated Peripheral Port (DPP). By default, the DPP supports authentication devices, such as smart card and biometric readers. Other devices must be specifically whitelisted. Refer to the Cybex SC Series Secure Switches Additional Operations and Configuration Technical Bulletin for more information.

NOTE: Any device connected to the DPP must have proper USB grounding to be authorized for use.

The keyboard, mouse and DPP diagnostic LEDs indicate an approved device is connected and ready for use. Each LED illuminates solid green a few seconds after power is applied.

- Off - no device detected
- Red - device is rejected
- Green - device is approved

The video diagnostic LED indicates the Extended Display Identification Data (EDID) information has been successfully read from the display and stored in memory. The EDID is only read in the first few seconds after the switch is powered on.

- Off - no EDID detected
- Blinking - reading EDID
- On - EDID received

NOTE: Hot-plugging or swapping displays while the switch is on is not supported. To change a display, power cycle the switch.

2.2.2 Important notes about keyboard shortcuts

- Always use the left control (CTRL) key unless otherwise specified.
- Press keyboard shortcut keys sequentially.
- Do not use the numeric keypad for toggling shortcuts unless specified.
- All keyboard shortcuts refer to QWERTY keyboards. If a non-QWERTY keyboard is in use, keep using the QWERTY layout.

2.2.3 Admin mode

Admin mode is used to modify the window arrangement on the displays or to select the active window.

To enter Admin mode:

Enter L-CTRL | L-CTRL | o (lowercase O)

-or-

Press the scroll wheel or the mouse side button. For more information, see Admin Mode Mouse Switching on page 26

A large blue cursor indicates you are in Admin mode. Mouse data is not sent to any computer; however, keyboard data is sent to the selected computer.

To move a window:

Press and hold the left mouse button anywhere in the window and move the mouse to position the window as desired.

To resize a window:

1. Position the mouse pointer in the bottom right corner of the window.

2. Press and hold the right mouse button and move the mouse to resize the windows as desired.

NOTE: Window resizing is affected by the Auto Scaling Video Setting (See Auto Scaling on page 21.)

2.2.4 User mode

User mode is used to interact with the selected computer.

To enter User mode:

Enter L-CTRL | L-CTRL | u

-or-

Press the scroll wheel or the mouse side button. For more information, see Admin Mode Mouse Switching on page 26

In User mode, the large blue cursor disappears and the mouse functions in the selected computer until switched to another computer.

2.3 Cursor Navigation Switching

By default, the switch allows you to move between windows when pressing the left CTRL key and moving the mouse moves across a window border. This is called Cursor Navigation Switching (CNS). When CNS switches from one computer to another, the keyboard, mouse, audio and DPP mapping switch accordingly.

Alternatively, you can configure the switch to confine mouse cursor movement to the active window. With this method, you must use Admin mode or the front panel buttons to switch focus between the computer windows.

NOTE: See Presets on page 14 for predefined display layouts.

To enable CNS:

Press L-CTRL | L-CTRL | F11 | c.

To disable CNS:

Press L-CTRL | L-CTRL | F11 | b.

2.4 Channel Selection

The numbered LED buttons are each mapped to a corresponding computer port on the back panel. For example, the LED one button is mapped to the computer connected to computer input one.

NOTE: The buttons have multicolored LED to enhance situational awareness for which computer is active.

You can select which computer to operate using the front panel push buttons. The LED number illuminates to indicate which computer is currently selected. When you select a new computer, the mapping for the keyboard, mouse, audio and USB device also changes to the specified computer.

To select a computer:

Press and hold the left CTRL key and move the mouse to the desired window (CNS.)

-or-

Enable Admin mode, use the mouse to select the desired window, and enable User mode.

-or-

Press buttons 1-16 on the front panel or optional AFP remote control panel.

2.5 DPP Functionality

The DPP port on 4- and 8-port MultiViewer switches allows secure connection to USB peripherals, including two-factor authentication devices such as CAC smart card readers, fingerprint readers and facial recognition. When an authorized USB device is connected to the switch, the DPP LED illuminates green and the device is ready for use. If the USB device is compatible but not authorized for use with the switch, the DPP status LED illuminates red and the device is inoperable until the device is authorized with the DPP configuration utility or through the terminal. If the USB device is not compatible with the switch or if no device is detected, the status DPP LED does not illuminate and the device is inoperable

NOTE: When using an authentication device such as a smart card reader, do not connect any device to the switch that requires an external power source.

When you switch channels, the USB device connected to the DPP is connected to the selected channel unless DPP functionality is locked on a specific channel.

DPP may be locked to a specific computer to enable you to switch between ports without disconnecting the user authentication session. When locked, switching channels does not affect processes performed by the DPP connected to the locked channel.

To lock the DPP to a specific computer:

1. Select the computer you want to lock the DPP on.
2. On the front panel, enable the freeze button and verify the freeze indicator illuminates on the selected channel and on the freeze button.

NOTE: If the switch with custom DPP configuration is restored to factory settings, the DPP feature will revert to authorizing only authentication devices after the restart.

See the Vertiv Cybex™ SC Series Secure Switches Additional Operations and Configuration Technical Bulletin for detailed DPP configuration procedures.

2.6 Audio Functionality

The 4- and 8-port switches are compatible with stereo headphones and amplified stereo speakers.

NOTE: Do not connect a microphone device to the switch's audio output port. Use headset devices that do not include microphone capabilities.

You can lock the analog audio to a specific channel. After you lock audio functionality, you can switch channels and the audio on the locked channel remains active.

To lock the analog audio to a specific computer:

1. Select the computer you want to lock audio on.
2. On the front panel, enable the audio freeze button and verify the audio freeze indicator illuminates on the selected channel and on the freeze button.

NOTE: You can mix or lock the digital audio for multiple computers using the Audio Setting in the On Screen Display. **See Audio Settings on page 26.**

2.7 Keyboard Lock LED Indicators

All secure switches block communication from the computers to the keyboard to prevent potential data leaks. You can enable Caps Lock, Scroll Lock or Num Lock from a connected keyboard; however, the connected keyboard status indicators do not illuminate to indicate the settings are enabled. The Caps lock, Scroll lock and Num lock LEDs on the switch illuminate to indicate the settings are enabled on a specific channel. Switching channels changes the status of the switch's front panel LEDs if different settings are enabled on each computer.

2.8 Numeric Keypad Presets

The keyboard's numeric keypad can be used to quickly change the display layout.

NOTE: The numeric keypad presets are only available for the 4- and 8-port models.

To enable numeric keypad presets:

Activate the OSD, select *USB Settings*, then select *Enable under Keypad Presets*.

-or-

Enter L-CTRL | L-CTRL | F11 | Insert | k | e

To disable numeric keypad presets:

Activate the OSD, select *USB Settings*, and select *Disable under Keypad Presets*.

