HDMV16X-Plus

User Manual

Control KVM (Keyboard, Video and Mouse) for sixteen different computers and monitor all sixteen sources on a single display device simultaneously

Smart-AVI
SMART AUDIO VIDEO INNOVATION

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WHAT'S IN THE BOX?

PART NO.	QTY	DESCRIPTION
HDMV16X-Plus	1	16-Port KVM HD Multiviewer
CCPWR06	1	6' Power Plug Cable
	1	Quick Start Guide

INTRODUCTION

The HDMV 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, 9x mode, quad-mode, dual-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.
- On-Screen Display (OSD) makes setup and switching easy.
- 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.
- Supports EDID for total control of compliant displays.
- Change views with front panel switching, hot keys, RS-232.
- 5 mode displays. 1, 2, 4, 9 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	480i,480p,720i,720p,1080i,1080p
PC Resolution	800 x 600 up to 1920 x 1200
HDMI Version	1.4 Backward compatible
HDCP Complient	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
CONTROL	
Front Panel	Tactile Switches
Front Panel Display	4X40 LCD
RS-232	DB9 Female, 115200, N, 8, 1, no flow control
Hotkeys	Via Keyboard
Emulation	Keyboard, Mouse and Video
OTHER	
Power Internal / External	100-240 VAC
Dimensions	17.5" W x 12" H x 12" D
Weight	
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

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 HDMV16X-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 5-1.
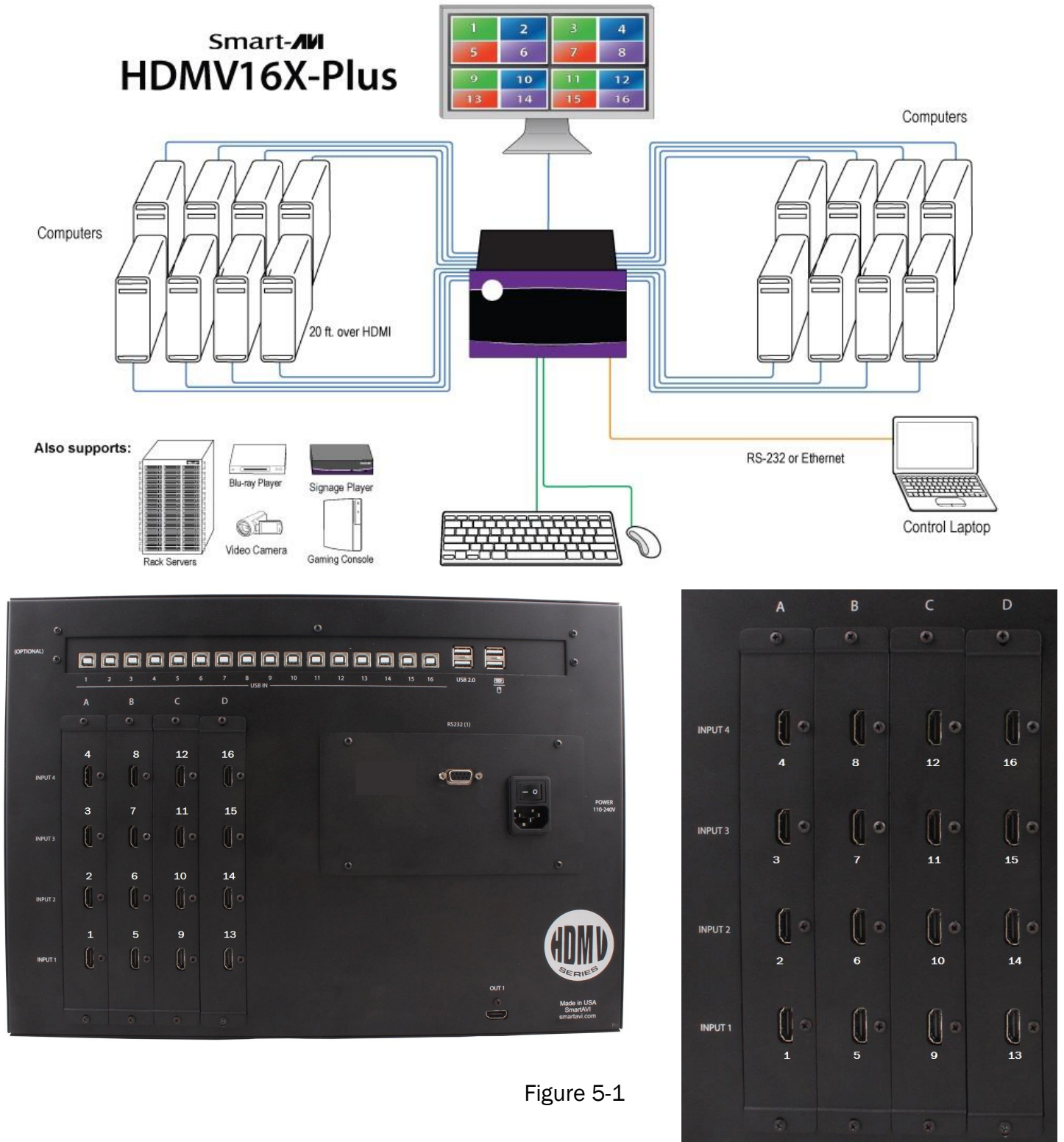

