User Manual

4-Port Secure KVM Mini-Matrix

Products covered by this manual:
Cybex SCM145 – Secure Mini-Matrix KVM 4-Port DVI video, w/DPP
Cybex SCM145H – Secure Mini-Matrix KVM 4-Port HDMI video, w/DPP

Document Number HDC10370 Rev. F

TABLE OF CONTENTS

INTRODUCTION

Thank you for purchasing this Vertiv Secure product designed for use in secure defense and intelligence installations. The product provides the highest security safeguards and features that meet today's IA (information assurance) computing requirements as defined in the latest PSS Protection Profile Rev 3.0.

Secure meeting rooms or manager offices in secure organizations often have

multiple computers to be displayed simultaneously on desktop display and large screen.

Vertiv mini matrixes allow users to connect multiple computers and project their outputs on 2 connected displays. Users are also able

to switch their mouse and keyboard between the connected computers.

This User Manual provides all the details you'll need to install and operate your new product.

Intended Audience

This document is intended for the following professionals:

- System Administrators/IT Managers
- End Users

Package Contents

Inside product packaging you will find the following:

- Vertiv Secure Product
- AC Power Cord
- User Guidance Documentation

Important Security Note:

If you are aware of potential security vulnerability while installing or operating this product, we encourage you to contact us immediately in one of the following ways:

- Email: **Secure@VertivCo.com**
- Tel: +**1-888-793-8763**

Important: This product is equipped with always-on active anti-tampering system. Any attempt to open the product enclosure will activate the anti-tamper triggers and render the unit inoperable and warranty void.

Revision

A – Initial Release, 24 Feb 2015

B – Corrections, 5 April 2015

C – Product image updates, 25 May 2015

D – User Guidance changes, 16 June 2015

E – Correction to Features section, 13 August 2015

F – Changing to VERTIV branding, 15 May 2019

OVERVIEW

Safety Precautions

Please read the following safety precautions carefully before using the product:

- Before cleaning, disconnect the product from any electrical power supply.
- Do not expose the product to excessive humidity or moisture.
- Do not store or use for extensive period of time in extreme thermal conditions – it may shorten product lifetime.
- Install the product only on a clean secure surface.
- If the product is not used for a long period of time, disconnect it from electrical power.
- If any of the following situations occurs, have the product checked by a qualified service technician:
  - Liquid penetrates the product's case.
  - The product is exposed to excessive moisture, water or any other liquid.
  - The product is not working well even after carefully following the instructions in this user's manual.
  - The product has been dropped or is physically damaged.
  - The product shows obvious signs of breakage or loose internal parts.
  - In case of external power supply – If power supply overheats, is broken or damaged, or has a damaged cable.
- The product should be stored and used only in temperature and humidity controlled environments as defined in the product's environmental specifications.
- Never attempt to open the product enclosure. Any attempt to open the enclosure will permanently damage the product.
- The product contains a non-replaceable internal battery. Never attempt to replace the battery or open the enclosure.
- This product is equipped with always-on active anti-tampering system. Any attempt to open the product enclosure will activate the anti-tamper triggers and render the unit inoperable and warranty void.

OVERVIEW

Safety Precautions - Précautions de sécurité (French)

Veuillez lire attentivement les précautions de sécurité suivantes avant d'utiliser le produit:

- Avant nettoyage, débranchez l'appareil de l'alimentation DC / AC.
- Assurez-vous de ne pas exposer l'appareil à une humidité excessive.
- Assurez-vous d'installer l'appareil sur une surface sécurisée propre.
- Ne placez pas le cordon d'alimentation DC en travers d'un passage.
- Si l'appareil n'est pas utilisé de longtemps, retirez l'alimentation murale de la prise électrique.
- L'appareil devra être rangé uniquement dans des environnements à humidité et température contrôlées comme défini dans les caractéristiques environnementales du produit.
- L'alimentation murale utilisée avec cet appareil devra être du modèle fourni par le fabricant ou un équivalent certifié fourni par le fabricant ou fournisseur de service autorisé.
- Si une des situations suivantes survenait, faites vérifier l'appareil par un technicien de maintenance qualifié:
  - En cas d'alimentation externe - L'alimentation de l'appareil surchauffe, est endommagée, cassée ou dégage de la fumée
  - ou provoque des court circuits de la prise du secteur.
  - Un liquide a pénétré dans le boîtier de l'appareil.
  - L'appareil est exposé à de l'humidité excessive ou à l'eau.
  - L'appareil ne fonctionne pas correctement même après avoir suivi attentivement les instructions contenues dans ce guide de l'utilisateur.
  - L'appareil est tombé ou est physiquement endommagé.
- L'appareil présente des signes évidents de pièce interne cassée ou desserrée
- L'appareil contient une batterie interne. La batterie n'est pas remplaçable. N'essayez jamais de remplacer la batterie car toute tentative d'ouvrir le boîtier de l'appareil entraînerait des dommages permanents à l'appareil.
- Ce produit est équipé d'toujours-sur le système anti-sabotage active. Toute tentative d'ouvrir le boîtier du produit va activer le déclencheur anti-sabotage et de rendre l'unité vide inutilisable et garantie.

