J4 User Manual

Jupiter

April 3, 2023

A-J4A-000-00, Rev. A

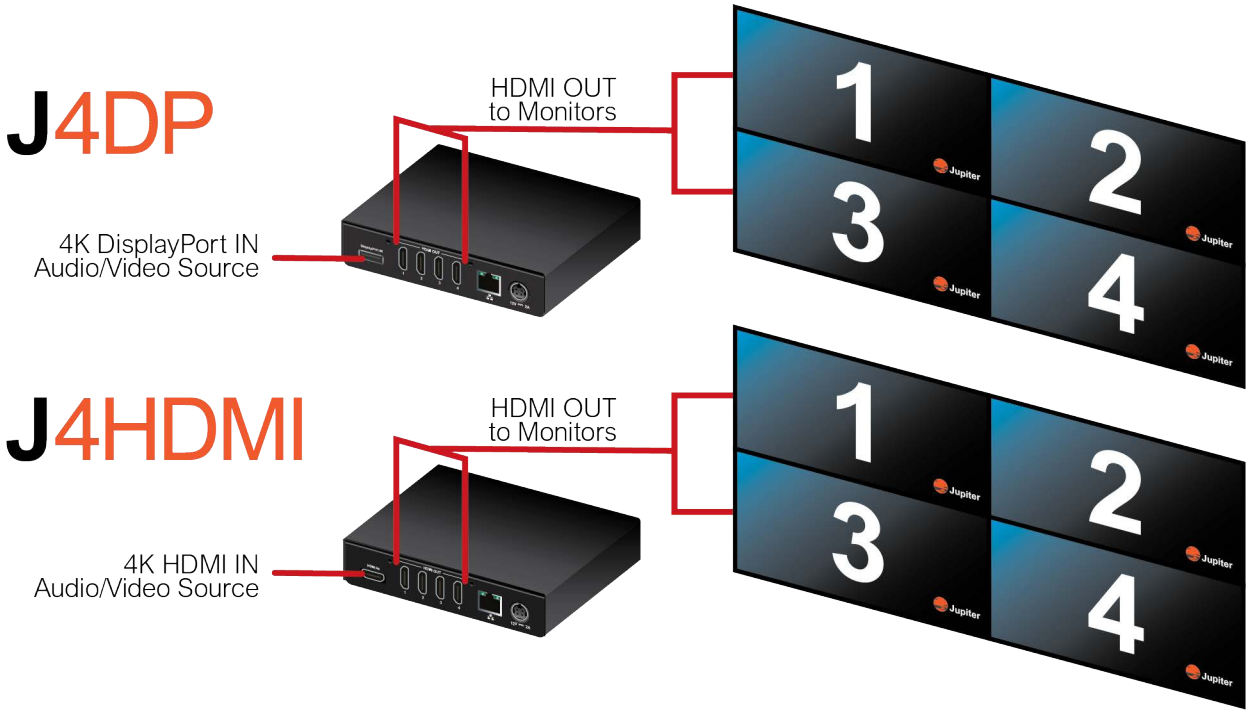
Labels from the user Interface (UI) are **bolded** to make it easier to follow instructions. If you see a **bolded** word or set of words, look for the label in the UI. Where possible tabs and dialog boxes are named in instructions as markers so you know you are in the right place.

Table of Contents

Chapter 1
OVERVIEW

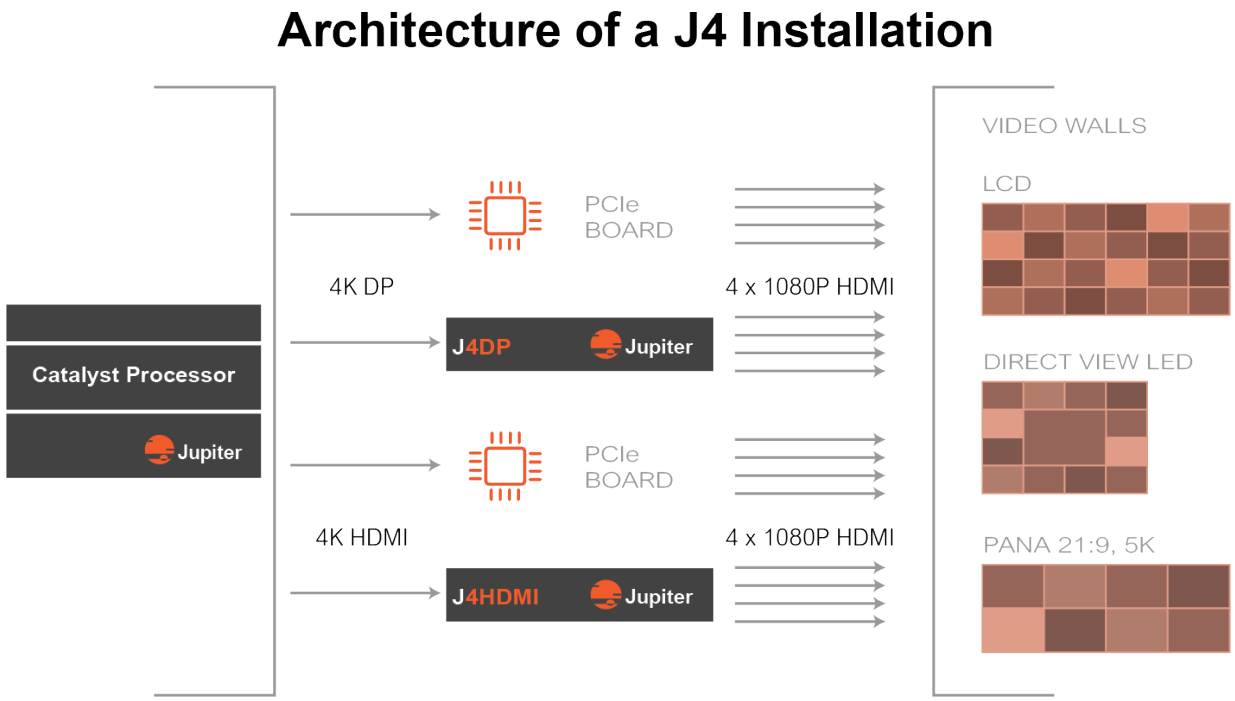
The J4 expands the number of outputs to an existing video wall controller system. A single 4K output stream whether 4K DP or 4K HDMI can be expanded to four 1080P HDMI monitor inputs in various video wall geometries with the J4 models, the J4DP and the J4HDMI.

