

# Digital Video Wall Control Box

(with RS232 & VGA/HDMI upscale) - **ID# 902**



**Operation Manual**

## Introduction

The Multi-Screen Video Wall Control System is ideal for advertising, entertainment and information display. The device allows users to display HDMI or PC sources to multiple LCD monitors, while thanks to the built-in RS-232 control you are able to fully customize the LCD panels giving you complete control over 2×2, 3×3, 4×4 and 5×5 video walls.

The device has a built-in PC to HDMI scaler, which allows the inputted PC video signal to be integrated and converted to a digital HDMI signal output to the video wall.

There is a pair of additional audio L/R RCA connectors for the user to output analog audio (de-embedded from the HDMI source, or routed from the analog audio input) to local speakers. Further, the IR remote and the RS-232 control allow users control from anywhere they wish.

## Features

- Supports 6 or more video wall combinations of H×V: 2×2 (4 monitors), 3×2 (6 monitors), 3×3 (9 monitors), 4×3 (12 monitors), 4×4 (16 monitors) and 5×5 (25 monitors)
- Supports both HDMI and PC (with audio) sources
- Resolution support up to 1080p Full HD
- Uses RS-232 cables to cascade to each connected device to remotely control each monitor with a single setting
- Supports external IR receiver for IR remote control

*Note: Requires an HDMI or PC (with audio) signal splitter to distribute the video/audio signal to each connected device.*

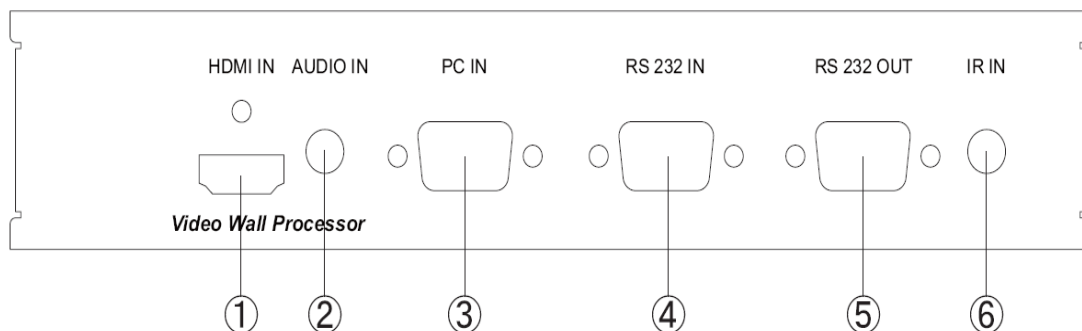
## Applications

- TV video wall control
- Matrix video wall control
- Retail Display video wall control
- Gaming video wall control
- Movie video wall control
- Advertising video wall

## System Requirements

- HDMI or PC splitter/matrix with source signal and connection cables, display device such as TVs/monitors with connection cables.
- RS-232 level-shift board (optional)

## Operation Controls and Functions Front Panel



- ① **HDMI IN:** This slot is to connect from HDMI splitter or matrix with input source signal.
  - ② **Audio IN:** This slot is to connect with the audio signal from the source equipment with 3.5Ø phone jack.
  - ③ **PC IN:** This slot is to connect from PC/RGB (with converter cable) splitter or matrix with input source signal.
  - ④ **RS-232 IN:** Connect a PC or RS-232 control system to the first device of the video wall system for RS-232 control. Starting from the second device of the video wall system connect to the 'RS-232 OUT' of the previous device.
- Note: For RS-232 control, a special level-shift board is required (optional accessory).*
- ⑤ **RS-232 OUT:** This slot is to connect to the next TV wall control system's RS-232 IN.
  - ⑥ **IR IN:** This slot is to connect with IR blaster included in the package for receiving the IR signal of the device' remote controller.

