Smart-AVI
SMART AUDIO VIDEO INNOVATION

HDMVplus

4 PORT FULL HD MULTIVIEWER REAL-TIME USB/KVM SWITCH

View four different analog/digital video sources
simultaneously on one screen
with USB keyboard and mouse support.

USER MANUAL

Introduction

The HDMV Switch allows you to view up to four different High Definition video sources simultaneously on one display device. It also supports keyboard and mouse functionality, allowing you to access all four displays with one set of interface controls. Connections to video sources are managed via HD connectors. Advanced viewing options include quad-mode, full-screen mode, and PIP (picture in picture) mode. Use this device to simplify management of multiple sources by accessing and controlling them all through a single display and set of controls.

What is in the box?

Part No.	Quantity	Description
HDMV	1	HDMV
Power cord	1	Power supply cord
DB-9 cable	1	RS-232 cable for console communication

HDMVplus Front

HDMVplus Rear

Features

- View up to four computers on a single monitor at the press of a button
- Supports USB keyboard and mouse
- On-screen display (OSD) makes setup and switching easy
- Change views by pressing the tact switches, keyboard hotkeys, and RS-232
- Display each computer with clean and crisp high-resolution video
- Supports HD resolutions up to 1920x1080p
- Quad-mode splits the screen to show four computers on one screen
- PiP-mode displays one computer in full screen with three thumbnail views
- Control any one computer while monitoring three others

Status LEDs

Rack mount case

HDMVplus Front

Front control Panel

**USB inputs
(from computers)**

USB Keyboard and Mouse

Power

HDMVplus Rear

HDMI inputs

Output

RS-232 (DB9) connection

Applications

- Law enforcement
- Security Clearance
- Hospital and Hospice care patient monitoring
- Professional Presentations
- Corporate or Educational Presentations
- Financial (Remote Servers/User Control)
- Call Centers for Technical Support
- Industrial (Long-Range Workstation Isolation)
- Airport Installations (Air Traffic Control/Passenger Information)
- Medical (Remote Operation Away from Sensitive/Magnetic Equipment)
- Recording (for Large Studios where Editing/Mixing Stations are Compact and/or Require Complete Silence)
- Entertainment Production and Post production

