



# Avocent<sup>®</sup> SVM Desktop Matrix

Installer/User Guide

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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

<b>1 Product Overview</b> .....	<b>1</b>
1.1 Products Supported .....	1
1.2 Features and Benefits .....	1
1.3 System Requirements .....	1
<b>2 Basic Operation</b> .....	<b>3</b>
2.1 Switch Overview .....	3
2.2 Control Options .....	5
2.2.1 Rear panel status LED indicators .....	5
2.2.2 Important notes about keyboard shortcuts .....	5
2.3 Cursor Navigation Switching .....	5
2.4 Channel Selection .....	6
2.5 USB 3.0 Accessory Functionality .....	6
2.5.1 Switching the USB 3.0 accessory between primary and secondary displays .....	6
2.5.2 Locking USB 3.0 accessory functionality on a specific channel .....	6
2.6 Audio Functionality .....	7
2.6.1 Switching audio between primary and secondary displays .....	7
2.6.2 Locking audio on a specific channel .....	7
2.7 Managed Copy and Paste .....	7
2.7.1 Text-only Copy and Paste .....	8
2.7.2 File and Text Copy and Paste .....	8
2.8 Mouse Settings .....	9
2.9 System Settings .....	9
2.9.1 Factory reset .....	9
2.9.2 Terminal menu .....	9
2.9.3 System configuration .....	10
2.10 Presets .....	10
2.10.1 4-port presets .....	11
2.10.2 8-port presets .....	22
2.10.3 Advanced Presets .....	29
<b>Appendices</b> .....	<b>31</b>
Appendix A: Keyboard Shortcuts .....	31
Appendix B: Product Specifications .....	32
Appendix C: Troubleshooting .....	34



# 1 Product Overview

The Vertiv™ Avocent® SVM Desktop Matrix switch allows you to connect to and switch between multiple computers and allows users to simultaneously view two active computers and seamlessly switch between computers by moving the mouse across displays called Cursor Navigation Switching (CNS).

The switch allows you to control up to eight connected computers via a single set of peripherals.

## 1.1 Products Supported

- Avocent® SVM 140DPH universal DP/H desktop matrix switch
- Avocent® SVM 180DPH universal DP/H desktop matrix switch

## 1.2 Features and Benefits

The switch provides the following features and benefits:

- 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 60 Hz.
- Ability to view two active computers simultaneously.
- Cursor Navigation Switching (CNS) giving the user control to switch from one isolated computer to another by moving the mouse across screen borders.
- Managed copy and paste between computers.
- Lock audio and USB to specific computers.
- Two front-panel USB 3.0 ports with one high-power (5V at 1A) charging port.

## 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 desktop matrix switch is configured and operated via LED buttons and controls on the front panel and various keyboard shortcuts on a connected keyboard.

Figure 2.1 Avocent SVM 140DPH Desktop Matrix Switch

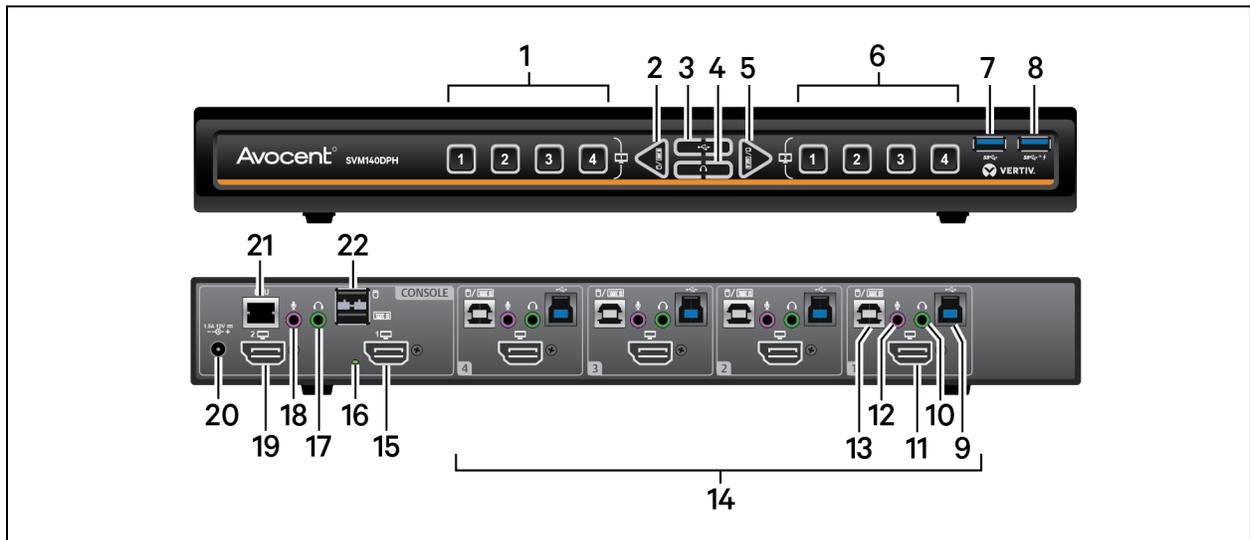


Table 2.1 Avocent SVM 140DPH Desktop Matrix Switch Descriptions

Item	description	Item	description	Item	description
1	Displays channels one through four on the primary display	9	USB 3.0 accessory Type B connector for computer 1	16	Console video diagnostic LED indicator
2	Switches the keyboard and mouse focus to the primary display	10	Speaker connector for computer 1	17	Console speaker output
3	Toggles the USB 3.0 accessory lock function	11	DP/HDMI video input for computer 1	18	Console microphone input
4	Toggles the audio lock function	12	Microphone connector for computer 1	19	Secondary DP/HDMI video output
5	Switches the keyboard and mouse focus to the secondary display	13	Keyboard and mouse USB Type-B connector for computer 1	20	Power input
6	Displays channels one through four on the secondary display	14	Computer connections; the switch shown supports up to four computers	21	RCU port; used with AFP
7	USB 3.0 accessory port input	15	Primary DP/HDMI video output	22	USB console keyboard and mouse input
8	USB 3.0 accessory port input (high-power charging - 5V at 1A)				

Figure 2.2 Avocent SVM 180DPH Desktop Matrix Switch

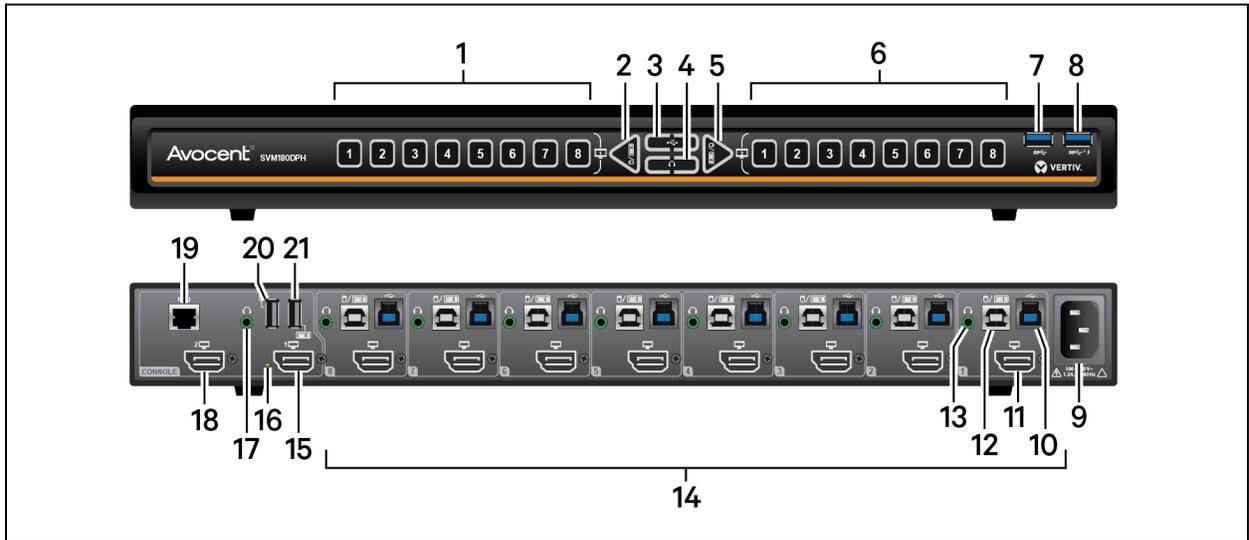


Table 2.2 Avocent SVM 185DPH Desktop Matrix Switch Descriptions

Item	description	Item	description	Item	description
1	Displays channels one through eight on the primary display	8	USB 3.0 accessory port input (high-power charging - 5V at 1A).	15	Primary DP/HDMI video output
2	Switches the keyboard and mouse focus to the primary display	9	Power input.	16	Console video diagnostic LED indicator
3	Toggles the USB 3.0 accessory lock function	10	USB 3.0 accessory Type B connector for computer 1.	17	Console speaker output
4	Toggles the audio lock function	11	DP/HDMI video input for computer 1.	18	Secondary DP/HDMI video output
5	Switches the keyboard and mouse focus to the secondary display	12	Keyboard and mouse USB Type-B connector for computer 1.	19	RCU port; used with AFP
6	Displays channels one through eight on the secondary display	13	Speaker connector to port 1.	20	USB console mouse input
7	USB 3.0 accessory port input	14	Computer input; the switch shown supports up to eight computers.	21	USB console keyboard input

## 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 one and appears on both the primary and secondary displays.**

### 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 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.

## 2.3 Cursor Navigation Switching

By default, the switch allows you to move between displays when moving the mouse moves across a display border. This is called Cursor Navigation Switching (CNS). When CNS switches from one computer to another, the keyboard, mouse, audio and USB accessory 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.**

Alternatively, you can configure the switch to confine mouse cursor movement to the active display. With this method, you must use the front panel buttons to switch focus between the computer displays.

#### To enable CNS:

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

#### To disable CNS:

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

**NOTE: See Presets on page 10 for predefined display layouts.**

## 2.4 Channel Selection

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

**To switch the computer port on the primary display:**

Enter **L-CTRL | L-CTRL <1-8>**

-or-

Press buttons 1-8 on the left side of the front panel.