## Back Panel



- ① **DC 5V:** Connect this slot with power adapter (included in the package) from the AC wall outlet. When the power is plugged on the device will automatically power ON.
- ② **Audio OUT L/R:** These slots are to connect with RCA jack cables to the active speaker or to display's audio input.
- ③ **HDMI OUT:** This slot is to connect to the display with HDMI input.

## OSD Menu

MAIN MENU	PICTURE MENU	STANDARD	ON/OFF
		R OFFSET	0~255 (118)
		G OFFSET	0~255 (116)
		B OFFSET	0~255 (118)
		R GAIN	0~255 (098)
		G GAIN	0~255 (098)
		B GAIN	0~255 (098)
		CONTRAST	0~63 (50)
		BRIGHTNESS	0~63 (40)
	SETUP MENU	LANGUAGE	ENG / T.CHINESE (ENG)
		HDMI SOUND	ON/OFF (ON)
		STANDARD	ON/OFF (ON)
		H POSITION START	000~385*2
		V POSITION START	000~53*2
		H ZOOM SIZE	000~255 (0)
		V ZOOM SIZE	000~255 (0)
		H Blanking Edit	0~255 (20)
		V Blanking Edit	0~255 (20)
		TV Option Width	1~15 (1)
		TV Option Height	1~15 (1)

### NOTE:

1. The Picture Menu allows users to adjust a single monitor's setting while the Setup Menu only needs to be adjusted once and all monitors will be automatically adjusted.
2. Default value will adjust automatically depending the the input signal's timing.

## Picture Menu

**Picture Standard:** Set it to ON will allow system to set the picture menu into the default value as indicated in the brackets.

**Picture R/G/B Offset:** These functions are to set the single picture's R/G/B brightness.

**Picture R/G/B Gain:** These functions are to increase or decrease the color of single picture's R/G/B.

**Picture Contrast:** This function is to set the single picture's color contrast.

**Picture Brightness:** This function is to set the single picture's brightness.

## Setup Menu

**LANGUAGE:** There are two language options available in the OSD menu, English and Traditional Chinese.

**HDMI SOUND:** This option is to set the HDMI output audio ON or OFF.

**STANDARD:** Setting this option to ON will force the system to set all the options in the the setup menu to the default value (as indicated in the brackets).

**H/V POSITION START:** These options are to set the total value of the vertical and horizontal value of the TV wall.

**H/V ZOOM SIZE:** These options are to set the total value of the vertical and horizontal zoom in and zoom out size of the TV wall.

**H/V BLANKING EDIT:** These options are to set the total value of the vertical and horizontal value of the blanking area of the TV wall.

**TV OPTION WIDTH:** This option is to set the number of TVs/displays that are to be on the horizontal line of the TV wall.

**TV OPTION HEIGHT:** This option is to set the number of TVs/displays that are to be on the vertical line of the TV wall.

## Remote Control

① **Power\*:** Press this button to switch on the device(s). All the connected Video wall system control device(s) will be switch to ON.

② **Power OFF\*:** Press this button to switch off the device. All the connected Video wall system control device(s) will be switch to OFF.

③ **Single\*:** Press this button to set the image to be displayed on each and every connected TV/monitor identically.

④ **Full\*:** There are 6 options of setting an image to be displayed on TV/ monitor and they are 2x2, 3x3, 4x4, 3x2, 4x3 and 5x5.

⑤ **▲▼◀▶&OK:** Press the arrow buttons to select and adjust the selection in the OSD menu and value or to select the display. Press OK to confirm the selection.

⑥ **MENU\*:** Press this button to enter into the OSD

menu. When the setting is selected and confirmed all the output display will automatically changed to the selected settings.

⑦ **RETURN\*:** Press this button to return to the last layer of OSD selection or to exit the OSD.

⑧ **HDMI\*:** Press this hot key to select the input source from HDMI IN.

⑨ **VGA\*:** Press this hot key to select the input source from PC IN.