APPLICATION DIAGRAM
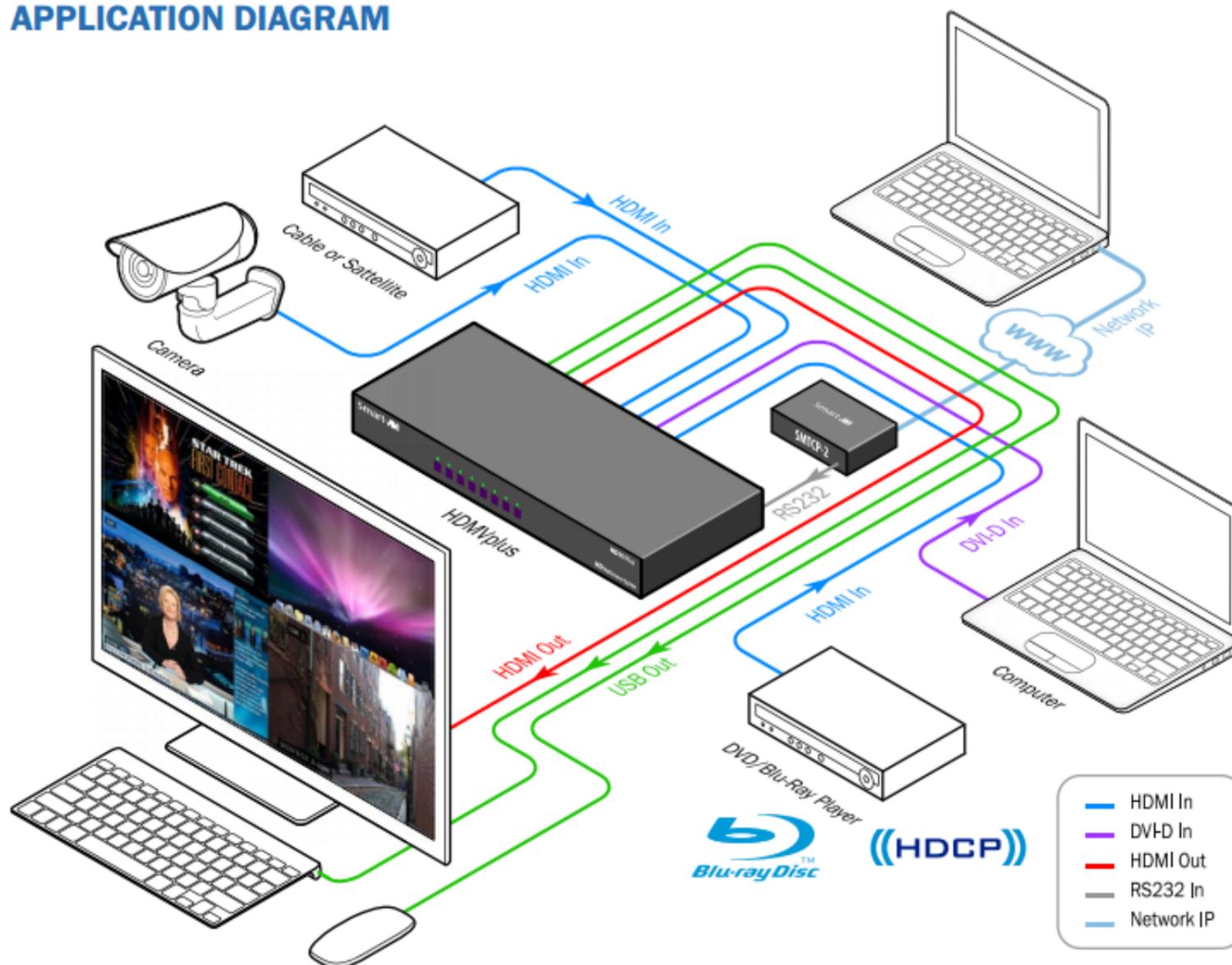
Connecting the Box

The power connection and switch are located at the back of the unit as well as the RS232 connection and all HDMI and USB inputs and outputs. Connect all peripheral devices first and turn them on before powering on the HDMV.

Note: It will take about 20 seconds for the unit to be fully on.

Modes

There are three different modes that are easy to navigate through. Switching between the display modes is simple. Use the buttons on the front panel, hotkey commands, OSD, or RS-232 console command to switch between modes.

AVAILABLE CONFIGURATIONS

FullScreen Mode - In the FullScreen mode, one of the four video sources is displayed in full screen size and maximum resolution. Keyboard and mouse operation automatically switch to the corresponding computer.

PiP Mode - In the PiP(picture in picture) mode, the full screen displays of one of the four video sources, and is accompanied by three smaller images (thumbnails) containing the other video sources on the right-hand margin of the screen, allowing simultaneous monitoring.

Quad-Mode - In Quad mode, the screen is split into four fields of equal size with the four video sources or computers being displayed in each of these fields. Keyboard and mouse operation can be assigned to the field of the corresponding computer.

Using the front control panel
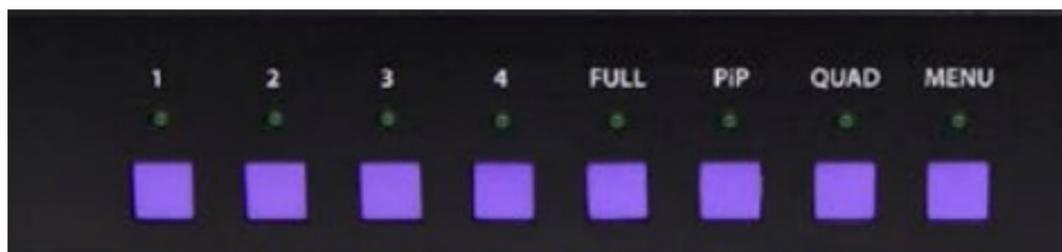
To switch to full screen mode press the button "FULL" on the front control panel and then select the desired channel 1, 2, 3, or 4.

