JDC2 IP

User Manual

Document revision: 20260504-1

Fixture software version: **V 2.0.1**

(New Canvas System & DMX Layout)

Document revisions

Revision number	Notes	Released
20241001-04	First public release version Covers software version v. 0.6.1	October 2024
20260504-1	Big Update for implementation of the new V2.0.1 firmware with adapted canvas and fixture positioning workflow	May 2026

GLP® JDC2 IP User Manual – V2.0.1 (New Canvas System & DMX Layout)

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1. Safety

1.1. Key to symbols

The following symbols are used in the product's user documentation:

	**Warning!** Safety hazard. Risk of severe injury or death.		**Warning!** Hazardous voltage. Risk of lethal or severe electric shock.
	**Warning!** See user documentation for important safety information.		**Warning!** Fire hazard.
	**Warning!** Risk of eye injury.		**Warning!** Hot surface. Risk of burn injury.
	**Important Information** for correct use of the product		**Information** – this feature will be implemented in a future firmware update


Warning! Read the JDC2 IP Quick Start and Safety Manual supplied with the fixture and available for download from www.glp.de before installing, operating or servicing the fixture. The Quick Start and Safety Manual contain important information for the safe use of JDC2 IP fixtures. If you fail to read that information you may create a safety hazard with a risk of serious or lethal injury or damage.

If you have any doubts or questions about how to use the GLP® JDC2 IP lighting fixture safely, contact your GLP supplier for assistance. Your GLP supplier will be happy to help.

The user documentation for JDC2 IP fixtures consists of three documents:

- The **JDC2 IP Quick Start and Safety Manual**, supplied with fixtures and available for download from www.glp.de contains important safety information and installation instructions that the installer and user must read. It also contains dimensions drawings and technical specifications for the fixture.
- The **JDC2 IP User Manual**, this document, explains features and control of JDC2 IP fixtures.

- The **JDC2 IP DMX Channel Index**, available for download from www.glp.de. The channel Index is a separate document containing the DMX control channel layout and DMX commands available in the fixture. This information is also included in the User Manual.

The JDC2 IP is intended for use by experienced professionals with the knowledge and skills to set up, operate, and maintain high-powered, remotely controlled lighting equipment safely and efficiently. These operations require expertise that may not be provided in this manual.

- Respect all warnings and directions given in the fixture's user documentation and on the fixture. Read the fixture's Quick Start and Safety Manual and familiarize yourself with the safety precautions that it contains. GLP and affiliated companies will take no responsibility for damage or injury resulting from disregard for the information in the user documentation.
- Check the GLP website at www.glp.de and make sure that you have the latest versions of the fixture's Quick Start and Safety Manual and this user manual.
- Check the fixture software version indicated on page 2 of this user manual and then use the fixture's control panel to check the version installed in the fixture. If the versions are not the same, the user manual may still cover the fixture, because software updates do not always affect the use of the fixture. However, it is possible that this manual does not match the fixture perfectly. Software release notes can help clarify this question. You can consult software release notes and download the correct version of this user manual on the GLP website if necessary.
- Make both the Quick Start and Safety Manual and this user manual available to all people who will install, operate or service the fixture. Save both documents for future reference.
- If you have any questions about the safe operation of the fixture, please contact an authorized GLP distributor (see list of distributors at www.glp.de).

1.2. GLP Service and Support

Contact information for the nearest GLP Service and Support is available online at www.glp.de/en/service, by email at info@glp.de, or by telephone at the following numbers:

- GLP Germany: +49 (7248) 927 1955
- GLP N. America: +1 818 767-8899
- GLP UK: +44 1392 690140
- GLP Asia: +852 (3151) 7730
- GLP Nordic: +46 737 57 11 40

2. JDC2 IP overview

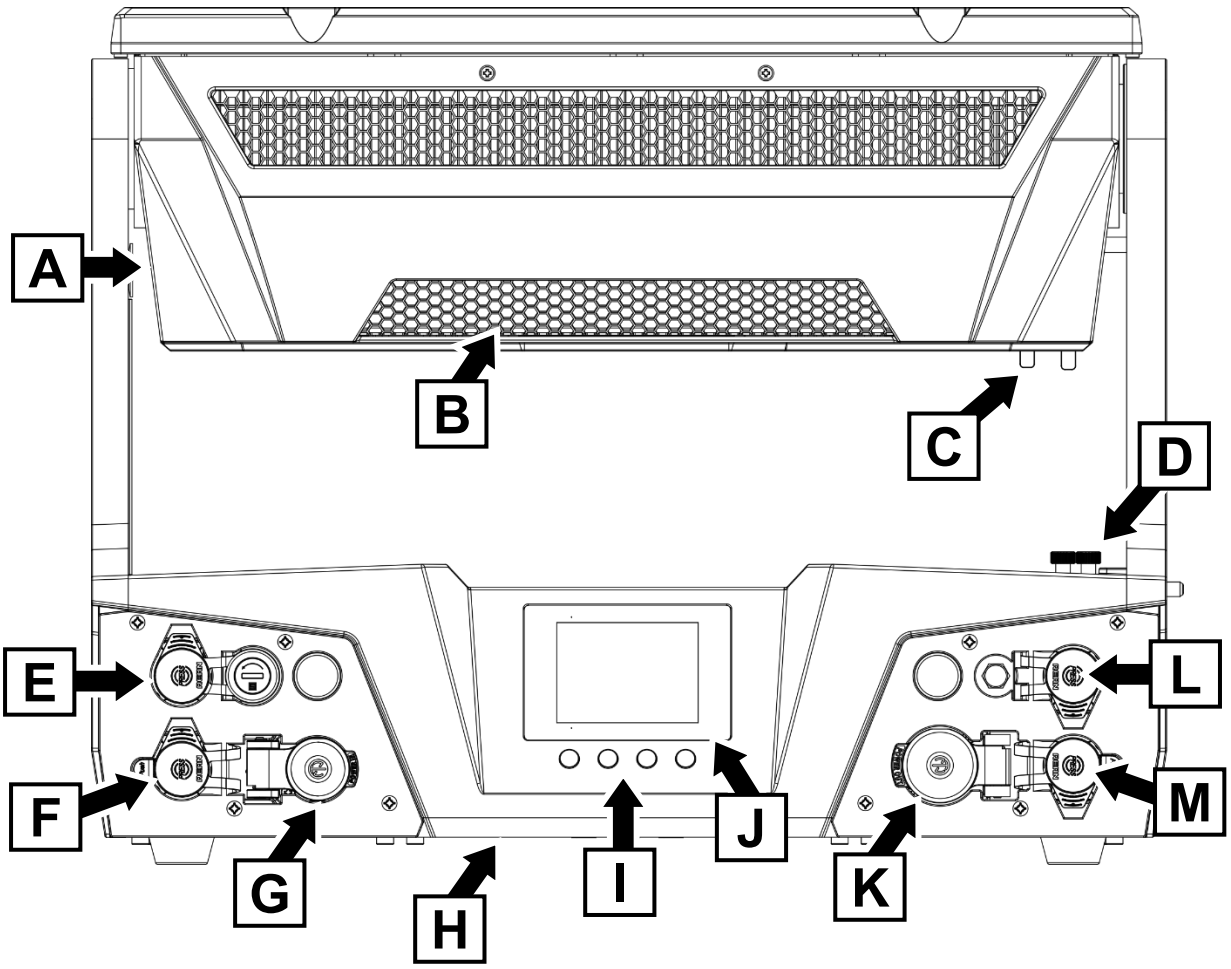


Figure 1. JDC2 IP overview

A - Head
B – Cooling vent
C – Tilt lock
D – Alignment pins button
E – etherCON Network port A, failsafe
F – DMX IN (5-pin XLR)
G – AC mains power IN (powerCON TRUE1 TOP)
H – Safety cable attachment point (underside of base)
I – Control panel with backlit display
J – NFC Sensor (behind display)
K – AC mains power THRU (powerCON TRUE1 TOP)
L – etherCON Network port B, failsafe
M – DMX THRU (5-pin XLR)

3. General information

The GLP JDC2 IP is an innovative IP65-rated LED Hybrid Strobe Fixture which combines a powerful white LED Strobe line (BEAM) and a colorful RGB LED Strobe (PLATE), along with a motorized tilting head.

The White Strobe LED Line (BEAM) can be individual controlled in 12 segments (BEAM SEGMENTS) and the RGB LED Strobe (PLATE) can be individual controlled in up to 48 segments (PLATE SEGMENTS) for amazing dynamic effects.

The resolution of the RGB Pixels allows a wide range of digital effects. Pixel controlled content can be created within the fixture using the built-in DigiFX which can be easily manipulated by the Lighting Operator via the lighting desk. It is also possible to capture and display external NDI® video streams from live video or content from a media server.

3.1. Firmware Version 2

With firmware version 2.0.1 or higher for the GLP JDC2 IP, GLP has been offering a revised firmware version since may 2026 that significantly simplifies the configuration and setup process of the devices. This update greatly facilitates device positioning and significantly optimizes the handling of DigiFX and NDI content. The introduction of a definable canvas area in V2.0.1 now allows for pixel-precise work and positionally accurate switching between NDI and DigiFX.

Due to the significant functional optimizations in firmware V2.0.1 or higher, a revision and change to the DMX channels and the DMX layout were necessary. Please note that the new firmware V2.0.1 or higher is not show- and patch-compatible with previous versions.

Please ensure the correct firmware version is installed on the devices during planning, pre-programming, and show execution!

The new firmware version V2.0.1 or higher mainly differs by the addition of further DMX channels (DMX channel quantity) and, in particular, by a revised control method for the DigiFX on the plate module. The standard base functions as well as the individual segment control of the Beam and Plate modules have not been significantly changed.

Therefore, a show file created on previous firmware can be adapted relatively easily for use with JDC2 V2.0.1 or higher.

To do this, the fixture patch must first be adjusted to match the increased DMX channel count. In the second step, the fixture itself must be replaced. Since the base channels (excluding DigiFX) retain the same functionality, a professional DMX console should automatically translate the channels correctly during the fixture replacement process. If DigiFX/NDI functions were used in the original show file, these will need to be reconfigured and adjusted accordingly.

This guide provides users with additional help for updating the device firmware. It is strongly advised to read the official "GLP Firmware Change Log" carefully before the update process. The GLP Firmware Change Log file can be found in the Firmware download portal.

4. Fixture control

4.1. Control protocols

In addition to feeding in NDI® video streams, the two network ports also allow control via the Art-Net and sACN protocols.

4.2. Control channels and modes

For further details, please refer to the separately available DMX Channel Index document, available at www.glp.de

4.3. Control channel arrangement

The GLP JDC2 IP is arranged into various control modules. Depending on the selected control mode, the functions and modules may vary slightly, but in general, the modular structure is as follows:

- **[G] General fixture control module**
  → Tilt, Fixture Setting Control, Mix Prio
- **[B] Main BEAM control module**
  → Intensity, Duration, Rate, Intensity FX, Pattern Control
- **[P] Main PLATE control module**
  → Intensity, Duration, Rate, Intensity FX, CTC, RGB Colormix, etc.
  → DigiFX & NDI® Select and manipulation, etc.
  → Canvas and Device configuration, etc.
- **[b] Individual BEAM SEGMENT module**
  → Master Intensity, Segment Colormix
- **[p] Individual PLATE SEGMENT module**
  → Master Intensity, Segment Colormix

4.4. Special/Control DMX channel

The Special/Control DMX channel lets you change fixture settings and perform a fixture reset from the control desk (a possibility that can be very useful during a show or for a specific scene). To apply a command on the Special/Control channel, you must hold the command for the time indicated in the DMX channel index.

