BZBGEAR®

Solutions to Amplify Your World™

BG-UHD-VW2X2A
Direktronik art 20124304

18Gbps 1x4 HDMI/USB-C Video Wall Controller

User Manual

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Statement

Please read these instructions carefully before connecting, operating, or configuring this product. Please save this manual for future reference.

Safety Precaution

- To prevent damaging this product, avoid heavy pressure, strong vibration, or immersion during transportation, storage, and installation.

- The housing of this product is made of organic materials. Do not expose to any liquid, gas, or solids which may corrode the shell.

- Do not expose the product to rain or moisture.

- To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.

- Do not use the product beyond the specified temperature, humidity, or power supply specifications.

- This product does not contain parts that can be maintained or repaired by users. Damage caused by dismantling the product without authorization from BZBGEAR is not covered under the warranty policy.

- Installation and use of this product must strictly comply with local electrical safety standards.

Surge protection device recommended

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

Introduction

The BG-UHD-VW2x2A 18Gbps 1x4 Video Wall Controller is designed to capture, AD converts, route, and distribute all-format signals to a video wall (LCDs) while maintaining true digital signal transmission. It features HDMI and USB-C inputs with resolutions up to 4K@60 4:4:4 and four HDMI outputs. Multiple video wall modes are supported for video output. Additionally, optical audio and L/R analog audio de-embedding outputs are also supported. The controller can be operated via front panel buttons, an IR remote, and RS-232 commands.

Features

- HDMI 2.0, HDCP 2.2, and DP1.2a compliant
- 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 settings are required

Packing List

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

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 2.0/5.1/7.1, 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	Human body model — ±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	8.7in x 3.9in x 1.2in [220mm [W] x 100mm [D] x 30mm [H]]
Weight	1.3 lbs [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" cables is highly recommended.			

Operation Controls and Functions

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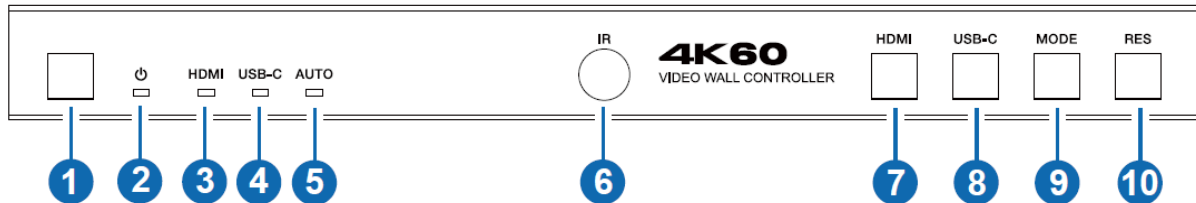
| NO.	Name	Function Description
1	Power button	In shutdown/standby status, press this button to power on; in power-on status, press this button for 2~3 seconds to enter standby status.
2	Power LED	The LED will light in green when the product is working normally, and red when the product is on standby.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

Rear Panel
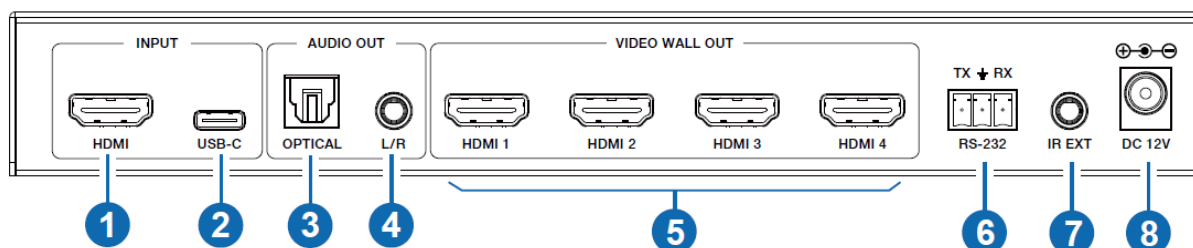
NO.	Name	Function Description
1	HDMI INPUT	HDMI signal input port, connected to an HDMI source device.
2	USB-C INPUT	USB-C signal input port, connected to a USB-C source device.
3	OPTICAL AUDIO OUT	Optical audio output port, connected to an audio output device such as an audio amplifier.
4	L/R AUDIO 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 38KHz 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 the infrared line of sight, the IR receiver cable can be inserted into the "IR EXT" port to receive the IR remote signal.
8	DC 12V	Connect to 12V/1A power adapter.

IR Remote
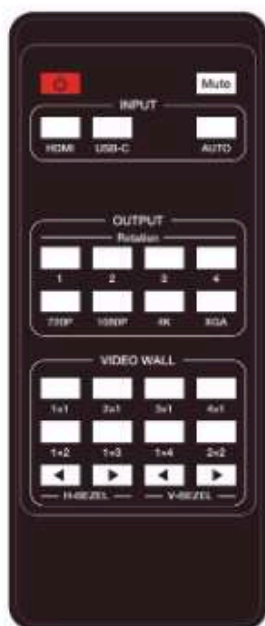
Power on or Standby:
Power on the device or set it to standby mode.

