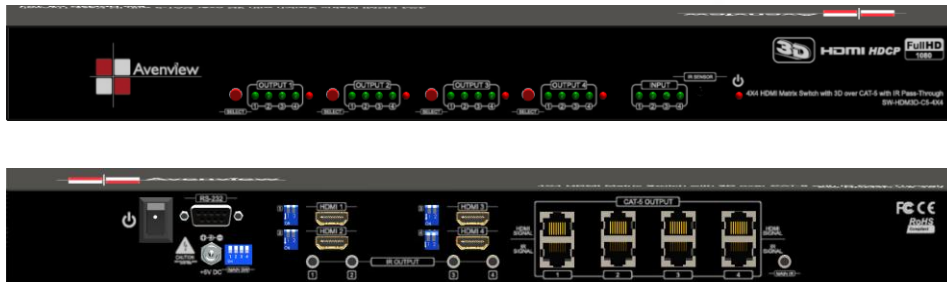




4X4 HDMI Matrix Switch with 3D over CAT-5 with IR Pass-Through

Model #: SW-HDM3D-C5-4X4



HD ready 1080p **HDMI HDCP** **7.1CH Audio** **TRUE HD**

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Section 1: Getting Started

1.1 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.
 - Causes external 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.

1.2 Safety Instructions

The Avenview SW-HDM3D-C5-4X4 HDMI Matrix Switch with 3D over CAT-5 with IR Pass-Through has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the SW-HDM3D-C5-4X4 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.

1.4 Introduction

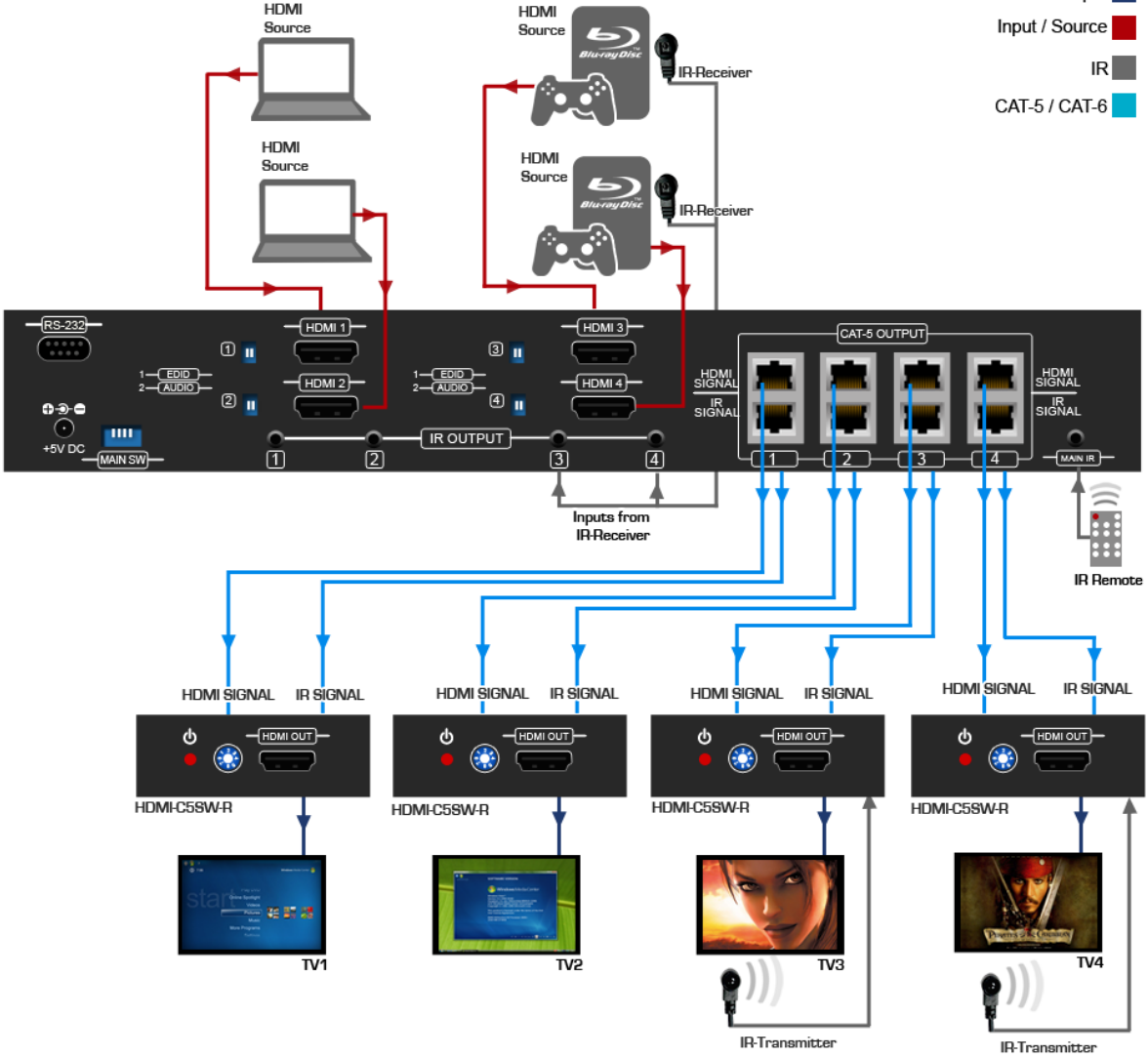
The Avenview SW-HDM3D-C5-4X4, HDMI Matrix Switch with 3D over CAT-5 with IR Pass-Through provides the most flexible and cost effective solution in the market to route high definition video sources plus multi-channel (up to 7.1 channel) digital audio from any of the four HDMI sources to the remote displays at the same time. Through low cost Cat-5/5e/6 LAN cables, not only high quality video and audio can be transmitted to the display sites, but also users can switch among four HDMI sources using the push-in button or remote control. With single power design at the source site, each remote module is easily installed without power supply. Furthermore, the built-in IR extension function makes users at display site access the DVD player, PS3 or any HDMI supported devices directly.