If you want to trigger one of the comments again, you must first move away from the previous DMX value and then return to this value. This requirement to change DMX values eliminates the risk of the fixture entering an unwanted setting loop – for example if it is patched wrongly.

Note: Most of the fixture settings available in the fixture control menus or on the Special/Control DMX channel are also available via RDM.

4.5. Tilt Movement

The fixture has 16-bit motorized tilt movement with coarse and fine control channels.

When power is applied to the fixture and no valid DMX signal is present, the head moves automatically to its home position (tilt center).

With the fixture standing on the ground, increasing tilt DMX value moves the head towards the front (the side away from the display/connectors) from its home position.

Tilt direction can be reversed using the “Fixture Settings/Tilt Invert” setting via the display menu or DMX on the Special/Control channel.

The fixture has a tilt position feedback and self-correction system that brings the head back to its correct position if it was unintentionally moved. Tilt remains disabled while you are using the fixture’s control panel. Position feedback can also be disabled using the “Fixture Settings/Position feedback off” setting via the display menu or DMX on the Special/Control channel.

4.6. Intensity (Dimmer)

The Intensity Channel controls the output or intensity of the related fixture module (Beam / Plate) in 16 bit resolution.

Different dimming curve options are available using the “Fixture Settings/Dimmer Curve” selection via the display menu or DMX on the Special/Control channel.

4.7. Duration

Using the Flash Duration Channel the operator can adjust the length of a flash from super short to long flashes. It is possible to change the behavior of the duration control from normal to percentage using the “Fixture Settings/Duration Control” setting via the display menu or DMX on the Special/Control channel.

If the Intensity Effects Channel is set to an intensity effect the Duration Channel will also affect the performance of the selected intensity effect. How the effect will be adjusted depends on the selected effect.

Practical tip: A longer flash duration produces a significantly brighter flash. If the flash appears too dim at the shortest duration, increases the duration slightly. The result is usually impressive!

4.8. Rate (Shutter)

The operator can adjust the interval between flashes or the speed of Intensity Effects.
If the Intensity Effects Channel is set to DMX 000...004 the Rate Channel will perform as a standard Strobe Channel and will adjust the Strobe speed as follows:

- At DMX 000...004 the fixture will be in blackout (Shutter Blackout)
- At DMX 255 the fixture will be continuously on (Shutter Open)
- In between the above values the fixture will perform flashes with long intervals to very short intervals.

If the Intensity Effects Channel is set to an intensity effect the Rate Channel will also affect the performance of the selected intensity effect. How the effect will be adjusted depends on the selected effect.

4.9. Intensity Effects (Strobe Mode)

The operator can select between different Intensity effects.
At DMX 000 all intensity effects are disabled and there will be normal Flashes performing on all pixels at the same time.

4.10. CTC (Color Temperature Control)

The Plate Control offers a separate Color Temperature Correction Channel which allows a shift in color temperature between 10000K to 2500K. Remember, to get the correct CTC color temperature all color mix channels need to be set to 100% , if they are not at 100% the system will mix color relative to the selected white point of the CTC Channel. At DMX 000 the open color temperature depends on the selected white point (see previous section).

4.11. Mix Priority

The Mix Priority channel defines how the output of the MAIN module(s) and the output of the SEGMENT module(s) are merged – or which value has higher priority. This lets you switch between the layers or create special effects using both layers.

The Mix Priority channel gives the following options:

- **MAIN + SEGMENT (HTP)** – The fixture takes whichever color value of the MAIN module(s) or SEGMENT module(s) is highest and uses that value to determine the output color (Highest Takes Priority).
- **MAIN Only** – The fixture uses the color value of the MAIN module(s). The SEGMENT module(s) color value is ignored.
- **SEGMENT Only** – The fixture uses the color value of the SEGMENT module(s). The MAIN module(s) color value is ignored.
- **MAIN + SEGMENT additive** – The SEGMENT module(s) color value is added to the MAIN module(s) color value. The fixture uses the sum of both values.
- **MAIN – SEGMENT subtractive** – The SEGMENT module(s) color value is subtracted from the MAIN module(s) color value.
- **SEGMENT - MAIN subtractive** – The MAIN module(s) color value is subtracted from the SEGMENT module(s) color value.
- **TrueColor 1 - MAIN over SEGMENT (Snap) –** SEGMENT module(s) color stays in the background. MAIN module(s) color has higher priority and will not mix with SEGMENT module(s) color. As soon as the MAIN module(s) color value is greater than zero, SEGMENT module(s) color blacks out and the fixture uses the MAIN module(s) color.
- **TrueColor 2 - SEGMENT over MAIN (Snap) –** MAIN module(s) color stays in the background. SEGMENT module(s) color has higher priority and will not mix with the MAIN module(s) color. As soon as SEGMENT module(s) color value is greater

than zero, MAIN module(s) color blacks out and the fixture uses SEGMENT module color.

- **TrueColor 3 - MAIN over SEGMENT (crossfade) –** SEGMENT module(s) color stays in the background. MAIN module color has higher priority**.** If you fade in a MAIN module(s) color, SEGMENT module(s) color will crossfade to the Main module color.
- **TrueColor 4 - SEGMENT over MAIN (crossfade)** – MAIN module(s) color stays in the background. SEGMENT module(s) color has higher priority. If you fade in a MAIN module(s) color, SEGMENT module(s) color will crossfade to the MAIN module(s) color.
- **MAIN to SEGMENT Crossfade –** Manually crossfading from MAIN module(s) color only → MAIN and SEGMENT module(s) color (HTP) → SEGMENT module(s) color only.

4.12. Pattern Control (Beam)

The JDC2 IP offers a wide range of **static** and **dynamic** pre-programmed FX patterns for the white strobe segments (BEAM).

A **static pattern** is a fixed pattern with only one pattern step. This allows you to make a very quick selection of a non-dynamic effect. It has active and inactive pixels. Each active pixel shows the selected pattern color while each inactive pixel is fully transparent.

A **dynamic pattern** is a sequence of multiple pattern steps and has active and inactive pixels. Each active pixel shows the selected pattern color while each inactive pixel is fully transparent. You can set pattern steps to automatically change continuously (Pattern Speed) or you can directly select pattern steps (Pattern Index).

Note: The Mix Priority channel lets you decide how the output of the Main module and the Sub module (pattern or pixel mapping) should be merged.

The first pixel/segment of the JDC2 is located at the top left by default.

Before setting up the canvas, ensure that the pixel order matches the physical installation. If the fixture is installed upside down, enable pixel mirroring on both the X and Y axes before proceeding.

4.12.1. FX Pattern Select

The dynamic patterns offer multiple pattern steps for individual step selection or continuous step-chasers. Pattern 0 (DMX 000) is the idle pattern and just sets all pixels to active.

The Random Pixel FX pattern at the end of the Pattern Select channel randomly selects pixels to create an attractive sparkle effect.

4.12.2. Pattern speed/index

As a dynamic pattern is a sequence of multiple pattern steps, you can select either:

- an automatic clockwise or counterclockwise continuous run-through of the pattern steps with different speeds (dynamic speed control = DMX values 002 ... 127), or
- one of the available specific pattern steps (static indexing = DMX values 128 ... 255).

Note: Bear in mind that different patterns can have a different number of pattern steps. This can affect synchronization between fixtures, for example, if you run different patterns in multiple fixtures.

4.12.3. Pattern step crossfading

The Pattern Step Crossfading channel lets you choose how one step in a pattern should change into the next step. This change can be a snap, a normal crossfade or a fade with tail (quick fade in and variable long fade out).

4.12.4. Pattern transition

The Pattern Transition channel lets you choose how Pattern A should change into Pattern B. This change can be a snap, a soft crossfade, a Fade Over Blackout (FOB) or Fade Over Full (FOF).

4.13. DigiFX and NDI® Control

4.13.1. Introduction

The JDC2 uniquely reproduces integrated shader effects, called DigiFX, with pixel-accurate resolution. These DigiFX are graphical effects based on mathematical algorithms, such as fire, water, 3D scenes, or abstract animations. The GPU of the JDC2 calculates each pixel in real time and displays it on the color plate. This preserves internal processor performance and enables creative modification of each DigiFX, including parameters of presets, dual-color control, X, Y, Z positioning, scaling, rotation, and speed adjustment.

In addition, the JDC2 offers the possibility to receive up to 4 external NDI® streams in a resolution up to max. VGA (640x480px) via ethernet network.

For high performance it is also possible to send higher resolutions with low latency performance via the innovative GLP Fixture Video Protocol (FVP). For more information contact your GLP Support.

Before setting up the canvas, ensure that the pixel order matches the physical installation. If the fixture is installed upside down, enable pixel mirroring on both the X and Y axes before proceeding.

14.13.2. How to work with DigiFX and NDI®

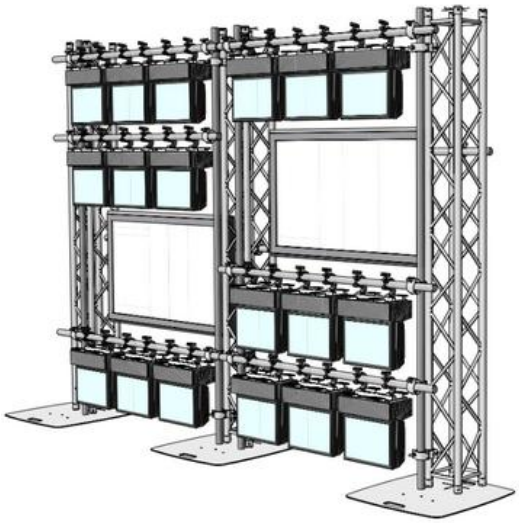
A selected DigiFX is displayed within a defined canvas area.

By default, this canvas area is exactly one single device (Canvas Size 62x44, Device Offset Position X:0 ; Y:0). In this case, all devices display the same DigiFX synchronously on their screens.

To display a DigiFX across a larger area, such as the entire stage, in a position-compliant manner, the area to be covered (Canvas) and the device positions must be configured via the DMX controller.

The various DigiFX can then be played back across this entire area (Canvas) without having to readjust the device positions.

How to set up an installation as shown in the picture will be described in the following steps.



