



# Instruction Manual

**AVT-6441  
HDMI v1.4 FAST Switcher  
3D / ARC**



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## **1.0 INTRODUCTION**

Thank you for purchasing this product from the AV Toolbox division of TV One. The AVT-6441 HDMI v1.4 FAST Switcher with 3D / ARC allows selection of any of 4 inputs for display on an HDMI compliant display device. This version 1.4 HDMI device supports all standard High Definition Television formats, including 12-Bit Deep Color 1080p, plus PC formats through WUXGA. It also supports embedded HD-Audio, including Dolby® TrueHD and DTS-HD. This is but one of our complete range of video and audio products.

### **1.1 Liability Statement**

Every effort has been made to ensure that this product is free of errors. TV One cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user of the hardware to check that it is suitable for his/her requirements and that it is installed correctly. All rights reserved. No parts of this manual may be reproduced or transmitted by any form or means electronic or mechanical, including photocopying, recording or by any information storage or retrieval system without the written consent of the publisher.

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### **1.2 Features**

- HDMI 1.4, HDCP 1.4 and CEC1.4 Compliant
- Deep Color 36/30/24 Bit, 1080p @50Hz/60Hz Support
- Allows switching of 4 inputs
- 3D Television Support
- Audio Return Channel Support (ARC)
- Fast Switching of all inputs
- HDCP Repeater Support
- Supports High Resolution PC Video Inputs through WUXGA
- Supports embedded Audio including Dolby® Digital TrueHD and DTS-HD
- Remote Control is a standard feature
- OSD (On Screen Display)
- Simple installation and operation

### 1.3 Getting the Best Results

There are many factors affecting the quality of results when switching HDMI type signals. Some basic precautions will ensure the best possible performance from your AVT-6441 HDMI v1.4 FAST Switcher with 3D / ARC.

- **Output display device\_**– The quality of the output signal will depend largely upon the type and quality of the HDMI display device used. For instance, some video projectors just look better than others.
- **Distance between the switcher, the sources and the display** – This plays a major role in the final result. Long distances are possible, but special measures should be taken in order to avoid cable losses. These include using high quality cables. Line amplifiers may also be necessary for the longest runs.
- **Input/Output connection cables** – Low quality cables are susceptible to interference. They degrade signal quality due to poor matching and can cause elevated noise levels. Cables should be of the best quality.
- **Interference from nearby electrical devices** – These can have an adverse effect on signal quality. For example, an older computer monitor often emits very high electromagnetic fields that can interfere with the performance of video equipment in its proximity.

## 2.0 SPECIFICATIONS

<b>Supported Inputs</b>	
Input Format	HDMI Version 1.4
Input Signal Types	HDMI (plus PC Video to WUXGA)
<b>Supported Output</b>	
Output Format	HDMI V1.4.
Output Signal Type	High Definition Multimedia Interface
<b>Signal Characteristics</b>	
Freq. Bandwidth	2.25Gbps (Single Link)
Compliance	HDMI 1.4, HDCP 1.4 & CEC1.4
Color Depth	Deep Color 36/30/24 Bit, 1080p
Repeater Operation	HDCP Repeater Support
<b>Supported Audio</b>	
Embedded Audio	Dolby® Digital TrueHD and DTS-HD
Return Audio Support	Audio Return Channel (ARC)
<b>I/O Connections</b>	
Input Connector	4x Type A HDMI Female
Output Connectors	1x Type A HDMI Female
<b>Human Interface</b>	
Device Control	Via Remote Control w/OSD
Input Selection	Via Remote Control/ Input Button on Front Panel
<b>Environmental</b>	
Operating Temperature	0° to +40° C (+32° to +104° F)
Operating Humidity	20% to 90%, Non-condensing
Storage Temperature	-10° to +60° C (+14° to +140° F)
Storage Humidity	20% to 90%, Non-condensing
<b>Warranty</b>	
Limited Warranty	1 Year, Parts and Labor
<b>Regulatory Approvals</b>	
Main Unit	FCC, CE, RoHS
Power Supply	UL, CUL, CE, PSE, GS, RoHS
<b>Mechanical</b>	
Dimensions–HxWxD	1.3”x3.3”x3.3” (34x85x85mm)
Weight	0.2lbs (90g)
<b>Power Requirement</b>	
External Power Supply	100~240VAC to 5VDC/1A Adapter
<b>Accessories Included</b>	
1x Power Adapter	US, UK or Euro
1x User Manual	
<b>Model Number</b>	
AVT-6441	HDMI v1.4 FAST Switcher with 3D / ARC