**To switch the computer port on the secondary display:**

Enter **R-CTRL | R-CTRL <1-8>**

-or-

Press buttons 1-8 on the right side of the front panel.

When a channel is selected, its LED button illuminates and the mouse cursor of the selected computer appears in the center of the display. If the computer is connected to multiple displays, the mouse cursor appears in the center of the primary display.

## 2.5 USB 3.0 Accessory Functionality

Two front-panel USB 3.0 ports provide access and connectivity to external USB devices to ensure quick data transfer. One port (labeled with a lightning bolt) is a high-power port allowing changing of USB devices such as a phone or tablet.

When you switch channels, the USB device connected to the USB 3.0 accessory is connected to the selected channel unless USB 3.0 accessory functionality is locked on a specific channel.

### 2.5.1 Switching the USB 3.0 accessory between primary and secondary displays

**To switch the USB 3.0 accessory to the computer selected on the primary display:**

Press the left side of the USB 3.0 accessory toggle.

**To switch the USB 3.0 accessory to the computer selected on the secondary display:**

Press the right side of the USB 3.0 accessory toggle.

### 2.5.2 Locking USB 3.0 accessory functionality on a specific channel

You can lock the USB 3.0 accessory on a specific channel. After you lock USB 3.0 accessory functionality, you can switch channels and the USB device on the locked channel remains active.

**To lock the USB 3.0 accessory to the computer selected on the primary display**

Press and hold the left side of the USB 3.0 accessory toggle until the light blinks twice.

**To lock the USB 3.0 accessory to the computer selected on the secondary display**

Press and hold the right side of the USB 3.0 accessory toggle until the light blinks twice.

**To unlock the USB 3.0 accessory from the computer on the primary display**

Press the left side of the USB 3.0 accessory toggle.

**To unlock the USB 3.0 accessory from the computer on the secondary display:**

Press the right side of the USB 3.0 accessory toggle.

## 2.6 Audio Functionality

The switches are compatible with stereo headphones and amplified speakers. The four-port model is also compatible with a microphone.

### 2.6.1 Switching audio between primary and secondary displays

**To switch the audio to the computer selected on the primary display:**

Press the left side of the audio toggle.

**To switch the audio to the computer selected on the secondary display:**

Press the right side of the audio toggle.

### 2.6.2 Locking audio on a specific channel

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

**To lock the audio to the computer selected on the primary display:**

Press and hold the left side of the audio toggle until the light blinks twice.

**To lock the audio to the computer selected on the secondary display:**

Press and hold the right side of the audio toggle until the light blinks twice.

**To unlock the audio from the computer on the primary display:**

Press the left side of the audio toggle

**To unlock the audio from the computer on the secondary display:**

Press the right side of the audio toggle.

## 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 [Vertiv.com](https://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 USB accessory port on the switch and supports 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 the facing page](#).
2. Exit the terminal menu.
3. Select the computer port to use the 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 & 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 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 SV240DPH, SV340DPH, SVM140DPH, SVM180DPH and SVMV240DPH.**

**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 appears 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 using the Copy and Paste feature. Connect the USB-B connector to the blue USB accessory port on the corresponding computer port on the switch.
3. From the Windows taskbar, right-click on the copy and paste agent icon to open its menu, and click *Settings*.
4. Click *Show advanced setting*.

5. Select the USB Device tab.
6. Check *Use USB Device*.
7. Click *Select from device list*. From the drop-down list, select the correct storage device.
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 above.

## 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 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, channel one is selected on primary and secondary displays. Resetting to factory default settings erases all user-defined configurations, including 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.

**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 skip, etc. Custom or application keys may not be supported.**

**To enable/disable touch screen support:**

Enter **L-CTRL | R-CTRL | s**

## 2.10 Presets

The switch includes predefined display layouts you can access via keyboard shortcuts. The presets define the layouts for two, three or four connected displays and the location of the screen borders. Cursor navigation switching (CNS) must be enabled to use presets.

**NOTE: All displays must have the same native resolution as the primary display connected directly to the switch. If the console displays have different native resolutions, connect the display with the lowest native resolution to the primary console video connector.**

**To switch between the presets:**

Press **L-CTRL | L-CTRL | F11 | [F x]**

## 2.10.1 4-port presets

**Table 2.3 4-port Preset Descriptions**

Preset	description	Key combination
Preset 1	Two horizontally-aligned displays.	L-CTRL   L-CTRL   F11   F1
Preset 2	Two vertically-aligned displays.	L-CTRL   L-CTRL   F11   F2
Preset 3	Three horizontally-aligned displays (direct on the left).	L-CTRL   L-CTRL   F11   F3
Preset 4	Three horizontally-aligned displays (direct on the right).	L-CTRL   L-CTRL   F11   F4
Preset 5	Four horizontally-aligned displays; directs on left and right.	L-CTRL   L-CTRL   F11   F5
Preset 6	Simple vertically-aligned 2-port dual-head mode.	L-CTRL   L-CTRL   F11   F6
Preset 7	Simple horizontally-aligned 2-port dual-head mode.	L-CTRL   L-CTRL   F11   F7
Preset 8	Two single-head computers and 1 dual-head computer (ports 3 and 4).	L-CTRL   L-CTRL   F11   F8
Preset 9	One dual-head computer (ports 1 and 2) and two single-head computers.	L-CTRL   L-CTRL   F11   F9
Preset 10	Legacy KVM mode with direct to computer 1 secondary display.	L-CTRL   L-CTRL   F11   F10

### Preset 1 - L-CTRL | L-CTRL | F11 | F1

Figure 2.3 Preset 1 Configuration

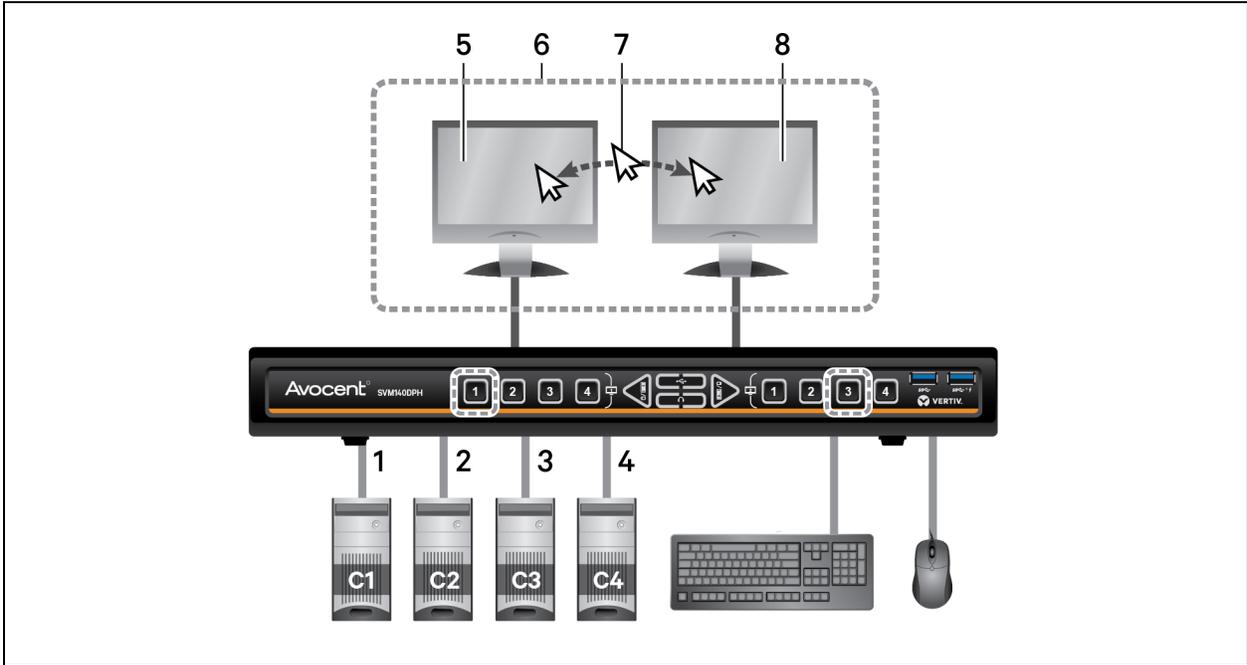


Table 2.4 Preset 1 Configuration Components

Item	Description
1	Computer 1 connected to port 1
2	Computer 2 connected to port 2
3	Computer 3 connected to port 3
4	Computer 4 connected to port 4
5	SVM primary display showing computer 1
6	Displays controlled by CNS
7	Moving between the displays horizontally changes the keyboard and mouse focus.
8	SVM secondary display showing computer 3