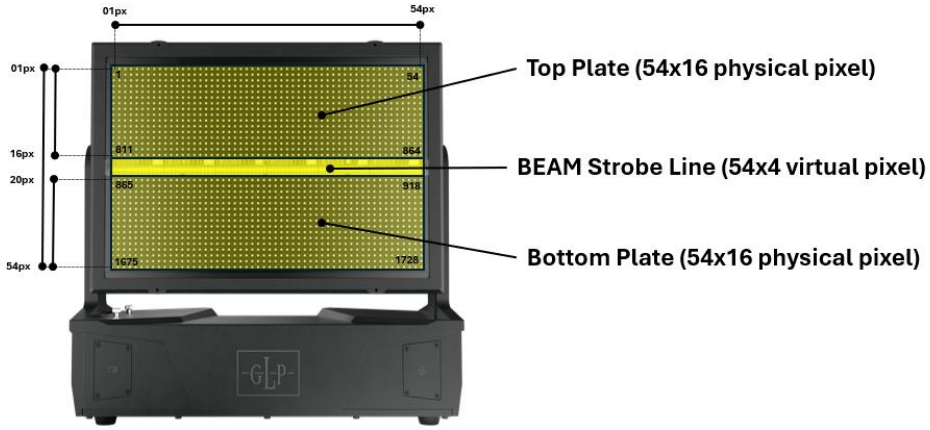
STEP 1 - Definition of the Canvas

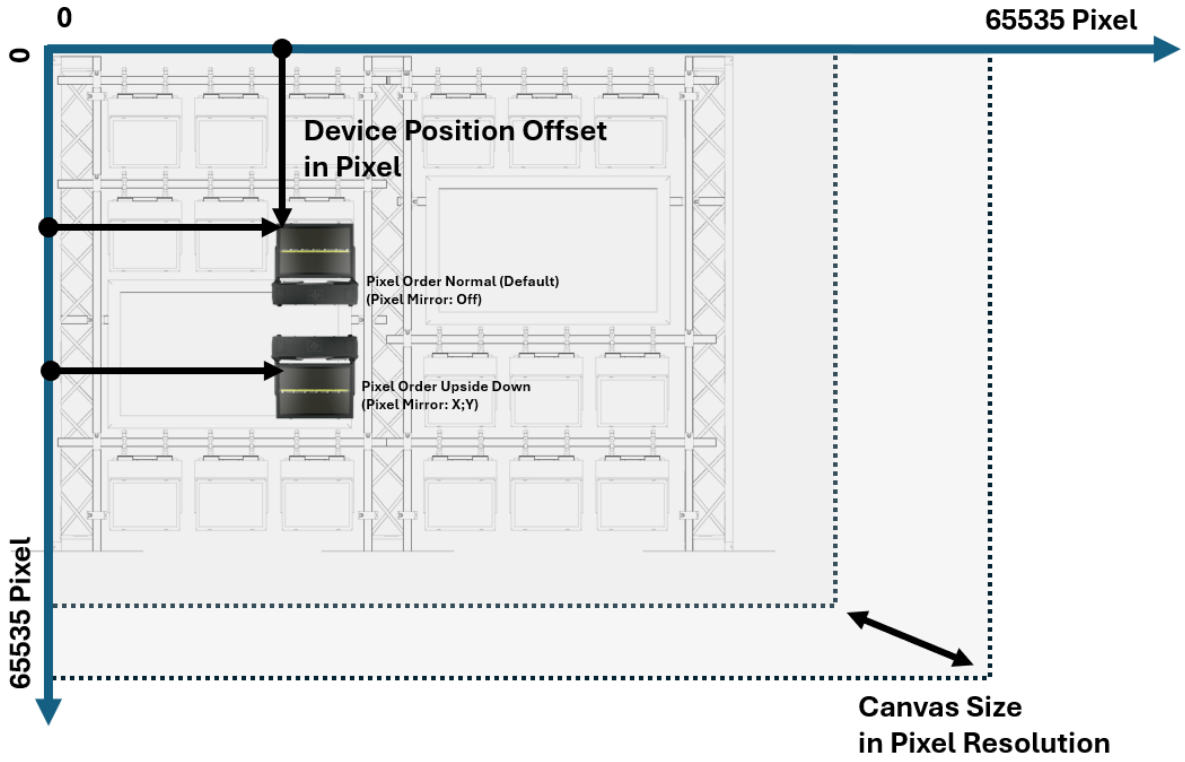
To display content accurately on installed devices, first define the canvas area and send the following values to the JDC2 fixture(s) via DMX.

1.) Canvas Unit

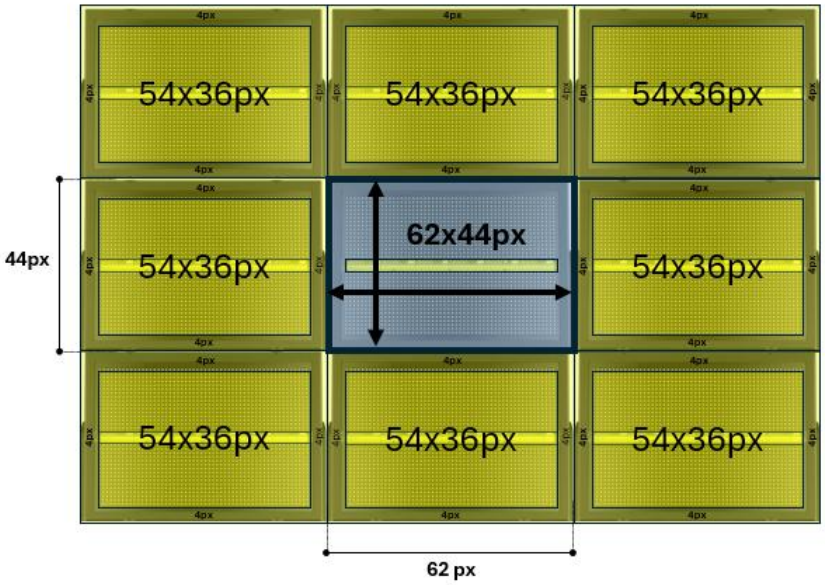
→ defines the unit of measurement in the canvas.

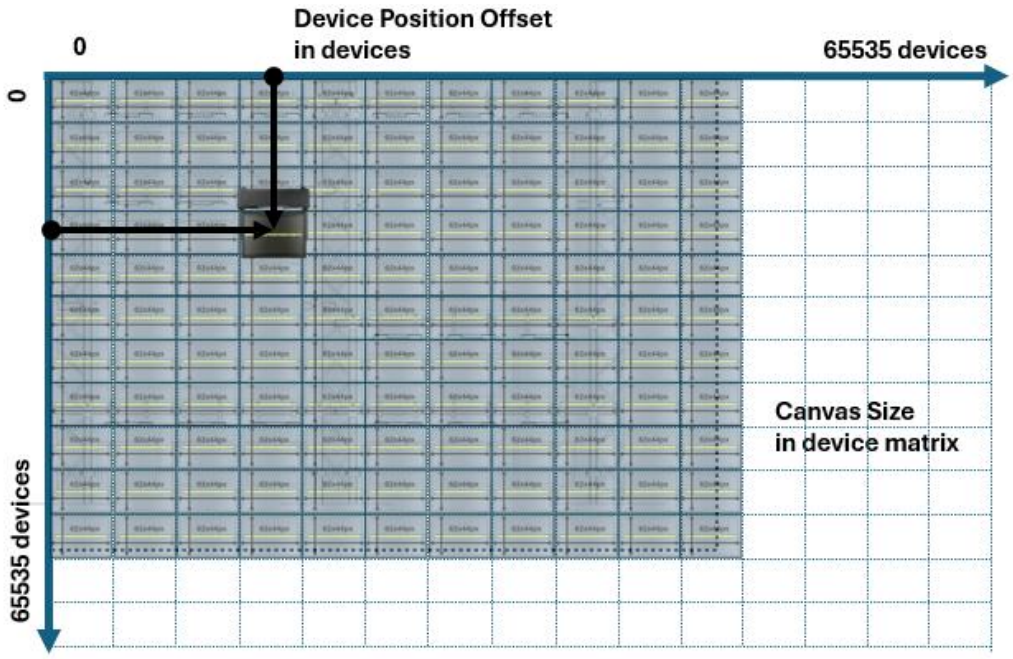
- **Absolute** → Canvas size will be set up pixel-precise with a maximum of 65,535 pixel horizontal (x) and 65,535 pixels vertical (y). The first pixel position at canvas origin is x:0 / y:0. The device positioning is then set up as the pixel offset related to the origin pixel position x:0 ; y:0 (first pixel is x:0 ; y:0)



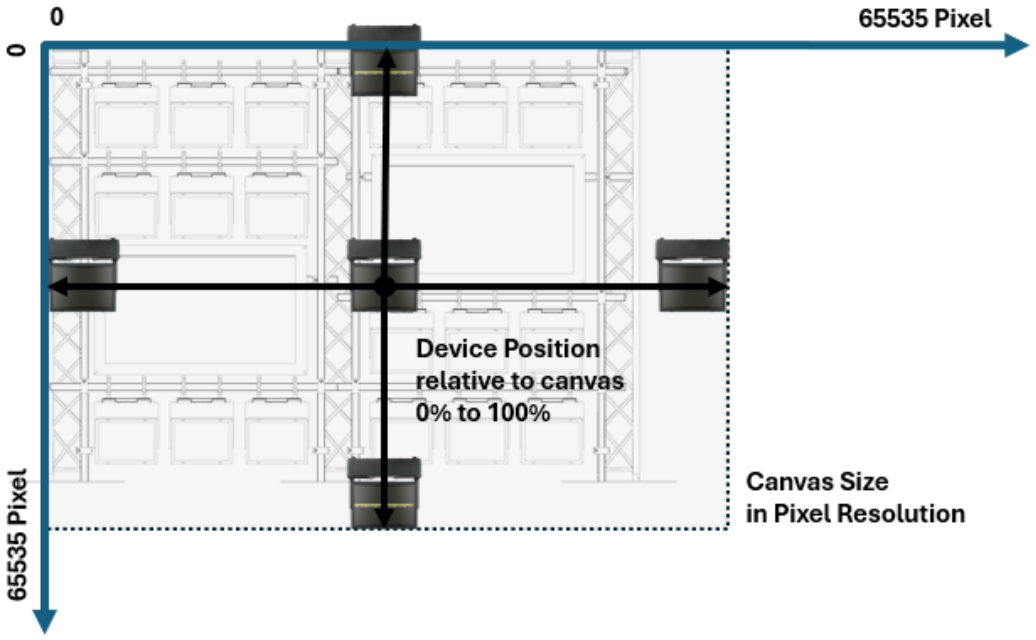


- **Segmented** → Canvas size and device positioning are determined via a device matrix (segments) with the number of max. 65,535 devices (segments) horizontal (x) and max. 65,535 devices (segments) vertical (y). Each device (segment) is calculated with 62x44 pixel (JDC2 incl. boarder). The device position is then set up as the device (segment) offset related to the first device (segment) at x:0 ; y:0.





- **Relative** → Canvas size will be set up pixel-precise with a maximum of 65,535 pixel horizontal (x) and 65,535 pixels vertical (y). The device positioning is then set up relative within this canvas area. That means that the fixture can be moved with the DMX values 0% to 100% from minimum to maximum position.