-or-

Enter L-CTRL | L-CTRL | F11 | Insert | k | d

Figure 2.4 Numeric Keypad Presets

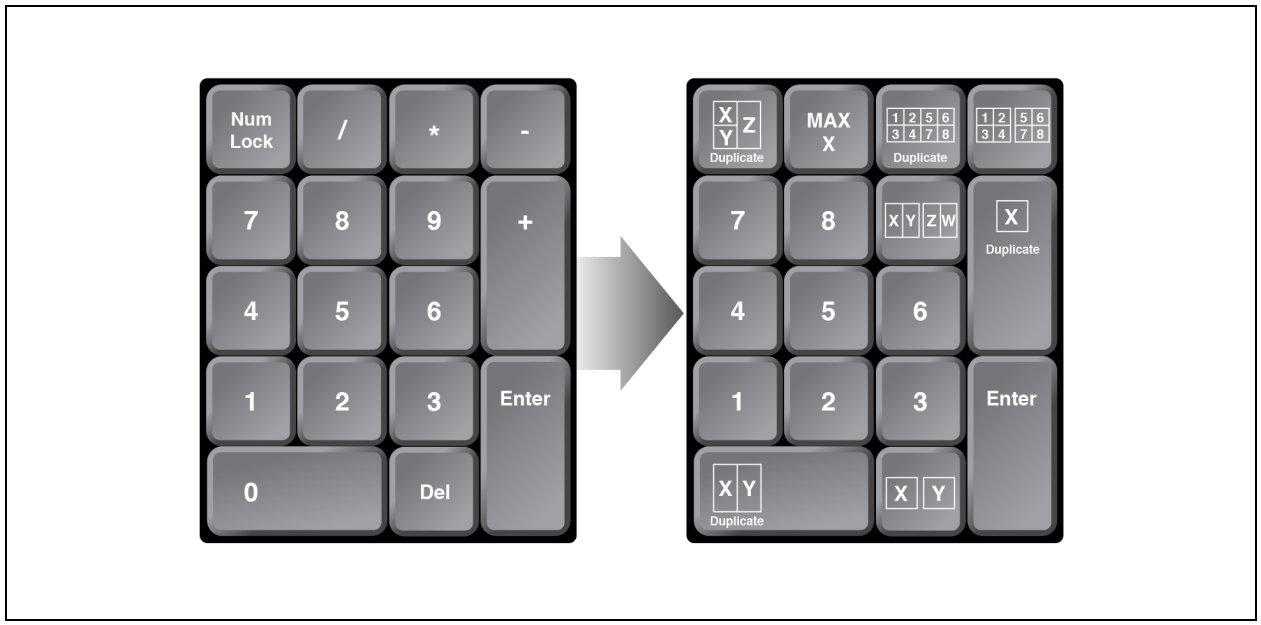
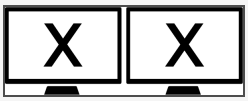
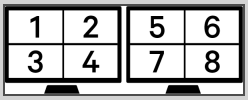
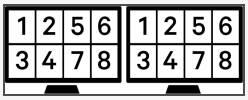
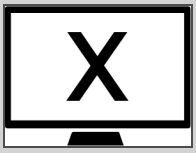
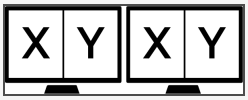
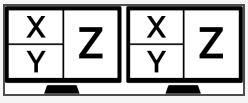


Table 2.4 Numeric Keypad Sequences

Description	Numeric Pad Sequence	Example
Layout with N windows	<ENTER> N X1 X2 … Xn	6 windows for computer 1, 2, 3, 4, 5, 8: Press: <ENTER> 6 1 5 4 3 8 2
Extended Screen Mode – computer X on primary and Y on secondary 	<DEL> X Y	Extended screen mode with computer 4 on primary and computer 5 on secondary: Press: <DEL> 4 5
Duplicate Screen Mode – computer X 	<+> X	Duplicate computer 5 on both displays: Press: <+> 5
Tile + Extended Screen Mode – all computers 	<->	4-Port – 1 and 2 on primary; 3 and 4 on secondary 8-Port – 1-4 on primary; 5-8 on secondary Press: <->
Tile + Duplicate Screen mode – all computers 	<*>	4-Port – 1-4 on primary and secondary 8-Port – 1-8 on primary and secondary Press: <*>
Maximize computer X 	</> X	Maximize computer 3: Press: </> 3
Duplicate Screen Mode – computer X and Y 	0 X Y	Display computers 2 and 3 on both displays: Press: 0 2 3
Extended Screen Mode – 4 computers, X and Y on primary, Z and W on secondary 	9 X Y Z W	Display computers 3 and 7 on primary and computers 1 and 2 on secondary: Press: 9 3 7 1 2
Duplicate Screen Mode – computers X, Y and Z 	<NumLock> X Y Z	Display computers 2 5 and 8 on both displays: Press: <NumLock> 2 5 8

2.9 System Settings

2.9.1 Factory reset

When the switch is restored to factory default settings, the front panel LEDs blink in unison to indicate a successful factory reset and restarts the switch. After the switch restarts, all computers are displayed in tile-screen mode on the primary display. Resetting to factory default settings erases all user-defined configurations, including DPP custom configurations and user-defined presets.

To clear all settings and return to the factory defaults:

Press L-CTRL | L-CTRL | F11 | r.

2.9.2 Terminal menu

The switch has a terminal menu that can be accessed for advanced configuration.

To log in to the terminal menu:

1. Select an active computer channel on the switch.
2. Open Microsoft Notepad or another text editor on the selected computer.
3. Enter L-CTRL | R-CTRL | t to initiate the terminal menu. The switch inputs character into the text editor.

The default username is admin1234 and 1234ABCDefg!@# is the default password. Upon initial log-in, the administrator must set and confirm a new password. The new password must be eight to 15 characters long and contain at least one of each of the following:

- Uppercase letter
- Lowercase letter
- Number
- Special character: !@#$%^&*()-_

NOTE: You can change the password at any time. Restoring factory defaults does not reset the primary admin username and password. If you forget your username or password, contact Vertiv Technical Support for assistance.

WARNING! After three failed log-on attempts, the device admin console locks. You can power cycle the switch to try again.

To use the terminal menu, type the number of the desired option using the numbers across the top of the keyboard. The numeric pad is not supported.

NOTE: While the switch is in the terminal menu, keystrokes are not sent to the selected computer until you enter the number into the text editor for Exit Terminal Mode.

2.10 Presets

The MultiViewer switch provides several predefined screen layout presets, and you can create up to eight custom presets for each screen layout.

2.10.1 Full-screen mode

The selected computer displays in full screen.

