

# HSL KM SWITCHES



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## WHAT IS A KM?

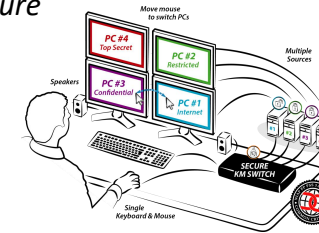
*Review end user's usability challenges in multi-computer environments.  
Explain what is a KM and review the KM benefits*



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## WHAT IS A SECURE KM?

*Overview HSL's secure KM Security and Product Highlights*



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## KM PRODUCT HIGHLIGHTS EXPLAINED

*Secure product highlights explained in detail.*

4

## PRODUCT TABLE AND MAIN MODELS

*Review the differences between models*



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## WHAT IS A KM?

*Review end user's usability challenges in multi-computer environments.*

*Explain what is a KM and review the KM benefits.*





## The Challenge of Working with Multiple Computers

Users who need to see multiple computers displayed - at the same time - like financial traders or a command & control operators, have a problem.

### What problem?

They need to juggle between multiple sets of keyboards and mice - every time they want to change to a different computer.

It's confusing; they're never quite sure if they're switching to the computer they want to control.

If that's not enough, the multiple sets of keyboards and mice take up valuable space on their desktop. Clutter.

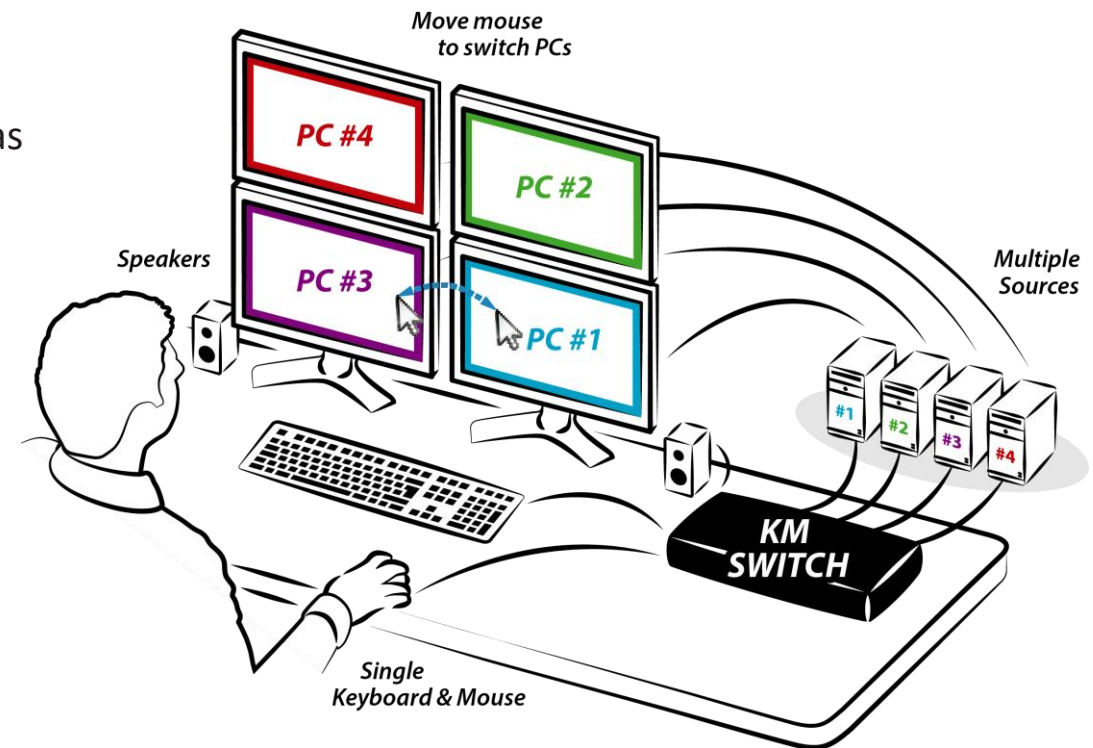


## What is a Keyboard-Mouse (KM) Switch?

A KM switch shares **one** set of peripherals: keyboard, mouse, audio, and USB, between multiple computers. So, now users only need a **single** keyboard and mouse to control **all** their computers.

A KM lets users:

- Clearly view all computers - at the same time - as the displays are directly connected to each computer
- Free up their desktops from the clutter of multiple peripherals



