

4K60 1x10 Video Wall Controller



User Manual

VER 1.0

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 life of your equipment.

Table of Contents

1. Introduction.....	1
2. Features.....	1
3. Package Contents.....	1
4. Specifications.....	2
5. Operation Controls and Functions.....	4
5.1. Front Panel.....	4
5.2. Rear Panel.....	4
6. IR Remote.....	6
7. IR Cable Pin Assignment.....	6
8. Video Wall.....	7
9. RS-232 Control Command.....	8
10. Application Example.....	12

1. Introduction

The 4K60 1x10 Video Wall Controller is designed to realize truly 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 dual inputs with resolution up to 4K@60 4:4:4, and 10 HDMI™ outputs. The product supports multiple video wall modes, such as 2x1, 3x1, 4x1, 1x2, 1x3, 1x4, 2x2, 3x3, 2x4, 2x5. 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
- ☆ HDMI™ and USB-C dual inputs, and the resolution is up to 4K@60Hz 4:4:4
- ☆ Support optical audio and L/R analog audio de-embedding output
- ☆ Multiple video wall splicing modes: 2x2, 1x4, 4x1, 1x3, 3x3, 2x4, 2x5, etc.
- ☆ 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
- ☆ Zero configuration, no drive installation and software setting are required

3. Package Contents

- ① 1× 4K60 1x10 Video Wall Controller
- ② 1× 12V/2.5A Locking Power Supply with Multi-national Conversion Plug
- ③ 1× IR Remote
- ④ 1× IR Receiver Cable (1.5m)
- ⑤ 1× 3pin-3.5mm Phoenix Connector (Male)
- ⑥ 4× Machine Screw (KM3*4)
- ⑦ 2× Mounting Ear
- ⑧ 1× User Manual

4. Specifications

Technical	
HDMI™ Compliance	HDMI™ 2.0b
DP Compliance	DP1.4 ALT Mode
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
HDMI™ & USB-C Input Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x800p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1440x900p60Hz, 1440x1050p60Hz, 1600x1200p60Hz, 1920x1200p60Hz, 480i60, 480p60, 576i50, 576p50, 720p50/60Hz, 1080i50/60Hz, 1080p24/25/30/50/60Hz, 3840x2160p24/25/30/50/60Hz, 4096x2160p24/25/30/50/60Hz
HDMI™ Output Resolution	720P60Hz, 1080P60Hz, 4K30Hz, 1024x768P60Hz
Color Space	RGB_4:4:4, YCbCr_4:4:4, YCbCr_4:2:2, YCbCr_4:2:0
Color Depth	8/10/12-bit
IR Level	5Vp-p
IR Frequency	Fixed Frequency 38KHz
HDMI™ & USB-C Audio Formats	LPCM 2.0/5.1, Dolby Digital/Plus/EX, DTS, DTS-EX, DTS-96/24
L/R Audio Formats	PCM 2.0
Optical Audio Formats	Dolby Digital/plus, DTS 5.1, PCM 2.0
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Connection	
Inputs	1× HDMI™ INPUT [HDMI™ Type A, 19-pin female] 1× USB-C INPUT [USB Type C, 24-pin female]
Outputs	10× HDMI™ OUTPUT [HDMI™ Type A, 19-pin female] 1× OPTICAL AUDIO OUT [S/PDIF] 1× L/R AUDIO OUT [3.5mm stereo mini-jack]
Control	1× RS-232 [3pin-3.5mm phoenix connector] 1× IR EXT [3.5mm stereo mini-jack]

Mechanical		
Housing	Metal Enclosure	
Color	Black	
Dimensions	270mm [W] × 141mm [D] × 30mm [H]	
Weight	935g	
Power Supply	Input: AC 100-240V 50/60Hz, Output: DC 12V/2.5A (US/EU standard, CE/FCC/UL certified)	
Power Consumption	9.5W (Max)	
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F	
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F	
Operating Humidity	20%~80% (relative humidity, non-condensing)	
Storage Humidity	10%~90% (relative humidity, non-condensing)	
Recommended HDMI™ Cable		
Video Resolution	4K60	1080P
HDMI™ Cable Length (IN / OUT)	5m/16ft	10m/33ft
The use of “Premium High Speed HDMI™” cable is highly recommended.		