OVERVIEW

User Guidance & Precautions

Please read the following User Guidance & Precautions carefully before using the product:

1. As product powers-up it performs a self-test procedure. In case of self- test failure for any reason, including jammed buttons, the product will be Inoperable. Self-test failure will be indicated by the following abnormal LED behavior:
   a. All channel-select LEDs will be turned ON and then OFF;
   b. A specific, predefined LED combination will be turned ON;
   c. The predefined LED combination will indicate the problem type (jammed buttons, firmware integrity).

Try to power cycle product. If problem persists please contact your system administrator or technical support.

2. Product power-up and RFD behavior:
   a. By default, after product power-up, the active channel will be computer #1, indicated by the applicable front panel push button LED lit.
   b. Product Restore-to-Factory-Default (RFD) function is available via a physical control button on rear panel. Use a sharp object or paper clip to hold RFD button pressed for several seconds to initiate an RFD action.
   c. RFD action will be indicated by front panel LEDs blinking all together.
   d. When product boots after RFD, keyboard and mouse will be mapped to the active channel #1 and default settings will be restored, erasing all user-set definitions.
3. The appropriate usage of peripherals (e.g. keyboard, mouse, display, authentication device) is described in detail in this User Manual's appropriate sections. Do not connect any authentication device with an external power source to product.
4. For security reasons products do not support wireless keyboards and mice. In any case do not connect wireless keyboard/mouse to product.
5. For security reasons products do not support microphone/line-in audio input. In any case do not connect a microphone to product audio output port, including headsets.
6. Product is equipped with always-on active anti-tampering system. Any attempt to open product enclosure will activate the anti-tamper system indicated by all channel-select LEDs flashing continuously. In this case, product will be inoperable and warranty void. If product enclosure appears disrupted or if all channel-select LEDs flash continuously, please remove product from service immediately and contact technical support.
7. In case a connected device is rejected in the console port group the user will have the following visual indications:
   a. When connecting a non-qualified keyboard, the keyboard will be non-functional with no visible keyboard strokes on screen when using the keyboard.
   b. When connecting a non-qualified mouse, the mouse will be non-functional with mouse cursor frozen on screen.
   c. When connecting a non-qualified display, the video diagnostic LED will flash green and video will not work.
   d. When connecting a non-qualified USB device, DPP LED will flash green and USB device will be inoperable.
8. Product has a remote control port in the back panel labeled RCU. Do not use this port - it is inoperable and for future use.

OVERVIEW

User Guidance & Precautions (Cont.)

9. **Important!** Before re-allocating computers to channels, it is mandatory to power cycle product, keeping it powered OFF for more than 1 minute.
10. Product log access and administrator configuration options are described in product Administrator Guide.
11. Authentication session will be terminated once product power is down or user intentionally terminates session.
12. If you are aware of any potential security vulnerability while installing or operating product, please remove product from service immediately and contact us in one of the ways listed in this manual.

OVERVIEW

Main Features

Product is designed, manufactured and delivered in security-controlled environments. Below is a summary of the main advanced features incorporated in product:

Advanced isolation between computers and shared peripherals

The emulations of keyboard, mouse and display EDID, prevent direct contact between computers and shared peripherals. Product design achieves maximal security by keeping the video path separate with keyboard and mouse switched together, purging keyboard buffer when switching channels. All these features contribute to strong isolation between computer interfaces, maintained even when product is powered off.

Unidirectional data flow: USB, audio and video

Unique hardware architecture components prevent unauthorized data flow, including:

- Optical unidirectional data flow diodes in the USB data path that filtrate and reject unqualified USB devices;
- Secure analog audio diodes that prevent audio eavesdropping with no support for microphone or any other audio-input device;
- Video path is kept separate from all other traffic, enforcing unidirectional native video flow. EDID emulation is done at power up and blocks all EDID/MCCS writes. For DisplayPort video, filtration of AUX channel exists to reject unauthorized transactions.

Isolation of power domains

Complete isolation of power domains prevents signaling attacks.

