

ServSwitch Secure • ServSwitch Secure (with USB)

Secure KVM switching  
that keeps snoopers  
where they belong—  
outside your network.

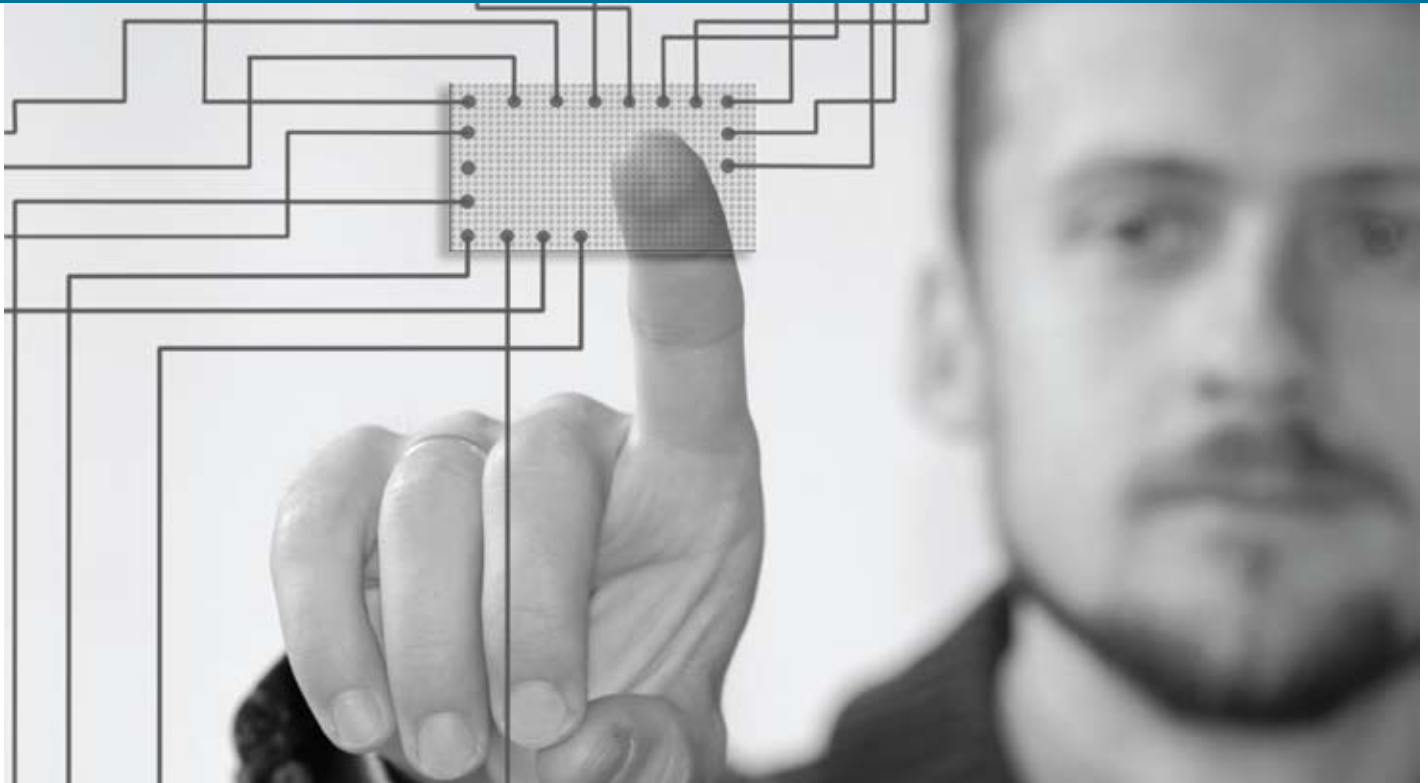
Make the switch between  
classified and unclassified networks.



All the benefits of KVM switching  
with additional peace of mind:

- » Security features enable switching between secured and unsecured networks.
- » Ideal for government agencies and private sector corporations with multiple security classifications.
- » Keep classified, financial, and other private and personal data safe from external and internal threats.
- » Unclutter your space.
- » Reduce hardware costs.

