# DVN-4Trio

## *User Manual*

## 4-Port Triple DVI-D KVM Switch with USB 2.0 and Audio Sharing

Access and control KVM on up to 4 computers with USB 2.0 and Audio Sharing, using one USB keyboard, one USB mouse and 3 DVI-D monitors

# Smart-AVI

## SMART AUDIO VIDEO INNOVATION

## TABLE OF CONTENTS

## WHAT'S IN THE BOX?

| PART NO. | QTY | DESCRIPTION |
|---|---|---|
| DVN-4TRIO-S | 1 | DVN-4Trio, 4x3 DVI-D, USB 2.0, Audio Switch |
| PS5VDC4A | 1 | Power Adapter 5VDC 4Amp |
| BRK-QUAD | 2 | Rack mount brackets (Optional) |
| | 1 | Quick Start Guide |



Figure 2-1



Figure 2-2

# INTRODUCTION

The DVN-4Trio is a dedicated multi-platform KVM switch capable of managing up to 4 different computers through three DVI-D monitors, one USB keyboard & mouse, a single set of speakers and a USB 2.0 Device.

The USB emulation technology utilized by the DVN-4Trio enables immediate hotkey source switching through a remote USB keyboard and mouse. TheDVN-4Trio uses DVI-D single link connectors providing high resolutions of up to 1920x1200 with zero pixel loss from TMDS signal correction.

EDID LEARNING & PROGRAMMING
Detection of DDC signals for all attached devices is effortless with DVN-4Trio due to its real EDID learning and programming. This is vital in optimizing the resolution of the selected graphics card to properly display on the remote monitor. Furthermore, the EDID learning feature continues to replicate the right DDC for the computer to enable the display card to effectively work whenunused ports are not selected.

# FEATURES

- Supports Mac, PC, Linux
- Supports High Resolution 1920x1200 60Hz
- Uses universal DVI Single Link connectors
- Zero pixel loss with TMDS signal correction
- Supports all USB 2.0 Devices
- Compatible with all major software including Windows, Linux, Mac OS, Sun OS, Unix
- Front panel keys for selecting channels manually
- Supports USB keyboard and mouse
- Balanced stereo audio output
- RS-232 for remote control
- Hot-key commands for quick channel selection.
- Independent (asynchronous) switching of KVM and peripheral USB/audio ports. Users can listen to audio from one computer while working on the other or scan a document and save in another computer.
- Complete keyboard emulation for error free booting

# APPLICATIONS

The DVN-4Trio has a broad range of applications, but the main function of this KVM switch is to centralize the access of several computers into one comprehensive workstation. Not only does it function as a KVM console, it also supports USB 2.0 functionality. This allows a user at the console to use USB devices that would otherwise be unavailable with conventional KVM devices. For example, it allows a user to use a flash memory drive or camera without having to plug it directly into the remote computer. DVN-4Trio is a perfect solution for the medical, finance or industrial field, where it may not be practical or safe to have one or more CPUs in the general vicinity.

- Server Collocation
- Digital Signage
- Education
- Airports
- Dealer Rooms
- Control Rooms
- Audio/Visual Presentations
- Shopping Centers
- Hotels/Resorts

# TECHNICAL SPECIFICATIONS

| VIDEO | |
|---|---|
| Format | DVI-D Single Link |
| Maximum Pixel Clock | 165 MHz |
| Input Interface | (12) DVI-D 29-pin |
| Output Interface | (3) DVI-D 29-pin |
| Resolution | Up to 1920 x 1200 @60Hz |
| DDC | 5 volts p-p (TTL) |
| Input Equalization | Automatic |
| Input & Output Cable Length | Up to 20 ft. |

| AUDIO | |
|---|---|
| Input Interface | (4) 3.5 mm Stereo Audio |
| Output Interface | (1) 3.5 mm Stereo Audio |
| Impedance | 600 Ohm |
| Frequency Response | 20 Hz to 20 kHz |
| Nominal Level | 0-1.0 V |
| Common Mode | Rejection at 60 dB |

