

# G416

## 4K Video Wall Controller

with  
Seamless Matrix Switcher  
Quadview Multiviewer

# SEADA

Showing the World



### User Manual V1.0

#### Warning



- Do not expose this device to Rain, Moisture, and Dripping
- Only use accessories specified by the manufacturer
- Unplug this device during Lightning Storms

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# 1. System Description

## 1.1 Introduction

The G416 is a high-performance HDMI 2.0 video wall controller. It can not only be used as a video wall controller but also as a seamless matrix switcher with 4x 4K@60 inputs and 16x 4K@60 outputs.

In addition to the video wall and matrix switching capabilities, G416 supports multiview on both single display and video wall with up to 4 windows simultaneously. This makes the G416 a great solution not only for digital signage, broadcasting and security, but also for meeting and conference rooms.

The G416 video wall controller can be easily configured via IP/serial port connection to a Windows based PC, running the management software, from the front panel of the unit, or through 3rd party controllers. The Windows based software provides a user-friendly User Interface, greatly simplifying the system configuration. G416 controllers can run standalone without the connection to the control PC, once configured.

## 1.2 Features

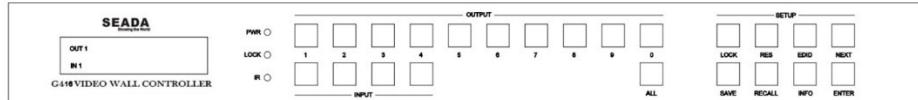
- Support video wall with up to 16 screens
- Support seamless switching between different input sources
- Support multiview with up to 4 windows simultaneously
- Support sync mode and sync delay mode for different types of displays
- Supports 180° rotation function
- 4 Inputs and 16 Outputs: HDMI 2.0, up to 3840x2160/4096x2160@60Hz resolution
- Support customised output resolution
- Support one break away audio extractor and switcher
- Provide multiple control ports: front panel buttons, remote control, RS232, network and WebUI control
- Supports up to 4K and HDCP 2.2 compliant.
- Supports controllable via network, RS232, remote control, and front panel buttons
- Supports customised preset layouts

## 2. Specification

|                       |                                    |
|-----------------------|------------------------------------|
| Band Width            | 594MHz (18Gbps), HDMI 2.0, HDCP2.2 |
| Audio Format          | LPCM 2.0                           |
| Input ports           | 4 HDMI                             |
| Output ports          | 16 HDMI, 1 Mini Toslink port       |
| Power Supply          | 110-240VAC                         |
| Power Consumption     | 75W Max                            |
| Operating Temperature | 0 to +40°C (+32 to +104 °F)        |
| Operating Humidity    | 10 to 90 % RH (non-condensing)     |
| ESD                   | Air: ± 8KV, Contact: ± 4KV,        |
| Dimensions            | L430 x W220 x H44 mm               |
| Weight                | 5kg                                |

## 3. Panel Layout

### 3.1. Front View



1) LCM display: It displays the status of each channel in the matrix. Together with the front panel buttons, user will be able to set and view parameters of G416.

2) OUT SELECT: 1, 2...9, 0, ALL

3) IN SELECT: 1, 2, 3, 4

Press OUTPUT m + INPUT n + ENTER, switch input n to output m

4) ALL button: Press ALL + INPUT n + ENTER, switch input n to all outputs

5) Lock button: By holding this button for more than 3 seconds, all the front buttons will be locked and stop working, and by holding it more than 3 seconds again, the front buttons will get unlocked

6) Press buttons RES + OUTPUT m + NEXT + ENTER with guide of front LCM display to change output resolution of OUTPUT m

7) Press buttons EDID + INPUT n + NEXT + ENTER with guide of front LCM screen display to change the EDID mode of INPUT n

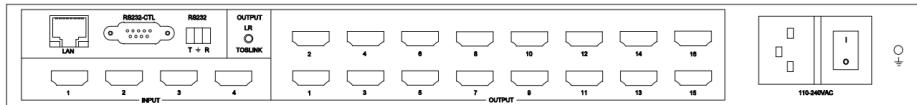
8) SAVE button: Press SAVE+ OUTPUT m +ENTER, save current routing and screen layout to layout m

9) RECALL button: Press RECALL+ OUTPUT m +ENTER, load layout m for current display

10) INFO button: By pressing the INFO button, front LCD panel will loop display IR ON/OFF, RS232 Baud Rate and IP parameters etc.

11) IR: IR receiver

## 3.2. Rear View



1) LAN control (TCP/IP or Web Control)

IP address: 192.168.0.247

Submask: 255.255.255.0

Gateway: 192.168.0.1.1

Port: 23

Web login account: admin

password: admin

2) RS232-CTL

Baud Rate: 9600

3) RS232-Phoenix

Baud Rate: 9600

T: Main Unit -> PC, G: Ground, R: Main Unit <- PC

4) Input and output

4 HDMI inputs, 16 HDMI outputs, 1 LR/Toslink (Spdif-Optical) audio output

**Note:** The audio output can be switched between IN1, IN2, IN3, IN4 via RS232 command or PC control software

## 4. Application

1) General Seamless Matrix Switcher, 4 inputs, 16 outputs. Users can also set multiview outputs as needed



2) One input across the whole Video Wall: 3x3, 3x4, 3x5, 4x4 etc.



3) Two or more Video Walls with one input source across the whole wall and standalone outputs.

The number of screens cannot exceed 16.



4) One Video Wall with up to 4 inputs displayed simultaneously. The number of screens cannot exceed 12, please refer to the limit below.



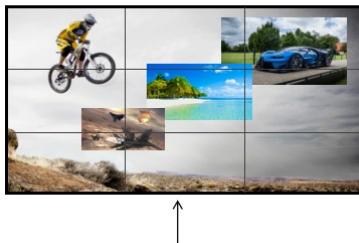
5) One Video Wall with up to 4 inputs displayed simultaneously, and standalone outputs.