**Preset 2 - L-CTRL | L-CTRL | F11 | F2**

Figure 2.4 Preset 2 Configuration

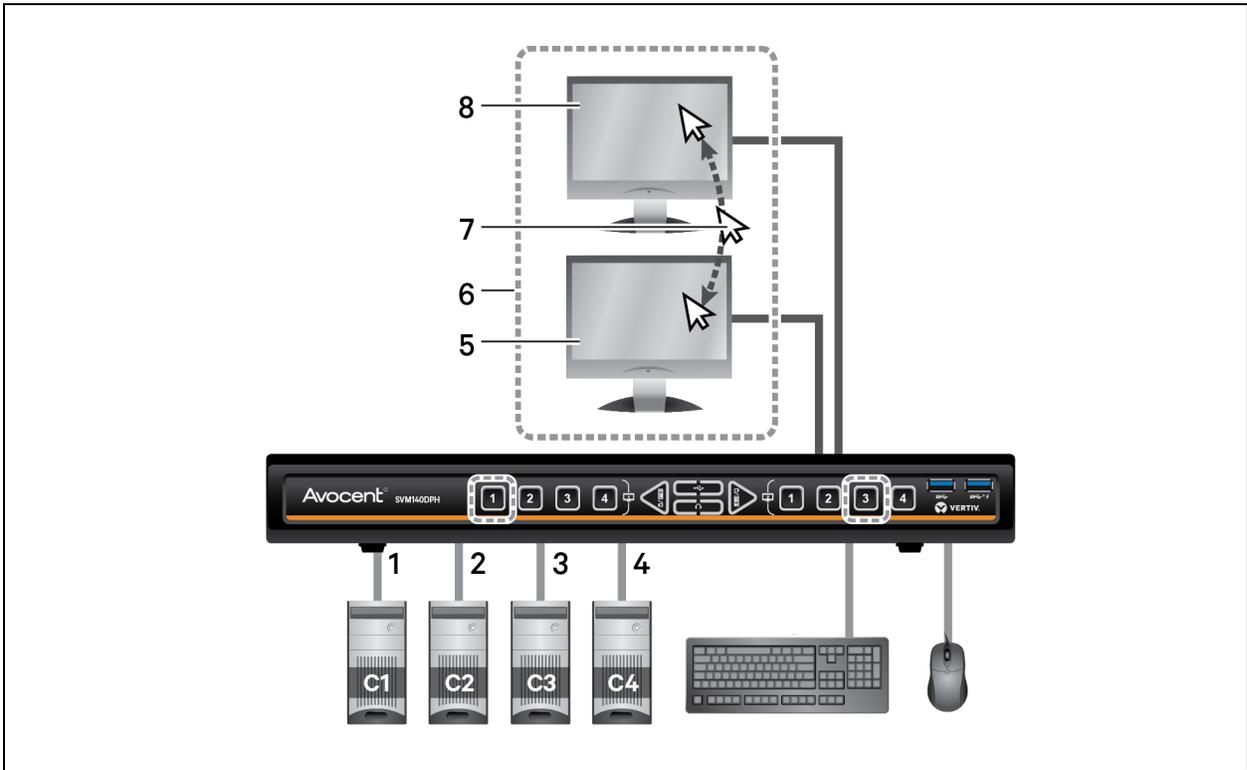


Table 2.5 Preset 2 Configuration Components

Item	Description
1	Computer 1 connected to port 1
2	Computer 2 connected to port 2
3	Computer 3 connected to port 3
4	Computer 4 connected to port 4
5	SVM primary display showing computer 1
6	Displays controlled by CNS
7	Moving between the displays vertically changes the keyboard and mouse focus.
8	SVM secondary display showing computer 3

### Preset 3 - L-CTRL | L-CTRL | F11 | F3

Figure 2.5 Preset 3 Configuration

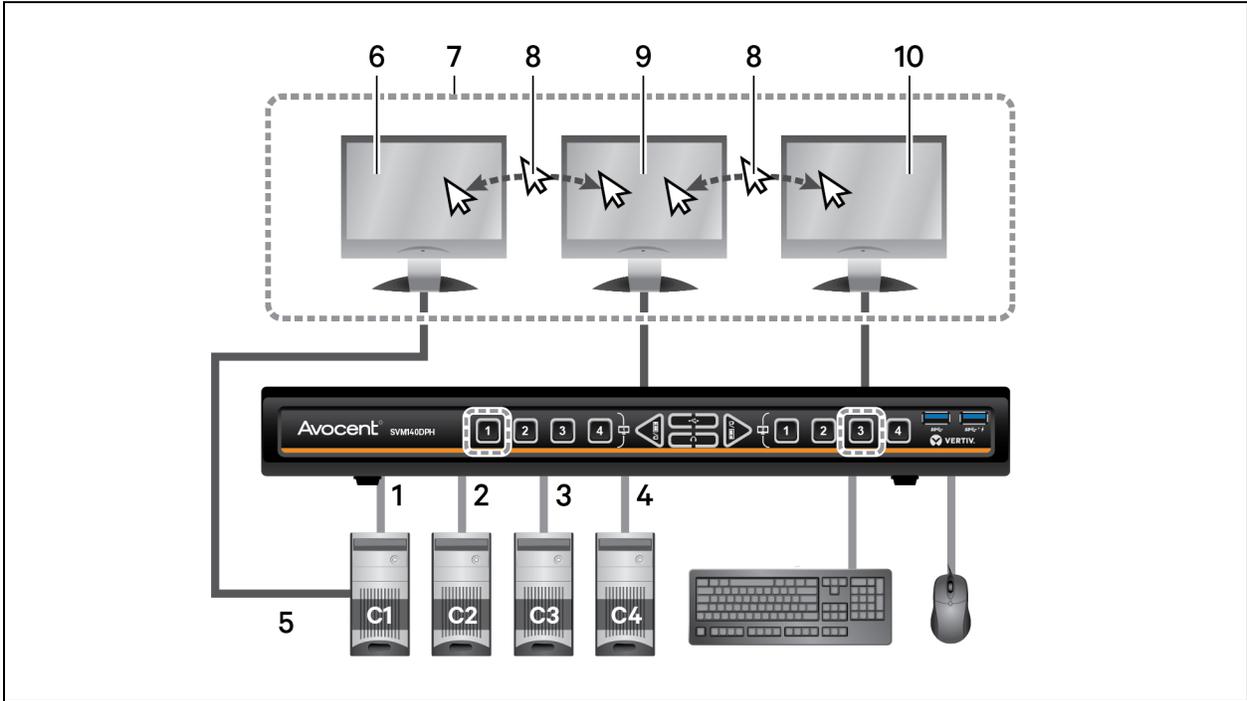


Table 2.6 Preset 3 Configuration Components

Item	Description
1	Computer 1 secondary display connected to port 1
2	Computer 2 connected to port 2
3	Computer 3 connected to port 3
4	Computer 4 connected to port 4
5	Computer 1 primary display directly connected to display in item 6.
6	Display directly connected to computer 1 displaying computer 1 primary display
7	Displays controlled by CNS
8	Moving between the displays horizontally changes the keyboard and mouse focus.
9	SVM primary display showing computer 1 secondary display
10	SVM secondary display showing computer 3

## Preset 4 - L CTRL | L CTRL | F11 | F4

Figure 2.6 Preset 4 Configuration

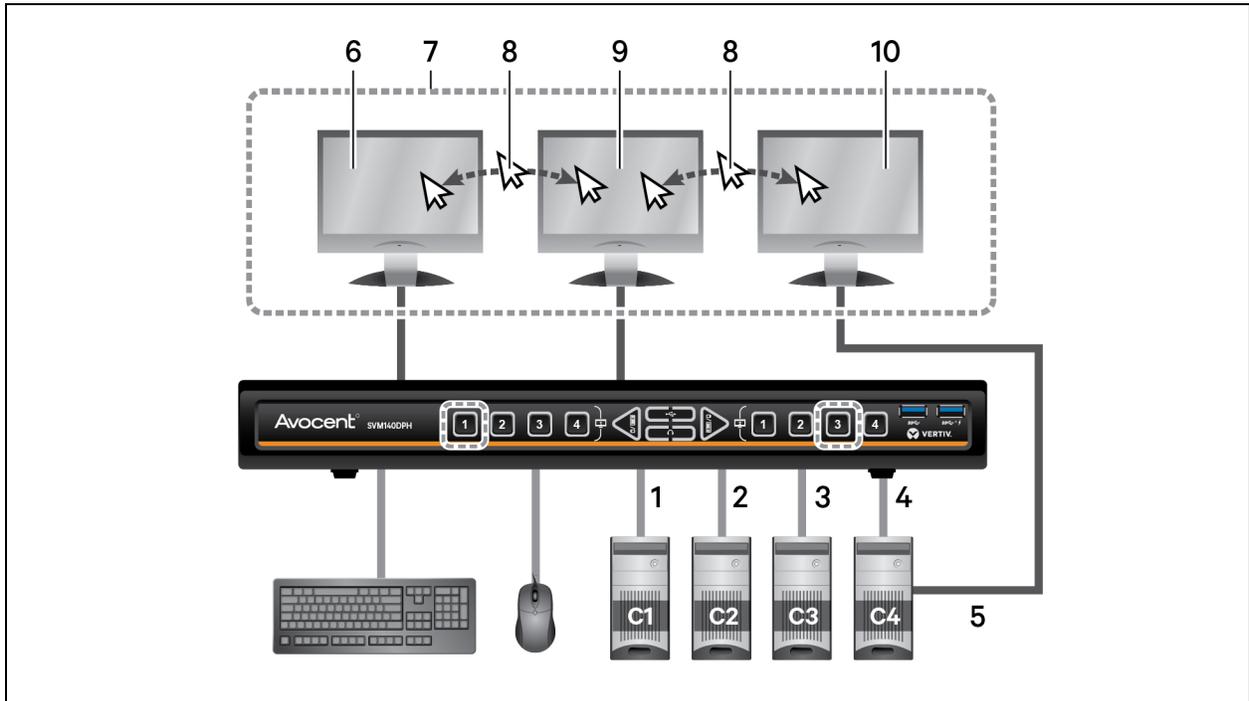


Table 2.7 Preset 4 Configuration Components

Item	Description
1	Computer 1 connected to port 1
2	Computer 2 connected to port 2
3	Computer 3 connected to port 3
4	Computer 4 primary display connected to port 4
5	Computer 4 secondary display directly connected to the display in item 10.
6	SVM primary display showing computer 1
7	Displays controlled by CNS
8	Moving between the displays horizontally changes the keyboard and mouse focus
9	SVM secondary display showing computer 4 primary display
10	Display directly connected to computer 4 secondary display