| USB | |
|---|---|
| Signal Type | USB 2.0, 1.1, and 1.0 w/ internal hub |
| Input Interface | (4) USB Type B |
| Output Interface | (2) USB 1.1 Type A for keyboard & Mouse<br>(2) USB 2.0 Type A Transparent |

| CONTROL | |
|---|---|
| Front Panel | Buttons, Select/Switch between sources and view the current selected channel. |
| RS-232 | DB9 Female - 9600 N,8,1, No flow control |
| Hot Keys | Via Keyboard |

| OTHER | |
|---|---|
| Power | 100-240 VAC/ 5VDC4A @ 20W |
| Dimensions | 12.75W x 5.75D x 4.5H |
| Weight | 5.5 lbs. |
| Operating Temp. | 32-131 °F (0-55 °C) |
| Storage Temp. | -4-185 °F (-20-85 °C) |
| Humidity | Up to 95% (No Condensation) |
| Emulation | Keyboard and Mouse |

# HARDWARE INSTALLATION

1. Ensure that power is disconnected from DVN-4Trio.
2. Connect the DVI cables, USB cables (male-A to male-B), and audio cables from the computers to the respective input ports on the DVN-4Trio.
3. Optionally connect RS-232 for control functions.
4. Connect a USB keyboard and mouse to the two USB ports with keyboard, mouse symbols
   Note: These ports are dedicated for keyboard and mouse emulation. The USB 2.0 ports on the left are for other USB peripherals (flash drives, printers, etc.)
5. Connect the speakers into the Audio Out port located above the USB ports.
   Connect the display monitors to the DVI OUT connectors on the DVN-4Trio.
6. Power on all the computers, monitors and all other attached devices.
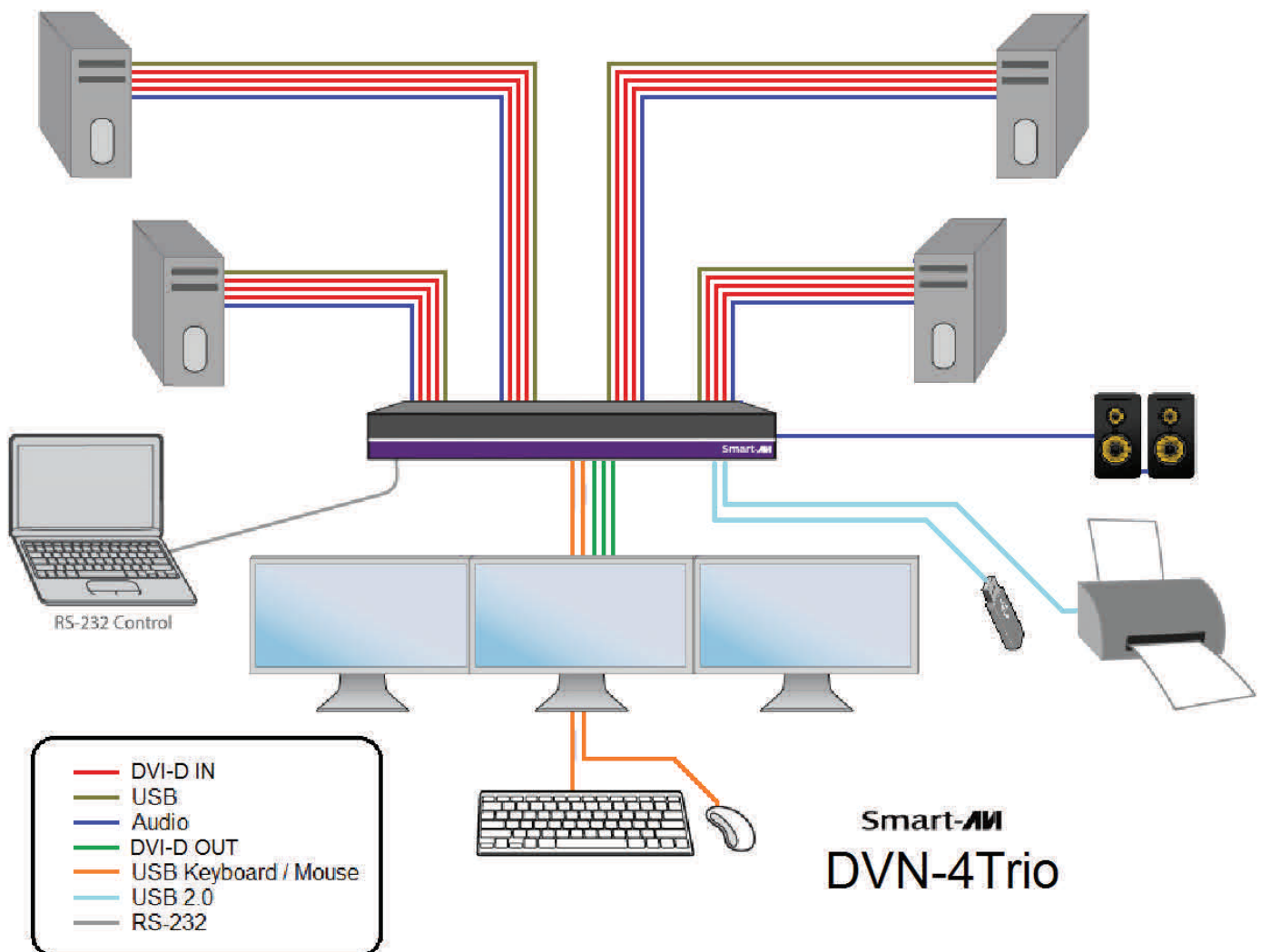7. Power on the DVN-4Trio.