## 5. Limitation

- 1) There can be 4 groups of multiview display: Output 1,2,3,4 can be the first group, output 5,6,7,8 can be the second group, output 9,10,11,12 can be the third group and output 13,14,15,16 can be the fourth group. If any output of a multiview group is enabled as multiview mode, the other three will display the same content and output at the same resolution.
- 2) If a user wants to display multiview video on a video wall, he must enable multiview function on output 13 and control the multiview layout on output 13 for the video wall multiview layout.
- 3) If a video wall works in multiview mode, then input 4 can't be a source for standalone output display or non-multiview video wall display.
- 4) If a video wall works in multiview mode, the maximum screen number is 12, because output 13,14,15,16 needs working in multiview mode and can't be the member of video wall outputs.

Wall 1: Multiview Video Wall



This wall work in multiview mode, then other wall or standalone display can't select input 4



Because there is a Wall 1 - Multiview Video Wall, so Wall 2 and standalone display can't select input 4

Wall 2: Non-Multiview Video Wall

## Output resolution list

| Hex Index | Output Resolution | Hex Index | Output Resolution |
|-----------|-------------------|-----------|-------------------|
| 00        | 4096x2160p 60Hz   | 0C        | 1920x1080p30 Hz   |
| 01        | 4096x2160p 50Hz   | 0D        | 1680x1050p60 Hz   |
| 02        | 3840x2160p 60Hz   | 0E        | 1600x1200p60 Hz   |
| 03        | 3840x2160p 50Hz   | 0F        | 1360x768p60 Hz    |
| 04        | 3840x2160p 30Hz   | 10        | 1280x1024p60 Hz   |
| 05        | 3840x2160p 25Hz   | 11        | 1280x768p60 Hz    |
| 06        | 3440x1440p 60Hz   | 12        | 1280x720p60 Hz    |
| 07        | 2560x1600p 60Hz   | 13        | 1280x720p50 Hz    |
| 08        | 2560x1440p 60Hz   | 14        | 1024x768p60 Hz    |
| 09        | 1920x1200p 60Hz   | 15        | USER              |
| 0A        | 1920x1080p 60Hz   | 16        | AUTO              |
| 0B        | 1920x1080p 50Hz   |           |                   |

USER: Output resolution can be customised

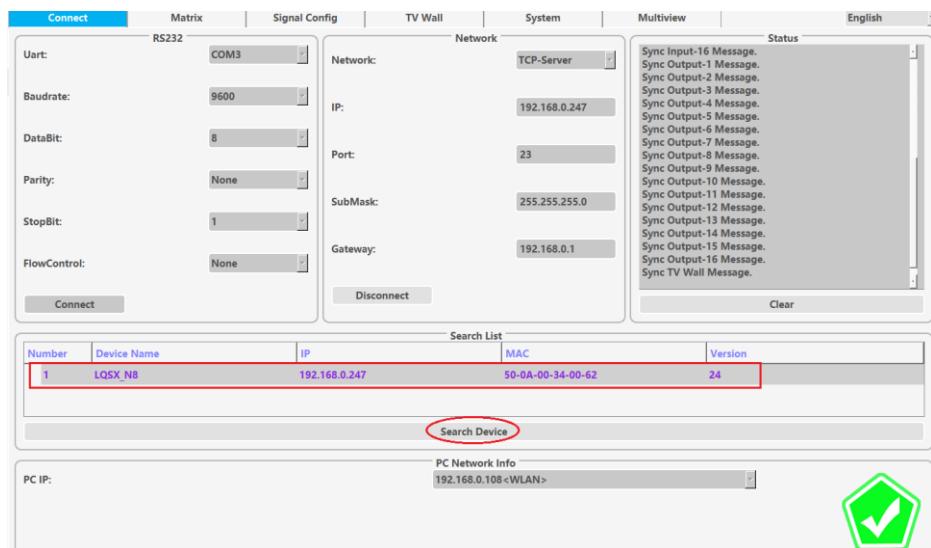
AUTO: Unit will read the EDID of the screen and output the right resolution in the list above

## 6. PC Software User Guide

### 6.1. Connect tab

Please note:

1. Use serial cable or Ethernet cable.
2. When using a serial port connection, the network port connection must be disconnected, and vice versa.
3. When connecting through the network port, you must first search for and select the device before connecting.



| Number | Device Name | IP            | MAC               | Version |
|--------|-------------|---------------|-------------------|---------|
| 1      | LQSX NB     | 192.168.0.247 | 50-0A-00-34-00-62 | 24      |

## 6.2. Matrix Switch Tab

| Connect      |   | Matrix                      |   |   |  | Signal Config |  | TV Wall |  | System |  | Multiview |  |
|--------------|---|-----------------------------|---|---|--|---------------|--|---------|--|--------|--|-----------|--|
|              |   | Switch                      |   |   |  |               |  |         |  |        |  |           |  |
| Output\Input |   | Input1 Input2 Input3 Input4 |   |   |  |               |  |         |  |        |  |           |  |
| Output1      | 1 | 2                           | 3 | 4 |  |               |  |         |  |        |  |           |  |
| Output2      |   |                             |   |   |  |               |  |         |  |        |  |           |  |
| Output3      |   |                             |   |   |  |               |  |         |  |        |  |           |  |
| Output4      |   |                             |   |   |  |               |  |         |  |        |  |           |  |
| Output5      |   |                             |   |   |  |               |  |         |  |        |  |           |  |
| Output6      |   |                             |   |   |  |               |  |         |  |        |  |           |  |
| Output16     |   |                             |   |   |  |               |  |         |  |        |  |           |  |
|              |   |                             |   |   |  |               |  |         |  |        |  |           |  |

A, B can be renamed

B

Standalone Audio Switch

Audio Switch

Allset: Input1

Save/Load

EDID

Save/Load

Save:

Layout-1

Load:

Layout-1

EDID

Read Output Port:

