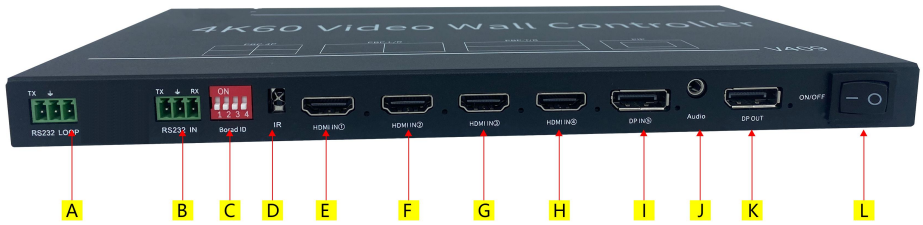
4k 409 Video Wall Controller

User Manual

Operation instructions

Product panel description



409R front panel

A: RS232 loop out, used to loop out the RS232 commands to the next cascaded device.

B： TCP/IP control

C： RS232 control

D： DIP switch (Board ID): indicates the ID of the current device in cascading mode. For detailed settings, see below DIP list.

E： IR control

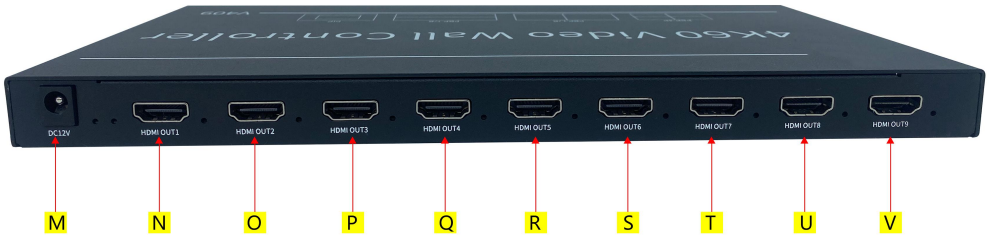
F, G, H and I: HDMI inputs 1-4, of which I (#4) port supports 4K60, F/G/H port (#1-3) supports 4K30. With LED indicators showing input status.

J: 1 DP input interface, maximum 4K60Hz.

K: Audio output

L: DP Loop-out for cascading

(In single picture mode, the loop-out follows the selection of the input source channel. In other modes, only the DP input source can be loop-out).



409R rear panel

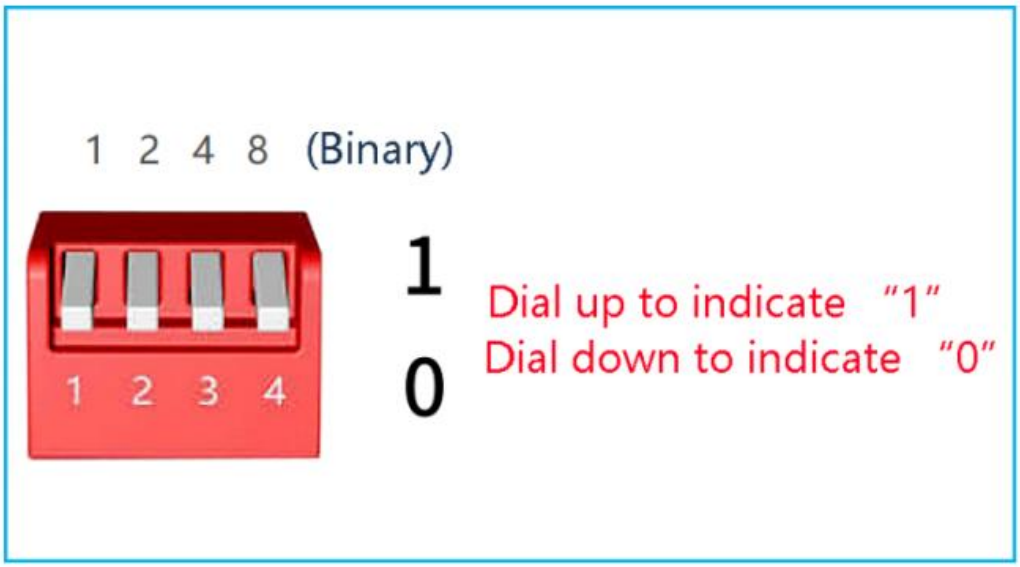
O, P, Q, R, S, T, U, V， W: HDMI outputs 1-9