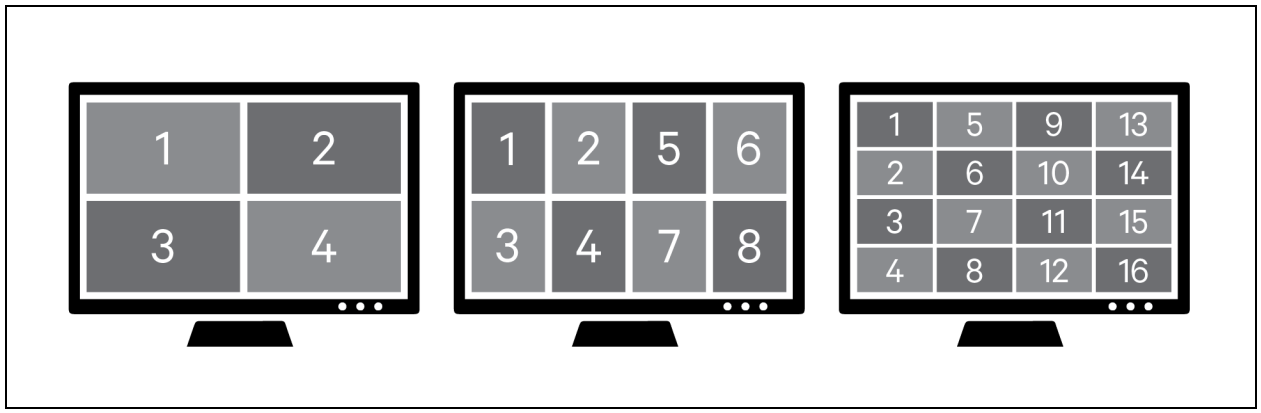
To enable full-screen mode:

Enter L-CTRL | L-CTRL | f

2.10.2 Tile-screen mode

The screen is divided into four, eight or 16 equal-sized windows.

Figure 2.5 Tile-screen Mode Example



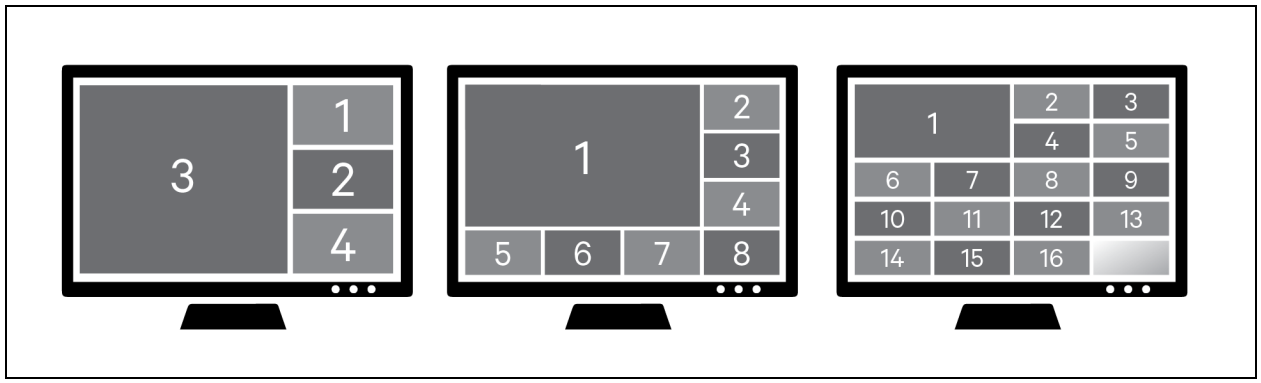
To enable tile-screen mode:

Enter L-CTRL | L-CTRL | q

2.10.3 Scale-screen mode

The selected window is larger.

Figure 2.6 Scale-screen Mode Example



To enable scale-screen mode:

Enter L-CTRL | L-CTRL | s

2.10.4 Using dual displays

In single-screen mode, the primary display is active and the secondary display is disabled.

To enable single-screen mode:

Enter L-CTRL | L-CTRL | F11 | s | 0 (zero)

In duplicate-screen mode, the secondary display duplicates the primary display.

To enable duplicate-screen mode:

Enter L-CTRL | L-CTRL | F11 | s | 1

In extended-screen mode, channels can be arranged on either the primary or secondary display.

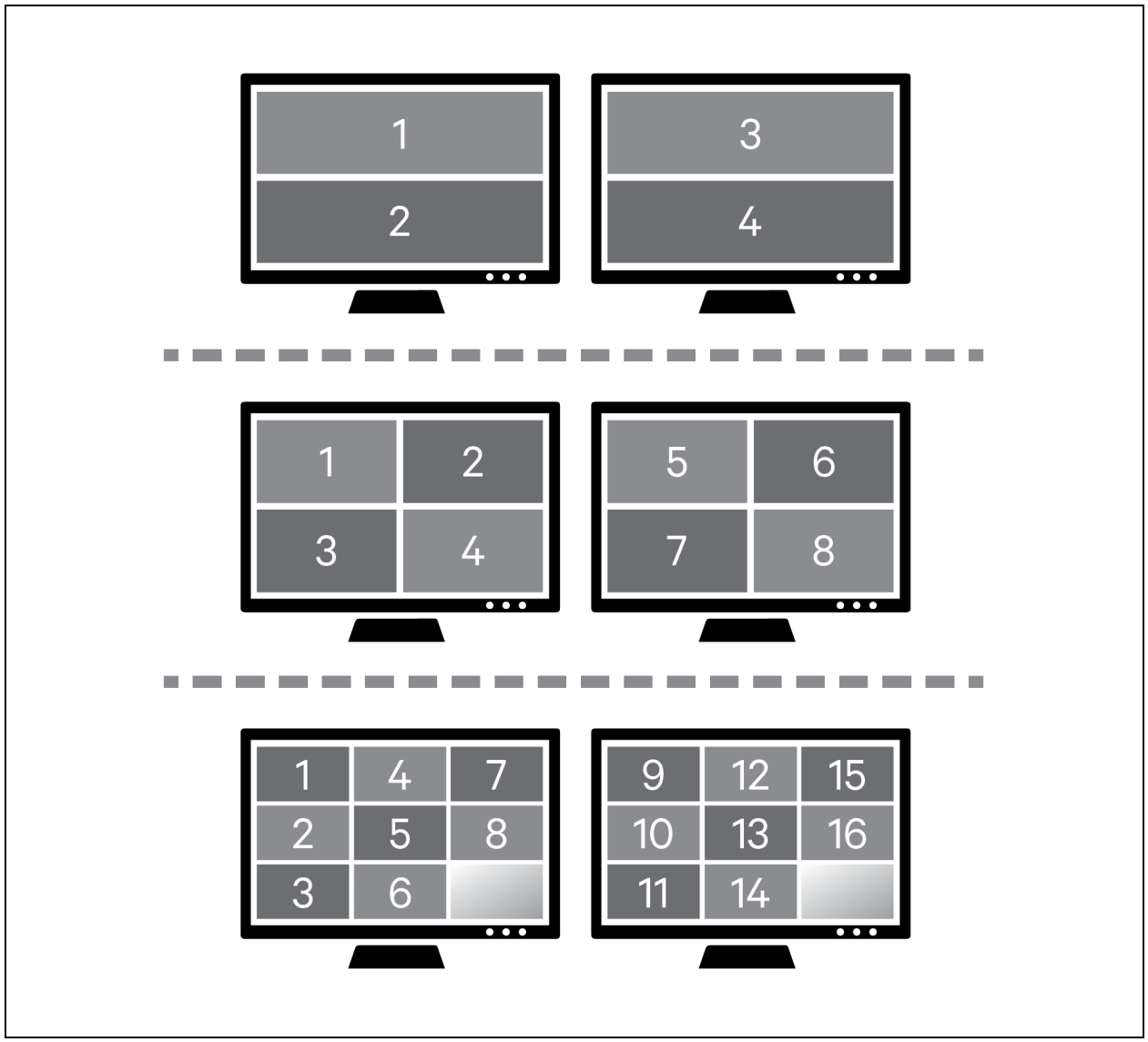
To enable extended-screen mode:

Enter L-CTRL | L-CTRL | F11 | s | 2

2.10.5 Extended-screen and Tile-screen Modes

When combining extended-screen mode with tile-screen mode, the computers are displayed in four, eight or 16 equal-sized windows distributed across both displays.