To switch to picture in picture mode press "PiP" on the front control panel and then select the desire channel 1, 2, 3, or 4. Note: *The keyboard and mouse control will default to the last channel selected.*

To switch to Quad-Mode press "QUAD" on the front control panel and then select the desired channel 1, 2, 3, or 4.*The keyboard and mouse control will default to the last channel selected.*

Using the On Screen Display

The OSD can be accessed by using either the "MENU" button on the front control panel or through hotkey commands "hotkey + hotkey + O", for example if your hotkey is left ctrl (by default) press "ctrl + ctrl+ O" and the OSD will come up. The OSD allows you to change modes, change the hotkey button, move the OSD position, toggle the hotplugs, and restore the HDMV to factory defaults.
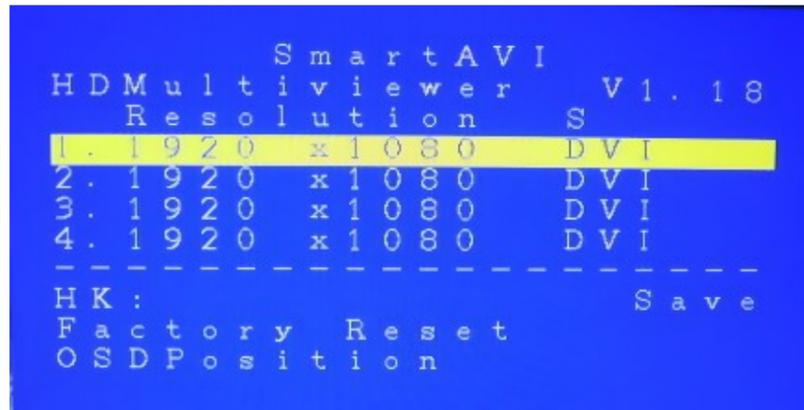
To change modes with the OSD simply navigate with the attached keyboard and press the up and down arrow keys, press the right key to activate the submenu and the left to deactivate it. To select a new mode scroll down to the input and press the right arrow key. Use the up and down arrow keys again to select Full, Quad, or PiP and press enter to change the mode.

The hotkey can be changed by using the up and down arrow in the OSD and pressing right arrow on "HK:" Next, a submenu will come up with the option to change the hotkey to ctrl, shift, and alt.
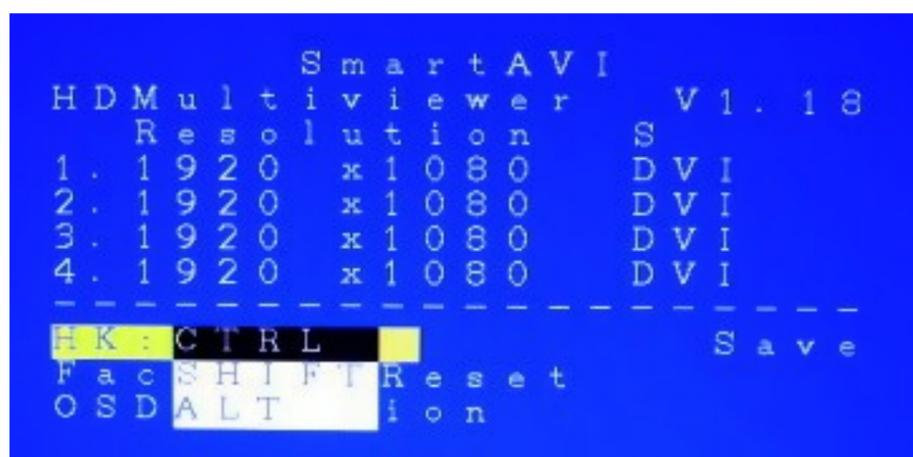
To save the settings navigate to the "Save" text and press the Enter key.

To restore the factory settings click scroll down to "Factory Reset" and press enter. The HDMV will perform a power reset on itself.

The position of the OSD can be moved around. Select the "OSD Position" text and press enter. Next use the up, down, left, and right arrows from the keyboard to move the position of the OSD. Likewise the 1, 2, 3, 4 buttons on the front control panel will move the OSD as well where 1 is down, 2 is up, 3 is left, and 4 is right.