Find these  
and other KVM  
products at  
[www.blackbox.co.uk](http://www.blackbox.co.uk)



## Secure KVM switching for networks with multiple security classifications.

With a TEMPEST-approved\* Black Box® ServSwitch™ KVM Switch, you can switch between networks with multiple security classifications — and be assured that snoopers are being kept away from your data.



For more information on TEMPEST, see page 5 .

### Secure KVM Switching

Turn your contact centre into a dynamic, IP-based environment. These switches are perfect for agencies and businesses that need to prevent hackers, electronic eavesdroppers, and corporate spies from accessing classified information. With our ServSwitch Secure, there is no way to access a classified CPU from any other attached CPU, classified or unclassified. And there is no way to access one network from the other. Plus, you get all the benefits of KVM switching. Save time by not having to run back and forth between secured and unsecured workstations. Save space on your desktop by using just one keyboard, monitor, and mouse. And because you only need one keyboard, monitor, and mouse, you save money.

Call us on 0118 965 6000 to learn more.

Manage classified and unclassified networks from the same keyboard, monitor, and mouse.

A host of security features—including port isolation, DVI support, and unidirectional signaling.

Support for USB or PS/2® CPUs with DVI-I or VGA video standards in two- or four-port models.



ServSwitch Secure (with USB)  
(SW4007A-U SB)



ServSwitch Secure  
(SW722A-R2)

If you need secure switching between secure and unsecure networks, the ServSwitch Secure line of KVM switches makes the grade — whether you're connecting to USB or PS/2 CPUs. Port isolation, DVI support, unidirectional signaling, and a host of other features designed for security provide top-notch, secure KVM switching that prevents hackers from stealing your data and using it against your agency or company. For specific product information, see pages 3–4 .

Buyer's Guide | Secure KVM ServSwitch Models

	Number of Ports	Keyboard and Mouse	Video Standard	TEMPEST Approved
ServSwitch Secure (with USB)	2	USB	DVI-I	✓
	4	USB	DVI-I	✓
ServSwitch Secure	2	PS/2	VGA	✓
	4	PS/2	VGA	✓

## ServSwitch Secure (with USB)

### USB PCs and networks



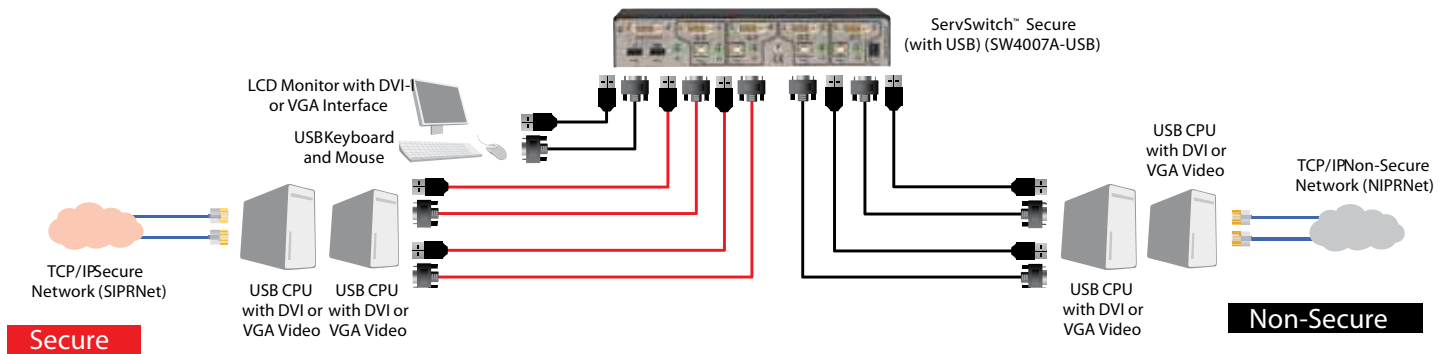
SW4007A-U SB

#### Problem:

A government analyst with four USB PCs — two operating at one classification level and two operating at another — needs to access each PC from her office.

#### Black Box Solution:

A ServSwitch Secure (with USB) provides four fully secure, isolated channels for connections to secure and unsecure PCs. The switch supports DVI-I video (1920 x 1200 @ 60 Hz), stereo audio, and USB peripherals. For additional protection, DDC data can be bypassed or disabled.