Figure 2.7 Extended-Screen and Tile-Screen Mode Example



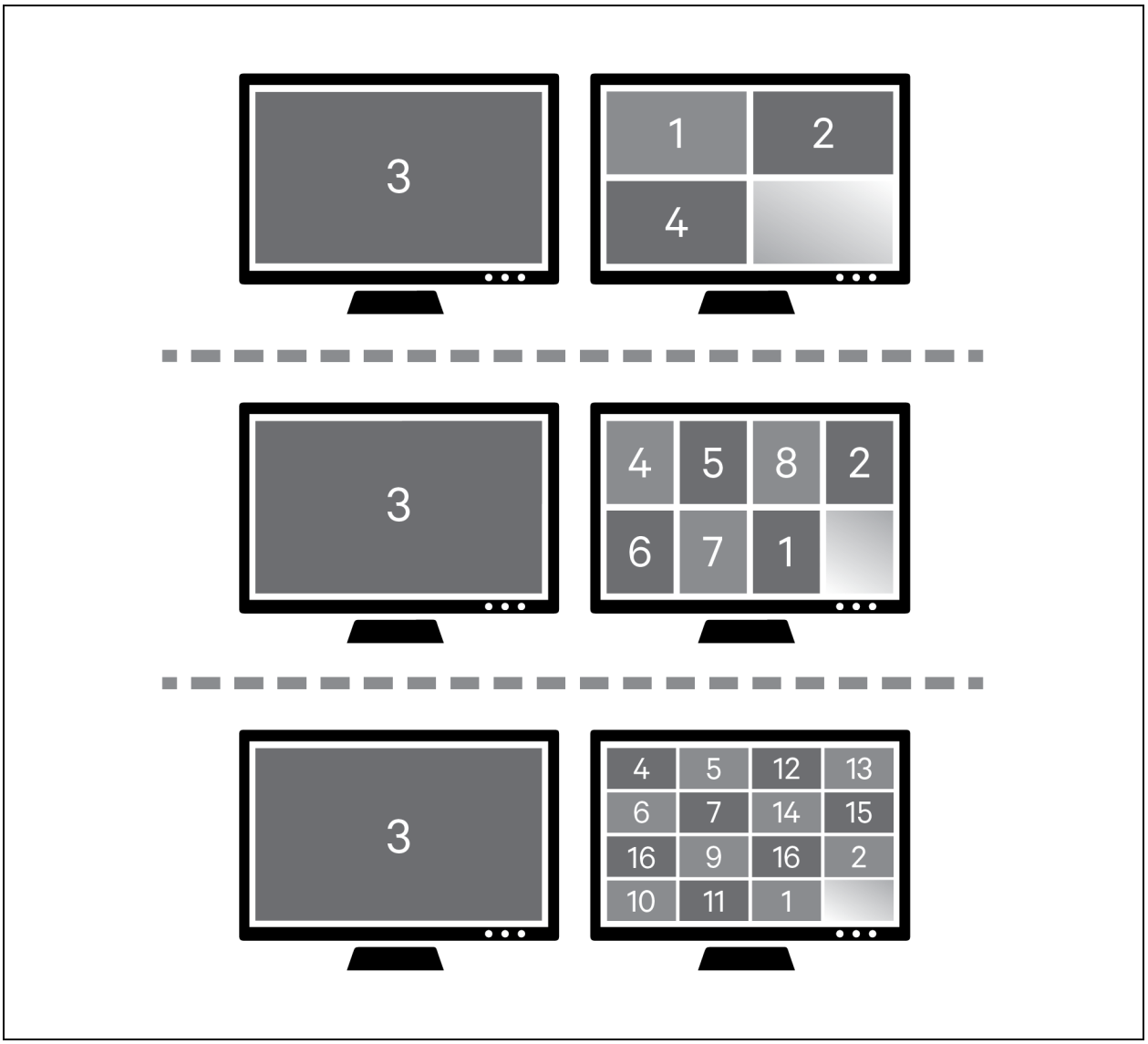
To enable extended-screen mode and tile-screen mode:

Enter L-CTRL | L-CTRL | F11 | s | 2 followed by L-CTRL | L-CTRL | q

2.10.6 Extended-screen and Scale-screen Mode

When combining extended-screen mode with scale-screen mode, the selected computer is shown on the primary display in full screen and all computers are shown on the secondary display in tile-screen mode. The selected computer is blank in the lower right corner of the tile screen.

Figure 2.8 Extended-screen and Scale-screen Mode Example



To enable extended-screen mode and scale-screen mode:

Enter L-CTRL | L-CTRL | F11 | s | 2 followed by L-CTRL | L-CTRL | s

2.10.7 User-defined preset mode

You can create and save as many as eight presets to enable you to quickly switch between customized layouts. To create a preset, first customize the display with the desired window arrangement.

NOTE: You must enter Admin mode to arrange windows.

To save a preset:

Enter L-CTRL | L-CTRL | F11 | Insert | <Fx>

Where [Fx] is F1 – F8.

To select a preset:

Enter L-CTRL | L-CTRL | <Fx>

This page intentionally left blank

3 On-Screen Display Operation

The MultiViewer switch is managed by an intuitive On-Screen Display (OSD) menu system.

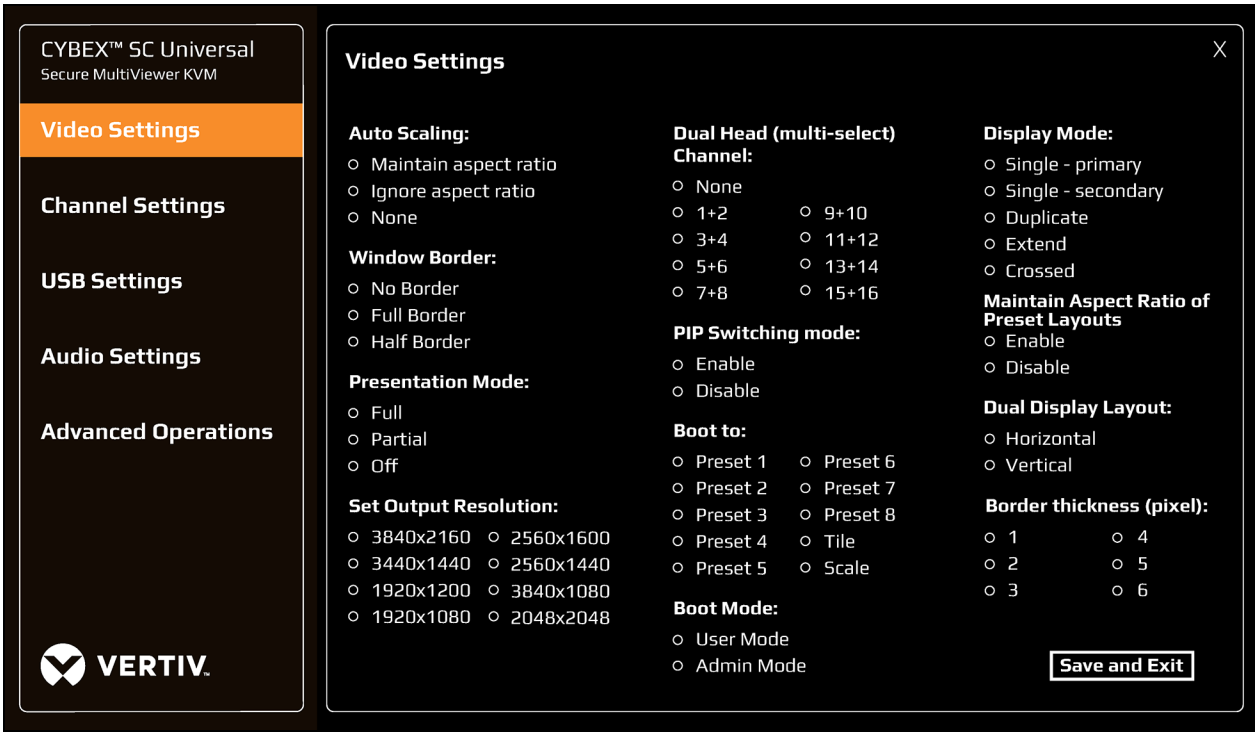
To activate the OSD:

