



Video Wall Controller, 4 Displays, 4K/30Hz



Installation Guide

DS-55358

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Surge protection device recommended

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

1. Introduction

The video wall controller enables the impressive presentation of a video wall of up to four 4K UHD displays. Thanks to the flexible display formations (1x1, 2x1, 3x1, 4x1, 1x2, 1x3, 1x4, 2x2), you can customize your setup - ideal for professional presentations, advertising displays or surveillance applications.

The high-resolution signal processing ensures a maximum input resolution of 4K/60Hz via HDMI (DMI 2.0) or USB-C (DP 1.2a). The video wall is output in 4K/30Hz via HDMI, guaranteeing razor-sharp images.

An integrated audio extractor enables separate output of the audio signal via 3.5 mm analog stereo or digital S/PDIF – Perfect for external speakers.

Thanks to 180° image rotation, the video wall can also be used for ceiling installations, while the intuitive control via remote control, directly on the device or via RS232 interface offers maximum ease of use. The resolutions of the displays can also be easily changed.

The compact design and the option of wall mounting make the controller the ideal solution for versatile applications in the professional sector.

2. Main Features

- Input signal via HDMI (DMI 2.0) or USB-C (DP 1.2a) in a maximum resolution of 4K/60Hz
- Output signal (video wall mode, 4 displays) via HDMI in a maximum resolution of 4K/30Hz
- 8 display formations possible
 - 1x1, 2x1, 3x1, 4x1, 1x2, 1x3, 1x4, 2x2
- Audio extractor – Enables decoupling of the audio signal, playback via separate speakers via analog 3.5 mm stereo or digital S/PDIF
- Supports 180° image rotation (simple switching via remote control) – Perfect for ceiling installations, for example:
 - Convenient control options – Control via remote control, on the device itself (front panel buttons) or via RS232
 - Convenient switching of the resolutions of the 4 output displays on the device and via remote control
- Frame (Bezel) Adjustment – Move the frame of the picture in video wall mode conveniently via remote control
- Suitable for wall mounting

3. Package Content

- 1x Video Wall Controller
- 1x Remote control (CR2025 button cell included)
- 1x Mains adapter, EU plug (12V/1A, 1.2 m)
- 1x IR extension cable (1.5 m)
- 1x RS232 Terminal block
- 1x Mounting material
- 1x Operating instructions

4. Specification

Technical	
HDMI Compliance	HDMI 2.0 b
HDCP Compliance	HDCP 2.2
Video Bandwidth	18 Gbps
Video Resolution	Input: Up to 4K/60Hz 4:4:4 Output: 720P60Hz, 1024x768p/60Hz, 1080p/60Hz, 4K/30Hz
Color Space	RGB, YCbCr_4:4:4, YCbCr_4:2:2, YCbCr_4:2:0

Color Depth	8/10/12 bit
IR Level	5Vp-p
IR Frequency	38KHz
Audio Formats	HDMI IN/OUT: LPCM 2.0/5.1, Dolby Digital/Plus/EX, DTS, DTS-EX, DTS-96/24 L/R OUT: PCM 2.0 SPDIF(OPTICAL): Dolby Digital/ plus, DTS 5.1, PCM 2.0
Audio Latency	No Latency
Video Latency	No Latency
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Connection	
Input ports	1× HDMI INPUT (Type A, 19-pin female) 1× USB-C INPUT (Type C, 24-pin female)
Output ports	4× HDMI OUTPUT (Type A, 19-pin female) 1× OPTICAL AUDIO OUT (S/PDIF) 1× L/R AUDIO OUT (RCA)
Control ports	1× RS-232 (3pin-3.81mm phoenix connector)

	1× IR EXT (3.5mm, Stereo Mini jack)		
Mechanical			
Housing	Metal		
Color	Black		
Dimensions	220 [W] × 100 [D] × 30 [H] mm		
Weight	590 g		
Power Supply	Input: AC 100-240V 50/60Hz, Output: DC 12V/1A		
Power Consumption	5.5W (Max)		
Operating Temperature	0 - 40°C		
Storage Temperature	-20 - 60°C		
Relative Humidity	20 - 90% RH (no-condensing)		
Video Resolution	4K/60Hz	4K/30Hz	1080p/60Hz
HDMI Cable Length (HDMI IN / OUT)	8 m max.	10 m max.	15 m max.
The use of “Premium High-Speed HDMI” cable is highly recommended			

5. Operation Controls and Functions

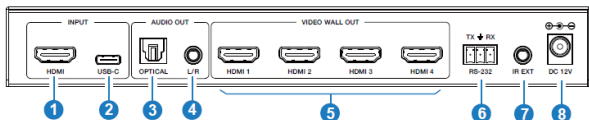
5.1 Front Panel



1	Power Button	▪ In shutdown/standby status, press this button to power on; ▪ In power-on status, press this button for 2~3 seconds to enter standby status
2	Power LED	The LED will light in green when the product is working normally, and red when the product is on standby
3	HDMI LED	The LED will light in green when HDMI input is selected
4	USB-C LED	The LED will light in green when USB-C input is selected
5	AUTO LED	The LED will light in green when auto switching is enabled
6	IR Window	IR signal receiving window
7	HDMI Button	Press this button to select the HDMI input channel

8	USB-C Button	Press this button to select the USB-C input channel
9	MODE Button	Press this button to switch the 8 splicing modes circularly.
10	RES Button	Press this button to switch the resolutions of the four HDMI outputs circularly.

