iWall 104P

4K60 1x4 Video Wall Controller with Portrait Mode

User Manual V1.0

1. Introduction

This TV Wall controller is designed to be a truly capture, AD convert, route, distribute all-format signals to the video wall (LCD displays), while maintaining a true digital signal.

The controller with multiple video interfaces, include 2 inputs (HDMI+DP) with up to 4K60 resolution and 4 HDMI outputs with 1920*1200@60Hz resolution and 3.5mm audio output. Supports different Video Wall modes, 1x2, 1x3, 1x4, 2x2 etc, with the 4K input and 1080P output, it can realize the point to point (pixel to pixel) display. This controller can be controlled by IR remote, front buttons and RS232 commands.

2. Features

- Supports 2 inputs, resolution up to 4K60.
- Outputs support image 90°, 180° and 270° rotation, compatible with both landscape and portrait videowall installation.
- Supports 4 HDMI with 1920*1200@60Hz resolution outputs.
- Supports multiple videowall layouts: 2x2, 1x4, 4x1, 1x3 ...
- Supports the videowall edge adjustment.

- Supports HDMI 2.0, HDCP compatible.
- Supports the IR remote, push-button and RS232 commands control.

3.Specification

Model	**iWall 104P**
Product name	4K60 1x4 Video Wall Controller with Portrait Mode
Control	Front buttons, IR remote, RS232
Input	1x HDMI, 1x DP
Output	4x HDMI, 1x3.5mm audio
Resolution	Input: 1920X1080,1920X2160,1920X3240,1920X4320,3840X1080,3840X2160,5760X1080, 7680X1080 Output: 1920*1200@60Hz
Rotation	Each output can be rotated as 90, 180, 270 degrees.
Videowall layouts	1x1, 1x2, 1x3, 1x4, 2x1, 2x2, 3x1, 4x1, support both landscape and portrait installation
Power Supply	DC 12V3A
Consumption	10W
Dimension	223*104*27mm
Weight	2.5KG/ 5.5lbs (WxHxD)
Operating Temp.	-10℃ to 50℃
Storage Temp.	-25℃ to 55℃

4. Packing

iWall 104P	1	Unit
Power adapter	1	Pcs
Remote control	1	Pcs
Mount ears	1	Pair

5. Panels

5.1 Front Panel

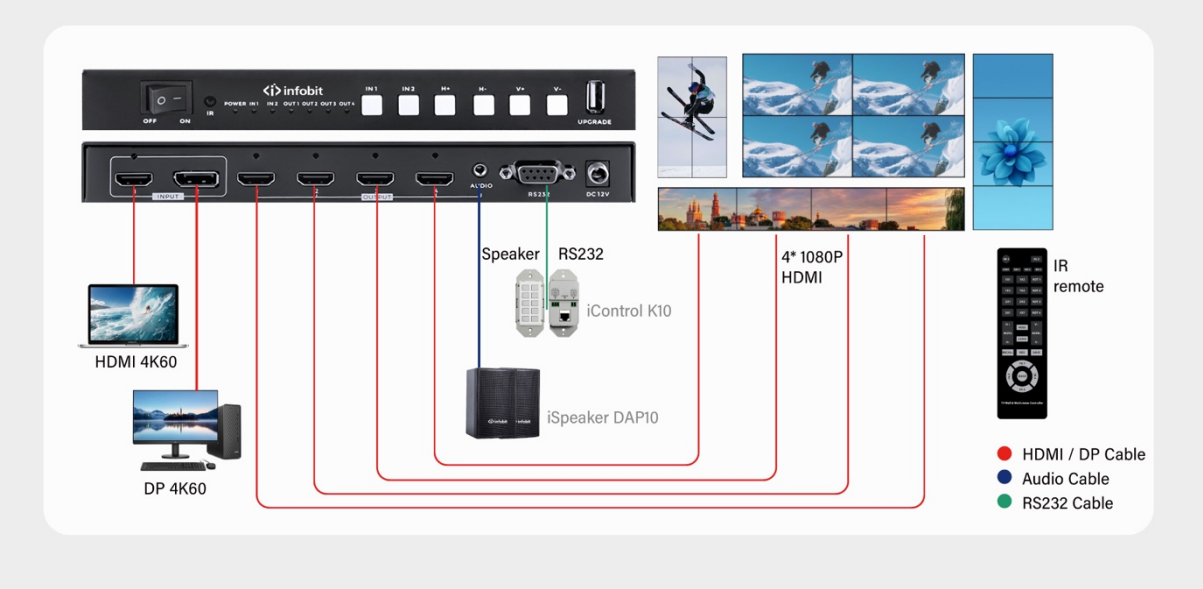
OFF/ON: power switch
IR: for the IR remote control
POWER: power switch indicator
IN1: The HDMI input indicator
IN2: The DP input indicator
OUT 1~4: The 4 HDMI outputs indicators
IN1: For selecting the HDMI input
IN2: For selecting the DP input
H+: For the horizontal bezel increase
H-: For the horizontal bezel decrease
V+: For the vertical bezel increase
V-: For the vertical bezel decrease
UPGRADE: for the firmware upgrading

