Secure KVM Isolator User Manual

User Manual

Model covered in this user manual:

HVS100I Secure Isolator: DVI-I Video & Audio

HKS100 Secure Isolator: DVI-I Video, Audio & USB

Rev 1.0

Table of Contents

Record of Revisions

Rev	Date	Description of changes
1.0	August 18, 2015	Initial release

Introduction

Thank you for purchasing this High Sec Labs (HSL) Secure product designed for use in secure defense and intelligence installations.

The product offers safe centralized control, which prevents unintended data transfer between computers and peripherals running at different security levels.

Various users connecting to the same network source via secure and non-secure PCs require the ability to prevent security threats by attaching Isolators to the non-secure PCs.

Additionally, secure meeting rooms require the ability to project various sources with different classification levels to be presented on a single display. Isolators ensure that video, audio and USB data coming from a non-secure source, such as guest laptop, flows in a single direction, preventing security threats.

This User Manual provides all the details you'll need to install and operate your new product, which is NIAP PSS Protection Profile Rev 3.0-certified.

Package contents

Inside product packaging you will find the following:

HSL Secure KVM Isolator

12V/1.5A DC Power Supply

User Manual

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.

If the unit's enclosure appears disrupted or if all the channel-select LEDs flash continuously, please remove product from service immediately and contact HSL Technical Support.

Features

Highest security by design:

designed to support isolation of large KVM matrix and conference room equipment

Hardware Based peripheral protection/isolation:

Absolutely no dependency on firmware or software, unidirectional optical data diodes assuring USB peripherals isolation. Data can flow from devices to host only. No reverse data flow possible by design

Peripherals security:

Full USB devices filtering to assure support for keyboard and mouse only

All firmware is in ROM - Read Only Memory

Analog Audio Data Diode:

Assuring that audio out channel would not be abused to send data back to the computer

Display Plug & Play (EDID) protection:

Leakage prevention through patented emulated technology. Signaling attacks prevented by design. DDC/EDID fully functional

Active anti tampering:

Always-on active anti-tampering with 10 years battery. Special holographic tampering evident labels

Support for wide range of video standards:

DVI-I dual-link interface can be used for VGA, DVI-D and HDMI as well

Tamper Evident Label:

Providing clear visual indication of product was tampered with or opened in any way

Equipment Requirements

Cables

It is highly recommended to use HSL 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. For security reasons products do not support wireless keyboards. In any case do not connect wireless keyboard to product.
b. 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.

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.

Video/Audio Support

- All single-link and Dual-link DVI resolutions up to 2560 x 1600.
- All VGA resolutions up to 2048x1536 [cable/adaptor required].
- HDMI 1.0 support all resolutions up to 1920 x 1200 [cable/converter required].
- Unidirectional audio out over HDMI supported

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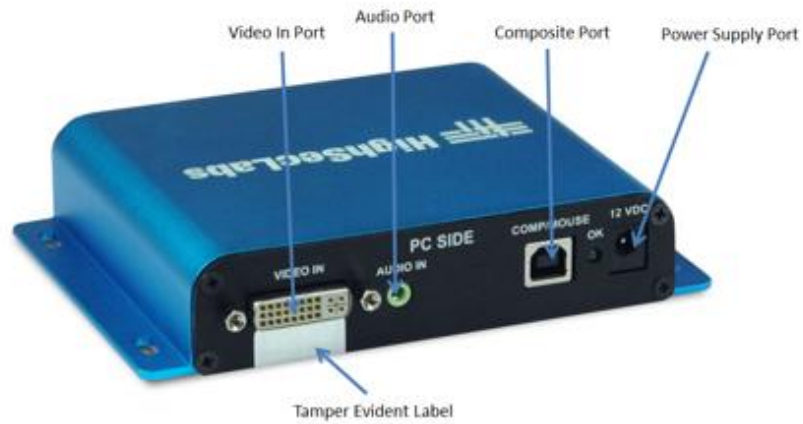
Safety Precautions

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

- Before cleaning, disconnect the product from DC power.

- Be sure not to expose the product to excessive humidity.

- Be sure to install the product on a clean secure surface.

- Do not place the DC power cord in a path of foot traffic.

- If the product is not used for a long period of time, remove the product's wall-mount power supply from the mains jack.

- If one of the following situations occurs, get the product checked by a qualified service technician:

  - The product's power supply is overheated, damaged, broken, causes smoke or shortens the mains power socket.

  - Liquid penetrates the product's case.

  - The product is exposed to excessive moisture or water.

  - 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 has obvious signs of breakage or loose internal parts.

- The product should be stored and used only in temperature and humidity controlled environments as defined in the product's environmental specifications.

- The wall-mount power supply used with this product should be the model supplied by the manufacturer or an approved equivalent provided by HSL or an authorized service provider. The use of improper power source will void product warranty.

Panel Features

Note: HVS100I has the same ports excluding the USB ports

Video In Port • Audio Port • Composite Port • Power Supply Port • PC SIDE • Tamper Evident Label

Mouse Port • KB Port • Audio Port • Video Out Port • CONSOLE SIDE • Tamper Evident Label

Tamper Evident Labels

HSL Secure Isolator uses holographic tamper evident labels to provide visual indications in case of enclosure intrusion attempt. These labels indicate white dots or the text "VOID" once removed. When opening product packaging inspect the four tampering evident labels.

