Avocent® SV Switching System

Installer/User Guide

For SV240DPH, SV340DPH and SV2160DPH Switches

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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.

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1 Product Overview

Vertiv™ Avocent® SV switches are field-proven KVM switching solutions. This switching system enables you to use a single keyboard, monitor and mouse to seamlessly access multiple computers.

1.1 Products Supported

- Vertiv™ Avocent® SV240DPH universal DP/H KVM switch
- Vertiv™ Avocent® SV340DPH universal DP/H KVM switch
- Vertiv™ Avocent® SV2160DPH universal DP/H KVM switch

1.2 Features and Benefits

The Vertiv Avocent SV switching system offers several options depending on the model:

- Universal video connectors supporting HDMI 1.4 or Display Port (DP) 1.2 or DVI-D (with HDMI-to-DVI-D cable)
- Native video support up to UHD 4K (3840x2160) at 60 Hz
- Managed copy and paste between computers
- Lock audio and USB accessories to specific computers
- Two front panel USB 3.0 accessory ports with one high-power (5V at 1A) charging on 4-port switches
- One rear panel USB 2.0 accessory port on the 16-port switch

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 macOS Catalina version 10.15.5 or higher

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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 following figures and tables show the controls and connectors on the front panel and connectors on the back of the switching systems covered in this manual.

NOTE: The Vertiv™ Avocent® SV240DPH switch is a single-head device. The Vertiv™ Avocent® SV340DPH switch is a dual-head device. They have identical ports, except for the number of video ports on the device.

Figure 2.1 SV340DPH Switch

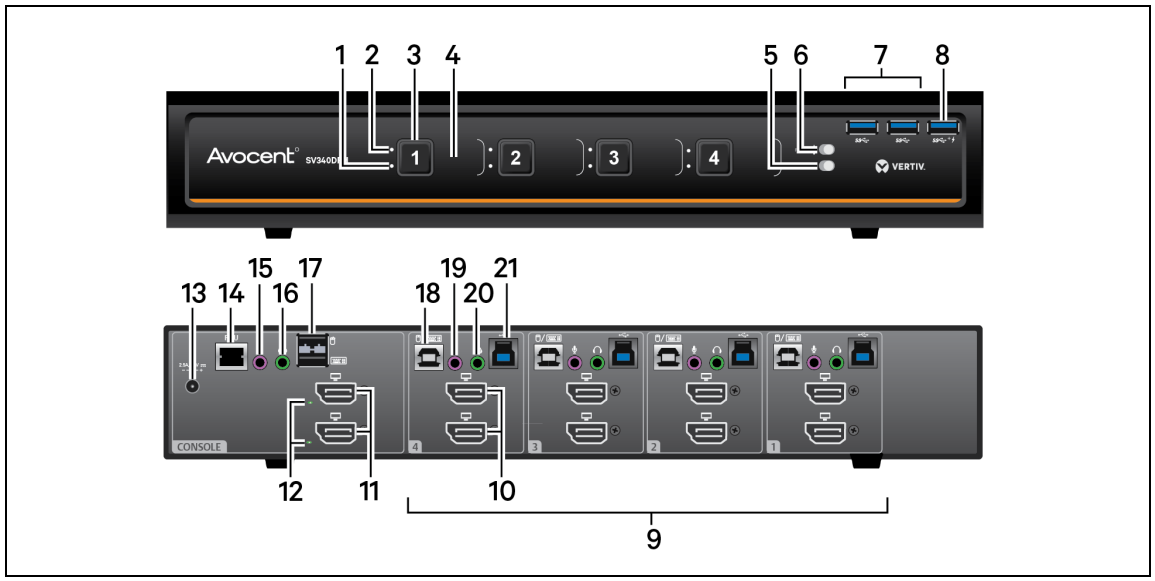


Table 2.1 SV340DPH Switch Descriptions

Item	Description	Item	Description
1	Audio lock indicators	12	Console video diagnostic LED indicator
2	USB 3.0 accessory lock indicator	13	Power input
3	Channel selector	14	RCU port; used with AFP
4	Channel label	15	Console microphone input
5	Audio freeze toggle	16	Console speaker output
6	USB accessory freeze toggle	17	Console USB keyboard and mouse input
7	USB 3.0 accessory ports	18	Keyboard and mouse USB Type-B connection for computer 4
8	USB 3.0 accessory port (high-power charging - 5V at 1A)	19	Microphone connection for computer 4
9	Computer port connections	20	Speaker connection for computer 4
10	DP/HDMI video connection for computer 4	21	USB 3.0 Type-B connection for computer 4
11	Console DP/HDMI video output		

