

# DVR 8X8

## User Manual

8-port DVI-D Matrix Switch



Display Content From Any 8 Computers  
On Any 8 Screens Independently  
Up To 20 Feet Away

**Smart-AM**  
SMART AUDIO VIDEO INNOVATION

## TABLE OF CONTENTS

WHAT'S IN THE BOX?	2
INTRODUCTION	3
FEATURES	3
APPLICATIONS	3
TECHNICAL SPECIFICATIONS	4
HARDWARE INSTALLATION	5
FRONT PANEL CONTROL	6
DDC LEARNING	7
IR REMOTE CONTROL	7
ESTABLISHING AN RS-232 CONNECTION	8
USING THE SmartControl SOFTWARE	9-11
LIMITED WARRANTY STATEMENT	12

## WHAT'S IN THE BOX?

PART NO.	QTY	DESCRIPTION
DVR8X8S	1	DVI-D 8x8 Router
PS5VDC4A	1	Power Adapter
SM-EYE2	1	IR Eye (Optional)
SAVI-RMT	1	IR Remote Control (Optional)
EN-DVR8X8-EAR-P	2	Rack Mount Brackets
	1	Quick Start Guide



Figure 2-1

## INTRODUCTION

The DVR 8x8 is a high-quality switching matrix for up to 8 input and 8 output video signals. This allows an easy and dynamic approach to displaying content from 8 video sources on 8 screens independently.

The matrix provides DVI-D, single-link Video interface at the maximum TMDS rate of 2 x 1.65 Gbps at resolutions up to 1920 x 1200. The DVI signals can be transmitted up to 20 feet on both the input and output sides of the switch.

Control the matrix instantly either locally via the front panel button or remotely using RS-232 connection and Windows based software that is easy to understand and simple to use – a cornerstone of all SmartAVI products.

## FEATURES

- Supports resolutions up to 1920 x 1200
- Control from either Front Panel or via RS-232
- IR Remote Control available optionally
- Ethernet control available optionally
- Easy-to-use Windows®-based software for remote control via RS-232.
- Supports DVI operation at the maximum TMDS rate of 2 x 1.65 Gbps
- Multiple EDID Support
- Programmable EDID
- Automatic EDID learning from monitor

## APPLICATIONS

- Wall Displays
- Digital Media
- Airports
- Dealer Rooms
- Control Rooms
- Audio/Visual Presentations
- Shopping Centers
- Security
- Point-of-Sale
- Hotels/Resort

## TECHNICAL SPECIFICATIONS

VIDEO	
Format	DVI-D Single Line
Input Interface	(8) DVI-I 29-pin (Female)
Output Interface	(8) DVI-I 29-pin (Female)
Resolution	Up to 1920 x 1200 @ 60Hz
DDC	5 volts p-p(TTL)
Input Equalization	Automatic
Input Cable Length	Up to 20 ft.
Output Cable Length	Up to 20 ft.
CONTROL	
Front Panel	Buttons, Select/Switch between sources and view the current selected channel.
RS-232	DB9 Female - 115200, N,8,1, No flow control
IR Remote Control	Remote Control and IR EYE (Optional)
OTHER	
Power	External 100-240 VAC / 5VDC4A
Weight	2.55 lbs.
Dimensions	17" W x 7" D x 2" H
Operating Temp.	0 to 55 °C (32 to 131 °F)
Storage Temp.	-20 to 85 °C (-4 to 185 °F)
Humidity	Up to 95% No Condensation

## HARDWARE INSTALLATION

1. Power off the computers and displays.
2. Connect the DVI video cables from the computers to the DVI-D inputs on the rear of the DVR 8X8.
3. Connect the DVI displays to the DVI-D outputs on the rear of the DVR 8X8.
4. Optionally connect the IR Eye for IR remote control.
5. Optionally connect a computer to the RS-232 port on the DVR 8X8 for additional remote control.
6. Power on the DVR 8X8.
7. Power on the computers and displays.

SmartAVI's DVR 8X8 uses the Windows®-based SmartControl software application that makes user interface via RS-232 simple. See the full manual for more information.