Using Hotkey commands

The default factory hotkey is the left "ctrl" key. To use a hotkey command simply hit ctrl twice, and then the appropriate command.

Command	Function	Example
hotkey + hotkey + q	Change to quad mode	Ctrl + ctrl + q (quad mode)
Hotkey + hotkey + F + #	Change to full mode of channel	Ctrl + ctrl + f + 1 (full mode with channel 1)
Hotkey + hotkey + P + #	Change to picture in picture mode for that channel (Note, user control will default to the last channel selected.)	Ctrl + ctrl + p + 3 (picture in picture mode with channel 3 as the main)
Hotkey + hotkey + U + #	Change the user control	Ctrl + ctrl + u + 4 (user control changes to channel 4)
Hotkey + hotkey + O	Bring up the OSD	

RS-232 Operation and Console Commands

The HDMV may also be controlled via RS-232 commands; this feature requires an RS-232 card installed on your computer or a USB to RS-232 adapter. First connect the RS232 cable be-tween your PC and the HDMV.

Next connect to the device using HyperTerminal or a similar serial data application and an DB9 for RS-232 connection. The settings for the connection are as follows:
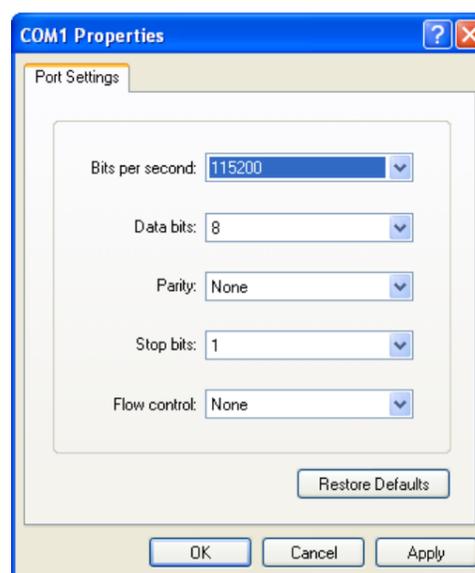
Any serial data application similar to HyperTerminal will be able to connect to the HDMV provided the Bits per second are 115200, the data bits are set to 8, the Parity is "None," the stop bits are "1," and there is no flow control. HyperTerminal comes standard on windows XP and can be en-abled on Windows Vista, Windows 7, and Windows 8. There are many applications available for win-dows, Linux, and Mac operating systems.

Console commands continued

Once connected simply enter a question mark "?" and press enter to bring up the optional commands

```
?

MultiViewer CLI command list
=========================================
i  List input port info
f  Full f [USER]
q  Quad q
p  PiP  p [Main Screen<1-4>]
u  User u <1-4>
reset system.
rTXEDID Read the EDID of the output.
rRXEDID <1-4> Read the EDID for an input.
wEDID <1-4> <1-Acer H213H 2 - GW_FHX2300>.
enHP  <1-4> Enable the HPD of an input.
enAHP Enables all HPDs.
dblHP <1-4> Disable the HPD of an input.
dblAHP Disable all HPDs.
ddrsftrst DDR software reset.
ddrpwrrst DDR power reset.
?  CLI command list
```

Mode	Console Command	Example
Quad mode	q + <enter>	"q" (quad mode)
Picture in picture	p # + <enter>	"p 3" (channel 3 main as picture in picture)
Full	f # + <enter>	"f 2" (switches full mode, with channel 2)
User select	u # + <enter>	"u 4" (switches the user to 4)
Reset	Reset + <enter>	"reset" (resets the system)
information	I + <enter>	"i" (brings up the input source table)

"ddrpwrrst" is used to perform a power reset on the display memory and is useful when the image has become distorted as a result of a dirty input signal.

Accessories

This product is backward compatible with DVI-D and VGA with the appropriate adapter.

SmartAVI makes a full line of accessories that can be used to enhance features of this product from giving you remote access via the internet or extending the range inputs and output over 200 ft, to many others. Visit our website for more information.

