

SM-DVN SERIES

ADVANCED 2/4/8/16-PORT DVI-I KVM SWITCH



USER MANUAL

SM-DVN-2S	2-Port Single-Head DVI-I KVM Switch
SM-DVN-2D	2-Port Dual-Head DVI-I KVM Switch
SM-DVN-4S	4-Port Single-Head DVI-I KVM Switch
SM-DVN-4D	4-Port Dual-Head DVI-I KVM Switch
SM-DVN-4Q	4-Port Quad-Head DVI-I KVM Switch
SM-DVN-8S	8-Port Single-Head DVI-I KVM Switch
SM-DVN-8D	8-Port Dual-Head DVI-I KVM Switch
SM-DVN-16S	16-Port Single-Head DVI-I KVM Switch



Designed and Manufactured in the USA

Smart-AVI

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www.smartavi.com

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TECHNICAL SPECIFICATIONS

VIDEO		
Format	DVI-I Dual Link	
Host Interface	SM-DVN-2S	(2) DVI-I 29-pin (female)
	SM-DVN-2D / SM-DVN-4S	(4) DVI-I 29-pin (female)
	SM-DVN-4D / SM-DVN-8S	(8) DVI-I 29-pin (female)
	SM-DVN-4Q / SM-DVN-8D / SM-DVN-16S	(16) DVI-I 29-pin (female)
User Console Interface	SM-DVN-2S / SM-DVN-4S / SM-DVN-8S / SM-DVN-16S	(1) DVI-I 29-pin (female)
	SM-DVN-2D / Sm-DVN-4D / SM-DVN-8D	(2) DVI-I 29-pin (female)
	SM-DVN-4Q	(4) DVI-I 29-pin (female)
Max Resolution	2560 x 1600 @ 60Hz; 3840x2160 @ 30Hz (w/HDMI-to-DVI adapter)	
DDC	5 volts p-p (TTL)	
Input Equalization	Automatic	
Input Cable Length	Up to 20 ft.	
Output Cable Length	Up to 20 ft.	
USB		
Signal Type	USB 2.0, 1.1, and 1.0 w/ internal hub	
Type A to B	SM-DVN-2S / SM-DVN-2D	(2)
	SM-DVN-4S / SM-DVN-4D / SM-DVN-4Q	(4)
	SM-DVN-8S / SM-DVN-8D	(8)
	SM-DVN-16S	(16)
User Console Interface	(2) USB Type-A for keyboard and mouse connection only	
AUDIO		
Input	(2) / (4) / (8) / (16) Connector Stereo 3.5mm Female	
Output	(1) Connector Stereo 3.5mm Female	
CONTROL		
Front Panel	Push Buttons with LED indicators	
RS232	Via Serial @ 115200 bps	
Hot Keys	Via Keyboard	
POWER		
Power Requirements	12V DC, 3A (minimum) power adapter with center-pin positive polarity.	
ENVIRONMENT		
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	
OTHER		
Emulation	Keyboard, Mouse and Video	
Control	Front Panel Buttons	

WHAT'S IN THE BOX?

SM-DVN Unit	2/4/8/16-port DVI-I KVM Switch
PS12VDC3A	12V DC, 3A (minimum) power adapter with center-pin positive polarity.
User Manual	

