

# D2H-4P Duo

## User Manual

8-Port DisplayPort in, 2-Port HDMI out, 4K Ultra-HD KVM Switch with USB and Audio



Manage 4 computers with dual head, screen displays from a single workstation

**Smart-AVI**  
SMART AUDIO VIDEO INNOVATION

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<b>WHAT'S IN THE BOX?</b>		
<b>PART NO.</b>	<b>QTY</b>	<b>DESCRIPTION</b>
D2H-4P-Duo	1	4-Port Duo DisplayPort KVM Switch with Audio and USB 2.0 Sharing
PS5VD4A	1	Power Adapter External 100-240 VAC/5VDC4A
	1	Quick Start Guide

Brackets for mounting this device in a standard 19" rack may be optionally ordered from Smart-AVI.

## **FEATURES**

- Full EDID video emulation via HDMI output
- KVM control between four connected computers from a single workstation
- Supports resolutions up to 4K (3840x2160 @30Hz)
- DisplayPort 1.2 and HDMI compliant
- Zero pixel loss with TMDS signal correction
- Supports all USB 2.0 devices, including keyboard and mouse
- Supports Windows, Mac and Linux
- Optionally rack mountable
- Hot key commands for quick channel selection
- Independent (asynchronous) switching of KVM and peripheral USB ports. Users can scan a document and save in another computer
- Complete KVM emulation for error free booting
- Front panel buttons for manual switching
- Full HDMI support and backwards compatible with prior DisplayPort versions
- Stereo Audio sharing

## OVERVIEW

D2H-4p Duo is a dedicated multi-platform KVM switch capable of managing four 4K computers through a single, central workstation. Built with ultra-HD ready HDMI outputs, the D2H-4p Duo offers full video emulation directly from the device. Up until now, DisplayPort switches lost emulated picture when disconnected from monitors, leading to confusion and disorganization upon reconnecting. With the D2H-4p Duo, full EDID-assisted HDMI video emulation ensures visual workspaces and screen resolutions are remembered every time. The D2H-4p Duo is DisplayPort 1.2 and HDMI compliant, supporting screen resolutions up to 4K Ultra-HD (3840x2160 @ 30Hz) for remarkable and responsive video emulation. Additionally, the D2H-4p Duo is USB peripheral-friendly. The D2H-4p Duo is also easy to control with both a simple front-panel interface, as well as RS-232 functionality.

## SOURCE SWITCHING MADE EASY

The D2H-4P Duo offers simplified management between four DisplayPort equipped computers' USB 2.0 outputs. Keyboards, mice, and other connected USB devices can be switched between with ease. This dynamic KVM console can be controlled via hot keys or RS-232 commands, as well as directly through the console's easy-to-read front panel.

## EDID PASS-THROUGH AND RECOGNITION

The D2H-4P Duo features EDID Pass-Through technology and source recognition, which enables smooth and efficient switching in virtually any scenario. This plug-and-play EDID functionality makes set up hassle free and simple.

## FULL USB KEYBOARD AND MOUSE EMULATION

The USB keyboard and mouse emulation utilized by D2H-4P Duo provides quick source switching via keyboard hot keys. D2H-4P Duo simulates the presence of a keyboard and mouse for every attached computer through a USB cable. This essential function simulates keyboard, video, and mouse control for all connected computers, so switching between each is kept seamless and completely uninterrupted.

## FLEXIBLE CONTROL

**USB/KEYBOARD:** Hot keys enable the user to switch and control all the different functions of the KVM switch. **RS-232:** Any external device or program supporting RS-232 can control the D2H-4P Duo. The D2H-4P Duo uses a very simple protocol that enables easy integration with other devices.

## FLEXIBLE SHARING

**INDEPENDENT SIMULTANEOUS DEVICE SELECTION:** Flexibility is key with the D2H-4P Duo. It enables the use of a USB keyboard and mouse of one computer while other USB peripherals such as scanners and printers are connected to other computer sources. D2H-4P Duo maintains the ability to switch all connected devices to any one of the computer sources as with any other KVM switches.

