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VIDEO WALLS VIDEO PROCESSORS
VIDEO MATRIX SWITCHES
EXTENDERS SPLITTERS WIRELESS
CABLES & ACCESSORIES

Multi-Input Scaler to HDMI with IR, RS 232 and Audio Support



Model #: SW-HVD-HDMA-4X1

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SECTION I: GETTING STARTED

I.1 IMPORTANT SAFEGUARDS

Please read all of these instructions carefully before you use the device. Save this manual for future reference.

What the warranty does not cover

- Any product, on which the serial number has been defaced, modified or removed.
- Damage, deterioration or malfunction resulting from:
 - Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
 - Repair or attempted repair by anyone not authorized by us.
 - Any damage of the product due to shipment.
 - Removal or installation of the product.
 - External causes to the product, such as electric power fluctuation or failure.
 - Use of supplies or parts not meeting our specifications.
 - Normal wear and tear.
 - Any other causes which does not relate to a product defect.
- Removal, installation, and set-up service charges.

I.2 SAFETY INSTRUCTIONS

The SW-HVD-HDMA-4XI Presentation Scaler has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the SW-HVD-HDMA-4XI should be used with care. Read the following safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- ⚠ Do not dismantle the housing or modify the module.
- ⚠ Dismantling the housing or modifying the module may result in electrical shock or burn.
- ⚠ Refer all servicing to qualified service personnel.
- ⚠ Do not attempt to service this product yourself as opening or removing housing may expose you to dangerous voltage or other hazards
- ⚠ Keep the module away from liquids.
- ⚠ Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- ⚠ Have the module checked by a qualified service engineer before using it again.
- ⚠ Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.



1.3 REGULATORY NOTICES FEDERAL COMMUNICATIONS COMMISSION (FCC)

This equipment has been tested and found to comply with Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Any changes or modifications made to this equipment may void the user’s authority to operate this equipment.

Warning symbols	Description
	<p>ONLY USE THE PROVIDED POWER CABLE OR POWER ADAPTER SUPPLIED. DO NOT TAMPER WITH THE ELECTRICAL PARTS. THIS MAY RESULT IN ELECTRICAL SHOCK OR BURN.</p>
	<p>DO NOT TAMPER WITH THE UNIT. DOING SO WILL VOID THE WARRANTY AND CONTINUED USE OF THE PRODUCT.</p>
	<p>THE VIDEO BOARDS ARE VERY SENSITIVE TO STATIC. PLEASE ENSURE IF RACK MOUNTED OR INSTALLED ON A SURFACE, IT SHOULD BE IN A GROUNDED ENVIROMENT.</p>

	<p>⚠ WARNING</p> <p>Read & understand user guide before using this device.</p> <p>Failure to follow the proper installation instructions could result in damage to the product and preventing expected results.</p>
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2. INTRODUCTION

The Avenview SW-HVD-HDMA-4XI enables users to switch between 4 different Video/Audio sources to a single HDMI equipped display.

This reliable scaler/switcher is the perfect solution for combining and scaling Digital or Analog video sources (RGB/YPbPr/YCbCr) with your digital HDMI® display, with this scaler/switcher the cost of upgrading individual components (i.e. DVD player, PC, VCR, etc.) is eliminated.

Features

- Supports HDMI and Component Video input up to 1080p@50/60Hz;
- Supports DisplayPort Video input up to 2560×1600@60Hz (RB);
- Supports VGA input up to 1920×1200@60/75Hz;
- Supports HDMI 3D processing (Frame Packing and Top-and Bottom signals) - at 720p@50/60Hz and 1080p@24Hz;
- Side-by-Side Half signals at 720p@50/60Hz; 1080i@50/60Hz (input signal only) and 1080p@24/50/60Hz;
- Supports digital and analog audio bi-directional conversion;
- Supports embedding and de-embedding for the audio signals from individual inputs or from the HDMI source;
- Supports Component Video input via D-sub 15-pin to 3 RCA adaptor.

2.1 PACKAGE CONTENTS

Before you start the installation of the Extender, please check the package contents.

1	SW-HVD-HDMA-4xI	
2	IR Remote (Batteries included)	
5	Power Adapter 5V/2.6A	
7	User's Manual	



2.2 BEFORE INSTALLATION

- Put the product in a level and stable location. If the product falls, it may cause damage or malfunction to components within the casing.
- Do not place the product in temperatures under 0°C or over 50°C. High humidity may also cause the unit to malfunction.
- Use the DC power adapter with correct specifications supplied with the unit. If the improper power supply is used, this may result in malfunction of the unit and may cause fire.
- Do not twist or pull by force the ends of the HDMI/UTP cable. It can cause malfunction.