1

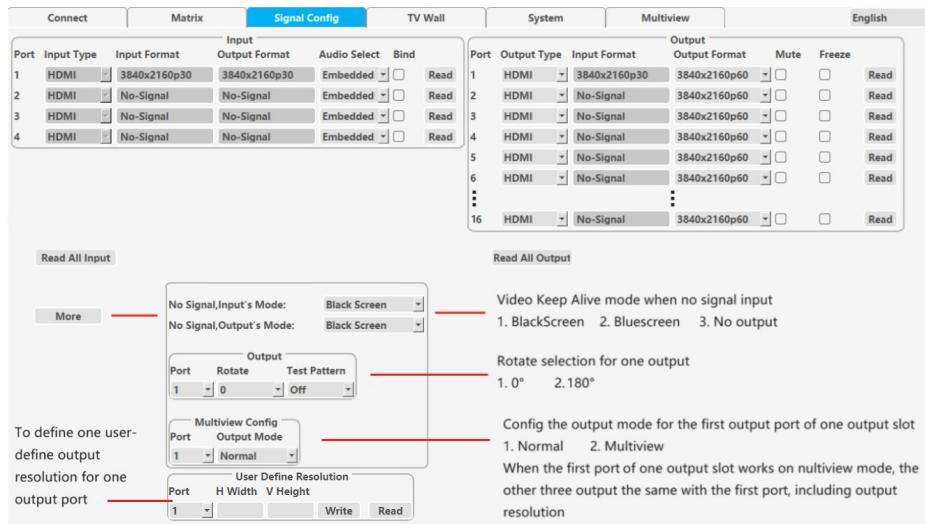
Write Input Port:

1 4K60

00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F

00  
01  
02  
03  
04  
05  
06  
07  
08  
09  
0A  
0B  
0C  
0D  
0E  
0F

## 6.3. Signal Config Tab



The screenshot shows the Signal Config tab with two main sections: Input and Output.

**Input:**

| Port | Input Type | Input Format | Output Format | Audio Select | Bind                          |
|------|------------|--------------|---------------|--------------|-------------------------------|
| 1    | HDMI       | 3840x2160p30 | 3840x2160p30  | Embedded     | <input type="checkbox"/> Read |
| 2    | HDMI       | No-Signal    | No-Signal     | Embedded     | <input type="checkbox"/> Read |
| 3    | HDMI       | No-Signal    | No-Signal     | Embedded     | <input type="checkbox"/> Read |
| 4    | HDMI       | No-Signal    | No-Signal     | Embedded     | <input type="checkbox"/> Read |

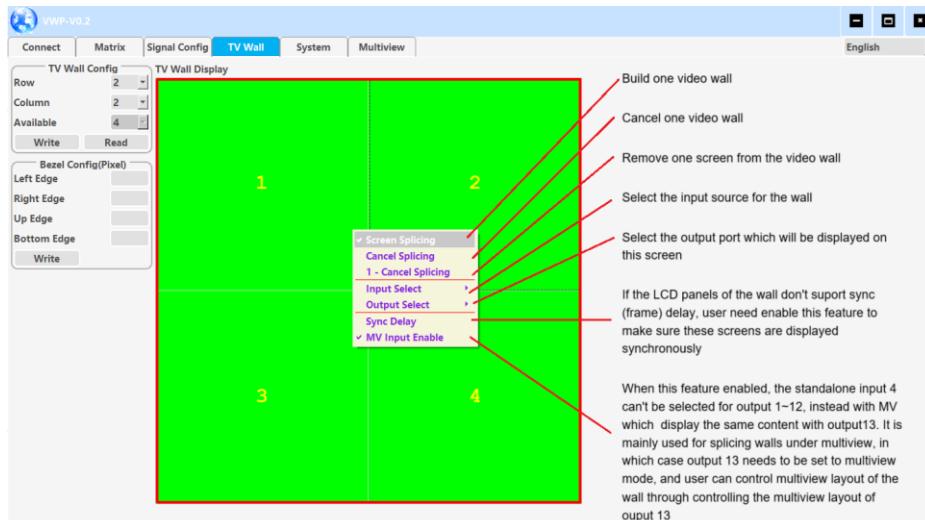
**Output:**

| Port | Output Type | Input Format | Output Format | Mute                     | Freeze                        |
|------|-------------|--------------|---------------|--------------------------|-------------------------------|
| 1    | HDMI        | 3840x2160p30 | 3840x2160p60  | <input type="checkbox"/> | <input type="checkbox"/> Read |
| 2    | HDMI        | No-Signal    | 3840x2160p60  | <input type="checkbox"/> | <input type="checkbox"/> Read |
| 3    | HDMI        | No-Signal    | 3840x2160p60  | <input type="checkbox"/> | <input type="checkbox"/> Read |
| 4    | HDMI        | No-Signal    | 3840x2160p60  | <input type="checkbox"/> | <input type="checkbox"/> Read |
| 5    | HDMI        | No-Signal    | 3840x2160p60  | <input type="checkbox"/> | <input type="checkbox"/> Read |
| 6    | HDMI        | No-Signal    | 3840x2160p60  | <input type="checkbox"/> | <input type="checkbox"/> Read |
| ...  |             |              |               |                          |                               |
| 16   | HDMI        | No-Signal    | 3840x2160p60  | <input type="checkbox"/> | <input type="checkbox"/> Read |

**Buttons and Labels:**

- Read All Input
- More
- No Signal, Input's Mode: Black Screen
- No Signal, Output's Mode: Black Screen
- Output Port: 1, Rotate: 0, Test Pattern: Off
- Multiview Config Port: 1, Output Mode: Normal
- User Define Resolution Port: H Width, V Height: 1
- Write, Read
- Read All Output
- Video Keep Alive mode when no signal input
  - 1. BlackScreen
  - 2. Bluescreen
  - 3. No output
- Rotate selection for one output
  - 1. 0°
  - 2. 180°
- To define one user-defined output resolution for one output port
- Config the output mode for the first output port of one output slot
  - 1. Normal
  - 2. Multiview
- When the first port of one output slot works on multiview mode, the other three output the same with the first port, including output resolution

## 6.4. TV Wall Tab



The screenshot shows the TV Wall tab with a 2x2 video wall configuration.