Figure 2.2 SV2160DPH Switch

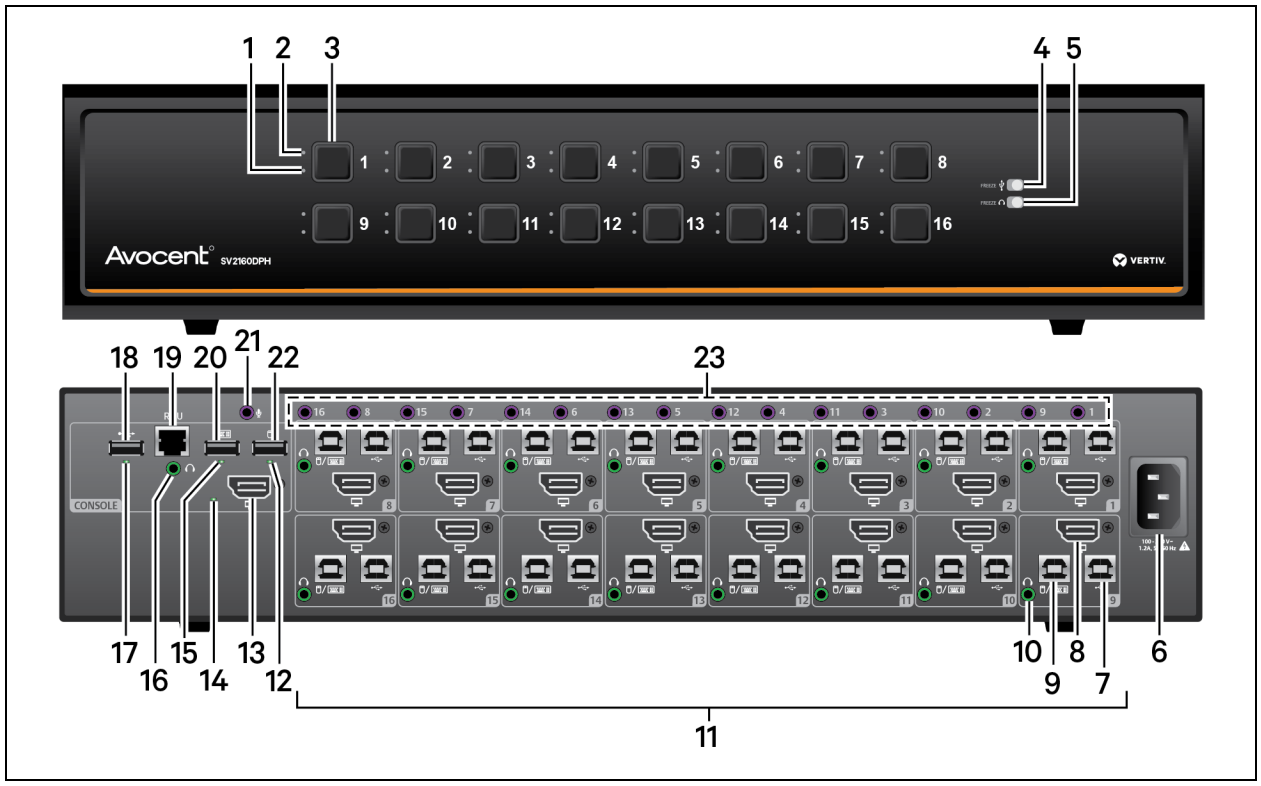


Table 2.2 SV2160DPH Switch Descriptions

Item	Description	Item	Description
1	Audio lock indicators	13	Console DP/HDMI video output
2	USB 2.0 accessory lock indicator	14	Console video diagnostic LED indicator
3	Channel selector	15	Console keyboard status LED indicator
4	USB accessory freeze toggle	16	Console speaker output
5	Audio freeze toggle	17	Console USB 2.0 accessory status LED indicator
6	Power input	18	Console USB 2.0 accessory input
7	USB 2.0 accessory Type-B connection for computer 9	19	RCU port; used with AFP
8	DP/HDMI video connection for computer 9	20	Console USB keyboard input
9	Keyboard and mouse USB Type-B connection for computer 9	21	Console microphone input
10	Speaker connection for computer 9	22	Console USB mouse input
11	Computer port connections	23	Microphone connection for computers
12	Console mouse status LED indicator		

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.