## REAL-WORLD APPLICATIONS

The D2H-P Duo has a broad range of applications, but the main function is to centralize the access of up to four computers that support DisplayPort displays in a single workstation. Not only does it function as a KVM console, but it also supports USB 2.0 functionality. This allows users to access nearby USB devices, including those not supported by other KVM switches. The D2H-4P Duo is the ideal solution for medical, industrial, studio and defense applications, where it is not practical or safe to have multiple computers in the vicinity of the workstation.

- Server Hubs
- Retail Spaces
- Airports
- Control Rooms
- Restaurants and Eateries
- Hospitals/Medical Care
- Educational Facilities
- Dealer Rooms
- Audio/Visual Presentation Spaces
- Hotels/Resorts

## TECHNICAL SPECIFICATIONS

<b>VIDEO</b>	
Link Rate	5.4 Gbps
Input Interface	(8) DisplayPort (female) Version 1.2
Output Interface	(2) HDMI (female) Version 1.4
Resolution	Up to 4K (3840x2160 @ 30Hz)
Input Equalization	Automatic
Video Bandwidth	Single-link 340MHz [10.2Gbps]
HDCP Compliant	Yes
Input/Output Max Cable Length	40 ft. (Cable Quality Dependant)
<b>AUDIO</b>	
Input Interface	(4) 3.5 mm Stereo Audio
Output Interface	(1) 3.5 mm Stereo Audio
Impedance	600 Ohm
Frequency Response	20Hz ~ 20KHz
Nominal Level	0-1.0 V
Common Mode	Rejection at 60 dB
<b>CONTROL</b>	
Front Panel	Buttons
RS-232	DB9 Female - 9600 N,8,1, No flow control
Hot Keys	Via Keyboard, Select/Switch between Video & Audio sources
Emulation	Keyboard, Video and Mouse
<b>USB</b>	
Signal Type	USB 2.0, 1.1, and 1.0 w/ internal hub
Input Interface	(4) USB Type B (female)
Output Interface	(2) USB 1.1 Type A for keyboard and mouse; (2) USB 2.0 Type A Transparent
<b>OTHER</b>	
Power Adapter	External 100-240 VAC/ 5VDC4A
Dimensions	3" H x 5.75" D x 12.75" W
Weight	4.3 lbs.
Operating Temp.	+23 to +95 °F (-5 to +35 °C)
Operating Humidity	5 to 90% (No Condensation)
Storage Temp.	-4 to 185 °F (-20-85 °C)

## HARDWARE INSTALLATION

1. Ensure that power is disconnected from D2H-4P Duo.
2. Connect the DisplayPort cables, Audio and USB cables (male type-A to male type-B ) from the computers to the respective ports on the D2H-4P Duo.
3. Optionally connect RS-232 for control functions.
4. Connect the USB keyboard and mouse to the two USB ports on the right .  
Note: The 2 USB ports on the right are dedicated for keyboard and mouse with full emulation. The 2 on the left are for other USB peripherals (flash drives, printers, etc.)
5. Connect speakers to the out connector on the D2H-4P Duo.
6. Connect the HDMI Displays to the OUT connector on the D2H-4P Duo.
7. Power on the displays, Computers and other devices. Power on the D2H-4P Duo.

