



4K 1-In-9-Out HDMI™ Video Wall Controller (Audio Extract)

USER MANUAL

HDS-31VW

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Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the service life of your equipment.

Please activate your warranty by registering our product through the link below - **www.orei.com/register**

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- 877-290-5530

Introduction

The HDS-31VW HDMI Video Wall Controller is an ideal solution for large-screen presentations, connecting a single media device to nine displays. It is HDMI 1.4 and HDCP 1.4 compliant, supporting input resolutions up to 4K@30Hz and output up to 1080p@60Hz, with a 10.2Gbps video bandwidth. It features an Optical and a Stereo 3.5mm output and supports LPCM, AC3, and DTS audio formats. The power-off memory function retains the last settings, and bezel adjustment enhances display flexibility. It also allows 180-degree image rotation for each output. Control is simple using front-panel buttons, the included remote, or RS-232.



Features & Package Contents

1. HDCP 1.4 compliant
2. Video Input resolutions up to 4K@30Hz and Output resolution up to 1080p@60Hz
3. Video bandwidth up to 10.2Gbps
4. Features Optical and Stereo outputs for audio extraction
5. Supports LPCM, AC3 and DTS audio formats
6. 180-degree rotation for each output
7. Power-off memory function; remembers the last setting when turned off
8. Bezel Adjustment
9. RS-232 control
10. Compact design and plug-and-play setup

Package Contents

1.	HDS-31VW	1 pcs
2.	Remote	1 pcs
3.	Power Adapter	1 pcs
4.	User Manual	1 pcs

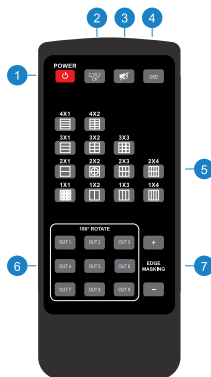
Specifications

Technical	
HDMI Compliance	HDMI 1.4
HDCP Compliance	HDCP 1.4
Video Bandwidth	10.2Gbps
Video Resolution	480i, 576i, 1080i 480p, 576p, 720p, 1080p, 4K@24/25/30
Color Space	YCbCr 4:4:4/YCbCr 4:2:2/RGB
Color Depth	12-bit
Audio Formats	LPCM/AC3/DTS
HDR	Supported
Connection	
Input	1 x HDMI [Type A, 19-pin female] 1 x DC 12V [For Power]
Output	9 x HDMI [Type A, 19-pin female] 1 x Optical [S/PDIF] 1 x Analog [3.5mm Stereo Jack] 1 x Micro USB [For Firmware Update]

Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	L: 290.8mm / 11.45in W: 110.5mm / 4.35in H: 19mm / 0.74in
Weight	615g / 21.69oz
Power Supply	Input: AC 100-240V 50/60Hz, Output: DC 12V 1A(US/EU standards, CE/ FCC/UL certified)
Power Consumption	6W (Max)
Operating Temperature	0° ~ 70°C / 32°F ~ 158°F
Relative Humidity	5 ~ 90% RH (non-condensing)

Operation Controls and Functions

Remote:

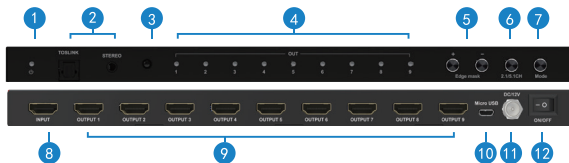


Remote Control Size: 51.5 x 124 x 9.5mm

No.	Name	Function Description
1.	POWER	Turn the unit on/off
2.	2.1/5.1CH	Press the button to select between 2.1ch and 5.1ch audio

Operation Controls and Functions

No.	Name	Function Description
3.	Mute Audio	Press to mute the audio
4.	OSD	Press to show the OSD content. It disappears 3 seconds later.
5.	MODE 1-13	Press the button to select the corresponding mode
6.	180°ROTATE	Press the button to rotate the respective display 180 degrees in all video wall modes except 1x1 Splitter mode.
7.	Edge Masking +/-	Press the +/- button to adjust the bezel by 8 pixels