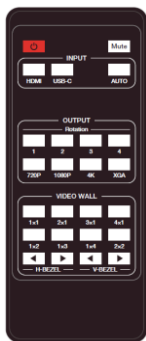
5.2 Rear Panel



1	HDMI In	HDMI signal input port, connected to an HDMI source device.
2	USB-C In	USB-C signal input port, connected to a USB-C source device.
3	Optical Audio Out	Optical audio output port, connected to an audio output device such as an audio amplifier.
4	L/R Audio Out	Analog audio output port, connected to an audio output

		device such as a speaker.
5	Video Wall Out(HDMI1~4)	HDMI signal output port, connected to TVs.
6	RS-232	3-pin phoenix connector, connected to a PC or control system for serial port upgrade or RS-232 command control
7	IR Extender	IR signal receiving port, connected with IR Receiver cable. ▪ If the IR signal receiving window of the unit is blocked or the unit is installed in a closed area out of infrared line of sight, the IR receiver cable can be inserted to the “IR EXT” port to receive the IR remote signal.
8	Power Supply	Connect to DC 12V/1A power adapter

5.3 IR Remote



- **Power on or Standby:**
Power on the device or set it to standby mode.
- **Mute:**
Turn off/on the audio output, including HDMI, Optical and L/R audio.
- **HDMI:**
Press to select HDMI input channel.
- **USB-C:**
Press to select USB-C input channel.
- **AUTO:**
Press to disable or enable the input auto switching.

- **Rotation 1/2/3/4:**
Press to switch rotation angle between 0° and 180° for the corresponding output channel.
- **Resolution 720P/1080P/4K/XGA:**
Press to switch the resolution for the 4 output channels at the same time.
- **VIDEO WALL MODE:**

There are 8 splicing modes: 1x1, 2x1, 3x1, 4x1, 1x2, 1x3, 1x4, 2x2. Press to select the display mode.

- **H/V-BEZEL ◀ ▶:**

Press to adjust the bezels of the splicing images.

5.4 IR Cable Pin Assignment

IR Receiver pin's definition is as below:



1 IR Signal	2 Power	3 Grounding
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6. Video Wall

Video wall supports 8 splicing modes as below:



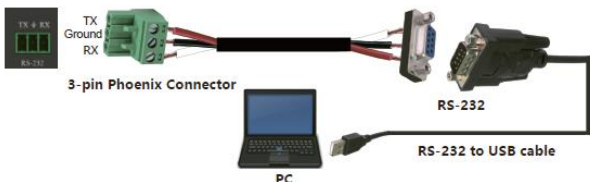
User can set display modes via front panel buttons, IR remote, and RS-232 commands.

Note:

In the video wall mode (except mode 1x1), only the screens which are selected to perform video wall splicing will display images and their bezels can be adjusted.

7. RS-232 Control Command

The product also supports RS-232 command control. Connect the RS-232 port of the product to a PC with a 3-pin phoenix connector cable and an RS-232 to USB cable. The connection method is as follows.



Then, open a Serial Command tool on PC to send ASCII command to control the device.

The ASCII command list is shown as below.

ASCII Command				
Serial port protocol. Baud rate: 115200 (Default), Data bits: 8, Stop bits:1, Check bit: 0				
x - Parameter 1, y - Parameter 2, ! - Delimiter				
Command Code	Function Description	Example	Feedback	Default Setting
System Setting				
r fw version!	Get firmware version	r fw version	mcu fw version: x.xx.xx	
s power z!	Power on/off the device, z=0~1 (z=0 power off, z=1 power on)	s power 1!	power on system initializing...	