Figure 1.1: J4 HDMI Connectors to Monitors



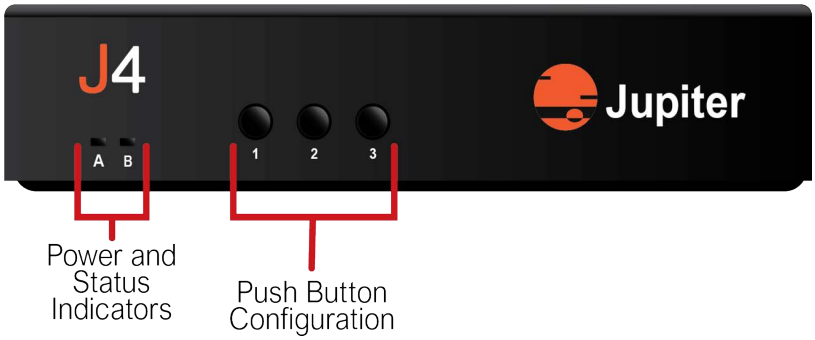
Along with the J4 standalone units, there are also J4DPe and J4HDMIe boards which may be inserted in the Catalyst XL or Catalyst V to provide the same functionality as the J4DP and J4HDMI.

Figure 1.2: Architecture of J4 with Catalyst



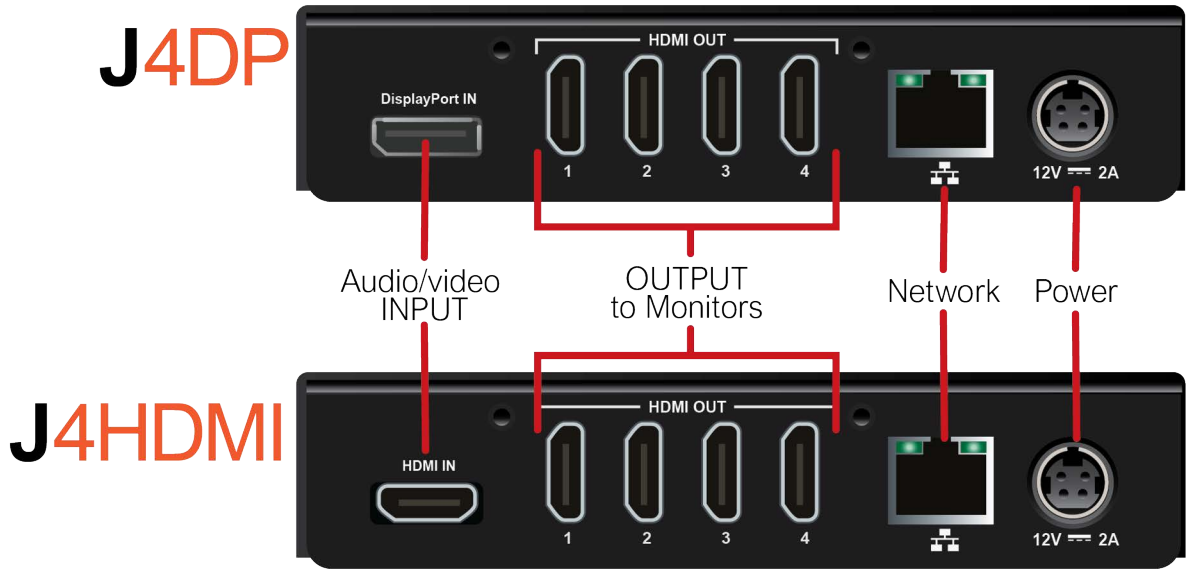
Small and powerful, the J4 video wall processor can be combined with 4K outputs from Jupiter processors to create a large video wall with up to 64 FHD displays.

Figure 1.3: Front view



The integrated display-looping feature easily expands any 4K signal into a 2x2, 1x3, 3x1, 1x2 or 2x1 video wall. This key functionality helps expands the number of FHD outputs on a processor and saves on the project cost without sacrificing features.

Figure 1.4: Rear view



The J4 can be used as an independent video wall for signage or can be placed near the video wall to breakout a single 4K input into multiple FHD outputs.

- Compatible with J-Series, Catalyst and PixelNet
- Pre-configured for 2x2 and 1x3 video walls
- Crop, scale and rotate independent displays
- On-device buttons for easy configuration
- Bezel Management
- Rack mountable (comes with a rack mount kit)

J4 Configuration Software simplifies video wall designs and installations of J4 multi-monitor controllers. J4 Configuration Software takes the guesswork out of creating and deploying large-scale video wall installations. Included with J4 multi-monitor controllers, J4 configuration software enables you to set up your devices in three steps — create, discover and deploy.

This manual has the following sections

1.1 J4 Shipping Contents

The J4 comes with

- J4 unit
- 12V, 3.5A, 42W External Power Supply (110 to 240V)
- 6 foot power cables for US, EU, UK, AUS

1.2 Buttons, Connectors and Status Indicators

1.2.1 Configuration Buttons

Figure 1.5: J4 Configuration Buttons

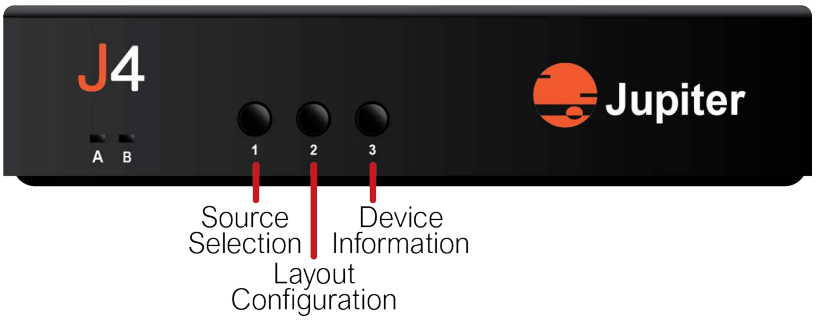


Table 1.1: J4 Buttons

Button	Description
Source Selection	Selects input source. The following are possible input sources: • Video input • Logo • Nature background • Bezel adjustment grid • Red • Green • Blue • Gray gradient
Layout Configuration	Selects layout. The selected layout is highlighted in the list. The available layouts depend on your firmware package and can be modified through Jupiter J4 Configuration Software REST API.

Table 1.1: J4 Buttons

Button	Description
Device Information	Shows device Information such as: • Output ID (1,2,3 and 4) • Model Number • IP address • MAC address • If IP address is DHCP or static • Active Layout • Input mode • Output mode • If bezel management is enabled • If HDCP is enabled • If there is an input mismatch between the configuration and actual signal • If there is an output mismatch between the configuration and the • actual display mode • If the physical buttons on your device have been disabled • Serial number • Firmware version • FPGA version

Table 1.2: Multi-Button Functionality

Functionality	Description
Re-enable Buttons	If the physical buttons on your device have been disabled, press and hold buttons 1 and 2 for 20 seconds to re-enable the buttons.
Reset J4 to Factory Settings	Press and hold buttons 1 and 3 for five seconds to reset your device to its factory default settings.