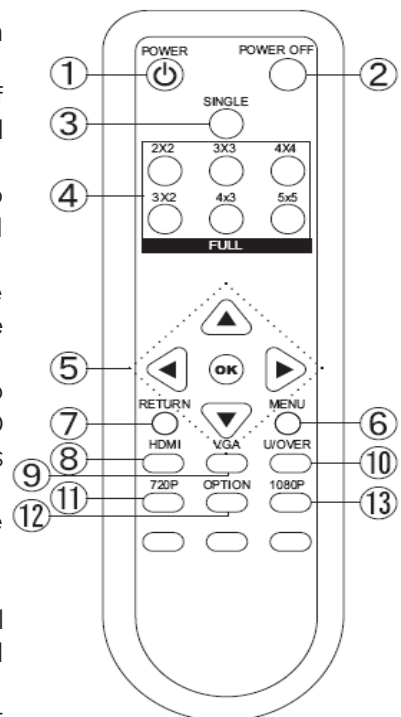
⑩ **U/OVER\*:** Press this key to adjust the screen when the image is overscan or underscan.

⑪ **720P\*:** Press this hot key to switch the output timing to 720p

⑫ **OPTION\*:** Press this key to switch to the special setting of the display image set by the factory design.

⑬ **1080P\*:** Press this hot key to switch the output timing to 1080p

\*Function that automatically adjust all monitors in once.



## RS-232 Protocol

### Pin Definition

RS-232 IN			RS-232 OUT	
Pin 1	NC		Pin 1	NC
Pin 2	TxD		Pin 2	TxD
Pin 3	RxD		Pin 3	RxD
Pin 4	NC	▶	Pin 4	NC
Pin 5	GND	◀	Pin 5	GND
Pin 6	NC		Pin 6	NC
Pin 7	Connect to Pin 8		Pin 7	Connect to Pin 8
Pin 8	Connect to Pin 7		Pin 8	Connect to Pin 7
Pin 9	NC		Pin 9	NC

**Baud Rate:** 19200bps

**Data bit:** 8 bits

**Parity:** None

**Stop Bit:** 1 bit

**Flow Control:** None

### RS-232 Command

COMMAND	ACTION
0x23 0x53 0x30 0x30 0x31 0x23	POWER ON
0x23 0x53 0x30 0x30 0x30 0x23	POWER OFF
0x23 0x43 0x30 0x30 0x30 0x23	UNDER SCAN
0x23 0x43 0x30 0x30 0x31 0x23	OVER SCAN
0x23 0x43 0x52 0xWH 0x00 0x23	Note*
0xEF 0x05 0xD7 0xC0 0x22 0x07 0xEE	Change to HDMI
0xEF 0x05 0xD0 0xC0 0x22 0x00 0xEE	Change to PC

**Note:** WH are the TV Option's Width and Height. W & H can be indicated from 1~9 & A~F where '11' means a single panel TV wall, 22 means a 2×2 TV wall and so on up to FF being the setting for a 15×15 TV wall.