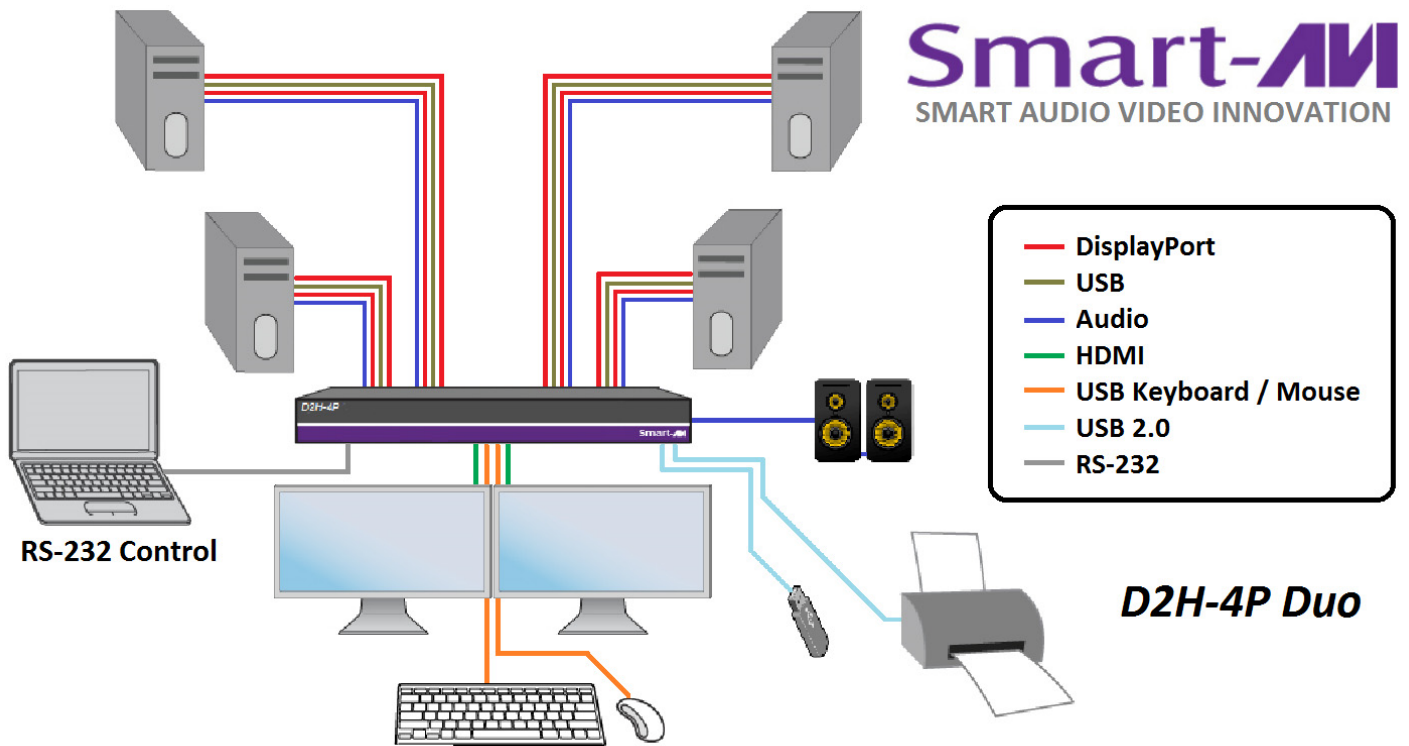


Figure 5-1



Figure 5-2

## FRONT PANEL CONTROL

To switch ports using the front panel, press the M1 or M2 button to navigate between connected computers. EDID learning is also done through the front panel buttons by pressing both buttons simultaneously.



Figure 6-1

## HOTKEY COMMANDS

The Hotkey command is a keyboard sequence used to trigger an action on the D2H-4P Duo through the use of the keyboard connected on the USB port of the D2H-4P Duo. To activate the hotkey sequence, press the CTRL key twice and then enter the desired hotkey commands. See Table 6-2.

COMMANDS	HOTKEYS	RS-232 CONTROL
Switch all devices (KVM, USB 2.0, and Audio)	[CTRL] [CTRL] m [port #] [ENTER]	//m [port #] [ENTER]
Switch KVM only	[CTRL] [CTRL] c [port #] [ENTER]	//c [port #] [ENTER]
Switch Audio only	[CTRL] [CTRL] a [port #] [ENTER]	//a [port #] [ENTER]
Switch USB 2.0 only	[CTRL] [CTRL] u [port #] [ENTER]	//u [port #] [ENTER]
EDID Learning	[CTRL] [CTRL] e [ENTER]	//e [ENTER]
Same as front panel ◀ M1 button	[CTRL] [CTRL] ↑	n/a
Same as front panel M2 ▶ button	[CTRL] [CTRL] ↓	n/a
Reset	[CTRL] [CTRL] r	//r
Factory Default Reset	[CTRL] [CTRL] f	//f

Table 6-2

## RS-232 CONTROL

Controlling the D2H-4P Duo via RS-232 requires an RS-232 card installed on your computer or a USB to RS-232 adapter. Check the D2H-4P Duo and your Computer to determine if you need a male to male or a male to female cable and how long it needs to be. The D2H-4P Duo requires a straight through cable. You can use a Null Modem Adapter to convert a crossed cable to a straight through cable. An example of a straight through cable pin-out is shown in Figure 7-1. The standard maximum length for an RS-232 cable is 50 feet. Call our Smart-AVI Support Engineer if you require more information.