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

HSL Holographic Tampering Evident Label

Active Anti-Tampering System

HSL Secure Isolator Switch is equipped with always-on active anti-tampering system. If mechanical intrusion is detected by this system, the Switch will be permanently disabled and LED will blink continuously.

If product indication tampered state (all LEDs blinking) - please call HSL Technical Support and avoid using that product.

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Specifications

Enclosure:	Steel metal enclosure
Power Requirements:	DC input 12V / 1.5A maximum.
Power Supply:	Power input 100-240V AC
Console ports:	- DVI-I Female video output connector
	- USB Type-A jack for keyboard (HKS100I)
	- USB Type-A jack for mouse (HKS100I)
	- Audio output 3.5 mm stereo jack
Computer ports:	- DVI-I Female video input connector - USB Type-B jack for keyboard and mouse (HKS100I)
	- Audio input 3.5 mm stereo jack
Video/Audio support:	- All single-link and Dual-link DVI resolutions up to 2560 x 1600
	- All VGA resolutions up to 2048x1536 [cable/adaptor required]
	- HDMI 1.0 support all resolutions up to 1920 x 1200 [cable/converter required]
	- Unidirectional audio out over HDMI supported

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
Regulatory Compliance	
	Safety: UL/cUL60950, EN60 950
	EMI/EMC: FCC Class B, CE Mark, EN55022B
Product design life-cycle:	10 years
Warranty:	2 years

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 HSL Technical Support at http://highseclabs.com/support/case/.
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 the Console devices to product

- Connect the user display/s.
- Connect the user keyboard
- Connect the user mouse

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.
5. In any case do not connect a microphone to the switch audio output port, including headsets.

Step 2 Connecting the Computers

Connect the computers to the Secure KVM Isolator through the following steps:

- Connect each computer with KVM cable. USB cable can be connected to any free USB port on the computer.

Note: If computer is having more than one video output connector – first test for video output availability by connecting a display directly to that port and then connect via the KVM Isolator.

Note: The USB cable must be connected directly to a free USB port on the computer, with no USB hubs or other devices in between.

- Connect an audio cable to the computer audio output (lime green color) or line output (blue color) jacks.

Step 3 Power up

- Power up user display. Select proper input if applicable (VGA or DVI; DisplayPort).
- Power up the Secure KVM Isolator by connecting DC power supply. The display diagnostic LEDs should be solid green for a few seconds after power up. This indicates the display EDID information has been captured and secured. If the display diagnostic LED remains blinking for longer than 10 seconds after power up, refer to the Troubleshooting section of this user manual.
- Power up the connected computers.

Note: When you power on your computers, the Isolator emulates both a mouse and keyboard to the connected PC and allows your computer to boot normally. Check to see that the keyboard, display, and mouse are working normally.

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.

Typical System Diagram
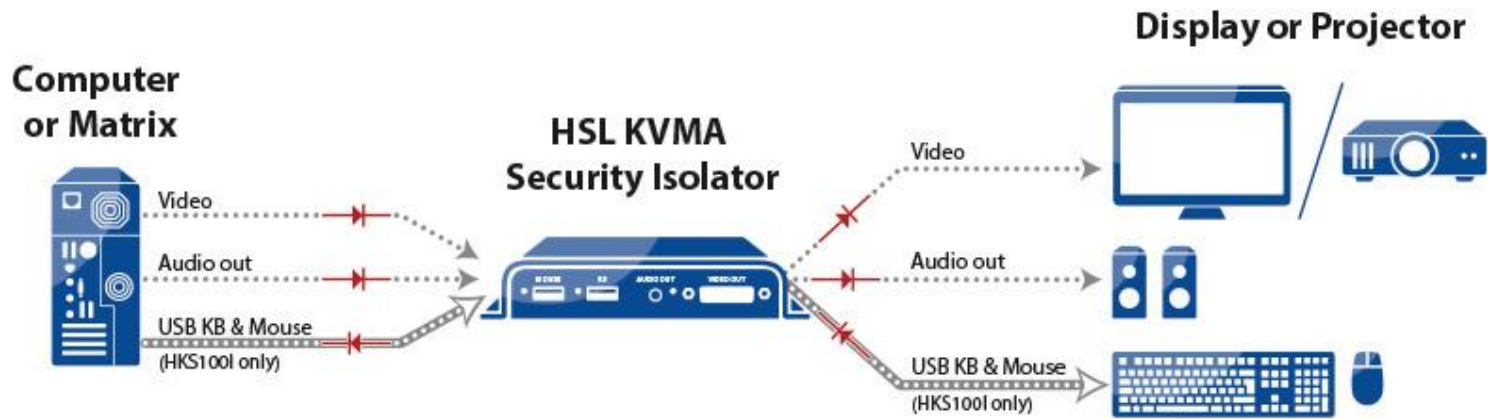
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