

NIAP4 Certified Secure Defender – One way Data Protection for Mission-Critical Environments

Introduction

The NIAP4 Certified Secure defender is a robust hardware device that functions as a one-way gateway, ensuring data flows exclusively from a secure computer to connected peripherals—such as displays, speakers, and USB devices. By physically preventing any return path, it creates an impenetrable barrier that neutralizes sophisticated threats, stopping hackers and malware from exploiting peripheral connections to exfiltrate sensitive data or infiltrate secure networks.

In secure facilities where guest or outside laptops are introduced, shared displays become a critical vulnerability. Imagine a visitor needing to present on a high-resolution monitor within a secure briefing room that is also connected to a classified network. The Blackbox defender mitigates this risk by ensuring the guest laptop can only send a video signal to the display. It creates a hard, one-way barrier that prevents the guest device from using the display's internal data channel to probe, access, or compromise the secure network.

The same principle applies to audio, ensuring speakers can only receive signals and eliminating the risk of them being covertly turned into listening devices. Even essential communication, like display data (EDID), is meticulously filtered and validated, permitting only the minimum necessary information to pass and rigorously blocking any potential for malicious code injection.

Applications

- Government & Defence
- Command & Control
- Secure Meeting Rooms
- Industrial Control Systems (ICS/SCADA)
- Financial Institutions