### Preset 5 - L CTRL | L CTRL | F11 | F5

Figure 2.7 Preset 5 Configuration

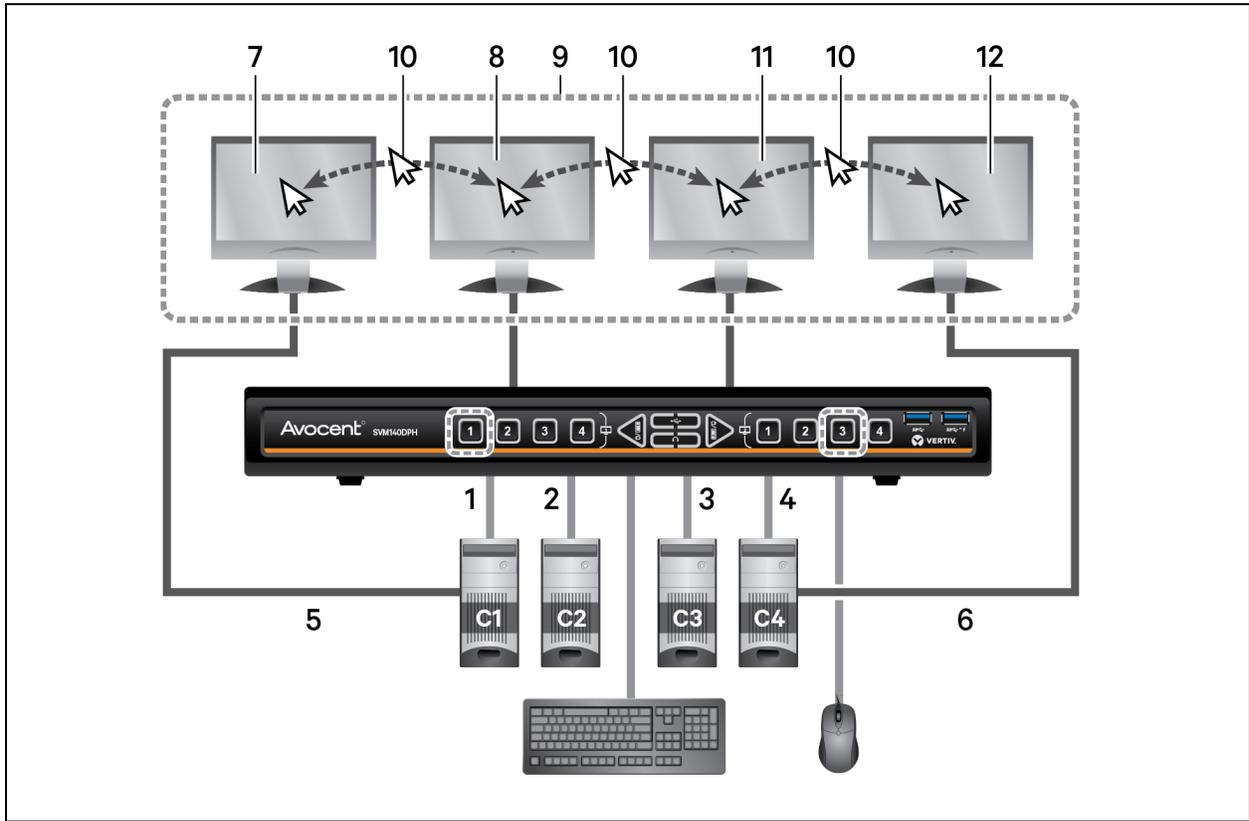
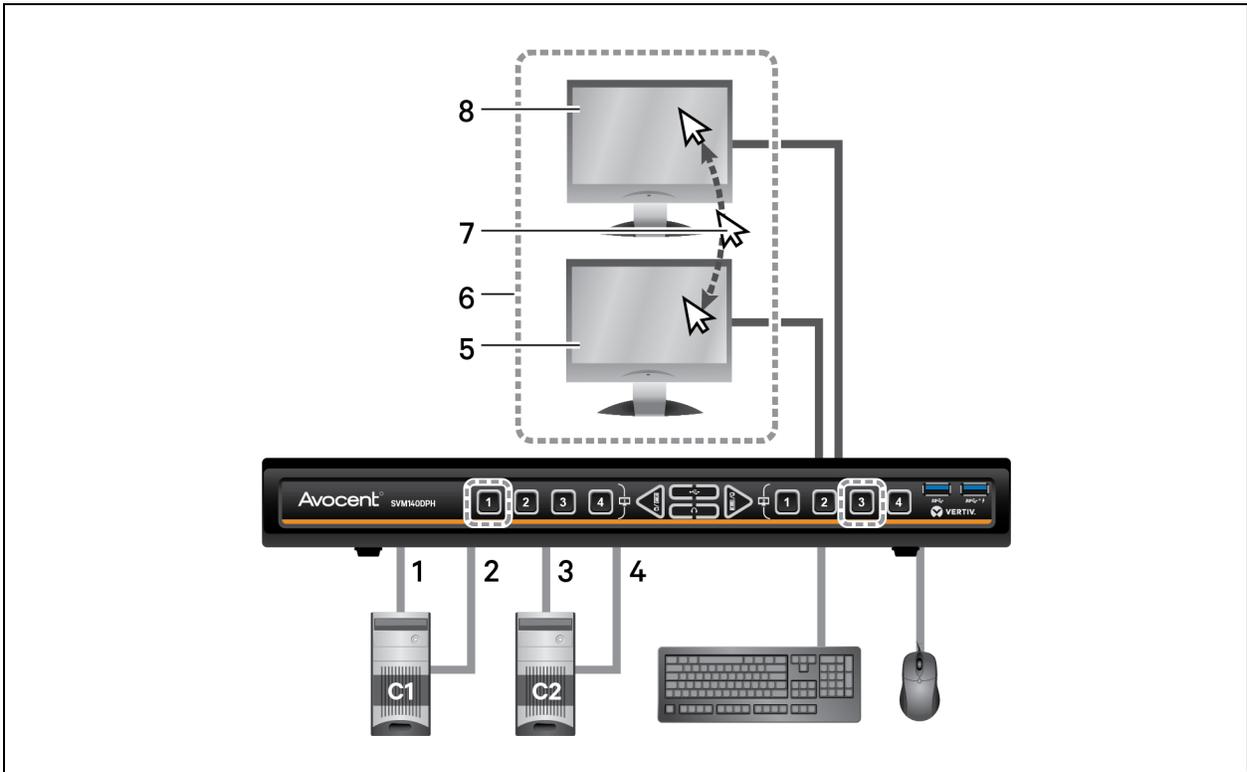


Table 2.8 Preset 5 Configuration Components

Item	Description	Item	Description
1	Computer 1 secondary display connected to port 1	7	Display directly connected to computer 1 primary display
2	Computer 2 connected to port 2	8	SVM primary display showing computer 1 secondary display
3	Computer 3 connected to port 3	9	Displays controlled by CNS
4	Computer 4 primary display connected to port 4	10	Moving between the displays horizontally changes the keyboard and mouse focus
5	Computer 1 primary display directly connected to the display listed in item 7	11	SVM secondary display showing computer 3
6	Computer 4 secondary display directly connected to the display listed in item 12	12	Display directly connected to computer 4 secondary display

**Preset 6 - L CTRL | L CTRL | F11 | F6**

**Figure 2.8 Preset 6 Configuration**



**Table 2.9 Preset 6 Configuration Components**

Item	Description
1	Computer 1 primary display connected to port 1
2	Computer 2 primary display connected to port 3
3	Computer 1 secondary display connected to port 2
4	Computer 2 secondary display connected to port 4
5	SVM secondary display showing computer 2 primary display
6	Displays controlled by CNS
7	Moving between the displays vertically changes the keyboard and mouse focus
8	SVM primary display showing computer 1 primary display

### Preset 7 - L CTRL | L CTRL | F11 | F7

**NOTE:** This is a simple dual-head mode where separate primary and secondary selection is required. For full legacy-mode dual-head switch support, see [Dual-head KVM preset - L-CTRL | L-CTRL | F11 | D](#) on page 30.

Figure 2.9 Preset 7 Configuration

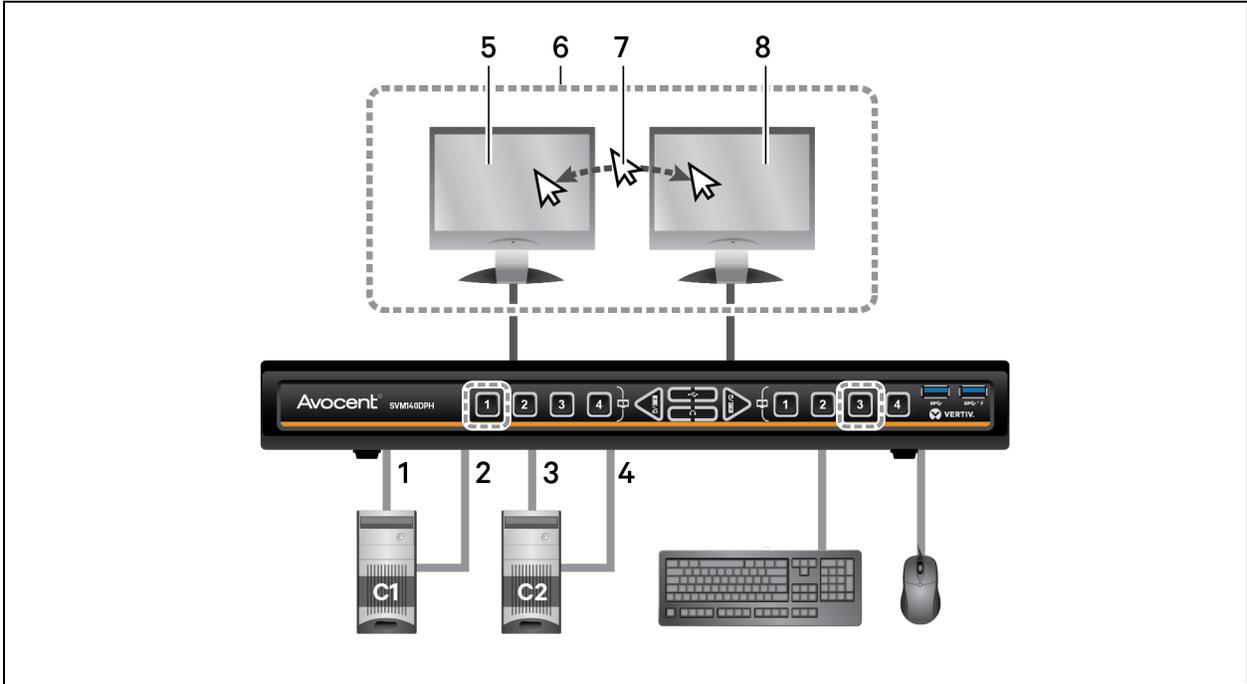


Table 2.10 Preset 7 Configuration Components

Item	Description
1	Computer 1 primary display connected to port 1
2	Computer 1 secondary display connected to port 2
3	Computer 2 primary display connected to port 3
4	Computer 2 secondary display connected to port 4
5	SVM primary display showing computer 1 primary display
6	Displays controlled by CNS
7	Moving between the displays horizontally changes the keyboard and mouse focus
8	SVM secondary display showing computer 2 primary display