SM-DVN-4S REAR



SM-DVN-4S FRONT



SM-DVN-8S REAR



SM-DVN-8S FRONT

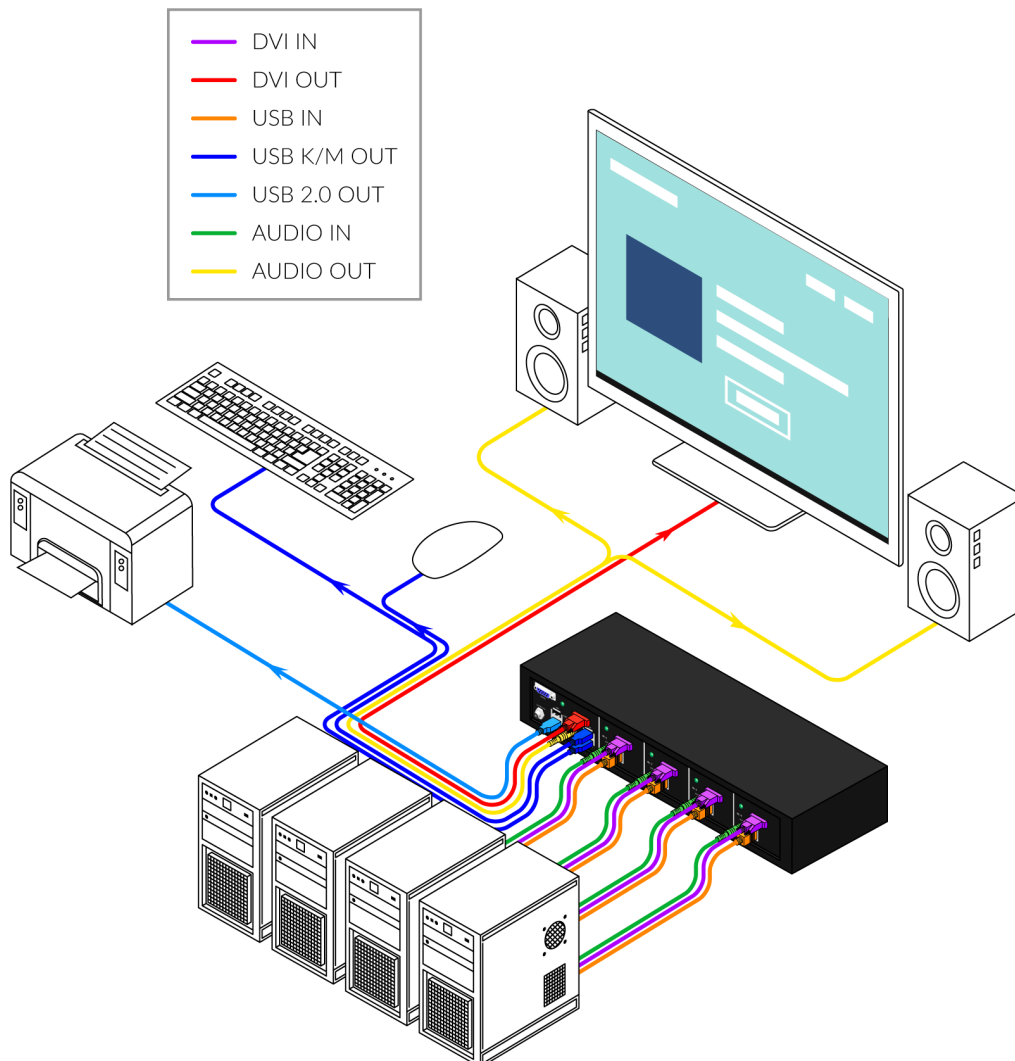


INSTALLATION

Single-Head Units:

1. Ensure that power is turned off or disconnected from the unit and the computers.
2. Use a **DVI cable** to connect the DVI output port from each computer to the corresponding DVI-I IN ports of the unit.
3. Use a **USB cable (Type-A to Type-B)** to connect a USB port on each computer to the respective USB ports of the unit.
4. Optionally connect a **stereo audio cable (3.5mm to 3.5mm)** to connect the audio output of the computers to the AUDIO IN ports of the unit.
5. Connect a monitor to the DVI-I OUT console port of the unit using a **DVI cable**.
6. Connect a **USB keyboard and mouse** in the two USB console ports.
7. Optionally connect stereo speakers to the AUDIO OUT port of the unit.
8. Finally, power on the KVM by connecting a **12VDC power supply** to the power connector, and then turn on all the computers.

Note: You can connect up to 2 computers to the 2 port KVM and up to 4 computers to the 4 port KVM.