2.3 CABLE SPECIFICATIONS



To achieve best results with our SW-HVD-HDMA-4X1 we highly recommend a high quality 26 or 24 AWG HDMI cable with the below specifications to maintain signal integrity and distances.

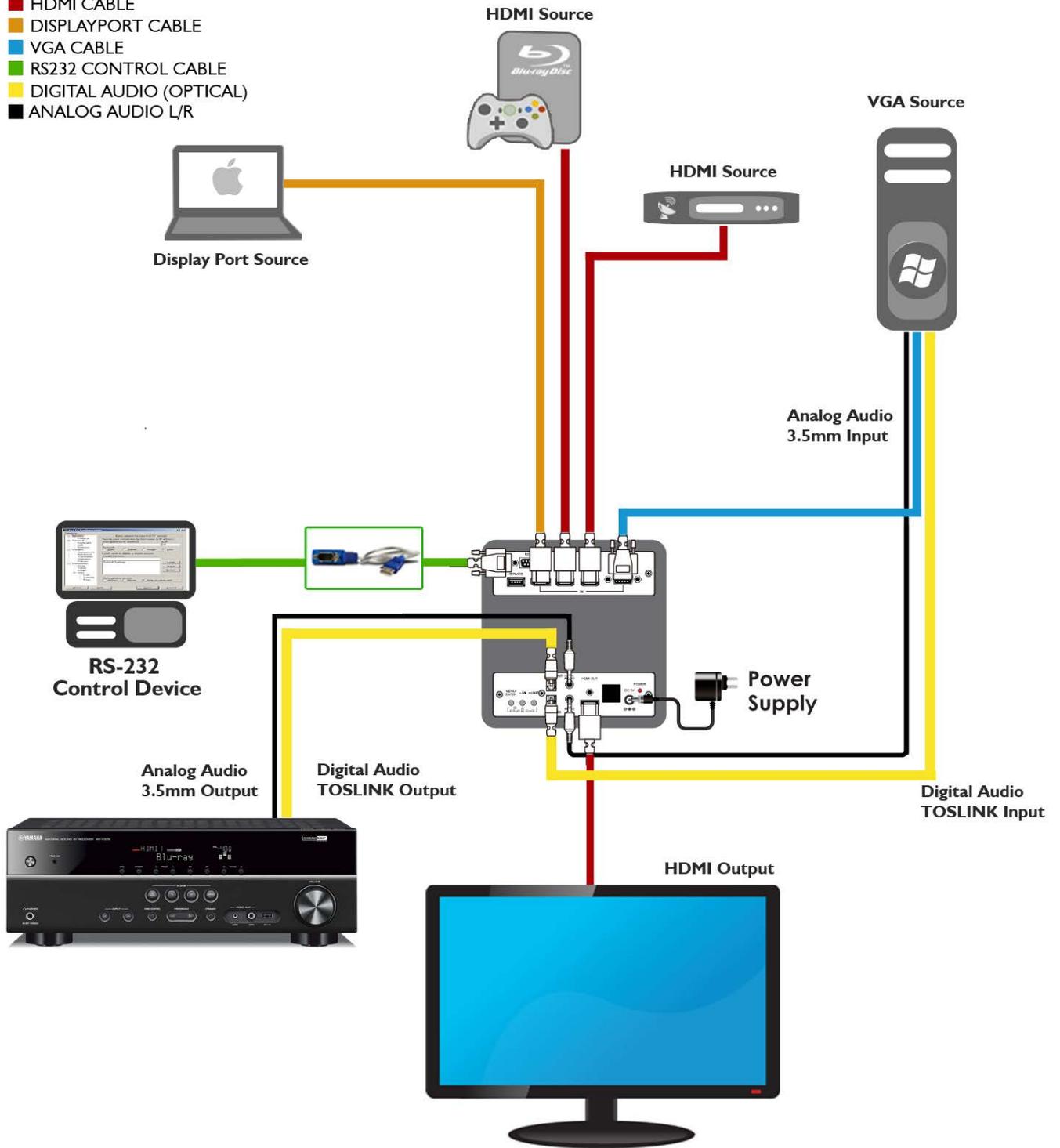
Features

- Length: 5m (16ft) to 15m (50ft)
- Bandwidth: 10.2 Gbps data transfer rate
- Supports Resolution: Up to 3840x2160 @ 24Hz and 4096x2160 @ 24Hz, 1080p @ 24Hz / 50/60Hz/3D
- Conductor gauge: 26 / 24 AWG
- Deep Color
- 3D Capable
- CEC
- Ethernet Channel
- Audio Return Channel
- Connector 1: HDMI (Type A) Male
- Connector 2: HDMI (Type A) Male



