

# HDMV-16X-PLUS

CONTROL KVM (KEYBOARD, VIDEO AND MOUSE) FOR SIXTEEN DIFFERENT COMPUTERS AND  
MONITOR ALL SIXTEEN SOURCES ON A SINGLE DISPLAY DEVICE SIMULTANEOUSLY



## USER MANUAL



Designed and Manufactured in the USA

**Smart-AVI**

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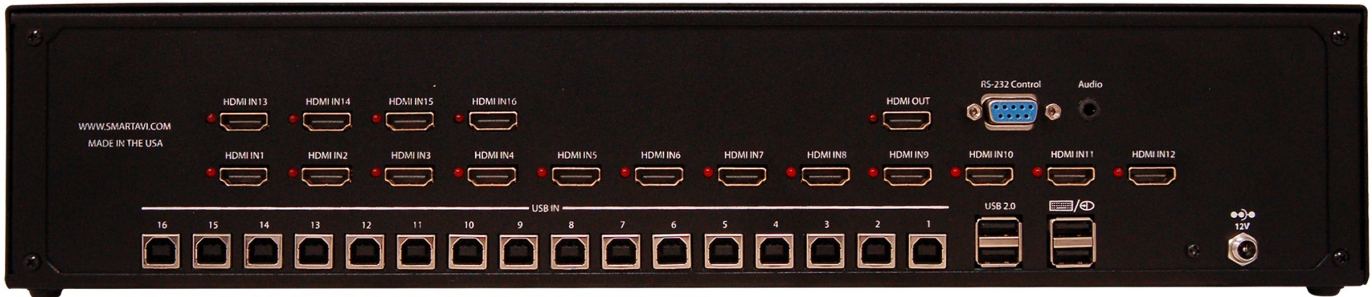
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# WHAT'S IN THE BOX?

HDMV-16X-Plus	16-Port KVM HD Multiviewer
PS12VDC3A	12V DC 3A power adapter with center-pin positive polarity
User Manual	

## HDMV-16X-PLUS REAR



## HDMV-16X-PLUS FRONT



Figure 3-1

# INTRODUCTION

The HDMV-16X-PLUS Multi-viewer Switch allows you to view up to sixteen different high definition video sources simultaneously on one display device. Connections to video sources are managed via HDMI connectors. Advanced viewing options include 16x mode, quad-mode & full-screen mode. Use this device to simplify management of multiple sources by controlling them all through a single display using the front panel, RS-232 or Hotkeys.

# FEATURES

- Control KVM on sixteen connected computers.
- View up to sixteen sources on a single monitor at the press of a button.
- Display each computer with crisp high-resolution video.
- Supports 1080p HDMI output (1920 x 1080).
- Supports DVI-D input resolutions up to 1900 x 1200 with HDMI to DVI-D adaptor.
- Change views with front panel switching, hot keys and RS-232.
- 3 mode displays. 1, 4 or sixteen inputs on one screen.
- Delivers uncompressed digital video with zero signal loss.
- Full Keyboard/Mouse Emulation on dedicated USB ports. The constant emulation of keyboard and mouse on the server side prevents problems if clients are disconnected or powered down.
- Full EDID video emulation. The EDID display information is produced continually for the connected computers preventing problems when the video is switched from one computer to another.
- Rack mountable.
- Hot key commands for quick port selection.
- Front panel keys for manual switching.

# TECHNICAL SPECIFICATIONS

VIDEO	
Resolution	Up to 1080P (1920x1080@60Hz)
HDTV Resolutions	80i,480p,720i,720p,1080i,1080p
PC Resolution	800 x 600 up to 1920 x 1200
HDMI Version	1.4 Backward compatible
HDCP Compliant	1.0/2.0
DVI Compliance	Single-link DVI-D 2.0 with adapter
Input Interface	(16) HDMI Type A 19-pin Female
Output Interface	(1) HDMI Type A 19-pin Female
Input Video Signal	1.2 volts
Input DDC Signal	5 volts
Single Link Range	1080p
Max data Rate	6.75 Gbps
Max Pixel Clock	225 MHz
Video Bandwidth	Single-link 340MHz [10.2Gbps]
Input Max Cable Length	20ft., 6m
Output Max Cable Length	20ft., 6m
USB	
Signal Type	USB 2.0, 1.1, and 1.0
Input Interface (Switched)	(16) Type B female
Device Input Interface	(2) Type A female, transparent
USB 1.0	(2) Type A female, Keyboard/Mouse with full emulation
CONTROL	
Front Panel	Tactile Switches
RS-232	DB9 Female, 9600, N, 8, 1, no flow control
Hotkeys	Via Keyboard
Emulation	Keyboard, Mouse and Video
OTHER	
Power External	External 100-240 VAC/12VDC3A @ 36W
Dimensions	17.0" W x 2.7" H x 8.69" D
Weight	6.9 lbs

