



## Product Highlights

- ❏ **Dual displays support** • Support two independent user displays at any resolution. Any input can be switched to any output. Support HDMI and dual-link DVI.
- ❏ **Unidirectional optical data diodes** • Assuring USB peripherals isolation. Data can flow from devices to host only. No reverse data flow possible by design.
- ❏ **Smart-Card reader support** • Special secured port for smart-card or biometric reader with patented Freeze function to support user authentication across multiple isolated networks [K224E only].
- ❏ **Isolated audio switching** • Capable to switch audio. Highly isolated from video and peripheral channels.
- ❏ **Highest security by design** • Designed by an agency to support isolation between national security networks and internet. Designed to comply with Common Criteria EAL 5. Derivative of a TEMPEST product used in NATO nuclear submarines.
- ❏ **Hardware Based peripheral protection/isolation** • Absolutely no dependency on firmware or software. All firmware is in ROM (Read Only Memory). No keyboard buffering or memory. More than 60dB isolation between channels.
- ❏ **Display Plug & Play (DDC) protection** • Leakage prevention through patented emulated technology. Signalling attacks prevented by design. DDC/EDID fully functional.
- ❏ **Always-on Active Anti-tampering** • Enclosure tempering sensed by multiple sensors. Battery powered anti-tampering circuitry prevents normal KVM operation.

## What is a Secure KVM Matrix?

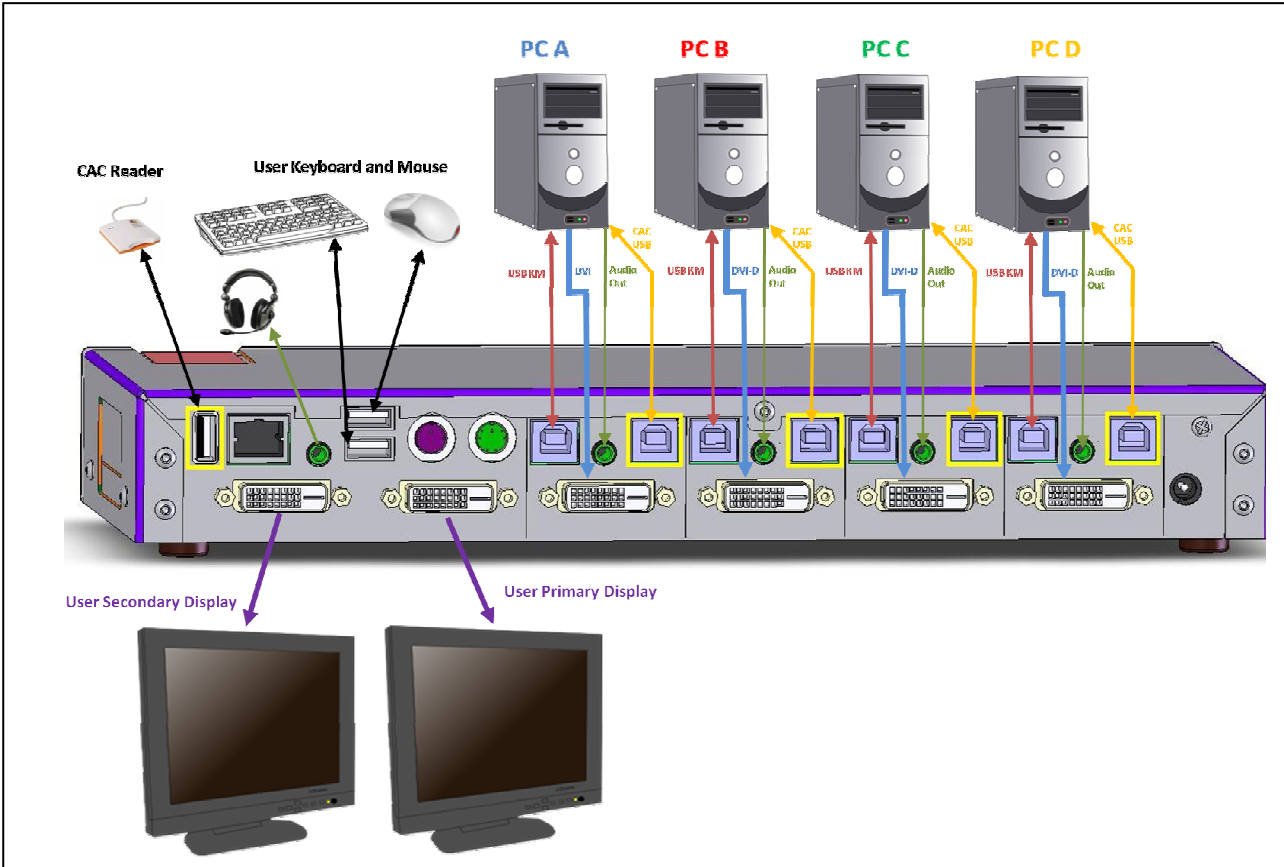
Users in many organizations are using two LCDs in their workstation. If users need to access multiple isolated networks then a secure KVM Matrix is the only possible solution. Secure KVM Matrix is a switch that designed to work across large security gaps while driving two independent user displays.