### 3.0 CHECKING PACKAGE CONTENTS

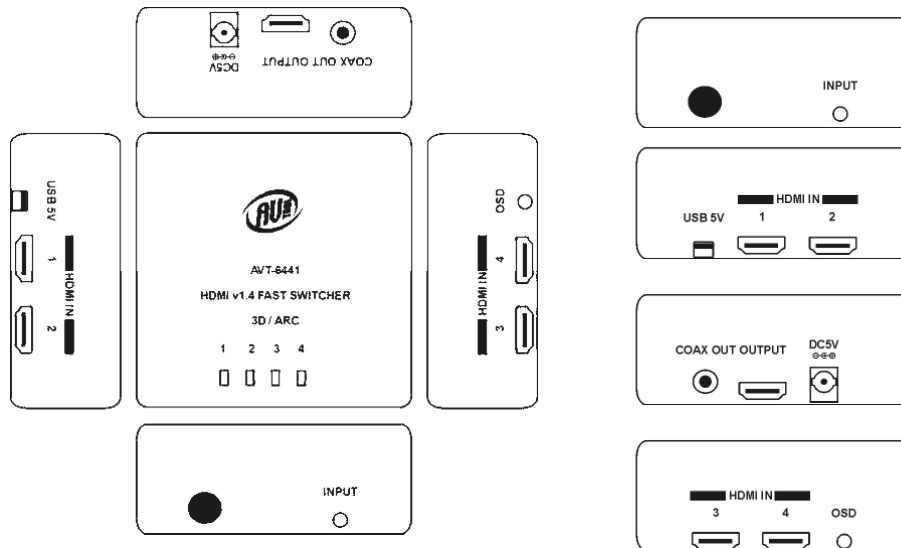
Before attempting to use this unit, please check the packaging and make certain the following items are contained in the shipping carton:

- 1x AVT-6441 HDMI v1.4 FAST Switcher with 3D / ARC
- 1x 100~240VAC to 5VDC Power Adapter
- 1x User Manual

**Note:** Please retain the original packing material should the need ever arise to return the unit. If you find any items are missing, contact your reseller or TV One immediately. Have the Model Number, Serial Number and Invoice available for reference when you call.

### 4.0 CONNECTING THE HARDWARE

The first step is to connect the HDMI Video Sources to the inputs of the AVT-6441 HDMI v1.4 FAST Switcher with 3D / ARC. Next connect its output to a HDMI Compliant monitor and lastly connect the AC to DC Power Adapter. The drawings on the next page show the locations of the input, outputs and power connector.



#### Connecting the Inputs to the AVT-6441

You can connect any HDMI compliant device's output to any of the AVT-6441's inputs. Make certain that the HDMI cable is securely plugged into the source device as well as the AVT-6441. Always use a high quality cable, as short a length as possible, for best results.

#### 4.1 Connecting the AVT-6441 to a Display

Using a high quality HDMI cable, connect the output of the AVT-6441 to an HDMI compliant display device. Use the shortest cable run possible.

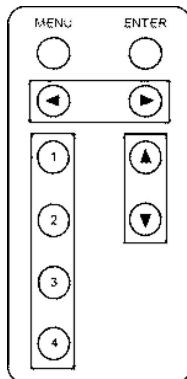
#### 4.2 Connecting Power to the AVT-6441

The AVT-6441 HDMI v1.4 FAST Switcher with 3D / ARC is shipped with a Power Adapter to convert 100~240VAC@50-60Hz to 5VDC. Connect the DC Output Cable from the Power Adapter to the back of the unit and then plug the Power Adapter into an AC Receptacle. *Note: There is no power switch for the AVT-6441 HDMI v1.4 FAST Switcher with 3D / ARC. The unit is active as soon as you plug the AC adapter into an AC Receptacle.*

### 5.0 OPERATING THE AVT-6441

The AVT-6441 HDMI v1.4 FAST Switcher with 3D / ARC is operated via the included Remote Control. LED displays on the unit indicate which input is active and an OSD (On Screen Display) guides the user through system set up functions.