# HARDWARE INSTALLATION

The power connection and switch are located at the back of the unit as well as the RS-232 connection and all HDMI and USB input and output. Connect all peripheral devices first and turn them on before powering on the HDMV-16X-Plus. The control software uses HDMI input port numbers that differ from those marked on the back panel. The HDMI input port numbers you must use with the control software have been added to the back photo for clarity. See Figure 6-1.

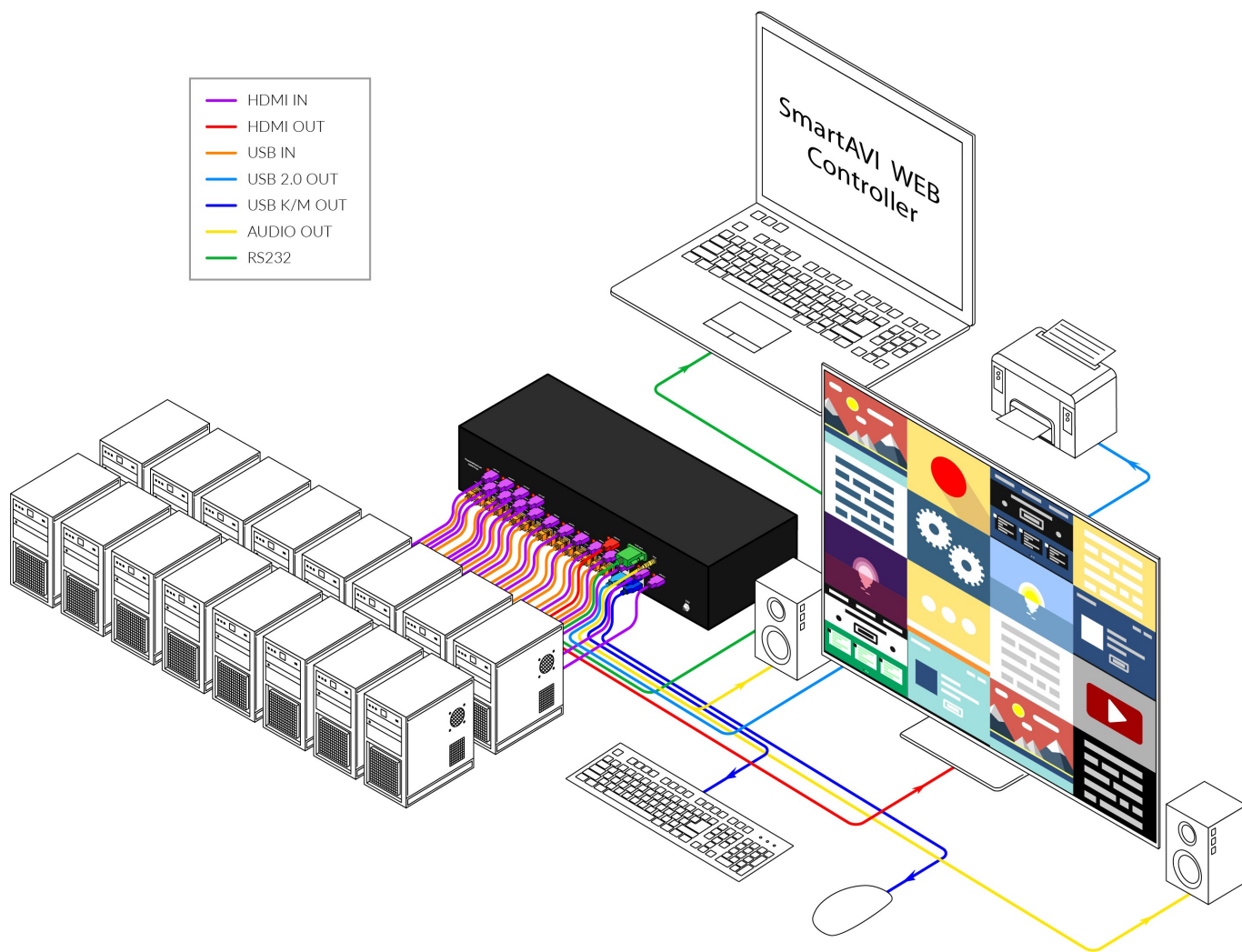


Figure 6-1

# USING THE FRONT PANEL BUTTONS

To switch Input Channels, press the desired button on the front panel. The green LED above that button will light up to indicate that the specified channel now has control of the keyboard and mouse.