Operation Controls and Functions

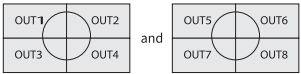
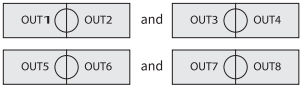
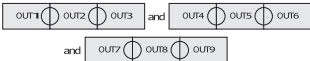
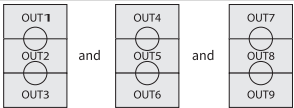
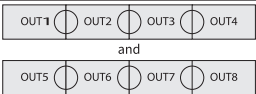
No.	Name	Function Description
1.	Power	The LED will light up when the unit is turned on.
2.	STEREO	Connect an audio device with a 3.5mm input like an AVR, AMP, Headphones, etc.
	TOSLINK	Connect an audio device with an Optical input like an AVR, AMP, Soundbar, etc.
3.	IR	IR Receiving window
4.	OUT 1-9	The LEDs will light up indicating the active outputs.
5.	Edge Masking +/-	Press the +/- button to adjust the bezel by 8 pixels
6.	2.1/5.1CH	Press the button to select between 2.1ch and 5.1ch audio
7.	MODE	Press the button to switch between the available modes
8.	INPUT	Connect a media device such as DVD player, streaming device, etc.
9.	OUTPUT 1-9	Connect a display device such as TV, Monitor, etc.
10.	Micro USB	Firmware Update port. Also used for RS232 Serial Control
11.	DC/12V	Connect the included power adapter
12.	ON/OFF	Press the switch to turn the unit on/off

Mode Description

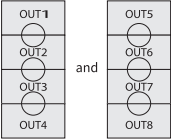
Mode1: 3x3 video wall mode	<table><tr><td>OUT1</td><td>OUT2</td><td>OUT3</td></tr><tr><td>OUT4</td><td>OUT5</td><td>OUT6</td></tr><tr><td>OUT7</td><td>OUT8</td><td>OUT9</td></tr></table>	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8	OUT9
OUT1	OUT2	OUT3								
OUT4	OUT5	OUT6								
OUT7	OUT8	OUT9								
Mode2: 2x4 video wall mode	<table><tr><td>OUT1</td><td>OUT2</td><td>OUT3</td><td>OUT4</td></tr><tr><td>OUT5</td><td>OUT6</td><td>OUT7</td><td>OUT8</td></tr></table>	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8	
OUT1	OUT2	OUT3	OUT4							
OUT5	OUT6	OUT7	OUT8							
Mode3: 2x3 video wall mode	<table><tr><td>OUT1</td><td>OUT2</td><td>OUT3</td></tr><tr><td>OUT4</td><td>OUT5</td><td>OUT6</td></tr></table>	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6			
OUT1	OUT2	OUT3								
OUT4	OUT5	OUT6								
Mode4: 4x2 video wall mode	<table><tr><td>OUT1</td><td>OUT2</td></tr><tr><td>OUT3</td><td>OUT4</td></tr><tr><td>OUT5</td><td>OUT6</td></tr><tr><td>OUT7</td><td>OUT8</td></tr></table>	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8	
OUT1	OUT2									
OUT3	OUT4									
OUT5	OUT6									
OUT7	OUT8									
Mode5: 3x2 video wall mode	<table><tr><td>OUT1</td><td>OUT2</td></tr><tr><td>OUT3</td><td>OUT4</td></tr><tr><td>OUT5</td><td>OUT6</td></tr></table>	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6			
OUT1	OUT2									
OUT3	OUT4									
OUT5	OUT6									