5.2 Back Panel

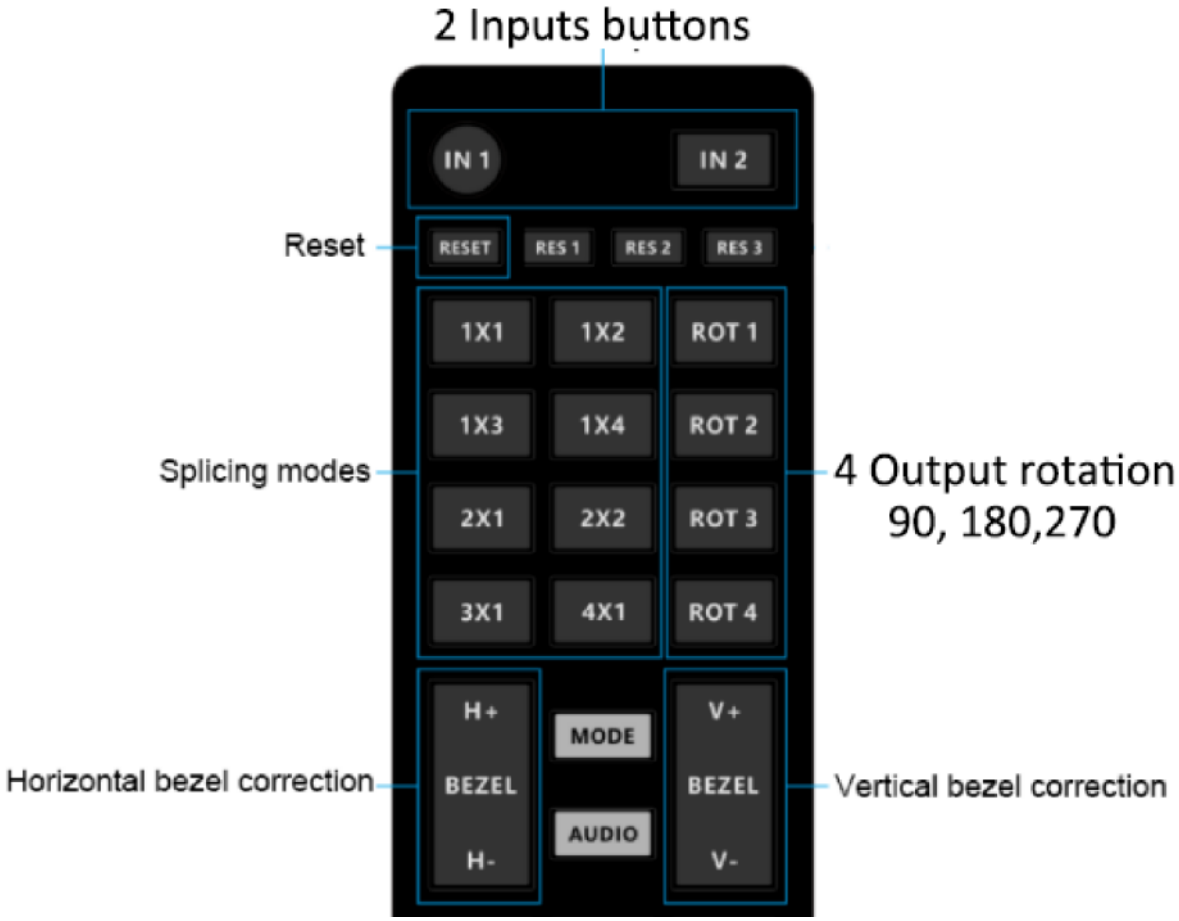
INPUT: #1 HDMI input, #2 DP (Not working simultaneously)
OUTPUT: 4 HDMI outputs connect to displays
AUDIO OUT: for the audio de-embedded
RS232: female DB9 port for commands control
DC 12V: power supply