SW-HDM3D-C5-4X4

720p/1080i = 50m (165 feet) **CAT5**
 720p/1080i = 55m (200 feet) **CAT6**
 1080p = 30m (130 feet) **CAT5**
 1080p = 40m (165 feet) **CAT6**

CABLE INDEX

- Output ■
- Input / Source ■
- IR ■
- CAT-5 / CAT-6 ■



- Silicon Image chipset embedded for best quality, compatibility and reliability
- Support HDMI Deep Color & full 3D
- HDCP compliant
- Allows any source to be displayed on multiple displays at the same time
- Allows any HDMI display to view any HDMI source at any time
- Supports 7.1 channel digital audio
- Supports default HDMI EDID and learns the EDID of displays
- The matrix master can switch every output channels to any HDMI inputs by push-in button, IR remote Control, or RS-232 control
- Allows controlling local HDMI sources such as DVD and TiVo by attached IR extender from remote receiver to matrix master
- Allows to control matrix master through IR remote control at remote receiver's site
- Extends video signal up to 35m (115 feet) over CAT5e at 1080p and likely longer with better HDMI source device, better grade HDMI display, and better quality solid CAT6 cable
- Easy installation with rack-mounting and wall-mounting designs for master and receiver respectively
- Fast response time – 2~5 seconds for channel

1.5 Package Contents

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

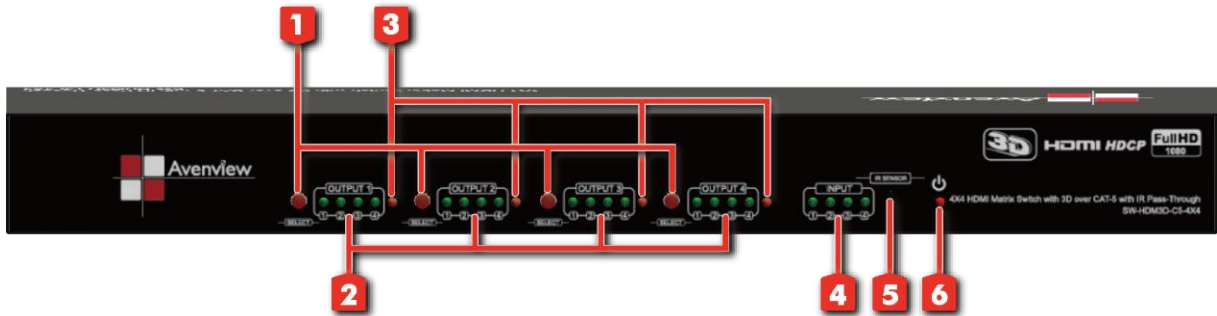
- | | |
|-----------------------------|-----|
| - SW-HDM3D-C5-4X4 | x 1 |
| - HDM3D-C5SW-R | x 4 |
| - IR Transmitter | x 4 |
| - IR Receiver | x 4 |
| - IR Remote Control | x 1 |
| - Rack mounting Ear | x 2 |
| - Power Adapter (+5VDC, 4A) | x 1 |
| - User's Manual | x 1 |
| - Software CD | x 1 |

1.6 Before Installation

- Put the product in an even and stable location. If the product falls down or drops, it may cause an injury or malfunction.
- Don't place the product in too high temperature (over 50°C), too low temperature (under 0°C) or high humidity.
- Use the DC power adapter with correct specifications. If inappropriate power supply is used then it may cause a fire.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.

