



DS-MSC

Digital Signage Multi-Screen Video Wall Controller

OPERATION MANUAL



• **Safety Precautions**

Please read all instructions before attempting to unpack or install or operate this equipment, and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through module openings or empty slots, as you may damage parts.
- Do not attach the power supply cabling to building surfaces.
- Do not allow anything to rest on the power cabling or allow it to be abused by persons walking on it.
- To protect the equipment from overheating, do not block the slots and openings in the module housing that provide ventilation.

• **Revision History**

<i>Version No</i>	<i>Date</i>	<i>Summary of Change</i>
<i>RDV01</i>	<i>20110119</i>	<i>Preliminary Release</i>
<i>RDV02</i>	<i>20110317</i>	<i>Add New OSD Menu</i>
<i>RDV03</i>	<i>20110324</i>	<i>Change OSD Figures</i>
<i>RDV04</i>	<i>20110719</i>	<i>Add TV Option</i>

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1. Introduction

To capture the public's attention, the Multi-Screen Video Wall control system is ideal for advertising, entertaining and displaying information. The device allows users to display HDMI or PC sources to multiple LCD monitors, while thanks to the built-in RS-232 you are able to fully customize the LCD panels giving you complete control over 2x2, 3x3, 4x4 and 5x5 video walls. This device is also embedded with a PC to HDMI scaler, which allows the input PC video signal to be integrated and converted to digital HDMI signal output to the video wall. There is a pair of additional L/R RCA connectors for user to output analog audio (extracted from the HDMI source, or routed from the analog audio input) to local speakers. Further, the IR remote and the RS-232 control free users with on hand control from anywhere they wish.

2. Applications

- TV wall
- Video wall
- Display wall
- Gaming wall
- Movie wall
- Combination advertising wall

3. Package Contents

- Video wall control system(s)
- 5V DC power adaptor(s)
- Operation Manual

4. System Requirements

HDMI or PC splitter/matrix with input source signal and connection cables, display TV/monitor with connection cables.

5. Features

- Supports 6 or more video wall combinations of HxV: 2x2(four monitors), 3x2(six monitors), 3x3(nine monitors), 4x3(12 monitors), 4x4(16 monitors) and 5x5 (25 monitors)
- Supports both HDMI and PC (with audio) input sources
- Resolution support up to 1080p full HD
- Use RS-232 cables to cascade over every connected CVW-11HS boxes to remotely control each monitors with one setting only.
- Supports external IR receiver for IR remote control

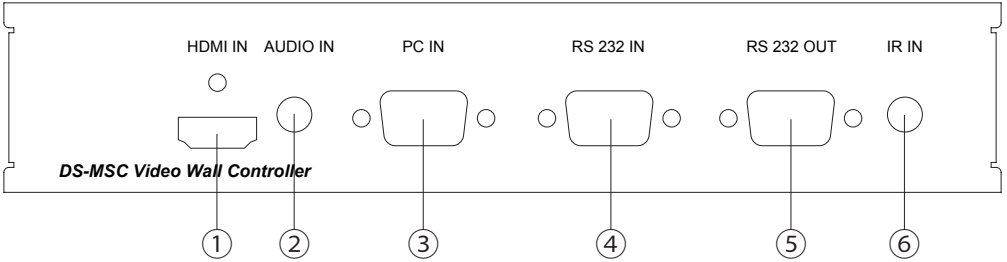
Note: Requires HDMI or PC (with audio) signal splitter to distribute video / audio signal to each connected CVW-11HS box.