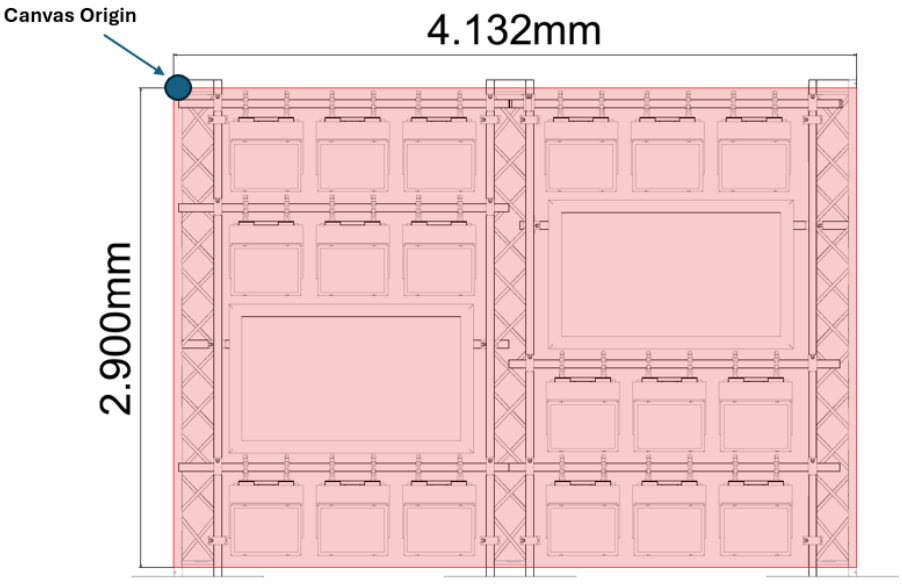
➔ Send these canvas settings via the DMX channels "**Canvas Unit**" on the DMX controller to your devices. (→ see DMX Channel Index)

2.) Canvas Coordinate System (Origin)
→ defines the origin of the canvas.

- **Top Left** → Canvas coordinate system origin is on the top left corner. X values increase in horizontal direction to the right. Y values increase in vertical direction to the bottom
- **Bottom Left** → Canvas coordinate system origin is on the bottom left corner. X values increase in horizontal direction to the right. Y values increase in vertical direction to the top.
- **Top Right** → Canvas coordinate system origin is on the top right corner. X values increase in horizontal direction to the left. Y values increase in vertical direction to the bottom
- **Bottom Right** → Canvas coordinate system origin is on the bottom right corner. X values increase in horizontal direction to the left. Y values increase in vertical direction to the top.

➔ Send these canvas settings via the DMX channels "**Canvas Coordinate System**" on the DMX controller to your devices. (→ see DMX Channel Index)

3.) Canvas Size
→ defines the horizontal and vertical size of the canvas in pixels or in device (segment) quantity (→ see Canvas Unit).



Example: In our case we select "**Canvas Unit** → **Absolute**" (pixel-perfect) and "**Canvas Coordinate System (Origin)** → **Top Left**" for the work.
The physical canvas size is 4132 mm wide and 2900 mm high.

To convert the physical dimensions into pixel resolution, the length in mm [in.] is divided by the 7mm [0.2756 in.] pixel pitch of the JDC2. This results in the following calculation:

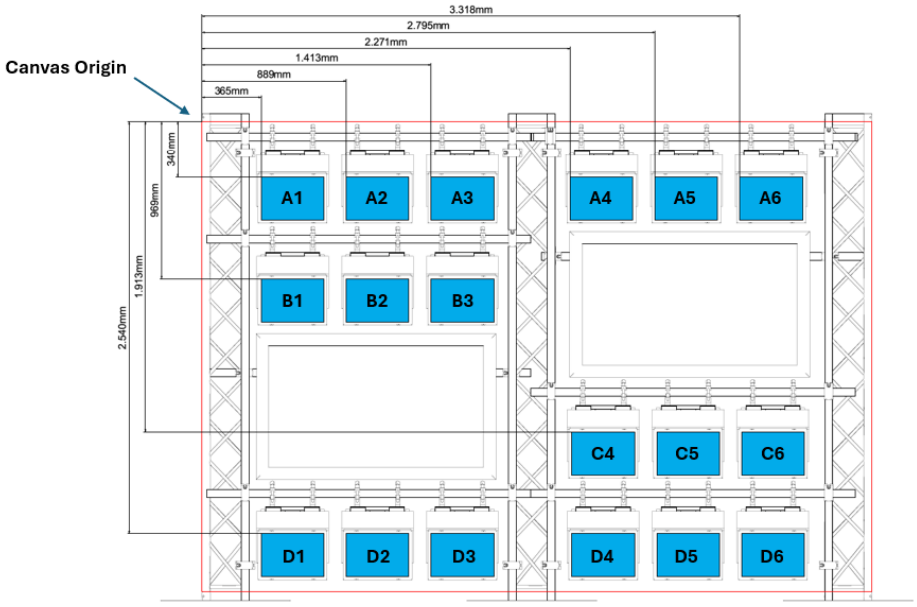
Horizontal length	JDC2 Pixel pitch	Resolution
4132mm [162.6772 in.]	7mm [0.2756 in.]	590 pixel
2900mm [114.1732 in.]	7mm [0.2756 in.]	414 pixel

The canvas origin is the pixel positions x:0 ; y:0

➔ Send these canvas settings via the DMX channels **“Canvas Size X”** and **“Canvas Size Y”** on the DMX controller to your devices. (→ see DMX Channel Index)

STEP 2 - Defining device positions in canvas area

As we decided to work with “Canvas Unit → Absolute”, we now need to position the devices based on the canvas coordinate system origin at pixel positions x:0/y:0.
To define the correct pixel position of a device in the canvas the pixel offset related to the canvas origin pixel need to be calculated.



First, we need the physical positions of the devices relative to the origin of the canvas area. From these dimensions, the pixel offsets are calculated. To do this, the distance in mm [in.] is divided by the 7 mm [0.2756 in.] pixel pitch of the device and reduced by one pixel.

	365mm [14.3701 in.] (52 Pixel)	889mm [35 in.] (127 Pixel)	1413mm [55.6299 in.] (202 Pixel)	2271mm [89.4095 in.] (324 Pixel)	2795mm [110.0394 in.] (399 Pixel)	3318mm [130.6299 in.] (474 Pixel)
340mm [13.3858 in.] (49 Pixel)	A1 x-offset: 51 y-offset: 48	A2 x-offset: 126 y-offset: 48	A3 x-offset: 201 y-offset: 48	A4 x-offset: 323 y-offset: 48	A5 x-offset: 398 y-offset: 48	A6 x-offset: 473 y-offset: 48
969mm [38.1496 in.] (138 Pixel)	B1 x-offset: 51 y-offset: 137	B2 x-offset: 126 y-offset: 137	B3 x-offset: 201 y-offset: 137			
1913mm [75.3150 in.] (273 Pixel)				C4 x-offset: 323 y-offset: 272	C5 x-offset: 398 y-offset: 272	C6 x-offset: 473 y-offset: 272
2540mm [100 in.] (363 Pixel)	D1 x-offset: 51 y-offset: 362	D2 x-offset: 126 y-offset: 362	D3 x-offset: 201 y-offset: 362	D4 x-offset: 323 y-offset: 362	D5 x-offset: 398 y-offset: 362	D6 x-offset: 473 y-offset: 362

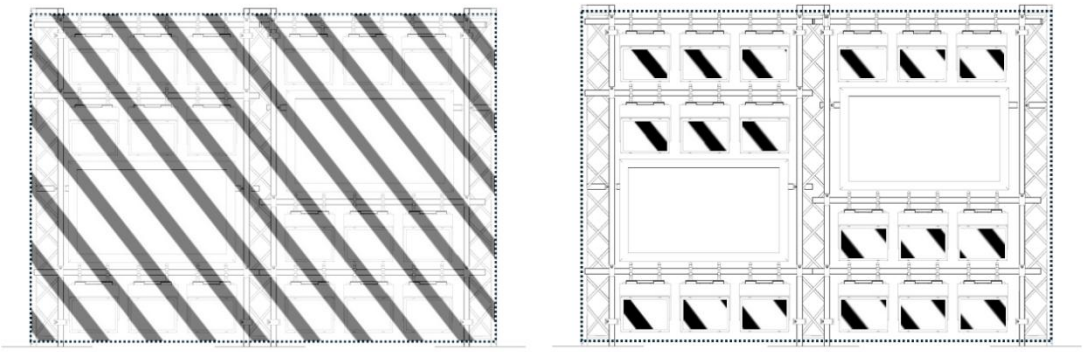
➔ Send these canvas settings via the DMX channels **“Device Position Offset X”** and **“Device Position Offset Y”** on the DMX controller to your devices.
(→ see DMX Channel Index)

STEP 3 - Content Selection

Once the canvas and all devices have been configured, the desired content can now be selected via the DMX channel "**DigiFX/NDI Select**".

a.) Work with internal DigiFX

If one of the internal **DigiFX is selected**, this shader effect is played back exactly in the canvas area and thus on the positioned devices. It is also possible to rotate or change the offset of the DigiFX in the canvas.



Since DigiFX are mathematical functions, their parameters can be changed and adjusted in real time. In the DMX channel idle status, the DigiFX are shown with optimally configured parameters. These can be customized as desired for maximum creative results by overriding the parameter defaults.

The following DMX channels and corresponding parameters are available for modifying and adjusting the DigiFX:

DMX Channel	DigiFX performance
DigiFX / NDI Select	*→ select the DigiFX*
DigiFX Color 1	*→ DigiFX main colormix (idle color is white)*
DigiFX Color 2	*→ DigiFX secondary colormix (idle color is black)*
DigiFX Speed	*→ DigiFX speed adjustment. (idle speed is medium)*
DigiFX / NDI Zoom	*→ DigiFX scale/size (idle scale is best fit to canvas size)*
DigiFX / NDI Orientation	*→ DigiFX rotation (idle is 0°)*
DigiFX Shape FX1 – FX4	*→ depending on the DigiFX each FX parameter will create stunning effects based on the basic effect*
DigiFX/NDI Transition	*→ allows smooth transitions between DigiFXs and NDI®*
DigiFX Presets	*→ offers a wide range of pre-programmed parameter settings for quick creative results.*

DigiFX Presets

For a particularly fast parameter change of the DigiFX, a variety of **DigiFX Presets** are available for each DigiFX. These presets contain fix parameter settings for a variety of quick-access effect options.

All **odd preset** have fix non-adjustable parameters.

All **even presets** have most parameters fixed but allow individual adjustment of color, zoom and orientation.

User Tip
The DigiFX presets help you quickly understand the creative possibilities of the DigiFX. The presets are different for each DigiFX. Everything you see in the presets can be quickly recreated using the channels and then fine-tuned with custom fade times. It is not possible to fade between two DigiFX presets

a.) Work with external NDI®

The JDC2 offers the possibility to receive up to 4 external NDI® streams in a resolution up to max. VGA (640x480px) via ethernet network *(→ see external NDI® Network Configuration)*. To display the NDI® resolution completely in the canvas, it is a good idea to define the canvas resolution equal to the NDI® resolution.

NDI® Format

The system supports only full-bandwidth NDI® streams. Compressed NDI® formats (HX 1–3) are not supported.