1.2.2 Connectors

Figure 1.6: J4 Connectors

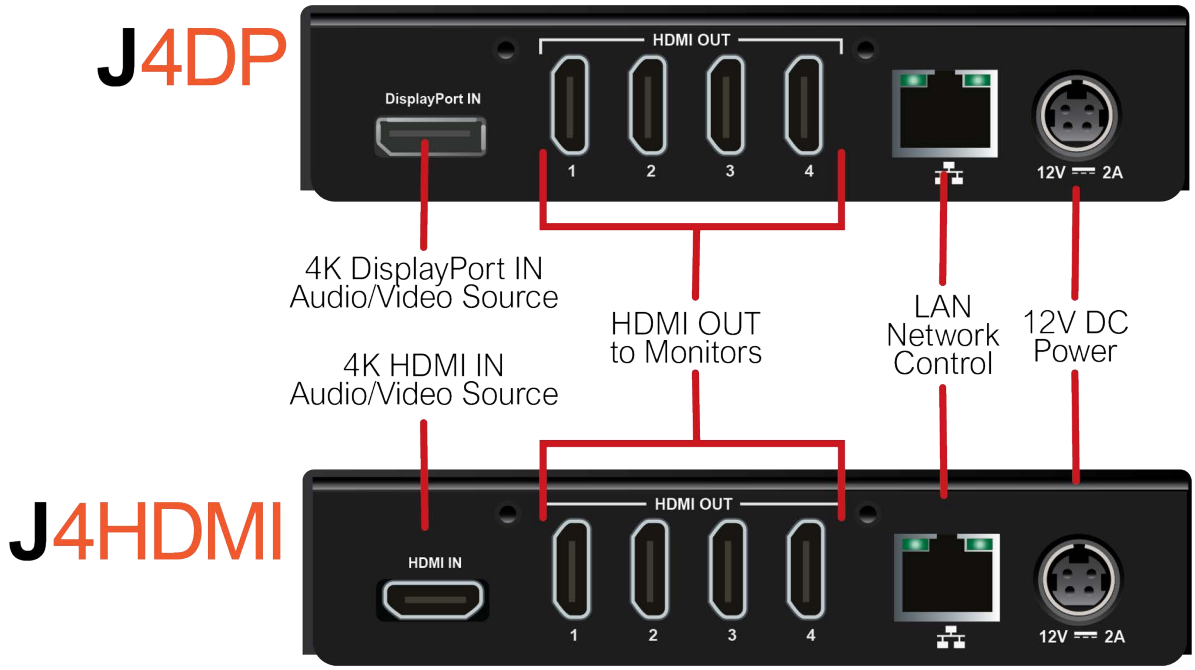


Table 1.3: J4 Connector Descriptions

Connector	Description
DisplayPort IN (J4DP)	DisplayPort 1.2 Connect your DisplayPort cable to your **J4 Video Wall Processor** unit. Connect the other end of the cable to your audio/video source.
HDMI IN (J4HDMI)	HDMI 2.0 Connect your HDMI cable to your **J4 Video Wall Processor** unit. Connect the other end of the cable to your audio/video source.
HDMI OUT	HDMI Type A Connect digital monitors to these connections. See *Installation on page 12* for a description of HDMI output ports to digital monitors.
LAN	RJ45 Connector Connect a network cable
12VDC Power	DIN 4 female (4-pin) Connect the 12V DC power supply included with your product to this connector. While the power supply is connected to the device and electrical socket, the power LED is active (not black).

1.2.3 Indicators

Figure 1.7: J4 Front Indicator LEDs

Table 1.4: J4 Indicator Descriptions

LED(s)	Behavior	Description
A	No LED (black)	Device not powered
A	Green (solid)	Device active
A	Green (slow blink)	Device rebooting.
A	Green (fast blink)	Device selected. (I-am-here feature)
A	Amber (solid)	Firmware update in progress
A	Amber (slow blink)	Network not detected
A & B	Red (solid)	Device has detected a fatal error. Try powering your device off and on. If, after restarting your device, the LEDs are still red, contact your vendor for technical support. See *Chapter 4, Technical Support,* on page 27
B	Green (solid)	Device active. No errors
B	Green (slow blink)	Input or output signal doesn't match configuration
B	Amber (solid)	No input signal detected
B	Amber (slow blink)	Firmware update in progress
B	Turns red when a configuration button is pressed	The buttons on the unit are disabled. See Table on page 5 to re-enable buttons

Figure 1.8: J4 Rear (LAN Network) Indicator LEDs

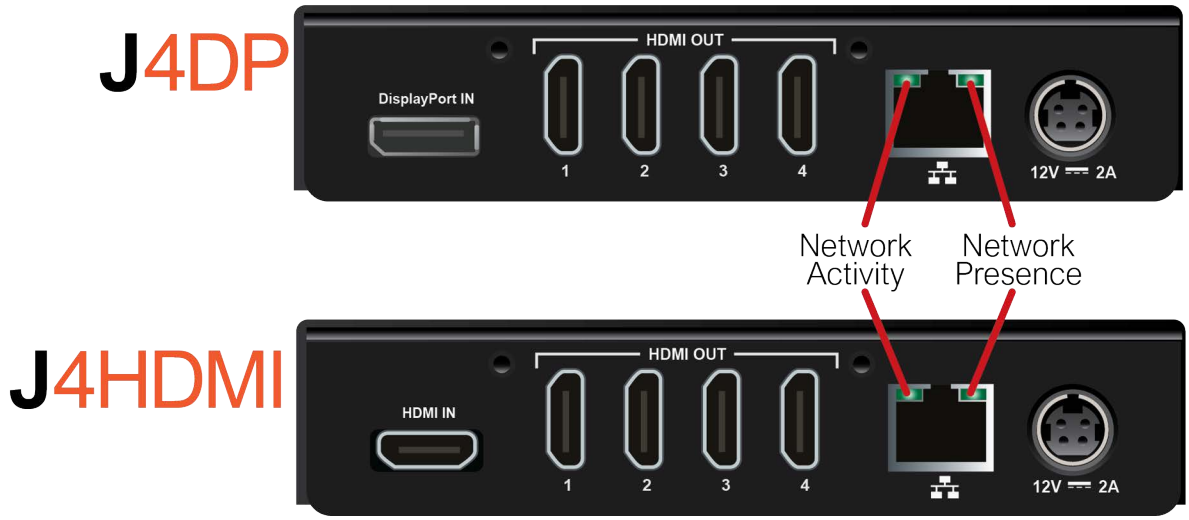


Table 1.5: J4 LAN Indicator Descriptions

LED(s)	Behavior	Description
Network Presence	Green (solid)	1 Gbps
Network Activity	No LED (black)	Network activity not detected
Network Activity	Green (fast blink)	Network activity detected