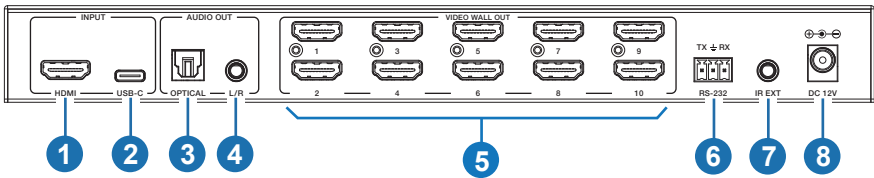
5. Operation Controls and Functions

5.1 Front Panel



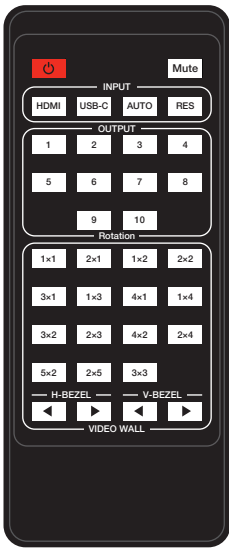
No.	Name	Function Description
1	Power button	In shutdown/standby status, short press this button to power on; In power-on status, long press this button for 2~3 seconds to enter standby status.
2	Power LED	The LED will light in green when the product is working normally, and red when the product is standby.
3	HDMI LED	The green LED will light up when HDMI input is selected.
4	USB-C LED	The green LED will light up when USB-C input is selected.
5	AUTO LED	The green LED will light up 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 15 splicing modes circularly.
10	RES button	Press this button to switch the resolutions of 720p, 1080p, 4K, XGA for the ten 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 input port, connected to a USB-C source device.
3	OPTICAL AUDIO OUT	Optical audio de-embedding output port, connected to an audio output device such as an audio amplifier.
4	L/R AUDIO OUT	Analog audio de-embedding output port, connected to an audio output device such as a speaker.
5	VIDEO WALL OUT (1~10)	HDMI signal output ports, 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 to 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 connected to the "IR EXT" port to receive the IR remote signal.
8	DC 12V	Connect to 12V/2.5A power adapter.

6. IR Remote



Power: Press to power on or enter the standby mode.

Mute: Press to mute the audio of HDMI, Optical and L/R audio output ports

HDMI: Press to select the HDMI input channel.

USB-C: Press to select the USB-C input channel.

AUTO: Press to enable or disable the auto switching function for the inputs.

RES: Press to switch the resolutions of 720p, 1080p, 4K, XGA for the ten HDMI outputs circularly.

Rotation 1~10:

Press each number button to switch rotation angle between 0° and 180° for the corresponding output channel.

Splicing Modes:

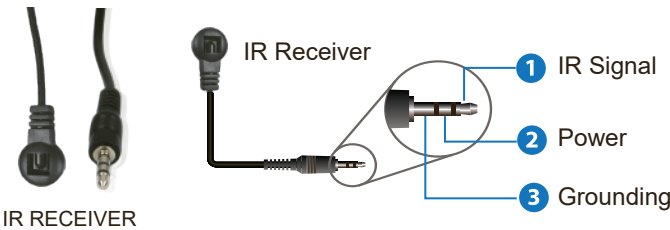
Press to switch the 15 splicing modes for the outputs.

H-BESEL & V-BESEL ◀ ▶:

Press to adjust the bezels of the splicing images.

7. IR Cable Pin Assignment

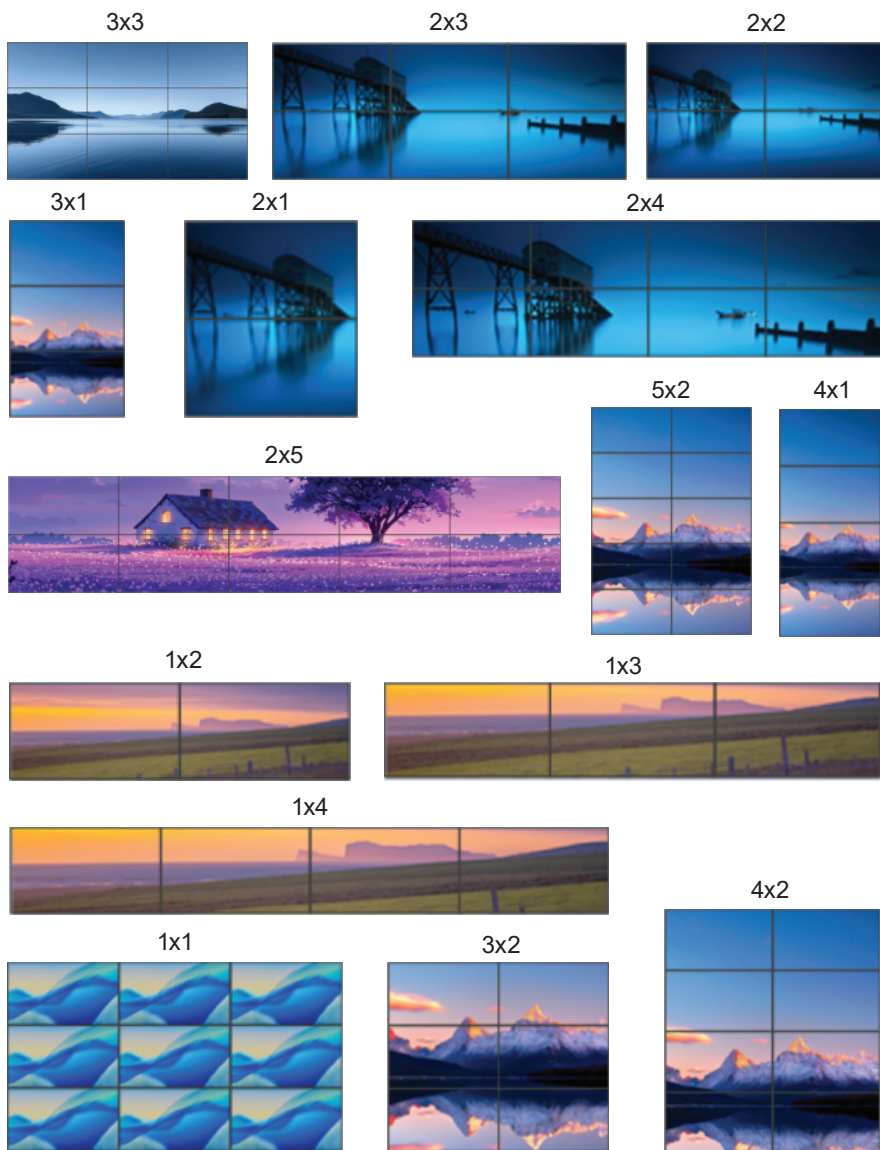
IR Receiver pin's definition is as below:



8. Video Wall

Video wall supports 15 splicing modes as below.

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



Note: 1. The unselected screens will display images as 1x1 mode.

2. The images are with adaptive display on the screens in video wall mode.

9. RS-232 Control Commands

The product also supports RS-232 command control. Connect the RS-232 port of the product to a PC, and then open a Serial Command tool on PC to send ASCII command to control the device.

The ASCII command list is shown as below.

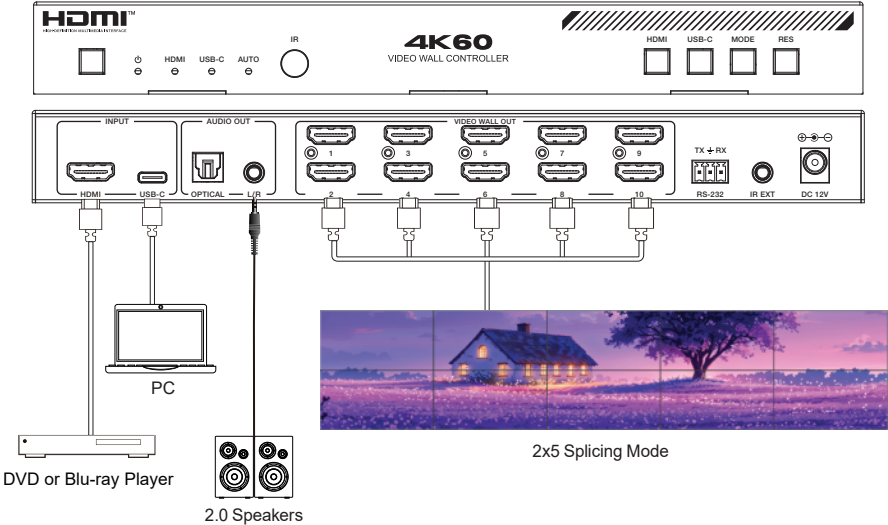
ASCII Commands				
Serial port protocol: baud rate: 115200 (default) Data bits: 8 Stop bits: 1 Check bit: 0				
x - Parameter 1, y - Parameter 2				
Command	Description	Example	Feedback	Default
System Setting				
?	Get the list of all commands	?		
help	Get the list of all commands	help		
status	Get device current status	status	power on video wall mode : 1x1 output resolution : 3840x2160P@30Hz tv wall horizontal bezel: 0 tv wall vertical bezel: 0 output->hdmi in	power on video wall mode : 1x1 output resolution : 1920x1080P@60Hz tv wall horizontal bezel: 0 tv wall vertical bezel: 0 output->hdmi in
get model	Get device model	get model	HDC-TWB110	HDC-TWB110
get version	Get firmware version	get version	BOOT:V1.00.01 MCU: V1.00.01 FPGA: V1.00.01	BOOT:V1.00.01 MCU: V1.00.01 FPGA: V1.00.01
power on	Power on the device	power on	Power on System initializing... Initialization finished! BOOT:V1.00.01 MCU: V1.00.01 FPGA: V1.00.01	Power on
power off	Power off the device	power off	Power off	Power off
get power	Get current power state	get power	Power: on	Power: on