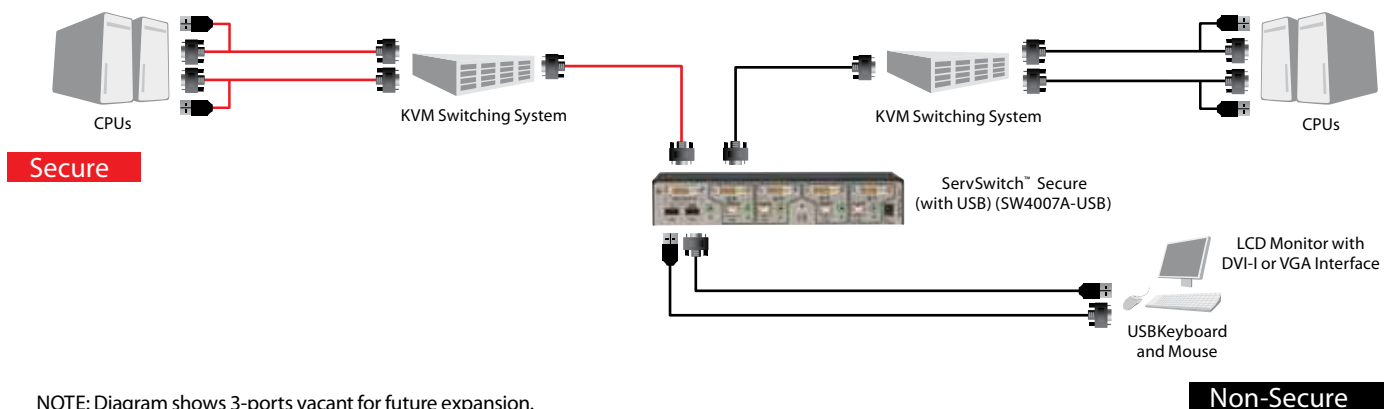


#### Problem:

An engineer for a defence contractor needs to access a secure network and an unsecure network from the same workstation in a USB-only environment.

#### Black Box Solution:

A ServSwitch Secure (with USB) provides secure access to each network with multiple security classifications. When used with two embedded KVM switches, this KVM switch provides secure access to each network over four secure channels. The switch supports DVI-I video (1920 x 1200 @ 60 Hz), stereo audio, and USB peripherals.



NOTE: Diagram shows 3-ports vacant for future expansion.

Call us on 0118 965 6000 to learn more.