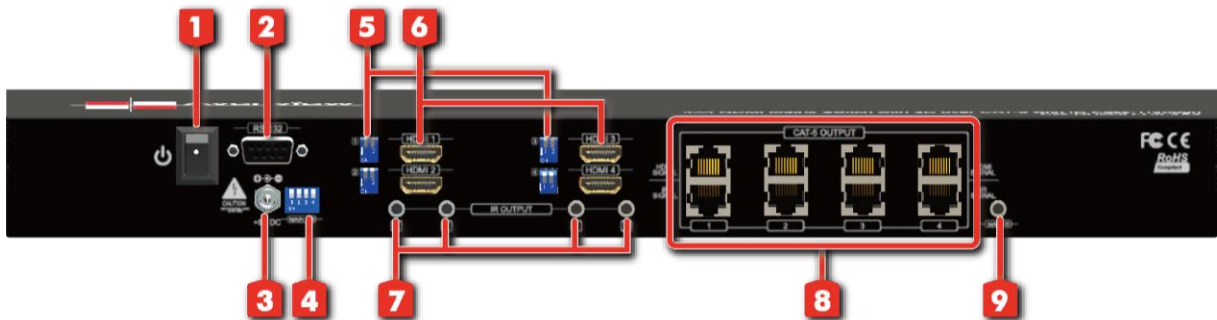
1.7 Panel Description

1.7.1 SW-HDM3D-C5-4X4 Front Panel



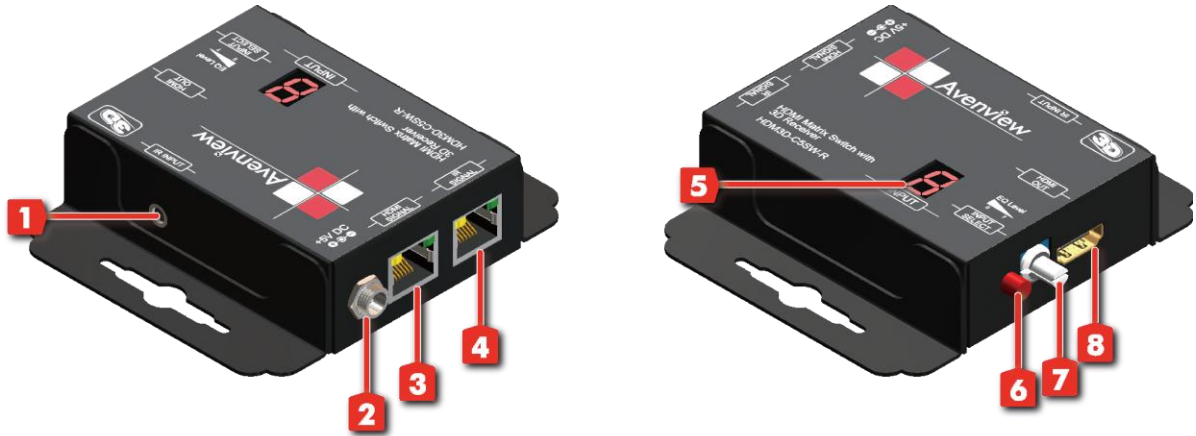
1. Port 1-4 SELECT: Push-in button for selecting input channel	2. Port 1-4: Input source channels mapping LED for each output channel
3. HP 1-4: Connection status indicator LED for each output channel	4. INPUT: Input source indicator LED
5. IR SENSOR: IR receiver	6. Power: Power indicator LED

