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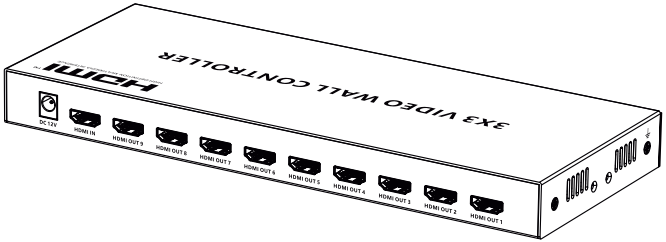
VANZEL

User Manual

Model : NV19A

3x3 VIDEO WALL CONTROLLER



HIGH-DEFINITION MULTIMEDIA INTERFACE

• 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-9-out video wall controller, supports one HDMI source input and nine HDMI outputs. Supports 1x2/1x3/1x4/2x2/2x3/3x2/2x4/4x2/3x3 splicing modes, which can be set by RS-232 or dip switch. Equipped with 3.5mm audio output,S/PDIF audio output,180-degree rotation of display image.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.

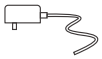
• Features

1. Supports one 4096x2160@60Hz resolution HDMI signal input and nine 1080P resolution HDMI signal output.

2. Support a variety of splicing modes, such as 1x2/1x3/1x4/2x2/2x3/3x2/2x4/4x2/3x3, etc.
3. Support dip switch switching splicing mode.
4. Support RS-232 control instruction to set splicing mode.
5. Support 3.5mm left/right channel audio output.
6. Support S/PDIF audio output.
7. Supports 180-degree rotation of HDMI display image in 2x2/2X3/2X4 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 12V/2A x1

User manual x1

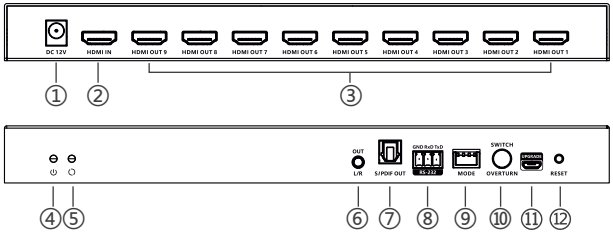
Mounting ear x2

Screw x6

Grounding screw x1

Terminal Block x1

• Panel Description

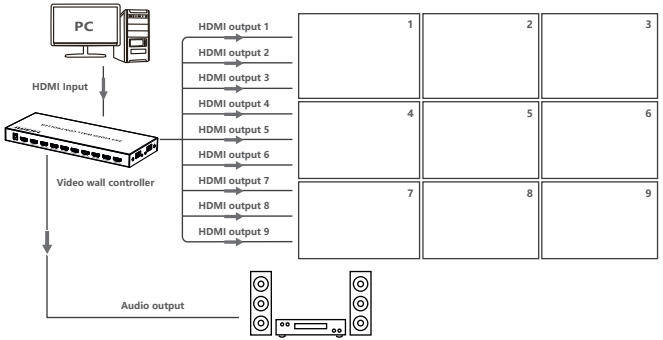


①	DC12V Power input	Connect with DC 12V/2A power adapter
②	HDMI signal input	Connect HDMI signal source
③	HDMI signal output x9	Connect with HDMI splicing display devices
④	Power indicator	The indicator will turn on when the power is on
⑤	Status indicator	1) **Steady on**: The power is on, and stable signal input 2) **Slow flash**: No HDMI signal transmission 3) **Quick flash**: The factory settings have been restored
⑥	L/R audio output	Separate output of HDMI signal source audio
⑦	S/PDIF audio output	Separate output of HDMI signal source audio
⑧	RS-232 port	Connect the computer for command control Baud rate: 9600, Only when the dip switch is set to '1111', the mode can be switched through RS-232. The default mode of "1001, 1010, 1011, 1100, 1101, 1110" is "0000".
⑨	Mode switch	Switch splicing mode
⑩	Switch/Rotation	Image rotation in 2x2/2x3/2x4 mode. Controlled by a button; press once to flip, then again to restore, control cycling with memory function.

⑪	Micro-USB port	Used for device firmware upgrading
⑫	Reset	1) Press to restart the video wall controller; 2) Press and hold for 5 seconds to restore factory settings (wait until the status indicator is flashing fast to let go).

• 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) If you want to use RS-232 to switch splicing modes, change the code to "1111".
4) If you need to output signal source audio independently, please connect the speaker or power amplifier with a 3.5mm audio cable / digital optical 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, 05, 06, 07, 08, 09 ALL refers to all HDMI ports, OFF indicates turned off, and ON means truned on.
ES XX Off\n	
ES XXXX\n	'XXX' means splicing mode 0000——1x2; 0001——1X3; 0010——1x4; 0011——2x2 0100——2x3; 0101——3x2; 0110——2x4; 0111——4x2 1000——3x3
Reset\n	Reset, device restart
Recover\n	Restore the factory setting, when the dialing code is "1111", it will be restored to the dialing code "0000" mode, the default mode of "1001, 1010, 1011, 1100, 1101, 1110" is "0000", and the other dialing code will be read from the current dialing code mode.
Status\n	Status information printing Status: Baud 9600 ES 01 OK ES 02 OK ES 03 FAIL ES 04 FAIL ES 05 OK ES 06 OK ES 07 FAIL ES 08 FAIL ES 09 FAIL ES 0010 OK