NOTE: When the switch is turned on, the selected channel is computer 1.

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 16-port model has status indicators for the console, keyboard, mouse and USB 2.0 accessory port.

NOTE: The 4-port models do not have LED indicators for the console keyboard, mouse or three USB 3.0 accessory ports on the front.

On the 16-port model, the keyboard and mouse status LEDs illuminate when an HID (Human Interface Device) keyboard or mouse is connected. The USB accessory status LED illuminates when a properly grounded device is connected. Each LED illuminates solid green a few seconds after power is applied.

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

NOTE: The Vertiv™ Avocent® SV240DPH switch and Vertiv™ Avocent® SV340DPH switch accessory ports support USB 2.0 and USB 3.0 devices. The Vertiv™ Avocent® SV2160DPH switch accessory port supports USB 2.0 devices and illuminates the status LED when a properly grounded USB device is connected. The USB 2.0 accessory port will switch regardless if the status LED illuminates.

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 (L-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.

2.3 Cursor Navigation Switching (CNS)

By default, the switch confines mouse cursor movement to the screen of the selected computer. In this mode, you must use the front panel channel selection buttons or keyboard shortcut to switch between computers.

Alternatively, the switch can be configured to switch channels when the mouse moves across a display border while pressing the left Control (L-CTRL) key, called Cursor Navigation Switching (CNS). When the mouse cursor moves across the display border from one computer to another, the keyboard, mouse, audio and USB device mapping switch accordingly.

NOTE: To use CNS with a multi-head Windows computer, you must download and install the multi-display driver from the Software Downloads section of the Vertiv website.

To enable CNS:

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

To also switch video with CNS, enable video follows mouse:

Press L-CTRL | L-CTRL | f.

To disable CNS:

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

To disable video-follows-mouse:

Press L-CTRL | L-CTRL | f.

2.4 Channel Selection

After turning on the switch, the default channel is channel 1. You can select which computer to operate using the front panel push-buttons or keyboard shortcuts. The LED number illuminates to indicate which computer is currently selected. When you select a new channel, the mapping for the keyboard, mouse, audio and USB device also changes to the specified channel.

To switch between computers:

Select the computer by pressing the corresponding front panel push-button on the front of the switch.

-or-

Use keyboard shortcuts.

- For channels 1-9, enter L-CTRL | L- CTRL | <1-9>
- For channel 10, enter L-CTRL | L- CTRL | 0 (zero)
- For channels 11-16, enter L-CTRL | L- CTRL | <F1-F6>

2.5 USB Accessory Functionality

The 4-port model has three front panel USB 3.0 ports and the 16-port model has one rear panel USB 2.0 port to provide access and connectivity to external USB devices to ensure quick data transfer. One port (labeled with a lightning bolt) on the 4-port model is a high-power port (5V at 1A) allowing changing of USB devices such as a phone or tablet.

The USB accessory may be locked to a specific computer to enable you to switch between ports without switching the USB accessory. When locked, switching channels does not affect processes performed by the USB device connected to the locked channel.

To lock the USB accessory to a specific computer:

1. Select the computer you want to lock the USB accessory 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 you are on a channel that has a USB port enabled and you switch to a channel that is not using the USB port, then you will lose the connection and the ability to freeze the information. You must switch back to a USB-enabled channel to reactivate the feature.

2.6 Audio Functionality

The switches are compatible with stereo headphones, headset, microphone, and amplified speakers.

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.

2.7 Managed Copy and Paste

The managed copy and paste feature enables copying of files and text from one computer to another computer for seamless integration of sources. The feature requires a software agent that you can download from the product page at www.vertiv.com. Once you install the software agent, the copy and paste feature must be enabled on each computer channel you wish to use copy and paste.

NOTE: This agent is currently only available for Microsoft Windows.

The software agent provides two options for operation:

- COM Device – This option uses the switch's internal memory for storing the copied data and supports copying and pasting text only.
- USB Device – This option uses an external USB storage device connected to the switch's USB accessory port and support copying and pasting text and files.