Press L-CTRL | R-CTRL | o

The OSD of the SCMV2160DPH switch is shown for the following description of OSD functions. On each OSD screen, click the *X* in the upper right corner to abandon changes and revert to previous settings. Click *Save and Exit* in the lower right corner to save and apply changes.

3.1 Video Settings

Figure 3.1 Video Settings Screen



3.1.1 Auto Scaling

- Maintain aspect Ratio –Maintains the aspect ratio for the console display based on the vertical axis.
- Ignore aspect ratio – If a computer can be resized to any dimension. Computer image may be distorted.
- None (default) – Auto scaling is disabled. Making the window smaller crops the image; making it larger results in a letterbox effect.

3.1.2 Windows Border

- No Border – No border on computer windows.
- Full Border (default) – Each window will have a border on all four sides.

- Half Border – Only works in full-screen mode. Provides a border on the right and bottom edges only to minimize screen usage while providing situational awareness of the selected computer.

3.1.3 Presentation Mode

This mode is used with tile-screen mode.

To enter tile-screen mode:

Enter L-CTRL | L-CTRL | q

- Full – The selected computer presents in full screen. Selecting another computer also presents in full screen. This mode effectively makes the MultiViewer switch act like a traditional KVM switch where each selected computer is full screen. Enter L-CTRL | L-CTRL | q to return to tile-screen mode.
- Partial – The selected computer presents in full screen mode. Selecting another computer returns the MultiViewer switch to tile-screen mode.
- Off (default) – Current screen layout is maintained regardless of which channel is selected.

3.1.4 Set Output Resolution

- Specifies the resolution for the primary and secondary console displays. Both displays must have the same resolution.
- Default is 1920 x 1080.

3.1.5 Dual-Head Channel (multi-select)

- Specifies computers that have two video outputs, i.e. dual-head. USB, audio and DPP is connected to the first port in the pair (odd-numbered port). This feature enables USB, audio and DPP to function while focus is on the extended display (even-numbered port). You may select multiple pairs depending on the number of dual-head computers.
- The default is None.

3.1.6 PIP (Picture In Picture) Switching mode

- Enabled – Allows cursor to enter the PIP window (guard key is required).
- Disabled (default) – When the cursor moves over the PIP window, the cursor remains in the full-screen computer window but blocked from view by the PIP window. The mouse focus remains with the computer in full-screen mode.

3.1.7 Boot to

- Specifies the default preset or mode when the switch is turned on.
  - Preset # – Displays computers according to the user-defined preset.
  - Tile (default) – Displays all connected computers in tile-screen mode.
  - Scale – Displays all connected computers in scale-screen mode.

3.1.8 Boot Mode

- Specifies the default operating mode when the switch is turned on.
  - User Mode (default) – Normal operating mode to fully interact with computer windows. Mouse movement is sent to the computer.

- Admin Mode – Allows windows to be resized and presets to be created. Mouse movement controls the MultiViewer switch and is not sent to any computer. Keyboard input is sent to selected computer. A large blue cursor displays while in Admin mode.

3.1.9 Display Mode

- Single Primary – Computer windows can only be arranged on the primary display.
- Single Secondary – Computer windows can only be arranged on the secondary display.
- Duplicate (default) – Computer windows arranged on the primary display are duplicated on the secondary display.
- Extend – Computer windows can be arranged on either the primary or the secondary display.
- Crossed – Switches the primary and secondary console video outputs. The OSD normally appears on the primary display; however, when crossed, the OSD appears on the secondary display.

3.1.10 Maintain Aspect Ratio of Preset Layouts

- Enabled - Each computer maintains aspect ratio but may not fill the window.
- Disabled (default) - Each computer automatically scales to fill the window. Computer image may be distorted.

3.1.11 Dual Displays Layout

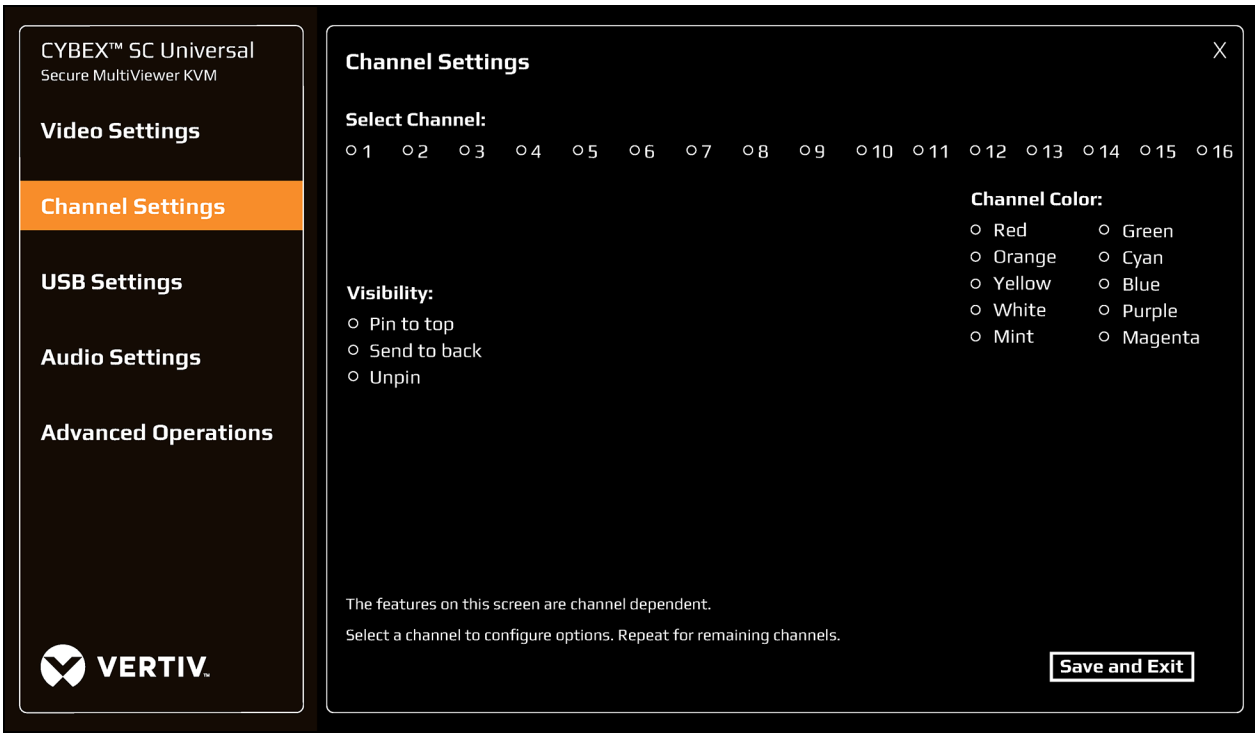
- Required for CNS.
  - Horizontal (default) – Secondary display is to the right of the primary display.
  - Vertical – Secondary display is below the primary display.