For a correct internal NDI® Stream routing it is by default necessary that each of the NDI® streams has a specific NDI® Name Tag. That allows the fixture to route the NDI® Signal to the related NDI® port 1 to 4. The NDI® Stream Name only needs to be part of the full NDI® Stream name. Here is the routing list:

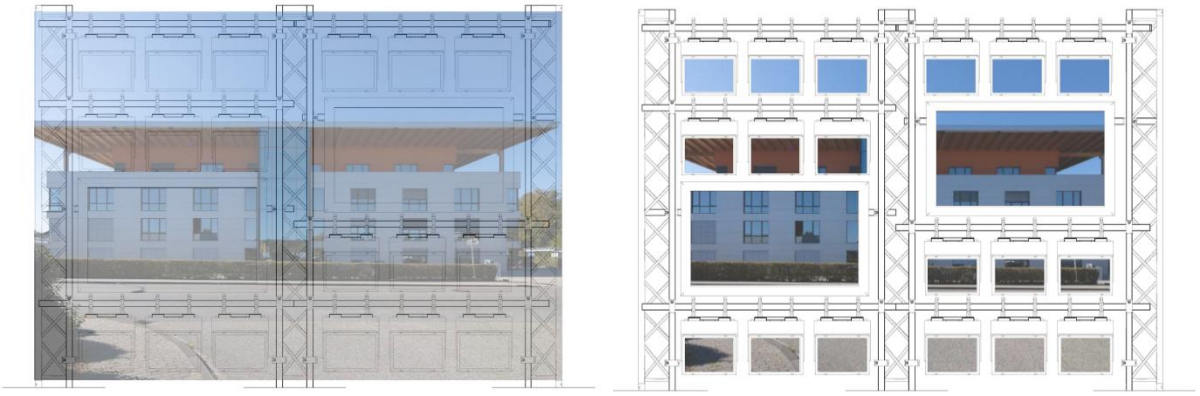
NDI Stream	NDI Stream Label	Resolution
NDI Stream 1	GLP-JDC2-1	up to 640x480px (VGA)*
NDI Stream 2	GLP-JDC2-2	up to 640x480px (VGA)*
NDI Stream 3	GLP-JDC2-3	up to 640x480px (VGA)*
NDI Stream 4	GLP-JDC2-4	up to 640x480px (VGA)*

NDI® Stream Name and Routing

For a correct internal NDI® Stream routing the NDI® streams need to have a specific NDI® Name Tag:
“GLP-JDC2-1”, “GLP-JDC2-2”, “GLP-JDC2-3” or “GLP-JDC2-4”.

Some media servers do not allow individual naming of NDI® streams. In this case, we recommend using an NDI® routing tool that provides the option to rename NDI® streams.

If one of the 4 external NDI® sources in the “DigiFX/NDI Select” channel is selected, the received NDI® signal content will then be played back unscaled in the canvas.



The following DMX channels and corresponding parameters are available for modifying and adjusting the NDI® content:

DMX Channel	NDI content performance
DigiFX / NDI Select	*→ select the NDI® Stream (or FVP)*
DigiFX Color 1	*→ works as a color saturation limiter (idle is no limits)*
DigiFX Color 2	*→ no function*
DigiFX Speed	*→ no function*
DigiFX / NDI Zoom	*→ NDI® scale (idle scale 1:1)*
DigiFX / NDI Orientation	*→ NDI® rotation (idle is 0°)*
DigiFX Shape FX1 – FX4	*→ no function*
DigiFX/NDI Transition	*→ allows smooth transitions between DigiFXs and NDI®*
DigiFX Presets	*→ no function*

Toggle between NDI® Sources
By selecting a NDI® stream the fixture will continuously capture the data from the stream, even if the user changes back to a DigiFX. This allows you to toggle between DigiFX and the previously selected NDI® stream with minimal latency. Changing between different NDI® Streams can cause some latency due to re-capturing.

Fixture Video Protocol (FVP)
For high performance it is also possible to send higher resolutions with low latency performance via the innovative GLP Fixture Video Protocol (FVP). For more information contact your GLP Support

14.13.3. *External NDI® Network Configuration*

External NDI® streams can be used to display simple content, such as logos or graphics. The system supports only full-bandwidth NDI® streams. Compressed NDI® formats (HX 1–3) are not supported. However, always consider the network load generated by the resolution and motion of the NDI® signal.

When using many devices, high-resolution or highly dynamic content can quickly increase bandwidth usage, potentially leading to unsynchronized output or increased latency. For higher resolutions, very dynamic content, many devices, or when low latency is required, it is recommended to distribute NDI® content via FVP (Fixture Video Protocol). If you require further assistance, please contact your local GLP support.

For the JDC2 to receive an external NDI® signal via its two network ports, the following settings must be made:

1.) Integration into the network

To receive an external NDI® Stream the JDC2 IP fixture needs to be connected to the same network as the NDI® source. Configure the fixture's primary Network IP Address to be in the same range and network mask as the NDI® source, for example IP 192.168.001.xxx and subnet mask 255.255.255.000.

2.) Assignment of the NDI® stream to the NDI® port

For a correct internal NDI® Stream routing it is by default necessary that each of the NDI® streams have a specific NDI® Name Tag. That allows the fixture to route the NDI® Signal to the related NDI® port 1 to 4. The NDI® Stream Name only needs to be part of the full NDI® Stream name. Here is the routing list:

NDI Stream	NDI Stream Label	Resolution
NDI Stream 1	GLP-JDC2-1	up to 640x480px (VGA)*
NDI Stream 2	GLP-JDC2-2	up to 640x480px (VGA)*
NDI Stream 3	GLP-JDC2-3	up to 640x480px (VGA)*
NDI Stream 4	GLP-JDC2-4	up to 640x480px (VGA)*

Important notes regarding the use of NDI® and JDC2 in the data network:

Network Topology

.

Depending on the content being used, the bandwidth used by NDI® can be very high. With direct NDI® into the fixture, it is recommended to send data in a star topology to minimize latency as much as possible.

If daisy chain cabling is used max. 10 devices in line are recommended. This will aid with any troubleshooting and avoid large parts of the system going offline due to a faulty cable or connector.

Cabling recommendations and limitations

The maximum distance from the switch to the JDC2 is 75 m. Although Ethernet specifies up to 100 m, this is reduced due to the JDC2's internal switching and fail-safe hardware, which adds resistance.

Cat 6 cable is recommended, though Cat 5e can also be used. Note that some very high-quality cables may introduce additional capacitance, which can further reduce the maximum usable cable length.

EtherCON connectors are recommended for a more robust and reliable connection.

Switch Configuration

Proper switch configuration is critical for achieving optimal FVP performance. NDI® streams can generate significant network traffic, so the use of VLANs is strongly recommended.

Ensure that all network switches support and are configured to run IGMPv3. IGMPv3 must be properly configured on the network, with IGMP Snooping enabled on all switches. An IGMP querier must also be present on the network.

NDI format

The system supports only full-bandwidth NDI® streams. Compressed NDI® formats (HX 1–3) are not supported.

Fixture Video Protocol

Using higher NDI® resolutions with low latency performance, the JDC2 is ready to use the innovative GLP Fixture Video Protocol (FVP) (see *Fixture Video Protocol FVP)*

14.13.4. *Fixture Video Protocol FVP (Work in progress)*

The GLP Fixture Video Protocol (FVP) is an innovative data protocol that receives the NDI® video streams and then sends only the required viewport (slice of video) to a specific fixture. The translation from standard NDI® to FVP significantly reduces the required bandwidth and allows synchronous content playback on many devices. This allows to send the specific information of a received NDI® video streams to 100s of JDC2s with no visible latency.

A smart FVP Software Tool (work in progress) will allow you to preview the device positions and monitor the NDI®/FVP performance on the devices. This software, which is run on a computer, simply connects to the JDC2 network.

To use the FVP protocol provided by the software, select the FVP stream under "DigiFX/NDI Select". For more information contact your GLP support.

5. Fixture Configuration and Settings

The settings described in this chapter allow for easy configuration of the device for individual control via one of the available control options. It also describes how the device and its functions can be adapted to customer-specific requirements. Furthermore, it explains how to configure device information and service settings.

Fixture settings can be changed via the integrated control panel, DMX, and/or RDM.

5.1. DMX Address

Set DMX Address of the fixture to **001** ... 512.
Default Start Address is 000.

5.2. Control Modes

This allows the selection of different control modes (DMX layouts). The different DMX modes (DMX layouts) offer varying numbers of DMX channels, functions, and extended features. This allows for a significant reduction in the required number of channels or the adaptation of functions to the actual needs.

5.3. Protocol Setup

This menu allows you to select and configure which data protocol and data input the device should use to receive its data.

The following menu items are available:

5.3.1. Data in (DMX)

Select how the fixture should receive control data:

- **DMX (Default)** → Control via DMX Protocol (connected by XLR 5pin connector)
- **ArtNet** → Control via ArtNet Protocol (connected by ethernet)
- **sACN** → Control via sACN Protocol (connected by ethernet)
- **CRMX (FPO)** - Control via wireless LumenRadio CRMX Protocol (only if the optional CRMX Receiver board is installed at the integrated GLP FPO Port)
- **iQ.Mesh** → Control via GLP iQ.Mesh using the GLP iQ.Service/iQ.Control App

5.3.2. Ethernet Config

The following network settings must be configured to integrate the device into a network (control via ArtNet, sACN or for receiving network-based NDI® content).

5.3.2.1. ***Addressing Mode (Primary)***

First, select how the light should be assigned its IP address. The following options are available:

- **Auto 2.x.x.x (Default)** → Auto Addressing in the range 2.x.x.x
- **Auto 10.x.x.x** → Auto Addressing in the range 10.x.x.x
- **DHCP** → Fixture gets IP address by DHCP
- **Link Local** → The device automatically configures its own IP address if no DHCP server is available.
- **Custom IP** → Allows to set a custom IP Address manually. Set the custom IP address in the next step.

5.3.2.2. ***Custom IP Address (Primary)***

If the Addressing Mode is set to Custom IP Address, enter here the desired IP Address 000.000.000.000

5.3.2.3. ***Custom IP Subnet (Primary)***

If the Addressing Mode is set to Custom IP Address, enter here the desired IP Subnet mask 000.000.000.000

5.3.2.4. **ArtNet Port (Primary)**

If “Protocol Setup / Data in” is set to ArtNet, select the ArtNet Port between **0**..32768. Keep in mind that the first DMX Universe is ArtNet Port 0.

5.3.2.5. ***sACN Universe (Primary)***

If “Protocol Setup / Data in” is set to sACN, select the sACN Port between **1**...63999. Keep in mind that the first DMX Universe is sACN Port 1.

5.3.3. Linking Options

Unlink the fixture if linked to an iQ.Mesh or Lumenradio CRMX Network.

5.4. Fixture Settings

Fixture settings allow you to customize the device's behavior to meet specific customer requirements. Default settings are highlighted in bold. These settings can be toggled via the device menu or, in some cases, adjusted via the DMX control channel or RDM. Modified fixture settings can be saved individually as fixture setting presets.

NOTE: Loading the "Default" fixture setting preset or the factory settings will reset all fixture settings to their default values. Unlike loading the factory settings, resetting values in the "Fixture Settings" category will not result in a loss of data connection.

5.4.1. White point

The white point is the default white that is obtained when the shutter is opened. The JDC2 IP offers a choice of fixed white points for the RGB Plate, allowing convenient use in different environments. The following fixed white points (color temperatures) are available:

- **8000 K** (effect light)
- **6500 K (Default)** (daylight)
- **5600 K** (TV and studio, matches the BEAM LEDs)
- **Off** (the RGB LEDs run in raw colormix mode)

If a fixed white point is enabled, the fixture mixes colors with reference to it.