1.7.2 SW-HDM3D-C5-4X4 Rear Panel



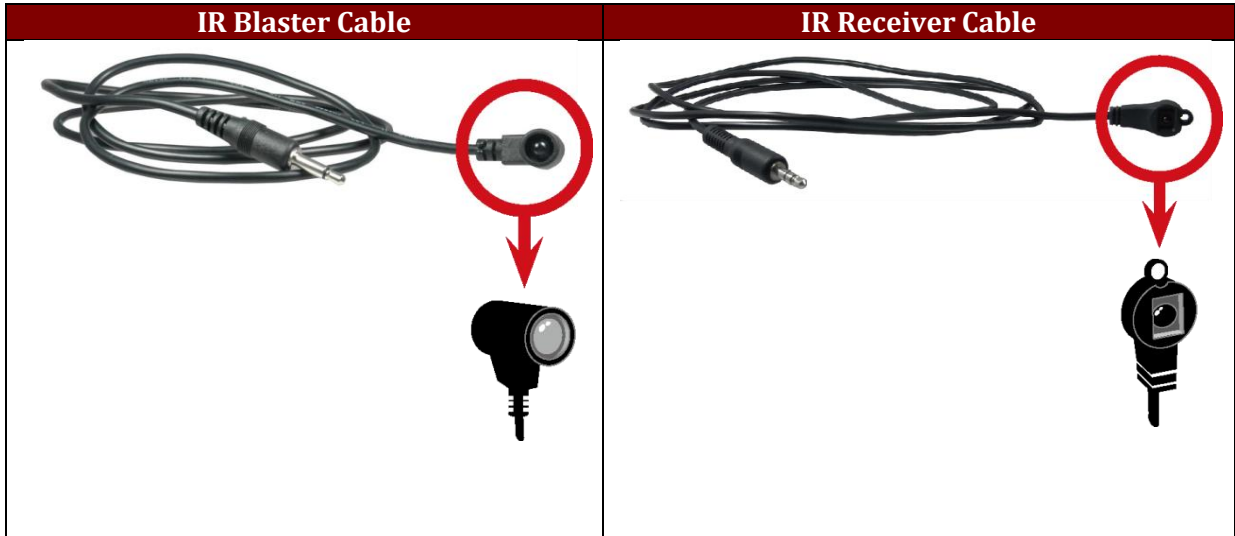
1. ON-OFF: Power ON/OFF	2. RS-232: RS-232 control port
3. +5V DC: 5V DC power jack	4. MAIN SW: DIP switches (see DIP Switch section)
5. SW 1-4: DIP switch (see DIP Switch section)	6. HDMI 1-4: HDMI inputs
7. IR OUTPUT 1-4: IR extender jacks for individual HDMI source control with IR blasters	8. CAT-5 OUTPUT 1-4: RJ-45 TMD5/DDC outputs for each output channel
9. MAIN IR: IR extender jack for all HDMI source control [default socket for IR blaster]	

1.7.3 HDM3D-C5SW-R



<p>1. IR INPUT: Plug in IR receiver.</p>	<p>2. +5V DC: Spare power jack for over 60m transmission when the RX may need external power to work.</p>
<p>3. HDMI SIGNAL: Plug in the CAT5 connected to the respective A/V SIGNAL port on the SW-HDM3D-C5-4X4</p>	<p>4. IR SIGNAL: Plug in the CAT5 connected from the respective IR SIGNAL port on the SW-HDM3D-C5-4X4</p>
<p>5. INPUT : Display the current showing HDMI source channel</p>	<p>6. INPUT SELECT: Push button for switching input source channel in sequential order</p>
<p>7. EQ Level: Adjust the 8-level equalization control to the received HDMI signals. The HDMI signal level varies from 0 (strongest) to 7 (weakest) for respective transmission length from longest possible range to short distance. Please adjust the signal level from 7 to 0 and stop turning the rotary switch whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!</p>	<p>8. HDMI OUT: Connect to HDTV with a HDMI cable</p>

1.7.5 HDM3D-C5SW-R



Incorrect placement of IR Blaster and Receiver may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets. Warranty will not cover the damage.

IR Main	The default location for IR emitter extension cable to transmit all IR command signals received from any of the four remote receivers to all of the HDMI sources.
IR1	IR emitter extension cable connected here can only transmit IR command signals from the remote receivers that are setting at the input channel 1.
IR2	IR emitter extension cable connected here can only transmit IR command signals from the remote receivers that are setting at the input channel 2.
IR3	IR emitter extension cable connected here can only transmit IR command signals from the remote receivers that are setting at the input channel 3.
IR4	IR emitter extension cable connected here can only transmit IR command signals from the remote receivers that are setting at the input channel 4.

1.7.6 Dip Switch for EDID & Audio Settings (SW1 – SW4)









DIP Switch Position		Video	Audio	Description
PIN # 1	PIN # 2			
OFF ↑	OFF ↑	Up to 1080p	Surround	Default Mode 1 ¹ – EDID up to 1080p video & surround sound audio output up to 7.1ch (DTS-HD Master & Dolby TrueHD)
OFF ↑	ON ↓	Up to 1080p	Stereo ²	Default Mode 2 – EDID up to 1080p video and stereo audio for basic compatibility among HDTVs
ON ↓	OFF ↑	Up to 720p/1080i	Stereo	Safe Mode ³ – EDID up to 720p/1080i video and stereo audio for basic compatibility among HDTVs
ON ↓	ON ↓	Bypass ⁴	Bypass ⁴	EDID Learning Mode ⁵ – for learning EDID from the display while playing any received HDMI audio format

The EDID learning function is only necessary whenever you encounter any display on the HDMI output port that cannot play audio and video properly. Because the HDMI source devices and displays may have various level of capability in playing audio and video, the general principle is that the source device will output the lowest standards in audio format and video resolutions to be commonly acceptable among all HDMI displays. In this case, a 720p stereo HDMI signal output would be probably the safest choice. Nevertheless, the user can force the matrix to learn the EDID of the lowest capable HDMI display among others to make sure all displays are capable to play the HDMI signals normally by performing the procedures stated below.