NOTE: The agent must be installed on each computer using the copy and paste feature.

To enable copy and paste functionality:

1. Access the terminal menu. See Terminal menu on page 9.
2. Exit the terminal menu.
3. Select computer port to use copy and paste feature.
4. Press L-CTRL | R-CTRL | q.
5. Repeat steps 3 and 4 for each computer.

To verify the copy and paste feature is enabled, select *Device Manager - Ports (COM and LPT)* and locate the virtual COM port.

2.7.1 Text-only copy and paste

The COM Device option allows copying up to 1,000 text characters between computers.

To enable the COM Device option:

1. From the Windows taskbar, locate the copy and paste agent icon, right-click on it to open the menu, and select *Settings*.
2. In the window that opens, click *Show advanced settings*.

3. From the additional tabs that appear, choose the *COM Device tab*.
4. Check *Use COM Device* and click *Apply or OK*.
5. Repeat all the steps for each computer using the COM device option.

To use the COM device option:

1. Select the desired text on the source computer using the standard keyboard (CTRL-C) or mouse (right-click, *Copy*) copy function. The copied text is stored in the switch's memory.
2. Select the computer to paste the text using either the front panel buttons or keyboard shortcut.
3. Position the cursor at the desired location to paste and use the standard keyboard or mouse paste function (such as CTRL-V).

NOTE: The text is copied as plain text without the original formatting parameters.

A small pop-up window on the Windows taskbar provides status updates when data is copied or available for paste. The last copied data is stored in the switch memory until another copy function is performed or the switch is power cycled. This enables pasting the same data to multiple computers.

2.7.2 File and text copy and paste

The USB Device option uses a USB storage device connected to the switch's USB accessory port to store data so it can be copied between computers.

NOTE: This feature is only available with commercial switches with blue USB 3.0 ports on the front of the switch including Vertiv™ Avocent® SV240DPH switch and Vertiv™ Avocent® SV340DPH switch.

To enable the USB Device option:

1. Connect a USB storage device, such as a thumb drive, to one of the blue USB accessory ports on the front of the switch. This USB storage device will appear on the selected computer's driver list.
2. Using a USB-A to USB-B cable, insert the USB-A connector into an available USB port on the computer that will use the copy and paste feature. Connect the USB-B connector into the blue USB accessory port on the corresponding computer port on the switch.
3. From the Windows taskbar, locate the copy and paste agent icon, right-click on it to open the *menu*, and click *Settings*.
4. In the window that opens, click *Show advanced setting*.
5. From the additional tabs that appear, choose the *USB Device tab*.
6. Check Use USB Device.
7. Select the *Select from device* list and the select to *correct storage device* option from the drop-down list.
8. Click *Apply* or *OK*.
9. Repeat steps 2-8 for each computer using the USB device option.

To use the USB Device option:

1. Select the desired text or file on the source computer using the standard keyboard (CTRL-C) or mouse (right-click, *Copy*) copy function. The copied data is stored on the external USB storage device connected to the switch.
2. Select the computer to paste the text or file using either the front panel buttons or keyboard shortcut.
3. Position the cursor at the desired location to paste and use the standard keyboard or mouse paste function (such as CTRL-V).

NOTE: The text is copied as plain text without the original formatting parameters.

A small pop-up window on the Windows taskbar provides status updates when data is copied or available for paste. The last copied data is stored on the external USB storage device until another copy function is performed. This enables pasting the same data to multiple computers by repeating steps 2 and 3 in this procedure.

2.8 Mouse Settings

When CNS is enabled, you can freeze mouse functionality on a selected channel to prevent inadvertently switching channels if the mouse approaches the screen border. The prevent transition feature allows you to use the mouse to move objects such as windows and icons on a screen without unintentionally dragging the object to another display. When the prevent transition feature is enabled and the left mouse button is depressed, you can move objects only within the active display.

To freeze the mouse on a selected channel:

Press L-CTRL | L-CTRL | F11 | f.

To unfreeze the mouse on a selected channel:

Press L-CTRL | L-CTRL | F11 | u.

2.9 System Settings

2.9.1 Restore factory default

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, channel 1 is selected.

Restoring to factory default settings erases all user-defined configurations, including user-defined presets.

To clear all settings and restore 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.