Command	Description	Example	Feedback	Default
System Setting				
reboot	Reboot the device	reboot	Reboot... System initializing... Initialization finished! BOOT:V1.00.01 MCU: V1.00.01 FPGA: V1.00.01	
reset	Reset system settings to default	reset	Sure to reset system settings to default? Type "Yes" after next prompt to confirm...	
Input Setting				
set input x edid y	Set input (x=0~2) EDID (y=1~6) x=0: All Inputs x=1: HDMI Input x=2: USB-C Input y=1: 4K2K60_444, 2.0ch y=2: 4K2K60_444, 5.1ch y=3: 4K2K30_444, 2.0ch y=4: 4K2K30_444, 5.1ch y=5: 1080P, 2.0ch y=6: 1080P, 5.1ch	set input 0 edid 2	All input EDID: 4K60,5.1ch	4K2K60_444, 2.0ch
get input x edid	Get input (x=0~2) EDID mode x=0: All Inputs x=1: HDMI Input x=2: USB-C Input	get input 0 edid	HDMI in EDID: 4K60,5.1ch USB-C in EDID: 4K60,5.1ch	4K2K60_444, 2.0ch
set rx input x	Set RX input source (x=1~2) x=1: HDMI Input x=2: USB-C Input	set rx input 1	Output->HDMI in	Output->HDMI in
get rx input	Get RX input source	get rx input	Output->HDMI in	Output->HDMI in

Command	Description	Example	Feedback	Default
Video Wall Setting				
set tw mode x	Set tv wall display mode (x=1~15) x=1: 1x1 x=2: 2x1 x=3: 1x2 x=4: 2x2 x=5: 3x1 x=6: 1x3 x=7: 4x1 x=8: 1x4 x=9: 3x2 x=10: 2x3 x=11: 4x2 x=12: 2x4 x=13: 5x2 x=14: 2x5 x=15: 3x3	set tw mode 1	TV wall mode: 1x1	1x1
get tw mode	Get tv wall display mode	get tw mode	TV wall mode: 1x1	1x1
set tw h bezel -	Set tv wall horizontal bezel	set tw h bezel -	TV wall horizontal bezel: 0	TV wall horizontal bezel: 0
set tw h bezel +	Set tv wall horizontal bezel	set tw h bezel +	TV wall horizontal bezel: 1	TV wall horizontal bezel: 0
set tw h bezel x	Set tv wall horizontal bezel (x=0~10)	set tw h bezel 2	TV wall horizontal bezel: 2	TV wall horizontal bezel: 0
get tw h bezel	Get tv wall horizontal bezel	get tw h bezel	TV wall horizontal bezel: 0	TV wall horizontal bezel: 0
set tw v bezel -	Set tv wall vertical bezel	set tw v bezel -	TV wall vertical bezel: 0	TV wall vertical bezel: 0
set tw v bezel +	Set tv wall vertical bezel	set tw v bezel +	TV wall vertical bezel: 1	TV wall vertical bezel: 0
set tw v bezel x	Set tv wall vertical bezel (x=0~10)	set tw v bezel 2	TV wall horizontal bezel: 2	TV wall vertical bezel: 0
get tw v bezel	Get tv wall vertical bezel	get tw v bezel	TV wall vertical bezel: 0	TV wall vertical bezel: 0
set output res x	Set output resolution (x=1~4) x=1: 1280x720@60Hz x=2: 1920x1080P@60Hz x=3: 3840x2160P@30Hz x=4: 1024x768P@60Hz	set output res 3	TV wall resolution: 3840x2160P@30Hz	1920x1080P@60Hz

Command	Description	Example	Feedback	Default
Video Wall Setting				
get output res	Get output resolution	get output res	TV wall resolution: 3840x2160P @30Hz	
set output auto switch mode y	Set output auto switch detection mode (y=1~2) y=1: Signal y=2: Source 5V	set output auto switch mode 1	HDMI outputs auto switch mode: signal	signal
get output auto switch mode	Get output auto switch detection mode	get output auto switch mode	HDMI outputs auto switch mode: signal	
set output y rotate x	Set output y rotate (y=1~10, x=0~1) x=0: Output 0° rotation x=1: Output 180° rotation y=1: Output 1 y=2: Output 2 y=3: Output 3 y=4: Output 4 y=5: Output 5 y=6: Output 6 y=7: Output 7 y=8: Output 8 y=9: Output 9 y=10: Output 10	set output 1 rotate 1	Output 1: 180° rotation	Output 1: 0° rotation
get output y rotation	Get output y rotate status (y=0~10)	get output 1 rotation	Output 1: 180° rotation	Output 1: 0° rotation
Audio Setting				
set output audio mute x	Set output audio mute on/off (x=0~1) x=0: Mute Off x=1: Mute On	set output audio mute 1	Output audio mute: on	Output audio mute: off
get output audio mute	Get output audio mute on/off	get output audio mute	Output audio mute: on	Output audio mute: off

10. Application Example



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