Method 1: Manually Connect HDMI Displays to HDMI Input Ports

1. Power up the matrix master unit. Connect the HDMI display that its EDID needs to be learned to any of the HDMI **INPUT1 – INPUT4** port where your source device has trouble to show the picture normally.
2. To learn the display's EDID for source device connected to respective HDMI **INPUT1 – INPUT4** port, pull both pins of respective DIP switch **SW1 – SW4** up-and-down to stay at ON [↓] - ON [↓] and wait for about 5 seconds to complete the EDID learning process. You DON'T NEED to pull up the DIP switch again unless you want to learn another display's EDID by pulling both DIP switch pin-1 & pin-2 of **SW1 – SW4** up-and-down one more time.
3. Repeat step1 & step2 if you want to learn the EDID of this HDMI display on any other HDMI input ports that have same trouble playing the audio/video properly.

1.7.7 SW Main Dip Switch for Firmware Update

DIP Switch Position	PIN # 1	PIN # 2	PIN # 3	PIN # 4
Normal Operation Mode ⁶	OFF 	OFF 	ON 	OFF 
Firmware Update Mode ⁷	ON 	ON 	OFF 	OFF 

6 Factory default for **SW Main** is pin#1-OFF [, pin#2-OFF [, pin#3-OFF [, & pin#4-OFF []. PLEASE MAINTAIN THIS SETTING AT ANYTIME FOR REGULAR USE VIA RS-232 CONTROL!

7 **Sequence for firmware update**

WARNING! [Firmware update only can be done via RS-232 port and connection to PC set at COM1]

[1]. Power off the Matrix unit. Execute the firmware update program on your PC via COM1 port connection to the RS-232 port of the Matrix unit.

[2]. Set the pin#1 of **[SW Main]** at ON [] for firmware update mode.

[3]. Set pin#2 and pin#3 at respective positions to assign which Block to be updated.





[4]. Power on the Matrix unit. The firmware update program should begin this update sequence automatically. If not, please check the RS-232 connection status between PC and Matrix unit.

[5]. After the OK message shows up to indicate the firmware update sequence for designated Block is complete, please turn off the Matrix unit.

[6]. Repeat step 3 ~ step6 if you want to update the firmware of the remaining Blocks.

[7]. Set the **[SW Main]** switch position to Normal Operation Mode.

[8]. Power on the Matrix unit.

- a Factory default setting of **[SW1]-[SW4]** is pin-1 at OFF [, & pin-2 at OFF [] for 1080p video and surround sound audio.
- b If the HDTV shows video but without audio, please try to set audio mode to stereo.
- c If you encounter any unsolved audio/video output problem during system installation, please turn any **[SW1]-[SW4]** to pin-1 at ON [, & pin-2 at OFF [] for safe mode to select the system EDID up to 720p(1080i) video and stereo audio for system check. However, the safe mode cannot be initiated if your HDMI source is set to enforce 1080p output. In this case, please reconfigure your HDMI source to all resolution output for troubleshooting.
- d Bypass means the matrix will maintain playing the original format of HDMI signals in video and perhaps audio. By setting at this mode, the users may encounter compatibility issue among different kinds of HDMI sources and displays. If you cannot get the audio and/or video output normally at the system installation, please change the DIP switch setting to default mode or even safe mode to verify the functionality of the device.