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.
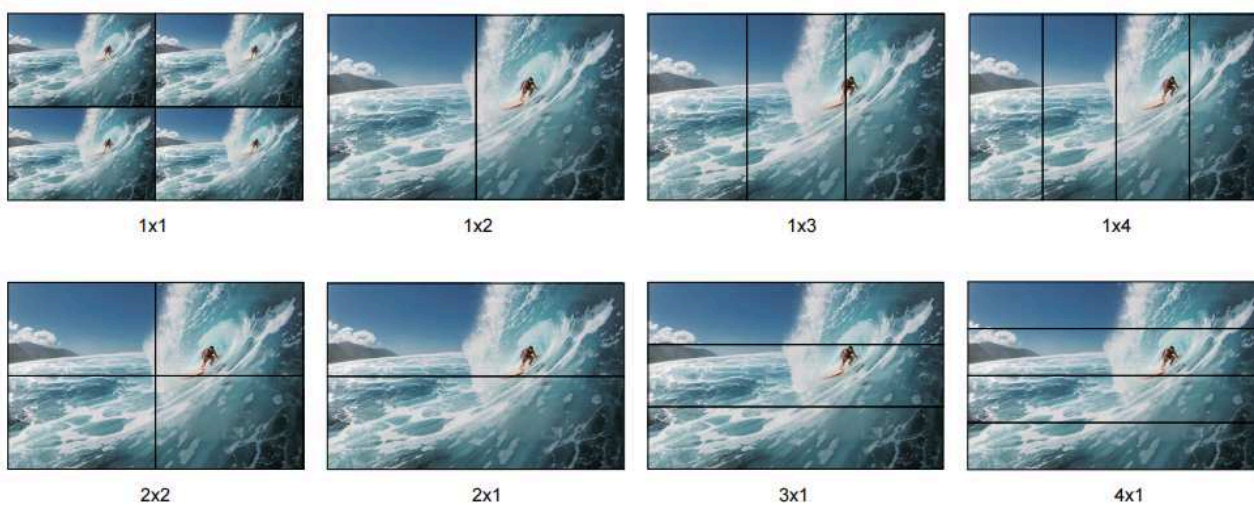
H/V-BEZEL ◄ ►:
Press to adjust the bezels of the splicing images.

IR Cable Pin Assignment

IR RECEIVER

IR Receiver

1 IR Signal
2 Power
3 Grounding

Video Wall

1x1   1x2   1x3   1x4

2x2   2x1   3x1   4x1

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

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

RS-232 Control Command

The product also supports RS-232 command control. To connect, use a 3-pin Phoenix connector cable and an RS-232 to USB cable to link the RS-232 port of the product to a PC. The connection method is as follows:
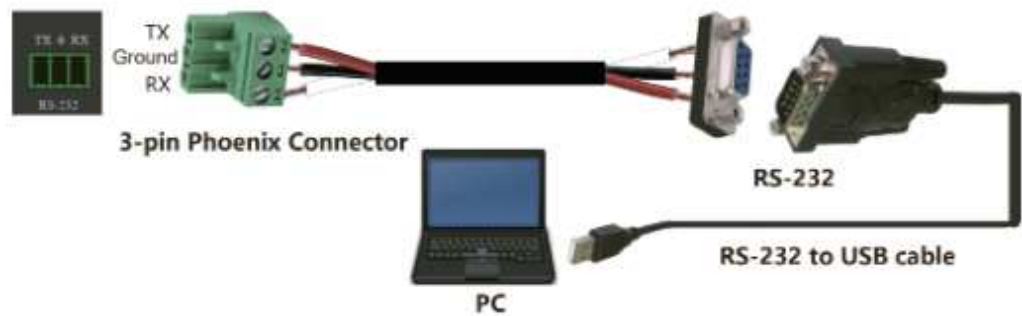
Next, open a Serial Command tool on the PC to send ASCII commands to control the device. The ASCII command list is shown below:

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;

