



DV-HSW4K-41AUD

HDMI 2.0 4x1 Switcher

User Manual

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Preface

Read this user manual carefully before using the product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. In the constant effort to improve the product, we reserve the right to make functions or parameters changes without notice or obligation.

FCC Statement

This equipment generates and can radiate radio frequency energy. if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.



SAFETY PRECAUTIONS

To ensure the best performance from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock, and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration, or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with adequate ventilation to avoid damage caused by overheat.
- 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 the housing, unplug the module immediately.
- Do not twist or pull by force cable ends.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

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1. Product Introduction

The DV-HSW4K-41AUD is an ultrathin auto switcher with four HDMI video inputs and one HDMI output. This switcher supports HDMI video resolution up to 4K@60Hz 4:4:4 HDR and multichannel audio. Except passing EDID information from the display, there are multiple built-in EDID settings to simplify an installation. The switcher will de-embed digital stereo audio to provide an analog audio source for an audio system. The switcher also supports audio return channel (ARC) for transmitting audio back to HDMI input port from the connected display.

In auto-switch mode, it switches to an HDMI input as soon as a new source is connected. When the active input is removed, the switcher will select the first source on the lowest numbered input. The switcher may also be controlled via RS232, IR with the included remote, or from the source button on the front of the switcher.

1.1 Features

- Switches any one of four HDMI inputs to one HDMI output.
- Supports video resolution up to 4K@60Hz 4:4:4, Dolby Vision, HDR.
- 18Gbps high bandwidth.
- Fully compliant with the HDMI 2.0 and HDCP2.3 specifications.
- Supports audio return channel (ARC).
- Advanced EDID management: multiple preset and user defined allowed.
- Controllable via RS232 and IR.
- Supports CEC.
- Provides seven LEDs to indicate the current operating status and to assist troubleshooting and installation.
- Firmware upgrade by Micro-USB port.

1.2 Package List

- 1x HDMI 2.0 4x1 Switcher
- 2x Mounting Ears
- 4x Mounting Screws
- 4x Plastic Cushions
- 1x RS232 Cable (3.5mm to DB9)
- 1x IR Remote
- 1x IR Receiver
- 1x Power Adapter (5V DC 1A)
- 1x User Manual

Note: Please contact your distributor immediately if any damage or defect is found.

2. Technical Specification

Video Input	
Input	(4) HDMI
Input Connector	(4) Female type-A HDMI
HDMI Input Resolution	Up to 4K@60Hz 4:4:4, Dolby Vision, HDR
HDMI Standard	2.0
HDCP Version	2.3
Video Output	
Output	(1) HDMI
Output Connector	(1) Female type-A HDMI
HDMI Output Resolution	Up to 4K@60Hz 4:4:4, Dolby Vision, HDR
HDMI Standard	2.0
HDCP Version	2.3
Audio	
Output	(1) AUDIO
Output Connector	(1) 3.5mm mini stereo audio jack
Audio Format	PCM
Audio Output Impedance	70 Ohms
Frequency Response	20Hz to 20kHz, ± 3 dB
Control	
Control	(1) IR IN; (1) RS232
Control Connector	(2) 3.5mm mini jacks
General	
Bandwidth	18Gbps
Operation Temperature	-5 to +55°C (+23° to +131°F)
Storage Temperature	-25 to +70°C (-13° to +158°F)
Relative Humidity	10% to 90%, non-condensing
Power Supply	Input:100V~240V AC; Output: 5V DC 1A
Power Consumption	5W(Max)
Dimension (W*H*D)	194mm (7.6") x 15mm (.6") x 81mm (3.2")
Net Weight	324g (11.4oz)

Note: Please adopt a high-qualified HDMI cable fully compliant with HDMI 2.0 specifications for reliable transmission and connection.