**TV Wall Config:**

- Row: 2
- Column: 2
- Available: 4
- Bezel Config(Pixel):
  - Left Edge
  - Right Edge
  - Up Edge
  - Bottom Edge
- Write, Read

**TV Wall Display:**

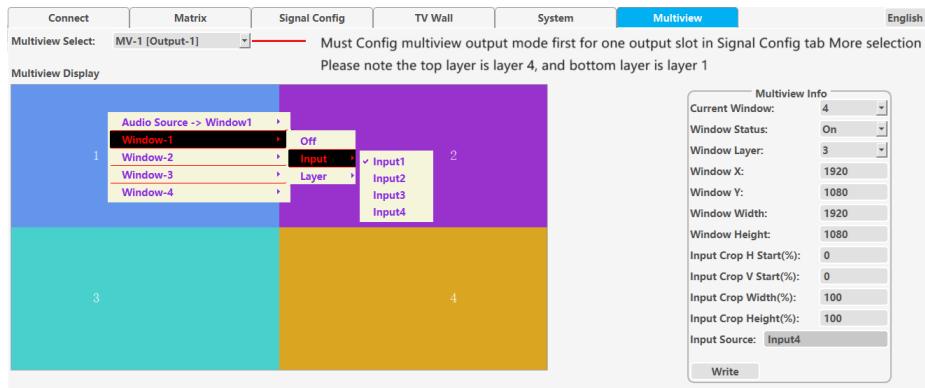
The display area is divided into four quadrants labeled 1, 2, 3, and 4. A context menu is open over quadrant 1, listing the following options:

- ✓ Screen Splicing
- Cancel Splicing
- 1 - Cancel Splicing
- Input Select
- Output Select
- Sync Delay
- ✓ MV Input Enable

**Annotations and Descriptions:**

- Build one video wall
- Cancel one video wall
- Remove one screen from the video wall
- Select the input source for the wall
- Select the output port which will be displayed on this screen
- If the LCD panels of the wall don't support sync (frame) delay, user needs to enable this feature to make sure these screens are displayed synchronously
- When this feature is enabled, the standalone input can't be selected for output 1-12, instead with MV which displays the same content with output 13. It is mainly used for splicing walls under multiview, in which case output 13 needs to be set to multiview mode, and user can control multiview layout of the wall through controlling the multiview layout of output 13

## 6.5. Multiview Tab

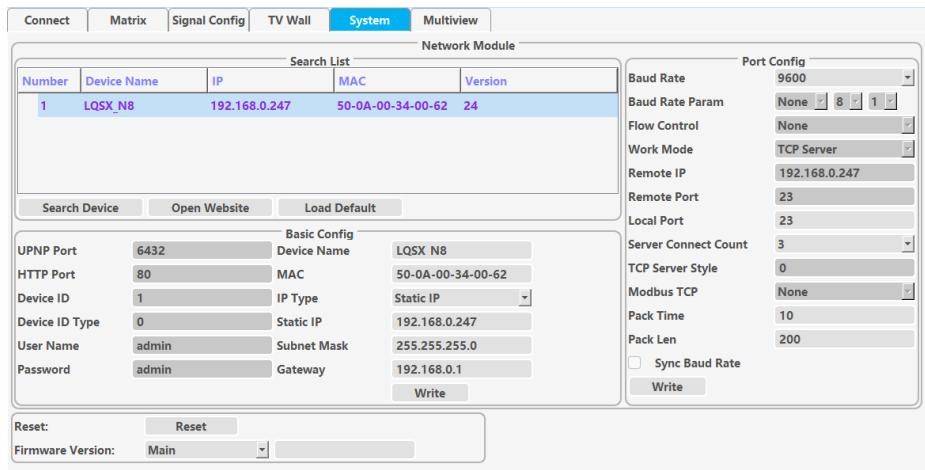


Must Config multiview output mode first for one output slot in Signal Config tab More selection  
Please note the top layer is layer 4, and bottom layer is layer 1

| Multiview Info         |        |
|------------------------|--------|
| Current Window:        | 4      |
| Window Status:         | On     |
| Window Layer:          | 3      |
| Window X:              | 1920   |
| Window Y:              | 1080   |
| Window Width:          | 1920   |
| Window Height:         | 1080   |
| Input Crop H Start(%): | 0      |
| Input Crop V Start(%): | 0      |
| Input Crop Width(%):   | 100    |
| Input Crop Height(%):  | 100    |
| Input Source:          | Input4 |

## 6.6. System Tab

This tab sets network parameters, resets, reads software versions, etc



**Network Module**

| Search List |             |               |                   |         |
|-------------|-------------|---------------|-------------------|---------|
| Number      | Device Name | IP            | MAC               | Version |
| 1           | LQSX_N8     | 192.168.0.247 | 50-0A-00-34-00-62 | 24      |

**Basic Config**

|                |       |             |                   |
|----------------|-------|-------------|-------------------|
| UPNP Port      | 6432  | Device Name | LQSX N8           |
| HTTP Port      | 80    | MAC         | 50-0A-00-34-00-62 |
| Device ID      | 1     | IP Type     | Static IP         |
| Device ID Type | 0     | Static IP   | 192.168.0.247     |
| User Name      | admin | Subnet Mask | 255.255.255.0     |
| Password       | admin | Gateway     | 192.168.0.1       |