3.1.12 Border thickness (pixel)

- Specifies the window border thickness in pixels.
- Default is 6.

3.2 Channel Settings

Figure 3.2 Channel Settings Screen



NOTE: The features on this screen are channel dependent. Select a channel to configure options. Repeat for remaining channels.

3.2.1 Select Channel

- Specifies which channel is being configured.

3.2.2 Visibility

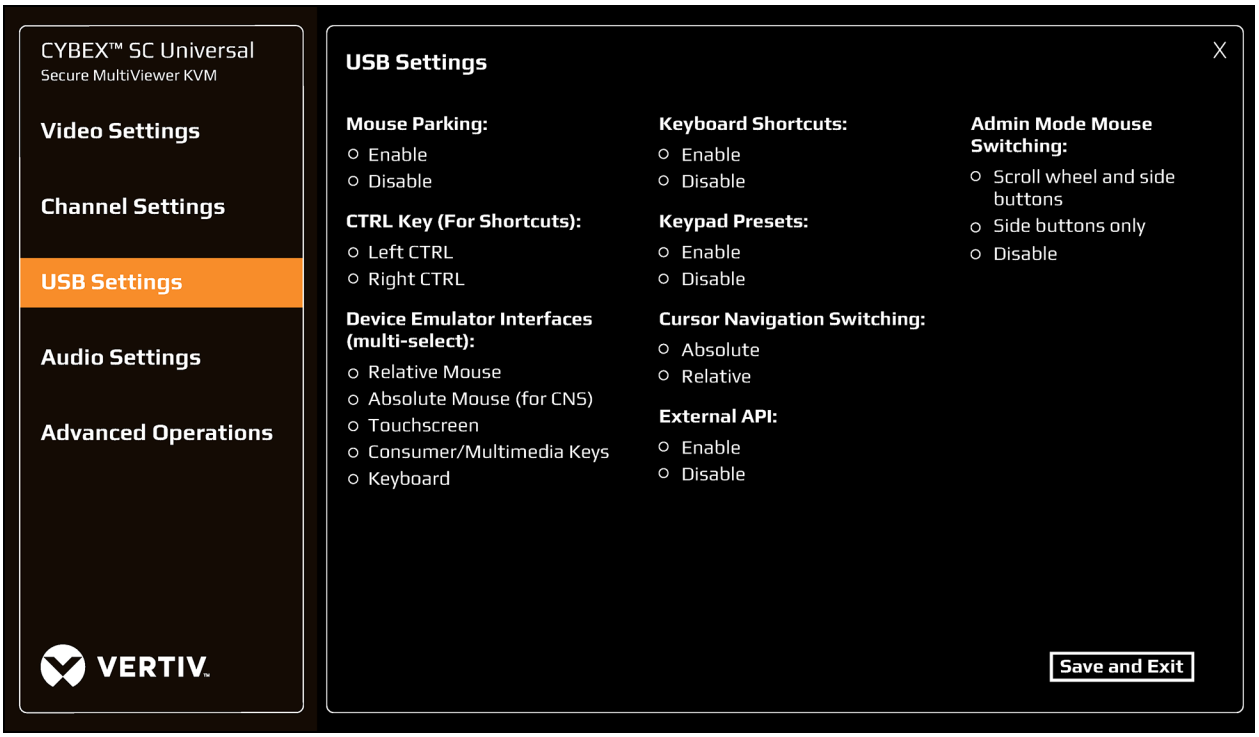
- A selected window is brought to the front, like a PC. This feature is useful in a custom layout when windows overlap.
  - Pin to top – This window is always on top, preventing any overlapping windows from hiding it.
  - Send to back – This window is always in back, allowing overlapping windows to always be visible.
  - Unpin (default) – Releases the window from always being on top.

3.2.3 Channel Color

- Specifies the window border color.

3.3 USB Settings

Figure 3.3 USB Settings Screen



3.3.1 Mouse Parking

- Enable (default) - When you switch away from a computer, the mouse cursor is moved to the bottom right corner of the window.
- Disable - When you switch away from a computer, the mouse remains where it was last used.

3.3.2 CTRL Key (for shortcuts)

- Left CTRL (default) – all shortcuts start with L-CTRL. For example, L-CTRL | L-CTRL or L-CTRL | R-CTRL.
- Right CTRL – all shortcuts start with R-CTRL. For example, L-CTRL | L-CTRL shortcut prefix becomes R-CTRL | R-CTRL and L-CTRL | R-CTRL become R-CTRL | L-CTRL. Guard key remains L-CTRL.

3.3.3 Device Emulation Interfaces (multi-select)

- Specifies which USB devices are presented to the computers.
  - Relative mouse (default) – confines mouse movement to the selected computer; cannot use CNS to switch computers.
  - Absolute mouse (default) – required for CNS to enable switching when the mouse reaches the window edge.
  - Touch Interface – enables touchscreen support.
  - Consumer Report – enables consumer/multimedia keys on a keyboard, such as volume up/down/mute, play, track skip, etc. Custom or application key may not be supported.
  - Keyboard (default) – enables standard HID keyboard.

3.3.4 Keyboard Shortcuts

- Enable (default) – keyboard shortcuts (L-CTRL | L-CTRL) are enabled.
- Disable – keyboard shortcuts are disabled.

3.3.5 Keypad Presets

- Enable – keypad presets are enabled. See Numeric Keypad Presets on page 10 for more details.
- Disable (default)– keypad presets are disabled.

3.3.6 Cursor Navigation Switching

- Absolute (default) – CNS is enabled. You can switch between windows by holding L-CTRL and moving the mouse into the desired computer window.
- Relative – CNS is disabled. You must use the front panel buttons on the switch or the AFP remote switch panel to select the active computer window.

3.3.7 External API

- Enable (default) - The switch can be controlled using serial commands via the RCU port.
- Disable - Serial commands via the RCU port are not supported.