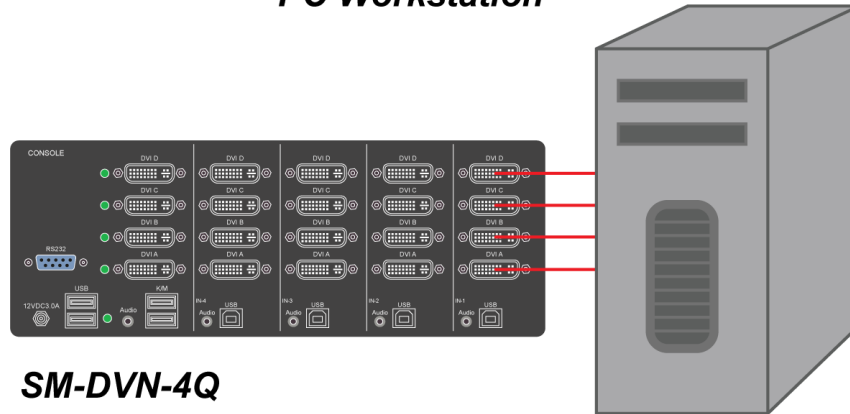
SM-DVN-4S Shown

INSTALLATION (CONTINUED)

Multi-Head Units:

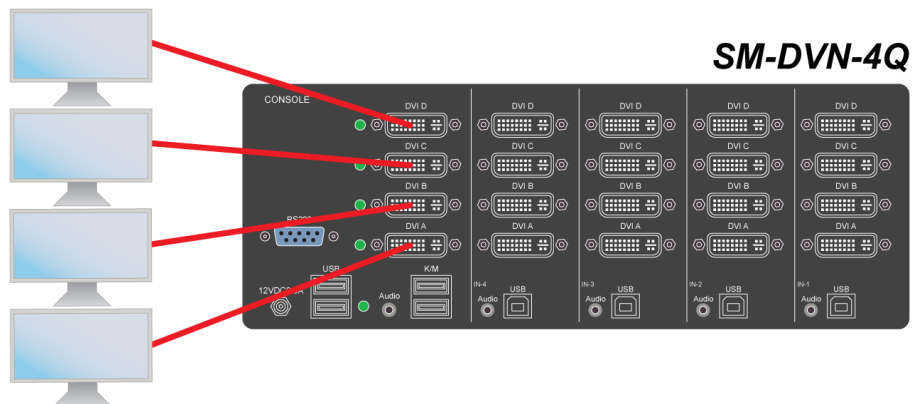
1. Ensure that power is turned off or disconnected from the unit and the computers.
2. Use **DVI cables** to connect the DVI output ports of each computer to the corresponding DVI-I IN ports of the unit. For example, if using *SM-DVN-4Q*, the four DVI ports of one computer must all be connected to one channel.

PC Workstation



The DVI-I IN connectors that belong to the same channel are arranged vertically.

3. Use a **USB cable (Type-A to Type-B)** to connect a USB port on each computer to the respective USB ports of the unit.
4. Optionally connect a **stereo audio cable** (3.5mm on both ends) to connect the audio output of the computer to the AUDIO IN ports of the unit.
5. Connect the monitors to the DVI-I OUT console ports of the unit using DVI cables.