**Port Config**

|   |               |
|---|---------------|
| Baud Rate                               | 9600          |
| Baud Rate Param                         | None 8 1      |
| Flow Control                            | None          |
| Work Mode                               | TCP Server    |
| Remote IP                               | 192.168.0.247 |
| Remote Port                             | 23            |
| Local Port                              | 23            |
| Server Connect Count                    | 3             |
| TCP Server Style                        | 0             |
| Modbus TCP                              | None          |
| Pack Time                               | 10            |
| Pack Len                                | 200           |
| <input type="checkbox"/> Sync Baud Rate |               |

**Reset:**   
**Firmware Version:** Main

## 7. Point to Point Display with LED Panel

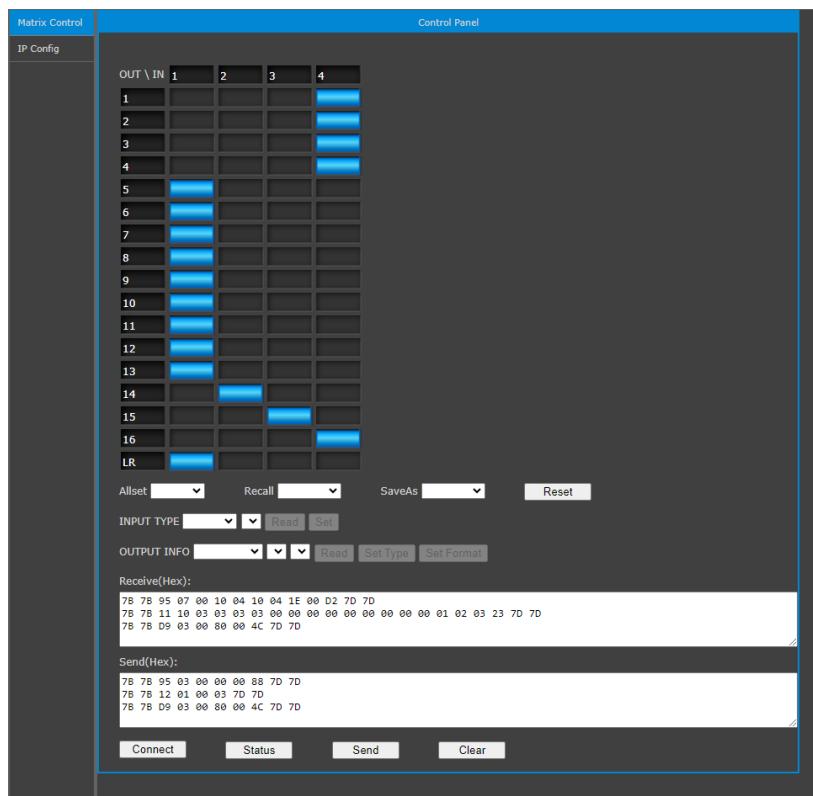
Step 1, connect input cable between source and one input port of the matrix switcher.

Step 2, connect the output cable between LED panel and one output port of the matrix switcher.

Step 3, read the EDID of LED panel with PC Tool and download this EDID to the input port of the matrix switcher.

Step 4, set the output resolution of this output port as AUTO, or USER. When setting USER, it is necessary to configure the user define resolution first, and make the user defined resolution to match the physical resolution of the LED panel.

## 8. WebUI User Guide



Matrix Control

IP Config

Control Panel

| OUT \ IN | 1 | 2 | 3 | 4 |
|----------|---|---|---|---|
| 1        |   |   |   |   |
| 2        |   |   |   |   |
| 3        |   |   |   |   |
| 4        |   |   |   |   |
| 5        |   |   |   |   |
| 6        |   |   |   |   |
| 7        |   |   |   |   |
| 8        |   |   |   |   |
| 9        |   |   |   |   |
| 10       |   |   |   |   |
| 11       |   |   |   |   |
| 12       |   |   |   |   |
| 13       |   |   |   |   |
| 14       |   |   |   |   |
| 15       |   |   |   |   |
| 16       |   |   |   |   |
| LR       |   |   |   |   |

Allset  Recall  SaveAs  Reset

INPUT TYPE   Read

OUTPUT INFO    Read

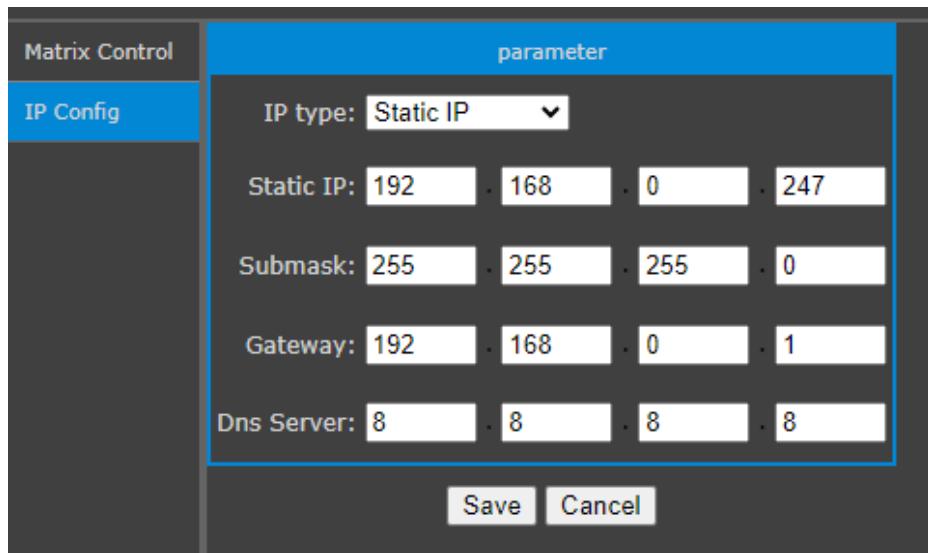
Receive(Hex):

```
78 78 95 07 00 10 04 10 04 1E 00 D2 7D 7D
78 78 11 10 03 03 03 03 00 00 00 00 00 00 00 01 02 03 23 7D 7D
78 78 D9 03 00 80 00 4C 7D 7D
```

Send(Hex):

```
78 78 95 03 00 00 00 88 7D 7D
78 78 12 01 00 03 7D 7D
78 78 D9 03 00 80 00 4C 7D 7D
```

Connect  Status  Send  Clear



The screenshot shows the 'Matrix Control' interface with the 'IP Config' tab selected. A blue header bar at the top says 'parameter'. Below it, there are four sets of input fields for network configuration:

- IP type:** Static IP (selected from a dropdown menu)
- Static IP:** 192.168.0.247
- Submask:** 255.255.255.0
- Gateway:** 192.168.0.1
- Dns Server:** 8.8.8.8

At the bottom right are two buttons: 'Save' and 'Cancel'.