5.4.2. Dimming curves

The electronic dimming effect provides smooth 16-bit dimming of the Main module and Sub modules. The following three dimming curves are available:

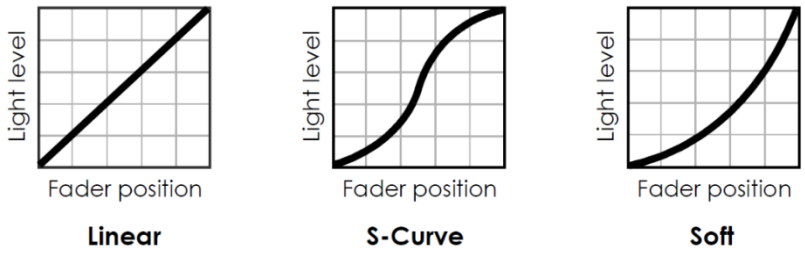


Figure 2. Dimming curves

- **Linear** → the linear setting gives a dimming curve where output and DMX value is proportional.
- **Soft (Default)** → The soft (square) setting is the default setting and gives finer control at lower light levels, where the eye is most sensitive to changes in light intensity, and coarser control at higher light levels.
- **S-Curve** → The S-curved setting gives finer control at lower and higher light levels and coarser control at middle light levels.

Note: Depending on the selected Subfixture Mode, the dimmer and shutter channels of the Sub modules can operate independently of or subordinately to the dimmer and shutter channels of the Main module.

5.4.3. Brightness Limit

For some application areas, it makes sense to reduce the overall brightness of the JDC2 to ensure a more balanced use within the full dimmer resolution. In particular when using accessories, output limiting is necessary in order to prevent defective or fire hazard of attachments. The following limitations are available:

- **Normal (Default)** → Unlimited max Power (BEAM 100% / PLATE 100%)
- **Limit 1** → Beam intensity at maximum and Plate Intensity reduced
- **Limit 2** → Beam and Plate intensity reduced
- **Limit 3** (Filter Protection) → Beam and Palte Intensity reduced to protect external filter accessories.

For the use of diffuser filters, the brightness setting **limit 3** is mandatory

5.4.4. Duration Control

With Duration Control, you can define the length of the LED flash. This can be done using two different principles:

- **Normal (Default)** → If Duration Control Normal is selected, this DMX channel defines the absolute length of the flash – independent of the flash duration and its off time. If the duration is longer than the off time of the flashes, the LEDs remain continuously illuminated.
- **Percentage** → If Duration Control Percentage is selected, you can adjust the flash duration relative to the off time of the flashes. Therefore, the flash is only continuously illuminated at 100%. This setting allows for very convenient adjustment.

5.4.5. Strobe Cycle at Zero

This setting lets you select whether the strobe timing resets when the strobe intensity is zero.

- **Reset (Default)** → If a strobe cycle is active while intensity/dimmer is zero, the fixture will start a new flash cycle when intensity becomes nonzero.
- **Continuous** → The strobe cycle timing runs continuously even while the strobe is in blackout.

5.4.6. Rate/Duration cycle

This setting lets you select how the strobe behaves when the strobe rate or duration is changed.

- **Smart** → Rate/Duration change takes effect if the size of the DMX value change is above a certain threshold
- **Finish (Default)** → Rate/Duration change takes effect at the end of the current strobe cycle
- **Restart** → Rate/Duration change takes effect immediately

5.4.7. Fan modes

These options let you give priority to lowest fan noise or most powerful cooling.

- **Regulated (Default)** → Priority to light output and only operates fans as necessary.
- **High** → Sets the fans to constant operation at high speed with max light output, good for high ambient temperature if noise isn't a problem.
- **Medium** → Sets fans to constant operation at medium speed and light output intensity is slightly reduced.
- **Low** → Sets fans to constant operation at low speed and light output is significantly reduced.
- **Minimum** → Sets fans to minimum speed when fixture is lit, otherwise fans are shut down. Light output is reduced.

In all fan modes, light output is reduced if the fixture temperature gets too high. If fixture temperature reaches a dangerous level, light output is shut down for a period until the fans have brought the temperature down to a safe level.

5.4.8. Experimental DigiFXs

With the internal DigiFXs, the GLP JDC2 offers a completely new way to generate breathtaking effects in a short time. These DigiFX are elaborately developed by our development team. Since the development of DigiFX is very complex we select DigiFX very carefully. For extended creative use, in addition to the officially released DigiFX, further effects that are under development can also be unlocked.

Disabled (Default) → Will hide all experimental DigiFX and shows only show proof released DigiFX, which offer reliable content for shows and pre-programming.

Enabled → Will show all show proof released DigiFX but also all non-show proof "experimental" DigiFXs. "Experimental" DigiFXs will change with Firmware Update!

5.4.9. Pixel mirror

This setting allows the operator to change the layout of the pixels in the RGB Plate and the segments in the white strobe line. The following description is based on Fixture standing on the floor with Tilt >50%.

- **OFF** → The first pixel/segment is left position of the top row.
  The last pixel/segment is at right position bottom row.

  01 - 02 - 03 - 04 - 05
  06 - 07 - 08 - 09 - 10

- **x-mirror** → The pixels/segments are mirrored on a horizontal x-axis.
  The first pixel/segment is left position of the bottom row.
  The last pixel/segment is right position of the top row

  06 - 07 - 08 - 09 - 10
  01 - 02 - 03 - 04 - 05

- **y-mirror** → The pixels/segments are mirrored on a vertical y-axis.
  The first pixel/segment is right position of the top row.
  The last pixel/segment is left position of the bottom row

  05 - 04 - 03 - 02 - 01
  10 - 09 - 08 - 07 - 06

- **x-y-mirror** → The pixels/segments are mirrored at the horizontal x-axis AND the vertical y-axis. The first pixel/segment is right position of the bottom row.
  The last pixel/segment is left position of the top row

  10 - 09 - 08 - 07 - 06
  05 - 04 - 03 - 02 – 01

5.4.10. NDI Mirror

This setting allows the operator to change the orientation how external NDI® video is mapped to the pixel layout of the plate. The following description is based on Fixture standing on the floor with Tilt >50%.

- **Off** → The NDI® video top left side is at the first pixel top left position.
- **x-mirror** → The NDI® video is mirrored at the horizontal x-axis.
- **y-mirror** → The NDI® video is mirrored at the vertical y-axis.
- **x-y-mirror** → The NDI® video is mirrored at the horizontal x-axis AND the vertical y-axis.

5.4.11. No-Signal

This setting lets you select what the fixture should do if no DMX signal is present (if the DMX signal stops, or if it's powered up with no DMX signal):

- **Blackout (Default)** → Fixture Output go off if no DMX.
- **Hold** → continue using the last DMX values.
- **Houselight** → go to white at approx. 80% output. This is useful for working lights during setup or take down, or emergency lighting.
- **Scene** (Stand-alone) → play its stored stand-alone scene. This is useful to make a fixture automatically come on at power up.

Using **Capture DMX Values** stores the stand-alone scene from the current DMX values.

5.4.12. Display Mode

Sets how the fixture's control panel display operates. The display will always come on when you press a button.

- **Auto (default)** → Display switches off after a few seconds if the fixture is receiving a control signal and has no errors. If no control signal, the display will flash. If the fixture has an error, the display stays on and shows the error.
- **On** → Display stays on constantly
- **Off** → Display switches off after a few seconds even if the fixture is not receiving a control signal or has an error

5.4.13. Display Orientation

This setting allows you to adjust the orientation of the display.

- **Auto (Default)** →Display orientation will adapt automatically depending on the installation orientation.
- **Normal** → Display Orientation is Normal for fixtures is standing on the ground.
- **Upside Down** (Flip) → Display Orientation is Upside Down for hanging fixture.

Display Orientation can be changed manually by pressing UP and DOWN at the same time. This will change the display orientation until the next power cycle.

5.4.14. Tilt invert

- **OFF (Default)** → With the fixture standing on the ground, increasing the tilt DMX value moves the head towards the front from its home position.
- **ON** → Changing the Tilt invert setting to ON inverts the tilt direction so that increasing the tilt value turns the head towards the back).

5.4.15. Tilt Disable

- **OFF (Default)** → Tilt motor is working as expected
- **ON** → Changing the Tilt disable setting to "on" de-activates tilt by disabling the tilt motor current. When changing back to OFF, you must carry out a reset before you can operate tilt normally.

5.4.16. Position Feedback

- **ON (Default)** → Tilt autocorrection (position feedback) is enabled.
- **OFF** → will disable the position feedback and autocorrection. If you need to return tilt to their correct positions, you must perform a reset

5.4.17. Load User Setting Preset

You can save and load different custom fixture configurations or return the fixture to the default fixture settings.

- **Load User Settings 1 to 3** → to load one of three specific custom fixture settings which you have previously stored. You must confirm the function for 3 seconds before the new settings are loaded
- **Save User Settings 1 to 3** → to save a custom setting preset from 1 to 3, use the option “Service/Advanced/Save Settings”.
- **Load User Settings Defaults** → to return settings to default, use this default preset.

Note: The Load User Settings and Setting Defaults commands will only affect settings in the Fixture Settings group and will not affect DMX Address, Control Mode, Protocol Type, IP Settings, etc. This helps avoid loss of communication with the controller.

5.5. Information

The **Information** submenu provides readouts of all relevant information such as the error list if any errors have been detected, the fixture’s serial number, firmware version, device info, device hours counter, power cycles counter, DMX input monitor, signal quality etc.

5.6. Manual Control

This submenu gives different options for resetting or control the fixture manually. It can be helpful for service or stand-alone issues.

Reset All
Performs a full fixture reset to initialize all features and effects.

Manual DMX

Gives individual control of the fixture using the fixture user interface. The menu timeout function is disabled as long this menu is open.

- Manual Control: Manually sets a DMX value for each function.
- Reset Manual values: Resets all manual control values to default.

External DMX values will always have higher priority than manual control commands. Disconnect the fixture from the data source when using manual control.

Note: When entering manual control, be prepared for the fixture to start moving

5.7. Service

The **Service** menu is split into two levels: **Service** and **Service Advanced**. The **Service Advanced** level is for trained technicians only. Read the information below carefully before entering this level.

The Service menu contains the following items:

- **Live Diagnostic**: Calls up an overview of all main fixture information, signal quality and settings. This can be helpful while troubleshooting or talking to GLP Service.
- **iQ.Service Connect**: Wakes up the integrated GLP iQ.Mesh Module for 5 minutes and enables connectivity to the GLP iQ.Service App.
- **Test All**: Runs a test sequence of all LEDs for a quick test of the fixture. Press BACK to stop the test sequence.
- **Test Tilt**: Runs a test sequence of tilt movement only. Press BACK to stop the test sequence.
- **Test Beam LEDs**: Runs a test sequence of the LED Beam segments only. Press BACK to stop the test sequence.
- **Test Plate LEDs**: Runs a test sequence of the LED Plate segments only. Press BACK to stop the test sequence.
- **Test Fans (Manual)**: Tests fans one by one manually.

Advanced Service

The **Advanced Service** level is for trained technicians only. Read the information below carefully before entering this level. You must confirm by pressing and holding ENTER for 3 seconds before you can enter this level.

The **Advanced Service** level contains the following items:

- **Service Mode**: Disables tilt and all display timeouts to make servicing the fixture head easier. This mode is automatically disabled after a power cycle.

- **Reset Counters**: Resets the different resettable fixture counters.

  Device counters are not reset by a **Load Factory Backup** command.

- **Save Setting Presets**: Lets you save the current fixture settings to one of the three user settings presets. You can load a user settings preset that you have saved with a **Load Setting Preset** command (see **Fixture Settings → Load Setting Preset**). The default fixture preset cannot be changed.