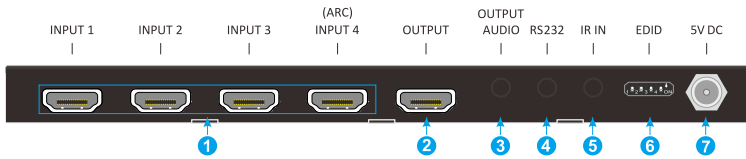
3. Panel Description

3.1 Front Panel



- ① Auto/Source Button:
 - Press to switch to next input source.
 - Press and hold for three seconds to switch between manual mode and auto mode.
- ② Power LED: The LED illuminates red when power is applied.
- ③ Audio Mode LED:
 - Illuminates green when de-embedding audio has been selected.
 - Illuminates yellow when in ARC mode.
- ④ Switching Mode LED:
 - Illuminates green in manual switch mode.
 - Illuminates yellow in auto-switch mode. LIFO
- ⑤ Input 1~4 LED: The LED illuminates green when there is an HDMI input on the corresponding channel.
- ⑥ FIRMWARE: Micro-USB port for firmware upgrade.

3.2 Rear Panel



- ① IN 1~4: Four type-A female HDMI input ports to connect HDMI sources. Only input 4 port supports ARC.
- ② OUT: Type-A female HDMI output port to connect HDMI display.
- ③ AUDIO: 3.5mm mini jack for analog audio output.
- ④ RS232: 3.5mm mini jack to connect control device (e.g., PC).
- ⑤ IR IN: 3.5mm mini jack to connect the included IR receiver for remote control.
- ⑥ EDID: 4-pin DIP switch for EDID settings.
- ⑦ DC 5V: DC port to connect a 5V DC power adapter.

Note: Output HDCP compliant status depends on input signal. When the input signal is with HDCP, then output signal is with HDCP and vice versa.

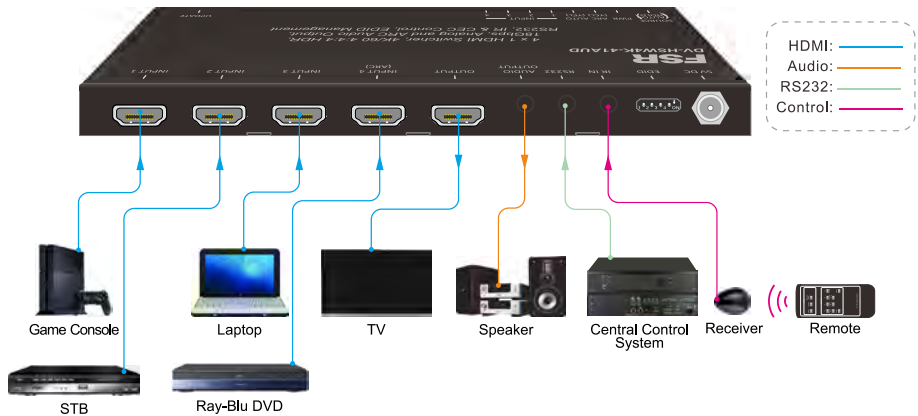
4. System Connection

4.1 Usage Precaution

- Make sure all components and accessories are included before installation.
- System should be installed in a clean environment with proper ventilation and humidity.
- All plugs, sockets, and power cords should meet local and national code.
- All devices should be connected before powering on.

4.2 System Diagram

The following diagram illustrates typical input and output connections that can be utilized with this switcher:



5. Source Button Control

5.1 Manual Switching

When the switcher is in manual switching mode, the Switching Mode LED will be green, and pressing **Auto/Source** button will switch to the next input.