6. Diagram and control operations

6.1 Diagram connection



6.2 IR remote control



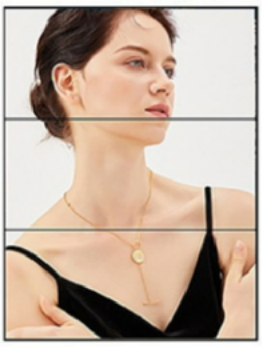
** The other gray buttons on this remote control is for INFOBIT HDMI multiviewer (contact sales for availability)*

IN1, IN2: When 2 inputs connected, users can press the IN1 for HDMI or IN2 for DP to switch the video sources.

RESET: Press to reset when want to reset the bezel correction, output ports flip/rotating.

Video Wall: Quick setup buttons to set the video wall layouts.

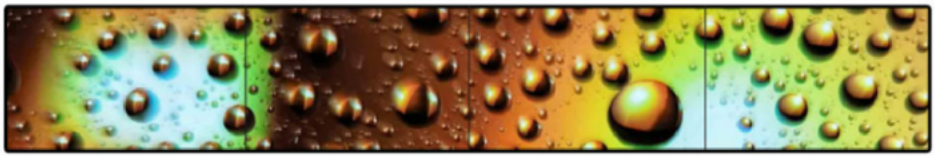
2x1 mode
(1920x2160)



3x1 mode
(1920x3240)

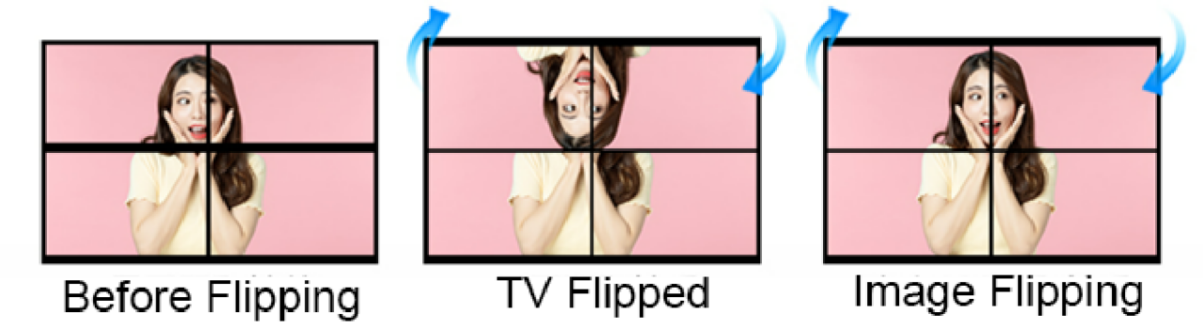
4x1 mode
(1920x4320)

1x3 mode (5760x1080)