Secure administrator access & log functions

Product incorporates secure administrator access and log functions to provide auditable trail for all product security events, including battery backup life for anti-tampering and log functions. Non-reprogrammable firmware prevents the ability to tamper with product logic.

Always-on, active anti-tamper system

Active anti-tampering system prevents malicious insertion of hardware implant such as wireless key-logger inside product enclosure.. Any anti-tampering attempt causes isolation of all computers and peripheral devices rendering product inoperable and showing clear indications of tampering event to user.

Holographic security tamper-evident labels are placed on the enclosure to provide a clear visual indication if product has been opened or compromised.

Metal enclosure is designed to resist mechanical tampering with all microcontrollers protected against firmware-read, modification and rewrite.

Duplicate Output Displays

The Mini Matrix allows the user to duplicate the output displays making it easy to project various sources in secure meeting rooms

OVERVIEW

Main Features (Cont.)

DVI-I and HDMI Video Support

The Switches support varied video inputs of DVI-I and HDMI. DVI model supports HDMI and VGA via compatible cables.

VDT Switching

VDT enables easy switching of keyboard and mouse by moving mouse based on 4 possible presets for monitor positioning.

Resolutions Supported

Switches support video resolutions of up to 4K-2K Ultra HD (3840 X 2160 pixels).

Audio Switching

Allows you to share speakers and headphones between computers.

Toggle Audio feature

Front panel Toggle Audio button enables to leave audio in a specific channel.

Filtered USB (DPP) feature (applicable models)

DPP feature enables to connect authorized USB devices to product. Product is designed with complete isolation between DPP data, such as user authentication smart card reader data, and all other product traffic.

The DPP feature can be managed via Configurable Device Filtering (CDF) mechanism with configuration permissions limited to authenticated administrators. For more details please refer to the "DPP Configuration Manual".

"Freeze DPP" feature

Dedicated "Freeze DPP" slider on front panel enables to lock this function to a specific channel. When locked, switching channels will not affect processes performed by the USB device connected to the locked channel.

OVERVIEW

Tamper Evident Labels

Product uses holographic tamper evident labels to provide visual indications in case of an enclosure intrusion attempt. When opening product packaging inspect the tampering evident labels.

Vertiv Tamper Evident Label

If for any reason one or more tamper-evident label is missing, appears disrupted, or looks different than the example shown here, please call Technical Support and avoid using that product.

Active Anti-Tampering System

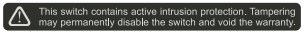
Product is equipped with always-on active anti-tampering system. If mechanical intrusion is detected by this system, the Product will be permanently disabled and all LEDs will blink continuously.

If product indicates "tampered state" (all LEDs blinking) – please call Technical Support and avoid using that product.

Vertiv Tamper Evident Label

Product Enclosure Warning Label

Product has the following warning sticker on a prominent location on the product enclosure:



Vertiv Tamper Warning Label

OVERVIEW

Equipment Requirements

Cables

It is highly recommended to use Vertiv Cable Kits for product to ensure optimal security and performance.

One Cable Kit is required per connected computer.

Operating Systems

Product is compatible with devices running on the following operating systems:

- Microsoft® Windows®
- Red Hat®, Ubuntu® and other Linux® platforms
- Mac OS® X v10.3 and higher.

USB Keyboard console port

The product console USB keyboard port is compatible with Standard USB keyboards.

Notes:

a. Console USB keyboard and mouse ports are switchable, i.e. you can connect keyboard to mouse port and vice versa. However, for optimal operation it is recommended to connect USB keyboard to console USB keyboard port and USB mouse to console USB mouse port.

b. For security reasons products do not support wireless keyboards. In any case do not connect wireless keyboard to product.

c. Non-standard keyboards, such as keyboards with integrated USB hubs and other USB-integrated devices, may not be fully supported due to security policy. If they are supported, only classical keyboard (HID) operation will be functional. It is recommended to use standard USB keyboards.

OVERVIEW

USB Mouse console port

The product console USB mouse port is compatible with standard USB mice.

Notes:

a. Console USB keyboard and mouse ports are switchable, i.e. you can connect keyboard to mouse port and vice versa. However, for optimal operation it is recommended to connect USB keyboard to console USB keyboard port and USB mouse to console USB mouse port.

b. Console USB mouse port supports Standard KVM Extender composite device having a keyboard/mouse functions.

c. For security reasons products do not support wireless mice. In any case do not connect wireless mouse to product.

PS/2 Mouse and Keyboard console ports

The product console PS/2 keyboard and mouse ports are compatible with standard PS/2 keyboards and mice.

User Display

The Switch console video port is compatible with the following types of displays:

- Cybex SCM145 supports DVI-I displays as well as VGA and HDMI via compatible cables.
- Cybex SCM145H supports HDMI displays.