Figure 5-1

HARDWARE INSTALLATION (Continued)

FRONT PANEL LAYOUT

1. Control Buttons
2. Status Display

Figure 6-1

BACK PANEL LAYOUT

1. Power in
2. Keyboard/Mouse
3. RS-232
4. HDMI Inputs
5. USB Inputs
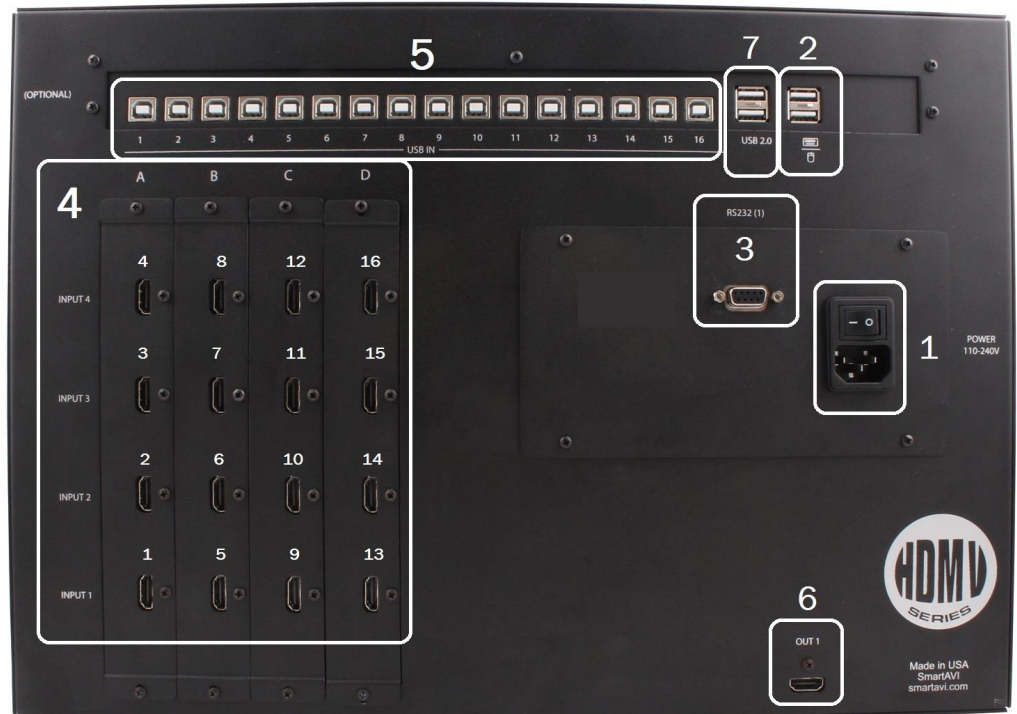6. HDMI Output
7. USB Ports (Flash drives, Printers, etc.)

Figure 6-2

USING THE FRONT PANEL BUTTONS

To switch display modes, press the "MENU" button, then use the "UP Arrow" button and the "DOWN Arrow" button to cycle between all the modes. Hit enter on the desired mode.
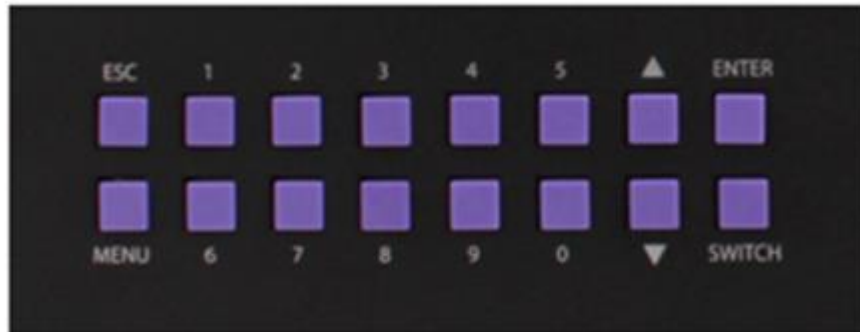See Figure 7-1 and Figure 7-2.

Figure 7-1

Modes

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

Dual Screen Mode - In the Dual Screen mode, the screen is split into two fields of equal size with two video sources displayed in each field. Aspect ratio is maintained in dual screen mode.