1.3 Specifications

Table 1.6: J4DP and J4HDMI Specifications

Item	Description
Hardware	
I/O	1 input / 4 outputs
Input Connector	J4DP: 1x DisplayPort 1.2 J4HDMI: 1 x HDMI 2.0
Output Connector	4x HDMI Type A (with 16-bit stereo L-PCM audio)
Network Connector	RJ45
Power Connector	DIN 4 female
Power Consumption	24W
System Memory	1 GB
Form Factor	Standalone appliance, Rack mount units available. Horizontal mounting one-third width 1 RU (3 per shelf) Vertical mounting one-tenth width 3 RU (10 per shelf)
Physical Dimensions	5.5” x 1.25” x 7.13” in (13.97cm x 3.18cm x 18.11cm)
Weight	1lb / (494 g)
Resolution/Color Space	
Max Input Resolutions	3840 x 2160@60Hz, 7680 x 1080@60Hz, 7680 x 1080@30Hz, 1920 x 4320@60Hz, 1920 x 4320@30Hz
Input Color Space	RGB 8:8:8 (24bit/pixel), YUV 4:4:4, 4:2:2 (8bits/component)
Output Color Space	RGB 8:8:8 (24bit/pixel)
Configuration Features	
Supported Configurations	2x2 (default), 4x1, 3x1, 2x1, 1x2, 1x3, 1x4
Non-rectangular/artistic video walls support	Yes
Rotation	Yes. Support for 90, 180, 270 degrees
Bezel management	Yes
Clone Mode	Yes

Table 1.6: J4DP and J4HDMI Specifications

Item	Description
HDCP Support	Yes
Command Protocols	UPnP, HTTPS
Network	
IP Version	IPv4
IP Addressing	DHCP (Default) and Static IP
Environmental	
Operational Temperature	0 to 45 ºC (32 to 113 ºF)
Storage/Transport Temperature	-40 to 70 ºC (-40 to 158 ºF)
Operation Humidity	20% to 80% (non-condensing)
Storage/Transport Humidity	5% to 95% (non-condensing)
Operational Atmospheric Pressure	660hPa (3,000 meters / 9,842 feet) to 1013hPa (0 meters / 0 feet)
Storage/Transport Atmospheric Pressure	192hPa (12,000 meters / 39,370 feet) to 1020hPa (-50 meters / -164 feet)
Accessories	
Rackmount Kit	Rack mount kits provides for 3 J4 units horizontally or 10 vertically in 1RU
Certifications	
Regulatory Certifications	cCSAus, FCC Class A, CE, KC, RCM, EAC, RoHS and WEEE

Chapter 2
INSTALLATION & CONFIGURATION

The J4 expands the number of outputs to an existing video wall controller system.

This chapter has the following sections

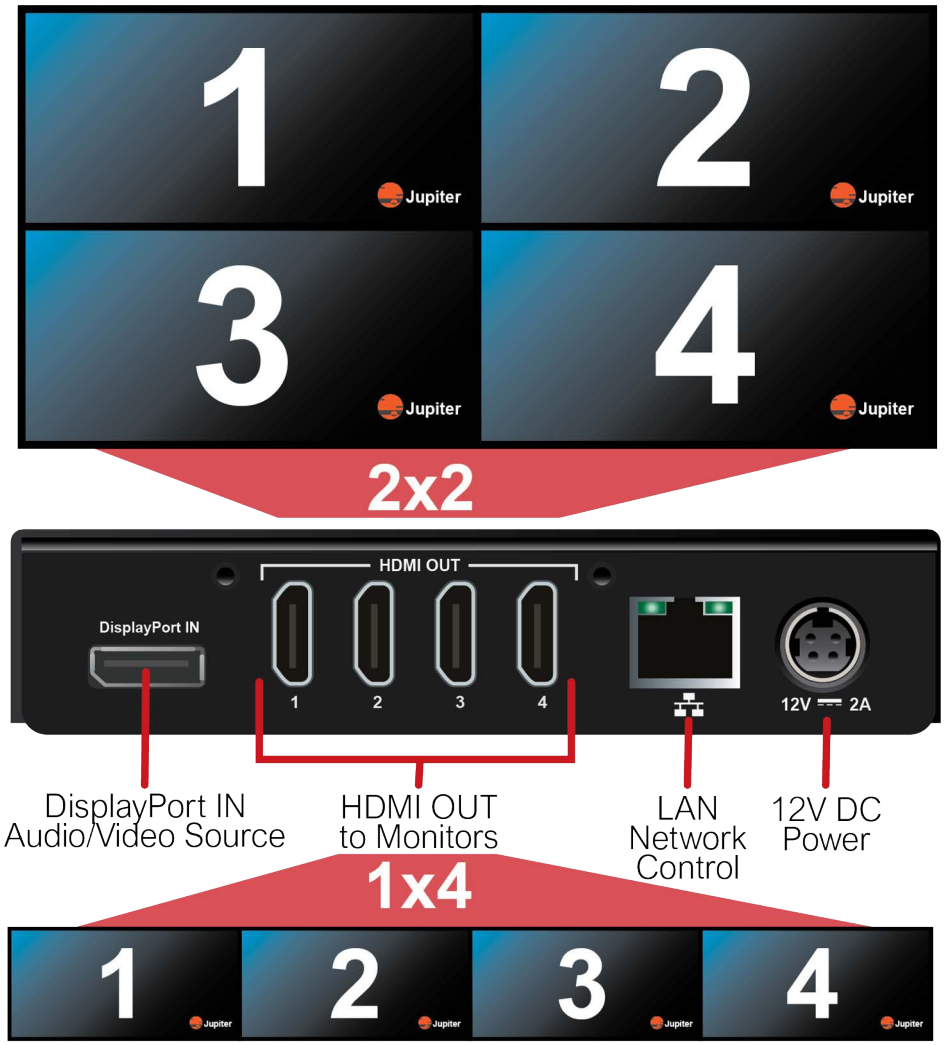
2.1 Installation

2.1.1 J4DP Installation

1 *Connect DisplayPort source to the* **DisplayPort IN** *connector*

2 *Connect your monitors to the* **HDMI OUT** *connectors*

Figure 2.1: J4 HDMI Connectors to Monitors



By default the J4 is set up for 2x2 configuration or a 1x1, 1x2, 1x3 or 1x4 by associating the HDMI numbered port with the numbered monitor as shown above.

3 *Connect a network cable to the LAN connector*

4 *Connect the 12V power supply included with your product to the 12V connector*

While the power supply is connected to the unit and electrical socket, the power LED is active (not black).