  This command only saves fixture settings (Fan Mode, Color Mix etc.). It does not save fixture configuration information such as DMX address and DMX mode.

5.8. Load Factory Defaults

Reloads all factory defaults over the entire fixture and brings the fixture into standard show condition.

You must confirm the function for 3 seconds before the default settings are loaded.

Important! *The factory default settings that are reloaded with this command include all data and network configuration parameters such as DMX start address, IP configuration etc. You may therefore lose communication with your controller.*

*The **Load Factory Defaults** command does not affect device counters and calibration.*

5.9. Factory Menu

Important! Do not enter the Factory Menu if you are not a trained service professional with service documentation or clear instructions from GLP Service. Read the user and service documentation carefully before entering this menu. In the Factory Menu you can apply critical settings which can damage the fixture.

The Factory Menu is a hidden menu for the manufacturer or professional service technicians only. This special menu allows fixture calibration and the adjustment of all mechanical features following the manufacturer's instructions.

To enable the Factory Menu, apply power to the fixture and press the ENTER and BACK buttons together while the pre-boot screen is being displayed. You can release the buttons as soon as FACTORY MODE appears in the black display. After doing this, **Factory Menu** is visible as the last item in the main menu. The Factory Menu will remain available until the next power cycle. While the Factory Menu is enabled, all display timeouts are disabled to make working on the fixture easier and a Factory symbol is visible in the main screen.

6. Control panel

Warning! DMX control is disabled when the control menus are active. Be prepared for the head to move as soon as you exit the control menus.

The control panel and backlit graphic LCD display with self-charging battery allow you to change fixture settings, view readouts and use utilities quickly and intuitively, even when the fixture is disconnected from power.

To allow comfortable use of the control panel, tilt is automatically disabled for a few seconds if you press any button on the control panel. Tilt remains disabled for as long you are working in the control panel. If no button is pressed for a few seconds, head movement is re-enabled with tilt correction applied.

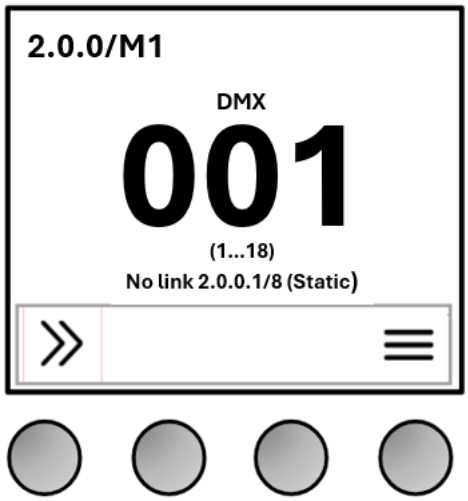


Figure 3. Default information screen

6.1. Default information screen

When power is applied, the fixture performs a reset. After the reset has completed, the default information screen appears in the control panel display on the base of the fixture.

At any other time, you can press any key to unlock the control panel. Doing this also calls up the default information screen in the control panel display.

See Figure 3. The top line of the default information screen consists of, from left to right:

- Main CPU firmware version
- DMX Mode

The center of the screen shows the following information:

- Signal source.
- Fixture's current DMX address in large characters. If the fixture's self-diagnosis system detects an error, the fixture will flash an error message alternately with the DMX address. This lets you see the DMX address and error message at a distance from the fixture.
- The fixture displays network IP addresses below the DMX Address.
- Below the current DMX address, the fixture displays in smaller characters the DMX channels that the fixture is currently using.

In the example shown in Figure 3:

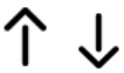
- The fixture is running CPU software version 2.0.0
- The fixture is set to DMX Mode 1
- The fixture is set to receive data via DMX
- The fixture's DMX start address is 001
- The fixture is using DMX channels 1 to 18.

6.2. Using the control panel

The four control panel buttons under the display have the following functions.

In the main screen:

QUICK MENU – Activates the Quick Menu



UP/DOWN – Press three times to open the live diagnostic tool

MENU – Activates the control panel if it is in sleep mode, then opens the main menu

When navigating through the menus:

BACK – Goes back one level towards the top of the menu

UP – Scrolls up or increments a number

DOWN – Scrolls down or decreases a number

ENTER – Confirms a setting or implements a command

At any time:

UP and DOWN at the same time – Temporarily rotates the display 180°

6.3. Control button shortcuts

6.3.1. Live Diagnostics

Pressing UP or DOWN three times calls up an overview of all main fixture information, signal quality and settings. This can be useful if you are troubleshooting or if you are in contact with GLP Service.

6.3.2. Display Hold

Pressing UP or DOWN three times will enable/disable the hold status. In hold status all display timeouts are disabled which is very helpful if trouble shooting.

6.3.3. Toggle Display Orientation

Pressing and releasing UP and DOWN together rotates the display through 180°.

*Note: If Display Orientation is set to **Auto**, changing the display orientation by pressing UP and DOWN at the same time will only change the display orientation until the next power cycle. To change the display orientation permanently, go to **Fixture Settings → Display Orientation** in the control panel menus.*

6.4. Error Messages

If the fixture detects an error, it displays an error message in the display. The Error is 'sticky' and will continue to be shown in the display until the next power cycle or reset. To get details of the error message, follow the information in the display. These details are important if you talk to GLP service.

6.5. Loss of DMX signal

The display flashes if the DMX signal is lost (the fixture will then behave according to its No Signal setting.

6.6. Service and maintenance

See the separate *JDC2 IP Quick Start and Safety Manual* supplied with the fixture and available for download from www.glp.de for information on service and maintenance

6.7. Setting up the control protocol

The JDC2 IP can be controlled via:

- **USITT512 DMX** - Over a standard DMX cable link using the 5-pin XLR connectors
- **GLP iQ.Mesh** - Wireless with GLP iQ.Service or GLP iQ.Controll App
- **ArtNet / sACN -** Over an etherCon Network ports,
- Optional: Wireless **LumenRadio CRMX** (if installed in FPO port).

This section explains how to configure the fixture to use one of these control data protocols.

The control protocol settings are not affected if you apply a **Load Setting Preset Default** command in the fixture's control panel, but they are returned to factory defaults if you apply a **Load Factory Defaults** command in the main menu.

6.8. DMX

The fixture is set up for control via a standard DMX signal by default.

If the control data protocol has been changed and you want to return to DMX control over a standard DMX signal, open the menus in the fixture's control panel and make the following adjustments:

1. In the main menu in the fixture's control panel, open **DMX Address** and give the fixture a suitable DMX address.
2. In the **Protocol Setup → Data In** menu, set the control protocol to **DMX**.

6.9. ArtNet / sACN

If you want to control the fixture via ArtNet / sACN:

1. In the main menu in the fixture's control panel, open **DMX Address** and give the fixture a suitable DMX address.
2. In the **Protocol Setup → Data In** menu, set the control protocol to **ArtNet / sACN**.
3. Select and configure the **Protocol Setup → Addressing Mode** you want to use. Set the Custom IP Address / Custom IP Subnet (if static IP Address is used) and ArtNet Port / sACN Universe.

6.10. iQ.Mesh

If you want to control the fixture via GLP iQ.Mesh:

1. Open the menus in the fixture's control panel.
2. In the **Protocol Setup → Data In** menu, set the control protocol to **iQ.Mesh**.

6.11. LumenRadio CRMX

LumenRadio CRMX module is an optional extra to be fitted in the JDC2 IP's FPO port.

If you want to control the fixture via LumenRadio CRMX you must install the module. For more details contact GLP support.

1. Open the menus in the fixture's control panel.
2. In the main menu in the fixture's control panel, open **DMX Address** and give the fixture a suitable DMX address.
3. In the **Protocol Setup → Data In** menu, set the control protocol to **CRMX.**
4. Unlink all existing CRMX connections by using **Protocol Setup → Unlink**
5. Search for unlinked fixtures on your Lumenradio CRMX transmitter.

7. Control menus

7.1. Quick menu

The control panel's Quick Menu gives you quick access to the most frequently used commands. To open the Quick Menu, press the left-hand control button marked » when the display is showing the default information screen.

The Quick Menu contains the following items:

Menus			***Notes***
Reset All			*Resets the entire fixture (takes a few seconds).*
iQ.Service Connect	>>>Connect<<<		*Enables connectivity to the GLP iQ.Service App for 5 minutes.*
Load User Settings	User Setting Preset 1	>>>Confirm<<<	*Loads custom user settings*
	User Setting Preset 2	>>>Confirm<<<	
	User Setting Preset 3	>>>Confirm<<<	
	Setting Defaults	>>>Confirm<<<	*Returns fixture to default settings (not including DMX address, protocol type, Ethernet / CRMX configuration, user offsets, user presets and counters).*
Load Factory Defaults (!)	*Displays Message: Fixture may lose connection to controller* >>>Confirm<<<		*Restores all factory default settings (including DMX address, protocol type, Ethernet / CRMX configuration, user offsets and user presets).* ***Important! The fixture may lose contact with the controller!***

7.2. Main menu

The following menus and commands are available in the JDC2 IP control panel.

Menus			***Notes***
DMX Address			
001-512			*Set fixture's DMX start address. Highest possible address depends on control mode.*
Control Mode			
M1 Minimal			*Set fixture's DMX control mode.*
M2 Basic			
M3 Segment 12-12			
M4 Segment 12-24			
M5 Pixel			
Protocol Setup			
Data In	**DMX**		*Set active control protocol*
	ArtNet		
	sACN		
	CRMX (FPO)		
	iQ.Mesh		*Optional: Control via CRMX*
Ethernet config	Addressing Mode	Auto 2.x.x.x	*Auto address in range 2.x.x.x*
		Auto 10.x.x.x	*Auto address in range 2.x.x.x*
		DHCP	*Get IP address by DHCP*
		Custom IP	*Set address using next option*
	Custom IP Address	000.000.000.000	*Enter IP address*
	Custom IP Subnet	000.000.000.000	*Enter IP Subnet*
	ArtNet Port	**0** .. 32768	*Enter ArtNet Port*
	sACN Universe	**1** .. 63999	*Enter sACN Universe*
	ArtNet/sACN Merge Mode	**LTP**	
		HTP	
Linking options	iQ.Mesh Unlink		*Unlink from GLP iQ.Mesh link*
	CRMX (FPO) Unlink		*Optional: Unlink from CRMX*
Fixture Settings			
White Point	8000 K		*Set fixture white point when RGB is at 100% (RGB Color Mix Mode only)*
	6500 K		
	5600 K		
	OFF		
Dimmer Curve	**Soft**		*Soft (square law) dimming curve*
	Linear		*Linear dimming curve*
	S-Curve		*Finer dimming control at low and high intensity*
Brightness Limit	**Normal**		
	Limit 1		
	Limit 2		