User can control the Matrix/Audio of G416, save/recall layout, read information and configure IP address in the WebUI.

## 9. Remote Control User Guide



Press OUTPUT a + INPUT b + Enter to switch input b to output a

**PTP:** Display all inputs to all outputs respectively

**ALL:** Press ALL + INPUT a + Enter to switch input a to all outputs

**SAVE:** Press SAVE + OUTPUT a + ENTER to save current layout a

**RECALL:** Press RECALL + OUTPUT a + ENTER to load layout a

## 10. Command Line

**RS232:**

Baud Rate: 9600

Data bits: 8

Stop bits: 1

Parity: 0

**Network:**

IP address: 192.168.0.247

Port address: 23

Submask: 255.255.255.0

Gateway: 192.168.0.1

| Command Name                           | Commands   | Note   |
|--|--|--|
| <b>Switch, Input, Output</b>           |  |  |
| Single input and output switching      | 7B 7B 01 02 inPort outPort 99 7D 7D  | inPort: Input channel, 0 represents input 1<br>outPort: Output channel, 0 represents output 1. If set FF,represents all output ports   |
| Multi input and output ports switching | 7B 7B 94 VaildLen 01 Input Output [extend data bytes, continuous Input Output port No.] 99 7D 7D | VaildLen : Add one more to the total number of input ports and output ports<br>For example : 7B 7B 94 11 01 00 00 01 01 02 02 03 03 04 04 05 05 06 06 07 07 99 7D 7D<br>Switching IN1>OUT1;<br>IN2>OUT2; ...<br>IN8>OUT8                                     |
| Query output/input                     | 7B 7B 12 01 00 99 7D 7D  | Matrix switcher will return as follows :<br>7B 7B 11 ValidOutNum Out1Inx Out2Inx ... OutnInx 99 7D 7D<br>ValidOutNum : Total output port number<br>Out1Inx : Indicates the input port corresponding to output 1. If 0, means output 1 is switched to input 1 |

|  |  |  |
|--|--|--|
| Save Layout  | 7B 7B 02 01 ModelIndex 99 7D 7D                                    | ModelIndex: Layout No.   |
| Load Layout  | 7B 7B 03 01 ModelIndex 99 7D 7D                                    | ModelIndex: Layout No.   |
| Input: Query information                           | 7B 7B 7F 02 Port C0 99 7D 7D                                       | <b>See Note 1</b>  |
| Output: Query information                          | 7B 7B 7F 02 Port 80 99 7D 7D                                       | <b>See Note 2</b>  |
| Output: Set output resolution                      | 7B 7B B1 03 Port 00 ResolutionIndex 99 7D 7D                       | Port: Ouput port No., 0 represents output 1<br><b>See Note 3</b>   |
| Output: Set user-define resolution                 | 7B 7B A4 06 Port 00 H-WidthH H-WidthL V-HeightH V-HeightL 99 7D 7D |  |
| Output: rotation                                   | 7B 7B BA 03 Port 00 RotateIndex 99 7D 7D                           | RotateIndex: 0: 0° ; 1: 180°   |
| Output: Display mode for output port when no input | 7B 7B D7 03 Port 00 OutMode 99 7D 7D                               | OutPort: 0 represents output 1; FF means all the output ports<br>OutMode = 0, Black screen ; 1, Blue screen ; 2, No output |
| Output: Set output Test Pattern                    | 7B 7B D8 03 Port 01 TestPatternIndex CB 7D 7D                      |  |

### Wall splicing

|                          |  |  |
|--------------------------|--|--|
| Splicing one output port | 7B 7B 90 06 Port 00 Line Column P Q 99 7D 7D | Line: total lines of screens<br>Column: total columns of screens<br>P: What line of the splicing screen is the current output port on<br>Q: What column of the splicing screen is the current output port on |
|--------------------------|--|--|

|   |   |   |
|---|---|---|
| Set bezel for one output port             | 7B 7B 91 06 Port 00 LeftBezel RightBezel<br>TopBezel BottomBezel 99 7D 7D   |   |
| Set sync delay flag                       | 7B 7B 92 03 Port 00 Sync-delay 99 7D 7D   | Sync-delay = 1, Sync (Frame) delay for the video wall enabled   |
| MV function enable allowed for video wall | 7B 7B A5 01 MVInputEn 99 7D 7D  | MVInputEn = 1,<br>The input source selection for splicing walls is: Input 1/Input 2/Input 3/MV<br>MVInputEn = 0,<br>The input source selection for splicing walls is: Input 1/Input 2/Input 3/Input 4 |
| <b>Multiview</b>                          |   |   |
| Enable multiview function for one output  | 7B 7B A1 03 Port 00 01 99 7D 7D   |   |
| Disable multiview function for one output | 7B 7B A1 03 Port 00 00 99 7D 7D   |   |
| Audio selection for one multiview port    | 7B 7B A2 03 Port 00 AudioSrc 99 7D 7D   | AudioSrc : 0 : Mute ;<br>1 : Window 1 ; 2 : Window 2; 3 : Window 3 ; 4 : Window 4   |
| Set multiview parameters for output port  | 7B 7B 9C 12 Port 00 WinCount WinID<br>WinStatus LayerRank ViewXH ViewXL<br>ViewYH ViewYL ViewWH ViewWL ViewHH<br>ViewHL CropXRatio CropYRatio<br>CropWRatio CropHRatio 99 7D 7D | <b>See Note 5</b>   |