NOTE: Vertiv recommends using a Windows computer to access the terminal menu.

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.

2.9.3 System configuration

To use the following commands, you must first access the terminal menu.

To enable/disable the copy and paste function:

Enter L-CTRL | R-CTRL | q.

To enable/disable consumer/multimedia key support:

Enter L-CTRL | R-CTRL | k.

NOTE: This will enable some multimedia keys on your keyboard, such as volume up/down/mute, play, track and skip. Custom or application keys may not be supported.

To enable/disable touch screen support:

Enter L-CTRL | R-CTRL | s.

2.10 Interchangeable KVM to KM Functionality

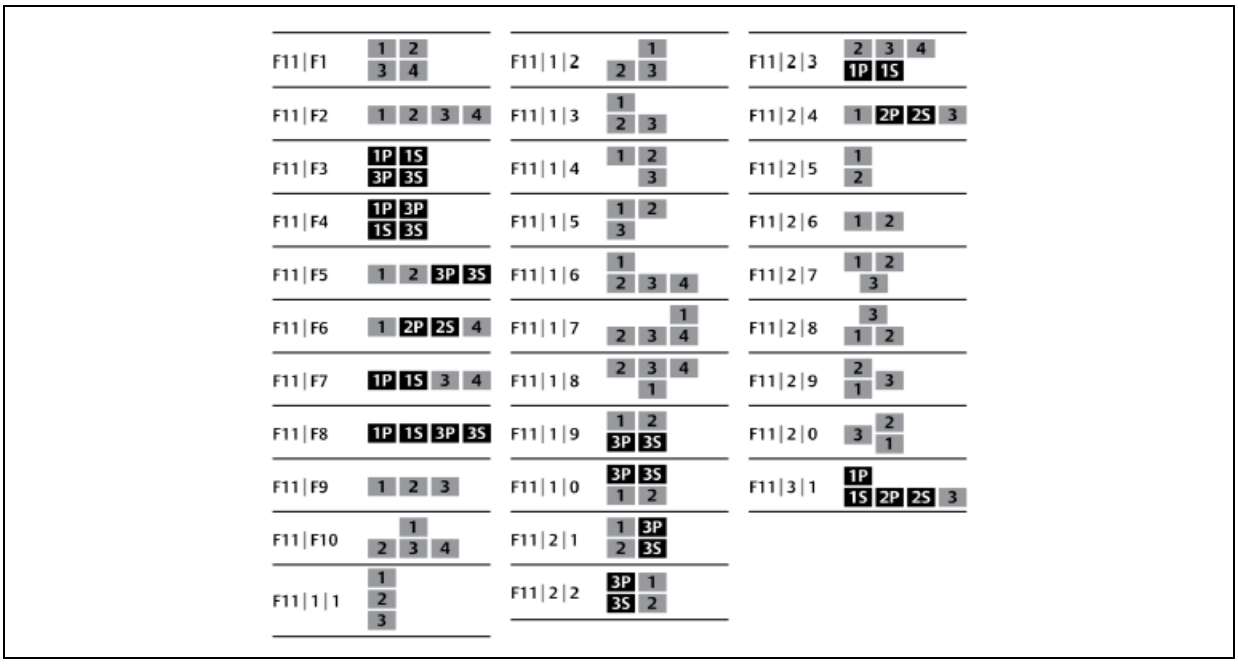
In KVM mode (default), one display, keyboard, mouse, USB and audio peripheral set is switched between all computers. In KM mode, each computer is connected to a separate display while only the keyboard, mouse, USB and audio peripherals are switched.

2.10.1 KM mode

With KM mode, the displays are connected directly to the computers so you can view all computers simultaneously, such as in a video wall. A KM preset is selected that matches the physical positioning of each display to seamlessly switch computer by moving the mouse cursor to the desired display. When the mouse cursor is moved to the display of another computer, the keyboard, USB accessory and audio are switched. The following image details the predefined preset display configurations.

NOTE: In the configurations, gray indicates a single display computer and black indicates a multi-display computer. P indicates the primary display and S indicates the secondary display in a multi-display configuration.

Figure 2.3 Four-Port KM Presets



NOTE: The Vertiv™ Avocent® SV2160DPH switch does not support KVM/KM presets.