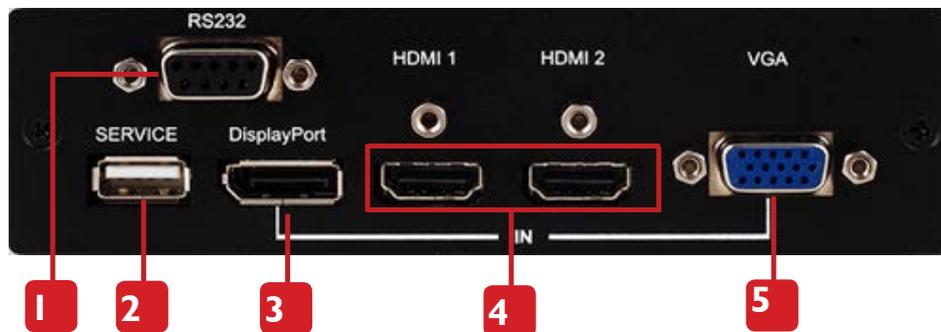
3. APPLICATION DIAGRAM

- HDMI CABLE
- DISPLAYPORT CABLE
- VGA CABLE
- RS232 CONTROL CABLE
- DIGITAL AUDIO (OPTICAL)
- ANALOG AUDIO L/R



4. PANEL DESCRIPTION

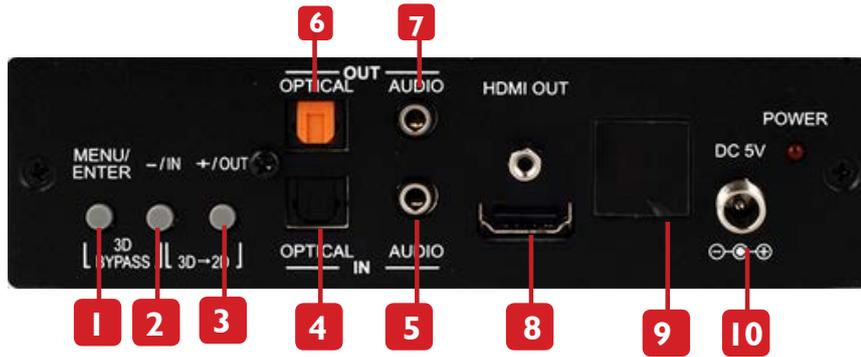
4.1 INPUT PANEL (SW-HVD-HDMA-4X I) Front Panel



<p>1. RS232: Connect to a PC or RS-232 control system with a D-sub 9-pin cable for RS-232 control.</p>	<p>2. SERVICE: Manufacturer use only.</p>
<p>3. DisplayPort IN: Connect to a DisplayPort source device such as a PC/Laptop with a DisplayPort cable.</p>	<p>4. HDMI 1/2 IN: Connect to the HDMI source devices such as a DVD player or a Set-top Box with HDMI cables.</p>
<p>5. VGA IN: Connect to a VGA source such as a PC/ Laptop source equipment with a D-sub 15-pin cable or to a Component Video source with a D-sub 15-pin to 3 RCA phono adaptor for component video signal input.</p>	



4.2 INPUT PANEL (SW-HVD-HDMA-4XI) Rear Panel



<p>1. MENU/ENTER: Press this button to ENTER the On-screen Display (OSD) menu. Press again to confirm the selection.</p>	<p>2. MINUS (-)/IN: When in the OSD menu, press this button repeatedly to move down through the menu. When not in the OSD menu, press this button to quickly select the required input.</p>
<p>3. PLUS (+)/OUT: When in the OSD menu, press this button repeatedly to move up through the menu. When not in the OSD menu, press this button to quickly select the required output resolution.</p>	<p>4. OPTICAL IN: Digital audio TOSLINK input. Use this input to connect to a source with an OPTICAL cable.</p>
<p>5. AUDIO IN: Analog audio input. Use this input to connect to analog source with a 3.5mm mini-jack cable.</p>	<p>6. OPTICAL OUT: Digital audio TOSLINK output. Use this output to connect to an Amplifier or Active Speakers to an optical digital input with an OPTICAL cable.</p>
<p>7. AUDIO OUT: Analog audio output. Use this output to connect to Active Speakers or an Amplifier with a 3.5mm mini-jack cable.</p>	<p>8. HDMI OUT: Connect to a HDMI equipped TV/monitor for display of the source signal.</p>
<p>9. IR Window: Receives the IR signal from the supplied IR Remote only.</p>	<p>10. DC 5V and POWER LED: Connect the supplied 5V DC power supply to the unit and plug the power supply to AC wall outlet.</p>



4.3 REMOTE CONTROL

1 POWER:

Press this button to switch the device ON or to put the device into Standby mode.