6. Specifications

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

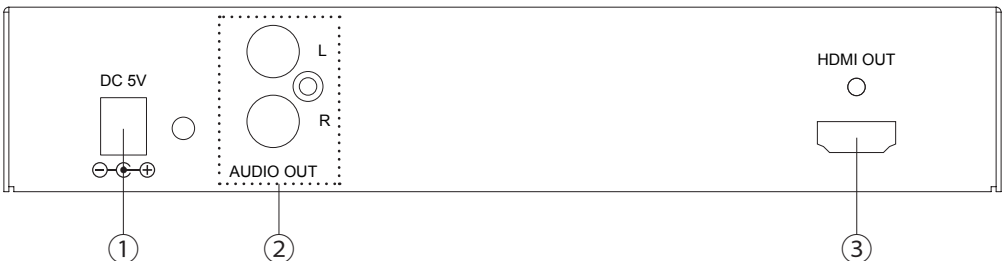
7. Operation Controls and Functions

7.1 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 splitter or matrix with input source signal.
- ④ **RS-232 IN:** As a first device of the video wall system, this slot is to connect with PC/NB equipment for RS-232 control. Starting from the second device of the video wall system this slot should be connect from the RS-232 out of the last device.
Note: For RS-232 control it required a special level-shift board and it is an optional accessory selection.
- ⑤ **RS-232 OUT:** This slot is to connect to the next video 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.

7.2 Rear Panel



- ① **DC 5V:** Connect this slot with power adaptor 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/F:** 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.

7.3 OSD Menu

MAIN MENU	PICTURE MENU*1	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*1	LANGUAGE	ENG / T.CHINESE (ENG)
		HDMI SOUND	ON/OFF (ON)
		STANDARD	ON/OFF (OFF)
		H POSITION START	000~385 (*2)
		V POSITION START	000~53 (*2)
		H ZOOM SIZE	000~255 (0)
		V ZOOM SIZE	000~255 (0)
		TV Option Width	1~10 (1)
		TV Option Height	1~10 (1)

***NOTE:** 1. The Picture Menu allows users to adjust single monitor's setting while the Setup Menu will only needs to be adjust once and all monitors will be automatically adjusted.

2. Defual value will adjusted automatically depending the the input signal's timing.

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

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 picutre's brightness.

Setup Language: There are two language available in the OSD and they are English and Traditional Chinese.

Setup HDMI Sound: This function is to set the HDMI output audio sound to be ON or OFF.

Setup Standard: Set it to ON will allow system to set the setup menu into the default value as indicated in the ().

Setup H/V Position Start: These functions are to set the total value of the vertical and horizontal value of the TV wall.

Setup H/V Zoom Size: These functions are to set the total value of the vertical and horizontal zoom in and zoom out size of the TV wall.

Setup H/V Blanking Edit: These functions are to set the total value of the vertical and horizontal value of the blanking area of the TV wall.

Setup TV Option Width: This function is to set the numbers of the TV/display that is to be on a horizontal line of the TV wall.

Setup TV Option Height: This function is to set the numbers of the TV/display that is to be on a vertical line of the TV wall.

8. 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.

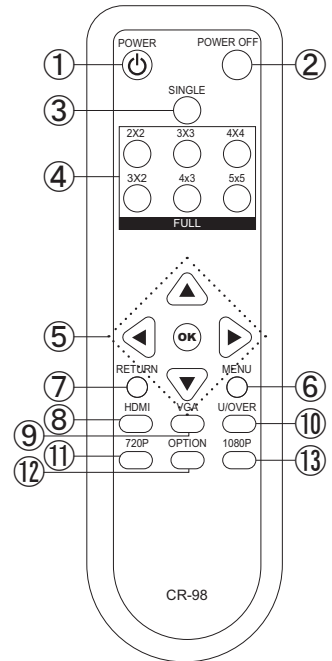
- ⑩ U/OVER: Press this key to adjust the screen when the image is overscan or underscan.

- 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.