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.

9x Mode - In the 9x mode, the screen is split into nine fields of equal size with nine video sources displayed in each field.

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

Figure 7-2

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USING THE FRONT PANEL BUTTONS (Continued)

To switch the source press the "ENTER" button and enter the desired source number (1-16), then either hit the "SWITCH" button to move to the field or hit the "ENTER" button to finish and execute.

Hit the "ESC" button to escape out of the menu at any time.

The On-Screen-Display can also be accessed by hitting the "ESC" button when not inside the menu. Refer to the OSD section for more information. To write EDID, press the button "MENU" then use the "UP" or "DOWN" button to cycle through the options until "EDID" appears. Hit "ENTER" then select the desired EDID by hitting 1,2, or 3 on the front control panel. Then select either yes or no by hitting the "SWITCH" button and confirming with "ENTER".

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 HDMV16X-Plus USB inputs shown on page 6, figure 6-2 with a USB type A to type B cable shown in Figure 8-1
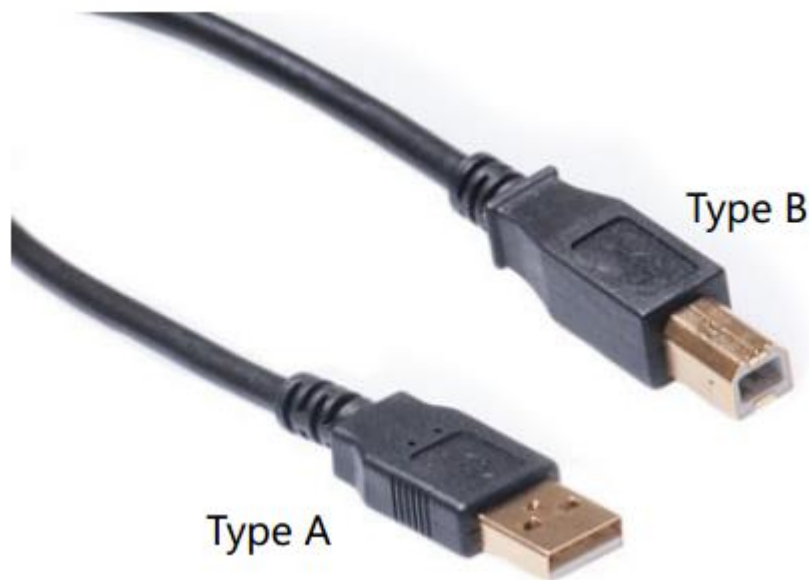

Figure 8-1

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.

Hotkey Sequences		
Function	Hotkey Sequence	Description
16x	[Ctrl][Ctrl][1][6][x][ENTER]	Displays all sources in a 4x4 matrix
Full	[Ctrl][Ctrl][F][m(m)][ENTER]	Display 1 defined source full screen
Dual	[Ctrl][Ctrl][D][m(m)][ENTER][n]([n])[ENTER]	Displays all sources in a 1x2 matrix
Quad	[Ctrl][Ctrl][Q][m(m)][ENTER][n(n)][ENTER][o(o)][ENTER][p(p)][ENTER]	Displays all sources in a 2x2 matrix
User Switch	[Ctrl][Ctrl][U][x(x)][ENTER]	Grants KVM control to selected user
OSD on	[Ctrl][Ctrl][O][ENTER]	Enables the OSD menu
Reset	[Ctrl][Ctrl][R][ENTER]	Resets the HDMV

Figure 9-1

RS-232 CONTROL

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

Figure 9-2

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: 115200 baud rate, no parity bits, 8 data bits, one stop bit, and no flow control.

RS-232 CONTROL (Continued)

Once connected type "ON" and hit enter to enable console commands. Once connected and enabled, refer to Figure 10-1 for console commands or type "?" and hit enter for a list of available commands.

Console Commands		
Commands	Input	Description
16x Mode	16x[ENTER]	Displays all sources in a 4x4 matrix
9x Mode	9x m n o p q r s t u[ENTER]	Displays 9 defined sources in a 3x3 matrix
Quad Mode	Q m n o p[ENTER]	Displays 4 defined sources in a 2x2 matrix
Dual Mode	D m n[ENTER]	Displays 2 defined sources in a 1x2 matrix
Full Mode	F m[ENTER]	Display 1 defined source full screen
Source Info	I[ENTER]	Lists information for all sources
Write EDID	WE m[ENTER]	Write EDID. 1 = CAT6066, 2 = FHX2300, 3 = Local Monitor
Enable Hotplug	EH m[ENTER]	Enables hotplug for the specified port.
Disable Hotplug	DH m[ENTER]	Disables hotplug for the specified port.
ON	ON[ENTER]	Enables commands
OFF	OFF[ENTER]	Disables commands
KVM version	USB[ENTER]	Displays the KVM version
Help	?[ENTER]	Displays this menu in terminal
IP address*	IP[ENTER]	Displays the IP address