2 VIDEO IN:

Press the required key to directly select the video source (HDMI 1/HDMI 2/DP/PC/COMP).

3 AUDIO IN

Press these buttons one time each to select input source for outputs display.

4 MENU:

Press this button to enter into the On-Screen Menu.

5 EXIT:

Press this button to exit menu selection.

6 ▲▼◀▶ & OK:

Press OK to confirm the selection or use the directional buttons to navigate the On-Screen-Menu.

7 INFO:

Press to show the input and output resolution information.

8 OUTPUT:

Press to show the output resolution table.

9 3D-2D:

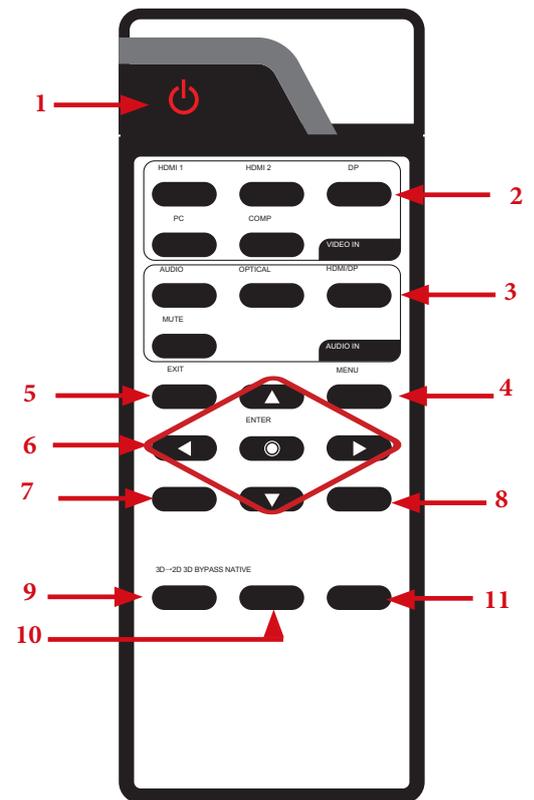
Press to switch from 3D to 2D.

10 3D BYPASS:

Press to switch to 3D bypass.

11 NATIVE:

Press to switch to native resolution.



4.4 INSTALLATION (SW-HVD-HDMA-4X I)

To setup Avenview SW-HVD-HDMA-4X I please follow these steps for connecting to a device:

1. Power off sources such as using Laptop/PC DVD player at Podium or where installed.
2. Connect up to 4 video Sources to the Multi INPUT interfaces.
3. Connect an HDMI cable to HDMI supported Display.
3. Connect an Audio source (if required) to Audio OUT or Optical OUT.
4. Plug in 5V/2.6 DC power adapter to the screw terminal of SW-HVD-HDMA-4X I Power LED illuminate
5. Power on all 4 Sources and HDMI Display
7. When the Input is connected and turned on the corresponding LED will light on the LINK LED when signal is detected and transmitting.



5. RS-232 Protocols

SCALER		REMOTE CONTROL	
Pin	Definition	Pin	Definition
1	NC	1	NC
2	TxD	2	RxD
3	RxD	3	TxD
4	NC	4	NC
5	GND	5	GND
6	NC	6	NC
7	NC	7	NC
8	NC	8	NC
9	NC	9	NC

Baud Rate: 19200 bps

Data Bit: 8 bits Parity:

None

Stop Bit: 1 bit

Flow Control: None

RS-232 Commands

COMMAND	DESCRIPTION
POWER ?	Power Status
POWER ON	Power On
POWER OFF	Power Off
3D ?	3D Status
3D TO 2D	3D In, 2D Out
3D BYPASS	3D In, 3D Bypass Out
VIDEO ?	Video Input Source
HDMI I	Video Input in HDMI I