1.8 Installation (SW-HDM3D-C5-4X4)

To setup Avenview SW-HDM3D-C5-4X4 follow these steps for connecting to a device:

1. Connect all sources to HDMI Inputs on the 4X4 HDMI over CAT5 Matrix Switch (SW-HDM3D-C5-4X4)
2. Connect each DDC output on the SW-HDM3D-C5-4X4 to respective DDC input on the remote receiver HDM3D-C5SW-R
3. Connect each TMDS output on the SW-HDM3D-C5-4X4 to respective TMDS input on the remote receiver HDM3D-C5SW-R
4. Connect IR emitter cable to the SW-HDM3D-C5-4X4 and direct the IR emitter to the build-in IR receiver of the sources
5. Connect the +5V 6A DC power supply to the SW-HDM3D-C5-4X4
6. Power on all HDMI sources
7. Power on the SW-HDM3D-C5-4X4

Receiver

1. Connect each HDMI output to HDMI displays.
2. Connect the **HDMI SIGNAL** port with CAT6 on the HDM3D-C5SW-R to the **HDMI SIGNAL** port on the SW-HDM3D-C5-4x4.
3. Connect the **IR CONTROL** port on the HDM3D-C5SW-R to the **IR CONTROL** port on the SW-HDM3D-C5-4x4.
4. Connect IR receiver and place the IR receiver at the appropriate position that can receive the IR command signals sent from the users.
5. Dial the 8-level rotary control switch to adjust the HDMI signal level until the picture and sound are clear. It is recommended to dial from 7 to 0 to find the optimal visual experience