5.2 Automatic Switching

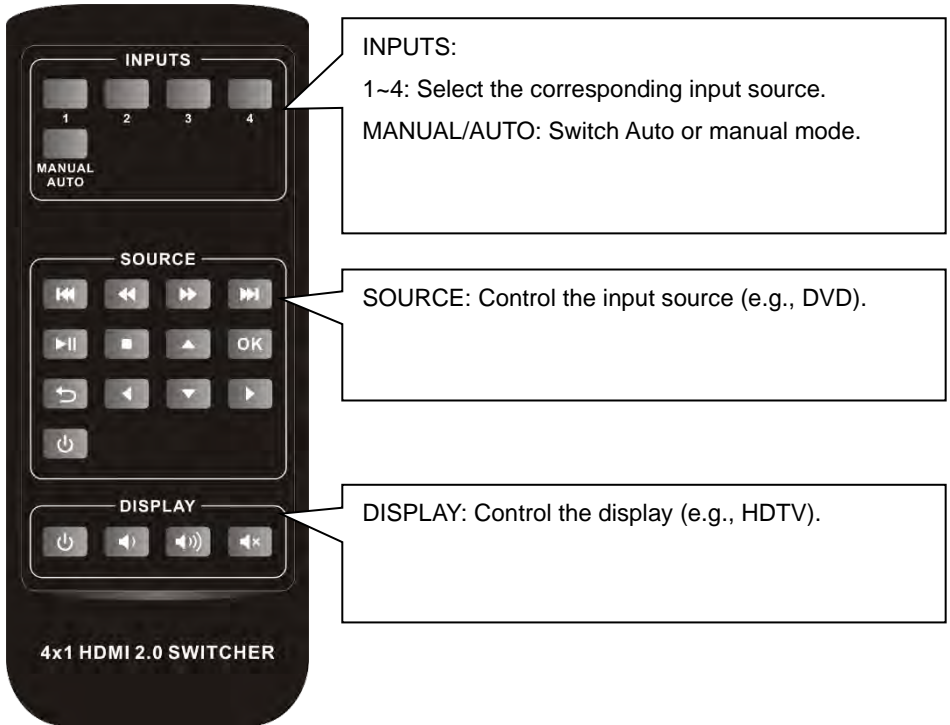
To enable automatic switching, press and hold the **Auto/Source** button for three seconds. The Switching Mode LED will turn to yellow.

When in auto-switch mode, the switcher follows the below rules:

- **New Input:** Upon detecting a new input, the switcher will automatically select the new source.
- **Reboot:** Once power is restored to the switcher, if the last selected source is still available, the switcher will still output this signal, otherwise, the switcher will switch to the first available active input starting at HDMI Input 1.
- **Source Removed:** When an active source is removed, the switcher will switch to the first available active input starting at HDMI Input 1.

6. IR Remote Control

Connect the IR receiver to the IR input port; the IR remote is used for input switching and it can also be used to control source and display devices based on CEC functionality.



Note:

- HDMI input 4 port does not support CEC, the source device connected to this port cannot be controlled via the IR remote.
- The source and display devices are required to support CEC when the IR remote is used to control them.

7. RS232 Control

Connect the switcher to the control device (e.g., PC, Control System) with an RS232 cable and set the parameters correctly.

7.1 RS232 Control

Basic Settings

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: none.

RS232 Commands

Note: All commands must end with "<CR><LF>". Carriage Return and Line Feed.

7.1.1 Signal Switching

Function	Command	Feedback Example
Switch to HDMI input 1.	>>HDMI1	<<HDMI1
Switch to HDMI input 2.	>>HDMI2	<<HDMI2
Switch to HDMI input 3.	>>HDMI3	<<HDMI3
Switch to HDMI input 4.	>>HDMI4	<<HDMI4
Enable auto-switching mode.	>>AUTO	<<AUTO Switch
Enable manual switching mode.	>>MANUAL	<<MANUAL Switch

7.1.2 Source Device Control

Note:

- The input source device is required to support CEC.
- HDMI input 4 port does not support CEC, the source device connected to this port cannot be controlled by IR remote.

Function	Command	Feedback Example
Turn on the input source device, e.g., Blue-ray DVD.	>>SRCOn	<<SRCOn
Turn off the input source device, e.g., Blue-ray DVD.	>>SRCOff	<<SRCOff
Play	>>SRCPlay	<<SRCPlay
Pause	>>SRCPause	<<SRCPause
Stop	>>SRCStop	<<SRCStop
Fast Forward x1	>>SRCForward	<<SRCForward
Fast Rewind x1	>>SRCBackward	<<SRCBackward
Next Section	>>SRCSkipForward	<<SRCSkipForward
Previous Section	>>SRCSkipBackward	<<SRCSkipBackward
Open the menu setting	>>SRCMenu	<<SRCMenu
Go back	>>SRCBack	<<SRCBack
Confirm (OK)	>>SRCOk	<<SRCOk
Exit	>>SRCExit	<<SRCExit
Up direction	>>SRCUp	<<SRCUp
Down direction	>>SRCDown	<<SRCDown
Left direction	>>SRCLeft	<<SRCLeft
Right direction	>>SRCRight	<<SRCRight

7.1.3 Display Device Control

Note: The display device is required to support CEC.