**Preset 8 - L CTRL | L CTRL | F11 | F8**

Figure 2.10 Preset 8 Configuration

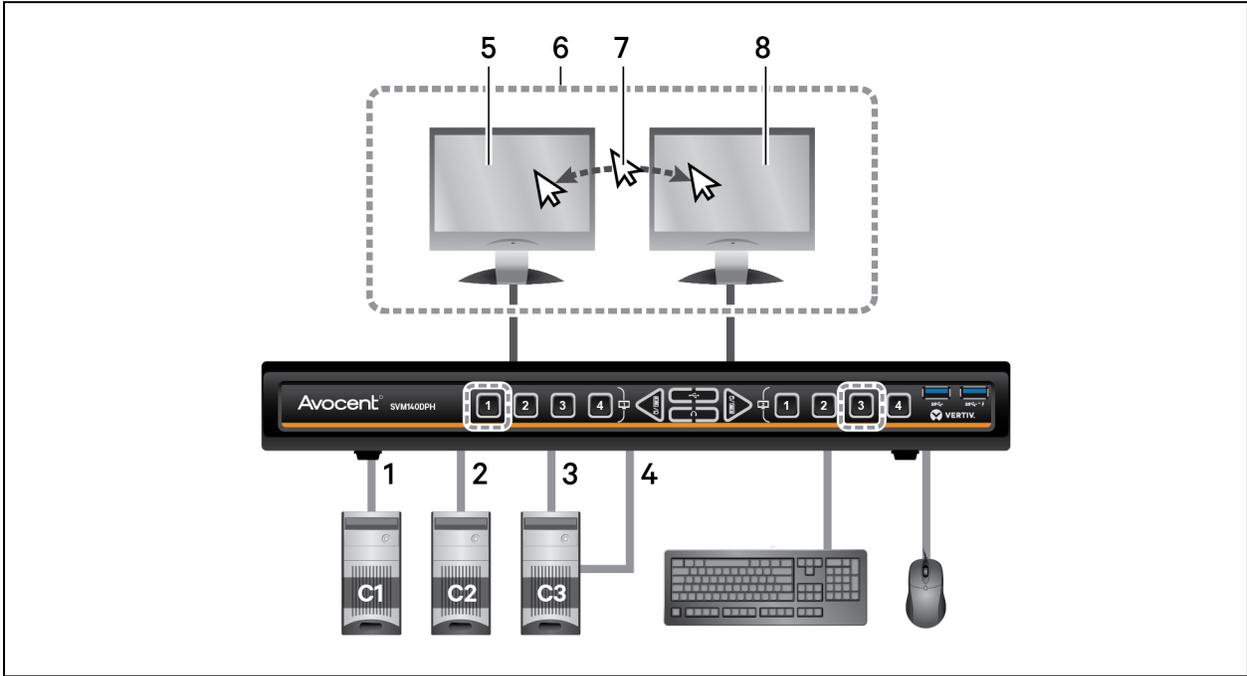


Table 2.11 Preset 8 Configuration Components

Item	Description
1	Computer 1 connected to port 1
2	Computer 2 connected to port 2
3	Computer 3 primary display connected to port 3
4	Computer 3 secondary display connected to port 4
5	SVM primary display showing computer 1
6	Displays controlled by CNS
7	Moving between the displays horizontally changes the keyboard and mouse focus
8	SVM secondary display showing computer 3 primary display

### Preset 9 - L CTRL | L CTRL | F11 | F9

Figure 2.11 Preset 9 Configuration

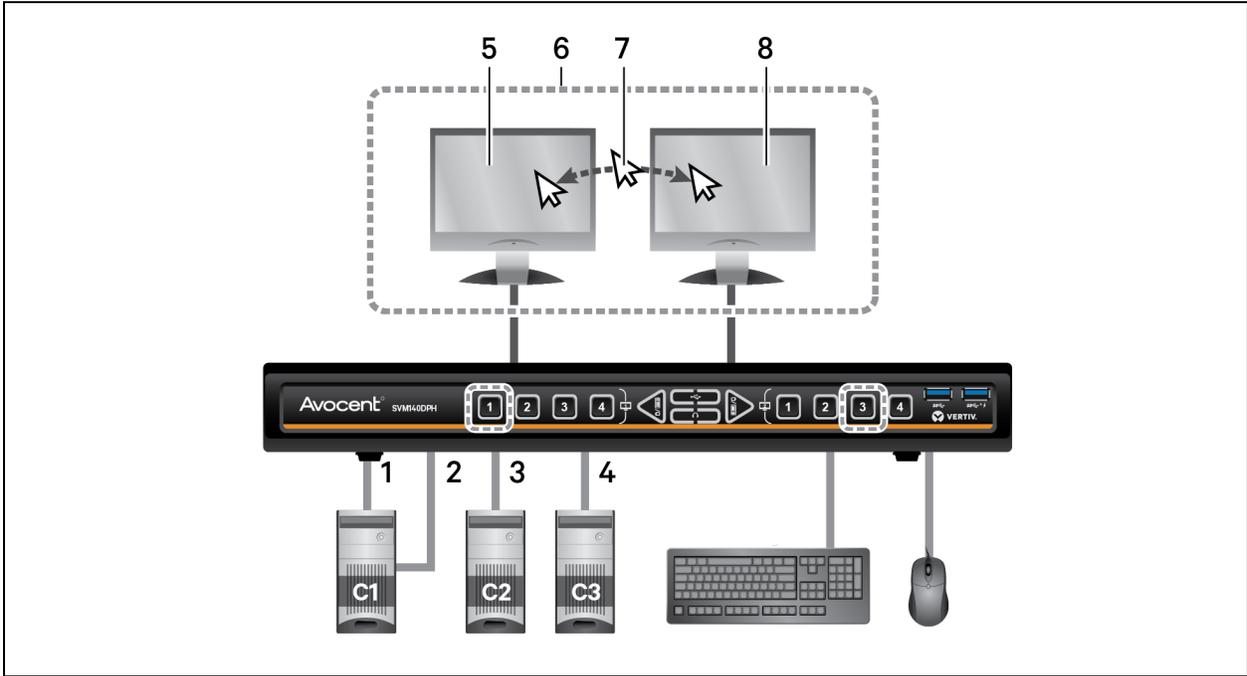


Table 2.12 Preset 9 Configuration Components

Item	Description
1	Computer 1 primary display connected to port 1
2	Computer 1 secondary display connected to port 2
3	Computer 2 connected to port 3
4	Computer 3 connected to port 4
5	SVM primary display showing computer 1 primary display
6	Displays controlled by CNS
7	Moving between the displays horizontally changes the keyboard and mouse focus
8	SVM secondary display showing computer 3

## Preset 10 - L CTRL | L CTRL | F11 | F10

Figure 2.12 Preset 10 Configuration

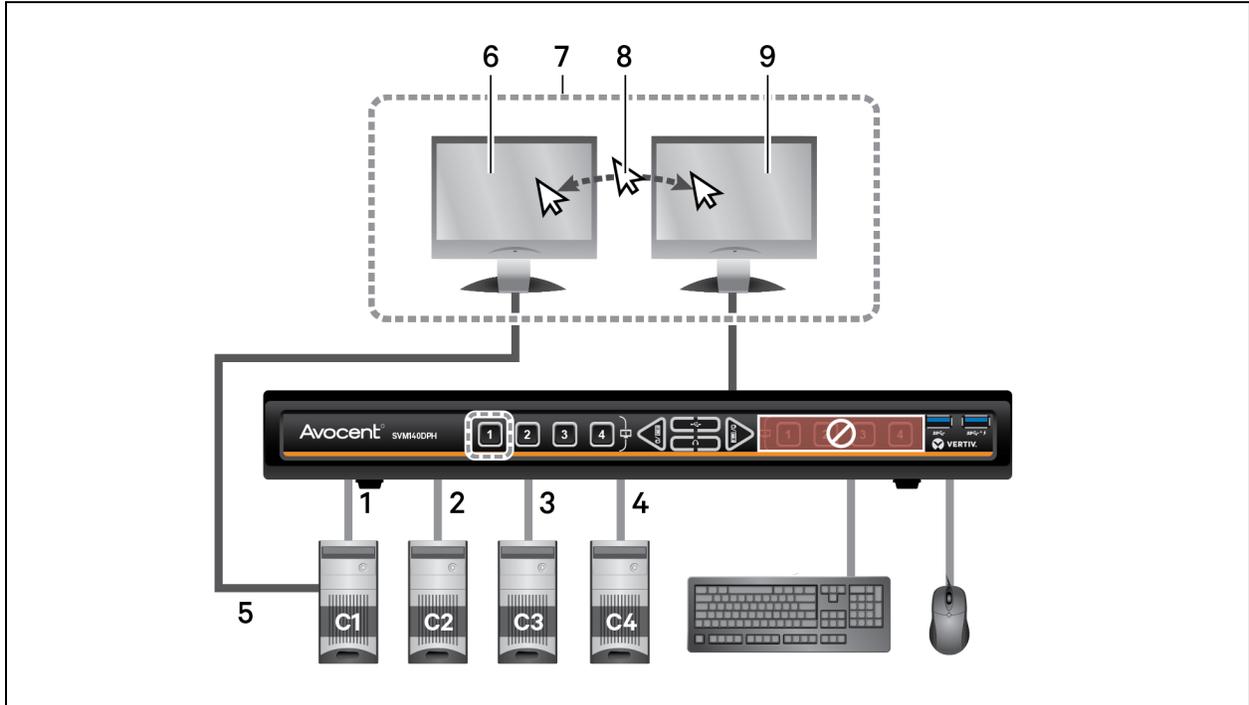


Table 2.13 Preset 10 Configuration Components

Item	Description
1	Computer 1 secondary display connected to port 1
2	Computer 2 connected to port 2
3	Computer 3 connected to port 3
4	Computer 4 connected to port 4
5	Computer 1 primary display directly connected to the display in item 6.
6	Display directly connected to computer 1 primary display
7	Displays controlled by CNS
8	Moving between the displays horizontally changes the keyboard and mouse focus
9	SVM primary display showing computer 1 secondary display
Note: SVM secondary display is not used	

## 2.10.2 8-port presets

**Table 2.14 8-port Preset Descriptions**

Preset	description	Key combination
Preset 1	Two horizontally-aligned displays.	L-CTRL   L-CTRL   F11   F1
Preset 2	Two vertically-aligned displays.	L-CTRL   L-CTRL   F11   F2
Preset 3	One dual-head computer (ports 1 and 2) and six single-head computers.	L-CTRL   L-CTRL   F11   F3
Preset 4	Quad display.	L-CTRL   L-CTRL   F11   F4
Preset 5	Three horizontally-aligned displays (direct on right).	L-CTRL   L-CTRL   F11   F5
Preset 6	Legacy KVM mode with direct to computer 1 secondary display.	L-CTRL   L-CTRL   F11   F6
Preset 7	Legacy KVM mode with direct to computer 1 secondary display.	L-CTRL   L-CTRL   F11   F7

### Preset 1 and Preset 2

Presets one and two are the same as the presets on the four-port switches. See [Preset 1 - L-CTRL | L-CTRL | F11 | F1 on page 12](#) and [Preset 2 - L-CTRL | L-CTRL | F11 | F2 on page 13](#) for the configurations.