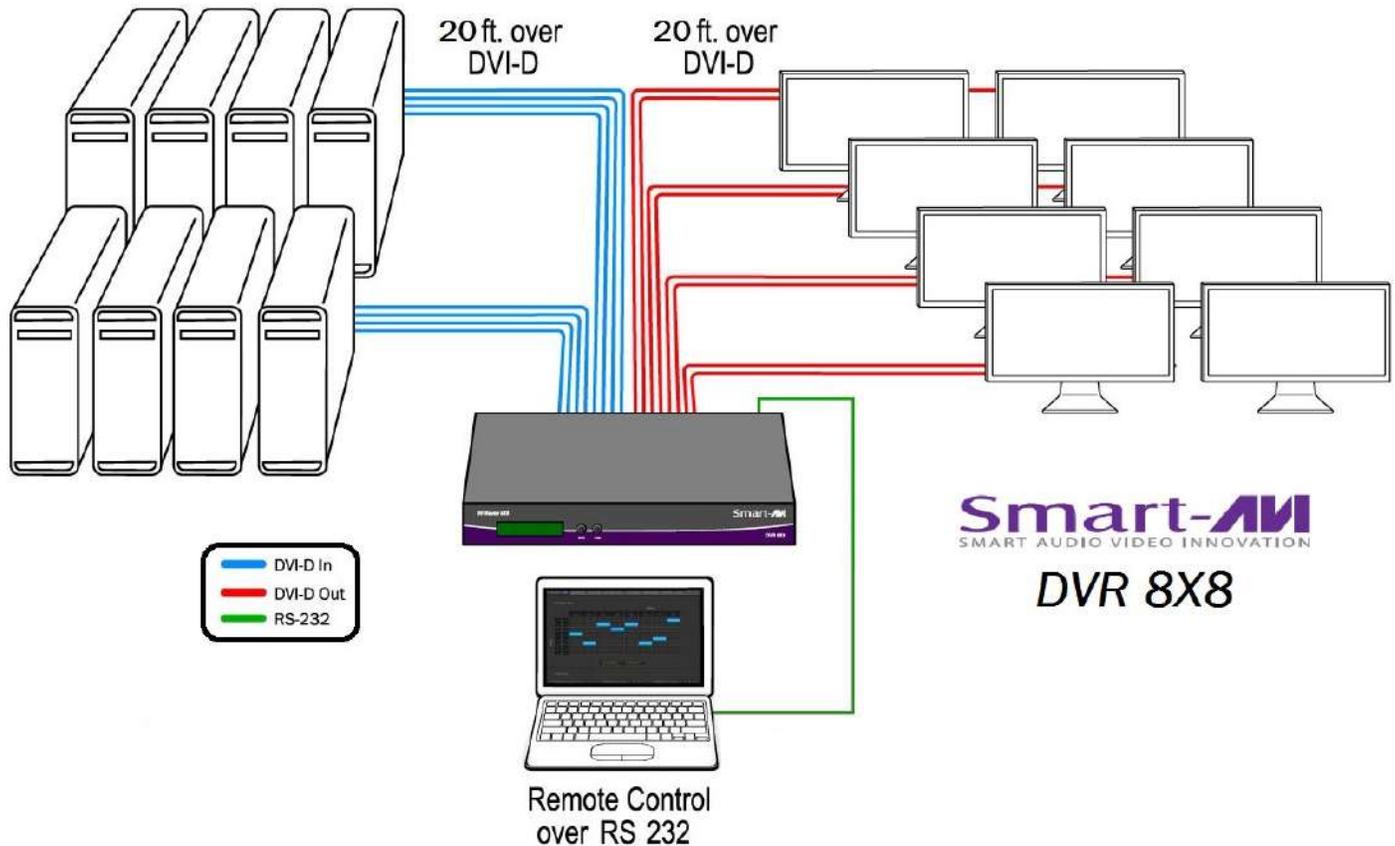
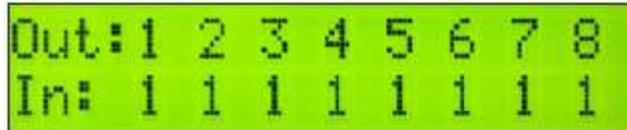


Figure 5-1

## FRONT PANEL CONTROL

During normal operation, you will see a list of ports on the front panel display. The display will list the status of ports 1-8:



```
Out: 1 2 3 4 5 6 7 8
In:  1 1 1 1 1 1 1 1
```

Figure 6-1

To switch ports using the front panel, press and hold the **Scroll** button for one second to enter port selection mode. A block cursor will appear over the first input port



```
Out: 1 2 3 4 5 6 7 8
In:  █ 1 1 1 1 1 1 1
```

Figure 6-2

1. Press **Enter** to select the output port you would like to change.
2. When selected, press the **Scroll** button to change the input port number.
3. Press **Enter** to execute and move the cursor to the next output port.

To exit the port editing mode, wait 5 seconds and the DVR8X8 will return to status mode.