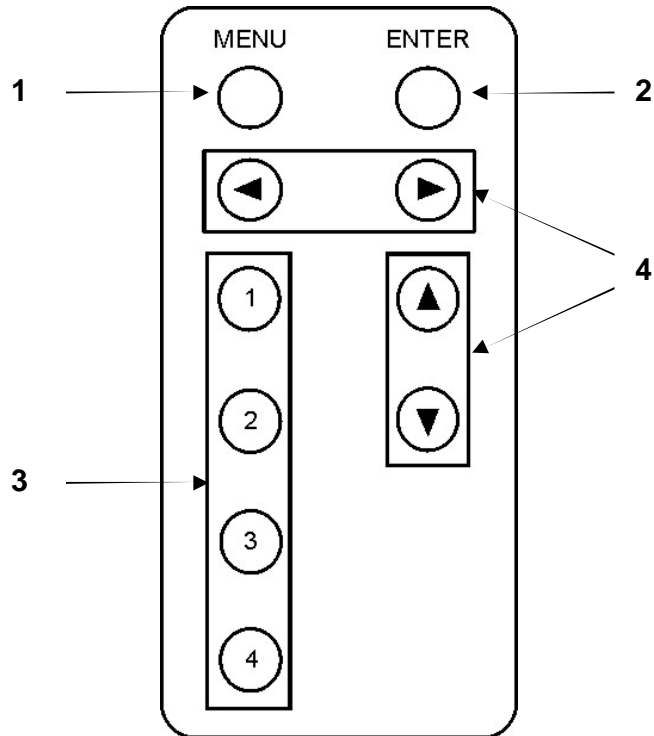
#### 5.1 AVT 6441 Remote Control



Operation of The AVT-6441 HDMI v1.4 FAST Switcher with 3D / ARC is achieved via an included Infrared Remote Control. *Note: When you unpack the AVT-6441 HDMI v1.4 FAST Switcher with 3D / ARC, you may have to remove an insulator from the battery compartment of the Remote Control in order for the remote to receive power. The battery compartment slides out from the bottom of the unit.*



## 5.2 Using the included Remote Control



1 Press to access the On Screen Display (OSD) Menu.\*

2 Press to confirm OSD selections.

3 Press to select HDMI Input.

4 Press to select and/or adjust OSD selections.

*\* Pressing the Menu button after the OSD menu is visible will exit OSD.*

## 5.3 OSD Menu Selections

### System Info

Press ▲/▼ to highlight an option.

Press [ENTER] to check the input/output device information and software version.

Press [MENU] to exit menu.

Press [ENTER] to confirm/exit the menu.

### Sink EDID

Press ▲/▼ to highlight an option.

Press ◀ / ▶ to select the option.  
 Press [MENU] to exit menu.  
 Press [ENTER] to confirm/exit the menu.

Option	Description
Block Data	To check the sink Block0 & Block1's table of EDID.
Description:	To check the sink description of an EDID.

### **Source Infoframe**

Press ▲ / ▼ to highlight an option.  
 Press ◀ / ▶ to select the option.  
 Press [MENU] to exit menu.  
 Press [ENTER] to confirm/exit the menu.

Option	Description
AVI (AVI Infoframe Data)	To check the source video infoframe packet.
AUD (Audio infoframe Data)	To check the source audio infoframe packet.

### **Input Select**

Press ▲ / ▼ to highlight an option.  
 Press ◀ / ▶ to select the option.  
 Press [MENU] to exit menu.  
 Press [ENTER] to confirm/exit the menu.

### **Audio Return**

Press ▲ / ▼ to highlight an option.  
 Press ◀ / ▶ to select the option.  
 Press [MENU] to exit menu.  
 Press [ENTER] to confirm/exit the menu.

Option	Description
Audio Return	On/Off

The audio return function requires some explanation as it is a new feature of HDMI 1.4.

The Audio Return Channel in HDMI 1.4 enables a TV, via a single HDMI cable, to send de-embedded audio data “upstream” to an A/V receiver or surround sound audio controller, increasing user flexibility and eliminating the need for a separate S/PDIF audio connection.

HDMI enabled Digital Television Displays have always been able to receive multi-channel audio through an HDMI connection, and this is still a typical situation, with the TV positioned “downstream” from content sources and any connected audio equipment. However, if a user had a TV with a built-in tuner or DVD player, and wanted to send content “upstream” from the TV back to the audio system once it had been decoded, a separate connection had to be installed from the display device back to the audio amplifier, typically an S/PDIF cable.

An Audio Return Channel-enabled TV can either send or receive audio via HDMI, upstream or downstream, depending on system set-up and user preferences which means that limitations of the S/PDIF approach are minimized.

When Audio Return is set to “Off”, the standard rules of HDMI audio handling apply as summarized in the following chart: Examination of the chart will show that there are situations where you cannot always recover the decoded audio from the display device using the S/PDIF approach due to bandwidth limitations or due to the display device not being able to decode all audio formats.