## The Ultimate Secure KVM Solution

KVM becoming a target for networks leakage attacks. Second-Generation Secure KVMs have documented vulnerabilities that may cause data leakages between hosts having different security levels.

HSL's Secure KVM provides the highest possible isolation between four connected computers. This Third-Generation KVM designed to meet the requirements of organizations that are challenged by the need to provide secret or top-secret network access together with unclassified or internet access. The K2xx series KVM uses uni-directional optical data-diodes to prevent any potential leakage between the highly isolated peripheral channels. K200 can also be used to securely filter and lock USB ports preventing data export / import through mass-storage devices by hardware. The K224 supports four isolated host computers and two user displays. Unlike dual-head KVMs this KVM enables independent selection of host for each display. User can select to switch keyboard and mouse between left and right displays.

The K224 provides dedicated peripheral port to securely support bi-directional devices such as smart-card reader or touch screen.



K224E typical system diagram

## K224/E Specification

### Host Input Ports

- 4 input ports from host computers having
  - 4 x DVI-D Female connectors for video (No VGA support)
  - 4 x USB Type-B connectors for keyboard and mouse
  - 4 x Audio out 3.5 mm stereo jacks for audio input
  - 4 x Optional Dedicated Peripheral Ports USB Type-B connectors [K244E only]
- Monitor Plug & Play EDID support through emulation to prevent EDID signalling leakages

### Console ports

- 2 x DVI-D Female connector for primary and secondary user displays
- One set of ports for user console devices, having:
  - 2 x USB Type-A jacks for Mouse & Keyboard
  - USB port for user authentication device [K224E only]
  - PS/2 keyboard connector (DIN-5) PS/2 mouse connector (DIN-5)
  - Audio out 3.5 mm stereo jack
- Channels isolation – optical data-diode and 2 separate host emulators