Function	Command	Feedback Example
Turn on the display device, e.g., HDTV.	>>TVOn	<<TVOn
Turn off the display device, e.g., HDTV.	>>TVOff	<<TVOff
Volume up.	>>TVVOL+	<<TVVOL+
Volume down.	>>TVVOL-	<<TVVOL-
Mute.	>>TVMUTE	<<TVMUTE
Unmute		<<TVUNMUTE

7.1.4 Audio Selection

Function	Command	Feedback Example
Select ARC audio channel.	>>AUDExternal	<<AUDExternal
Select the HDMI audio input channel.	>>AUDInternal	<<AUDInternal

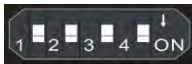
7.1.5 System Control

Function	Command	Feedback Example
System reset.	>>RESET	<<RESET
Get system information.	>>SYSInfo	<<AUDExternal << DV-HSW4K-41AUD << V1.xx << ----- <<HDMI1 <<Auto Switch <<AUDExternal <<EDID0

8. EDID Management

8.1 Predefined EDID Setting

The rear panel provides a 4-pin DIP switch to set a predefined EDID. The unit has ten types of embedded EDID and their corresponding switch status are shown in the list below.



When in the lower position, the switch represents “ON”, while putting the switch in the up position, it represents “OFF”.

ID	Switch Status	Video	Audio
0	0000	Pass though	Pass though
1	0001	1920x1080p@60Hz 4:4:4 RGB 8bit	Stereo
2	0010	1920x1080p@60Hz 4:4:4 RGB 8bit	High Definition
3	0011	1920x1080p@60Hz 4:4:4 RGB 12bit	Stereo
4	0100	1920x1080p@60Hz 4:4:4 RGB 12bit	High Definition
5	0101	3840x2160p@60Hz 4:2:0 RGB 8bit	Stereo
6	0110	3840x2160p@60Hz 4:2:0 RGB 8bit	High Definition
7	0111	3840x2160p@60Hz 4:4:4 RGB 10bit HDR	Stereo
8	1000	3840x2160p@60Hz 4:4:4 RGB 10bit HDR	High Definition
9	1001	1280x800@60Hz	Stereo
10	1010	1920x1200@60Hz	Stereo

8.2 User Defined EDID Setting

There are five EDID settings that can be customized following the below operations.

- 1) Rename the user defined EDID according to the following format.

EC_xx_xxxx_xxx.bin

- EC: Represents EDID.
- xx: Represents EDID ID. It is 11~15.
- xxxx: Represents the video parameter.
- xxx: Represents the audio format.