User Audio Devices

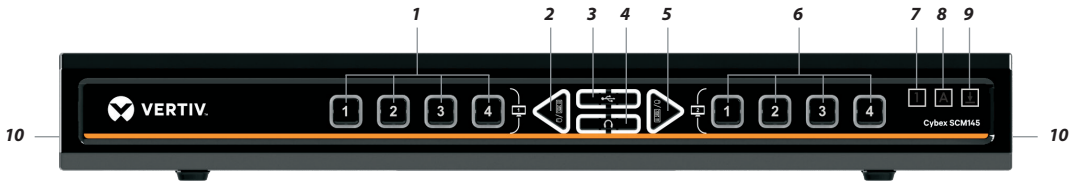
Product is compatible with the following types of user audio devices:

- Stereo headphones;
- Amplified stereo speakers.

Note: In any case do not connect a microphone to product audio output port including headsets.

OVERVIEW

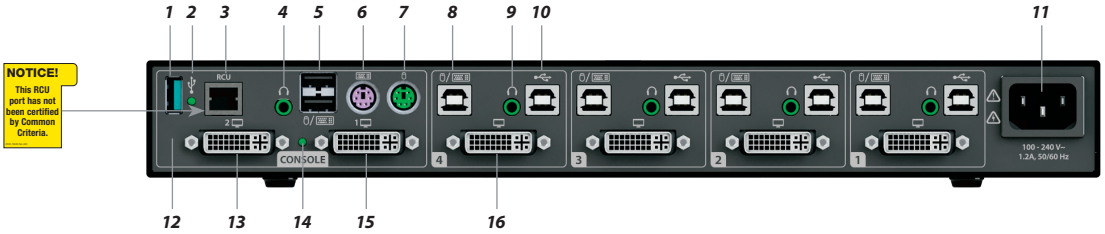
Features – Cybex SCM145/Cybex SCM145H Front Panel



1	No. 1-4 Computer No. 1 display Push-Button and LED	**7**	Num Lock LED
2	Keyboard and Mouse toggle and LED	**8**	Caps Lock LED
3	DPP Freeze toggle and LED	**9**	Scroll Lock LED
4	Audio Freeze toggle and LED	**10**	Tamper Evident Labels
5	Keyboard and Mouse toggle and LED		
6	No. 1-4 Computer No. 2 display Push-Button and LED		

OVERVIEW

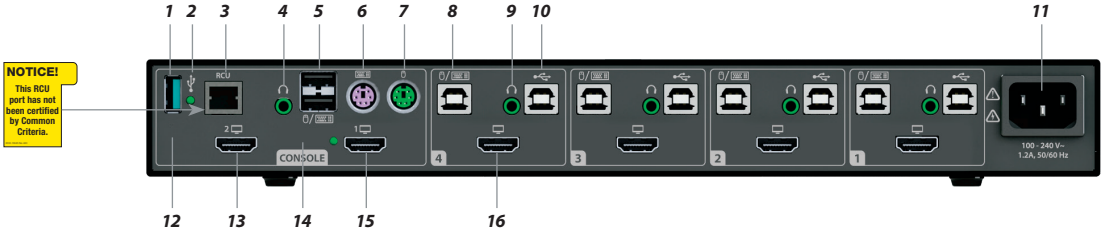
Features – Cybex SCM145 Rear Panel



1 DPP console jack
2 DPP LED
3 Remote control (non-operative, for future use)
4 Audio Output Jack
5 USB Console Keyboard and Mouse Jack
6 PS/2 Keyboard Jack
7 PS/2 Mouse Jack
8 Keyboard and Mouse Input Jack - Computer #4
9 Audio Input Jack - Computer #4
10 USB Jack - Computer #4
11 Power Input Jack
12 Restore to default
13 User Display #2 output DVI-I video jack
14 User Display #1 status LED
15 User Display #1 output DVI-I video jack
16 No. 4 computer display DVI-I video input jack

OVERVIEW

Features – Cybex SCM145H Rear Panel



1 DPP console jack
2 DPP LED
3 Remote control (non-operative, for future use)
4 Audio Output Jack
5 USB Console Keyboard and Mouse Jack
6 PS/2 Keyboard Jack
7 PS/2 Mouse Jack
8 Keyboard and Mouse Input Jack - Computer #4
9 Audio Input Jack - Computer #4
10 USB Jack - Computer #4
11 Power Input Jack
12 Restore to default
13 User Display #2 output HDMI video jack
14 User Display #1 status LED
15 User Display #1 output HDMI video jack
16 No. 4 computer display HDMI video input jack