M: Switch ON/OFF

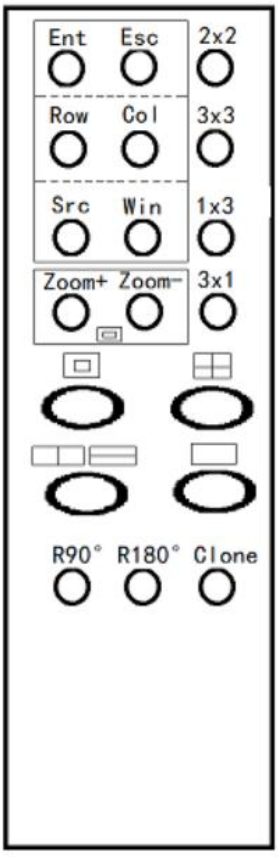
N: Power supply.

List 1: DIP switch (When cascading, it indicates the current device ID, set in binary.)

Device #	ID	Device #	ID
Device 1	1000	Device 9	1001
Device 2	0100	Device 10	0101
Device 3	1100	Device 11	1101
Device 4	0010	Device 12	0011
Device 5	1010	Device 13	1011
Device 6	0110	Device 14	0111
Device 7	1110	Device 15	1111
Device 8	0001		

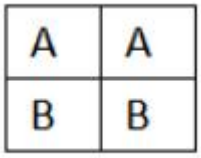


1.1 Remote control



Remote control panel

Buttons	Features
Ent	Confirm key
Esc	Escape key
Row	Set layouts mode: row (range: 1-16)
Col	Set layouts mode: column (range: 1-16)
Src	Source： Enter the number of the source, 1 for HDMI #1, 2 for HDMI #2, 3 for HDMI #3, 4 for HDMI #4, 5 for DP IN #5
Win	Window： The number of each video window. See below details following this list.
+	Used with 【↔ ↕ zoom】, adjust the size of small window in PIP mode, range (0-10)
-	Used with 【↔ ↕ zoom】, adjust the size of small window in PIP mode, range (0-10).

↔ ↕ zoom	Move source window left-right or up-down. Or zoom in/out the window.
2x2	4 displays, 2 rows and 2 columns
3x3	9 displays, 3 rows and 3 columns
1x3	3 displays, 1 row and 3 columns
3x1	3 displays, 3 rows and 1 column
	Quad view: AABB (A for HDMI, B for DP)  By “Win + Scr” to select source for each window.

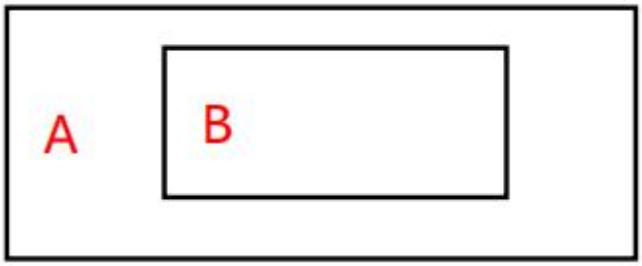
	Picture by Picture: Left- Right or Up- Down: AB (A for HDMI, B for DP)  By "Win + Scr" to select source for each window.
	Single picture: A - > B (A for HDMI, B for DP)  By "Win + Scr" to select source for each window.
R90°	Rotate the whole input image 90° (only in single image model)
R180°	The upper image rotated 180° (only in Up-Down PYP model)
Clone	Clone mode: Duplicate source (1x1) for each output port

Note 1:

[win] key meaning: image window, the number of each screen (window) on the whole video wall, the corresponding position is as follows.

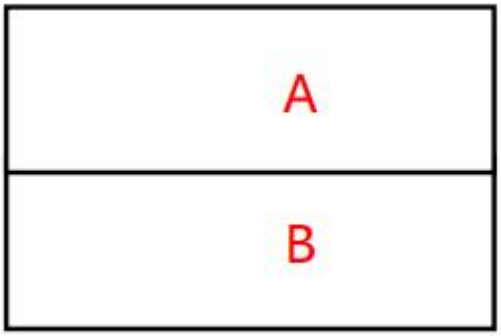
Single screen mode: there is only one image, and the value is fixed as No. A, as shown below.