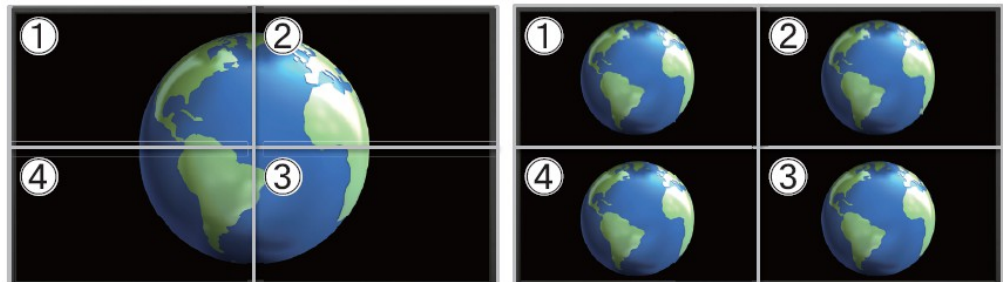
## Specifications

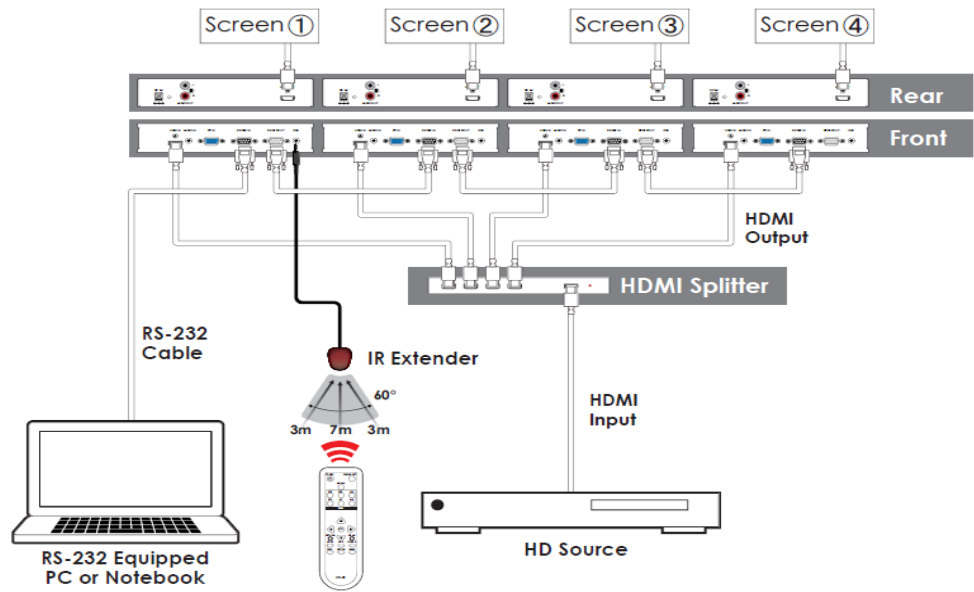
<b>Input Ports</b>	1xHDMI, 1xPC, 1xRS-232 (female jack), 1xIR, 1xL/R (3.5mm phone jack)
<b>Output Ports</b>	1xHDMI, 1xRS-232 (male jack), 1xL/R (RCA jack)
<b>IR Frequency</b>	38Hz
<b>IR Cable Length</b>	3M
<b>Input Resolution Supports</b>	PC: VGA ~ SXGA, 1080p@60 HDMI: 480p~1080p
<b>Output Resolution</b>	HDMI: 720p & 1080p
<b>Supports Audio Format</b>	LPCM 2Ch
<b>Power Supply</b>	5V/3.6A DC (US/EU standards, CE/FCC/UL Certified)
<b>ESD Protection</b>	Human body model: ± 8kV (air-gap discharge) ± 4kV (contact discharge)
<b>Dimension (mm)</b>	200 (W) x 155 (D) x 45(H)
<b>Weight (g)</b>	815
<b>Chassis Material</b>	Aluminum
<b>Silkscreen Color</b>	Black
<b>Operating Temperature</b>	0°C ~ 40°C / 32°F ~ 104°F
<b>Storage Temperature</b>	-20°C ~ 60°C / -4°F ~ 140°F
<b>Relative Humidity</b>	20 ~ 90% RH (Non-condensing)
<b>Power Consumption (W)</b>	15.5

## Connection

1. Connect the HDMI source (such as DVD or PS3) into the "HDMI IN" of the HDMI splitter **ID #775** (HDMI Splitter 1in:4out) or matrix **ID #732** (8 by 8 HDMI V1.3 Matrix Box) and connect the "HDMI OUT" from the splitter to Video Wall control systems respectively. Connect each Control system HDMI output port to each LCD monitor's HDMI input port. The display sequence should be from top left to right and from right to left. For more details please refer to the diagram below.

2. IR receiver must connect to the first Video Wall control system IR input port. Meanwhile, connect the first RS-232 output port to second system of RS-232 input port and vice versa. (The upper left will be the first LCD monitor of the connection diagram above).





**NOTE:** Display sequence is from top left to right and from second right to left and so on sequence.