OVERVIEW

Product Specifications

Enclosure	Metal enclosure
Power Requirements	35W internal
AC Input	100 to 240VAC
No. of Secure Channels	4
No. of Users Supported	2
Displays Supported	**Cybex SCM145:** DVI-I DIsplays (Supports HDMI and VGA via compatible cables) **Cybex SCM145H:** HDMI DIsplays
Resolution Support	**Cybex SCM145** supports up to HD resolutions (1920 X 1200 pixels). **Cybex SCM145H** supports up to 4K-2K Ultra HD resolutions (3840 X 2160 pixels).
Console Keyboard Input	USB Type-A female connector or PS/2 Mini-DIN 6 pin female connector
Console Mouse Input	USB Type-A female connector or PS/2 Mini-DIN 6 pin female connector
Console DPP Input	USB Type A
Console Display Port	**Cybex SCM145:** 2 x DVI-I female connectors **Cybex SCM145H:** 2 x HDMI female connectors
Console Audio Out	1/8" (3.5mm) stereo jack
CPU Keyboard/Mouse Ports	USB Type-B jack

CPU DPP Ports	USB Type-B jack
CPU Audio Input	1/8" (3.5mm) stereo jack
Front Panel indicators	CAPS LOCK, NUM LOCK, SCL LOCK Freeze audio and Freeze DPP controls
CPU Video Input Port	**Cybex SCM145:** DVI-I female connector **Cybex SCM145H:** HDMI female connector
Operating Temp	32° to 104° F (0° to 40° C)
Storage Temp	-4° to 140° F (-20° to 60° C)
Humidity	0-80% RH, non-condensing
Warranty	2 years
Product design life-cycle	10 years

INSTALLATION

Before Installation

Unpacking the Product

Before opening the product packaging, inspect the packaging condition to assure that product was not damaged during delivery.

When opening the package, inspect that the product Tamper Evident Labels are intact.

Important:

1. If the unit's enclosure appears disrupted or if all channel-select LEDs flash continuously, please remove product from service immediately and contact Technical Support at: http://www.VertivCo.com
2. Do not connect product to computing devices:
   a. That are TEMPEST computers;
   b. That include telecommunication equipment;
   c. That include frame grabber video cards
   d. That include special audio processing cards.

Where to locate the Product?

The enclosure of the product is designed for desktop or under the table configurations. An optional Mount Kit is available.

Product must be located in a secure and well protected environment to prevent potential attacker access.

Consider the following when deciding where to place product:

- Product front panel must be visible to the user at all times.
- The location of the computers in relation to the product and the length of available cables (typically 1.8 m)

Warning: Avoid placing cables near fluorescent lights, air-conditioning equipment, RF equipment or machines that create electrical noise (e.g., vacuum cleaners).

Installation

Step 1 – Connecting devices to product console

Product requires connection of all devices and computers prior to powering it up.

Note: some devices such as user display would not be recognized if connected after product is already powered up.

See figures above for connector locations.

- Connect user display. Mark which display is coupled with which computer. It is also recommended to mark which computer is coupled with which channel.
- Connect user keyboard and mouse to console keyboard and mouse ports.
- Connect headphones/speakers to console audio out port (optional).
- If the computer uses a smart card reader/USB device, connect the smart card reader/USB device to the console DPP port (optional, model pending).

Notes:

1. Console USB keyboard and mouse ports are switchable, i.e. you can connect keyboard to mouse port and vice versa. However, for optimal operation it is recommended to connect USB keyboard to console USB keyboard port and USB mouse to console USB mouse port.
2. For security reasons products do not support wireless keyboards. In any case do not connect wireless keyboard to product.
3. Non-standard keyboards, such as keyboards with integrated USB hubs and other USB-integrated devices, may not be fully supported due to security policy. If they are supported, only classical keyboard (HID) operation will be functional. It is recommended to use standard USB keyboards.
4. Console USB mouse port supports Standard KVM Extender composite device having a keyboard/mouse functions.

INSTALLATION

Step 2 – Connecting the Computers

- Using USB cables, connect each computer to the USB type B port in "computer interface ports" area on product.
- If computer uses audio output, e.g. speakers/headphones, connect audio cable from its audio output port to the corresponding audio input port on product.
- If the computer uses a smart card reader/USB device, connect a USB cable between the DPP-enabled computer and the corresponding DPP port on product.

Note:

1. If the number of product channels is larger than the number of sources used, make sure the computers are connected in a row starting from computer #1. For example, if there are 3 channels used, connect computers to channels #1, #2 and then #3.
2. The USB cable must be connected directly to a free USB port on the computer, with no USB hubs or other devices in between.