Menus		***Notes***
	Limit 3 (Filter Protection)	
PWM Frequency	**High**	
	Medium	
	Low	
Duration Control	**Normal**	*Normal duration control*
	Percentage	*Percentage duration control*
Flash Style	**Normal**	
	Spark	
Rate/Duration Cycle	**Smart**	*Rate/Duration change takes effect if the size of the DMX value change is above a certain threshold*
	Finish	*Rate/Duration change takes effect at the end of the current strobe cycle*
	Restart	*Rate/Duration change takes effect immediately*
Strobe Cycle at Zero	**Reset**	*If a strobe cycle is active while intensity/dimmer is zero, the fixture will start a new flash cycle when intensity becomes nonzero.*
	Continue	*The strobe cycle timing runs continuously even while the strobe is in blackout*
Fan Mode	**Regulated**	*Fan speed temperature-regulated*
	High	*Fan speed constant high*
	Medium	*Fan speed constant medium*
	Low	*Fan speed constant low*
	Minimum	*All fans off or at minimum speed*
Experimental DigiFXs	**Disabled**	*Show officially launched DigiFXs*
	Enabled	*Shows officially and unlaunched DigiFXs*
Pixel Mirror	**Off**	*Normal pixel layout*
	x-mirror	*Pixel layout mirrored over x-axis*
	y-mirror	*Pixel layout mirrored over y-axis*
	x;y-mirror	*Pixel layout mirrored over xy-axis*
NDI Mirror	**Off**	*Normal NDI® orientation*
	x-mirror	*NDI® mirrored over x-axis*

Menus				***Notes***
	y-mirror			*NDI® mirrored over y-axis*
	x;y-mirror			*NDI® mirrored over yx-axis*
No Signal	No Signal Mode		**Blackout**	*Fixture blacks out if no DMX signal received*
			Hold	*Fixture continues to display current effect if no DMX signal received*
			Houselight	*approx. 80% output as working lights or emergency lighting*
			Scene	*Plays the stored captured scene (see next menu item) if no DMX signal received*
	Capture DMX Values		*>>>Confirm<<<*	*Captures current scene and stores it for use in No Signal Mode/Scene*
Display Mode	**Auto**			*Display dims after a short period of inactivity if no errors and valid DMX signal*
	On			*Display constantly on*
	Off			*Display dims even if there are errors / no DMX signal*
Display Orientation	**Auto**			*Display automatically inverts to match installation position*
	Normal			*Display normal (for use when fixture is standing)*
	Upside Down (Flip)			*Display inverted (for use when fixture is flown head-down)*
Tilt Disable	**OFF**			*Disables tilt motor*
	Current Disable			
Tilt Invert	**OFF**			*Reverse direction of tilt movement*
	ON			
Position feedback	OFF			*Enable/disable /tilt position correction*
	ON			
Load User Settings	User Setting Preset 1		>>> Confirm<<<	*Apply a user preset to fixture settings*
	User Setting Preset 2		>>> Confirm<<<	
	User Setting Preset 3		>>> Confirm<<<	
	Setting Defaults		>>> Confirm<<<	*Return fixture to default settings (not including DMX address, protocol type, Ethernet / CRMX configuration, user offsets, user presets and counters)*
Information				
Show errors				*Shows any stored errors*
Show temperature				*Shows fixture temperature*
Video Interface				
Show Serial Number				*Show Serial Number*
Fan Status				*Shows current cooling fan status*
Show SW Version				*Show Software Version*
Controllers				*Shows controllers info*

Menus				***Notes***
iQ.Mesh Status				*Shows current GLP iQ.Mesh status*
Show DMX Input				*Shows DMX values being received*
Fixture Counter				*Shows total device hours (non-resettable), resettable device hours, total power cycles (non-resettable), resettable power cycles, resettable air filter hours*
Show Signal Quality				*Shows info about any lost DMX packages*
Manual Control				
Reset All				*Reset all effects*
Manual DMX ***Warning! Fixture will start moving*** Press **Enter**	Tilt	001 - **128** - 255		*Manually control all effects*
	Intensity	000 - **255**		
	... *Scroll through all effects* ...			
	Blue - All Pixel	000 - **255**		
	Reset Manual Values	Confirm for 3 seconds *(press Enter)*		*Reset all manually entered DMX values to zero*
Service				
iQ.Service Connect		>>> Connect <<<		*Enables connectivity to the GLP iQ.Service app.*
Tests	Test All			*Run test sequence of all effects including tilt. Stop with BACK.*
	Test Tilt			*Run test sequence of tilt only. Stop with BACK.*
	Test Plate LEDs			*Run test sequence of all Plate LEDs. Stop with BACK.*
	Test Beam LEDs			*Run test sequence of all Beam LEDs. Stop with BACK*
	Fan Self Test			*Run fan self-test. Tries to detect fan errors, clears if successful.*
	Manual Fan test			*Manually test fans one by one*
	Test Encoder			
Advanced *(Press and hold for 3 secs.)*	Service Mode	**OFF**		*Normal operation*
		ON		*Disable tilt and display timeouts (exit by cycling power off and on.)*
	Reset counters	Lamp Hours	Confirm 2 seconds	*Reset to zero*
		Service Timer	Confirm 2 seconds	
		Air filter	Confirm 2 seconds	
	Video Interface Log			
	Save Setting Presets	Preset 1	Confirm 2 seconds	*Saves current fixture settings as setting preset*
		Preset 2	Confirm 2 seconds	
		Preset 3	Confirm 2 seconds	

Menus	***Notes***
Load factory defaults	
>>>Confirm<<<	*Reloads all factory default settings and default fixture configuration settings.* ***Important! Controller may lose connection to fixture!***

** Indicates features still under development*

Default settings are written in ***BOLD type***

8. Error messages

When restarting the fixture or sending a RESET command, the fixture performs an initialization process to test all functions and sensors. The fixture also continuously checks itself for correct operation.

If an error is detected, the fixture display shows the message **ERROR**.

- Pressing ✕ ignores the error message and exits the error display.
- Pressing ✓ shows information about the error.

Note: Make a note of any error message displayed. You may need these details for error diagnosis. Please be ready to give them to GLP Service if necessary.

Certain critical error messages are permanently stored in the display. In this case, please contact your GLP service agent.

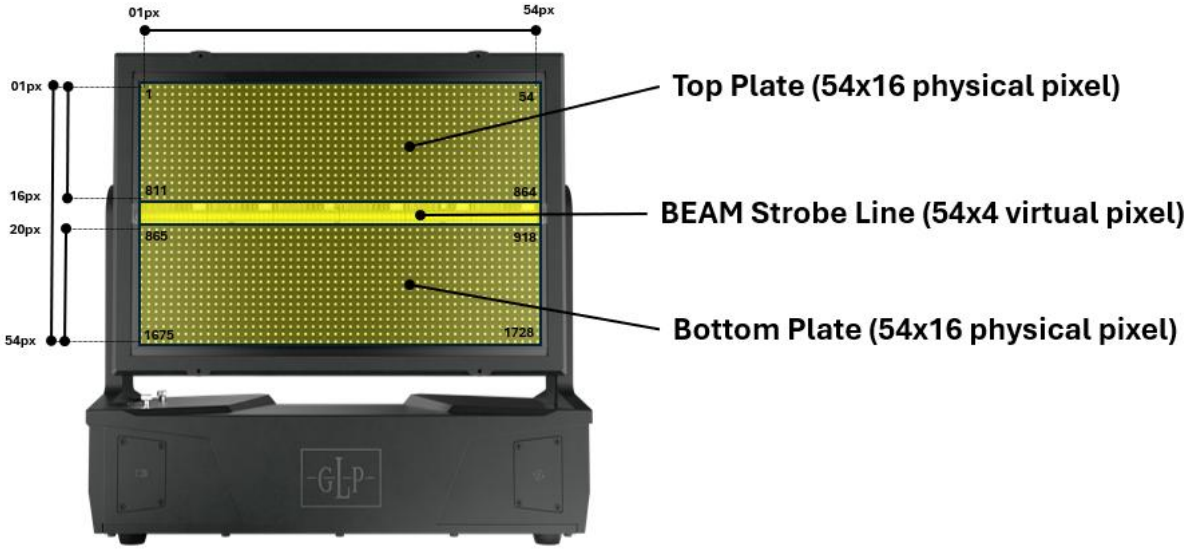
9. Pixel layout

The JDC2 IP pixels are located as shown below, seen from the front of the fixture (connectors and display facing away from you) with tilt at >50% and **Pixel mirror** set to **Off**.

9.1. Full pixel overview

The top plate has 16 parallel and horizontal lines with each 54 pixels and 7mm pixel pitch. The bottom plate has 16 parallel and horizontal lines with each 54 pixels and 7mm pixel pitch. In between the top and bottom plate, the strobe beam line, is a 4 line gap.

That gives a LED Matrix of **36 Pixel vertical** (16 Lines Top plate + 4 Lines gap + 16 Lines bottom plate) and **54 LED Pixel horizontal**.



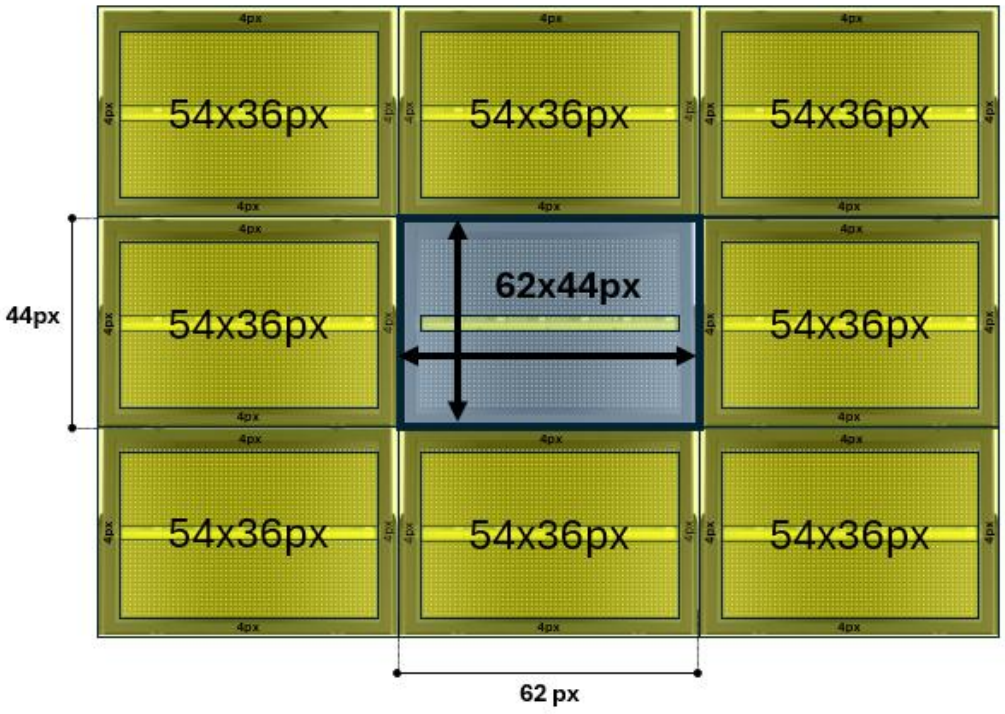
9.2. Control Mode 1 / M1 - Minimal (CH18)
Control Mode 2 / M2 - Basic (CH30)

9.3. Control Mode 3 / M3 - Segment 12-12 (CH105)

9.4. Control Mode 4 / M4 - Segment 12-24 (CH141)
Control Mode 5 / M5 - Pixel (CH85)

9.5. Segmented (Device) Matrix

If multiple fixtures are arranging in a device matrix setup (Segmented) add 4 virtual pixel horizontal and vertical around as boarder, so that each JDC2 can be calculated as a segmented area of 62x44 pixel.

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