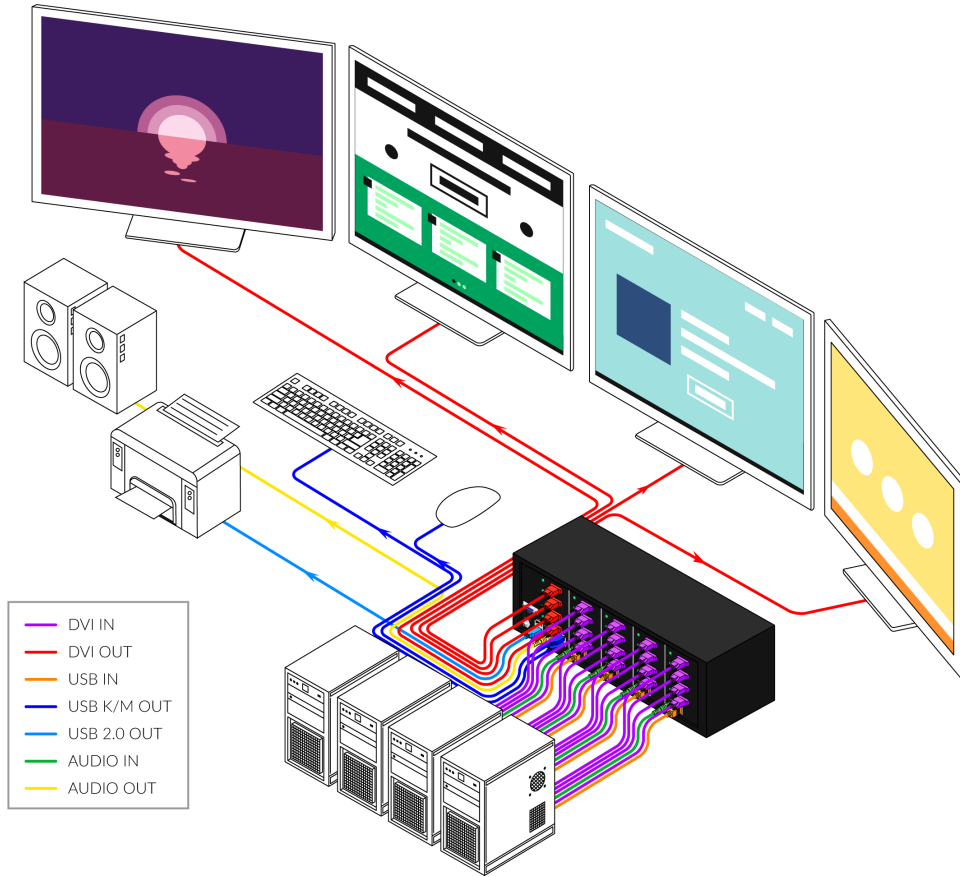


The DVI-I IN ports on one row will be switched to the DVI-I OUT of the same row.

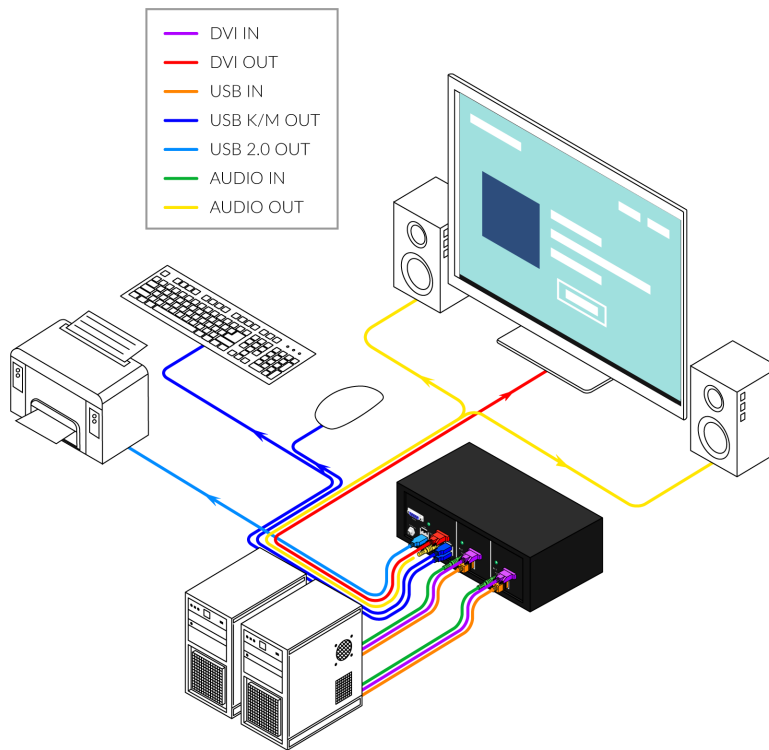
6. Connect a **USB keyboard and mouse** in the two USB console ports.
7. Optionally connect stereo speakers to the AUDIO OUT port of the unit.
8. Power on the KVM by connecting a **12VDC power supply** to the power connector, and then turn on all the computers.