## MENU Options

To access the other features of the DVR8X8, press and hold both the **Scroll** and **Enter** buttons simultaneously for 3 seconds and release to bring up the MENU screen. Press **Scroll** to cycle through the following list of options:



```
SETUP MENU  U: 3.1
DDC <P> : PC

SETUP MENU  U: 3.1
Factory Reset?  Y

SETUP MENU  U: 3.1
DDC <P> : MAC

SETUP MENU  U: 3.1
Memory Recall? Y

SETUP MENU  U: 3.1
DDC <P> : SCREEN

SETUP MENU  U: 3.1
EXIT
```

Figure 6-3

To change the status of the selected option, press the **Enter** button.

- DDC : PC - changes the DDC table to PC (see DDC Learning)
- DDC : MAC - changes the DDC table to Mac (see DDC Learning)
- DDC : SCREEN - changes the DDC table to SCREEN (see DDC Learning)
- FACTORY RESET - resets the DVR8X8 to the factory default settings.
- MEMORY RECALL - recalls the last working configuration after a power cycle.
- EXIT - exits the MENU

## DDC LEARNING

DDC provides plug-and-play capability to your displays. When you plug a display into your computer, the DDC table in the display tells the computer the optimal resolution to use. In order to preserve this plug-and-play capability, we have integrated DDC learning into all of our DVI Solutions.

To enter CHANGE DDC mode, press and hold both the **Scroll** and **Enter** buttons simultaneously for 3 seconds to bring up the MENU screen and use **Scroll** to cycle through the menu options. To select a mode, press **Enter**. The currently selected DDC Mode will be indicated by a letter in brackets (**P** for PC, **M** for Mac, and **S** for Screen).

“DDC <P>: PC” indicates Personal Computer Mode and automatically selects the standard display characteristics of a PC display, which typically works for any PC/Display combination. This mode is indicated by <P>).



```
SETUP MENU  U: 3.1  
DDC <P> : PC
```

“DDC <M>: MAC” indicates Mac Mode and selects the best display mode to accommodate a Mac. This mode is indicated by <M>.



```
SETUP MENU  U: 3.1  
DDC <P> : MAC
```

“DDC <S>: SCREEN” indicates Screen Mode, which learns the type of display connected to the “OUT” port. This mode is indicated by <S>.



```
SETUP MENU  U: 3.1  
DDC <P> : SCREEN
```

Figure 7-1

## IR REMOTE CONTROL

Plug in the optional IR Eye (Receiver) into the IR port on the back of the DVR8X8. Secure it with tape so it is visible to the remote control. Point the optional remote control at the IR Eye and:

1. Press the “IN” button.
2. Press the number for the input (source) port.
3. Press the “OUT” button.
4. Press the number for the output (display) port.
5. Press the “OK” button to execute.



Figure 7-2

## 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.

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 Smart-AVI device 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 through 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.

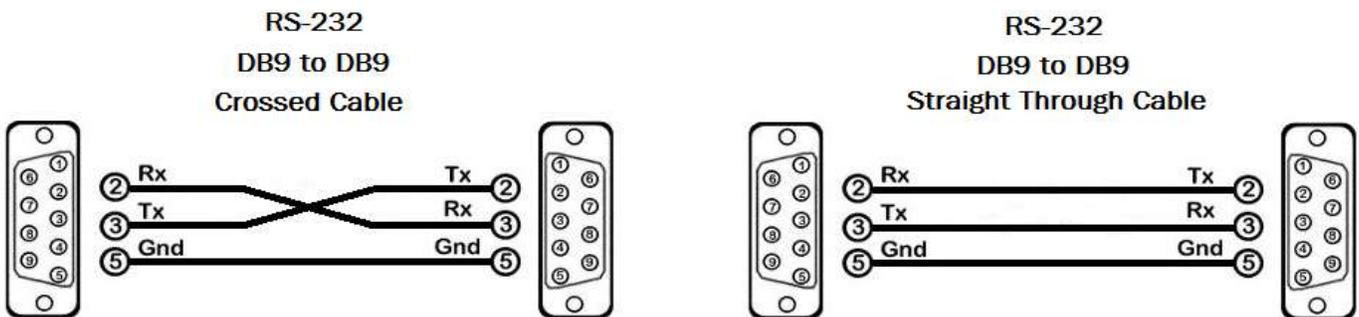


Figure 8-1  
Examples of 9 pin RS-232 Straight Through and Crossed Cables

### 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 Smart-AVI device.
3. Use Windows Control Panel / Device Manager to identify the Com port number. See instructions and Figure 8-2 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. In Windows 7 you need to click on "Hardware and Sound" to get to 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.