Step 3 – Power up

- Connect AC power cord.
- Power up user display/s. Select through display setup menu the appropriate video input if applicable.
- Power up the connected computers.
- Power up the product.

When you power up your computers, the product emulates display, mouse and keyboard on each port and allows your computers to boot normally. You should be able to move the mouse cursor on the primary display connected to computer #1.

Check to see that the keyboard and mouse are working properly on each computer.

Repeat this check with all occupied ports to verify that all computers are connected and responding correctly.

If you encounter an error, check your cable connections for that computer and reboot. If the problem persists, please refer to the Troubleshooting section in this User Manual.

INSTALLATION

Step 4 – DPP Installation (applicable models)

In case computer and product support DPP functionality, such as user authentication smart card reader, do the following:

1. Connect USB device, such as smart card reader, to DPP port on product console
2. Connect DPP input port on product to any free USB port on computer using a USB cable.Note: Do not connect the USB cable if DPP functionality is not needed for that computer.

If only some of the computers use DPP functionality, such as user authentication, make sure that computer #1 is connected to the USB device. If needed, switch channels/computer mapping to create this configuration.

When product is powered ON and connected USB device is qualified and ready for use, the DPP status LED will illuminate steady green.

In case the connected USB device cannot be detected by the secure product, the DPP status LED will not illuminate at all.

The USB device will be detected only if it is fully compliant with USB 1.1 or USB 2.0 standard and is included in the list of recognized USB devices defined by the administrator when configuring DPP functionality.

Possible reasons for USB device not being detected:

- Non-standard USB device
- Device only operating in USB 3.0 mode
- Failed USB Device

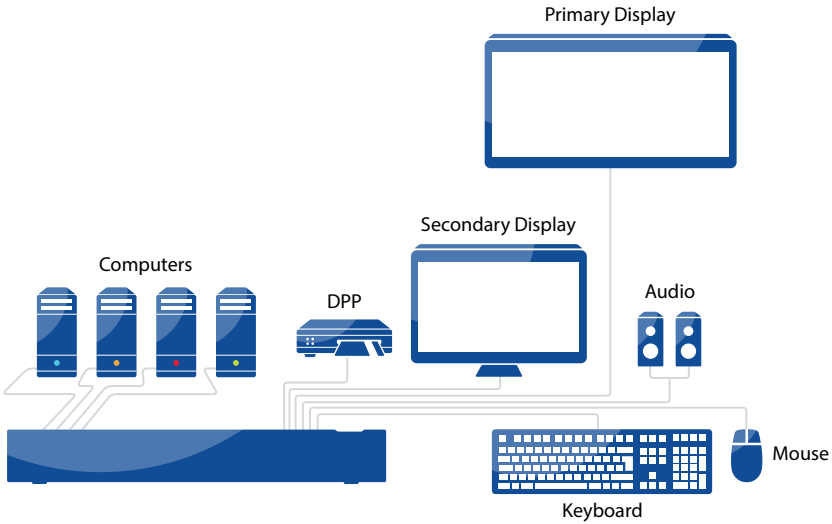
In this case you will have to use a different USB device.

If the device is detected but is not authorized, the device will be rejected for security reasons. This will be indicated by DPP status LED flashing green.

Smart card readers and CACs are included in the authorized USB devices list by default.

INSTALLATION

Typical system installation diagram Cybex SCM145/Cybex SCM145H



Operation

Now that you have connected your console and computers to the Mini-Matrix, it is ready for use. By default computer #1 is projected on display #1 and computer #2 is projected on display 2. Keyboard, mouse and audio are mapped to computer #1.

To change the projected display you can use the physical push buttons.

Note: The Secure KVM Mini-Matrix does not have a power switch. It is highly recommended that the product will be powered continuously.

Note: Keyboard, Mouse and Audio will always be mapped to one of the projected channels. If it was mapped to a channel which is no longer displayed it will automatically be switched to the lowest channel # currently projected. For example, if channel 1 and 2 are projected and mouse and keyboard are mapped to channel 2. Once the user will choose to project channel 1 instead of channel 2, mouse and keyboard will automatically be mapped to channel 1.

To change the mapping of the keyboard, mouse and audio between active channels use the push buttons on the switch.

Notes:
1. Keyboard shortcut keys are to be pressed sequentially
2. CTRL key refers to **LEFT CTRL** key.

Operating the KVM Switch

1. Self-Test Procedure:

As product powers-up it performs a self-test procedure. In case of self- test failure for any reason, including jammed buttons, the product will be Inoperable. Self-test failure will be indicated by the following abnormal LED behavior:

- All channel-select LEDs will be turned ON and then OFF;
- A specific, predefined LED combination will be turned ON;
- The predefined LED combination will indicate the problem type (jammed buttons, firmware integrity).