# SMOOTHLY SWITCH BETWEEN COMPUTERS (VIRTUAL DISPLAY TECHNOLOGY)

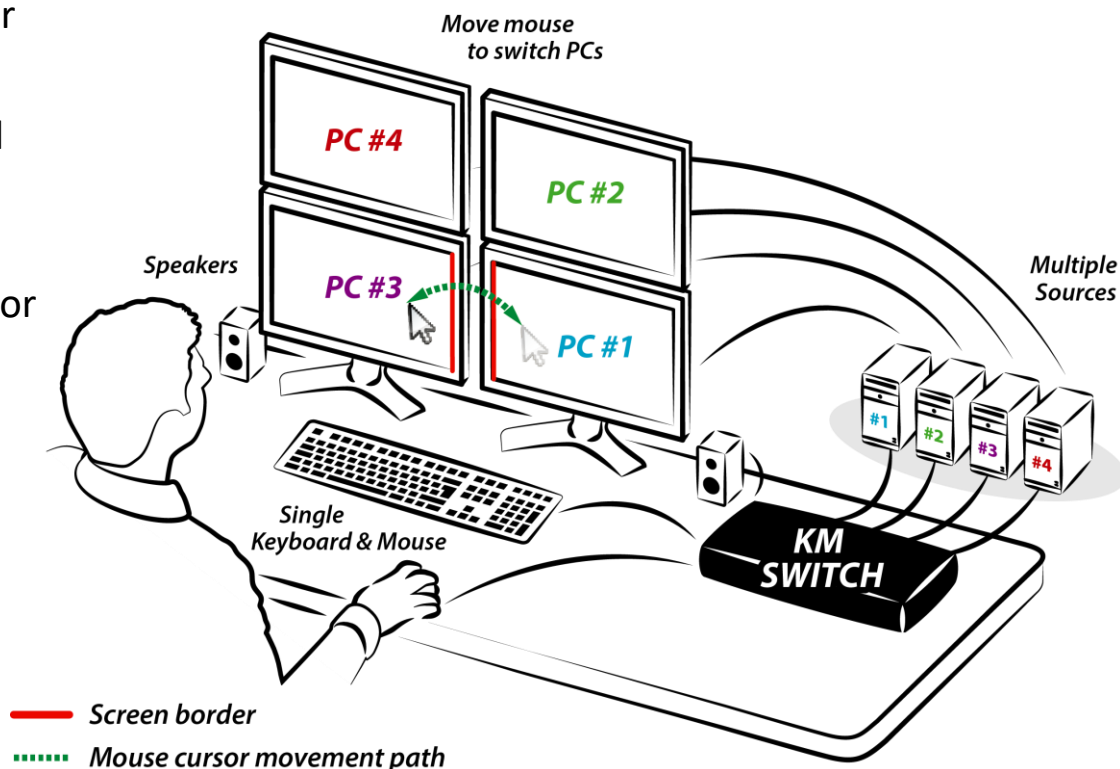
HSL KM SWITCHES

## Intuitively Switch Between Displays

The KM's Virtual Display Technology enables automatically switching: control from one computer to another, by sliding the mouse cursor over the computer's display border.

This eliminates the need to press the front-panel buttons.

The other shared peripherals (keyboard, audio, USB) to the next computer, once the mouse cursor passes the display border.





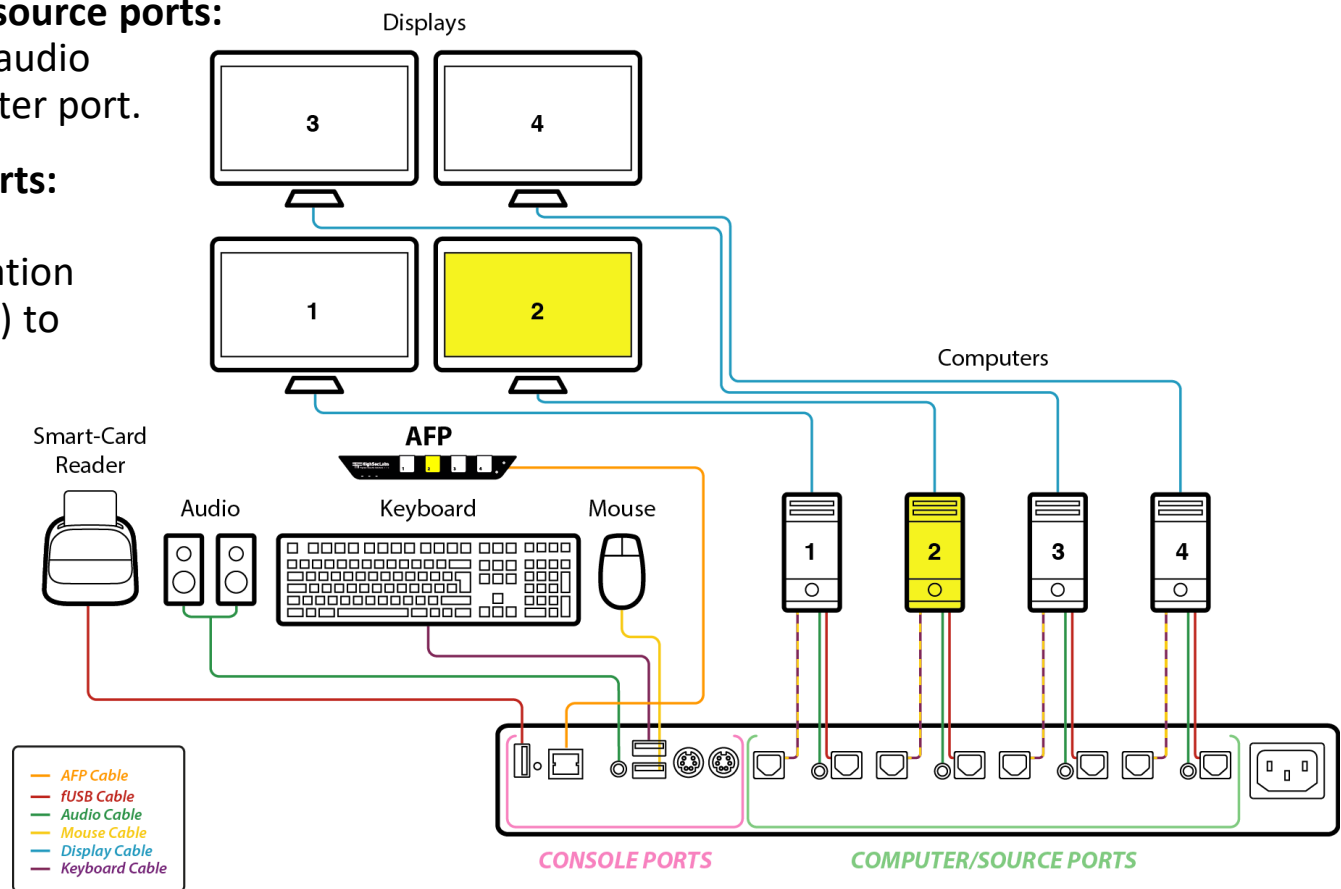
# PRODUCT CONNECTION DIAGRAM

HSL KM SWITCHES

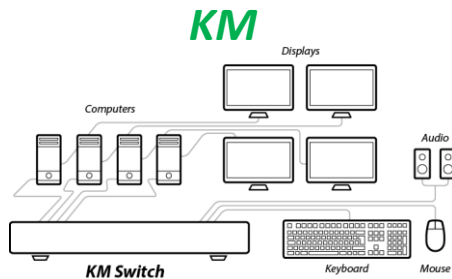
## Simple Set Up

To set up the KM, connect:

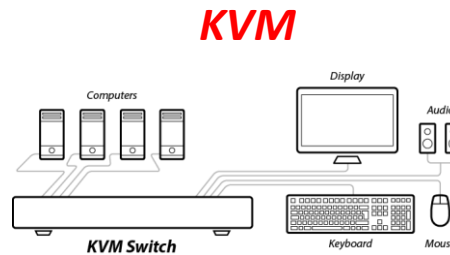
- **Displays directly to each computer's display port.**
- **Computers to the KM's computer/source ports:**  
Connect each computer's USB and audio cables to the corresponding computer port.
- **Peripherals to the KM's console ports:**  
Connect the keyboard, mouse, and speaker/headphone and authentication device (such as a smart-card reader) to their console ports.



# KM vs. KVM vs. MULTIPLE KEYBOARD & MOUSE

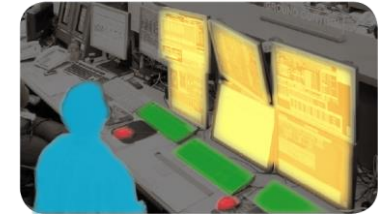


VS



VS

HSL KM SWITCHES  
**Multiple Keyboard & Mouse**



## Feature

**Setup KM**

**Multiple Keyboard & Mouse:** Each source is connected to a different keyboard and mouse set.  
**KM:** Saves valuable desk space by using one set of keyboard and mouse to easily navigate and control multiple sources.



**KBD & M**

**Multiple Keyboard & Mouse:** The user is required to inconveniently switch between multiple keyboard and mouse sets.  
**KM:** Share a single keyboard, mouse, and audio set between all computers. Seamlessly switch from one computer to another by simply moving the mouse cursor across display borders.



**KBD & M**

**KVM:** The user can view and interact with only one computer at a time.  
**KM:** The user can simultaneously view and interact with multiple computers at the same time.



**KVM**

**KVM:** The user is required to inconveniently press KVM buttons to switch between multiple sources  
**KM:** Share a single keyboard, mouse, and audio set between all computers. Seamlessly switch from one computer to another by simply moving the mouse cursor across display borders.



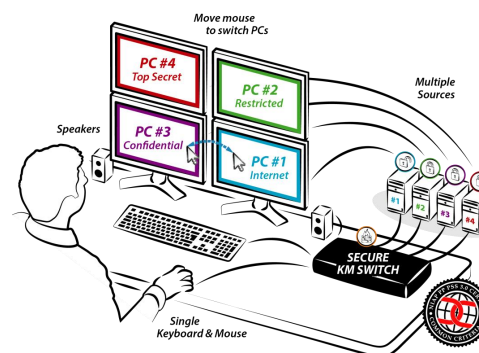
**KVM**



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## WHAT IS A SECURE KM?

*Overview HSL's Secure  
KM Security and  
Product Highlights.*



# THE NEED FOR A SECURE SOLUTION

## HSL KM SWITCHES

## When is a Secure KM Needed?

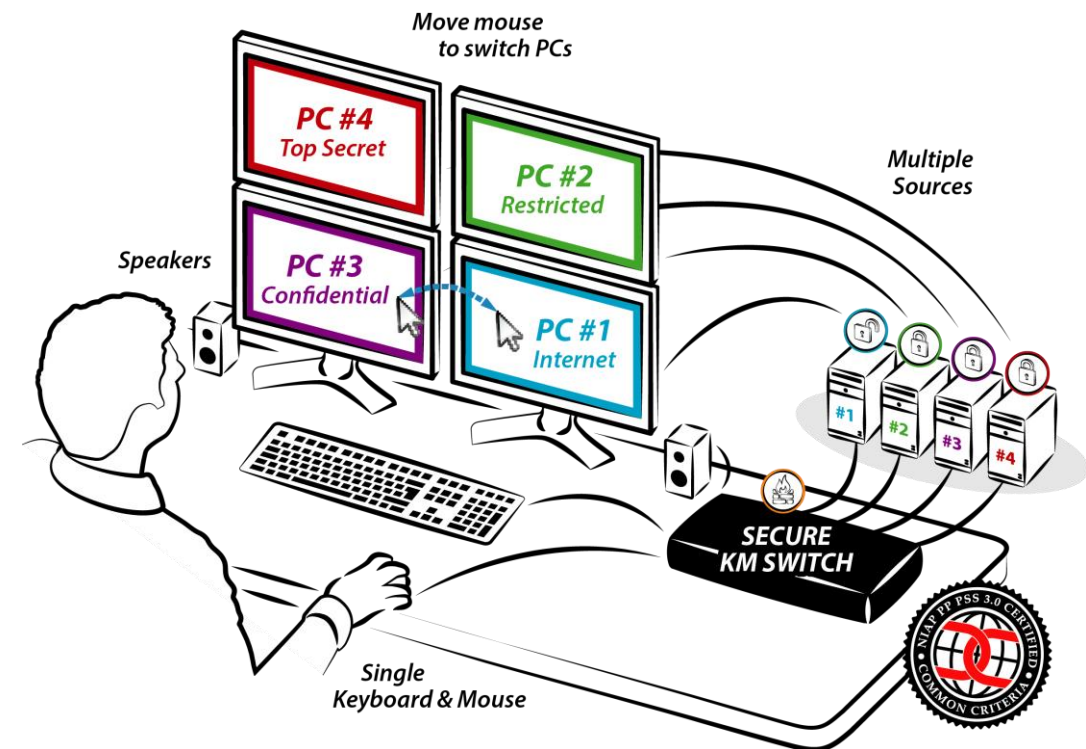
When users who connect multiple computers of different classification networks or to the Internet - through the KM - they are at risk..