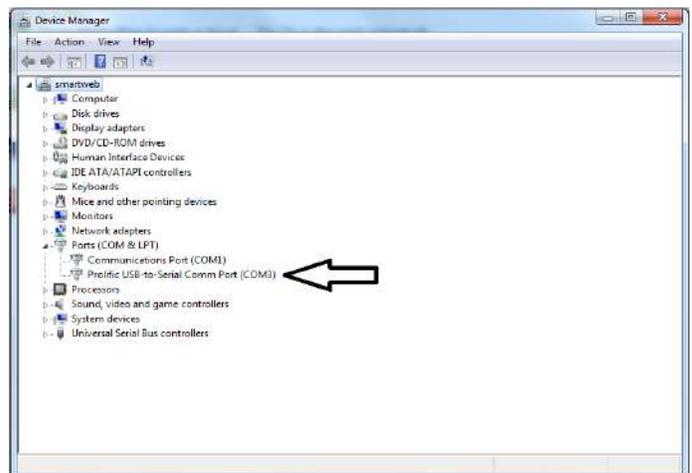


Figure 8-2

## USING THE SmartControl SOFTWARE

**RS-232:** Controlling the HDR16X16 has never been simpler with SmartControl software. With SmartControl, you can assign a unique name to each port on the HDR16X16, as well as each display, customizing projects to meet your needs. Although all the functions of the matrix are available locally on the front panel of the HDR16X16, using SmartControl allows for customization of all the matrix functions.

- Download the Smart Control Pro software from the Smart-AVI website. [www.smartavi.com](http://www.smartavi.com)
- Double click SmartControlPro-v5-0-03\_Installer.exe in order to initiate software installation.
- Click Install. After installation has completed, click CLOSE.
- In order to use the software, click on the START button>Programs>SmartControl Pro.
- There you should see a help file, the SmartControl Pro launcher as well as a shortcut to uninstall SmartControl Pro.

Click on SmartControl Pro in order to launch the software. When the software starts you will see a screen like this:

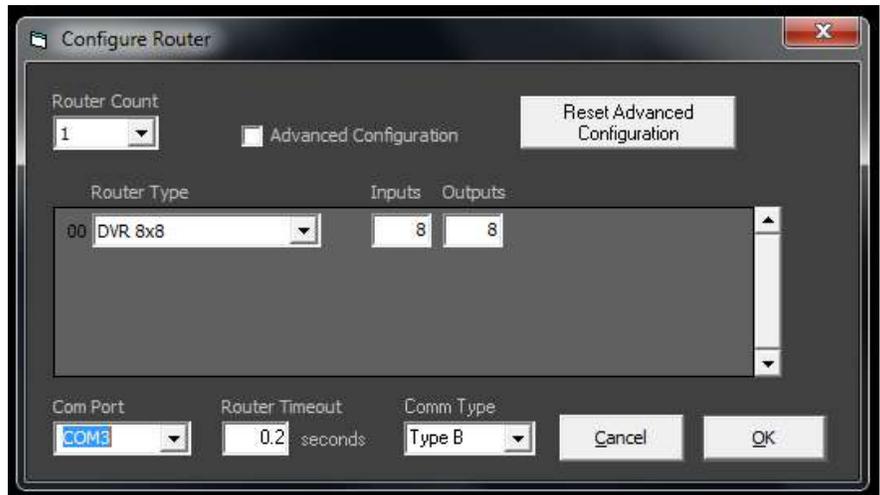


Figure 9-1

### Advanced Configuration:

If you have more than one Router installed you will want to check this box.

### Router Type:

Select DVR 8X8

### Inputs/Outputs:

Enter the number of Inputs/Outputs your HDR16X16 has. The HDR16X16 can have up to 16 inputs and 16 outputs.

### Com Port:

See the section in this manual on establishing an RS-232 connection for instructions on how to identify the com port number.

### Router Time out:

This field is set to 0 by default, meaning the computer acknowledges commands almost instantly. Sometimes a computer takes longer to respond. This setting should be left at 0. If you need to change it, it should be no higher than 0.2.

After you have entered in the necessary information click OK. This will now take you to the Main Routing Window where you can route the different video/audio connections.

## USING THE SmartControl SOFTWARE (continued)

### Main Routing Window

The Main Routing Window enables you to control the router(s) connections by means of the Crosspoint panel, the button panel, or with pre-recorded routes called macros.

**Crosspoint Panel:** This is the simplest way to route the connections. Simply click on the cross point itself. The input on the left will then be routed to the output above.

