# HighSecLabs
Highest Security Solutions

SECURE MIL-STD TEMPEST 4-PORT HDMI KVM SWITCH

The SK41D-4TR, HSL's 4-port HDMI secure rugged KVM Switch, improves situational awareness and workflow while eliminating the threat of data leaks through shared peripherals, under the most challenging of environmental conditions.

For easier mounting and better situational awareness, the SK41D-4TR is optionally equipped with a remote control that can be mounted on the operator dashboard.

The SK41D-4TR is part of HSL's rugged product family that is compatible with **NIAP PP4.0 for PSD, TEMPEST, MIL-STD-810, MIL-STD-461 and MIL-STD-1275.** HSL's rugged product family is designed to be deployed on military vehicles, marine vessels and airborne platforms.
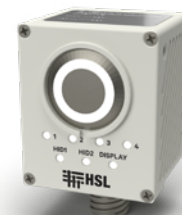
Highly Rugged

The SK41D-4TR device designed for MIL-STD harsh environmental requirements. It features a robust sealed aluminum enclosure, all metallic MIL-DTL-38999 connectors and sealed front panel illuminated push-buttons. The KVM Switch meets harsh MIL-STD environmental conditions including temperature, solar radiation, humidity and altitude. The product is compliant with IP 67.

Versatile Interfaces

Product supports up to four computers/video sources with HDMI or DVI interfaces. Video sources supported ranging from 480p legacy to 1920x 1200@60Hz, 2560x1600@60Hz and 3840x2160@30HZ (4K30) resolutions.

Unidirectional Optical Data Diodes

HSL products provides the highest level of isolation between connected computers or sources. The SK41D-4TR KVM is equipped with four patented unidirectional optical data diodes to prevent potential APT on the KVM from the host and from connected peripherals. No reverse data flow is possible by design. The SK41D-4TR KVM is ideal for preventing data leaks and the insertion of malicious code between networks of different classification levels.

Always-on Active Anti-Tampering

Enclosure tampering attempts can be sensed by multiple sensors. Active anti-tampering circuitry prevents normal KVM operation.

Hardware Based Peripheral Protection/Isolation

The SK41D-4TR security functions are hardware implemented, with absolutely no dependency on firmware or software. All firmware is in protected ROM (Read Only Memory). No keyboard buffering or memory. Peripheral devices can be defined through configurable white-list and black-list.

Display Plug & Play (DDC) Protection

HSL patented EDID protection is the most secure video protection method in the market today. Leakage prevention through emulation technology. Signaling attacks prevented by design.

Protected Power Input

The KVM is powered directly from 12-28VDC power vehicle bus and is fully compliant with MIL STD-1275. High radiation nuclear event protection is optional.

Extensive BIT (Built-In-Test) Functionality

Receive status and diagnostics via RS232 regarding the unit's operational readiness. BIT results are reported upon startup, on demand and continuously every 5 minutes.

Secure SK41D-4TR Rear View

SPECIFICATION

MODEL NUMBER	SK41D-4TR
MAIN FEATURES	
Dimensions	D 141 x W 330 x H 50 mm [5.5 x 13.0 x 1.9 Inch]
Weight (no blades)	2.2 Kg [4.8 lbs] without cables
Host Input Ports	4 x HDMI (DVI-D compatible) and two USB 2.0 interfaces based on a single female D38999/24WD35PN. Optional Composite video or VGA inputs available.
Console ports	HDMI (DVI-D compatible), 2 USB device and optional Remote control via a single male D38999/24WD35SN.
Channel Switching	• IP 67 compliant green LED illuminated front panel push buttons • NVG and dimming options available • Remote control connected via console port
Supported Video Modes	• HDMI supported up to 4K@30Hz or 2600x1600@60Hz • DVI-D 1920x1200@60Hz • Support for other video formats available.
ENVIRONMENTAL (PARTIAL LIST)	
Shock	MIL-STD-810G, Method 516.7 Procedure I with a peak amplitude of 40 ± 4.0g
Vibration	MIL-STD-810G, Method 514.7 Procedure I for operational use of a Category 20 wheeled Ground Vehicles
Humidity	MIL-STD-810G, Method 507.6, Procedure I based upon Table 507.6-I
Temperature	Operating - 46 °C to 52 °C (-51 °F to 125 °F); Storage ° -51 °C to 71 °C (-60 °F to 160 °F)
Altitude	MIL-STD-810G, Method 500.6 Procedure I
Immersion	MIL-STD-810G, Method 512.6 Procedure I to a depth of 3 meters in fresh water
Salt Fog	MIL-STD-810G, Method 509.6.
Blowing Sand	MIL-STD-810G, Method 510.6 Procedure II with 10.6 to 17.7 grams per cubic meter (g/m3)

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Blowing Dust	MIL-STD-810G, Method 510.6 Procedure I with 0.006 g/m3 silica flour dust from 0.0001mm to 0.01mm in diameter blowing at a velocity of 1.5 ±0.2 m/s
POWER	
DC Input	Nominal Power Input 28VDC (18V-36V)
Power Compliant	MIL-STD-1275E Compliant Designed to operate with a steady-state supply voltage per fault free conditions as specified in MIL STD-1275E
Power Requirements	Max Power Consumption 40W
REGULATORY COMPLIANCE	
Safety	MIL-STD-882
EMI/EMC	MIL-STD-461
Tests	CE102, CS101, CS114, CS115, CS116, RE102, RE103, CE101.
Security	• Compliant with NIAP PP4 for PSD (Peripheral Sharing Device) • Designed to TEMPEST Level A compliance
RELIABILITY	
Standard	MIL-HDBK-216
MTBF	65,000 hours of operation at 40°C
HOW TO ORDER	
Product Model #	SK41D-4TR
Remote Control Model #	WR40-4TR
Cables KIT Model #	KCRHT20-4TRKIT

HSL Secure SK41D-4TR System Diagram