Why? Because most computer peripherals have no security mechanisms whatsoever to assure no data leaks between connected computers

So, they're subject to data leakage, signaling attacks, and malicious code attacks by hackers.

The National Information Assurance Partnership (NIAP) provides the official standard for sharing peripherals between computers, while keeping the highest possible data separation security.

And HSL meets the NIAP standard with its **SECURE** line of KM switches that ensure securely sharing peripherals.



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## KM PRODUCT HIGHLIGHTS EXPLAINED

*Product highlights  
explained in detail.*



# LIST OF FEATURES

HSL KM SWITCHES

Feature	Commercial KM	Secure KM
Multiple Display Layouts	✓	✓
Smoothly Switch Between Computers	✓	✓
Bloomberg-Keyboard Support	✓	✓
Copy & Paste	✓	✗
Super Speed USB 3.0 Ports	✓	✗
Freeze Audio	✓	✗
Freeze USB	✓	✗
Secure Peripheral Sharing (NIAP/Common Criteria PP3.0 Certification)	✗	✓
Filter USB (fUSB) Peripherals	✗	✓
Freeze Filtered USB (fUSB)	✗	✓
Avoid Typing Mistakes	✗	✓
Auxiliary Front Panel (optional)	✓	✓

# MULTIPLE DISPLAY LAYOUTS

HSL KM SWITCHES

## Create the Display Layout that Best Meets the User's Needs

The KM supports various display layouts. Users can align the displays in many vertical (on top) and horizontal (alongside) combinations.

The KM supports multi-monitor computers with up to four displays per computer in duplicate or extended modes (Requires driver installation, currently available only for Windows).

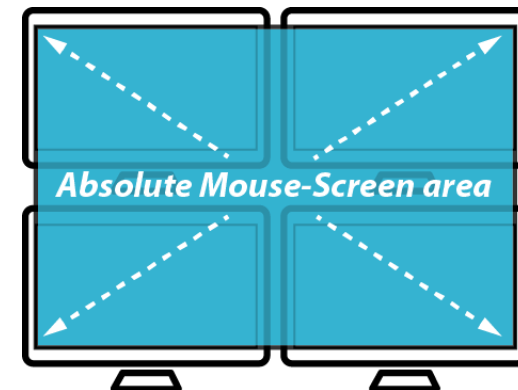
Once reaching the desired layout, set the KM to reflect the specific layout and borders. This causes the KM to:

- Associate the mouse cursor with each computer, based on its respective display position.
- Consider all displays as one absolute screen area to enable Virtual-Display-Technology switching, explained next.

Layout examples:



(8-port only)



# BLOOMBERG-KEYBOARD SUPPORT (FINANCE MARKETS)

## HSL KM SWITCHES

The HSL KM supports a multi-monitor set-up, to access the Bloomberg Professional service.

When using the HSL KM switch connected to a Bloomberg keyboard:

- Standard keyboard functions pass through the KM and are shared between the computers.
- Dedicated functions and special keys, such as: audio, BSAT (Bloomberg Secure Access Technology), LCD, and so on, are operative only on the relevant Bloomberg computer.





## Copy & Paste

The Copy & Paste feature enables:

- Transferring text and files between all the computers that are connected to the KM, through the KM (no network connection is needed between parties).
- Using standard copy-and-paste keyboard key combinations (**Ctrl+c**/**Ctrl+v**) or mouse-context menu commands.



# SUPER SPEED USB 3.0 Ports

## Commercial KM Only

HSL KM SWITCHES

### Fast Data Transfer

Transfer data and files between peripherals and computers in USB 3.0 super-speed rate