Alternately, you can create and load a custom display layout using the KM Tool Utility that you can download from the product page at www.vertiv.com To select the custom KM preset, use preset F11 | F12.

NOTE: This utility is currently only available for Microsoft Windows.

To change from KVM to KM mode:

1. Disconnect the display from the KVM console port.
2. Connect each computer directly to a separate display while keeping the keyboard, mouse, USB and audio peripherals connected to the KVM.
3. Enable CNS by pressing L-CTRL | L-CTRL | F11 | c.
4. Select a preset by pressing L-CTRL | L-CTRL | <preset>.

NOTE: To use KM mode with a multi-head Windows computer, you must download and install the multi-display driver from the Software Downloads section of the Vertiv website.

2.10.2 KVM mode

In KVM mode (default), displays are connected to the switch and video is switched with keyboard, mouse, USB accessory and audio so that only one computer is visible at a time.

To change from KM to KVM mode:

1. Connect the display to the KVM console port.
2. Connect each computer to the corresponding KVM computer video port.
3. (Optional) Disable CNS by pressing L-CTRL | L-CTRL | F11 | b.

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Appendices

Appendix A: Keyboard Shortcuts

Table A.1 Keyboard Shortcuts

Description	Shortcut
Restore to factory defaults	L-CTRL | L-CTRL | F11 | r
Select channel [1-9]	L-CTRL | L-CTRL | [1-9]
Select channel 10	L-CTRL | L-CTRL | 0 (zero)
Select channel [11-16]	L-CTRL | L-CTRL | [F1-F6]
Disable CNS (default)	L-CTRL | L-CTRL | F11 | b
Enable CNS	L-CTRL | L-CTRL | F11 | c
Enable/disable video follows mouse	L-CTRL | L-CTRL | f
Freeze mouse cursor to current screen	L-CTRL | L-CTRL | F11 | f
Unfreeze mouse cursor on current screen	L-CTRL | L-CTRL | F11 | u
Increase mouse speed	L-CTRL | L-CTRL | F11 | +
Decrease mouse speed	L-CTRL | L-CTRL | F11 | -
Set current channel to relative mouse only (requires accessing the terminal menu first)	L-CTRL | R-CTRL | b
Set current channel to absolute mouse only (requires accessing the terminal menu first)	L-CTRL | R-CTRL | c
Access the terminal menu	L-CTRL | R-CTRL | t
Enable/disable managed copy and paste (requires accessing the terminal menu first, disabled by default)	L-CTRL | R-CTRL | q
Enable/disable consumer/multimedia keyboard support (requires accessing the terminal menu first, disabled by default)	L-CTRL | R-CTRL | k
Enable/disable touch screen support (requires accessing the terminal menu first, disabled by default)	L-CTRL | R-CTRL | s
Select KM preset [x]	L-CTRL | L-CTRL | F11 | <x>
Enable the switch to load a custom preset (requires accessing the terminal menu first)	L-CTRL | R-CTRL | l (lowercase L)
Switch to custom preset	L-CTRL | L-CTRL | F11 | F12
Temporarily switch to relative mouse mode	L-CTRL + Shift [press and hold]
Enable/disable shortcut forwarding (disabled by default, used if cascading switches)	L-CTRL | R-CTRL | End

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Appendix B: Technical Specifications