Signal Type	HDMI Input	HDMI Output	Coaxial Output
<b>Non-Compressed</b>			
Digital PCM 2.0 (32K~192K)	Supported	Supported	Supported
Digital PCM 5.1 (48K~96K)	Supported	Supported	Supported
Digital PCM 7.1 (48K)	Supported	Supported	Unsupported
<b>Compressed</b>			
AC3 2.0 (48K)	Supported	Supported	Supported
AC3 5.1 (48K)	Supported	Supported	Supported
DTS 5.1 (48K)	Supported	Supported	Supported
AC3+ 7.1	Supported	Supported	Supported
DTS+ 7.1	Supported	Supported	Supported
<b>Digital HBR Compression</b>			
Dolby TrueHD 5.1	Supported	Supported	Unsupported
Dolby HD 5.1	Supported	Supported	Unsupported
DTS HD 5.1	Supported	Supported	Unsupported
DTS HD 7.1	Supported	Supported	Unsupported

Enabling Audio Return (turning it on via the OSD Menu), allows full support of audio that has been de-embedded at the display device using the same HDMI cable that sent the signal to the display device for the return audio path to the audio distribution system. This is superior to using a separate S/PDIF coaxial cable from the display device back to the audio distribution system, particularly since there may be situations where the display device may not de-embed a particular signal type.

In that case, audio that's not decodable by the display device is de-embedded at the AVT-6441 and passed to the audio distribution system via the Coaxial Cable Output using short cables. Because of this capability, it doesn't matter if the display device is unable to de-embed the desired audio type due to hardware or software limitations.

The one requirement however is the display device must be capable of Return Audio capability so use of this functionality is dependent on the display device being fully HDMI 1.4 compliant.

### **Exit**

Press ▲/▼ to highlight an option.

Press [ENTER] to confirm/exit the menu.

## **6.0 TROUBLESHOOTING**

In the event of problems, first make certain that the input and output cables are of the highest possible quality, are less than 30 feet long and are undamaged. Next, make certain that the AVT-6441 HDMI v1.4 FAST Switcher with 3D / ARC is receiving power.

If all is well in these areas, remember that HDMI devices communicate with one another so the source devices and destination device must be fully HDMI capable. In addition, HDCP encryption requires additional processing which is also dependent on the equipment you have connected to the sources and destination device. If you experience problems using the AVT-6441 HDMI v1.4 FAST Switcher with 3D / ARC, you should attempt to determine what is wrong by attaching each of the source devices – one at a time – directly to the destination device using the same cables you are using with the expanded system. This is a way of determining if the problem is due to bad cables or a problem with the other devices. If you are unable to obtain a signal using this simplified path, suspect the cables, the source device(s) or the destination device.

After trying the above suggestions should the problem still persist, contact your dealer for additional suggestions before contacting TV One. Should the dealer's technical personnel be unable to assist you, contact TV One via our support website: <http://tvone.crmdesk.com>. Create a technical support request on the site and our support team will respond within a short period of time.

## **7.0 LIMITED WARRANTY**

LIMITED WARRANTY – With the exceptions noted in the next paragraph, AV Toolbox warrants the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a period of one

year from the date of purchase. Should this product, in AV Toolbox's opinion, prove defective within this warranty period, AV Toolbox, at its option, will repair or replace this product without charge. Any defective parts replaced become the property of AV Toolbox. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended.

Items integrated into AV Toolbox products that are made by other manufacturers, notably computer hard drives and liquid crystal display panels, are limited to the term of the warranty offered by the respective manufacturers. Such specific warranties are available upon request to AV Toolbox. If repairs are necessary under this warranty policy, the original purchaser must obtain a Return Authorization Number from AV Toolbox and return the product to a location designated by AV Toolbox, freight prepaid. After repairs are complete, the product will be returned, freight prepaid.

**LIMITATIONS** - All products sold are "as is" and the above Limited Warranty is in lieu of all other warranties for this product, expressed or implied, and is strictly limited to one year from the date of purchase. AV Toolbox assumes no liability to distributors, resellers or end-users or any third parties for any loss of use, revenue or profit.

AV Toolbox makes no other representation of warranty as to fitness for the purpose or merchantability or otherwise in respect of any of the products sold. The liability of AV Toolbox with respect to any defective products will be limited to the repair or replacement of such products. In no event shall AV Toolbox be responsible or liable for any damage arising from the use of such defective products whether such damages be direct, indirect, consequential or otherwise, and whether such damages are incurred by the reseller, end-user or any third party.

## **8.0 REGULATORY COMPLIANCE**

The AVT-6441 has been tested for compliance with appropriate FCC and CE rules and regulations. The Power Adaptor/Supplies have been tested for compliance with appropriate UL, CUL, CE, PSE, GS Rules, Regulations and/or Guidelines. These Products and Power Adapters are RoHS Compliant.

## **9.0 CONTACT INFORMATION**

Should you have questions or require assistance with this product in areas not covered by this manual, please contact TV One at the appropriate location.

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End of Manual