|   |  |  |
|---|--|--|
| Query multiview parameters for output port    | 7B 7B 9C 02 Port 80 99 7D 7D   | Matrix switcher will return as follows :<br>7B 7B 9C 43 Port 80<br>ResWH ResWL ResHH<br>ResHL 04 ValidData 99<br>7D 7D |
| Set display position and size for one window  | 7B 7B 9E 08 Port 00 04 WinID CropXRatio CropYRatio CropWRatio CropHRatio 99 7D |  |
| Set the layer level of one multiview window   | 7B 7B A0 05 Port 00 04 WinID LayerRank 99 7D 7D                                | 4 means top layer  |
| Query the layer level of one multiview window | 7B 7B A0 05 Port 80 04 WinID LayerRank 99 7D 7D                                |  |
| Window display and hiding                     | 7B 7B A0 05 Port 00 04 WinID WinStatus 99 7D 7D                                | WinStatus : 1: Open, 0: Close  |
| <b>Audio selection for break away output</b>  |  |  |
| Set Audio selection for break away output     | 7B 7B D9 03 00 00 Input 99 7D 7D   | Input=0, means Input1  |
| Get Audio selection for break away output     | 7B 7B D9 03 00 80 00 99 7D 7D  |  |
| <b>System Command</b>                         |  |  |
| IP config                                     | 7B 7B 9B DataLength content 99 7D 7D   | <b>See Note 6</b>  |
| Factory reset                                 | 7B 7B AA 02 01 01 99 7D 7D   |  |

## Note 1

|  |   |
|--|---|
|  | <p>Port: Input port No., 0 represents input 1</p> <p>Matrix switcher will return as follows:</p> <p>7B 7B 7F <b>16</b> Port C0 BoardType FuncFlag InType OutType AudioSelect<br/>     IN_HresH IN_HresL IN_VresH IN_VresL IN_Porl IN_Frequency OUT_HresH<br/>     OUT_HresL OUT_VresH OUT_VresL OUT_Porl OUT_Frequency OutRes<br/> <b>Reserve1 Reserve2</b> 99 7D 7D</p> <p>AudioSelect: = 1, represents external LR audio; 0, represents HDMI embedded audio</p> <p>IN_HresH: The high 8 bits of the input image's horizontal resolution</p> <p>IN_HresL: The low 8 bits of the input image's horizontal resolution</p> <p>IN_VresH: The high 8 bits of the vertical resolution of the input image</p> <p>IN_VresL: The low 8 bits of the vertical resolution of the input image</p> <p>IN_Porl:= 1, progressive; 0, interlaced</p> <p>IN_Frequency: Input frame rate</p> <p>Attention, OUT_HresH and other OUT_xx parameter here, mean the output parameters of the input channel</p> |
|--|---|

## Note 2

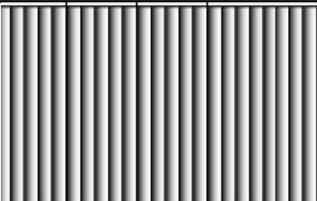
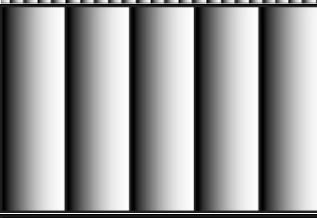
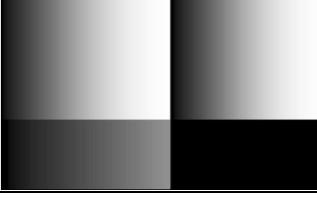
|  |  |
|--|--|
|  | <p>Port: Output port No., 0 represents output 1</p> <p>Matrix switcher will return as follows:</p> <p>7B 7B 7F <b>16</b> Port 80 BoardType FuncFlag InType OutType IN_HresH<br/>     IN_HresL IN_VresH IN_VresL IN_Porl IN_Frequency OutRes AudioMute<br/>     Freeze Black <b>Reserve1 Reserve2 Reserve3 Reserve4 Reserve5 Reserve6</b> 99<br/>     7D 7D</p> <p>OutRes: the index of output resolution</p> <p>Attention, IN_HresHand other IN_xx parameter here, mean the input parameters of the output channel</p> |
|--|--|

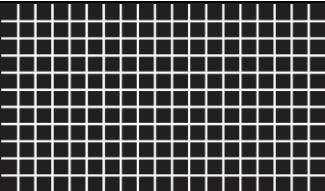
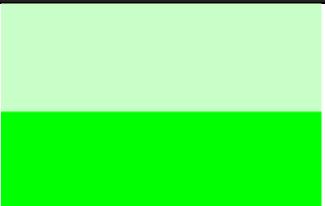
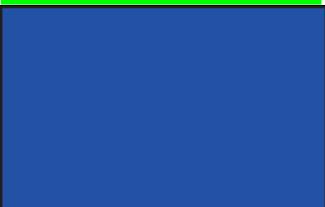
## Note 3

| Output Cards |              |
|--------------|--------------|
| Index (Hex)  | Resolution   |
| 00           | 4096x2160p60 |
| 01           | 4096x2160p50 |
| 02           | 3840x2160p60 |
| 03           | 3840x2160p50 |
| 04           | 3840x2160p30 |
| 05           | 3840x2160p25 |
| 06           | 3440x1440p60 |
| 07           | 2560x1600p60 |
| 08           | 2560x1440p60 |
| 09           | 1920x1200p60 |
| 0A           | 1920x1080p60 |
| 0B           | 1920x1080p50 |
| 0C           | 1920x1080p30 |
| 0D           | 1680x1050p60 |
| 0E           | 1600x1200p60 |
| 0F           | 1360x768p60  |
| 10           | 1280x1024p60 |
| 11           | 1280x768p60  |
| 12           | 1280x720p60  |
| 13           | 1280x720p50  |
| 14           | 1024x768p60  |
| 15           | USER         |
| 16           | AUTO         |