Figure 5-1

5

# CONTROL

## Front Panel Control

To switch ports using the front panel, press the M1 or M2 button to navigate from computer to computer. The numbered LED lights will indicate which computer is selected. EDID learning is also done through the front panel buttons by pressing both buttons simultaneously.
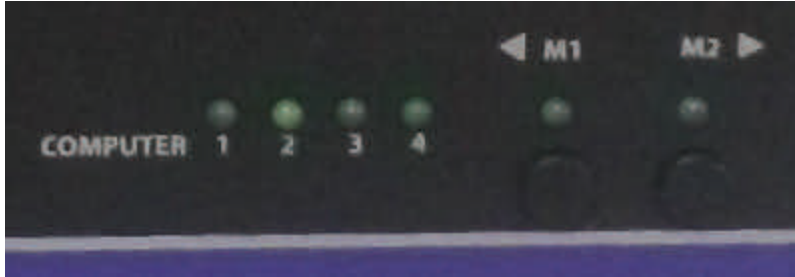


Figure 6-1

## Hotkey Commands

A Hotkey command is a keyboard sequence used to trigger an action on the DVN-4Trio through the use of the keyboard connected on the USB port of the DVN-4Trio. To activate the hotkey sequence, press the CTRL key twice and then enter the desired hotkey commands. Hotkey commands are listed below.

## RS-232 Control

RS-232 control allows for remote control of the DVN-4Trio. See the section on establishing an RS-232 connection in this manual. Set the connection to 9600 N,8,1, No flow control. RS-232 commands are listed below.

| 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] |
| Activate hotplug | n/a | //h [ENTER] |
| Same as front panel up arrow button | [CTRL] [CTRL] ↑ | n/a |
| Same as front panel down arrow button | [CTRL] [CTRL] ↓ | n/a |
| Reset | [CTRL] [CTRL] r | //r |

Table 6-2

# ESTABLISHING AN RS-232 CONNECTION

## Before you start:

Controlling a Smart-AVI device via RS-232 requires an RS-232 card installed on your computer or a USB to RS-232 adapter. Below are instructions on how to create an RS-232 connection between a PC and the Smart-AVI device.