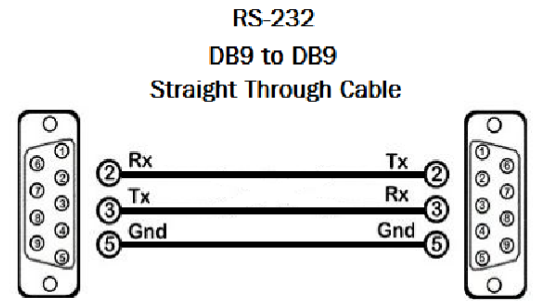


Figure 7-1

You will need to identify the COM port number used. On a Windows PC:

1. Click on the start button.
2. Click on Control Panel.
3. Click on Device Manager.
4. Click on the arrow next to Ports (COM & LPT).

You should see the COM port number in use. See Figure 7-2

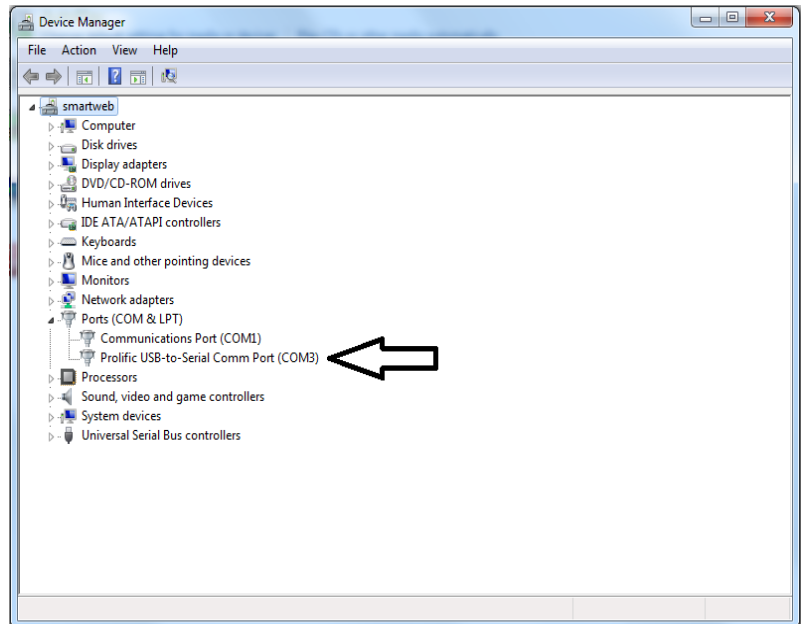


Figure 7-2

Run the terminal client of your choice such as HyperTerminal or PuTTY. Select the correct COM port on the computer. Use the following connection settings: **9600, N, 8, 1, no flow control.**

Cycling power on your unit will display a boot up message in your terminal software if the connection is correct.

**NOTE:** Your terminal software may not default to or display all of the settings above. If you attempt to connect and the settings above are not set correctly, after you set them correctly you may need to cycle power on your unit for communication to be established.

**See Table 6-2 for a list of RS-232 commands.**

# LIMITED WARRANTY STATEMENT

## A. Extent of limited warranty

Smart-AVI Technologies, Inc. warrants to the end-user customers that the Smart-AVI 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.

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

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

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

Smart-AVI limited warranty is valid in any country where the covered product is distributed by Smart-AVI.

## B. Limitations of warranty

To the extent allowed by local law, neither Smart-AVI nor its third party suppliers make any other warranty or condition of any kind whether expressed or implied with respect to the Smart-AVI 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 Smart-AVI 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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