## ServSwitch Secure

### PS/2 PCs and networks



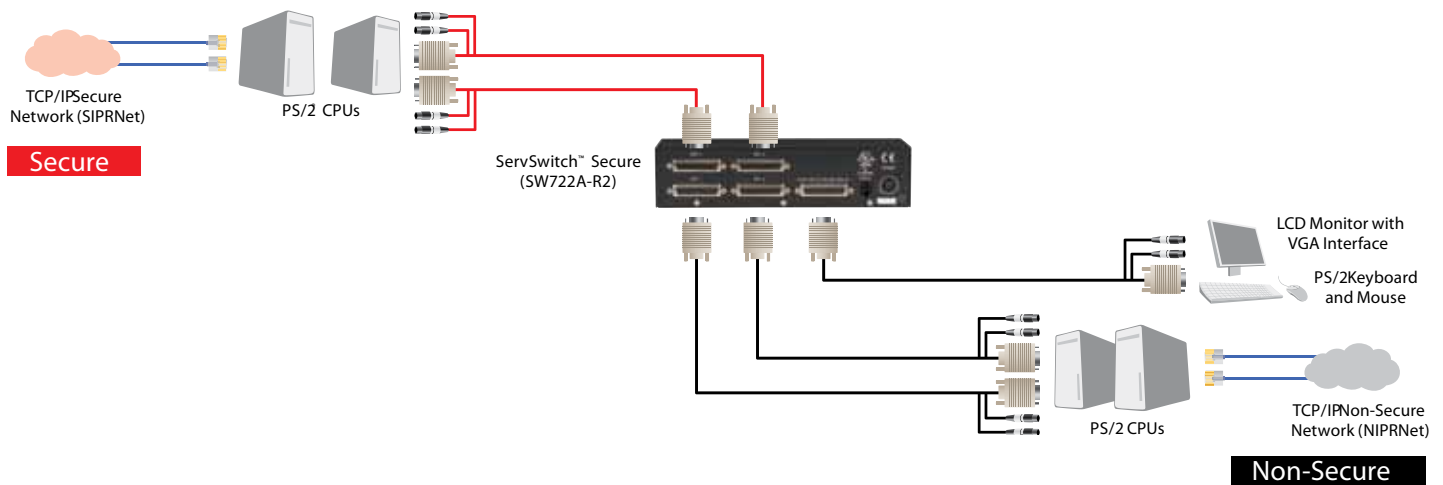
SW722A-R2

#### Problem:

U.S. Army counterterrorism specialists need to access four separate PCs with different security standards in a PS/2 environment.

#### Black Box Solution:

A ServSwitch Secure (with USB) provides four fully secure, isolated channels for connections to secure and unsecure PCs. The switch supports DVI-I video (1920 x 1200 @ 60 Hz), stereo audio, and USB peripherals. For additional protection, DDC data can be bypassed or disabled.

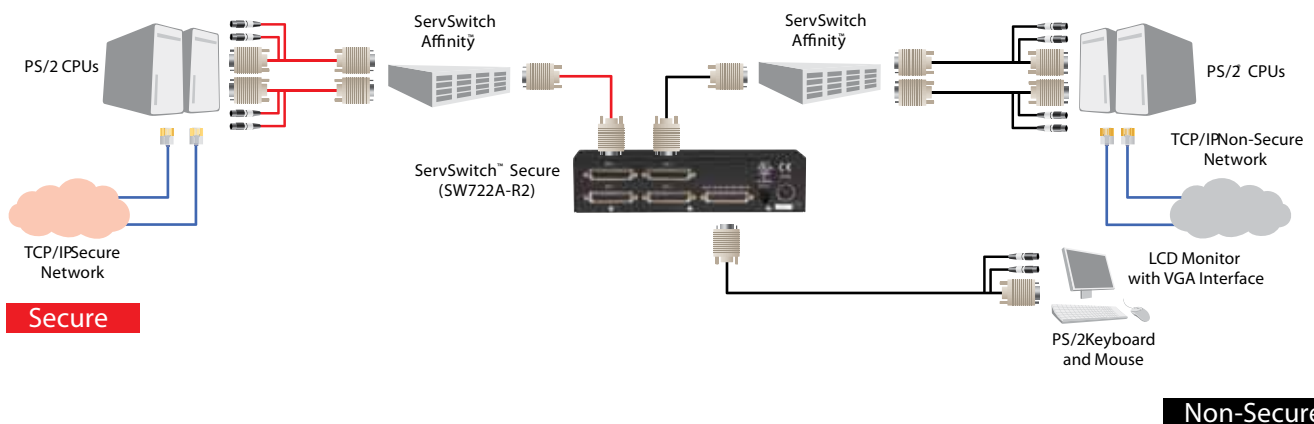


#### Problem:

A customer support specialist at a large credit card company needs to access three networks with multiple levels of security from the same workstation.

#### Black Box Solution:

The ServSwitch Secure enables authorised users to access each network over four secure, isolated channels from a single workstation. High levels of port isolation restrict data streams on ports connected to the secure networks, and the extruded metal case prevents EMI/RFI emissions from being detected by sensitive eavesdropping equipment.



## ServSwitch Secure (with USB)

Secure KVM switch with 2 or 4 ports, USB and DVI-I.



SW4007A-USB

- All microprocessors are One Time Programmable (OTP) with no flash ROM.
- Shielded, secure metal casing is electrically bonded to ensure low electromagnetic emissions for minimized snooping risks.
- High levels of port isolation prevent data leakage.
- Unexpected operations (signaled by the ERR indicator) cause channel isolation and require you to find the fault and reboot the unit.
- Keyboard and mouse power down and reset between each switchover to clear memory buffers.
- Each USB port is powered independently—shorting the supply on one port doesn't switch off power to other ports.