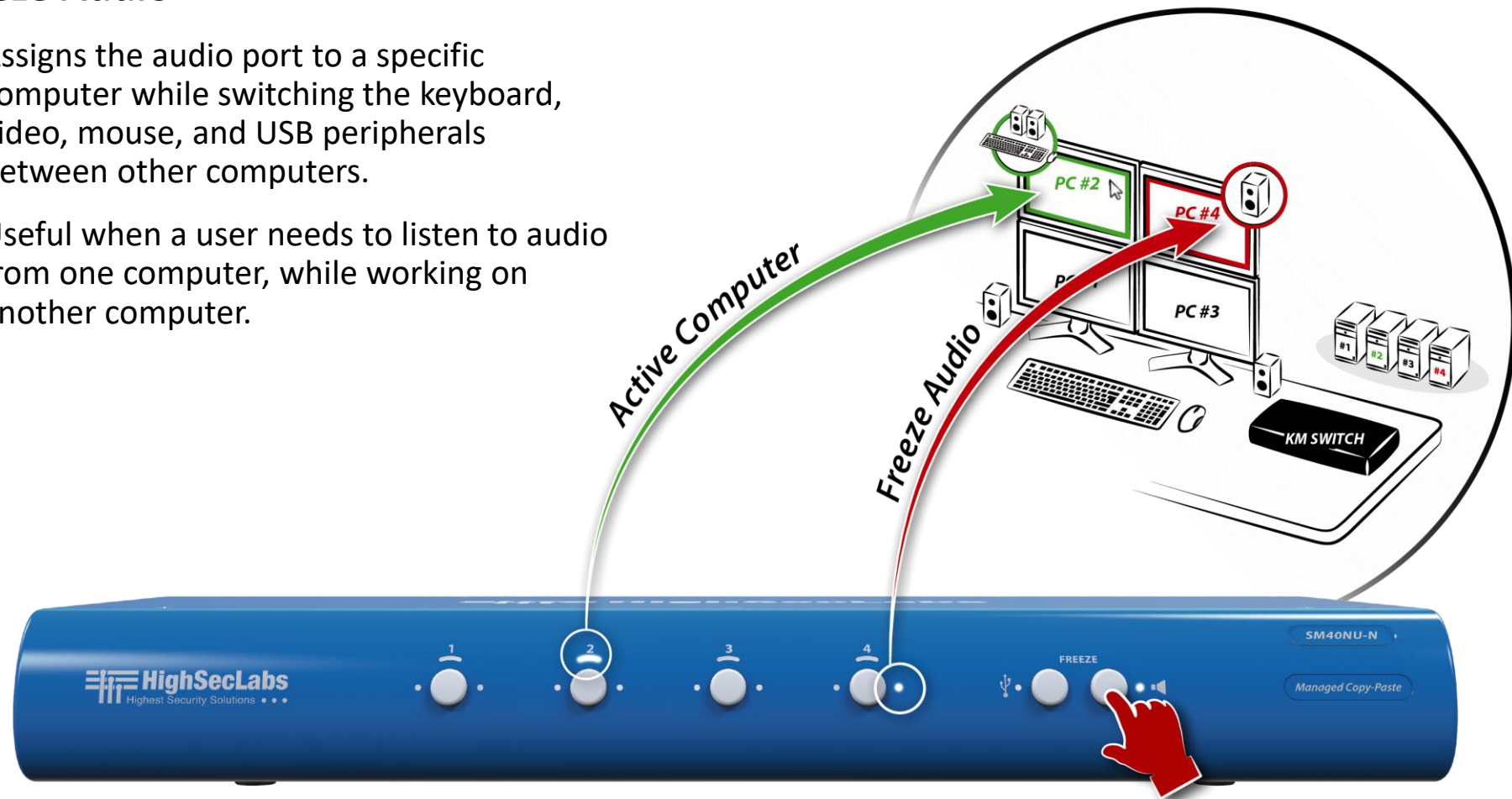


# FREEZE AUDIO - Commercial KM Only

HSL KM SWITCHES

## Freeze Audio

- Assigns the audio port to a specific computer while switching the keyboard, video, mouse, and USB peripherals between other computers.
- Useful when a user needs to listen to audio from one computer, while working on another computer.