Example: EC_11_720P_LPCM.bin

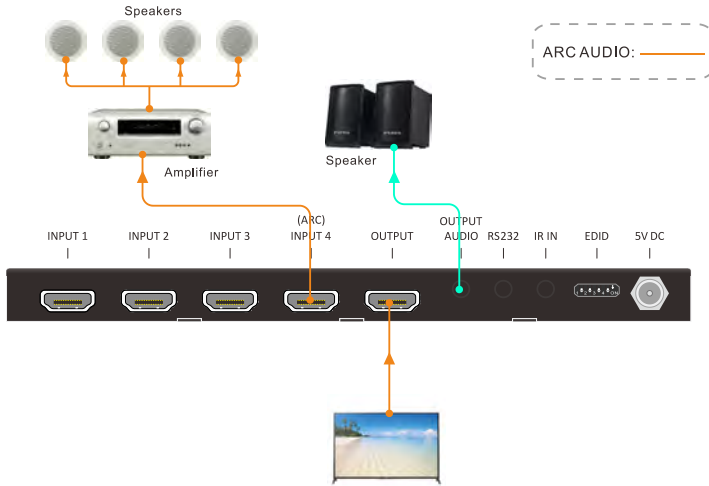
- 2) Power on the switcher, and then connect the switcher to the PC with USB cable. The PC will automatically detect a U-disk named of "BOOTDISK".
- 3) Double-click the U-disk, a file named of "READY.TXT" to view.
- 4) Copy the user defined EDID (such as **EC_11_720P_LPCM.bin**) to the "BOOTDISK" U-disk.
- 5) Reopen the U-disk to check the filename "READY.TXT" this should automatically become "SUCCESS.TXT", if yes, the user defined EDID was imported into the switcher and saved as its corresponding EDID ID successfully.
- 6) Repeat the above third to fifth step to copy another user defined EDID to the "BOOTDISK" U-disk.
- 7) Remove the USB cable, connect the adaptor to power on the switcher.
- 8) The new EDID also can be invoked via the 4-pin DIP switch directly. The EDID ID and its corresponding switch status are shown in the below list.

ID	Switch Status
11	1011
12	1100
13	1101
14	1110
15	1111

9. ARC Mode

Audio Return Channel (ARC) allows audio from a display to pass “upstream” through an HDMI cable to an audio processing device, such as an AV amplifier. When ARC mode is active on the switcher, the ARC stream will pass to the active HDMI source device if it can process the signal.

Only the fourth HDMI input port features ARC, when the display and AV amplifier support ARC, the audio connection diagram is shown below:



10. Troubleshooting & Maintenance

Problems	Potential Causes	Solutions
Color loss or no video signal output on HDMI display.	The connecting cables may not be connected correctly, or they may be broken.	Check whether the cables are connected correctly and in working condition.
No HDMI signal output from this switcher while local HDMI input is in normal working state.		
Splash screen on output devices.	Poor quality of the connecting cable.	Change out cable for another cable of good quality.
Cannot control this switcher with control device (e.g., a PC) through RS232 port.	Wrong RS232 communication parameters.	Make sure the RS232 communication parameters are correct.
	This switcher is broken.	Send to authorized dealer for repairing.
Static becomes stronger when connecting the video connectors.	Bad grounding.	Check the grounding and make sure it is connected well.

Note: If your problem still exists after following the above troubleshooting steps, please contact your local dealer or distributor for further assistance.

11. Customer Service

Before returning any equipment for repair, please be sure that it is adequately packed and cushioned against damage in shipment, and that it is insured. We suggest that you save the original packaging and use it to ship the product for servicing. Also, please enclose a note giving your name, address, phone number and a description of the problem.

NOTE: all equipment being returned for repair must have a Return authorization (RMA) Number. To get a RMA Number, please call the FSR Service Department (1-800-332-FSR1). Please display your RMA Number prominently on the front of all packages.

Limited Warranty

The DV-HSW4K-41AUD is warranted against failures due to defective parts or faulty workmanship for a period of three years after delivery to the original owner. During this period, FSR will make any necessary repairs or replace the unit without charge for parts or labor. Shipping charges to the factory or repair station must be prepaid by the owner, return-shipping charges (via UPS Ground) will be paid by FSR.

This warranty applies only to the original owner and is not transferable. In addition, it does not apply to repairs done by other than the FSR factory or Authorized Repair Stations.

This warranty shall be cancelable by FSR at its sole discretion if the unit has been subjected to physical abuse or has been modified in any way without written authorization from FSR. FSR's liability under this warranty is limited to repair or replacement of the defective unit.

FSR will not be responsible for incidental or consequential damages resulting from the use or misuse of its products. Some states do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Warranty claims should be accompanied by a copy of the original purchase invoice showing the purchase date (if a Warranty Registration Card was mailed in at the time of purchase, this is not necessary). Before returning any equipment for repair, please read the important information on service below.

CONTACT INFORMATION:

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