NEXIS

18Gbps 1x4 Video Wall Controller

HW24C



User Manual

VER 1.1

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, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

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1. Introduction

The 18Gbps 1x4 Video Wall Controller is designed to realize truely capturing, AD converting, routing, and distributing all-format signal to the video wall (LCD displays), while maintaining a true digital signal transmission. It features HDMI and USB-C input with resolution up to 4K@60 4:4:4, and 4 HDMI outputs. It supports multiple video wall modes to be set for video output. Furthermore, optical audio and L/R analog audio de-embedding output are also supported.

It can be controlled via front panel buttons, IR remote and RS-232 commands.

2. Features

- ☆ HDCP 2.2 and DP 1.2a compliant
- ☆ Support video bandwidth up to 18Gbps, as specified in HDMI 2.0
- ☆ Support HDMI input and USB-C input, and the resolution is up to 4K@60Hz 4:4:4
- ☆ Support optical audio and L/R analog audio de-embedding output
- ☆ Support 8 video wall splicing modes: 1x1, 2x1, 3x1, 4x1, 1x2, 1x3, 1x4, 2x2
- ☆ Support image 180° rotation, convenient for ceiling installation
- ☆ Support bezel adjustment for the splicing edge
- ☆ Advanced EDID management
- ☆ Control via front panel buttons, IR remote and RS-232 commands
- ☆ Simple plug and play, no drive and installation setting are required

3. Package Contents

① 1 × 18Gbps 1x4 Video Wall Controller
② 1 × 12V/1A Locking Power Supply
③ 1 × Power Adapter
④ 1 × IR Remote
⑤ 1 × 5V IR Receiver Cable (1.5m)
⑥ 1 × 3pin-3.81mm Phoenix Connector (male)
⑦ 4 × Machine Screw (KM3*4)
⑧ 2 × Mounting Ear
⑨ 1 × User Manual

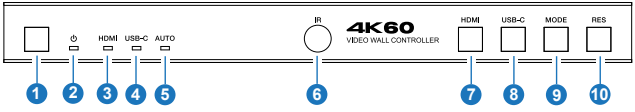
4. Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Video Resolution	Input: up to 4K@60Hz 4:4:4 Output: 720P60Hz, 1080P60Hz, 4K30Hz, 1024x768P60Hz
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 Enclosure		
Color	Black		
Dimensions	220mm [W] × 100mm [D] × 30mm [H]		
Weight	590g		
Power Supply	Input: AC 100-240V 50/60Hz, Output: DC 12V/1A (US/EU standard, CE/FCC/UL certified)		
Power Consumption	5.5W (Max)		
Operating Temperature	32 - 104°F / 0 - 40°C		
Storage Temperature	-4 - 140°F / -20 - 60°C		
Relative Humidity	20 - 90% RH (no-condensing)		
Video Resolution	**4K60**	**4K24**	**1080P60**
HDMI Cable Length (HDMI IN / OUT)	8m/26ft	10m/32ft	15m/49ft
The use of “Premium High Speed HDMI” cable is highly recommended.			

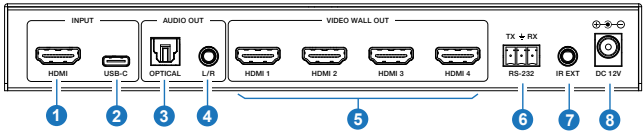
5. Operation Controls and Functions

5.1 Front Panel



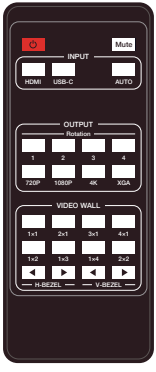
NO.	Name	Function Description
1	Power button	In shutdown/standby status, press this button to power on; in power-on status, press this button for 2~3 seconds to enter standby status.
2	Power LED	The LED will light in green when the product is working normally, and red when the product is on standby.
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



NO.	Name	Function Description
1	HDMI INPUT	HDMI signal input port, connected to an HDMI source device.
2	USB-C INPUT	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 EXT	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	DC 12V	Connect to 12V/1A power adapter.

6. 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.

7. IR Cable Pin Assignment

IR Receiver pin's definition is as below:



8. Video Wall

Video wall supports 8 splicing modes as below:

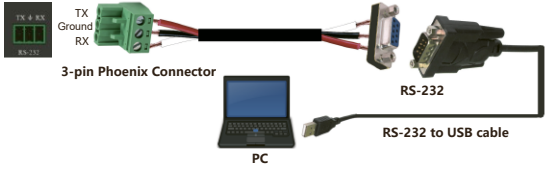


User can set display modes via front panel buttons, IR remote, and RS-232 commands.

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.

9. 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				
help!	List all commands	help!		
r status!	Get device current status	r status!	get the unit all status: power, video wall mode, output resolution…	
r type!	Get device model	r type!	1x4 video wall controller	

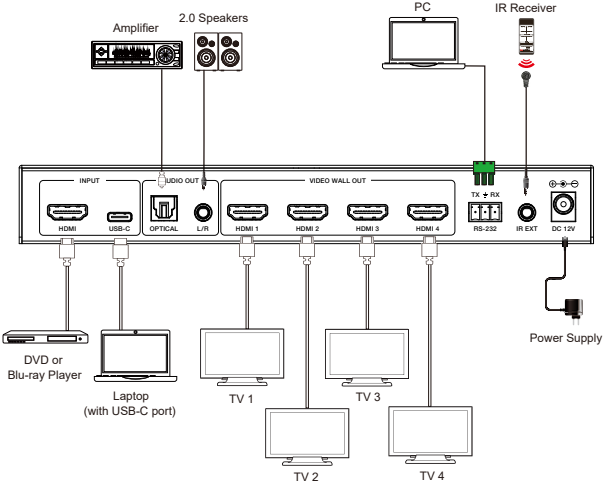
Command Code	Function Description	Example	Feedback	Default Setting
System Setting				
r fw version!	Get firmware version	r fw version!	mcu fw version : x.xx.xx	
s power z!	Power on/off the device, z=0~1 (z=0 power off, z=1 power on)	s power 1!	power on system initializing... initialization finished! 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;

Command Code	Function Description	Example	Feedback	Default Setting
Input Setting				
s input x edid z!	Set input x edid mode (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	s input 1 edid 1!	input 1 edid: 4k60, 2.0ch	4k60,2.0ch
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

Command Code	Function Description	Example	Feedback	Default Setting
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: 1920x1080p60
r tw res!	Get tv wall resolution	r tw res!	tv wall resolution: 1920x1080p60	tv wall resolution: 1920x1080p60
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	

Command Code	Function Description	Example	Feedback	Default Setting
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	

10. Application Example



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HIGH-DEFINITION MULTIMEDIA INTERFACE

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