Picture in Picture mode: The value of the large picture is No. A, and the value of the small picture is No. B, as shown in the following figure.

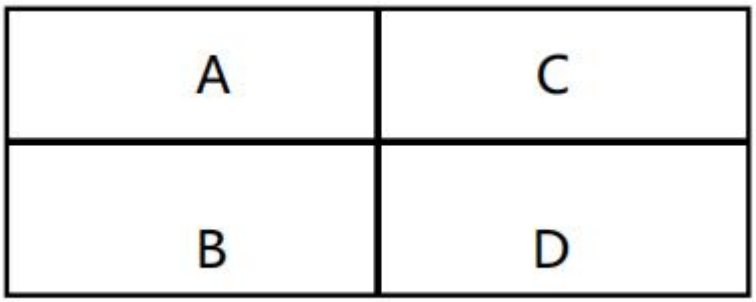


Picture by Picture (Left right mode): The left screen value is No. A, and the right screen value is No. B, as shown below.

Picture by Picture (Up down mode): The upper screen value is No. A, and the lower screen value is No. B, as shown below.



Quad view mode:The value of the upper left screen is No. A, the value of the bottom left screen is No. B, the value of the upper right screen is No. C, and the value of the bottom right screen is No. D, as shown in the following figure.



Remote control operation instructions

The adjustment of the following two groups of parameters needs to press the [Ent] confirmation key to take effect, and the [Esc] key to cancel.

[ROW, COL] is a group to adjust the output layouts mode. You can confirm the value by viewing the OSD display information in the top left corner of the whole wall. For example: If you need to adjust to 2x3 (two rows and three columns) video wall, you need to set [row] to 2, and [COL] to 3. Press [Ent] to confirm.

[Src, Win] is a group. The purpose is to arbitrarily specify the input source channel for each image window. You can confirm the value by viewing the OSD display information in the top left corner of the whole video wall.

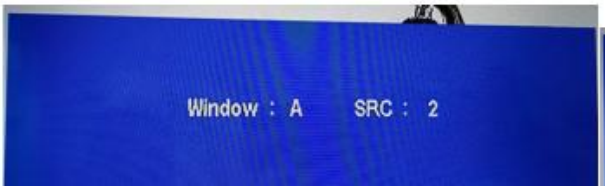
For example: Currently, it is in [▭] PIP mode, HDMI #1 is displayed in the larger window and HDMI #2 is displayed in the smaller window by default. If you need to adjust the large window to show HDMI #2 and the small window to show HDMI #1. Then you need to set [Win] to "1"(window No. 1 means larger window), [Src] is "2" (2 means HDMI#2 input), After pressing the [Ent] to confirm the selection. Do the same operation for the smaller window.

[↔↕ zoom、 +、 -] are one group, used to adjust position and size of the smaller image window when under Picture in Picture mode.

Press Zoom at the first time, press + - buttons to adjust the position (+ to move to right, - to move to left) Press at the second time, press + - buttons to

adjust the position (+ to move down, - to move up) Press at the third time,

press + - buttons to adjust the size (+ to zoom out, - to zoom in)



RS232 control

Baud Rate: 9600

Data bit: 8 bits

Stop bit: 1 bit, no parity

Function	Byte 1 cmd_head	Byte 2 cmd_type	Byte 3 cmd_data1	Byte 4 cmd_data2	Byte 5 Check_sum
Video wall mode	0x66	0x01	Row	Col	byte 1 + byte 2 + byte3 + byte 4
Rotate 90 °	0x66	0x02	Rotate90	0x00	byte 1 + byte 2 + byte 3 + byte 4
Rotate 180 °	0x66	0x03	Rotate180	0x00	byte 1 + byte

					2 + byte 3 + byte 4
Multi pictures mode	0x66	0x04	Mode	Source Channel	byte 1 + byte 2 + byte 3 + byte 4
Multi pictures window specify input source	0x66	0x05	Window Sel	0x00	byte 1 + byte 2 + byte 3 + byte 4
PIP Small window position	0x66	0x06	Position	0x00	byte 1 + byte 2 + byte 3 + byte 4
PIP Small window size	0x66	0x07	Size	0x00	byte 1 + byte 2 + byte 3 + byte 4