9. RS-232 Protocol

9.1 Pin Definition

RS-232 IN			RS-232 OUT	
Pin 1	NC		Pin 1	NC
Pin 2	TxD		Pin 2	RxD
Pin 3	RxD		Pin 3	TxD
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

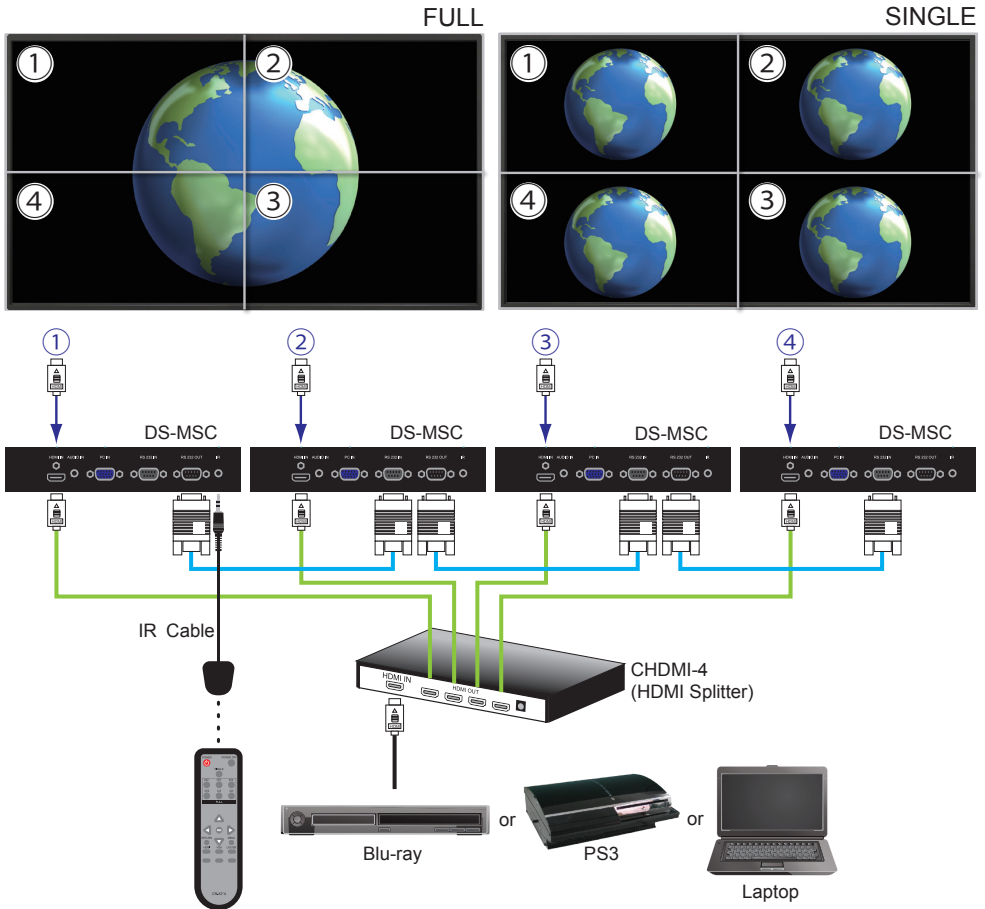
Flow Control: None

9.2 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 0x11 0x00 0x23	SINGLE
0x23 0x43 0x52 0x11 0x00 0x23	2x2
0x23 0x43 0x52 0x11 0x00 0x23	3x3
0x23 0x43 0x52 0x11 0x00 0x23	4x4
0x23 0x43 0x52 0x11 0x00 0x23	5x5
0x23 0x43 0x52 0x11 0x00 0x23	3x2
0x23 0x43 0x52 0x11 0x00 0x23	4x3
0xEF 0x05 0xD7 0xC0 0x22 0x07 0xEE	Change to HDMI
0xEF 0x05 0xD0 0xC0 0x22 0x00 0xEE	Change to PC
0xEF 0x06 0x8A 0xC0 0x20 0x01 0xBB 0xEE	Option

10. Connection and Installation

1. Connect the HDMI source (such as DVD or PS3) into the "HDMI IN" of the HDMI splitter and connect the "HDMI OUT" from the splitter to Video Wall control systems (CVW-11HS) 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 second right to left. For more details please refer to the diagram.
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.



Acronyms

Acronym

HDMI

Complete Term

High-Definition Multimedia Interface



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