**Note:** Inputs can be routed to several different outputs, but each output can only have a single input at any one time. That means you can have several connections horizontally but not vertically.



Figure 10-1

On the screen shown in figure 10-1 the input buttons run down the left side and the output buttons run across the top. They're each labeled 1 through 8. This configuration directs video from source 1 to be displayed on all 8 displays.



Figure 10-2

On the screen shown in figure 10-2 source 1 is sent to display 1, source 2 to display 2, 3 to 3, 4 to 4, 5 to 5, etc.

## USING THE SmartControl SOFTWARE (continued)

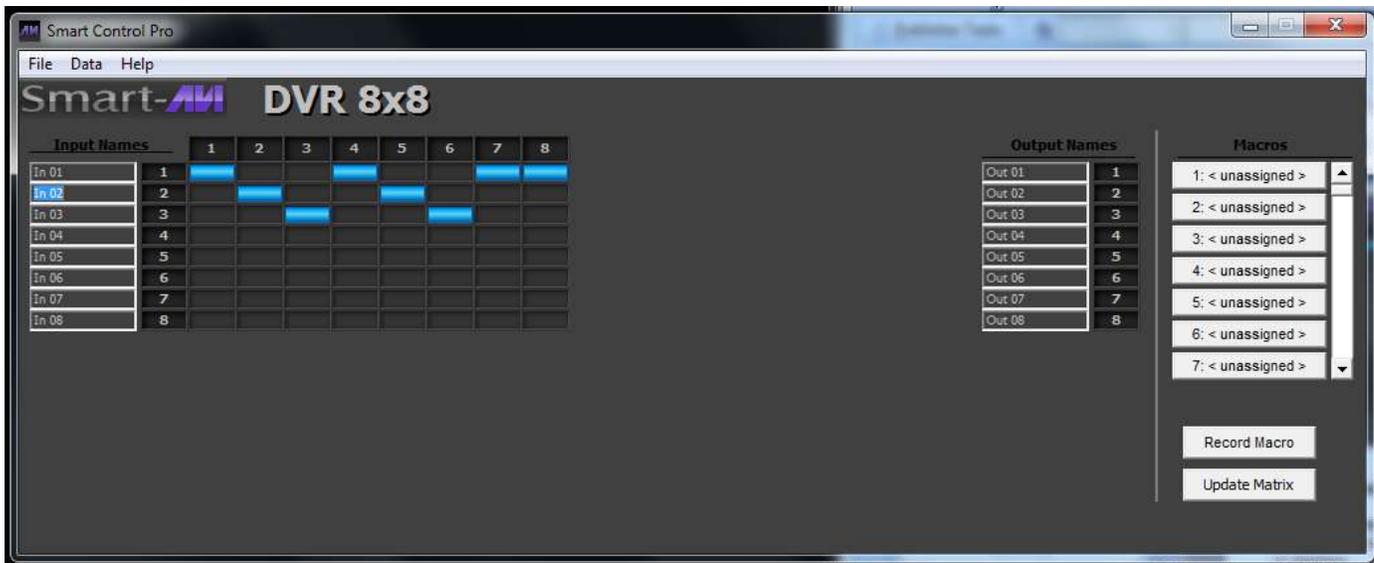


Figure 11-1

### The Button Panel:

#### Output Options:

To select multiple outputs, in the row for any input or source, click the button under the desired outputs or displays.

#### Input Options:

To route an input to all the outputs at once, hold the control key down and click on an input.

**Macros:** This section of the window is used to save and play back macros. Macros store a set sequence of routes.

To record a macro:

1. Click on the Record button (last button shown). A blinking “recording” message below this button will be displayed to indicate that all routes are being recorded.
2. Select the desired crosspoints. There is no limit on the number of routes you may record. If you click a macro button while in the record mode, the macro will be executed, and these routes will be added to the recording. This makes it possible to combine the routes of two or more macros into one bigger macro.
3. When finished, click the “Save Macro” button. You will be instructed to then click on one of the macro buttons. Doing this will save the recorded routes to that button. To cancel saving the macro, click the “Cancel Save” button.
4. To play back a macro, simply click on one of the 50 macro buttons. Use the scroll bar to bring any of these into view.

The macros are automatically saved in the current configuration file. They are also saved when you select the File/Save Configuration... menu.

To save macros in a separate file for a special purpose, select the File/Save Macros...menu.

## 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.

# Smart-AVI

SMART AUDIO VIDEO INNOVATION

## 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 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 Technologies, Inc.

20170314



**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**