**Preset 3 - L-CTRL | L-CTRL | F11 | F3**

Figure 2.13 Preset 3 Configuration

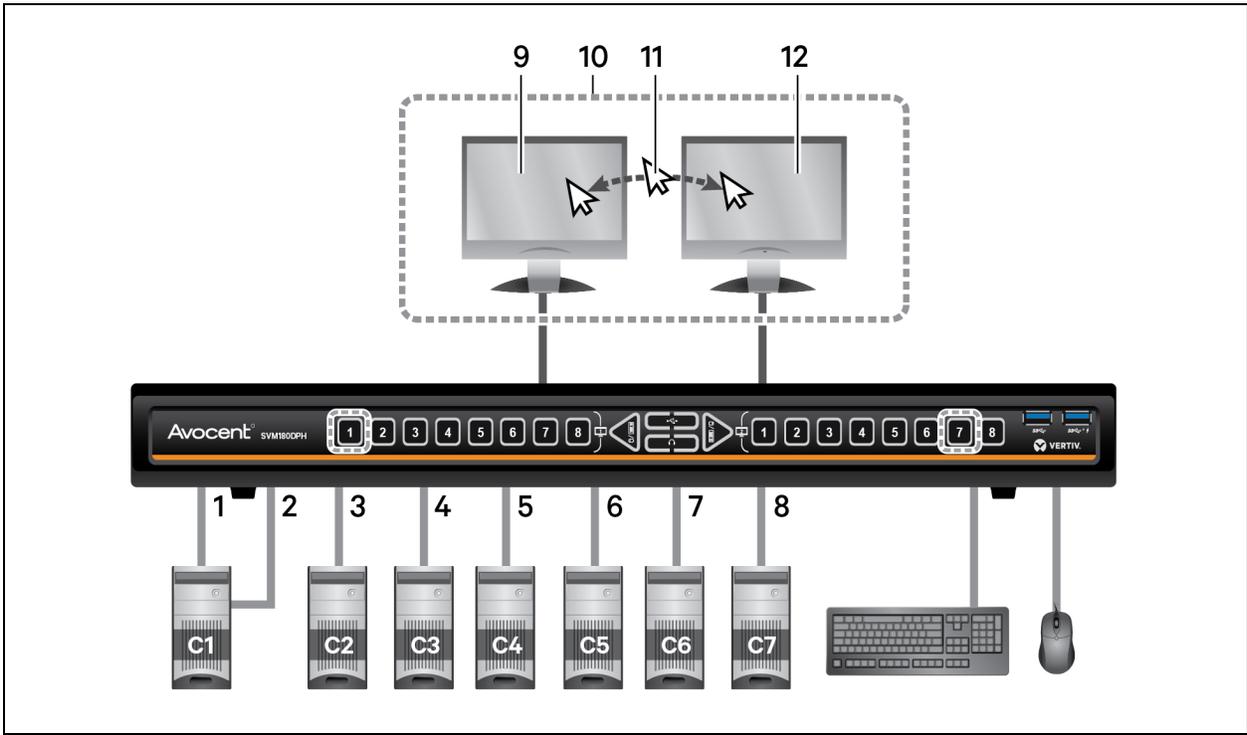


Table 2.15 Preset 3 Configuration Components

Item	Description
1	Computer 1 primary display connected to port 1
2	Computer 1 secondary display connected to port 2
3	Computer 2 connected to port 3
4	Computer 3 connected to port 4
5	Computer 4 connected to port 5
6	Computer 5 connected to port 6
7	Computer 6 connected to port 7
8	Computer 7 connected to port 8
9	SVM primary display showing computer 1 primary display
10	Displays controlled by CNS
11	Moving between the displays horizontally changes the keyboard and mouse focus
12	SVM secondary display showing computer 6



**Table 2.16 Preset 4 Configuration Components**

Item	Description
1	Computer 1 primary display connected to port 1
2	Computer 1 secondary display connected to port 2
3	Computer 2 connected to port 3
4	Computer 3 connected to port 4
5	Computer 4 connected to port 5
6	Computer 5 connected to port 6
7	Computer 6 primary display connected to port 7
8	Computer 7 primary display connected to port 8
9	Cables directly connecting computer 6 secondary display to display 15 and computer 7 secondary display to display 14
10	SVM primary display showing computer 1 primary display
11	Displays controlled by CNS
12	Moving between the displays horizontally changes the keyboard and mouse focus.
13	SVM secondary display showing computer 2
14	Display directly connected to computer 7 secondary display
15	Display directly connected to computer 6 secondary display

### Preset 5 - L-CTRL | L-CTRL | F11 | F5

Figure 2.15 Preset 5 Configuration

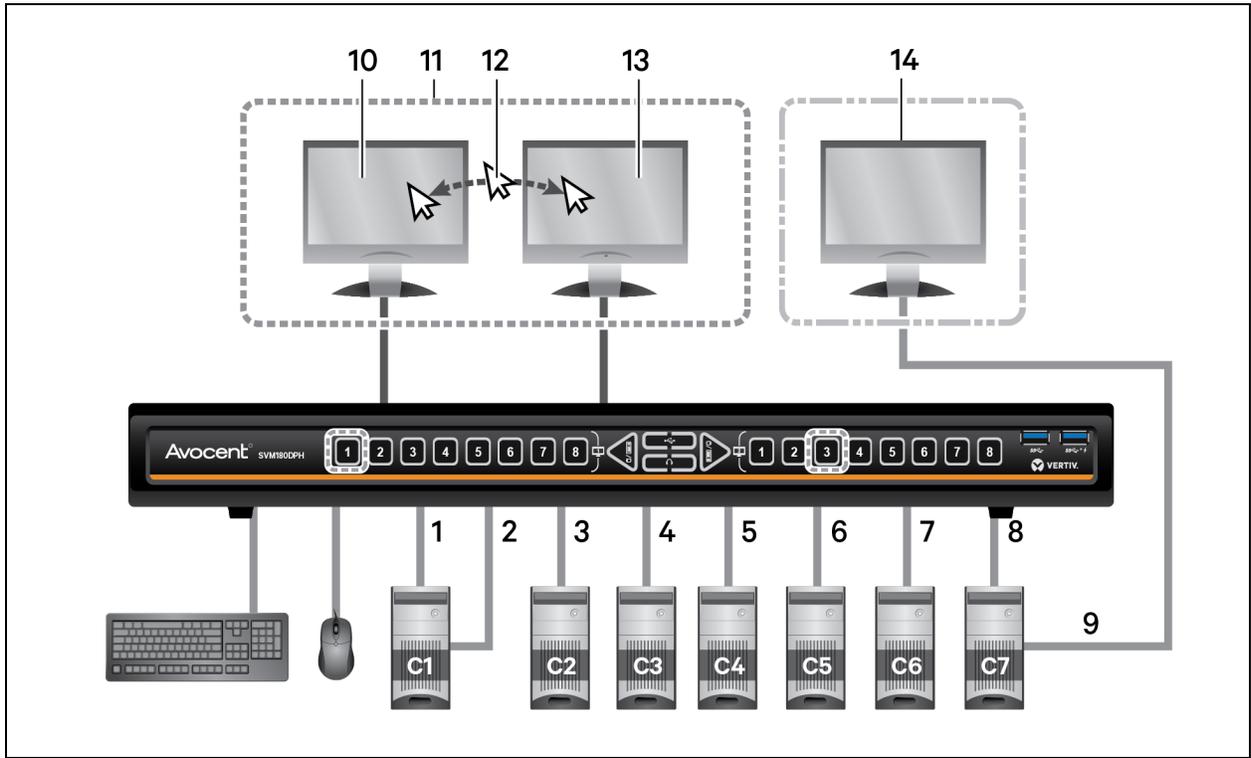


Table 2.17 Preset 5 Configuration Components

Item	Description
1	Computer 1 primary display connected to port 1
2	Computer 1 secondary display connected to port 2
3	Computer 2 connected to port 3
4	Computer 3 connected to port 4
5	Computer 4 connected to port 5
6	Computer 5 connected to port 6
7	Computer 6 connected to port 7
8	Computer 7 connected to port 8
9	Cable directly connecting computer 7 secondary display to the display in item 14
10	SVM primary display showing computer 1 primary display
11	Displays controlled by CNS
12	Moving between the displays horizontally changes the keyboard and mouse focus.
13	SVM secondary display showing computer 2
14	Display directly connected to computer 7 secondary display