COMMAND	DESCRIPTION
HDMI 2	Video Input in HDMI2
DP	Video Input in DisplayPort
PC	Video Input in PC
COMP	Video Input in Component
AUDIO ?	Audio Input Source
AUDIO	Audio Input in AUDIO
OPTICAL	Audio Input in OPTICAL
HDMI/DP	Audio Input in HDMI/DP
MUTE ON	Mute On
MUTE OFF	Mute Off
INFO ?	Info.OSD Status
INFO ON	Info.OSD On
INFO OFF	Info.OSD Off
OUTPUT ?	Output Status
480P	Output in 480P
720P	Output in 720P
1080P	Output in 1080P
VGA	Output in VGA(640×480)
SVGA	Output in SVGA(800×600)
XGA	Output in XGA(1024×768)
SXGA	Output in SXGA(1280×1024)
UXGA	Output in UXGA(1600×1200)
WUXGA	Output in WUXGA(1920×1200)
NATIVE	Output by Native
EDID ?	EDID Status
EDID INT	EDID By Internal
EDID EXT	EDID By External
FEEDBACK ?	Feedback Status
FEEDBACK ON	RS232 Feedback Enable



COMMAND	DESCRIPTION
FEEDBACK OFF	RS232 Feedback Disable
STATE ?	Video Input Signal Status
VERSION ?	Firmware Version
DEFAULT	Reset to Factory Default

Note: Any commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

OSD Menu

FIRST LEVEL	SECOND LEVEL	THIRD LEVEL
Input Video	PC	
	COMP	
	HDMI 1	
	HDMI 2	
	DP	
	Exit	
Input Audio	Audio	
	Optical	
	HDMI/DP	
	Mute	
	Exit	



FIRST LEVEL	SECOND LEVEL	THIRD LEVEL
Output Resolution	720×480P	
	1280×720P	
	1920×1080P	
	640×480	
	800×600	
	1024×768	
	1280×1024	
	1600×1200	
	1920×1200	
	By Native	
	3D Bypass	
	Exit	
Output Format	3D→2D	
	3D Bypass	
	Exit	
Miscellany	EDID Mode	Internal
		External
		Exit
	Info. OSD Mode	Off
		On
		Exit
	About SW-HVD-HDMA-4X1	FW Ver.
	Factory Reset	System Reset
Exit		
Exit		



6. Supported Input Resolutions

INPUT RESOLUTION (2D SIGNAL)	PC	HDMI	DP	COMP
640×350@85	✓		✓	
640×400@85	✓		✓	
720×400@85	✓		✓	
640×480 (VGA)@60, 72, 75, 85	✓	✓	✓	
800×600 (SVGA)@56, 60, 72, 75, 85, 120	✓	✓	✓	
848×480@60Hz	✓		✓	
1024×768 (XGA)@60, 75, 85, 120	✓		✓	
1152×864 (XGA+)@75	✓		✓	
1280×720@60	✓	✓	✓	
1280×768@60RB, 60, 75, 85, 120RB	✓	✓	✓	
1280×800@60RB, 60, 75, 85, 120RB	✓		✓	
1280×960@60, 85, 120RB	60, 85		✓	
1280×1024@60, 75, 85	✓	✓	120RB	
1360×768@60, 120RB	✓	✓	✓	
1366×768@60	✓		✓	
1400×1050 (SXGA+)@60RB, 60, 75	✓			
1440×900 (WXGA+)@60RB, 60, 75, 85	✓		✓	
1440×1050@85, 120RB	✓		✓	
1600×900@60RB	✓		✓	
1600×1200 (UXGA)@60, 65, 70, 75, 85, 120RB	60 only	✓	✓	
1680×1050 (WSXGA)@60RB, 75, 85	60CTV, 60	✓	✓	



INPUT RESOLUTION (2D SIGNAL)	PC	HDMI	DP	COMP
1792×1366@60, 75			✓	
1856×1392@60			✓	
1920×1080@60	✓		✓	
1920×1200@60RB, 60, 75	60	✓	✓	
1920×1440@60			✓	
720×480i/p		✓	✓	✓
720×576i/p		✓		✓
720i/p@50, 60		✓		✓
1080i/p@50, 60		✓	✓	
1080p@24		✓		
2048×1152@60RB			✓	
2560×1600@60RB			✓	

INPUT RESOLUTION (3D SIGNAL)	PC	HDMI	DP	COMP
1080p@24 Frame Packing		✓		
1080p@24 Top-and-Bottom		✓		
1080p@24 Side-by-Side		✓		
1080i@50/60 Side-by-Side		✓		
720p@50/60 Side-by-Side		✓		
720p@50/60 Frame packing		✓		
720p@50/60 Top-and-Bottom		✓		