- Unidirectional keyboard and mouse signaling via data diodes ensures that USB data cannot leak back through the switch. It also thwarts hacking via timing analysis, USB common storage Trojans, and forced overload malfunction mechanisms.
- USB connections enable the latest approved low-emission, secure keyboards to be used.
- DVI-I video provides exact video quality and is backwards compatible with analog VGA equipment.
- Digital DVI-I video signals are differential, DC balanced, and encoded.
- High levels of port isolation prevent data leakage.
- True DDC video support. For highly secure installations, DDC data can be bypassed or disabled.
- Tamper-evident seals and screws.
- **WARRANTY** — 2 Years

\* NSA tested and TEMPEST approved for and by the U.S. Air Force. Other agencies under review for approval. For details, call our FREE Tech Support at 0118 965 6000.



### TECH SPECS

Distance (Maximum) — Cable length: 10 ft. (3 m)  
 Resolution (Maximum) — Digital: 165 MHz per DVI link, dual-link DVI supported;  
 Analogue: 1920 x 1280  
 Connectors —  
 SW2007A-USB:  
 CPU: (2) DVI-I F, (2) USB Type B F, (2) 3.5-mm audio jacks;  
 User: (1) DVI-I F, (2) USB Type A F, (1) 3.5-mm audio jack;  
 Power: (1) 2.5-mm barrel F;  
 SW4007A-USB:  
 CPU: (4) DVI-I F, (4) USB Type B F, (4) 3.5-mm audio jacks;  
 User: (1) DVI-I F, (2) USB Type A F, (1) 3.5-mm audio jack;  
 Power: (1) 2.5-mm barrel F  
 Indicators — LEDs: (1) Power, (1) Error, (1) CPU Selected per port  
 Power — 100–240 VAC, 50–60 Hz, external  
 Size — 1.75"H (1U) x 9.1"W x 5.6"D (4.4 x 23.1 x 14.2 cm)

Item	Code	List Price
ServSwitch Secure (with USB)		
2-Port	SW2007A-USB	£435.00
4-Port	SW4007A-USB	£449.00

For connections to a DVI-I monitor, order...

Item	Code	List Price
ServSwitch DVI Cable		
6-ft. (1.8-m)	EHN900024U-0006	£24.97
10-ft. (3.0-m)	EHN900024U-0010	£26.97

## ServSwitch Secure

Secure KVM switch with 2 or 4 ports and PS/2 support.

- Nonupgradable ROM for security.
- Provides control and separation of up to four computers or servers connected to both secure and unsecure networks through just one keyboard, monitor, and mouse.
- The switch is permanently hard wired and each circuit is soldered, so there is no way to use software to access one CPU from the other or to access one network from the other.
- Channel-to-channel crosstalk isolation protects against signal snooping.
- EMI/RFI shielding makes it an excellent choice for secure industrial environments.
- Switch from your keyboard or the switch's front panel.
- Plug a PS/2 mouse into the switch and access CPUs controlled with either serial or PS/2 mice—or any combination of the two.



SW722A-R2

This is one tough switch. The robust metal case is built for hard use and provides excellent shielding against EMI/RFI, and the switching mechanism is built to keep on switching for years!

- Automatic keyboard and mouse booting for IBM® PC compatibles.
- Boot connected servers simultaneously or one by one.
- For higher resolutions (up to 1280 x 1024), use coax cable.
- **WARRANTY** — 2 Years

NOTE: Specifications are subject to change.



### TECH SPECS

Distance (Maximum) — Cable length: 20 ft. (6 m);  
 VGA with coax cable: 100 ft. (30.4 m)  
 Resolution (Maximum) — With standard cable:  
 1024 x 768;  
 With coax cable: 1280 x 1024  
 System Requirements —  
 CPU: IBM PC/AT®, PS/2, or compatible  
 Connectors — Both models: (1) 6-pin RJ-11, (1) 5-pin DIN;  
 SW721A-R2 also has: (3) DB25 F;  
 SW722A-R2 also has: (5) DB25 F  
 Indicators — LEDs: (1) Power; (1) CPU Selected and (1) CPU Power per port  
 Power — 115 VAC, 60 Hz  
 Size — 2.3"H x 8.8"W x 4.9"D (5.8 x 22.4 x 12.4 cm)

Item	Code	List Price
ServSwitch Secure		
2-Port	SW721A-R2	£229.00
4-Port	SW722A-R2	£285.00

You will also need...

Item	Code	List Price
ServSwitch Cables		
CPU	EHN151-0005	£22.45
User	EHN154-0001	£17.86

Other lengths available. Call our FREE Tech Support .