* Only available on the HDMV16X Not available on the HDMV16X-Plus

Figure 10-1

NAVIGATING THE OSD

The OSD (On Screen Display) can be accessed through the front panel or USB keyboard. Hit the Esc button on the front panel or use the hotkey sequence shown in figure 9-1 on page 9 to display the OSD menu shown in Figure 11-1.
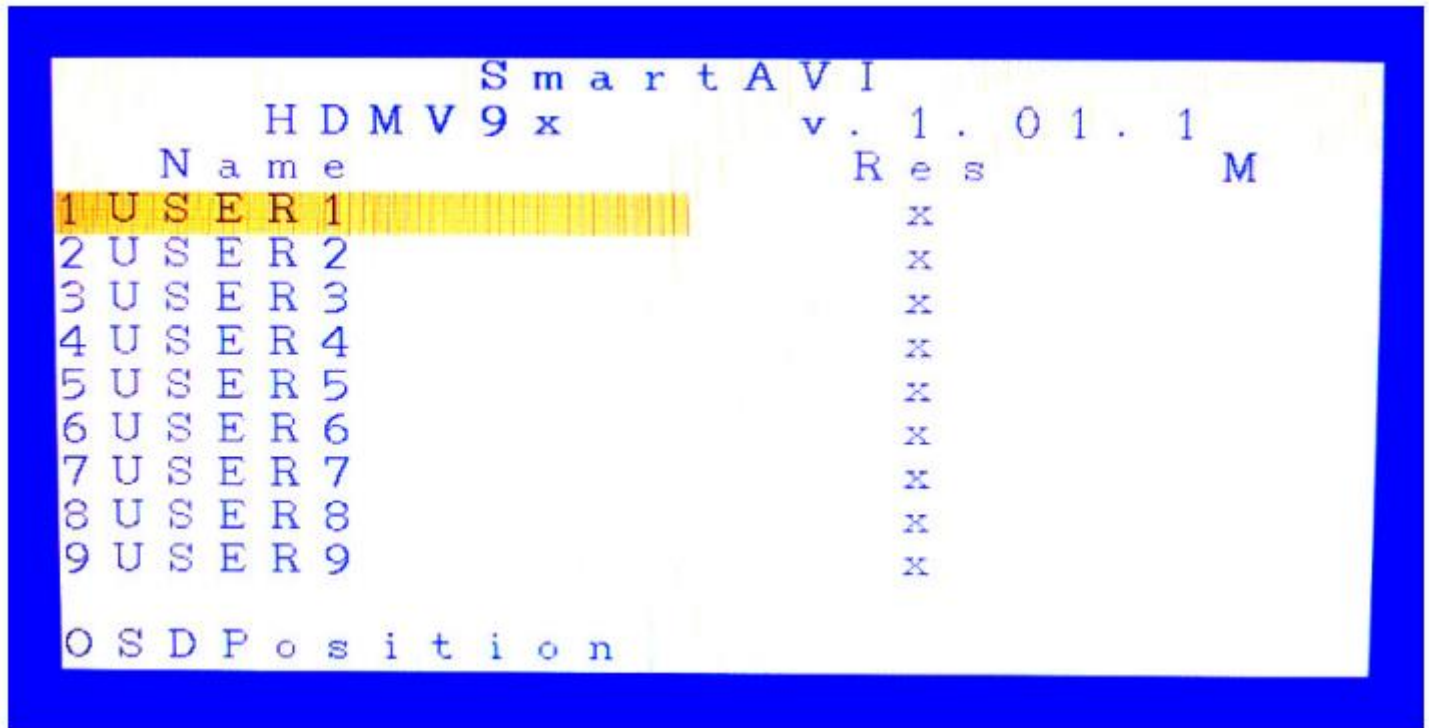

Figure 11-1

The first column displays the name of each source. The second column displays the resolution for each source. The third column displays the Mode a source is displayed in. All sources default to USER[X] on first launch. The name of each source can be changed through the KVM control. The HDMV16x-Plus will save the names in its memory and it will retain the names after power cycles. The resolution displayed in the second column is the input resolution for that particular source. It is updated in real-time if any resolution changes are made. The mode for a source is displayed in the third column. If a source is unused, it will display a blank field in the third column. Conversely, if a source is used, its mode will be displayed here. Hit the "DOWN" button to see the remaining sources. Hit the "UP" button to see the first nine inputs again. The OSD menu will also display the KVM firmware version at the bottom of the menu.

LIMITED WARRANTY STATEMENT

A.   Extent of limited warranty

1. 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.

2. 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

3. 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.

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

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

6. 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

Designed and Manufactured in the USA

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