To access the control menu to change the View Mode, press and hold buttons 8 and 16 on the front panel (labeled "Mode Select") for 2 seconds, this will cause the 3 display buttons to blink. Selecting any of those 3 buttons will change the view mode to the desired mode. The blue light from the bottom buttons labeled Full Screen, Quad, and 16X modes will indicate the current Display mode. See Figures 7-1 and 7-2.

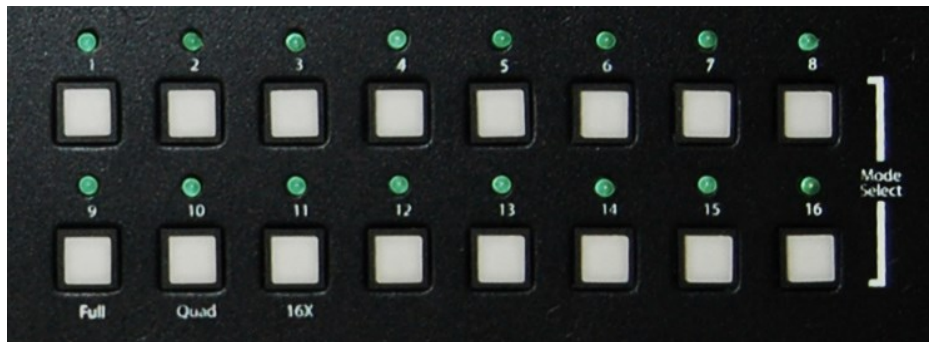


Figure 7-1

## MODES

**1**

**Full Screen Mode** - In the Full Screen mode, one of sixteen video sources are displayed in full screen size and maximum resolution.

<b>1</b>	<b>2</b>
<b>3</b>	<b>4</b>

**Quad Screen Mode** - In the Quad Screen mode, the screen is split into four fields of equal size with four video sources displayed in each field.

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>

**16x Mode** - In the 16x mode, the screen displays all sources in a four by four matrix.

Figure 7-2

## KVM OPERATION

To enable KVM functionality connect a USB keyboard to the USB slot on the back panel indicated by the keyboard symbol and connect a USB mouse to the USB slot on the back panel indicated by the mouse symbol. See Figure 6-2 on page 6 for these locations. Connect all computers or peripherals with a USB keyboard or mouse to the HDMV-16X-Plus USB inputs shown on page 6, figure 6-2 with a USB type A to type B cable.

## KVM CONTROL (HOTKEYS)

KVM control can be granted through RS-232 operation, detailed in the next section, or through the KVM keyboard directly. Furthermore, in full screen mode, KVM control is always granted to the selected user. To grant KVM control through the KVM keyboard among other functions, refer to Figure 9-1.

Command Description	HotKey
Switch USB and Video	[CTRL] [CTRL] m [port #] [ENTER]
Switch Only Video	[CTRL] [CTRL] i [port #] [ENTER]
Switch to Full Screen Mode	[CTRL] [CTRL] x 1 [ENTER]
Switch to Quad Mode	[CTRL] [CTRL] x 2 [ENTER]
Switch to 16X Mode	[CTRL] [CTRL] x 3 [ENTER]
Turn Borders ON	[CTRL] [CTRL] b 1 [ENTER]
Turn Borders OFF	[CTRL] [CTRL] b 0 [ENTER]

Figure 8-1



# RS-232 CONTROL

The HDMV-16X-PLUS 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 RS-232 cable (straight thru pin out) between your PC and the HDMV-16X-PLUS. Different connections can be seen in Figure 9-2.



Figure 9-1

Next connect to the device using PuTTY, HyperTerminal or a similar application. This software or download links can be found on the Smart-AVI website. Use the following settings for the connection: 9600 baud rate, no parity bits, 8 data bits, one stop bit, and no flow control.

Once connected and enabled, refer to Figure 10-1 for console commands.

Command Description	RS-232 Command
Switch USB and Video	//M[port #] [ENTER]
Switch Only Video	//I[port #] [ENTER]
Switch to Full Screen Mode	//X1 [ENTER]
Switch to Quad Mode	//X2 [ENTER]
Switch to 16X Mode	//X3 [ENTER]
Query Current Status	//?? [ENTER]

Figure 9-2

# 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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SMART AUDIO VIDEO INNOVATION

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