Call us on 0118 965 6000 to learn more.

## TEMPEST Approved

TEMPEST is code name for investigations referring to compromising emanations, which are intelligence-bearing signals that can compromise the security of an organisation if intercepted. As a security standard, it pertains to technical security countermeasures, standards, and instrumentation that prevent or minimise the exploitation of vulnerable data communications equipment by technical surveillance or eavesdropping.

(Although the U.S. government says TEMPEST does not stand for anything, it has been credited as an acronym for Telecommunications Electronics Material Protected from Emanating Spurious Transmissions.)

### Compromising Emanations

What puts your data communications equipment at risk? Many things. But first and foremost, its microchips.

Any device with a microchip generates an electromagnetic field, often called a “compromising emanation” by security experts. With the proper surveillance equipment, these emanations can be intercepted and the signal reconstructed and analysed. Unprotected equipment can, in fact, emit a signal into the air like a radio station — and nobody wants to risk his or her job and a whole lot more by broadcasting national security or trade secrets to the wrong people.

Some of the most vulnerable equipment includes speakerphones, printers, fax machines, scanners, external disc drives, and other high-speed, high-bandwidth peripherals. And if the snoop is using a high-quality interception device, your equipment’s signals can be acquired up to several hundred feet away.

### What TEMPEST is and isn’t

It should come as no surprise that the government is concerned about signal leakage. In fact, its interest goes back to the days of World War II when the Army was trying to exploit weaknesses of enemy combat phones and radio transmitters. Since then, the scope of the government’s interest has broadened beyond the battlefield. In the last 40 years, the National Security Agency

Secure KVM switches from Black Box are ideal for government agencies, corporations, and many other organisations with a strong need for reliable security and networks with multiple security classifications.



(NSA) has taken several industry measurement standards for signal protection and greatly enhanced them. These enhanced criteria are commonly referred to as the TEMPEST standards (although the NSA also calls them EMSEC standards, short for “emissions security”).

TEMPEST disciplines involve designing circuits to minimise emanations and the application of appropriate shielding, grounding, and bonding. Some methods used include radiation screening, alarms, and isolation.

### TEMPEST vs. EAL4+


Many security devices, including KVM switches, are touting the EAL4+ certification. While EAL is a stringent Common Criteria evaluation process — and ServSwitch Secure devices are being evaluated for EAL4+ certification — it is not the same as TEMPEST approval.

TEMPEST is a physical technical security countermeasure. The TEMPEST standards require red/black separation (refer to the diagrams on pages 3–4). “Red” circuits handle plain text classified or sensitive information including some carrying encrypted signals; “black” circuits are normal, unsecured circuits and equipment. Separation is ensured by maintaining physical distance or installing shielding between “red” and “black” circuits and equipment.

Unprotected equipment can emit a signal into the air, much like a signal from a radio station; electronic snooping can intercept those signals. TEMPEST testing and certification ensure that equipment is designed to minimise emanation.

For KVM switches, the main requirements are 60 dB of isolation between signals. TEMPEST testing of KVM switching is intended to protect the integrity of secure networks.

EAL certification is more concerned with the documentation of equipment to ensure stringent security measures. To achieve a particular EAL level, the product must meet specific assurance requirements, which involve design documentation, design analysis, functional testing, or penetration testing. The EAL level, unlike TEMPEST standards, does not measure the security of the system or equipment. Rather, it is an indication of the level at which the system or equipment was tested.



Have a question?  
Need technical help?.

Call our FREE Tech Support hotline  
on 0118 965 6000. You'll be live with  
a technical expert in 20 seconds or less .

#### Our comprehensive product line includes:

- » ServSwitch™ KVM Switches & Extenders
- » Cables & Infrastructure
- » Cabinets & Racks
- » Digital Signage & Multimedia
- » Networking Products
- » And much more!

#### Shipping your way.

- » We ship 95% of all in-stock items the same day!
- » Same-day and next-day delivery options are available.

" Your tech support is the best I've ever encountered. Less than five minutes elapsed from the time I requested a call to the time my problem was solved. Thanks Black Box Tech Support."

Steven Strouse  
Engineer/Scientist 5, The Boeing Company

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