Try to power cycle product. If problem persists please contact your system administrator or technical support.

Now that product, computers and peripherals are connected and powered up, it is ready for use.

2. Default Channel

After product boots up, blue LEDs stripe will illuminate and the default active channel will be channel #1. This will be indicated by white color illumination of push-button #1.

OPERATION

3. Product Mapping to Sources

Product mapping to sources is indicated by stickers/labels specifying which channel is mapped to which computer.

4. Front Panel Push-Buttons

Following power up, the default channel is #1.

The user can select any other channel by pressing the appropriate front panel push button.

The mouse cursor will be positioned at the center of the selected computer display. If computer is connected to multiple displays, the cursor will be positioned at the center of the primary display.

The currently selected channel is indicated by white color illumination of the appropriate push-button.

Once a different channel is selected – video, keyboard, mouse, audio and DPP functions follow selected channel, unless Freeze DPP function has been activated (see below for details).

5. DPP Port (applicable models)

The product is equipped with DPP port enabling connectivity to external USB-devices such as smartcard reader.

The filtered USB function (DPP) enables to control which USB devices will be operative when connected to product.

For more details on configuration options, please refer to the "DPP Configuration Manual".

Summary of rules that apply to DPP switching:

It is assumed that a "connected channel" is when:

1. Product is powered ON
2. The USB device connected to product console is qualified and ready for use, as indicated by the DPP status LED illuminating steady green.
3. The channel DPP port on product is connected via USB cable to a USB port on computer.
   - When the USB device connected to the DPP console port is qualified, the DPP status LED on the front panel would illuminate steady green.
     - When connecting a USB device that is not qualified or rejected for security reasons to the product's DPP port, the DPP LED will flash green and USB device will be inoperable. In such case the USB device must be replaced with a qualified device.
     - When connecting a USB device to the product's DPP port that is undetectable for any reason (e.g. failed device, non-standard device etc.), the DPP LED will not illuminate at all and USB device will be inoperable. In such case the USB device must be replaced with a qualified device.
   - Since channel #1 is the default active channel after power up and in case only some of the channels operate with a USB device, it is recommended to make sure computer #1 is connected to USB device.
   - Once the user switches channels, for example to channel #3, DPP functionality will move to computer #3 and be indicated by channel #3 DPP LED turning steady green.
   - In case user switches to a channel that is not connected to a USB device, the previous USB connection will be terminated and no new connection will be established.

OPERATION

- In case "Freeze DPP" slider was moved to activate DPP function for computer #1, for example, switching to a different channel would keep DPP function locked to channel #1. To release "Freeze DPP" function from channel #1, the user will need to move the "Freeze DPP" slider again to its original position. The release will be indicated by the channel #1 DPP LED being turned off.
  - In case Restore-to-Default was performed while "Freeze DPP" slider was activated on a specific channel, after boot up this function will be locked to computer #1.

6. Using "DPP Freeze" feature

Move the "DPP Freeze" slider to lock DPP function to a specific channel. The DPP status LED will indicate that this option has been activated and to which channel the DPP function is locked to at the moment. This means that switching channels would not affect the processes performed by the USB device connected to that channel.

7. Using "Audio Freeze" feature

Press audio toggle button to lock Audio function to a specific channel. The LED will indicate this option has been activated and to which channel the Audio is locked to at the moment. This means that switching channels would leave Audio active on current channel.

8. Keyboard Status Indication

In order to enhance usability, product provides keyboard status indications via dedicated LEDs located on product front panel. To maintain the required unidirectional connectivity between keyboard and product, these indication are not given on the keyboard itself as done with non-secure products

The keyboard status indications are given via 3 LEDs on the front panel of the product:

- CL – CAPS Lock
- SL – SCROLL Lock
- NL – NUM Lock

The indications behave the same as the LEDs on the keyboard as if it was connected directly to computer.

Switching from channel to channel may change the status of the LEDs based on the current settings on the computer connected to the active channel.

OPERATION

9. VDT

It is also possible to switch mouse and keyboard between active channels using mouse movement. Dragging the mouse curser from one display to another will make the curser disappear from source display (computer) and appear in target display (computer) in exactly the same relative location.