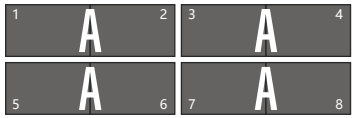
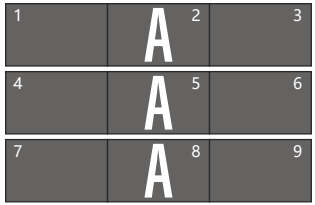
Baud XX\n	'XX' represents the baud rate value 9600(default), 19200, 38400, 57600, 115200	
Example		
Control command 1	**ES 04 On\n**	
Functional details	Open the '04' HDMI port	
Return value	Received successfully	ES 04 On OK
	Received unsuccessful	ES 04 On FAIL
Control command 2	**ES All Off\n**	
Functional details	Close all HDMI ports	
Return value	Received successfully	ES All Off OK
	Received unsuccessful	ES All Off FAIL
Control command 3	**ES 0011\n**	
Functional details	Select 2 x 2 splicing mode	
Return value	Received successfully	ES 0011 OK
	Received unsuccessful	ES 0011 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

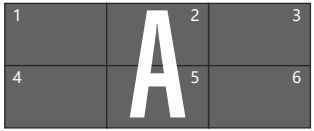
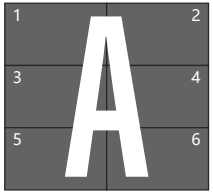
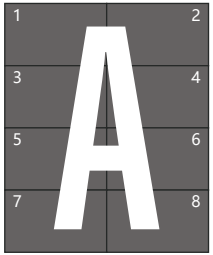
Notes :

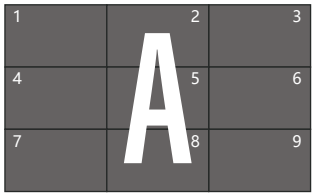
1) "\n" means line break.
2) Splice mode can be switched by "RS-232" or "DIP switch". Only when the dip switch is set to "1111", the splice mode can be switched by RS-232 command.
3) 2x2 mode:
   ①"0011" code mode: input the control command ES 201\n to flip the image by 180°, and input the control command ES 200\n to restore;
   ②"1111" code mode: input the control command ES 0011\n, switch to 2x2 mode, then input the control command ES 201\n to realize 180 °image rotation, input the control command ES 200\n to restore;
4) 2X3 mode:
   ①"0100" code mode: input the control command ES 201\n to realize 180° image rotation, and input the control command ES 200\n to restore;
   ②"1111" code mode: input the control command ES 0100\n, switch to 2x3 mode, then input the control command ES 201\n to realize 180 °image rotation, input the control command ES 200\n to restore;
5) 2X4 mode:
   ①" 0110" code mode: input control command ES 201\n to realize 180 ° image rotation, input control command ES 200\n to restore;
   ② "1111" code mode: input the control command ES 0110\n, switch to 2x4 mode, then input the control command ES 201\n to realize 180 ° image rotation, input the control command ES 200\n to restore;
6) When the dip switch is in mode "1111", the RS-232 mode is prioritized; otherwise, the dip switch is supported. The default mode for the unused mode is "0000", and when the dips witch is "1111", the memory function will display the last set serial command mode.

4. DIP Switch

Built-in 9 splicing mode can be switched by dip switch. dip switch means ‘1’ up, dip switch means ‘0’ down, and the default is ‘1000’.

Dip switch state				Splicing mode	
1	2	3	4		
0	0	0	0	1x2 horizontally	
0	0	0	1	1x3 horizontally	
0	0	1	0	1x4 horizontally	
0	0	1	1	2x2 horizontally	

0	1	0	0	2x3 horizontally	
0	1	0	1	3x2 vertically	
0	1	1	0	2x4 horizontally	
0	1	1	1	4x2 vertically	

1	0	0	0	3x3 horizontally	
1	1	1	1	**Switch RS-232 splicing mode**	

• 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 ‘1111’ 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	9x HDMI
	Compatibility	HDMI 2.0
		HDCP 1.4 / HDCP 2.2
	Resolutions	**Input**: 4096x2160@24/25/30/50/60Hz, 3840x2160@24/25/30/50/60Hz, 3440x1440@60Hz, 2560x1600@60Hz, 2560x1440@60Hz, 2560x1080@60Hz, 1920x1200@60Hz **Output**: When the mode is 0000/0001/0010, the maximum output is 1080P@30Hz; other modes have a maximum output of 1080P@60Hz.
		Input: 1080P@24/25/30/50/60Hz **Output**: 1080P@24/25/30/50/60Hz
Video signal	3.5mm Output	PCM
	S/PDIF Output	PCM
	HDMI Output	PCM
Splice Settings	Mode	1x2/1x3/1x4/2x2/2x3/3x2/2x4/4x2/3x3
	DIP Switch	
	RS-232 (GND/ RxD/TxD)	Default baud rate: 9600 Only when the dip switch is set to ‘1111’ can the splicing mode be switched by RS-232 instruction

Power	Power Supply	DC12V/2A
	Power Consumption	＜17W
Operating Environment	Working temperature	-20℃~60℃
	Storage temperature	-30℃~70℃
	Humidity	0~90%RH（No condensation）
Physical Properties	Housing	Iron
	Weight	844g
Physical Properties	Color	Black
	Dimensions	265(L)*105(W)*25(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	