Description:

[Row]: Video Wall mode: Row

[Col]: Video Wall mode: Column

[Rotate90]: Rotate 90°:

0: rotate

1: do not rotate (only supported in single-screen mode)

[Rotate180]: Rotate 180°:

0: rotate,

1: not rotate (only supported in stitching mode behavior 2)

[Mode]: Multi-picture mode:

0: single screen

1: left-right PYP

2: four pictures quad-view

3: PIP double screen

4: up-down PYP

[WindowSel]: Window selection, the value depends on the setting of

multi-screen

mode:

[Mode]=0, WindowSel=0 (current screen)

[Mode]=1, WindowSel=0 (left picture), WindowSel=1 (right picture)

[Mode]=2, WindowSel=0 (upper left screen), WindowSel=1 (lower left screen)

WindowSel=2 (upper right screen), WindowSel=3 (lower right screen)

[Mode]=3, WindowSel=0 (large picture), WindowSel=1 (small picture)

[Mode]=4, WindowSel=0 (upper screen), WindowSel=1 (lower screen)

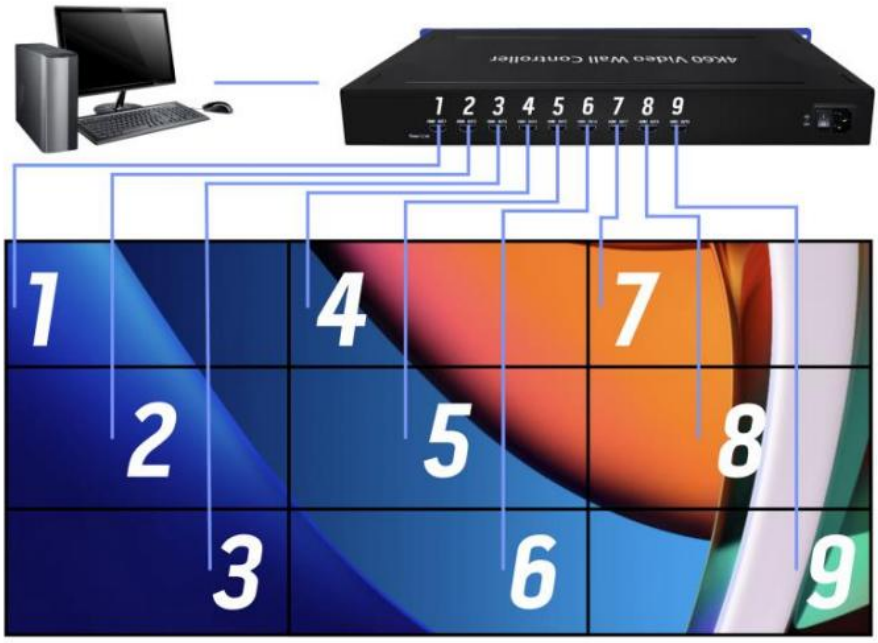
[SourceChannel]: Input source channel selection: 0 is HDM I, 1 is HDMI 2, 2 is HDMI 3, 3 is HDMI 4, 4 is DP 5.

[Position]: Choose the position of the small window in the picture-in-picture mode: 0: center, 1: upper left corner, 2: upper right corner, 3: bottom left corner, 4: Bottom right corner (only supported in PIP double screen mode)

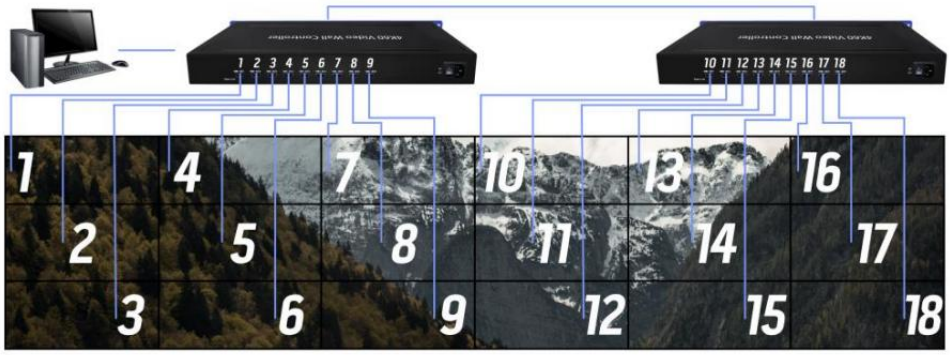
[Size]: Choose the size of the small window in the picture-in-picture mode: 0~10, the larger the value, the larger the window supported in PIP double screen mode).