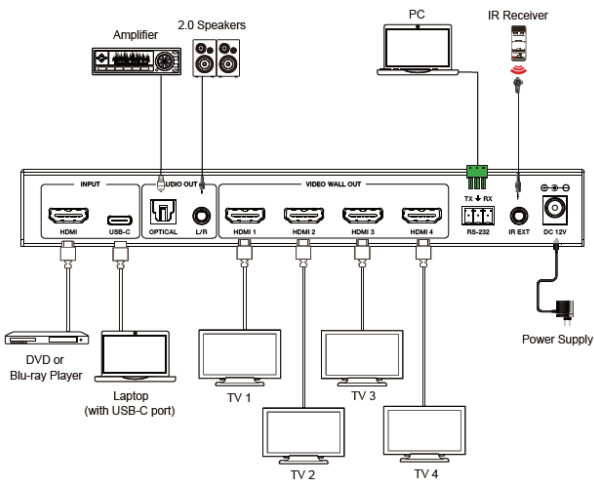
			initialization finished! mcu fw version x.xx.xx	
r power!	Get current power state	r power!	power on / power off	
s reboot!	Reboot the device	s reboot!	reboot...1x4 video wall controller system initializing... initialization finished! mcu fw version: x.xx.xx	
s reset!	Reset to factory defaults	1x4 video Wall controller	reset to factory defaults 1x4 video wall controller system initializing... initialization finished! mcu fw version: x.xx.xx	1. HDMI in; 2. EDID: 4K60 4:4:4 2ch; 3. audio mute off; 4. 1x1 video wall mode; 5. 1080p output; 6. All HDMI out no rotation; 7. H-Bezel=0, V-Bezel=0;
Input Setting				
s input x edid z!	Set input x edid mode	s input 1 edid 1!	input 1 edid: 4k60, 2.0ch	4k60, 2.0ch

	(x=0~2, z=1~6) x=0. all input x=1. input1 x=2. input2 z=1. 4k60, 2.0ch z=2. 4k60, 5.1ch z=3. 4k30, 2.0ch z=4. 4k30, 5.1ch z=5. 1080p, 2.0ch z=6. 1080p, 5.1ch			
r input x edid!	Get input x edid mode (x=0~2) x=0. all input x=1. HDMI in x=2. USB-C in	r input 1 edid!	HDMI in edid: 4k60, 2.0ch	
s output in source x!	Route input source to output (x=1~2) x=1. HDMI in x=2. USB-C in	s output in source 1!	output-> HDMI in	output-> HDMI in
r output in source!	Get output y selected input source	r output in source!	output-> HDMI in	
Output Setting				
s tw mode x!	Set tv wall display mode (x=1~8) x=1. 1x1 mode x=2. 2x1 mode x=3. 3x1 mode x=4. 4x1 mode x=5. 1x2 mode x=6. 1x3 mode x=7. 1x4 mode x=8. 2x2 mode	s tw mode 1!	tv wall mode: 1x1	tv wall mode: 1x1
r tw mode!	Get tv wall display mode	r tw mode!	tv wall mode: 2x2	

s tw h bezel +!	Set tv wall horizontal bezel	s tw h bezel +!	tv wall horizontal bezel: (bezel+1)	tv wall horizontal bezel: 0
Output Setting				
s tw h bezel -!	Set tv wall horizontal bezel	s tw h bezel -!	tv wall horizontal bezel: (bezel-1)	tv wall horizontal bezel: 0
s tw h bezel x!	Set tv wall horizontal bezel (x=0~10)	s tw h bezel 0!	tv wall horizontal bezel: 0	tv wall horizontal bezel: 0
r tw h bezel!	Get tv wall row bezel	r tw h bezel!	tv wall horizontal bezel: 0	
s tw v bezel +!	Set tv wall vertical bezel	s tw v bezel +!	tv wall vertical bezel: (bezel+1)	tv wall vertical bezel: 0
s tw v bezel -!	Set tv wall vertical bezel	s tw v bezel -!	tv wall vertical bezel: (bezel-1)	tv wall vertical bezel: 0
s tw v bezel x!	Set tv wall vertical bezel (x=0~10)	s tw v bezel 0!	tv wall vertical bezel: 0	tv wall vertical bezel: 0
r tw v bezel!	Get tv wall vertical bezel	r tw v bezel!	tv wall vertical bezel: 0	
s tw res x!	Set tv wall resolution (x=1~4) 1. 1280x720p60 2. 1920x1080p60 3. 3840x2160p30 4. 1024x768@60 (XGA)	s tw res 2!	tv wall resolution: 1920x1080p60	tv wall resolution: 1920x1080p 60
r tw res!	Get tv wall resolution	r tw res!	tv wall resolution: 1920x1080p60	tv wall resolution: 1920x1080p 60

s output y rotate x!	Set output y mirror (y=1~4, x=0,1) y=1. output 1 y=2. output 2 y=3. output 3 y=4. output 4 x=0. 0° rotation x=1. 180°rotation	s output 1 rotate 0!	output1: 0° rotation	output1: 0° rotation output2: 0° rotation output3: 0° rotation output4: 0° rotation
r output y rotation!	Get output y mirror status (y=0~4) y=0. output all y=1. output 1 y=2. output 2 y=3. output 3 y=4. output 4	r output 0 rotation!	output1: 0° rotation output2: 0° rotation output3: 0° rotation output4: 0° rotation	
Output Setting				
s output audio mute x!	Set output audio mute on/off (x=0~1) 0. mute off 1. mute on	s output audio mute 0!	output audio mute: off	Off
r output audio mute!	Get output audio mute on/off	r output audio mute!	output audio mute: off	

8. Connection Diagrams



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