7. Supported Output Resolutions

OUTPUT RESOLUTION (2D SIGNAL)

640×480, 800×600, 1024×768, 1280×1024, 1600×1200, 1920×1200RB,
480p, 720p, 1080p

OUTPUT RESOLUTION (3D SIGNAL)

Frame Packing	720p@50/60, 1080i@60, 1080p@24/30
Top-and-Bottom	720p@50/60, 1080i@60, 1080p@24/30
Side-by-Side	720p@50/60, 1080i@60, 1080p@24

Note: Some displays may not support 3D@50Hz and therefore, some 3D 50Hz signal may not be displayed.



8. GENERAL TROUBLESHOOTING

PROBLEM	POSSIBLE SOLUTION
NO IMAGE	<ul style="list-style-type: none"> • Check if connection to the source and the display are correct. • Ensure that display device supports 480p, 720p and 1080p 4K@30 resolution • Terminated to 568B standard with Shielded Ends Recommended • High Quality CAT5/6/7 Cable helps signal transmission • Please use the supplied power supply-DC 24V 2.7A • Check LED Link light see (Section 3 Panel Description) • Check LED Sync light see (Section 3 Panel Description)
Set-Top Box No Picture	<ul style="list-style-type: none"> • HDBaseT and HDMI 1.3 standards support CLOCK STRETCHING for i2c buss protocol • Example set top boxes like Scientific Atlantic results no picture. This can be resolved by swapping out the box for a newer version that supports HDMI 1.3 not HDMI 1.2
Recommended TEST	
End-to-End Testing	HDBaseT system, a final end-to-end test of all the A/V components should take place. These tests include checking the HDMI stream at the far end (sink end), the clock rate, frame compare, video pattern, audio, EDID and HDCP with Quantum 780 (recommended)
Passive Monitoring:	Passive monitoring enables an integrator to view the HDCP transactions, EDID exchange, as well as the connection events between the actual devices in the network.



SECTION 9: SPECIFICATIONS

ITEM	SPECIFICATION
Model	SW-HVD-HDMA-4XI
Model Description	Multi-Input Scaller to HDMI with IR Rs232 and Audio Support
Supported Resolution	(2560x1600) DisplayPort
Input Output	2 x HDMI, DisplayPort, VGA/Component 3.5mm /Optical Audio HDMI and 3.5mm /Optical Audio
HDMI Video Bandwidth	255MHz/6.75Gbps
DisplayPort Bandwidth	2.7Gbps & 1.62 Gbps/Lane
Output TMDS Signal	1.2 Volts (Peak-to-Peak)
ESD Protection	Human body model: ± 8kV (air-gap discharge) ± 4kV (contact discharge)
Dimensions	5.6"(W) x 7"(D) x 1.7"(H)
Weight (lbs)	1.5 lbs
Chassis Material	Metal
Power Consumption	9W- 5V/2.6A DC (US/EU standards, CE/FCC/UL certified)
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Relative Humidity	20~90% RH (non condensing)



NOTICE

1. *All HDMI over UTP transmission distances are measured using Belden CAT6A (625MHz), 4-Pair, U/UTP-Unshielded, Riser-CMR, Premise Horizontal Cable, 23 AWG Solid Bare Copper Conductors, Polyolefin Insulation, Patented Double-H spline, Ripcord, PVC Jacket using Quantum 980 signal HDMI Video Generator Module Video Pattern Testing.*
2. *The transmission length is largely affected by the type of category cables, also the type of HDMI sources, and the type of HDMI display. The testing result shows solid UTP cables (usually in the form of 300m or 1000ft bulk cable) can transmit a lot longer signals than stranded UTP cables (usually in the form of patch cords). Shielded STP connectors are better suit than unshielded UTP connectors. A solid UTP CAT5e cable shows longer transmission length than stranded STP CAT6 cable. For long extension users, solid cables are your only choice.*
3. *EIA/TIA-568-B termination (T568B) for category cables is recommended for better performance.*
4. *To reduce the interference among the unshielded twisted pairs of wires in category cable, you can use shielded STP cables with shielded connector to improve EMI problems, which occurs in long transmission.*
5. *Because the quality of the category cables has the major effects in how long transmission distance will be made and how good is the received display, the actual transmission length is subject to your category cables. For resolution greater than 1080i or 1280x1024, a solid CAT6 cable is the only viable choice.*



NOTES



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