Diagram

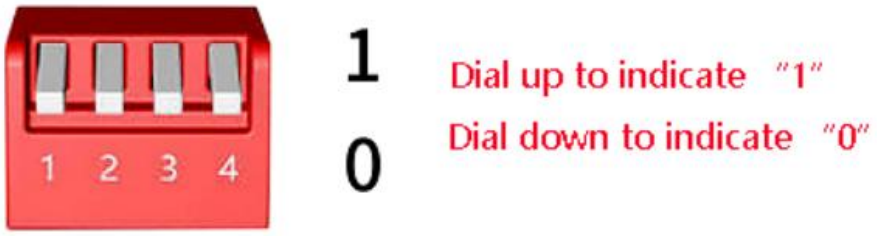
3x3 video wall



3x6 Video Wall

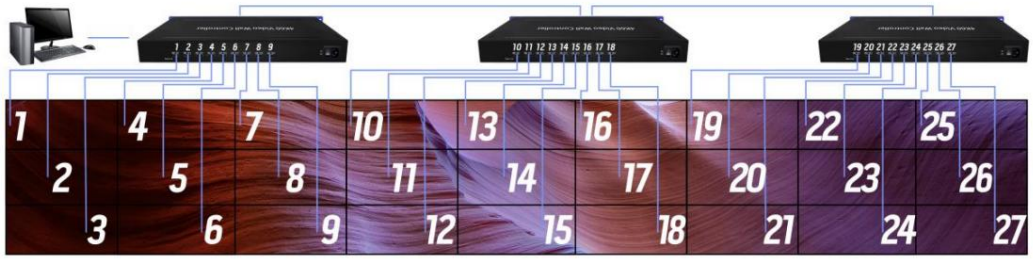


When cascading, the board ID of the 1/2 devices needs to be set:

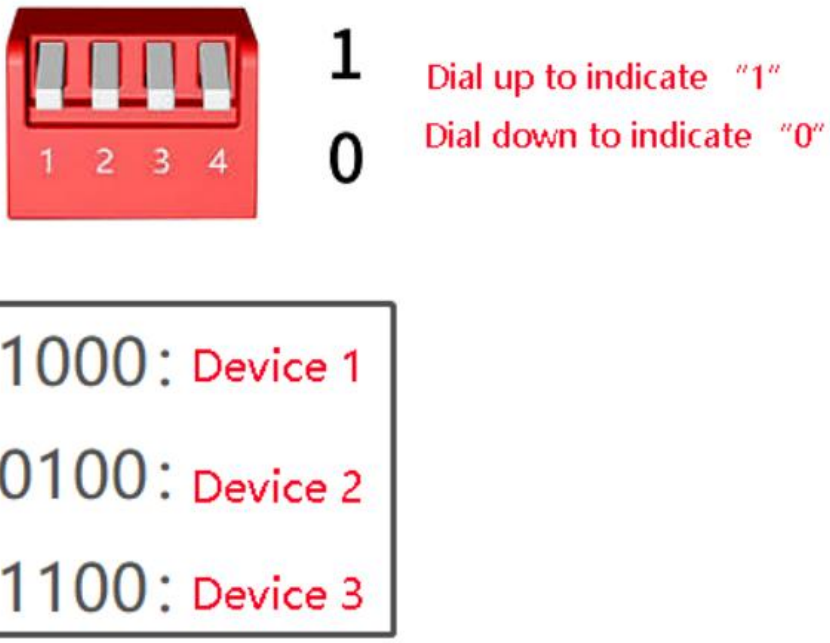


Note: When the devices are cascaded, the image rank (MxN rank) must be the same.