**Preset 6 - L-CTRL | L-CTRL | F11 | F6**

Figure 2.16 Preset 6 Configuration

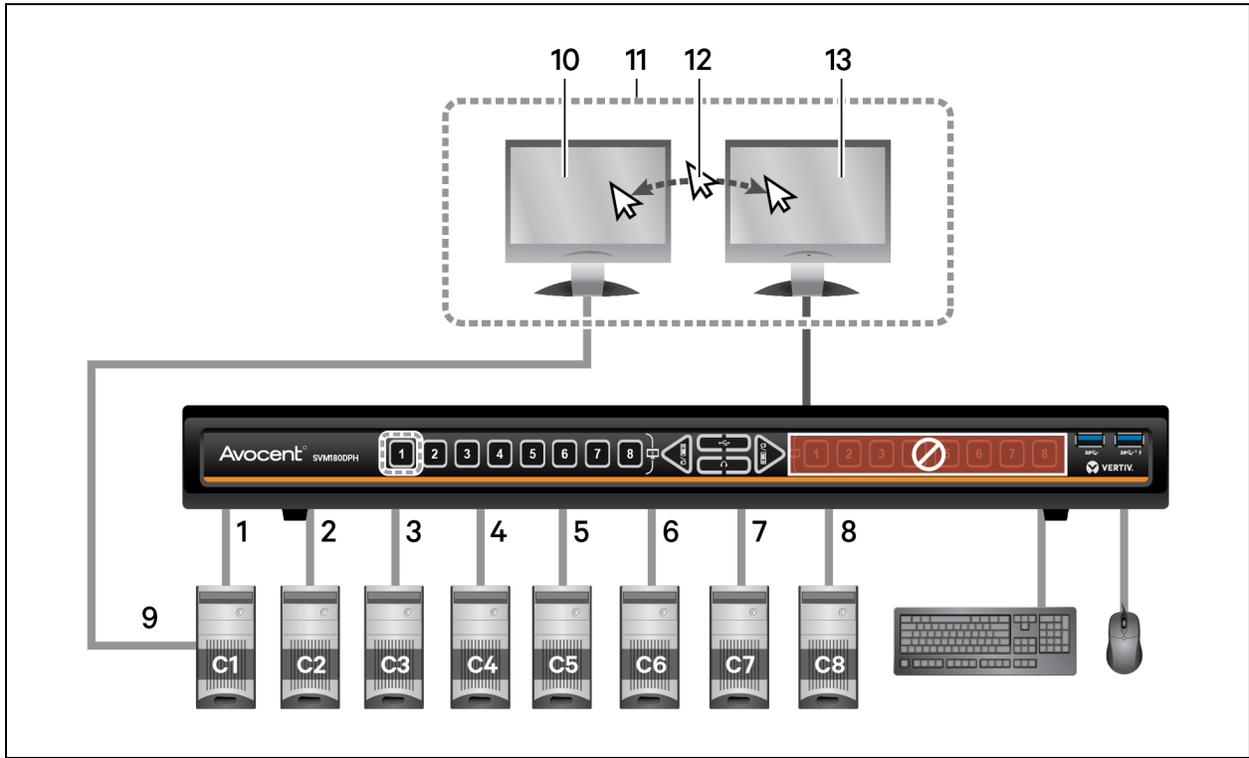
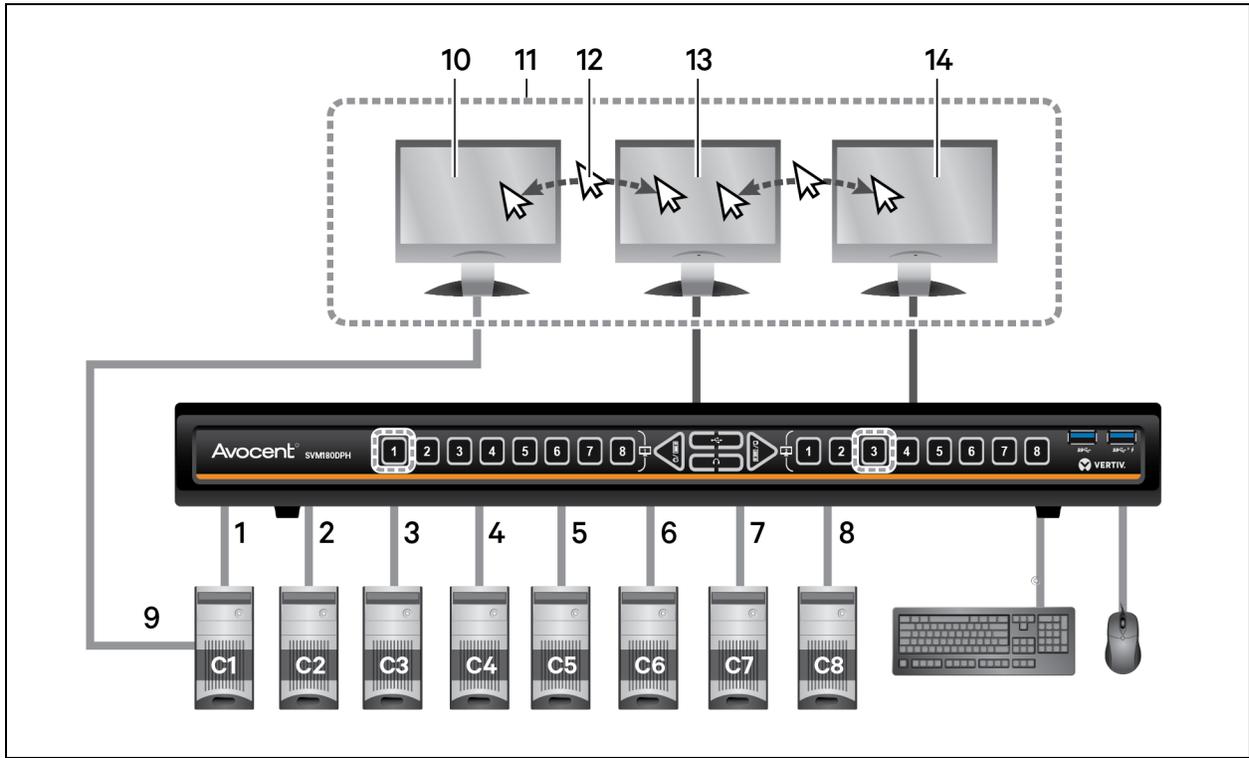


Table 2.18 Preset 6 Configuration Components

Item	Description
1	Computer 1 secondary display connected to port 1
2	Computer 2 connected to port 2
3	Computer 3 connected to port 3
4	Computer 4 connected to port 4
5	Computer 5 connected to port 5
6	Computer 6 connected to port 6
7	Computer 7 connected to port 7
8	Computer 8 connected to port 8
9	Computer 1 primary display directly connected to the display in item 10
10	Display directly connected to computer 1 primary display
11	Displays controlled by CNS
12	Moving between the displays horizontally changes the keyboard and mouse focus
13	SVM primary display showing computer 1 secondary display
Note: SVM secondary display is not used	

**Preset 7 - L-CTRL | L-CTRL | F11 | F7**

**Figure 2.17** Preset 7 Configuration



**Table 2.19** Preset 7 Configuration Components

Item	Description
1	Computer 1 secondary display connected to port 1
2	Computer 2 connected to port 2
3	Computer 3 connected to port 3
4	Computer 4 connected to port 4
5	Computer 5 connected to port 5
6	Computer 6 connected to port 6
7	Computer 7 connected to port 7
8	Computer 8 connected to port 8
9	Computer 1 primary display directly connected to the display in item 10
10	Display directly connected to computer 1 primary display
11	Displays controlled by CNS
12	Moving between the displays horizontally changes the keyboard and mouse focus
13	SVM primary display showing computer 1 secondary display
14	SVM secondary display showing computer 3

### 2.10.3 Advanced Presets

#### Legacy mode - L-CTRL | R-CTRL | M

Legacy mode allows the desktop matrix switch to function as a KVM switch.

- One display display connected to the primary console port.
- The right side of the switch is disabled.

Figure 2.18 Legacy Mode Configuration

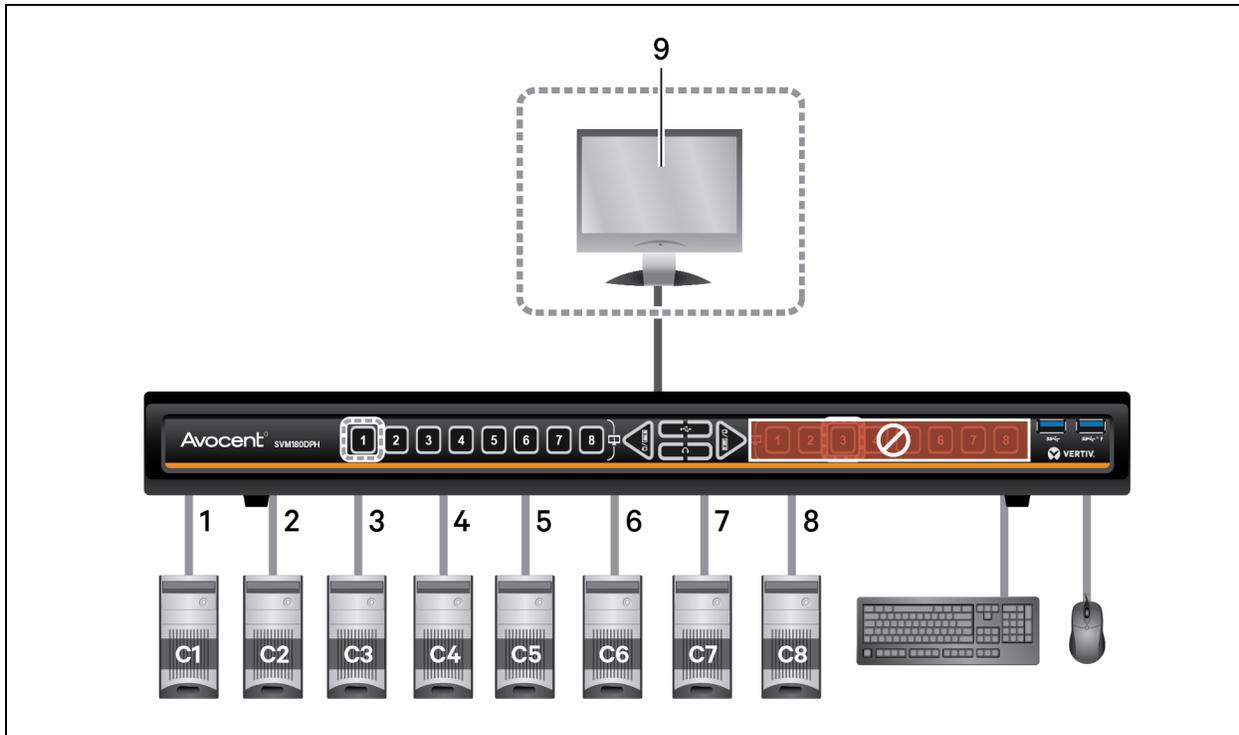


Table 2.20 Legacy Mode Configuration Components

Item	Description
1	Computer 1 connected to port 1
2	Computer 2 connected to port 2
3	Computer 3 connected to port 3
4	Computer 4 connected to port 4
5	Computer 5 connected to port 5
6	Computer 6 connected to port 6
7	Computer 7 connected to port 7
8	Computer 8 connected to port 8
9	Display connected to the SVM primary display port
Note: SVM secondary display is not used	

### Dual-head KVM preset - L-CTRL | L-CTRL | F11 | D

The KVM functions like a 2-port or 4-port dual-head KVM switch.