Note: **VGA-to-DVI adapter** must be used if video input sources are analog. Also, if the monitors connected to the outputs are dual-link DVI monitors, then **DVI-I cables** must be used from each computer.

INSTALLATION (CONTINUED)



SM-DVN-4Q Shown



SM-DVN-2S Shown

INSTALLATION (CONTINUED)

EDID Learn:

The KVM is designed to learn the connected monitor's EDID upon power up. In the event of connecting a new monitor to the KVM, a power recycle is required.

The KVM will indicate to the user the EDID learn process by flashing the front panel's LEDs. Port one green and push button blue LEDs will both begin to flash for about 10 seconds. When the LEDs stop flashing, the EDID learn process is done.

If the KVM has more than one video board (such as dual-head and quad-head models), then the unit will continue to learn the EDIDs of the connected monitors and indicate the progress of the process by flashing the next port selection green and push button blue LEDs respectively.

The monitor must be connected to the video output connector located in the console space at the back of the KVM during the EDID learn process.

If the read EDID from the connected monitor is identical to the current stored EDID in the KVM then the EDID learn function will be skipped.

SYSTEM OPERATION

There are three ways to control the SM-DVN: Keyboard Hotkeys, RS-232 Serial Commands, and Front Panel Buttons. All modes of control will allow the user to set their desired configurations.

FRONT PANEL CONTROL

The front panel buttons will function as the typical secure KVM switches. To switch to an input port, simply push the desired input button on the front-panel of the KVM. If an input port is selected, the LED of that port will turn on.

There are 2-16 buttons on the front panel of the device, depending on the model. There will be an added EDID Learn function that can be triggered from the Front Panel, this will be triggered as follows:

Hold down the First and Last button of Front Panel for 3 seconds to force Learn EDID.

HOTKEY AND RS232 SERIAL CONTROL

The SM-DVN may also be controlled via RS-232 commands. To use these commands, you must use HyperTerminal or an alternate terminal application. The settings for the connection are as follows: Baudrate **115200**; Data Bits **8**; Parity **None**; Stop Bits **1**; Flow Control **None**.

Once you have connected to the SM-DVN via Serial, you will see the SM-DVN information when the device starts up.

The following commands can be used for RS-232 with available keyboard hotkeys:

Command Description	HotKey	RS-232 Command
Switch all USB devices and Main video	[CTRL] [CTRL] [port #] [ENTER]	// m [port #] [ENTER]
Switch Audio Only	[CTRL] [CTRL] a [port #] [ENTER]	// a [port #] [ENTER]
Switch KM Only	[CTRL] [CTRL] c [port #] [ENTER]	// c [port #] [ENTER]
Switch USB Only	[CTRL] [CTRL] u [port #] [ENTER]	// u [port #] [ENTER]
Learn EDID	[CTRL] [CTRL] e [ENTER]	// e [ENTER]
Reset Software	[CTRL] [CTRL] r	// r [ENTER]
Status Query	N/A	// ?? [ENTER]

CUSTOM HOTKEY TRIGGERS

Users are able to customize the keys that trigger Hotkeys. The default trigger for hot key function on the Keyboard is **Ctrl +Ctrl**. The trigger function can be used to change to double **Ctrl**, **Shift**, or **Scroll Lock**.

To view hotkey trigger setting:

Type on Keyboard: **Alt + Alt + Alt + k + 0 + [Enter]**

The LED Light on the user's keyboard will Flash indicating which trigger is currently active

Num Lock LED flash indicates **CTRL**

Caps Lock LED flash indicates **Shift**

Scroll Lock LED flash indicates **Scroll Lock**

To change the hotkey trigger setting:

Hotkey trigger twice + x + [1 | 2 | 3]

1 - **Ctrl**

2 - **Shift**

3 - **Scroll Lock**

Example: If the hotkey trigger is **Shift** and would like to change to **Scroll Lock**,

Type: **Shift + Shift + x + 3**

LED'S BEHAVIOR

User Console Interface – Display LED:

#	Status	Description
1	Off	Monitor is not connected
2	On	Monitor is connected
3	Flashing	EDID problem – Learn EDID to fix the problem

Front Panel – Port Selection LED's:

#	Status	Description
1	Off	Non-selected port
2	On	Selected port
3	Flashing	EDID learn in process

IMPORTANT!