3x9 Video Wall

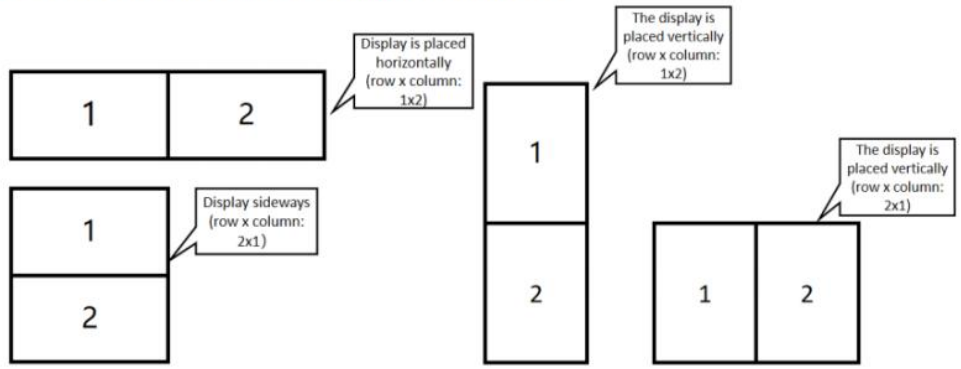


When cascading, the board ID of the 1 / 2 / 3 devices needs to be set:



Note: The device cascade setting image (NxM image) must be the same.

Definition of row and column mode:



Support Resolution

Mode	Full screen input resolution	Full screen output resolution	Single screen resolution
1x2	3840x1080@30Hz	3840x1080@60HZ	1920x1080@60HZ
1x3	3840x720@30HZ	5760x1080@60HZ	1920x1080@60HZ
1x4	3840x540@60HZ	7680x1080@60HZ	1920x1080@60HZ
1x5	3840x432@60HZ	9600x1080@30HZ	1920x1080@60HZ
1x6	3840x360@60HZ	11520x1080@60HZ	1920x1080@60HZ
2x1	1920x2160@30HZ	1920x2160@60HZ	1920x1080@60HZ
2x2	3840x2160@30HZ	3840x2160@60HZ	1920x1080@60HZ
2x3	3840x1440@30HZ	5760x2160@60HZ	1920x1080@60HZ
2x4	4096x1152@30HZ	7680x2160@60HZ	1280x720@60HZ
3x1	1920x3240@30HZ	1920x3240@60HZ	1920x1080@60HZ
3x2	2816x2376@30HZ	3840x3240@60HZ	1920x1080@60HZ
3x3	3840x2160@30HZ	3840x2160@60HZ	1280x720@60HZ
4x1	1776x3996@30HZ	1920x4320@60HZ	1920x1080@60HZ
4x2	2688x3024@30HZ	3840x4320@60HZ	1920x1080@60HZ
5x1	1408x3960@30HZ	1920x5400@60HZ	1920x1080@60HZ

6x1	1184x3996@30HZ	1920x6480@60HZ	1920x1080@60HZ
7x1	992x3906@30HZ	1280x5040@60HZ	1280x720@60HZ
8x1	888x3996@30HZ	1280x5760@60HZ	1280x720@60HZ
9x1	784x3969@30HZ	1280x6480@60HZ	1280x720@60HZ

Table 2 is 409R Cascade Mode Supported Resolution

Mode	Full screen input resolution	Full screen output resolution	Single screen resolution
2x5	4080x918@30HZ	9600x2160@60HZ	1280x720@60HZ
2x6	4080x765@30HZ	11520x2160@60HZ	1280x720@60HZ
2x8	4096x576@30HZ	15360x2160@60HZ	1280x720@60HZ
2x9	4032x504@30HZ	17280x2160@60HZ	1280x720@60HZ
2x10	4032x504@30HZ	12800x2160@60HZ	1280x720@60HZ
2x12	4032x378@30HZ	23040x2160@60HZ	1280x720@60HZ
3x4	4096x1728@30HZ	7680x3240@60HZ	1280x720@60HZ
3x5	4080x1377@30HZ	3840x3600@60HZ	1280x720@60HZ
3x6	4032x1134@30HZ	3840x4320@60HZ	1280x720@60HZ
3x7	4032x972@30HZ	3840x5040@60HZ	1280x720@60HZ
3x8	4096x864@30HZ	3840x5760@60HZ	1280x720@60HZ
3x9	4032x756@30HZ	3840x6480@60HZ	1280x720@60HZ
4x4	4096x2304@30HZ	5120x2880@60HZ	1280x720@60HZ
4x5	4080x1836@30HZ	5120x3600@60HZ	1280x720@60HZ
4x6	4032x1512@30HZ	5120x4320@60HZ	1280x720@60HZ
5x2	2048*2880@30HZ	6400x1440@60HZ	1280x720@60HZ
5x3	3024x2835@30HZ	6400x2160@60HZ	1280x720@60HZ
5x4	3008x2115@30HZ	6400x2880@60HZ	1280x720@60HZ