Use terminal client software such as the PuTTY to connect to the DVN-4Trio. Make sure to use communication settings 9600 bps, N, 8, 1 No flow control.

Check the device and your PC to determine if you need a male to male or a male to female cable and how long it needs to be. The DVN-4Trio requires a straight through cable. You can use a Null Modem Adapter to convert a crossed cable to a straight through cable. Examples of crossed and straight thorough cable pin-outs are shown below. The standard maximum length for an RS-232 cable is 50 feet. Call our Smart-AVI Support Engineer if you require more information.
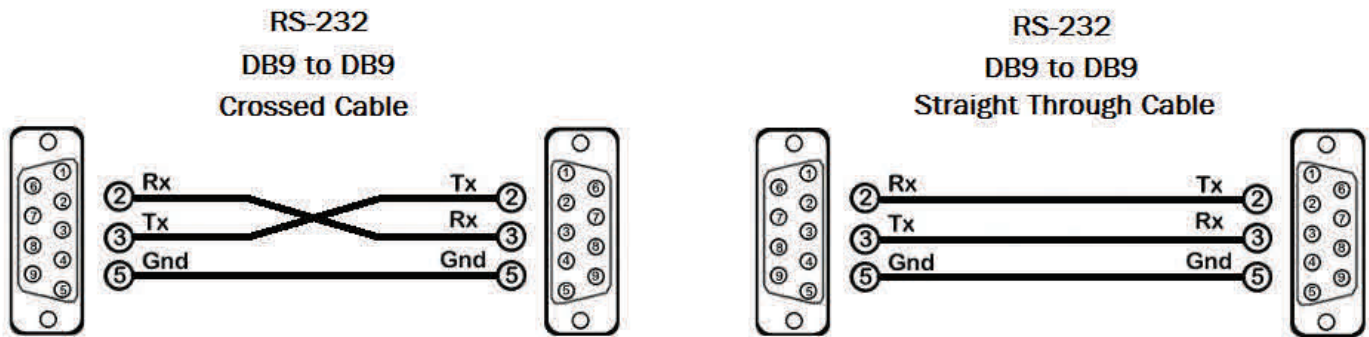


Figure 7-1
Examples of 9 pin RS-232 Straight Through and Crossed Cables

## Establish a connection to the Smart-AVI device:

1. Connect an RS-232 cable to the RS-232 connector on the PC.
2. Connect the other end of the cable to the RS-232 port of the DVN-4Trio.
3. Use Windows Control Panel / Device Manager to identify the Com port number. See instructions and Figure 7-2 below.
4. Power on the device.

If you are using a USB to COM port adapter on a Windows PC and need to identify the COM port used, do the following:

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).

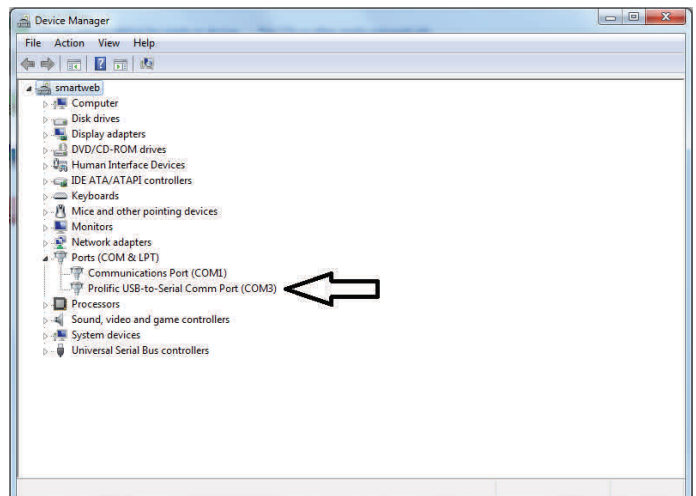You should see the name of your adapter and the COM port number in use.



Figure 7-2

# 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 extant 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 extant 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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## NOTICE

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