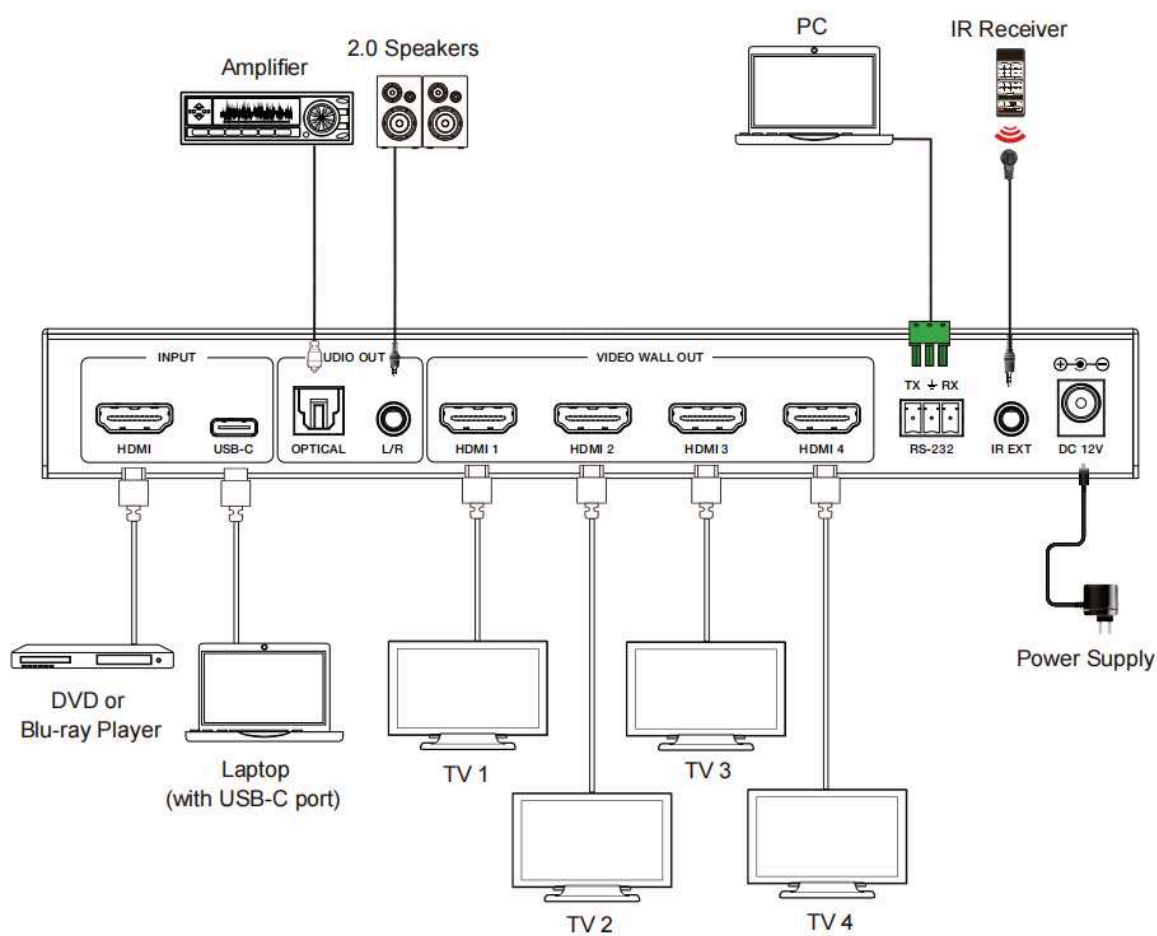| Command Code	Function Description	Example	Feedback	Default Setting
Input Setting				
s input x edid z!	Set input x edid mode (x=0~2, z=1~6) x=0. all input x=1. input1 x=2. input2 z=1. 4k60, 2.0ch z=2. 4k60, 5.1ch z=3. 4k30, 2.0ch z=4. 4k30, 5.1ch z=5. 1080p, 2.0ch z=6. 1080p, 5.1ch	s input 1 edid 1!	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
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	

Output Setting

Connection Diagram

Troubleshooting

Problems	Causes	Solutions
No Power / All LED off	Power supply not connected, connected fully, or wrong power supply.	Check if the power supply is connected correctly and the output voltage value is within recommended specifications.
No sound or sound issues	The HDMI connection is faulty, the audio format is not supported by the displays, or the source player is set to another port for audio output	Check if the HDMI cables are connected correctly. Check if the audio format is supported by the display and that a user has not changed the supported audio format on the player`s audio output. Ensure output settings from the HDMI source device as set correctly.
No picture or picture flickers	The HDMI cable may be faulty or the category cable quality is faulty.	Check if the HDMI and category cable connections are correct and undamaged. Change to another good working HDMI cable or category cable (CAT6 or better cable is recommended).

Tech Support

Have technical questions? We may have answered them already!

Please visit BZBGEAR's support page (bzbgear.com/support) for helpful information and tips regarding our products. Here you will find our Knowledge Base (bzbgear.com/knowledge-base) with detailed tutorials, quick start guides, and step-by-step troubleshooting instructions. Or explore our YouTube channel, BZB TV (youtube.com/c/BZBTVchannel), for help setting up, configuring, and other helpful how-to videos about our gear.

Need more in-depth support? Connect with one of our technical specialists directly:

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Limited Product Warranty Terms

Pro Line: 5-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Essential Line: 3-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Cables: Lifetime Limited Product Warranty.

For complete warranty information, please visit bzbgear.com/warranty.

For questions, please call 1.888.499.9906 or email support@bzbgear.com.

Mission Statement

BZBGEAR is a breakthrough manufacturer of high-quality, innovative audiovisual equipment ranging from AVoIP, professional broadcasting, conferencing, home theater, to live streaming solutions. We pride ourselves on unparalleled customer support and services. Our team offers system design consultation, and highly reviewed technical support for all the products in our catalog. BZBGEAR delivers quality products designed with users in mind.

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