## Note 4

| Index |                       | Picture | HEX Command                           |
|-------|-----------------------|---------|---------------------------------------|
| 0     | Off                   | video   | 7B 7B D8 03 outPort 00 00<br>99 7D 7D |
| 1     | White                 |         | 7B 7B D8 03 outPort 01 00<br>99 7D 7D |
| 2     | Cross                 |         | 7B 7B D8 03 outPort 01 01<br>99 7D 7D |
| 2     | Cross Hatch           |         | 7B 7B D8 03 outPort 01 02<br>99 7D 7D |
| 3     | Color bar             |         | 7B 7B D8 03 outPort 01 03<br>99 7D 7D |
| 4     | Horizontal Gray Scale |         | 7B 7B D8 03 outPort 01 04<br>99 7D 7D |

|    |                 |   |                                       |
|----|-----------------|---|---------------------------------------|
| 5  | White Window    |     | 7B 7B D8 03 outPort 01 05<br>99 7D 7D |
| 6  | Multiple Ramp   |    | 7B 7B D8 03 outPort 01 06<br>99 7D 7D |
| 7  | Horizontal Ramp |    | 7B 7B D8 03 outPort 01 07<br>99 7D 7D |
| 8  | Vertical Ramp   |    | 7B 7B D8 03 outPort 01 08<br>99 7D 7D |
| 9  | Diagonal Lines  |   | 7B 7B D8 03 outPort 01 09<br>99 7D 7D |
| 10 | Quater Ramp     |  | 7B 7B D8 03 outPort 01 0A<br>99 7D 7D |

|    |                          |  |                                       |
|----|--------------------------|--|---------------------------------------|
| 11 | Cross Hatch              |   | 7B 7B D8 03 outPort 01 0B<br>99 7D 7D |
| 12 | Diagonal Cross Hatch     |   | 7B 7B D8 03 outPort 01 0C<br>99 7D 7D |
| 13 | SDI Pathological Pattern |   | 7B 7B D8 03 outPort 01 0D<br>99 7D 7D |
| 14 | Two Level Green          |   | 7B 7B D8 03 outPort 01 0E<br>99 7D 7D |
| 15 | YUV420 out               |  | 7B 7B D8 03 outPort 01 0F<br>99 7D 7D |
| 16 | Off                      |  | 7B 7B D8 03 outPort 00 00<br>99 7D 7D |

## Note 5

|                      |   |
|----------------------|---|
| multiview parameters | ViewWH ViewWL ViewHH ViewHL CropXRatio CropYRatio CropWRatio CropHRatio 99 7D 7D<br>WinCount: total window numbers, 4 (We can open or close a certain window, but the total number remains 4)<br>ValidData: Composed of 4 consecutive data bytes<br>(WinID + WinStatus + LayerRank + ViewXH + ViewXL + ViewYH + ViewYL + ViewWH + ViewWL + ViewHH + ViewHL + CropXRatio + CropYRatio + CropWRatio + CropHRatio)<br>WinID: Window ID (0~3 respectively represent window 1~4)<br>WinStatus: 1,Open; 0,Close<br>LayerRank: The layer of the window (0~3 represents the first to fourth layers, 3 represents the top layer, and 0 represents the bottom layer)<br>ViewXH: Window horizontal position, high bits<br>ViewXL: Window horizontal position, low bits<br>ViewYH: Window vertical position, high bits<br>ViewYL: Window vertical position, low bits<br>ViewWH: Window width, high bits<br>ViewWL: Window width, low bits<br>ViewHH: Window height, high bits<br>ViewHL: Window height, low bits<br>CropXRatio: Input crop, horizontal start, %, default 00<br>CropYRatio: Input crop, vertical start, %, default 00<br>CropWRatio: Input crop, width, %, default 64 (Hex digital) , means 100%<br>CropHRatio: Input crop, height, %, default 64 (Hex digital) , means 100% |
|----------------------|---|

## Note 6

|           |  |
|-----------|--|
| IP config | <p>DataLength: which is the number of bytes contained in the content content: the data bytes after converting ASCII string "AT+WANN=IPmode,IPaddress,Subnetmask,Gateway&lt;CR&gt;" to HEX number</p> <p>IPmode: STATIC or DHCP</p> <p>IPaddress: IP address value for static IP</p> <p>Subnetmask: Submask value for static IP</p> <p>Gateway: Gateway value for static IP</p> <p>&lt;CR&gt;: Carriage Return ,HEX number 0D</p> <p>For example:</p> <p>Set IP mode to STATIC, IP address 192.168.0.156, Subnet mask 255.255.255.0, Gateway 192.168.0.1 (please note here is a carriage return, hex number is 0D)</p> <p>We need convert ASCII string</p> <p>AT+WANN=STATIC,192.168.0.156,255.255.255.0,192.168.0.1 to HEX number</p> <p>41 54 2B 57 41 4E 4E 3D 53 54 41 54 49 43 2C 31 39 32 2E 31 36 38 2E 30 2E 31 35 36 2C 32 35 35 2E 32 35 35 2E 32 35 35 2E 30 2C 31 39 32 2E 31 36 38 2E 30 2E 31 0D</p> <p>And then combined with the command header, DataLength and command tail, the overall command is</p> <p>7B 7B 9B 37 41 54 2B 57 41 4E 4E 3D 53 54 41 54 49 43 2C 31 39 32 2E 31 36 38 2E 30 2E 31 35 36 2C 32 35 35 2E 32 35 35 2E 32 35 35 2E 30 2C 31 39 32 2E 31 36 38 2E 30 2E 31 0D 99 7D 7D</p> |
|-----------|--|