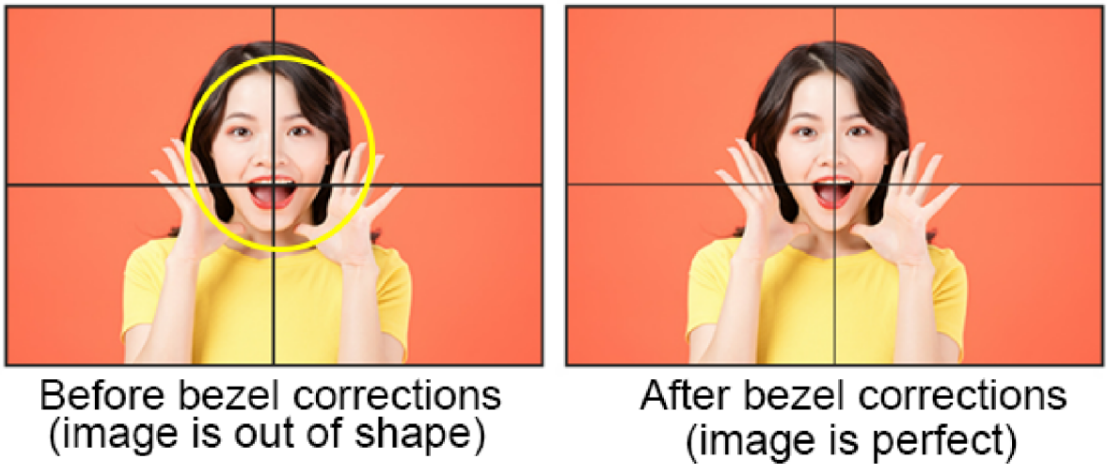


1x4 mode, resolution up to 7680x1080

ROT1: For HDMI output 1 rotation, need to press reset button when want the normal display.
ROT2: For HDMI output 2 rotation, need to press reset button when want the normal display.
ROT3: For HDMI output 3 rotation, need to press reset button when want the normal display.
ROT4: For HDMI output 4 rotation, need to press reset button when want the normal display.



BEZEL H+, H-: For the video wall horizontal bezel corrections (Reset button to back or 100 hits)
BEZEL V+, V-: For the video wall vertical bezel corrections (Reset button to back or 100 hits)



6.3 RS232 commands control

Baud Rate: 115200
Polarity: None
Bit: 8
Stop: 1

RS232 connection:
2: Tx
3: Rx
5: GND

DB9 Pinouts

Pin 1	DCD
Pin 2	RXD
Pin 3	TXD
Pin 4	DTR
Pin 5	GND
Pin 6	DSR
Pin 7	RTS
Pin 8	CTS
Pin 9	RI

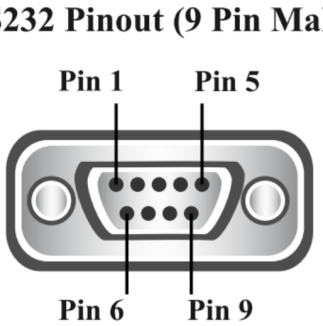


Illustration:
Command format: package header (2BYTE) + package length (2BYTE) + command (1BYTE) + data (N BYTE)
Package Header: EB 90
Package length: 10 (this example uses 12 as an example, the minimum package length is 4, the package length can be customized according to the actual situation, and the excess data can be filled with 00)
Position: 00 FF, (FF is the broadcast address. If it is placed in the matrix, please change it to the board position of the matrix)
Command: 1BYTE, used to distinguish different types of commands
Data: Parameters carried by different commands. Some commands have no parameters and are filled with 00.

Factory default: EB 90 00 12 00 ff 21 00 00 00 00 00 00 00 00 00 00 00

Output standard resolution:
EB 90 00 12 00 ff 23 00 00 00 00 00 00 00 00 00 00 00 //1920x1080@60
EB 90 00 12 00 ff 23 14 00 00 00 00 00 00 00 00 00 00 //1920x1080@30
EB 90 00 12 00 ff 23 02 00 00 00 00 00 00 00 00 00 00 //1920x1200@60

Customize output resolution: H<=2048, V<=2048, Hz<=170M
EB 90 00 12 00 ff 23 FF 00 00 00 00 00 00 00 00 00 00
Red for H, blue for V, Orange for Hz
Eg1.: 1920X1080@60
EB 90 00 12 00 ff 23 FF 07 80 04 38 3C 00 00 00 00 00 //1920x1080@60
Eg 2: 2000 X 1000@60
EB 90 00 12 00 ff 23 FF 07 D0 03 E8 3C 00 00 00 00 00 //2000x1000@60

Recall Presets:
EB 90 00 12 00 ff 2E 00 00 00 00 00 00 00 00 00 00 00// Recall Preset 1
EB 90 00 12 00 ff 2E 01 00 00 00 00 00 00 00 00 00 00// Recall Preset 2
EB 90 00 12 00 ff 2E 02 00 00 00 00 00 00 00 00 00 00// Recall Preset 3
EB 90 00 12 00 ff 2E 03 00 00 00 00 00 00 00 00 00 00// Recall Preset 4
EB 90 00 12 00 ff 2E 04 00 00 00 00 00 00 00 00 00 00// Recall Preset 5