5x5	4080x2295@30HZ	6400x3600@60HZ	1280x720@60HZ
6x2	1920x3240@30HZ	7680x1440@60HZ	1280x720@60HZ
6x3	2640x2970@30HZ	7680x2160@60HZ	1280x720@60HZ
6x4	3072x2592@30HZ	7680x2880@60HZ	1280x720@60HZ
8x3	2160x3240@30HZ	10240x2160@60HZ	1280x720@60HZ
9x3	1728x2916@30HZ	5760x9720@60HZ	5760x9720@60HZ
2x11	4048x414@30HZ	21120x2160@60HZ	1920x1080@60HZ
2x12	4032x378@30HZ	23040x2160@60HZ	1920x1080@60HZ
2x13	3952x342@30HZ	24960x2160@60HZ	1920x1080@60HZ

Common problem

(1) What is the output resolution of the loop-out interface?

Answer: Same as the DisplayPort input resolution of the first device.

(2) Sometimes the dial code or remote control switch does not respond?

Answer: Because it involves resolution switching, it takes a certain time (1s). If the display does not meet the expectations, it can be restored by power off again.

(3) Is there a flash line on screen in cascade mode?

Answer: Please use the DP cable provided by the manufacturer to connect the cascaded DP ports.

(4) There are errors in remote control when cascading: some devices respond to remote control commands normally, and some devices do not respond to remote control commands?

Answer: It is recommended to put the equipment together when using remote control in cascade.

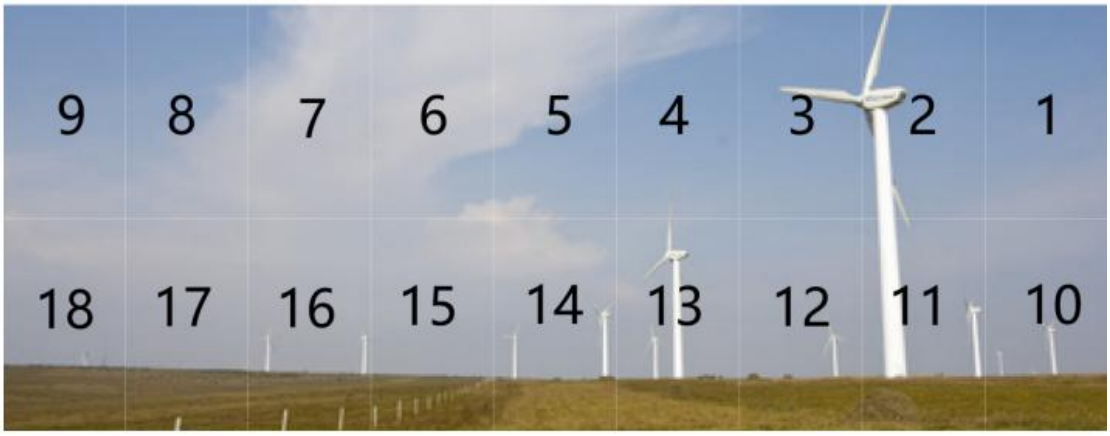
(5) How to recover when an error occurs?

Press the [clone] key, press the [⌜] key, Return to [output copy mode, input single picture] status, when the cascade device settings are synchronized, continue with other settings.

Appendix: Outputs order

(1) When the image is not rotated: the outputs order is from up then down, then from left to right. As shown in the following 2x4 (Row*Col) mode: see below

(2) When the content is rotated 90° (anticlockwise): The outputs order is from right to left and then from up to down. As shown in Figure 4x2 mode (Row*Col). see right



(3) When the image is rotated by 180° and the image is not rotated, the order of the output interface is first up and then down, first left and then right.