Table B.1 Technical Specifications

Item	SV240DPH	SV340DPH	SV2160DPH
Computers			
Ports	4	4	16
Video Type	Single-Head DP/HDMI universal port	Dual-Head DP/HDMI universal port	Single-Head DP/HDMI universal port
Max Resolution	HD 4K (3840x2160) @ 60Hz		
Keyboard and Mouse	1 x USB 2.0 Type-B		
USB Accessory Port	1 x USB 3.0 Type-B		1 x USB 2.0 Type-B
Analog Audio	2 x 3.5 mm Speaker and Microphone		
Console			
Video Type	Single-Head DP/HDMI universal port	Dual-Head DP/HDMI universal port	Single-Head DP/HDMI universal port
Keyboard and Mouse	2 x USB 2.0 Type-A		
USB Accessory Port	3 x USB 3.0 Type-A		1 x USB 2.0 Type-A
Analog Audio	2 x 3.5 mm Speaker and Microphone		
Physical			
Dimensions (WxDxH)	13.7 x 5.0 x 1.7 in / 348 x 127 x 43 mm	13.7 x 5.0 x 2.2 in/ 348 x 127 x 56 mm	17.2 x 8.8 x 3.5 in/ 439 x 225 x 89 mm
Weight	3.0lbs/ 1.5Kg	3.7lbs/ 1.9Kg	10.8 lbs/ 4.8kg
Mounting Option	Desk Mount - DMK-09		Rack Mount Included
Environmental Conditions			
Operating Temperature	0 to 40 °C / 32 to 104 °F		
Storage Temperature	-20 to 60 °C / -4 to 140 °F		
Humidity	0 to 80% RH, non-condensing		
Electrical Power			
Power Supply Type	External		Internal
AC Input Voltage	100 – 240 V AC, 50/60 Hz, Auto-Sensing		
Power Supply Output	12VDC, 2.5A Max, LPS		45W Max
Power Connector	Wall-mounted power supply with user-interchangeable localized plug blades		IEC320 C14 to IEC320 C13 power cord (6 feet), with user-interchangeable C14 to localized socket plugs
Regulatory			
Regulatory Certifications	FCC class A, CE, TUV US, TUV Canada, RCM, VCCI		
Standard Product Warranty	2 Years; additional warranty terms available		
Design and Assembly	Huntsville, AL USA		

Table B.2 Computer Cables

Computer Video	Video Type	Length (ft/m)	Single-Head	Dual-Head
DP	DP-to-DP	6/1.8	CBL0122	CBL0124
		10/3.0	CBL0123	CBL0125
Mini DP	mDP-to-DP	10/3.0	CBL0198	CBL0199
HDMI	HDMI-to-HDMI	6/1.8	CBL0126	CBL0128
		10/3.0	CBL0127	CBL0129
DVI-D	HDMI-to-DVI-D	10/3.0	CBL0196	CBL0197
NOTE: USB accessory port requires a separate USB 2.0 or USB 3.0 extension cable for each computer.				

Table B.3 Console Cables

Display Video	Cable Type (6ft /1.8m)	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 Desktop KVM.
USBCKVMDHNP	10ft USB-C (PC) to Dual Display DP (KVM) adapter cable +ETH +PWR	Connect USB-C dual-head computer to Desktop KVM.
AFP0004	4-port Remote Active Front Panel	Remotely select computer ports on 4-port KVM.
AFP008	8-port Remote Active Front Panel	Use with AFPSPLITTER to remotely select computer ports on an SV2160DPH switch.
AFPSPLITTER	AFP Cable Splitter adapter for the SV2160DPH switch	Connect two AFP0008 Remote Switch Panels to a SV2160DPH switch to remotely select up to 16 ports.

Appendix C: Troubleshooting

When power is turned on to the switch, it performs a self-test to verify normal operation. If the switch fails the self-test procedure, all channel LED buttons flash on and off once and a combination of LEDs illuminate. The various combinations of illuminated LEDs indicate the fault with the switch. After a failed self-test, the switch becomes inoperable until the fault is resolved.

C.1 General

The following table lists general faults, the fault indicators and the actions to resolve each fault.

Table C.1 General Switch Faults

Fault	Indicator	Resolution
The switch did not pass the self-test.	All channel LED buttons flash on and off once and a combination of LEDs illuminate to indicate the fault.	Turn power off and on to the switch.
The switch is not receiving power.	The displays do not show video output and none of the front panel LEDs illuminate.	Ensure the power cable is intact and connected to the switch and to the power source. If the cable is damaged, replace it.

C.2 Video

The following table lists video faults, the fault indicators and the action to resolve each fault.