EB 90 00 12 00 ff 2E 05 00 00 00 00 00 00 00 00 00 00// Recall Preset 6
EB 90 00 12 00 ff 2E 06 00 00 00 00 00 00 00 00 00 00// Recall Preset 7
EB 90 00 12 00 ff 2E 07 00 00 00 00 00 00 00 00 00 00// Recall Preset 8
EB 90 00 12 00 ff 2E 08 00 00 00 00 00 00 00 00 00 00// Recall Preset 9
EB 90 00 12 00 ff 2E 09 00 00 00 00 00 00 00 00 00 00// Recall Preset 10

Save Presets:
EB 90 00 12 00 ff 2F 00 00 00 00 00 00 00 00 00 00// Save Preset 1
EB 90 00 12 00 ff 2F 01 00 00 00 00 00 00 00 00 00// Save Preset 2
EB 90 00 12 00 ff 2F 02 00 00 00 00 00 00 00 00 00// Save Preset 3
EB 90 00 12 00 ff 2F 03 00 00 00 00 00 00 00 00 00// Save Preset 4
EB 90 00 12 00 ff 2F 04 00 00 00 00 00 00 00 00 00// Save Preset 5
EB 90 00 12 00 ff 2F 05 00 00 00 00 00 00 00 00 00// Save Preset 6
EB 90 00 12 00 ff 2F 06 00 00 00 00 00 00 00 00 00// Save Preset 7
EB 90 00 12 00 ff 2F 07 00 00 00 00 00 00 00 00 00// Save Preset 8
EB 90 00 12 00 ff 2F 08 00 00 00 00 00 00 00 00 00// Save Preset 9
EB 90 00 12 00 ff 2F 09 00 00 00 00 00 00 00 00 00// Save Preset 10

TV Wall Working modes:
EB 90 00 12 00 ff 32 00 00 00 00 00 00 00 00 00 00// Mode1 1x1
EB 90 00 12 00 ff 32 01 00 00 00 00 00 00 00 00 00// Mode2 1x2
EB 90 00 12 00 ff 32 02 00 00 00 00 00 00 00 00 00// Mode 3 2x1
EB 90 00 12 00 ff 32 03 00 00 00 00 00 00 00 00 00// Mode 4 1x3
EB 90 00 12 00 ff 32 04 00 00 00 00 00 00 00 00 00// Mode5 3x1
EB 90 00 12 00 ff 32 05 00 00 00 00 00 00 00 00 00// Mode 6 1x4
EB 90 00 12 00 ff 32 06 00 00 00 00 00 00 00 00 00// Mode 7 4x1
EB 90 00 12 00 ff 32 07 00 00 00 00 00 00 00 00 00// Mode8 2x2

Input Standard EDID setting:
EB 90 00 12 00 ff 26 00 00 00 00 00 00 00 00 00 00 // Both inputs to 1080P60
EB 90 00 12 00 ff 26 00 00 01 01 00 00 00 00 00 00 // Both inputs to 4k30
EB 90 00 12 00 ff 26 00 00 02 02 00 00 00 00 00 00 // Both inputs to 4k60

Input Customize EDID setting:
EB 90 00 12 00 ff 24 02 04 38 05 EC 3C 00 00 00 00 00// HDMI switch to 1080x1516x60
EB 90 00 12 00 ff 24 03 04 38 05 EC 3C 00 00 00 00 00// DP switch to 1080x1516x60

Inputs switching
EB 90 00 12 00 ff 31 02 00 00 00 00 00 00 00 00 00 00 // Switch to input 1 HDMI
EB 90 00 12 00 ff 31 03 00 00 00 00 00 00 00 00 00 00 // Switch to input 2 DP

Image freeze and unfreeze
EB 90 00 12 00 ff 2A 00 00 00 00 00 00 00 00 00 00 00   // unfreeze
EB 90 00 12 00 ff 2A 01 00 00 00 00 00 00 00 00 00 00   // freeze

Outputs rotation:

EB 90 00 12 00 ff 34 00 00 00 00 00 00 00 00 00 00 //OUT1 ROT 0
EB 90 00 12 00 ff 34 00 01 00 00 00 00 00 00 00 00 //OUT1 ROT 90
EB 90 00 12 00 ff 34 00 05 00 00 00 00 00 00 00 00 //OUT1 ROT 180
EB 90 00 12 00 ff 34 00 02 00 00 00 00 00 00 00 00 //OUT1 ROT 270
EB 90 00 12 00 ff 34 01 00 00 00 00 00 00 00 00 00 //OUT2 ROT 0
EB 90 00 12 00 ff 34 01 01 00 00 00 00 00 00 00 00 //OUT2 ROT 90
EB 90 00 12 00 ff 34 01 05 00 00 00 00 00 00 00 00 //OUT2 ROT 180
EB 90 00 12 00 ff 34 01 02 00 00 00 00 00 00 00 00 //OUT2 ROT 270
EB 90 00 12 00 ff 34 02 00 00 00 00 00 00 00 00 00 //OUT3 ROT 0
EB 90 00 12 00 ff 34 02 01 00 00 00 00 00 00 00 00 //OUT3 ROT 90
EB 90 00 12 00 ff 34 02 05 00 00 00 00 00 00 00 00 //OUT3 ROT 180
EB 90 00 12 00 ff 34 02 02 00 00 00 00 00 00 00 00 //OUT3 ROT 270
EB 90 00 12 00 ff 34 03 00 00 00 00 00 00 00 00 00 //OUT4 ROT 0
EB 90 00 12 00 ff 34 03 01 00 00 00 00 00 00 00 00 //OUT4 ROT 90
EB 90 00 12 00 ff 34 03 05 00 00 00 00 00 00 00 00 //OUT4 ROT 180
EB 90 00 12 00 ff 34 03 02 00 00 00 00 00 00 00 00 //OUT4 ROT 270
EB 90 00 12 00 ff 35 00 00 00 00 00 00 00 00 00 00 //OUT1~OUT4 ROT 0
EB 90 00 12 00 ff 35 01 01 01 01 00 00 00 00 00 00 //OUT1~OUT4 ROT 90
EB 90 00 12 00 ff 35 05 05 05 05 00 00 00 00 00 00 //OUT1~OUT4 ROT 180
EB 90 00 12 00 ff 35 02 02 02 02 00 00 00 00 00 00 //OUT1~OUT4 ROT 270
EB 90 00 12 00 ff 35 00 01 05 02 00 00 00 00 00 00 //OUT1~OUT4 ROT 0~270

Output image setting
EB 90 00 12 00 ff 2B FF 00 80 80 80 00 00 00 00 00 //RGB 128 (Default)
EB 90 00 12 00 ff 2B FF 00 32 32 32 00 00 00 00 00 //RGB 50
EB 90 00 12 00 ff 2B FF 01 32 80 80 00 00 00 00 00 //Contrast 50
EB 90 00 12 00 ff 2B FF 01 19 80 80 00 00 00 00 00 //Contrast 25

Bezel correction setting (from 0~100)
EB 90 00 12 00 ff 40 00 00 00 00 00 00 00 00 00 00 //H0
EB 90 00 12 00 ff 40 00 05 00 00 00 00 00 00 00 00 //H0.005
EB 90 00 12 00 ff 40 00 0A 00 00 00 00 00 00 00 00 //H0.01
EB 90 00 12 00 ff 40 00 14 00 00 00 00 00 00 00 00 //H0.02
EB 90 00 12 00 ff 40 00 1E 00 00 00 00 00 00 00 00 //H0.03
EB 90 00 12 00 ff 40 00 28 00 00 00 00 00 00 00 00 //H0.04
EB 90 00 12 00 ff 40 00 32 00 00 00 00 00 00 00 00 //H0.05

EB 90 00 12 00 ff 40 00 00 00 00 00 00 00 00 00 00 //V0
EB 90 00 12 00 ff 40 00 05 00 00 00 00 00 00 00 00 //V0.005
EB 90 00 12 00 ff 40 00 0A 00 00 00 00 00 00 00 00 //V0.01
EB 90 00 12 00 ff 40 00 14 00 00 00 00 00 00 00 00 //V0.02
EB 90 00 12 00 ff 40 00 1E 00 00 00 00 00 00 00 00 //V0.03
EB 90 00 12 00 ff 40 00 28 00 00 00 00 00 00 00 00 //V0.04
EB 90 00 12 00 ff 40 00 32 00 00 00 00 00 00 00 00 //V0.05