3.3.8 Admin Mode Mouse Switching

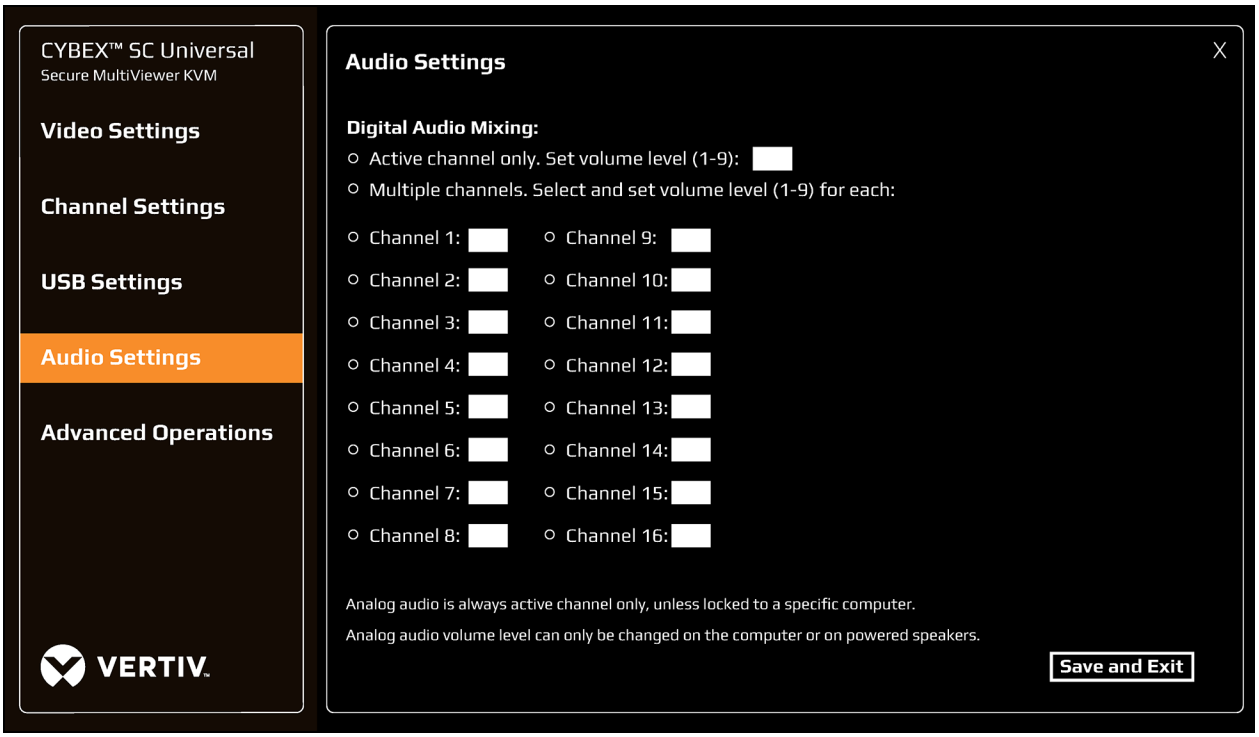
- Enables using the mouse buttons to switch between user and admin modes.
  - Scroll wheel and side button (default) - Pressing the scroll wheel or either of the side buttons.
  - Side buttons only - These are typically the forward and back buttons on the side of a mouse.
  - Disable - Only the keyboard shortcut will switch between user and admin modes.

3.4 Audio Settings

NOTE: Audio mixing is only available for digital audio, such as audio embedded in HDMI and DP.

With digital audio mixing, you can be on one channel but still hear a sounds, such as an alert tone, from another channel.

Figure 3.4 Audio Settings Screen



3.4.1 Active channel only

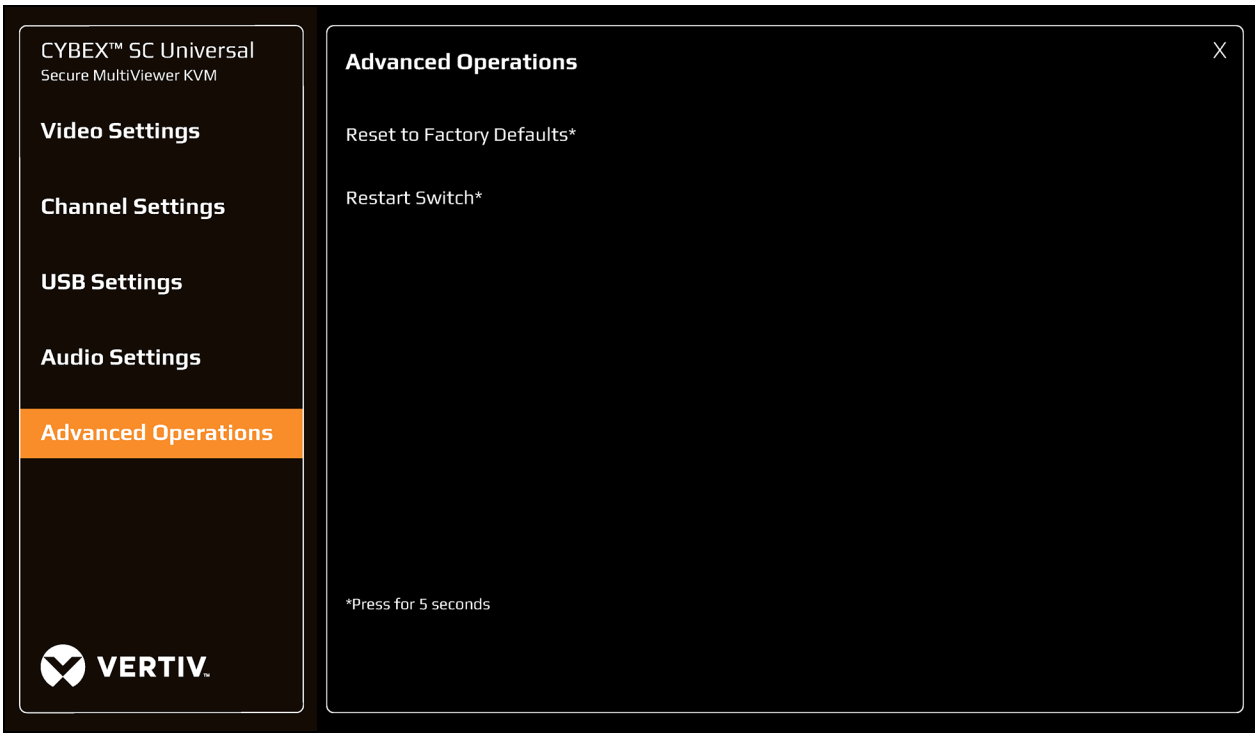
- Only digital audio from the selected computer is heard.
- This is the default setting with a default volume level of 9.

3.4.2 Multiple channels

- Digital audio from multiple channels is heard simultaneously.
- Select the channels to hear digital audio sound. Volume level can be independently adjusted for each selected computer.

3.5 Advanced Operations

Figure 3.5 Advanced Operations Screen



3.5.1 Reset to Factory Defaults

- When the switch is restored to factory default settings, all user-defined configurations are erased including DPP custom configurations and user-defined presets.
- When the switch is restored to factory default settings, the front panel LEDs blink in unison to indicate a successful factory reset and restarts the switch. After the switch restarts, all computers are displayed in tile-screen mode on the primary display.

