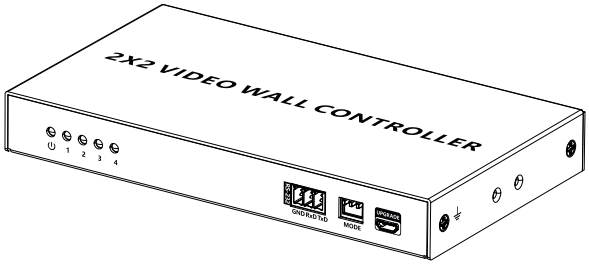
VANZEL

User Manual

2x2 VIDEO WALL CONTROLLER

NV14A



Disclaimer

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• Important Safety Instructions

1. To prevent electric shock, please ensure that all devices are properly grounded.
2. Do not place this device near or over a radiator or heat register, or where it is exposed to direct sunlight.
3. Do not expose this device to rain or place it near water. Any liquid that goes into the device may cause a failure, fire, or electric shock.
4. Do not place the device on an uneven or unstable surface. The device may fall resulting in a malfunction.
5. Never insert anything metallic into the open parts of this device. This may cause a danger of electric shock.
6. If a third-party power supply is used, please ensure that the power supply specifications meet the product requirements.

• Introduction

This product is a 1-in-4-out video wall controller, supports one HDMI source input and four HDMI outputs. Supports 1x1/1x2/1x3/1x4/2x2 splicing modes, which can be set by RS-232 or dip switch. The product can flexibly adapt to different installation requirements, which can be widely used in security monitoring, rail transit, broadcasting, smart cities, home theatre, training and other fields.

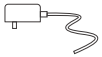
• Features

1. Supports 1 HDMI signal input and 4 HDMI signal output.
2. Support up to 1920x1200@60Hz resolution, downwards compatible.
3. Support a variety of splicing modes, such as 1x1/1x2/1x3/1x4/2x2, etc.
4. Support dip switch switching splicing mode.
5. Support RS-232 control instruction to set splicing mode.

6. Support 3.5mm left/right channel audio output.
7. Supports 180-degree rotation of HDMI1/2 display image in 2x2 mode (when the upper displays installed upside down).
8. Firmware upgrading via micro USB port.
9. Lightning protection, surge protection, ESD protection.
10. Plug and play, no need to install drivers.