Mode Description

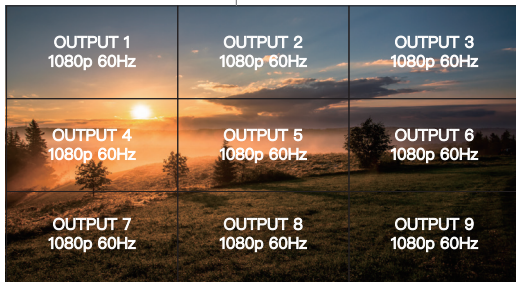
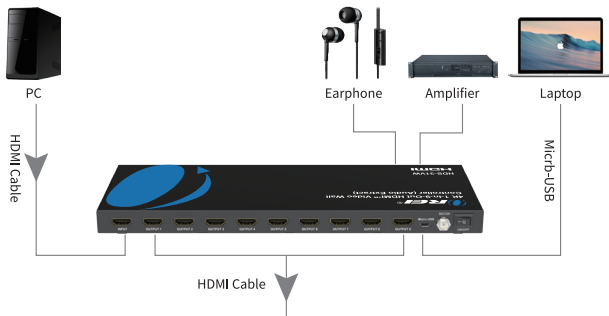
Mode Description

Mode6: 2x2 video wall mode	
Mode7: 1x2 video wall mode	
Mode8: 2x1 video wall mode	
Mode9: 1x3 video wall mode	
Mode10: 3x1 video wall mode	
Mode11: 1x4 video wall mode	

Mode Description

Mode12: 4x1 video wall mode	
Mode13: 1x1 Splitter mode	

Application Example



Rotate Image 180 Degree Function

You can rotate the image of the top row TVs to place them upside down for reduced bezels.

Under 3X3 Mode



Pictures Rotate 180°



TVs Rotate 180°



Under 2X2 Mode



Pictures Rotate 180°



TVs Rotate 180°



Under 2X1 Mode



Pictures Rotate 180°



TVs Rotate 180°

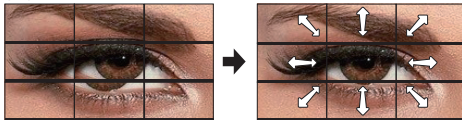


Application Example

Edge Masking +/- Function

The Edge masking function allows you to cut/move the image by 8 pixels to make it appear seamless on the video wall.

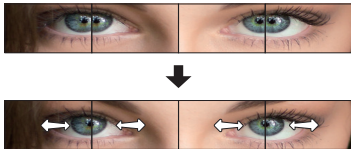
3X3



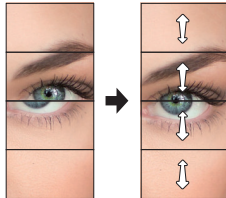
2X2



1X4



4X1



RS-232 Connection Protocol

RS-232 Connection Protocol

Baud Rate = 57,600 bits per second as default

Data Bits = 8

Stop Bits = 1

Parity = None

Flow Control = None

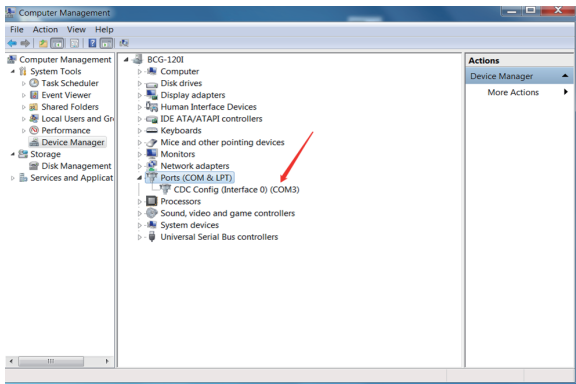
Notes:

1. Carriage Return is required at end of each string
2. Commands are not case-sensitive Spaces are shown for clarity : commands should NOT have any spaces
3. After a new command is received , a prompt should be sent back
4. Video mode selections via front button , IR remote ,USB service port , or RS-232 respond with the following message xx= the currently selected video mode (01-13)
5. The response terminates with a carriage return followed by a line feed

RS-232 Connection Protocol

The Micro USB port is used for configuration and control from third-party control terminals and for firmware updates

Supports USB driver for Windows 8.1/10/11, and Mac OS 10.10 or above. It will show up as CDC Config Series Port in Device Manager. If the operation system of the PC is too old, the customers need to install the driver for CDC manually.