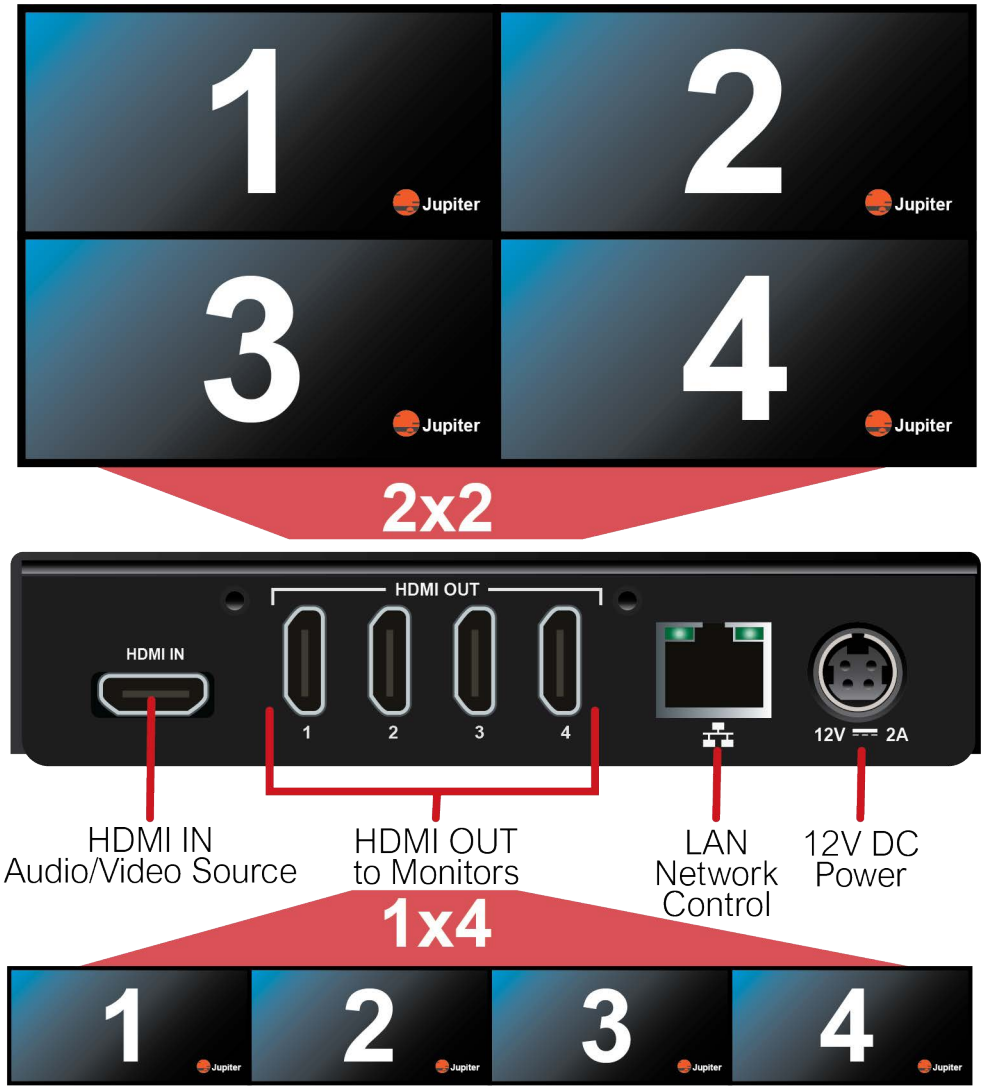
Note: If LED B turns to red when a button is pressed, the buttons on your unit are disabled. See *Section 1.2, Buttons, Connectors and Status Indicators on page 4*

2.1.2 J4HDMI Installation

1 *Connect HDMI source to the* **HDMI IN** *connector*

2 *Connect your monitors to the* **HDMI OUT** *connectors*

Figure 2.2: J4 HDMI Connectors to Monitors



By default the J4 is set up for 2x2 configuration or a 1x1, 1x2, 1x3 or 1x4 by associating the HDMI numbered port with the numbered monitor as shown above.

3 *Connect a network cable to the LAN connector*

4 *Connect the 12V power supply included with your product to the 12V connector*

While the power supply is connected to the unit and electrical socket, the power LED is active (not black).

Note: If LED B turns to red when a button is pressed, the buttons on your unit are disabled. See *Section 1.2, Buttons, Connectors and Status Indicators on page 4*

2.1.3 Network IP Discovery

The J4 is initially assigned an IP address through DHCP (Dynamic Host Control Protocol). After connecting device, we recommend verifying that all of your devices are discovered by the network. For more information, contact your network administrator.

2.1.4 Multiple Subnet Support

J4 devices which are in the same subnet are detected through the UPnP (Universal Plug and Play) protocol. If your devices are in different network subnets, you need to validate network discovery in each subnet separately. For more information on using different subnets, contact yournetwork administrator.

After validating your connection setup, install your software.

2.2 J4 Configuration Software

J4 Configuration Software simplifies video wall designs and Installations of J4 multi-monitor controllers. The Software works in offline mode to customize configurations of any type and size. Configurations are then uploaded to your physical devices. J4 configuration software enables you to set up your devices in three steps-create, discover and deploy.

Table 2.1: J4 Configuration Software Capabilities

General Phase	Capability
Discover	• Locate units effortlessly over the network using a DHCP or Static IP address. • Discover multiple J4 units and set their respective configurations from a central location.
Configure	• Create and save pre-set configurations in advance by working offline without needing an active connection to a video wall controller or any other source. • Customize configurations to replace the original pre-sets, enabling faster setups-edit, save, or delete configurations at will. • Manage display modes with great flexibility by taking in an input video of any resolution up to 8K x 8K and displaying each output in any resolution up to Full HD 1920x1200 @ 60 Hz. • Rotate each output independently of the others in 90-degree increments-90, 180, and 270 degrees-for countless possible artistic video wall configurations. • Control and fine-tune bezels using the pre-set images to ensure seamless image displays. • Optimize visuals by cropping, upscaling, or downscaling the content as desired.
Deploy	• Easily upload customized configurations from the software to the units using Device Data Transfer tab on right side. • Free up resources for other services by removing the software soon after deployment without affecting the video wall.