• Package Contents

Controller x1



Power Adapter 5V/1A x1

User manual x1

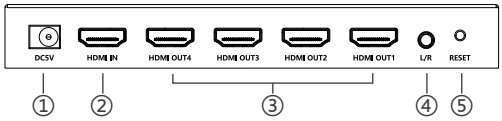
Mounting ear x2

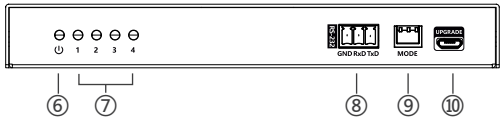
Screw x6

Grounding screw x1

Terminal Block x1

• Panel Description

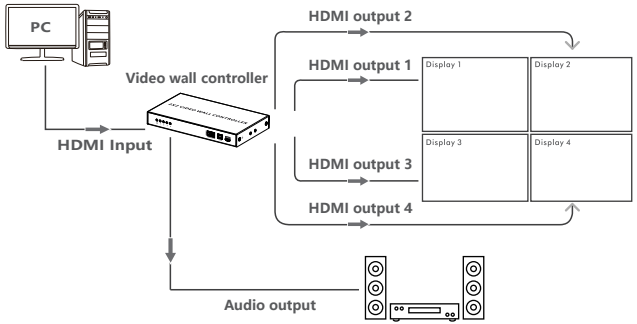




①	DC5V Power input	Connect with DC 5V/1A power adapter
②	HDMI signal input	Connect HDMI signal source
③	HDMI signal output x4	Connect with HDMI splicing display devices
④	L/R audio output	Separate output of HDMI signal source audio
⑤	Reset	1) Press to restart the video wall controller; 2) Press and hold for 3 seconds to alternately realize 180° rotation of HDMI1/2 display image (in 2x2 mode, press and hold for 3 seconds to release when the black screen occurs); 3) Press and hold for 10 seconds to restore factory settings (wait until the power indicator is flashing to release)
⑥	Power light	1) **Steady on**: The power is on 2) **Slow flash**: The transmitter and the receiver are connected but no video data transmission 3) **Quick flash**: The factory settings have been restored
⑦	HDMI signal light x4	Corresponding to 4 HDMI outputs respectively, the indicator light of normal signal transmission is always on
⑧	RS-232	Connect the computer for command control Baud rate: 9600, Only when the dip switch is set to '111', the mode can be switched through RS-232
⑨	Mode switch	Switch splicing mode
⑩	Micro-USB port	Used for device firmware upgrading

- **Installation Procedures**

1. Connection Diagrams



2. Connection Instructions

1) Connect the controller with the signal source and splicing screen through HDMI cable.
2) According to the number of splicing screens, the matching splicing mode can be selected by dip switch.
3) When using RS-232, the dialing code should be set to '111', and different splicing modes can be switched through the serial port instruction.
4) If you need to output signal source audio independently, please connect the speaker or power amplifier with a 3.5mm audio cable.
5) Connect the power supply, and the product starts to work.

3. RS-232 control

Insert the terminal into the controller and connect it to external equipment. The three pins are GND/RXD/TXD, and the splicing mode can be set by RS-232 instruction. The default is as follows:

Baud rate: 9600

Date bits: 8

Stop bits: 1

Parity: None

Control command	Functional description
ES XX On\n	'XX' indicates the corresponding HDMI port, which can be turned on or off. From right to left, the HDMI ports are: HDMI: 01,02,03,04 All means all HDMI ports
ES XX Off\n	
ES XXX\n	'XXX' means splicing mode 000——1x1;001——2x1;010——1x2;011——3x1 100——1x3;101——4x1;110——2x2;111——1x4
Reset\n	Reset, device restart
Recover\n	Restore the factory settings and read the current dialing status by default
Status\n	Status information printing Status: Baud 9600 ES 01 OK ES 02 OK ES 03 FAIL ES 04 FAIL ES 001 OK
Baud XX\n	'XX' represents the baud rate value 9600 (default) ,19200, 38400,57600,115200
Example	
Control command 1	**ES 04 On\n**
Functional details	Open the '04' HDMI port

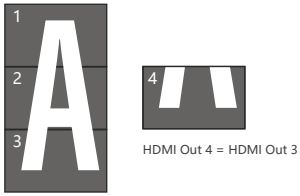
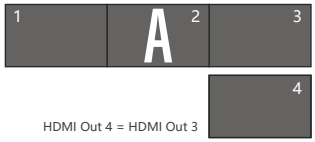
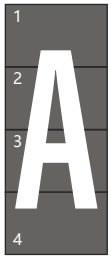
Return value	Received successfully	ES 04 On OK
	Received unsuccessful	ES 04 On FAIL
Control command 2	**ES All Off\n**	
Functional details	Close all HDMI ports	
Return value	Received successfully	ES All Off OK
	Received unsuccessful	ES All Off FAIL
Control command 3	**ES 001\n**	
Functional details	Select; 2 x 1 splicing mode	
Return value	Received successfully	ES 001 OK
	Received unsuccessful	ES 001 FAIL
Control command 4	**Reset\n**	
Functional details	Reset, device restart	
Return value	Received successfully	Reset OK
	Received unsuccessful	Reset FAIL
Control command 5	**Baud 19200\n**	
Functional details	Baud 19200 OK	
Return value	Received successfully	Baud 19200 OK
	Received unsuccessful	Baud 19200 FAIL

Remarks:

1) '\n' Newline character.
2) The splicing mode can be switched by 'RS-232' or 'dip switch'. Only when the dip switch is set to '111' can be splicing mode be switched by RS-232 instruction.
3) Display Rotation Modes:
   ① When the dip switch is in position "110", enter the control command ES201\n to realize 180-degree rotation of HDMI1/HDMI2 display image , and then enter the control command ES 200\n to resume;
   ② When the dip switch is in position "111", enter the control command ES 110\n to switch to 2x2 mode, then input the control command ES 201\n to realize 180-degree rotation of HDMI1/HDMI2 display image, and enter the control command ES 200\n to resume;
4) When the dip switch is in position "111", the display will show the image in the splicing mode set by RS-232 control, if it is not in "111" mode, the display will show the image in the mode set by the dip switch. When the dip switch is in position "111", the setting mode will be memorized after using RS-232 control, and the display will show the last RS-232 control setting mode, and the 1x4 mode can be restored by restoring the factory setting or the RS-232 ES111\n command.

4. DIP Switch

Built-in 8 splicing mode can be switched by dip switch. dip switch means ‘1’ up, dip switch means ‘0’ down, and the default is ‘000’.

Dip switch state			Splicing mode	
1	2	3		
0	0	0	1x1	
0	0	1	2x1 vertically	
0	1	0	1x2 horizontally	
0	1	1	3x1 vertically	 HDMI Out 4 = HDMI Out 3
1	0	0	1x3 horizontally	 HDMI Out 4 = HDMI Out 3
1	0	1	4x1 vertically	
1	1	0	2x2 vertically	
1	1	1	1x4 horizontally (Support RS-232 at the same time)	

• FAQ

Q: Picture quality is not fluent and stable?

A: 1) Please check and make sure all HDMI cables are connected well.

2) Try to connect the source device to display device directly, or change to another source device for a try to see the picture quality.

Q: Display image black screen, don’ t display?

A: 1) Please check whether the signal source output resolution is the supported by the product.

2) Please check whether the HDMI cable is firmly connected and plug the HDMI cable again.

3) Please check whether the HDMI output is turned off by using RS-232 command.

Q: NO response when using RS-232 control to send instructions to switch splicing modes?

A: 1) Only when the dip switch is set to ‘111’ can it be switched by RS-232 instruction.

2) Confirm whether the baud rate of the product is consistent with the settings of the serial port tool, the default baud rate of the product is 9600.

• Specification

Items		Description
Video signal	HDMI Input	1x HDMI
	HDMI Output	4x HDMI
	Compatibility	HDMI 1.4
		HDCP 1.4
	Resolutions	1080P@60/50/30/25/24Hz, 720P@60/50Hz, 576P@50Hz, 480P@60Hz, 1920x1200@60Hz, 1680x1050@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1440x900@60Hz, 1400x1050@60Hz, 1366x768@60Hz, 1360x768@60Hz, 1280x1024@60Hz, 1280x960@60Hz, 1280x800@60Hz, 1280x768@60Hz, 1024x768@60Hz, 800x600@60Hz, 640x480@60Hz
Video signal	3.5mm Output	PCM
	HDMI Output	PCM
Splice Settings	Mode	1x1/2x1/1x2/2x2/3x1/1x3/4x1/1x4
	DIP Switch	
	RS-232 (GND/ RxD/TxD)	Default baud rate: 9600 Only when the dip switch is set to ‘111’ can the splicing mode be switched by RS-232 instruction
Power	Power Supply	DC5V/1A
	Power Consumption	＜4W
Operating Environment	Working temperature	-20℃~60℃
	Storage temperature	-30℃~70℃
	Humidity	0~90%RH（No condensation）
Physical Properties	Housing	Iron
	Weight	381g

Physical Properties	Color	Black
	Dimensions	160(L)*90(W)*20.6(H)mm
Protection	ESD protection 1a Contact discharge level 2 (±4KV) 1b Air discharge level 3 (±8KV) Implementation of the standard: IEC61000-4-2	
	Lightning protection, Surge protection	