RS-232 Connection Protocol

Help Command (H) . Returns entire API in readable format :

4PET0109VW> H

Systems HELP

4PET0109VW F/W Version : 1.00

H: Help

PF: Power Off

PN: Power ON

STA: Show Global System Status

Video Mode Setup Commands: xx=[01-13,U,D], yy=[01-09]

SPO VM xx: Set Output to Video Mode xx

Mode 01 = 3x3 mode; Mode 02 = 2x4 mode; Mode 03 = 2x3 mode;

Mode 04 = 4x2 mode; Mode 05 = 3x2 mode; Mode 06 = 2x2 mode;

Mode 07 = 1x2 mode; Mode 08 = 2x1 mode; Mode 09 = 1x3 mode;

Mode 10 = 3x1 mode; Mode 11 = 1x4 mode; Mode 12 = 4x1 mode;

Mode 13 = 1x1 mode;

SPO yy ROTATE: Set the Output yy Rotate 180 Degree

SPO Edge Mask +/-: Set the Output picture edge add/cut 8 pixel each

Audio Output Setup Commands: [E=Enable, D=Disable]

SPO A E/D: Enable/Disable External Optical and Analog Audio Output

SPO HA E/D: Enable/Disable HDMI Audio Output

SPO AM 2.1/5.1: Set the Output Default Audio Mode to 2.1CH/5.1CH

Mode

System Control Setup Commands:

SHOW OSD: Show the OSD Information and Disappear after 5s

SPC FB E/D: Enable/Disable Front Panel Buttons

SPC RSB z: Set RS232 Baud Rate to z bps, z=[0-4]

[0:57600, 1:38400, 2:19200, 3:9600, 4:4800]

SPC DF: Reset to Factory Defaults

SPC DBG ON/OFF : DBG ON AND OFF

SPC DF01: Reset to no Edge Mask setting status

RS-232 Connection Protocol

Status Command (STA). Returns unit status and settings in readable format:

#if HDMI output 4 is disconnected.

4PET0109VW> STA

```
-----  
--                                     Systems STATUS                                     --  
-----  
----- 4PET0109VW,                               Device Name: 4PET0109VW_0001 -----  
-- F/W Version: 1.00                               -----  
-- Power: ON                                         -----  
-- Front Panel Button : Enabled                     -----  
-- RS232: Baud Rate=57600bps, Data=8bit, Parity=None, Stop=1bit -----  
--  
-- Video Output 01: LINK = ON, OUT1 ROTATE = OFF,   -----  
-- Video Output 02: LINK = ON, OUT2 ROTATE = OFF,   -----  
-- Video Output 03: LINK = ON, OUT3 ROTATE = OFF,   -----  
-- Video Output 04: LINK = OFF, OUT4 ROTATE = OFF,  -----  
-- Video Output 05: LINK = ON, OUT5 ROTATE = OFF,   -----  
-- Video Output 06: LINK = ON, OUT6 ROTATE = OFF,   -----  
-- Video Output 07: LINK = ON, OUT7 ROTATE = OFF,   -----  
-- Video Output 08: LINK = ON, OUT8 ROTATE = OFF,   -----  
-- Video Output 09: LINK = ON, OUT9 ROTATE = OFF,   -----  
-- Video Input: Input = ON                          -----  
-- Output Video Mode: 3x3                           -----  
-- Audio Output: Enabled                             -----  
-- Audio Mode: 2.1CH                                 -----  
-- DBG ON/OFF: DBG = OFF                            -----  
-----
```

FAQs & Troubleshooting

1. No video output

Try changing the HDMI cables
Try lowering the resolution from the media source

2. I cannot get 4K@30Hz resolution

This device supports 4K@30Hz input resolution, but only outputs 1080p@60Hz in video wall mode.

3. No audio output from the Optical or 3.5mm jack

The Optical port supports 5.1CH audio and the 3.5mm only supports 2.1CH, so you need to change the audio format from the media source to Dolby Digital (for Optical) or Stereo (for 3.5mm jack) to get audio.

Still have some questions?

Please feel free to contact us at: info@orei.com. OR Fill out the form on the 'Contact Us' page on the website.
Our team will be more than happy to help you.

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