Figure 2.3: J4 Configuration Software

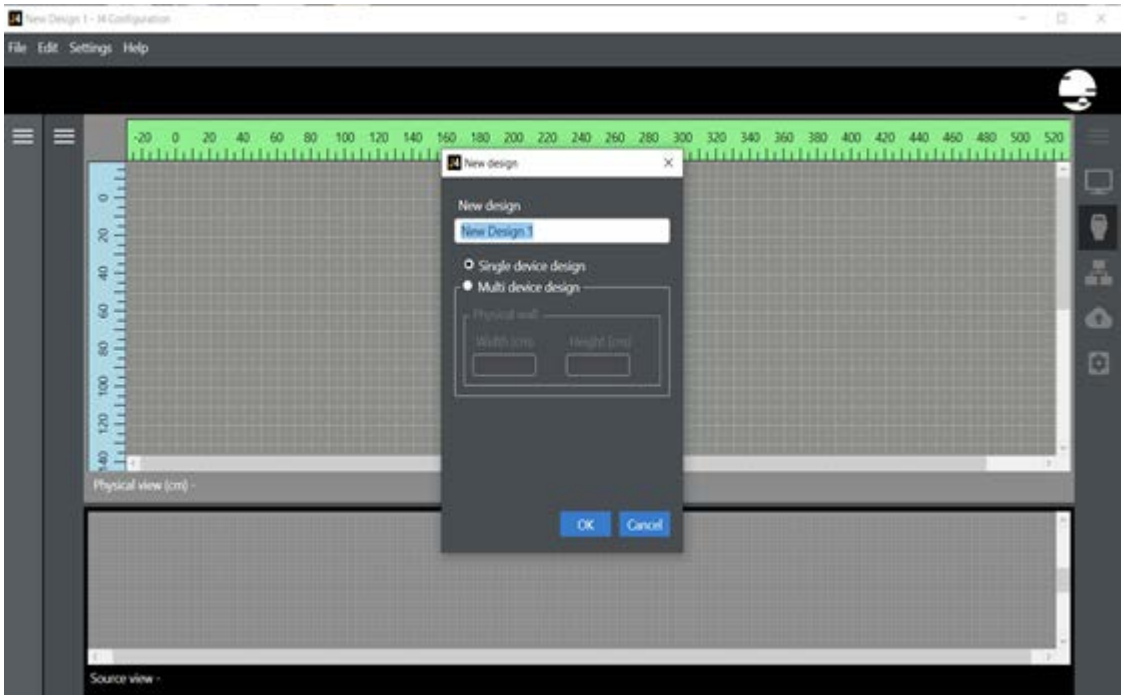


Table 2.2: J4 Configuration Software UI Menu Structure

Menu	Funcitonality
File	Create, open and close designs, export specifications, and exit J4 Configuration Software.
Edit	Rename and delete designs, and resize your physical wall. The resize option appears only after your wall has been created.
Settings	On the right hand side of the J4 Configuration Software interface, you can find these Menu tabs: • Output settings Configure the settings for the outputs of your J4 device. You can select any layout, choose display mode, adjust the position of the source • Input Management See and modify the source media and settings of the input signal on your J4 device. • Network settings Configure the network settings of your J4 device. For more information, contact your network administrator. • Device data transfer Upload and download configurations to and from the physical J4 device(s). When downloading or uploading configurations, the order of the layouts shown in J4 Configuration software matches the order shown in the on-screen menu for layout selection on your J4 device.
Help	View the documentation and information for your J4 Configuration software.

2.3 Video Wall Configurations

Use a single J4 unit to expand your video wall up to 4 displays or use multiple J4 units to expand much more.

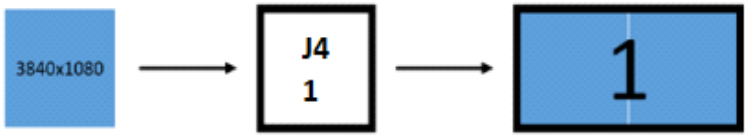
Following are the possible input resolutions and configurations which can be used with one or two J4 units with various monitor geometries.

2.3.1 2x1 Configuration

For a 2x1 configuration the requirements are

- 1x J4 unit
- 1x 3840x1080 output from the GPU (as input to the J4 unit)

Figure 2.4: 2x1 Configuration

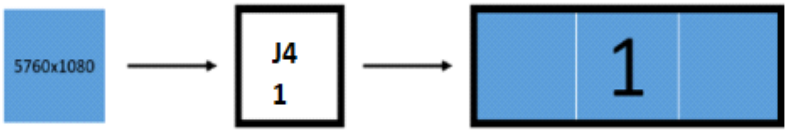


2.3.2 3x1 Configuration

For a 3x1 configuration the requirements are

- 1x J4 unit
- 1x 5760x1080 output from the GPU (as input to the J4 unit)

Figure 2.5: 3x1 Configuration

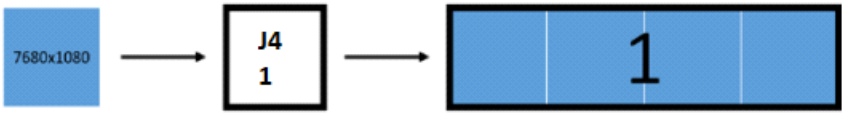


2.3.3 4x1 Configuration

For a 4x1 configuration the requirements are

- 1x J4 unit
- 1x 7680x1080 output from the GPU (as input to the J4 unit)

Figure 2.6: 4x1 Configuration

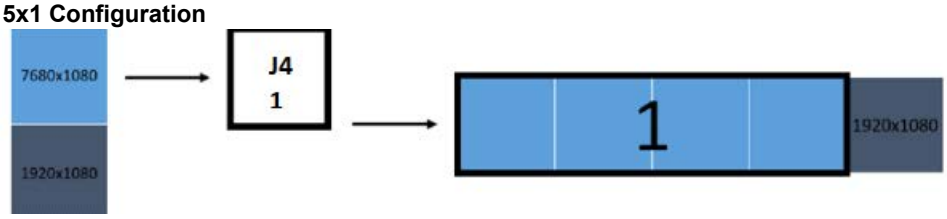


2.3.4 5x1 Configuration

For a 5x1 configuration the requirements are

- 1x J4 unit
- 1x 7680x1080 output from the GPU (as input to the J4 unit)
- 1x 1920x1080 output from the GPU directly to a monitor

Figure 2.7: 5x1 Configuration

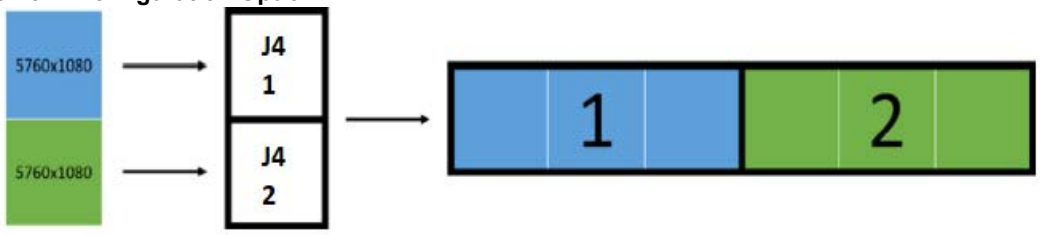


2.3.5 6x1 Configuration

For a 6x1 configuration option 1 the requirements are

- 2x J4 units
- 1x 5760x1080 outputs from the GPU (as input to the J4 units)

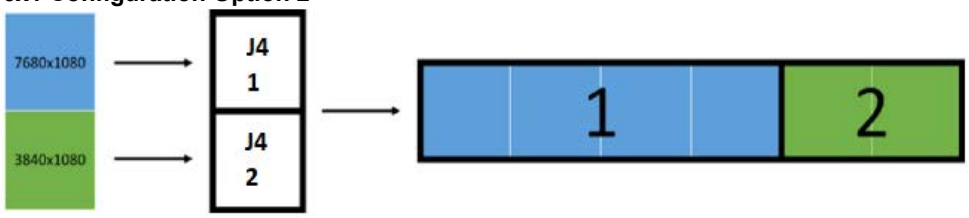
Figure 2.8: 6x1 Configuration Option 1



For a 6x1 configuration option 2 the requirements are

- 2x J4 units
- 1x 7680x1080 output from the GPU (as input to one J4 unit)
- 1x 3840x1080 output from the GPU (as input to the other J4 unit)

Figure 2.9: 6x1 Configuration Option 2

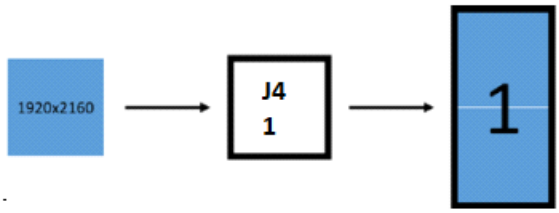


2.3.6 1x2 Configuration

For a 1x2 configuration the requirements are

- 1x J4 unit
- 1x 1920x2160 output from the GPU (as input to the J4 unit)