3.5.2 Restart MultiViewer Switch

- MultiViewer switch restarts.
- After the switch restarts, the computers are displayed according to the Boot To: option in the video settings.

Appendices

Appendix A: Keyboard Shortcuts

Table A.1 Keyboard Shortcut Options

Description	Shortcut
Reset to factory defaults	L-CTRL | L-CTRL | F11 | r
Activate the OSD	L-CTRL | R-CTRL | o (letter 'o')
Enter User mode	L-CTRL | L-CTRL | u
Enter Admin mode	L-CTRL | L-CTRL | o (letter 'o')
Disable CNS	L-CTRL | L-CTRL | F11 | b
Enable CNS (default)	L-CTRL | L-CTRL | F11 | c
Increase mouse speed (relative mouse only)	L-CTRL | L-CTRL | F11 | +
Decrease mouse speed (relative mouse only)	L-CTRL | L-CTRL | F11 | -
Create custom preset	L-CTRL | L-CTRL | F11 | Insert | [Fx]
Switch to custom preset	L-CTRL | L-CTRL | [Fx]
Access the terminal menu	L-CTRL | R-CTRL | t
Maximize selected window	L-CTRL | L-CTRL | f
Undo maximize (only available immediately after maximizing a window)	L-CTRL | L-CTRL | z
Auto-scale window according to its least dimension	L-CTRL | L-CTRL | w
Auto-scale window exactly (does not maintain aspect ratio)	L-CTRL | L-CTRL | y
Enable tile-screen mode	L-CTRL | L-CTRL | q
Enable scale-screen mode	L-CTRL | L-CTRL | s
Enable single-screen mode	L-CTRL | L-CTRL | F11 | s | 0 (zero)
Enable duplicate-screen mode	L-CTRL | L-CTRL | F11 | s | 1
Enable extended-screen mode	L-CTRL | L-CTRL | F11 | s | 2
Enable the numeric keypad shortcuts	L-CTRL | L-CTRL | F11 | Insert | k | e
Disable the numeric keypad shortcuts	L-CTRL | L-CTRL | F11 | Insert | k | d
Temporarily switch to relative- mouse mode	L-CTRL + Shift [press and hold]
Enable/disable shortcut forwarding (disabled by default)	L-CTRL | R-CTRL | End

Appendix B: Product Specifications

Table B.1 Product Specifications

Switch Models	SCMV245DPH	SCMV285DPH	SCMV2160DPH
Computers			
Ports	4	8	16
Video Type	DP / HDMI universal port		
Max resolution	UHD 4K (3840x2160) @ 30 Hz		
Keyboard and Mouse	1 x USB 2.0 Type B		
DPP	1 x USB 2.0 Type B	1 x USB 2.0 Type B	NA
Analog Audio	1 x 3.5mm Speaker	1 x 3.5mm Speaker	NA
Console			
Video Type	2 x HDMI	2 x DP/HDMI Universal port	2 x DP/HDMI Universal port
Keyboard and mouse	2 x USB 2.0 Type A	2 x USB 2.0 Type A	2 x USB 2.0 Type A
DPP	1 x USB 2.0 Type A	1 x USB 2.0 Type A	NA
Analog Audio	1 x 3.5mm Speaker	1 x 3.5mm Speaker	NA
Physical			
Dimensions (WxDxH)	13.7 x 5.0 x 1.7 in 348 x 127 x 43 mm	17.4 x 7.2 x 2.6 in 442 x 183 x 66 mm	17.4 x 11.8 x 3 in 442 x 300 x 76 mm
Weight	3.5 lbs 1.6 Kg	8.2 lbs 3.7 Kg	15.4 lbs 7.0 kg
Mounting Option	Desk Mount - DMK-09	Rack Mount Included	Rack Mount Included
Environmental Conditions			
Operating Temperature	0 to 40C / 32 to 104 F		
Storage Temperature	-20 to 60C / -4 to 140 F		
Humidity	0 to 80% RH, non-condensing		
Electrical Power			
AC Input Voltage	100 – 240V AC		
Power Supplies	1 x Internal		
Power Cable	IEC320 C14 to IEC320 C13 power cord (6 foot), with user interchangeable C14 to localized socket plugs		
Regulatory			
Security Evaluation	Designed to meet NIAP Protection Profile for Peripheral Sharing Device v. 4.0 and Evaluation Assurance Level (EAL) 4+		
Regulatory Certifications	FCC class A, CE, TUV US, TUV Canada, RCM, VCCI		
Standard Product Warranty	3 Years; additional warranty terms available		
Design & Assembly	Huntsville, AL USA		

NOTE: A DVI-D computer or console display may be connected using an HDMI-to-DVI-D cable (see accessories below).

Table B.2 Computer Cables

Computer Video	Video Type	Length (ft/M)	Single Head		Dual Head	
			Audio/USB	Audio/USB/DPP	Audio/USB	Audio/USB/DPP
DP	DP-to-DP	6/1.8 10/3.0	CBL0102 CBL0103	CBL0104 CBL0105	CBL0106 CBL0107	CBL0108 CBL0109
Mini DP	mDP-to-DP, TAA	10/3.0	NA	CBL0194T	NA	CBL0195T
HDMI	HDMI-to-HDMI	6/1.8 10/3.0	CBL0110 CBL0111	CBL0112 CBL0113	CBL0114 CBL0115	CBL0116 CBL0117
DVI-D	HDMI-to-DVI-D	6/1.8 10/3.0	CBL0162 CBL0163	CBL0164 CBL0165	CBL0166 CBL0167	CBL0168 CBL0169

Table B.3 Console Video Only Cables (6ft/1.8m)

Display Video	Cable Type	Display Video
DP	DP-to-DP, TAA	CBL0188T
HDMI	HDMI-to-HDMI, TAA	CBL0189T
DVI-D	HDMI-to-DVI-D (DVI-D display to HDMI KVM), TAA	CBL0191T

Table B.4 Accessories

Part Number	Description	Usage
USBCKVMSHNP	10ft USB-C (PC) to single display DP (KVM) adapter cable +ETH +PWR	Connect USB-C single-head computer to MultiViewer KVM switch
USBCKVMDHNP	10ft USB-C (PC) to dual display DP (KVM) adapter cable +ETH +PWR	Connect USB-C dual-head computer to MultiViewer KVM switch
AFP0004	4-Port remote active front panel	Remotely select computer ports on the SCMV245DPH switch
AFP0008	8-Port remote active front panel	Remotely select computer ports on the SCMV285DPH switch
AFPSPLITTER	AFP cable splitter adapter for SCMV2160DPH	Connect 2 AFP0008 to SCMV2160DPH switch RCU port to remotely select 16 computer ports

Connect with Vertiv on Social Media

https://www.facebook.com/vertiv/

https://www.instagram.com/vertiv/

https://www.linkedin.com/company/vertiv/

https://www.twitter.com/Vertiv/

Vertiv.com | Vertiv Headquarters, 1050 Dearborn Drive, Columbus, OH, 43085, USA

590-2301-501A