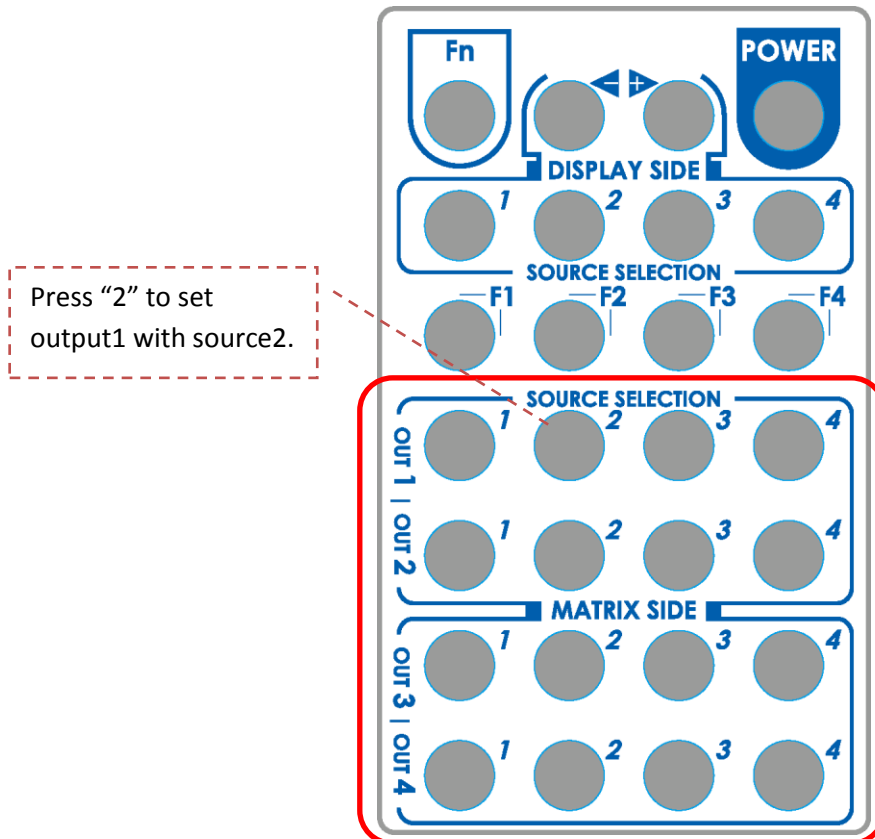
1.9 Operation and IR Control

1.9.1 Source Side

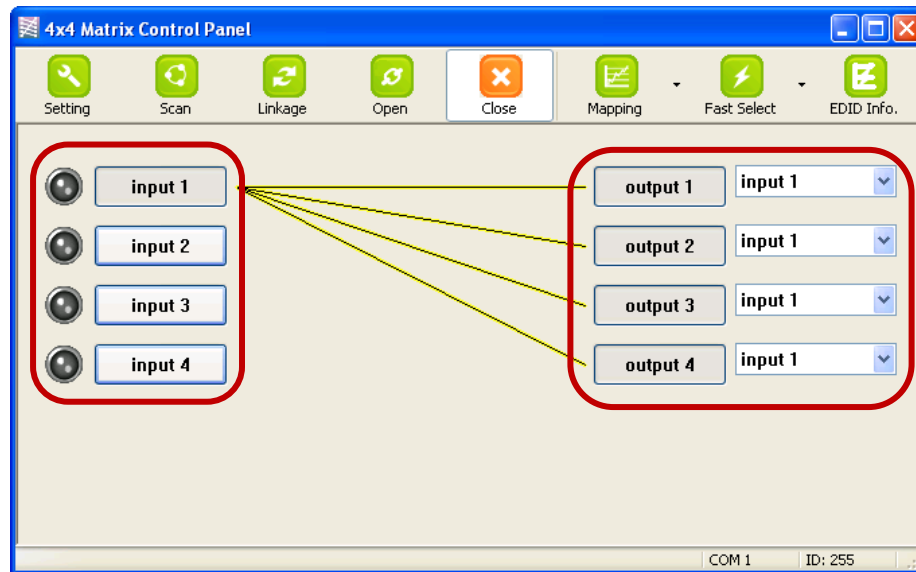
1.9.2 Method A: Push-in Button

1. Push the buttons in the selected range of red.
2. Choose the desired output from the left vertical four buttons from **OUT 1** to **OUT 4**, and then press the horizontal buttons from 1-4 to make your desired HDMI source selection. For example, choose **OUT 1** to set **OUTPUT1** with **SOURCE1**; choose **OUT2** to set **OUTPUT2** with **SOURCE1**.

1.9.3 Method B: IR Remote Control



1.10 RS232 Serial Port Control

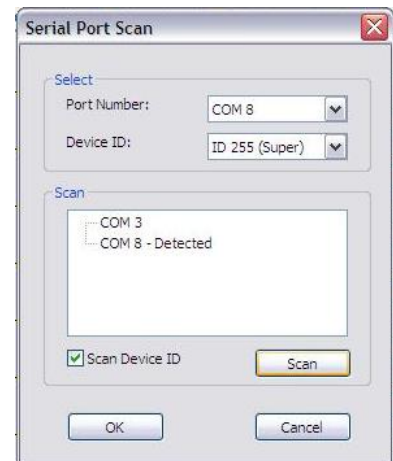


Scan:

Press Scan button, the machine will scan the all com port and show them.

Select the RS232 serial port connected to the machine. And set device ID 255 is for all device.

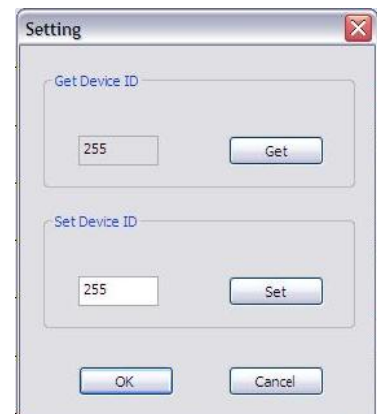
Only the same device id or 255 can get the command you sent. Press OK. Get the new status from the machine you select.



Setting:

Press Get button to read back device ID.

Press Set button to write device ID.



Linkage: Press Linkage button to read back all status

Open / Close: Press this button to Close or Open COM Port.

Mapping Button:

Select All Output:

Select “set all output”, and then select the source on main menu. You can quickly set all output to the same source.

Unselect All Output:

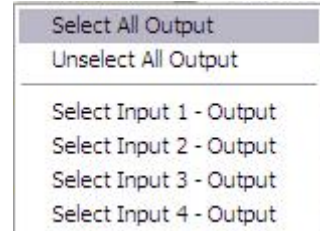
Release output selection.

Select Input1~4-Output:

Select Input Source. Then select the output port icon.

For example:

Select input source 1. Then select output port one and two. The video and audio will be sending to port one and two.



Fast Select Button:

Press **Fast select** button. Quick setting.

Input one ➡ Output Port one

Input two ➡ Output Port two

.....

Press Fast select pull down menu.

Select Input Num-Output Num

Input source #1 ➡ Output port #1

Input source #2 ➡ Output port #2

.....

Select Input* - All Output

Send the same source to all output.

Output Port:

Pull down menu and select which source to be sent to this output port.

One by one setting

On main menu screen.

First select input source. Then select the output ports which you want to send the video and audio from this source. When you select the input source, the source will change to gray. When you select the output port one by one, the selected output port will change to gray.

The linking line will change to yellow.

Group setting

First select output ports one by one. Then select the input source. The selected output ports change the setting at the same time.

By using Terminal:

Baud rate: 9600
Data length: 8bit
Parity check: No
Stop bit: 1

1.11.1RS232 Commands

COMMAND	ACTION	COMMAND	ACTION	COMMAND	ACTION
ST	System Status*	C5	Output C select Input5	F3	Output F select Input3
VR	Firmware Version	C6	Output C select Input6	F4	Output F select Input4
A1	Output A select Input1	C7	Output C select Input7	F5	Output F select Input5
A2	Output A select Input2	C8	Output C select Input8	F6	Output F select Input6
A3	Output A select Input3	D1	Output D select Input1	F7	Output F select Input7
A4	Output A select Input4	D2	Output D select Input2	F8	Output F select Input8
A5	Output A select Input5	D3	Output D select Input3	G1	Output G select Input1
A6	Output A select Input6	D4	Output D select Input4	G2	Output G select Input2
A7	Output A select Input7	D5	Output D select Input5	G3	Output G select Input3
A8	Output A select Input8	D6	Output D select Input6	G4	Output G select Input4
B1	Output B select Input1	D7	Output D select Input7	G5	Output G select Input5
B2	Output B select Input2	D8	Output D select Input8	G6	Output G select Input6
B3	Output B select Input3	E1	Output E select Input1	G7	Output G select Input7
B4	Output B select Input4	E2	Output E select Input2	G8	Output G select Input8
B5	Output B select Input5	E3	Output E select Input3	H1	Output H select Input1
B6	Output B select Input6	E4	Output E select Input4	H2	Output H select Input2
B7	Output B select Input7	E5	Output E select Input5	H3	Output H select Input3
B8	Output B select Input8	E6	Output E select Input6	H4	Output H select Input4
C1	Output C select Input1	E7	Output E select Input7	H5	Output H select Input5
C2	Output C select Input2	E8	Output E select Input8	H6	Output H select Input6
C3	Output C select Input3	F1	Output F select Input1	H7	Output H select Input7
C4	Output C select Input4	F2	Output F select Input2	H8	Output H select Input8

Section 2: Specifications

Item	Description	
Units	SW-HDM3D-C5-4X4	HDM3D-C5SW-R
Unit Description	4X4 HDMI Matrix Switch with 3D over CAT-5 with IR Pass-Through	HDMI Matrix Switch with 3D Receiver
HDMI Compliance	Support HDMI Deep Colour & full 3D	
HDCP Compliance	Yes	
Video Bandwidth	Single Link 225 MHz (6.75Gbps)	
Supported Resolutions	480i / 480p / 720p / 1080i / 1080p60	
Resolution and Distance	Full HD: (1080p) ~ 35meter (115feet) (CAT5e) / 40meter (130feet) (CAT6) HD: (720p/1080i) ~ 50meter (165feet) (CAT5e) / 55meter (180feet) (CAT6)	
Audio Support	Surround Sound (up to 7.1 Ch) or Stereo Digital Audio	
Equalization	N/A	8 Level Digital Control
Input TMDS Signal	1.2 Volts (peak-to-peak)	
Input DDC Signal	5 Volts (peak-to-peak, TTL)	
ESD Protection	<ul style="list-style-type: none"> - Human body model — ±19kV (air-gap discharge) & ±12kV (contact discharge) - Core chipset — ±8kV 	
Input	4 x HDMI 1 x RS232	1 x RJ45 TMDS 1 x RJ45 DDC 1 x IR Socket for IR Receiver
Output	4 x RJ45 HDMI Signal 4 x RJ45 IR Control 5 x IR Socket for IR Transmitter	1 x HDMI
HDMI Input Selection	Push Button / IR Remote / RS232	Push Button / IR Remote
HDMI Source Control	Through IR Control Path from IR Receiver	
HDMI Connector	Type A (19 pin female)	
RJ45 Connector	WE/SS 8P8C with 2 LED indicators	
RS232 Connector	DE-9 (9-pin D-sub Female)	
DIP Switch	Yes	-
Dimensions (L x W x H)	17" x 11.4" x 1.7"	3.3" x 3.5" x 1"
Power Supply	AC Power 100-250V	Most not required
Power Consumption	60 Watt (max)	1.5 Watt (max) provided by SW-HDM3D-C5-4X4

Environmental

Operating Temperature	32° ~ 104°F (0° to 40°C)
Storage Temperature	-4° ~ 140°F (-20° ~ 60°C)
Relative Humidity	20~90% RH (no condensation)

Notice

1. *If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI/HDMI EDID information.*
2. *All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz LAN cable and ASTRODESIGN Video Signal Generator VG-859C.3*
3. *The transmission length is largely affected by the type of LAN cables, the type of HDMI sources, and the type of HDMI display. The testing result shows solid LAN cables (usually in bulk cable 300m or 1000ft form) can transmit a lot longer signals than stranded LAN cables (usually in patch cord form). Shielded STP cables are better suit than unshielded UTP cables. A solid UTP CAT5e cable shows longer transmission length than stranded STP CAT6 cable. For long extension users, solid LAN cables are your only choice.*
4. *EIA/TIA-568-B termination (T568B) for LAN cables is recommended for better performance.*
5. *To reduce the interference among the unshielded twisted pairs of wires in LAN cable, you can use shielded LAN cables to improve EMI problems, which is worsen in long transmission.*



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