By default VDT is disabled. To enable or disable VDT use the following key combination:

CTRL, CTRL, F11, v

Once enabled it is essential that the displays are positioned in a correct way. The following presets exist on the Mini-matrix:

CTRL, CTRL, F11, f (default)

CTRL, CTRL, F11, f

TROUBLESHOOTING

Troubleshooting Guide

Important Security Note:

If you are aware of potential security vulnerability while installing or operating this product, we encourage you to contact us immediately in one of the following ways:

- Email: **Secure@VertivCo.com**
- Tel: **+1-888-793-8763**

Important: If the unit's enclosure appears disrupted or if all LEDs flash continuously, please remove product from service immediately and contact Technical Support at **www.VertivCo.com**

Important: This product is equipped with always-on active anti-tampering system. Any attempt to open the product enclosure will activate the anti-tamper triggers and render the unit inoperable and warranty void.

General

As product powers-up all channel-select LEDs are turned ON and then OFF. After that a specific, predefined LED combination is turned ON. Product is inoperable.

- The product did not pass self-test procedure. Try to power cycle product. If problem persists please contact your system administrator or our technical support.

No power - No video output, none of the front panel LEDs are illuminating.

- Check AC power cable connection to make sure product receives power properly. Replace cable if needed. If problem persists, contact your system administrator or our technical support.

Product enclosure appears disrupted or all channel-select LEDs flash continuously.

- The product may have been tampered with. Please remove product from service immediately and contact Technical Support.

TROUBLESHOOTING

Keyboard

Mouse and keyboard are not working (two channels)

- Check that computer USB and video cables are not crossed i.e. computer #1 video is connected to channel #1 while USB keyboard and mouse cables are connected to channel #2.

Keyboard does not work (all channels)

- Check that the keyboard you are using is properly connected to product.
- Check that the USB cable between the product and computer is properly connected.
- Try connecting keyboard to a different USB port on computer.
- Make sure the keyboard works when directly connected to computer, i.e. the HID USB driver is installed on computer; this may require computer reboot.
- It is recommended to use standard USB keyboards and not a keyboard with an integrated USB hub or other USB-integrated devices.
- If the computer is coming out of standby mode, allow up to one minute to regain mouse function.
- Try a different keyboard.
- Do not use a wireless keyboard.

Mouse

Mouse and keyboard are not working (two channels)

- Check that computer USB and video cables are not crossed i.e. computer #1 video is connected to channel #1 while USB keyboard and mouse cables are connected to channel #2.

Mouse does not work (all channels)

- Check that the mouse you are using is properly connected to product.
- Check that USB cable between the product and computer is properly connected.
- Try connecting mouse to a different USB port on computer.
- Make sure the mouse works when directly connected to computer, i.e. the HID USB driver is installed on computer; this may require computer reboot.
- It is recommended to use standard USB mice.
- If the computer is coming out of standby mode, allow up to one minute to regain mouse function.
- Try a different mouse.
- Do not use a wireless mouse.

Both keyboard and mouse are not working (one channel)

- Use computer Device Manager Utility to see product and solve problem.

TROUBLESHOOTING

Video

No video image in user display (all channels)

- Check that displays are properly powered.
- Check that video cable is properly secured at both sides.
- Check at the displays' on-screen menu that sources selected match the cables connected to displays.
- Check if display video mode is the same as computer's video mode (e.g. DVI and DVI, etc.).
- Check that displays' diagnostic LED is steady green – if not, change displays, change displays' cables or call technical support.

No video image in user display (specific channel)

- Reboot product first, then disconnect and reconnect the video cable and reboot the computer.
- Check that the video cable connecting computer and product is properly secured at both sides.
- Check that computer video output is sent to the connected video connector (if computer supports multiple displays).
- Check that computer resolution matches connected display capabilities.
- Connect the display/s directly to the computer to confirm that video output is available and that a good image is shown.

Bad video image quality (some or all channels)

- Check that all video cables are properly connected to product, computer, and display.
- Check that cables are original cables supplied by Vertiv.
- With everything connected, power-cycle the product to reset the video. Make sure the Video Diagnostic LED is solid green.
- Check that the displays that you are using support the resolution and refresh-rate setting on computer.
- Lower the video resolution of your computer.
- Connect displays directly to computer showing bad video image to see if problem persists.

TROUBLESHOOTING

DPP

DPP is not working (two channels)

- Check that computer USB and video cables are not crossed i.e. computer #1 video is connected to channel #1 while USB device is connected to channel #2.

DPP is not working (all channels)

- Check that the USB device is properly connected to product console.
- Check that the DPP status LED is steady green. If DPP status LED is not illuminated at all the device is not recognized by the product. If DPP status LED is flashing green device is rejected or non-qualified for security reasons. To resolve please contact your system administrator.

DPP is not working (one channel only)

- Check that device is working properly when connected directly to computer.
- Check that there is a USB cable connected between the computer and the relevant DPP input port on product.

INFORMATION

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