If all Front Panel LED's are on and not flashing, the POWER UP SELF TEST has failed and all functions are disabled. Check if any of the front panel port selection buttons are jammed. In this case, release the jammed button and recycle the power. If power up self test is still failing, please contact SmartAVI technical support at support@smartavi.com.

EDID Learn - Front Panel LED's:

All LED's are turned on for 1 second. Then:

- Port 1 LED's will flash until the end of the process.
- Port 2 LED's will flash until the end of the process if a second video board exists (Dual-head KVM)
- Port 3 LED's will flash until the end of the process if a third video board exists (Quad-head KVM)
- Port 4 LED's will flash until the end of the process if a fourth video board exists (Quad-head KVM)

TROUBLESHOOTING

No Power

- Make sure that the power adapter is securely connected to the power connector of the unit.
- Check the output voltage of the power supply and make sure that the voltage value is around 12VDC.
- Replace the power supply.

No Video

- Check if all the video cables are connected properly.
- Connect the computer directly to the monitor to verify that your monitor and computer are functioning properly.
- Restart the computers

Keyboard is not working

- Check if the keyboard is properly connected to the unit.
- Check if the USB cables connecting the unit and the computers are properly connected.
- Try connecting the USB on the computer to a different port.
- Make sure that the keyboard works when directly connected to the computer.
- Replace the keyboard.

Mouse is not working

- Check if the mouse is properly connected to the unit.
- Try connecting the USB on the computer to a different port.
- Make sure that the mouse works when directly connected to the computer.
- Replace the mouse.

No Audio

- Check if all the audio cables are connected properly.
- Connect the speakers directly to the computer to verify that the speakers and the computer audio are functioning properly.
- Check the audio settings of the computer and verify that the audio output is through the speakers.

TECHNICAL SUPPORT

For product inquiries, warranty questions, or technical questions, please contact info@smartavi.com.

LIMITED WARRANTY STATEMENT

A. Extent of limited warranty

SmartAVI, Inc. warrants to the end-user customers that the SmartAVI product specified above will be free from defects in materials and workmanship for the duration of 1 year, which duration begins on the date of purchase by the customer. Customer is responsible for maintaining proof of date of purchase.

SmartAVI limited warranty covers only those defects which arise as a result of normal use of the product, and do not apply to any:

- a. Improper or inadequate maintenance or modifications
- b. Operations outside product specifications
- c. Mechanical abuse and exposure to severe conditions

If SmartAVI receives, during applicable warranty period, a notice of defect, SmartAVI will at its discretion replace or repair defective product. If SmartAVI is unable to replace or repair defective product covered by the SmartAVI warranty within reasonable period of time, SmartAVI shall refund the cost of the product.

SmartAVI shall have no obligation to repair, replace or refund unit until customer returns defective product to SmartAVI.

Any replacement product could be new or like new, provided that it has functionality at least equal to that of the product being replaced.

SmartAVI limited warranty is valid in any country where the covered product is distributed by SmartAVI.

B. Limitations of warranty

To the extent allowed by local law, neither SmartAVI nor its third party suppliers make any other warranty or condition of any kind whether expressed or implied with respect to the SmartAVI product, and specifically disclaim implied warranties or conditions of merchantability, satisfactory quality, and fitness for a particular purpose.

C. Limitations of liability

To the extent allowed by local law the remedies provided in this warranty statement are the customers sole and exclusive remedies.

To the extent allowed by local law, except for the obligations specifically set forth in this warranty statement, in no event will SmartAVI or its third party suppliers be liable for direct, indirect, special, incidental, or consequential damages whether based on contract, tort or any other legal theory and whether advised of the possibility of such damages.

D. Local law

To the extent that this warranty statement is inconsistent with local law, this warranty statement shall be considered modified to be consistent with such law.



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