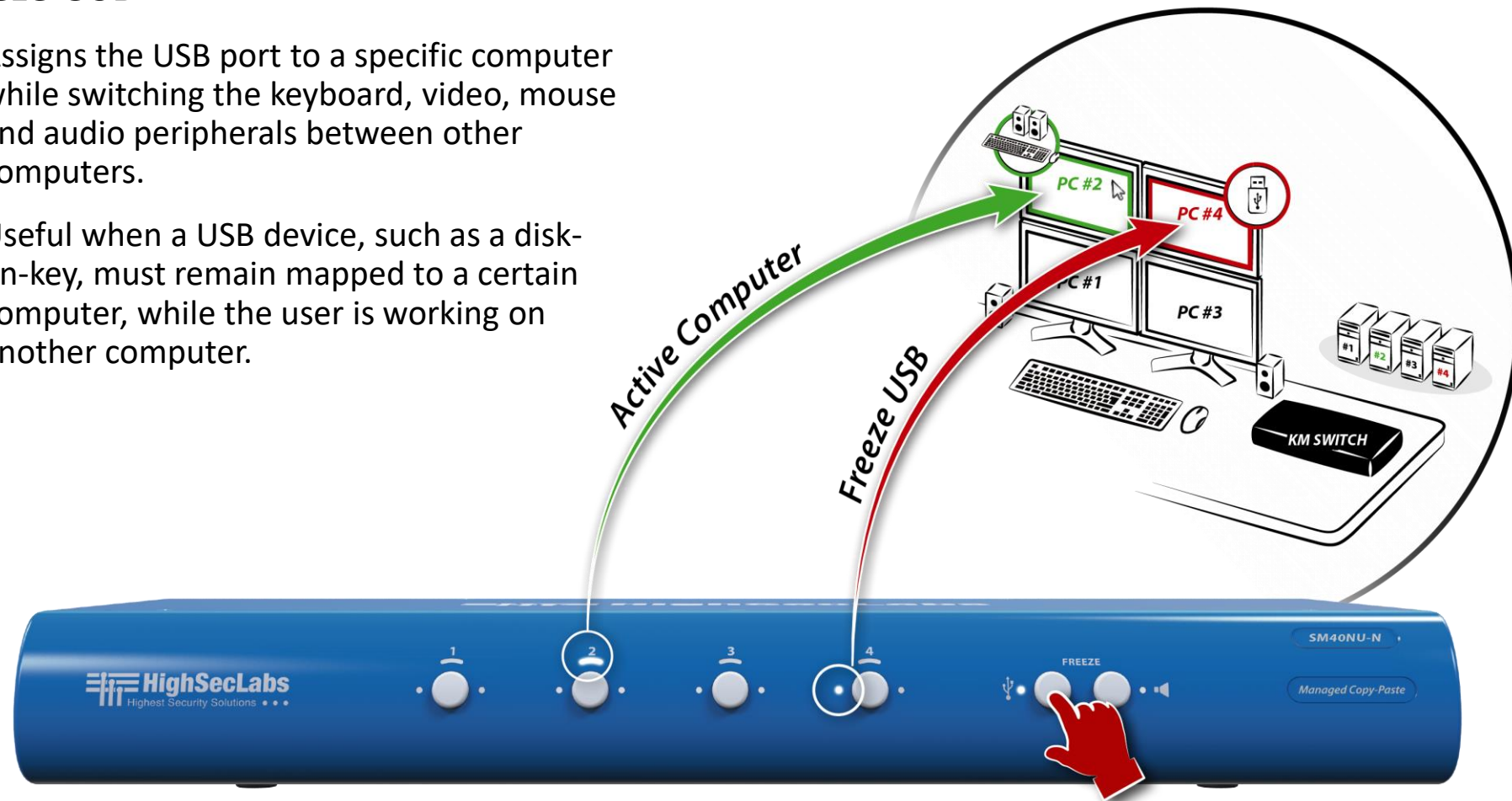


# FREEZE USB - Commercial KM Only

HSL KM SWITCHES

## Freeze USB

- Assigns the USB port to a specific computer while switching the keyboard, video, mouse and audio peripherals between other computers.
- Useful when a USB device, such as a disk-on-key, must remain mapped to a certain computer, while the user is working on another computer.



## Securely Share Peripherals Between Computers of Different Classification Levels

To prevent the risk of sharing peripherals, HSL's line of secure KMs has the following features:

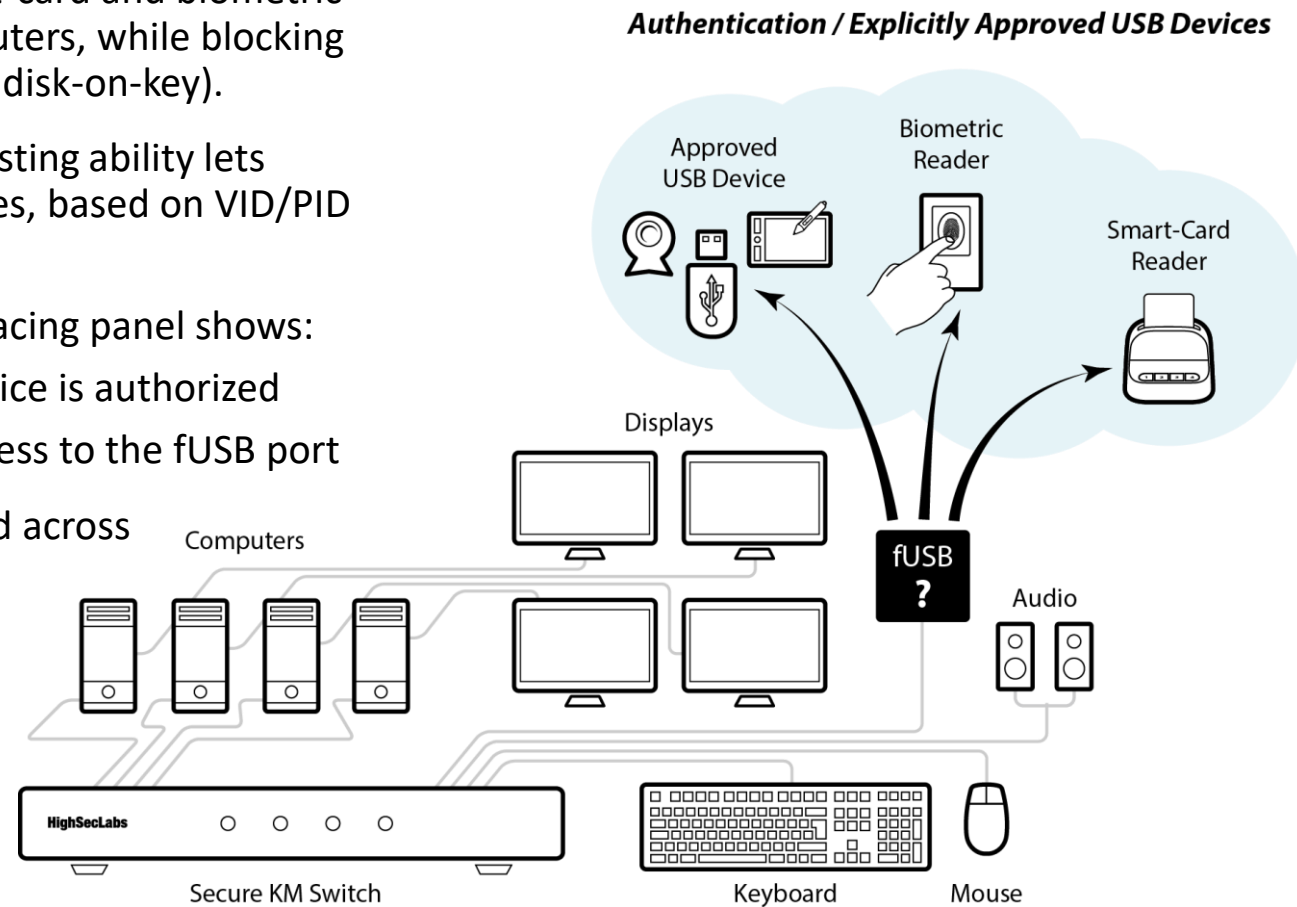
- **NIAP/Common Criteria PP3.0 Certification**  
HSL secure KMs qualify to the latest NIAP Common Criteria Protection Profile version 3.0 (PP3.0) certification for Peripheral Sharing Switch (PSS) devices.
- **Securely share peripherals across different security domains**  
Securely share peripherals between computers that belong to different security classifications levels, while maintaining the highest possible data separation security.
- **Prevent information leaks**  
Block threats derived from sharing and switching of vulnerable, untrusted or unauthorized peripheral devices. Prevent peripheral exploits, information leaks, eavesdropping, signal transmission, computer malware, hardware, and firmware tampering by enforcing multilayered security mechanisms.