For example, computer one connected to ports one and two and computer two connected to ports three and four.

- Pressing the #1 button switches the left side to source one and the right side to source two.
- Pressing the #3 button switches the left side to source three and the right side to source four.

Figure 2.19 Dual-head KVM Preset

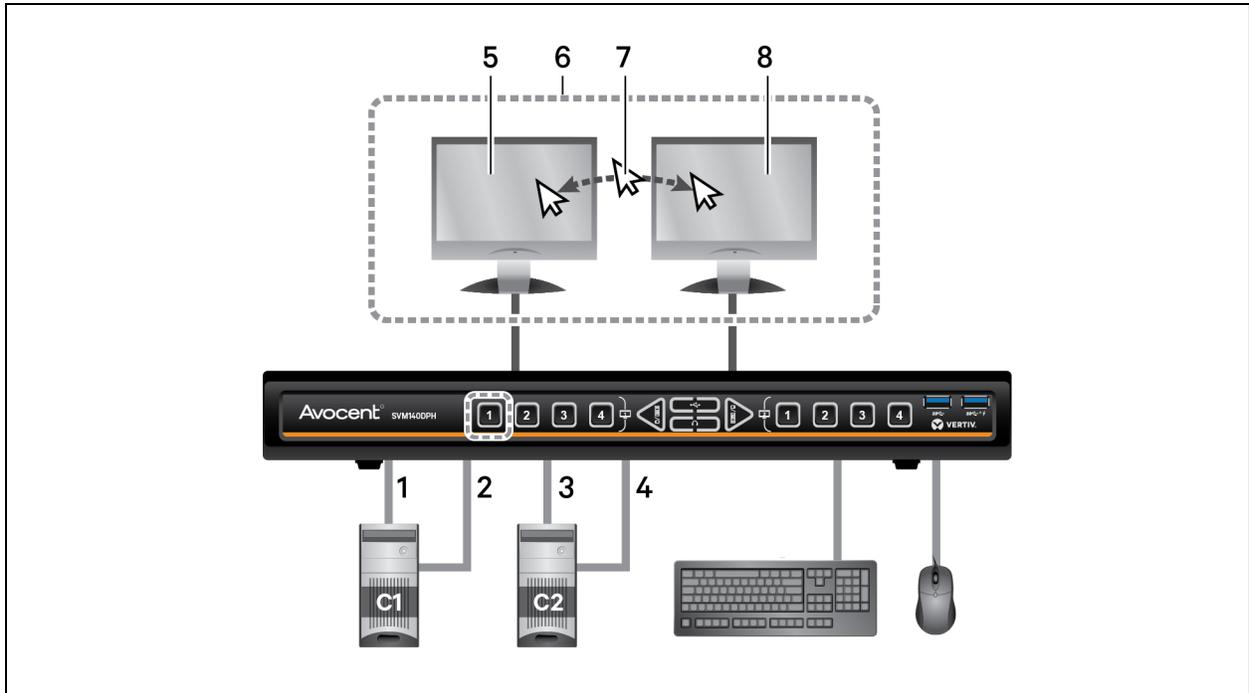


Table 2.21 Dual-head KVM Configuration Components

Item	Description
1	Computer 1 primary display connected to port 1
2	Computer 1 secondary display connected to port 2
3	Computer 2 primary display connected to port 3
4	Computer 2 secondary display connected to port 4
5	SVM primary display showing computer 1 primary display
6	Displays controlled by CNS
7	Moving between the displays horizontally changes the keyboard and mouse focus
8	SVM secondary display showing computer 1 secondary display

# Appendices

## Appendix A: Keyboard Shortcuts

**Table A.1 Keyboard Shortcut Options**

Description	shortcut
Reset to factory defaults	L-CTRL   L-CTRL   F11   r
Switch to channel <X> on primary display	L-CTRL   L-CTRL   <1-8>
Switch to channel <X> on secondary display	R-CTRL   R-CTRL   <1-8>
Disable CNS	L-CTRL   L-CTRL   F11   b
Enable CNS (default)	L-CTRL   L-CTRL   F11   c
Increase mouse speed	L-CTRL   L-CTRL   F11   +
Decrease mouse speed	L-CTRL   L-CTRL   F11   -
Freeze mouse cursor to current screen	L-CTRL   L-CTRL   F11   f
Unfreeze mouse cursor on current screen	L-CTRL   L-CTRL   F11   u
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 (disabled by default) Note: Requires accessing the terminal menu first	L-CTRL   R-CTRL   q
Enable/disable consumer/multimedia keyboard support (disabled by default) Note: Requires accessing the terminal menu first	L-CTRL   R-CTRL   k
Enable/disable touch screen support (requires accessing the terminal menu first, disabled by default)	L-CTRL   R-CTRL   s
Enable preset Fx	L-CTRL   L-CTRL   F11   <Fx>
Enable legacy mode	L-CTRL   R-CTRL   m
Switch to dual-head preset	L-CTRL   L-CTRL   F11   d
Enable the switch to load a custom preset (requires accessing the terminal menu first)	L-CTRL   R-CTRL   l (lower case 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)	L-CTRL   R-CTRL   End

## Appendix B: Product Specifications

Table B.1 Product Specifications

Switch models	SVM140DPH	SVM180DPH
<b>Computers</b>		
Ports	4	8
Video Type	DP / HDMI universal port (DVI-D with HDMI-to-DVI-D cable)	
Max resolution	UHD 4K (3840x2160) @ 60Hz	
Keyboard and Mouse	1 x USB 2.0 Type B	
USB Accessory	1 x USB 3.0 Type B	
Analog Audio	3.5mm speaker and microphone	3.5mm speaker
<b>Console</b>		
Video Type	2 x DP/HDMI Universal port (DVI-D with HDMI-to-DVI-D cable)	
Keyboard and mouse	2 x USB 2.0 Type A	
USB Accessory	2 x USB 3.0 Type A	
Analog Audio	3.5mm speaker and microphone	3.5mm speaker
<b>Physical</b>		
Dimensions (WxDxH)	13.7 x 5.0 x 1.7 in 348 x 127 x 43 mm	17.3 x 7.3 x 1.7 in 439 x 185 x 43 mm
Weight	3.0 lbs / 1.5 Kg	5.4 lbs / 2.5 Kg
Mounting Option	Desk Mount - DMK-09	Rack Mount Included
<b>Environmental Conditions</b>		
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	
<b>Electrical Power</b>		
Power Supply Type	External	Internal
AC Input Voltage	100 – 240V AC, 50/60HZ, Auto-sensing	
Power Supply Output	12V DC, 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 foot), with user interchangeable C14 to localized socket plugs
<b>Regulatory</b>		
Regulatory Certifications	FCC class A, CE, TUV US, TUV Canada, RCM, VCCI	
Standard Product Warranty	2 Years; additional warranty terms available	
Design & 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 10/3.0	CBL0122	CBL0124
Mini DP	mDP-to-DP	10/3.0	CBL0198	CBL0199
HDMI	HDMI-to-HDMI	6/1.8 10/3.0	CBL0126 CBL0127	CBL0128 CBL0129
DVI-D	HDMI-to-DVI-D	10/3.0	CBL0196	CBL0197
Note: USB 3.0 accessory requires a separate USB 3.0 extension cable for each computer				

**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 desktop matrix KVM
USBCKVMDHNP	10ft USB-C (PC) to dual display DP (KVM) adapter cable +ETH +PWR	Connect USB-C dual-head computer to desktop matrix KVM
AFP0004	4-Port remote active front panel	Use with AFPSPLITTER to remotely select primary and secondary computer ports on 4-port desktop matrix
AFP0008	8-Port remote active front panel	Use with AFPSPLITTER to remotely select primary and secondary computer ports on 8-port desktop matrix
AFPSPLITTER	AFP cable splitter adapter for desktop matrix	Connect 2 AFP remote switch panels to desktop matrix RCU port for independent remote control of primary and secondary displays

## Appendix C: Troubleshooting

When the switch is powered on, 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. See the following table for device fault information.

**Table C.1 Device Faults**

Fault	Indicator	Resolution
The switch did not pass the self-test.	All channel LED buttons flash on and off once.	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.
The connected video display is not qualified.	The video diagnostic LED flashes green; the display is inoperable.	Turn off and disconnect the non-qualified display; connect 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 display 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. 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.
The 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. Ensure the displays are compatible with the computer resolution and refresh rate settings. If the problem persists, power cycle the switch and computers.
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 display 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. Ensure the displays are compatible with the computer resolution and refresh rate settings or lower the video resolution of the computer. If the problem persists, power cycle the switch, computers and displays.
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 one should be connected to ports specifically designated for computer one.
The connected keyboard is not qualified.	The keyboard is non-functional and you are unable to produce keystrokes on the screen when using the keyboard.	Disconnect the non-qualified keyboard and connect a qualified keyboard.
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 keyboard or mouse are not connected to the switch properly or the keyboard or mouse cable or port is damaged.	The keyboard or mouse does not work on any channels.	Ensure the keyboard or mouse is properly connected to the switch and the USB cable between the keyboard or mouse and the switch is not damaged. If the issue persists, connect the keyboard or mouse to a different port or use a different standard, non-wireless, qualified keyboard or mouse. Ensure the driver for the keyboard or mouse is installed on the computer.  <b>NOTE: If the computer is returning from standby mode, allow up to one minute for the computer to regain keyboard and mouse functionality.</b>
The computer does not recognize the connected keyboard or mouse.	The keyboard or mouse does not work on one channel.	Use the computer's Device Manager wizard to troubleshoot and resolve the issue.

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