Figure 2.10: 1x2 Configuration

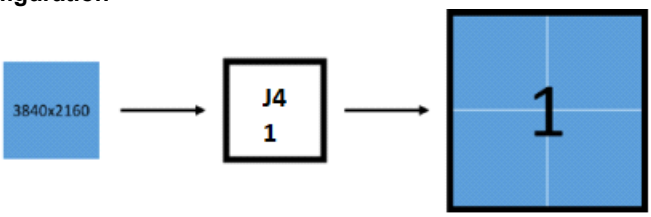


2.3.7 2x2 Configuration

For a 2x2 configuration the requirements are

- 1x J4 unit
- 1x 3840x2160 output from the GPU (as input to the J4 unit)

Figure 2.11: 2x2 Configuration

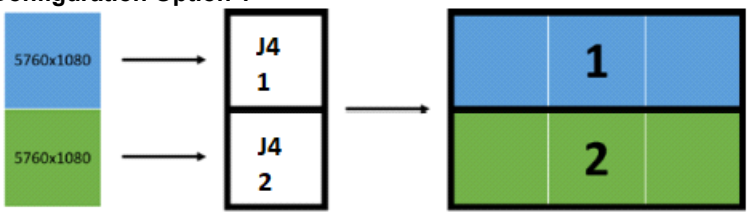


2.3.8 3x2 Configuration

For 3x2 configuration option 1 the requirements are

- 2x J4 units
- 2x 5760x1080 outputs from the GPU output from the GPU (as input to the J4 unit)

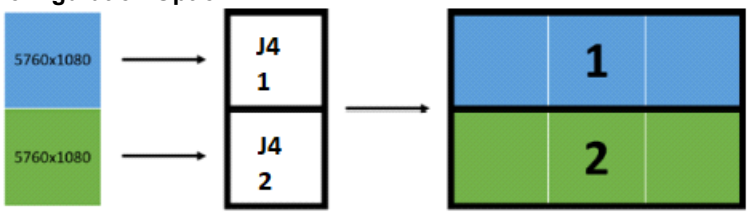
Figure 2.12: 3x2 Configuration Option 1



For 3x2 configuration option 2 the requirements are

- 2x J4 units
- 1x 3840x2160 output from the GPU output from the GPU (as input to one J4 unit)
- 1x 1920x2160 output from the GPU output from the GPU (as input to the other J4 unit)

Figure 2.13: 3x2 Configuration Option 2

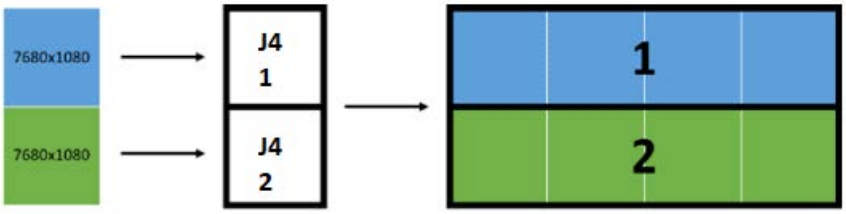


2.3.9 4x2 Configuration

For 4x2 configuration option 1 the requirements are

- 2x J4 units
- 2x 7680x1080 outputs from the GPU (as inputs to the J4 units)

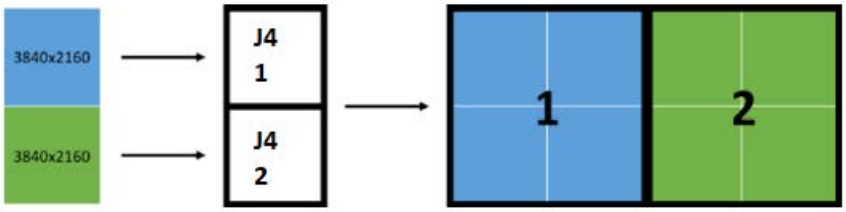
Figure 2.14: 4x2 Configuration Option 1



For 4x2 configuration option 2 the requirements are

- 2x J4 units
- 2x 3840x2160 outputs from the source (as inputs to the J4 units)

Figure 2.15: 4x2 Configuration Option 2

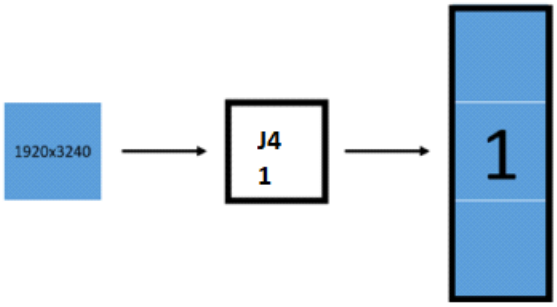


2.3.10 1x3 Configuration

For a 1x3 configuration the requirements are

- 1x J4 unit
- 1x 1920x3240 output from the GPU (as input to the J4 unit)

Figure 2.16: 1x3 Configuration

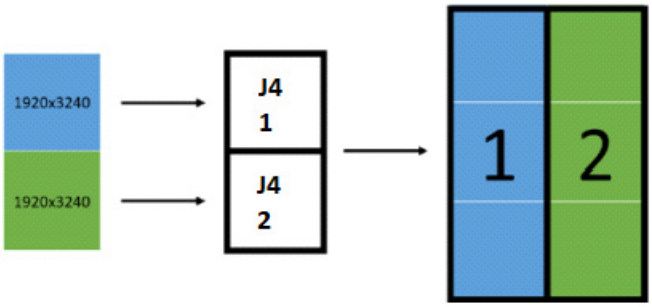


2.3.11 2x3 Configuration

For 2x3 configuration option 1 the requirements are

- 2x J4 units
- 2x2x3 Configuration 1920x3240 outputs from the GPU (as inputs to the J4 units)

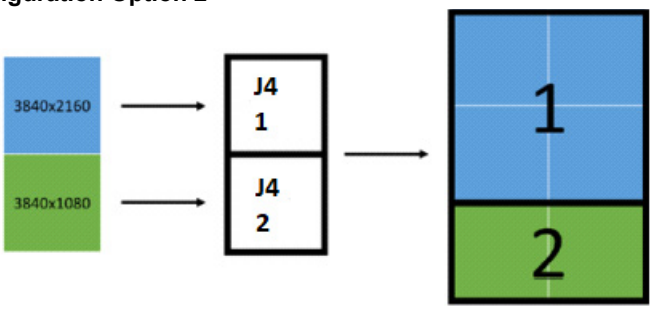
Figure 2.17: 2x3 Configuration Option 1



For 2x3 configuration option 2 the requirements are

- 2x J4 units
- 1x 3840x2160 output from the GPU (as inputs to one J4 unit)
- 1x 3840x1080 output from the GPU (as inputs to the other J4 unit)