## What is a Filtered USB?

A filtered USB (fUSB) is a USB port with configurable device filtering capabilities.

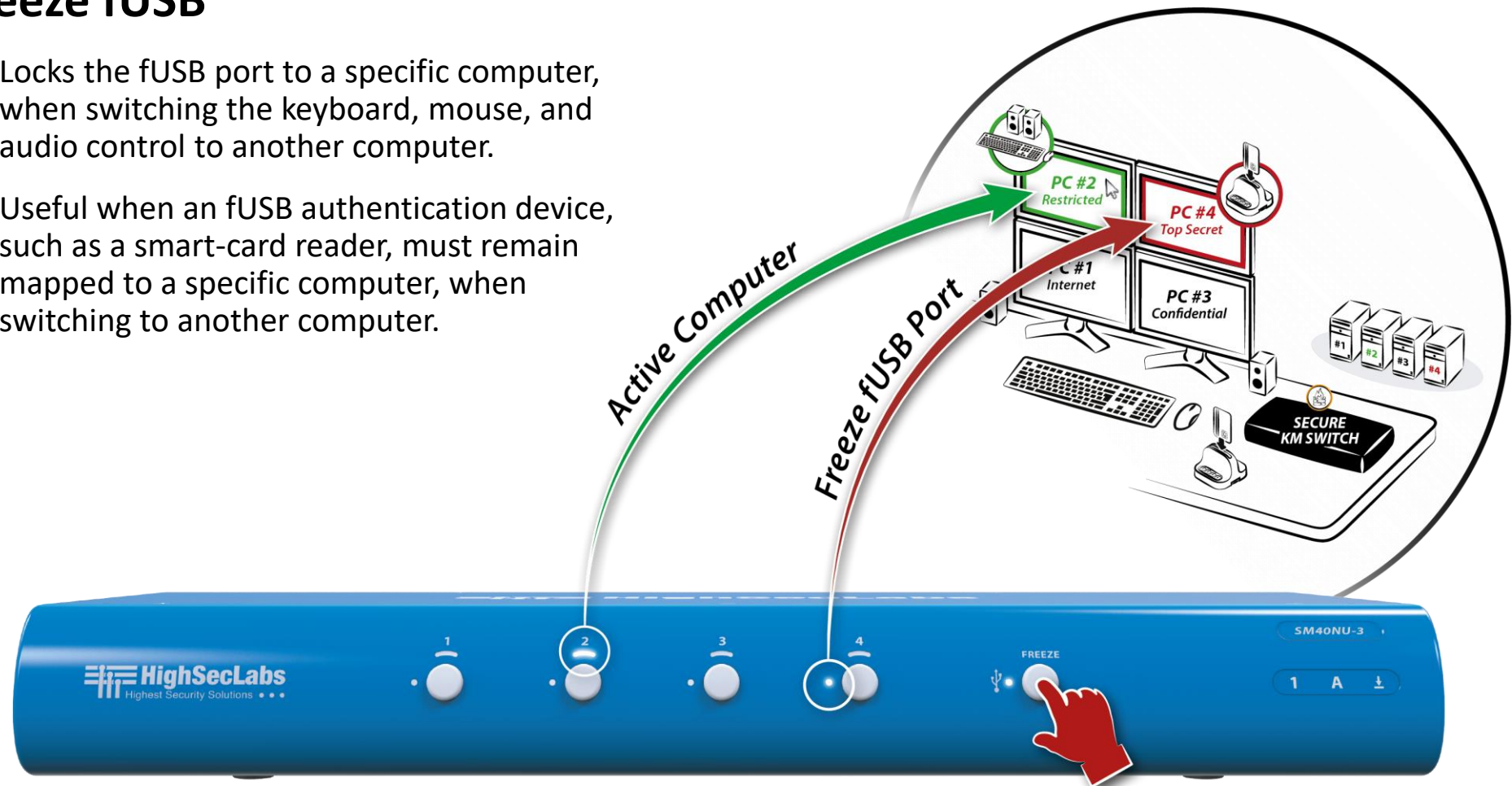
- It allows secure switching of USB smart-card and biometric authentication devices between computers, while blocking other USB devices (such as a malicious disk-on-key).
- Its configurable whitelisting and blacklisting ability lets administrators filter specific USB devices, based on VID/PID characteristics.
- LED indication on the product's front-facing panel shows:
  - Whether the connected USB device is authorized
  - Which computer has current access to the fUSB port
- The fUSB port is automatically switched across computers, once a keyboard, mouse, and audio control are switched.





## Freeze fUSB

- Locks the fUSB port to a specific computer, when switching the keyboard, mouse, and audio control to another computer.
- Useful when an fUSB authentication device, such as a smart-card reader, must remain mapped to a specific computer, when switching to another computer.



## Keyboard-lock LED Indicators

- To prevent data leakage, one-way keyboard-to-computer data flow is enforced through unidirectional optical data diodes. As a result, keyboard lock LEDs do not function.
- Without keyboard lock LED indicators, users might experience occasional typing mistakes. For example, when typing a password while the Caps Lock key is ON.
- To help avoid typing mistakes, LEDs on the product's front-facing panel indicate the status of the keyboard lock keys (Caps Lock | Num Lock | Scroll Lock).
- Each time keyboard and mouse control switches between computers, the LED's status is updated automatically to reflect the state of the lock keys on the currently active computer.