ACCESSORIES

Controlling the Multiviewer via Ethernet

The SMTCP-2 TCP/IP control module is available from smartavi.com

Attaching a DVI-D Device

An inexpensive HDMI to DVI-D adapter will enable you to input or output your signals to DVI-D devices

Q and A

Q: What do I need to use the RS-232 console?
A: A standard RS-232 cable, one end is male and the other end is female. Your computer must have an RS-232 card installed.

Q: How do I update the firmware?
A: If new firmware is available you will be able to download it from the SmartAVI website. Firmware is updated through the RS-232 connection and requires a program called Chip45Boot2 which is freely available. Open up Chip45Boot 2 and load the firmware file by clicking on "select flash file" and select the downloaded firmware update. Next establish the RS-232 connection with the HDMV box. Click "Connect to Bootloader" and then power on the HDMV soon thereafter. The firmware should be uploading. Click "disconnect from Bootloader" when it finishes and restart the device.

Q: I see vertical lines on the display what happened?
A: One of your input signals is likely dirty. Replace the offending cable and cycle the power. A power reset for the display can also be performed by typing "ddrpwrrst" in the console and pressing enter or by pressing the button "1" and "MENU" on the front control panel at the same time.

Q: Why does it take so long for the pictures to come up after powering on?
A: The HDMV is initializing and this requires time.

Q: My hotkey stopped working and I seem to be in computer control, what happened?
A: Your control has landed on the operating system and not through the keyboard control, this happens if you have another hotkey on your computer that conflicts with the HDMV. The solution is to change the hotkey of either the HDMV or your computer. If you are using windows simply press the windows button one time, and then issue another hotkey command to

Q: Why do my inputs appear pink, what happened?
A: The outputs of the attached devices have become confused. Physically unplugging the input and plugging it back in should restore the problem. Power cycle the HMDV.

Specifications

VIDEO	
Video Bandwidth	Single-link 340MHz [10.2Gbps]
Resolution HDTV	480i,480p,720i,720p,1080i,1080p
PC Resolution	800 x 600 up to 1920 x 1200
Input Video Signal	1.2 volts
Input DDC Signal	5 volts
Single Link Range	1080p
Format	HDMI 1.4
DVI Compliance	Single-link DVI-D 2.0
HDCP Compliance	1.0/2.0
Video Bandwidth	Single-link 340MHz [10.2Gbps]
Input Interface	(4) HDMI
Output Interface	HDMI
Connector	Type A [19-pin female]

USB	
Input	USB 2.0, 1.1, and 1.0
Input Interface	(4) USB Type B
Keyboard	USB 1.0 (Type A)
Mouse	USB 1.0 (Type A)

CONTROL	
Front Panel	Tact Switches
RS-232	DB9 (female)

POWER	
Requirements	Internal 100-240 VAC
Power Supply Approvals	UL, CE, CSA, CEC, RoHS

MECHANICAL	
Height	1.70 in. (1U)
Width	17 in. (431.8 mm.)
Depth	10.2 in. (259 mm.)
Weight	4.05 lbs. (1.84 kg.)

ORDERING INFORMATION	
Part No.	Description
SM-HDMV-PLUS	4-Port HDMI, USB Real-Time Multiviewer and KVM switch with PiP/Quad/Full modes. Includes: [SM-HDMV-PL (CCPWR06)]

Many industry-leading companies have recognized the innovation and power of SmartAVI's technologies and have successfully implemented them within their systems. Users of SmartAVI technology include:

NOTICE

The information contained in this document is subject to change without notice. SmartAVI makes no warranty of any kind with regard to this material, including but not limited to, implied warranties of merchantability and fitness for any particular purpose.

SmartAVI will not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance or use of this material.

No part of this document may be photocopied, reproduced or translated into another language without prior written consent from SmartAVI.

For more information, visit www.smartavi.com.

Designed and Manufactured in the USA

800.AVI.2131

Tel: (818) 503-6200 Fax: (818) 503-6208
11651 Vanowen St. North Hollywood, CA 91605

SmartAVI.com