Product Images

Front



KVS4-8001DX



KVS4-8001VX



KVS4-8001HX

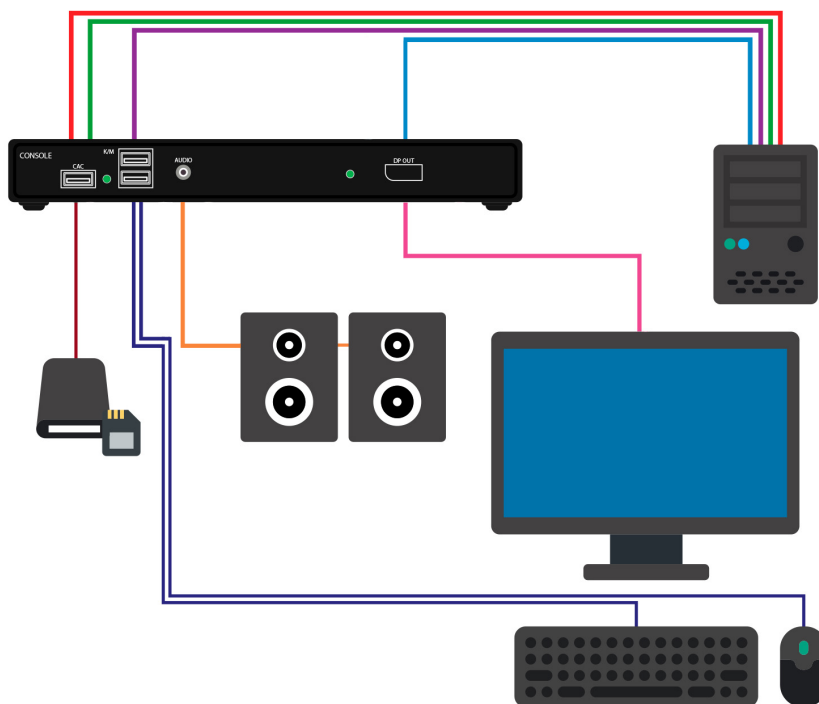
Rear



Key Features

- **NIAP PP 4.0 Certified** – Meets the highest common criteria protection profile for peripheral sharing switches required by government and defense agencies.
- **Absolute Port Isolation** – Complete mechanical and electrical separation prevents any data leakage or cross-talk between secure and non-secure systems.
- **Keyboard/Mouse Emulation** – The defender simulates connected peripherals so computers never directly interact with real devices, eliminating potential attack paths.
- **Secure EDID Learn & Video Emulation** – Captures and verifies display data safely, blocking malicious code via DDC/EDID channels.
- **Configurable CAC Port** – Supports smart-card or biometric readers, allowing device assignment to specific secure ports for controlled authentication.
- **Active Anti-Tamper Protection** – Includes tamper-evident seals, switches, and a long-life internal anti-tampering battery to detect or disable compromised units.
- **Front-Panel LED** – Indicate operation and easy status visibility.
- **Cross-Platform Support** – Compatible with Windows, macOS, and Linux.
- **High-Resolution Video Support** –
 1. VX: DisplayPort up to 4K @ 30 Hz
 2. DX: DVI-I up to 2560 × 1600 @ 60 Hz or 4K @ 30 Hz via adapter
 3. HX: HDMI up to 4K @ 30 Hz
- **External Power Supply (Level VI efficiency)** – Ensures stable, energy-efficient performance.

Application Diagram



BLACK BOX®

KVS4-8001

VIDEO IN	USB IN	CAC IN
AUDIO OUT	USB OUT	CAC OUT
VIDEO OUT	AUDIO IN	

Specifications

Video	KVS4-8001VX	KVS4-8001DX	KVS4-8001HX
Input Interface	DisplayPort	DVI-D Single Link	HDMI
Output Interface	DisplayPort	DVI-D Single Link	HDMI
Resolution	Up to 3840x2160 @ 30Hz	Up to 2560 x 1600 @ 60Hz	Up to 3840x2160 @ 30Hz
DDC	5 volts p-p (TTL)		
Input Cable Length	Up to 20 ft.		
Output Cable Length	Up to 20 ft.		
Max. Pixel Clock	248 MHz		
Data Rate	1.65 Gbps		

USB	
Input Interface	(2) USB Type B
Output Interface	(2) USB 1.1 Type A for KM Devices
Compatibility	USB 1.1 and USB 2.0 Compatible
CAC	Configurable USB 2.0 Port

AUDIO	
Audio Input	(1) 3.5mm stereo audio
Audio Output	(1) 3.5mm stereo audio

External PSU	
Input Voltage/Volts	100-240 VAC
Output Voltage/Volts	12 VDC
Output Current/Amps	3 Amps MAX

Device Power	
Input Voltage/Volts	12V DC
Max Current	1.3 Amps
Max power consumption	Upto 36 Watts
BTU (British Thermal Units)	3.41

Mechanical	
Dimensions (HxWxD)	1.05" H x 9.5" W x 3.7" D (26.67 x 241 x 94 mm)
Weight	1.55 lb. (0.7 kg)

Specifications (continued)

Environmental	
Operating Temperature	32°F to 104°F (0°C to 40°C)
Storage Temperature	-4°F to 140°F (-20°C to 60°C)
Humidity Operating	up to 80% RH, non condensing
Altitude Range	< 6000 feet

Certification	
Regulatory	FCC, CE, RoHS, UL
Security	NIAP Protection Profile Ver. 4.0

Warranty			
Standard Warranty	2 Year standard Warranty		
Warranty Options	Extension by 1 or 3 years available		
Extended Warranty (Optional)	DisplayPort	DVI-D Single Link	HDMI
Extended Warranty SKU for 1 year	KVS4-8001VX-W1	KVS4-8001DX-W1	KVS4-8001HX-W1
Extended Warranty SKU for 3 year	KVS4-8001VX-W3	KVS4-8001DX-W3	KVS4-8001HX-W3

Ordering Information

Product Code	Description
KVS4-8001DX	1-Port SH Secure DVI-I KVM w/audio and CAC, PP 4.0
KVS4-8001VX	1-Port SH Secure DP KVM w/audio and CAC, PP 4.0
KVS4-8001HX	1-Port SH Secure HDMI KVM w/audio and CAC, PP 4.0

Product Includes:

- (1) Secure KVM Isolator Switch
- (1) 12 VDC Wallmount Supply with US, EU, UK, and AU adapter clips
- (1) Set of 4 rubber feet (already attached)
- (1) Quick Start Guide

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