# AUXILIARY FRONT PANEL (Optional)

HSL KM SWITCHES

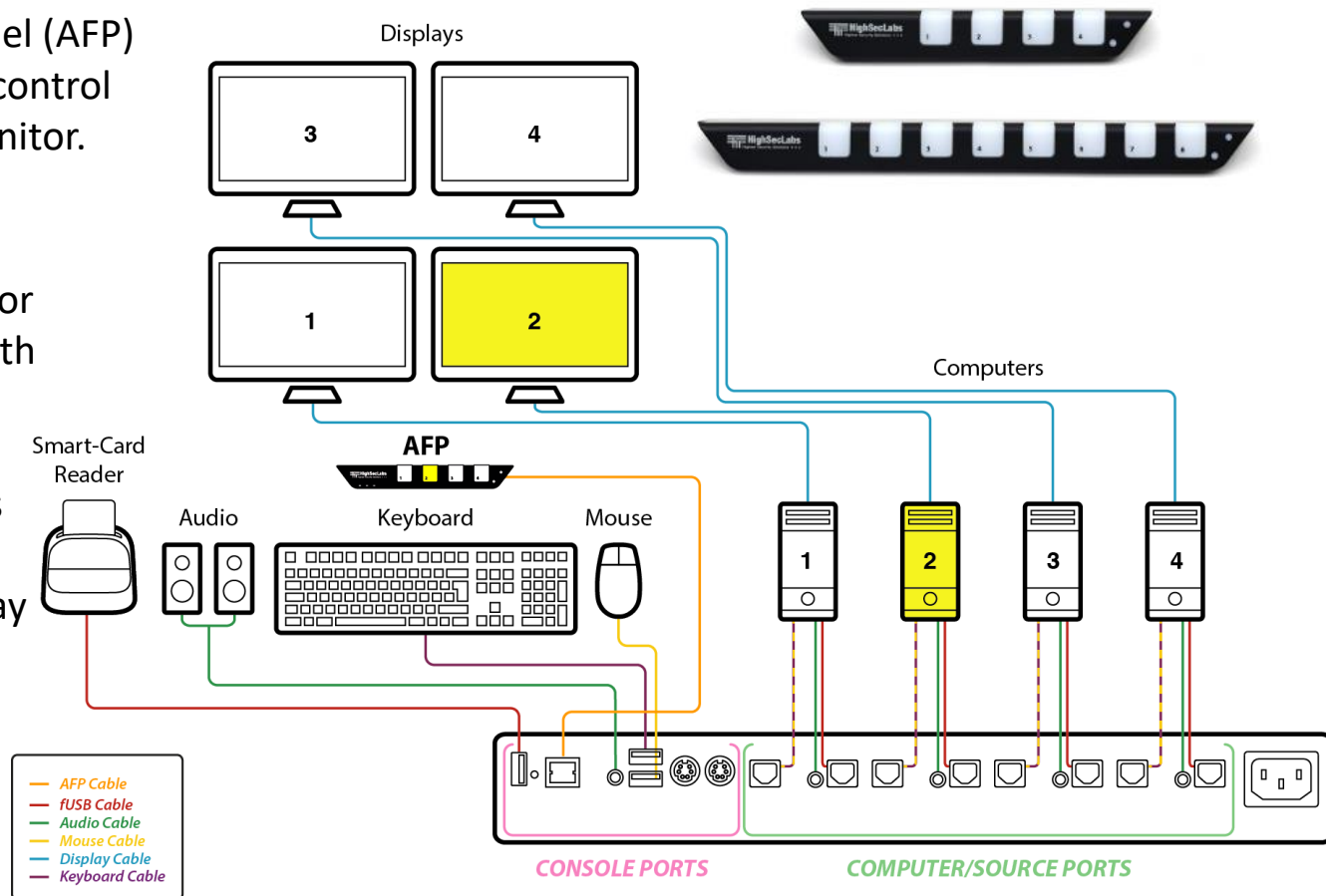
## Auxiliary Front Panel

When the KM is out of reach, such as when installed under a desk or in a cabinet, it causes a problem. The user doesn't have access to the buttons for selecting and viewing the active PCs.

The small, attachable Auxiliary Front Panel (AFP) solves this problem, by providing direct control of the KM, right from the desktop or monitor.

The AFP provides several benefits:

- Push buttons, like those on the KM, for easy channel switching, combined with LEDs that show the active PC
- Dimmer controls that let the user adjust LED light intensity, for changes of ambient light
- Simply mounts on a desktop or display
- Communicates via a standard RS232 protocol for easy and intuitive installation and control





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## PRODUCT TABLE AND MAIN MODELS

*Review the  
differences  
between  
models.*



# KM PRODUCTS LIST TABLE

## Commercial Models

HSL KM SWITCHES

<i>Model</i>	<i>SM20N-N</i>	<i>SM40NU-N</i>	<i>SM80NU-N</i>
<i># of sources (inputs)</i>	2	4	8
<i>Max # of displays supported (Windows OS Only)</i>	8	16	32
<i>Keyboard and mouse ports</i>	USB	USB	USB
<i>USB 3.0 Port</i>	x	USB	USB



# KM PRODUCTS LIST TABLE

## Secure Models

HSL KM SWITCHES

<i>Model</i>	<i>SM20N-3</i>	<i>SM40N-3 SM40NU-3</i>	<i>SM80N-3 SM80NU-3</i>
<i># of sources (inputs)</i>	2	4	8
<i>Max # of displays supported (Windows OS Only)</i>	8	16	32
<i>Keyboard and mouse ports</i>	USB	USB and PS/2	USB
<i>USB Peripheral Port (fUSB)</i>	x	✓ (U)	✓ (U)







THANK YOU

For more information, please visit [www.highseclabs.com](http://www.highseclabs.com)