	<ul style="list-style-type: none"> <li>Remote Desktop Controller (RDC) port [K244E only]</li> </ul>
<b>Management</b>	<ul style="list-style-type: none"> <li>Status LED's</li> <li>2 x Channel select push-buttons with internal 4 colors channel select LED</li> <li>Keyboard hotkeys</li> <li>Optional Remote Desktop Controller (RDC) [sold separately, K244E model only]</li> </ul>
<b>Video modes supported</b>	<ul style="list-style-type: none"> <li>DVI Single-link supports resolution up to 1920 x 1200.</li> <li>DVI Dual-link supports resolution up to 2560 x 1600.</li> <li>HDMI supported through adapters or cables.</li> <li>VGA computers supported only through SmartCables (active conversion to DVI-D).</li> </ul>
<b>Audio switching</b>	<ul style="list-style-type: none"> <li>Audio out switching</li> <li>No microphone switching to prevent audio leakages.</li> </ul>
<b>Power</b>	<ul style="list-style-type: none"> <li>DC input 12V / 1.5A maximum</li> <li>Wall-mounted power supply included. Power input 90-240V AC</li> </ul>
<b>Security functions</b>	<ul style="list-style-type: none"> <li>USB ports supporting only keyboard and mouse through host emulation and strong filtering.</li> <li>Optical Data Diode assures unidirectional flow from devices to computers.</li> <li>Firmware change can not cause leakage between channels or data export.</li> <li>Isolated power supplies for each device emulator.</li> <li>Dedicated port for smart-card reader or biometric device. Port is strongly filtered and monitored.</li> <li>Firmware resides on ROM.</li> <li>Display EDID is emulated and highly-isolated to prevent signalling leakages.</li> <li>Battery powered anti-tampering system to disable product in case of mechanical intrusion.</li> <li>Special holographic Temper Evident Labels.</li> </ul>
<b>Environmental</b>	<ul style="list-style-type: none"> <li>Temperature range: Operating - 0°C to 40°C (32°F to 104°F); Storage - -20°C to 60°C (-4°F to 140°F)</li> <li>Humidity: Operating - 20 to 80% non condensing; Storage – 10 to 90% non condensing</li> </ul>
<b>Regulatory Compliance</b>	<ul style="list-style-type: none"> <li>Safety: UL/cUL60950, EN60 950</li> <li>EMI/EMC: FCC Class B, CE Mark, EN55022B, VCCI</li> </ul>
<b>Security Accreditations</b>	<ul style="list-style-type: none"> <li>Common Criteria EAL 4+ (currently in evaluation)</li> <li>Designed for Common Criteria EAL-5</li> <li>Complies with NIAP Peripheral Sharing Switch (PSS) For Human Interface Devices Ver 2.1</li> </ul>
<b>Physical Characteristics</b>	<ul style="list-style-type: none"> <li>Dimensions: 135(W) x 320 (D) x 50 (H) mm / 5.3 (W) x 12.6 (D) x 2.0 (H) inch</li> <li>Device weight: 1.5 Kg. (3.3 lbs.)</li> <li>Shipping Weight: 1.8 Kg (4 lbs) without cables</li> </ul>

**Warranty, reliability**

- 2 years limited warranty. This limited warranty covers 100% of parts and workmanship on any required repairs. For details see HSL web-site: [www.highseclabs.com/warranty/](http://www.highseclabs.com/warranty/)
- Optional extended warranty for up to 5 additional years
- Product design life-cycle 10 years per MIL-HDBK-217E.

- Specifications are subjected to change without prior notice



**How to Order**

**KVM Models**

Description	Part Number
K224E - 4 Ports Dual display High Security KVM Matrix, USB PS/2 keyboard and mouse, DVI dual -link video x 2, Audio out, USB user authentication port, Active anti-tampering, Front panel push-buttons	CPN05461 [Europe] CPN05456 [UK] CPN05461 [US, Canada]

**Cables**

Description	Part Number
KVM Cable short (1.8 m), DVI-D to DVI-D Single-Link, USB, Black	CPN05485
KVM Cable short (1.8 m), DVI-D to DVI-D Dual-Link, USB, Black	CPN05486
KVM Cable short (1.8 m), Audio out, CAC, Black	CPN05490
KVM Smart-Cable VGA PC to DVI KVM converter cable with USB type A to USB type B, 6ft (1.8 m), black	CPN06011

**Accessories and spare parts**

Description	Part Number
SCM Smart-card reader, USB, SCR-3311	CPN05498
Spare Power supply, wall-mounted, K200, K300, 12V, 1.5A, US	CPN05501

**Services**

Description	Part Number
K2xx 1 Year Standard warranty and support extension (3rd to 7th year) per S/N	CSV05973
K2xx 1 Year Premium warranty and 24/7 support per S/N	CSV05974