Figure 2.18: 2x3 Configuration Option 2

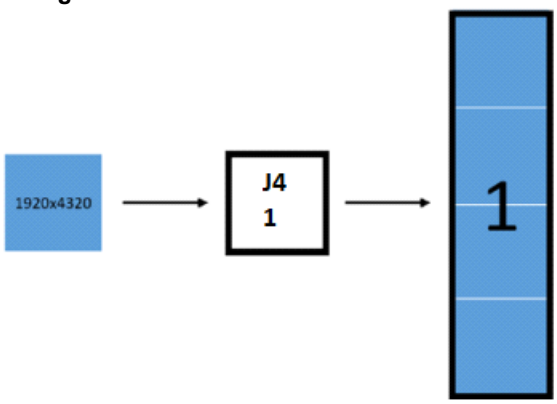


2.3.12 1x4 Configuration

For a 2x1 configuration the requirements are

- 1x J4 unit
- 1x 1920x4320 output from the GPU (as input to the J4 unit)

Figure 2.19: 1x4 Configuration

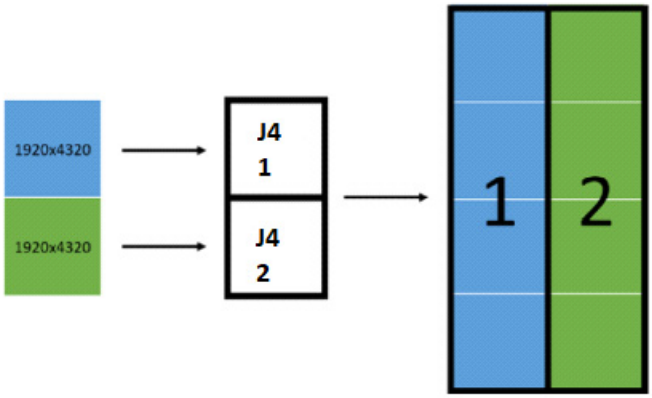


2.3.13 2x4 Configuration

For 2x4 configuration option 1 the requirements are

- 2x J4 units
- 2x 1920x4320 outputs from the GPU (as inputs to the J4 units)

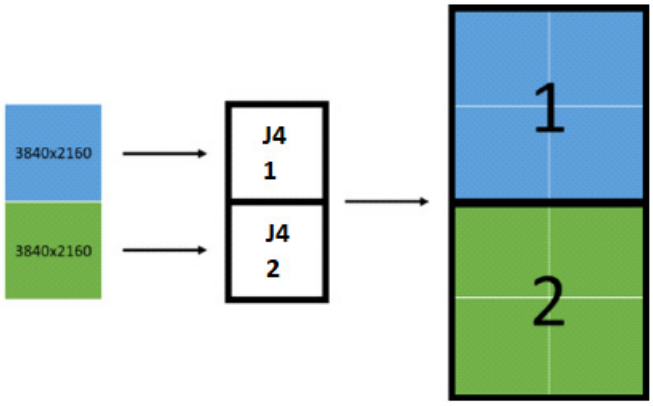
Figure 2.20: 2x4 Configuration Option 1



For 2x4 configuration option 2 the requirements are

- 2x J4 units
- 2x 3840x2160 outputs from the GPU (as inputs to the J4 units)

Figure 2.21: 2x4 Configuration Option 2



2.4 Updating Jupiter J4 Firmware

The Jupiter J4 Firmware Updater enables you to update the firmware and install the default layouts of your Jupiter J4 products. The J4 configuration Firmware Updater will be in Updater Folder of your J4 Configuration package.

Before you update your firmware:

- Make sure you have at least 1 GB free disk space available.
- Make sure you have a DHCP (Dynamic Host Configuration Protocol) server on an established network. The firmware updater requires constant IP addresses to update the devices properly. As the firmware updater requires a device to reboot multiple times, make sure your DHCP server maintains the IP address of a device when it reappears on the network. Otherwise, we recommend assigning fixed IP addresses to your devices.

Updating Instructions

1 *Run the J4 Firmware Updater*

Browse to the Updater folder containing the extracted files, then run the UpdaterUI.exe file which opens the J4 Firmware Updater.

2 *Search for available J4 devices*

- Automatic detection — To search for the J4 devices on your subnet, select Automatic detection. To start searching for devices, click Search.
- Manual detection — To manually locate the devices, select Manual detection, and under Address or URL enter the IP address of each J4 device you want to locate.

If you're entering multiple addresses, separate each address with a space. When you're done entering the IP addresses, click Apply.

3 *Select the devices to update*

Devices with an older firmware version are automatically selected. To change the sort order of the device tiles, right-click the device list box, select Sort by and the sorting order to use. To deselect all items, right-click the device list box and select Unselect all devices.

4 *Update the firmware*

When you're done adding J4 devices to the list of devices you want to update, click Update. Updating devices may take up to 10 minutes.

Chapter 3
SAFETY CONSIDERATIONS

To ensure safe and reliable operation of your Jupiter product, to avoid personal injury, and to prevent damage to your computer or Jupiter hardware, read the following guidelines:

- Read and retain all instructions. Only use your Jupiter product according to the instructions, operating ranges, and guidelines provided in the Jupiter user guide and other related Jupiter documentation. Failure to follow these instructions could result in damage to your product or injury to the user or installer.
- Don't expose your Jupiter product to rain, water, condensation, or moisture.
- Your J4 can become hot while operating. Always turn off your computer, unplug it, then wait for it to cool before touching any of the internal parts of your computer. Allow hot surfaces to cool before touching your Jupiter unit.
- Don't stack devices or place devices so close together that they're subject to recirculated or preheated air.
- Don't operate your system or Jupiter product near a heat source or restrict airflow to your system, and make sure the ambient temperature doesn't exceed the maximum recommended temperatures. Don't block ventilation holes on your unit or system.
- Don't place the external power supply directly on top of the device.
- Only use power supplies originally supplied with the product or use a replacement that's approved by Jupiter. Don't use the power supply if it appears to be defective or has a damaged chassis.
- Don't defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug doesn't fit into your outlet, consult an electrician to replace the obsolete outlet.
- Make sure that nothing rests on the power cables and that the cables aren't located where they can be stepped on, pinched, or tripped over.
- Don't use damaged power cables.
- Unplug your system or device during lightning storms or if unused for long periods of time.
- Don't attempt to open or repair a power supply unit (if one was supplied).
- Don't attempt to open or repair your Jupiter product.

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Chapter 4
TECHNICAL SUPPORT

This chapter includes the following sections:

4.1 Hardware Faults

If you require assistance with any suspected hardware fault, please contact the vendor from whom you purchased the display while within the full warranty period for the display.

4.2 Technical Assistance

If you require technical assistance, please contact Jupiter Systems' technical support team. Please provide as much information to the support team about the fault and any steps you have taken in trying to resolve the issue.

4.3 Contact Information

- Website
  www.jupiter.com /support

- Phone
  1-510-675-1000

- Email
  support@jupiter.com

- Mail (physical)
  ATTN: Technical Support
  Jupiter Systems
  31015 Huntwood Avenue
  Hayward, CA 94544-7007

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