Table C.2 Video Faults

Fault	Indicator	Resolution
The connected video display is not qualified.	The video diagnostic LED flashes green and the display is inoperable.	Turn off and disconnect the non-qualified display and connect and turn power on to a qualified display.
The displays or the computers are not connected to the switch properly or the connecting cables or ports are damaged.	The displays do not show video output on any channel and the video diagnostic LED does not appear solid green.	Ensure the displays are properly connected to the switch and the displays and connecting cables are not damaged. Replace damaged cables. If the displays or connecting cables are damaged, replace the damaged parts. If the issue persists, check the displays' on-screen menu to ensure the correct source is selected and verify the video mode and computer's video mode are the same. If the problem persists and the LED does not illuminate solid green, change the entire display unit or contact Technical Support.
A specific computer is not connected to the switch properly or the connecting cable or port is damaged.	The display does not show video output for a specific channel.	Ensure the connecting cable between the computer and the switch is secured and not damaged. Replace damaged cables. Ensure the displays are compatible with the computer resolution and refresh rate settings. Verify the video output is available and an image is shown when the display unit is connected directly to the computer. If the problem persists, turn power off and on to the switch, reboot the computer, replace the display unit or contact Technical Support.
The displays or computers are not connected to the switch properly or the connecting cables are not compatible with the displays.	Some or all channels are experiencing poor video image quality and the video diagnostic LED does not appear solid green.	Ensure the displays are properly connected to the switch and the displays and connecting cables are compatible with the displays and not damaged. Replace damaged cables. Video cable length should not exceed 15 feet. Ensure the displays are compatible with the computer resolution and refresh rate settings. Lower the video resolution of the computer. Verify the video output is available and an image is shown when the display unit is connected directly to the computer. If the problem persists, turn power off and on to the switch, reboot the computers and displays, replace the video displays or contact Technical Support.

C.3 Keyboard

The following table lists keyboard faults, the fault indicators and the action to resolve each fault.

Table C.3 Keyboard Faults

Fault	Indicator	Resolution
The keyboard is not connected to the switch properly or the keyboard cable or port is damaged.	The keyboard does not work on any channels.	Ensure the keyboard is properly connected to the switch and the USB cable between the keyboard and the switch is not damaged. If the issue persists, connect the keyboard to a different port or use a different standard, non-wireless, qualified keyboard. Ensure the driver for the keyboard is installed on the computer. **NOTE: If the computer is returning from standby mode, allow up to one minute for the computer to regain keyboard functionality.**
The keyboard, mouse and video cables are connected to two different computers.	The keyboard and mouse are not working on two channels.	Ensure the keyboard/mouse and video cables are connected to the correct ports on the switch. For example, the keyboard and mouse cable and the video cable for computer 1 should be connected to ports specifically designated for computer 1.
The computer does not recognize the connected keyboard.	The keyboard does not work on one channel.	Use the computer's Device Manager wizard to troubleshoot and resolve the issue.
The connected keyboard is not qualified or not connected to the switch properly.	The keyboard is non-functional on any channel and you are unable to produce keystrokes on the screen when using the keyboard.	Ensure the keyboard is properly connected to the switch and the USB cable between the keyboard and the switch is not damaged. If damaged, replace the cable. Ensure the keyboard is a qualified device. If not, disconnect the non-qualified keyboard and connect a qualified keyboard. Verify that the keyboard works connected directly to the computer or when connected to a different USB port. If the problem persists, turn power off and on to the switch, reboot the computer, and replace the keyboard unit or contact Technical Support.
The connected keyboard is not compatible with the switch.	Certain keyboard functions are inoperable once connected to the switch.	Determine if the connected keyboard is compatible with the switch. Some non-standard keyboard functions are disabled by the switch for security purposes. Contact Technical Support for compatibility information.

C.4 Mouse

The following table lists mouse faults, the fault indicators and the action to resolve each fault.

Table C.4 Device Faults

Fault	Indicator	Resolution
The connected mouse is not qualified.	The mouse is non-functional and the mouse cursor is frozen on the screen. You are unable to use the mouse to move the mouse cursor.	Disconnect the non-qualified mouse and connect a qualified mouse.
The mouse is not plugged into the correct port.	The mouse does not work on any channels but the keyboard works.	Verify that the mouse is plugged into the mouse port and the connecting cable is not damaged. Plug the mouse into the mouse port if it is connected to a non-mouse port and replace the cable if it is damaged.
The mouse is not connected to the switch properly or the mouse cable or port is damaged.	The mouse does not work on any channels.	Ensure the mouse is properly connected to the switch and the USB cable between the mouse and the switch is not damaged. If the issue persists, connect the mouse to a different port or use a different standard, non-wireless, qualified mouse. Ensure the driver for the mouse is installed on the computer. **NOTE: If the computer is returning from standby mode, allow up to one minute for the computer to regain mouse functionality.**
The computer does not recognize the connected mouse.	The mouse does not work on one channel.	Use the computer's Device Manager wizard to troubleshoot and resolve the issue.

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