madVR Envy

JVC Laser Projector Setup Guide

DLA-NZ500 / RS1200

DLA-NZ700 / RS2200

www.madvrenvy.com

Revision 1.03

Introduction

Welcome to the Envy JVC Laser projector setup guide for the **DLA-NZ500 / RS1200 & DLA-NZ700 / RS2200**. Although setting up the Envy itself is often as simple as plugging in the HDMI cables and entering the projector's peak brightness, it is important that your projector be set optimally for use in conjunction with the Envy. This guide covers the recommended set up for the **DLA-NZ500 / RS1200 & DLA-NZ700 / RS2200** when used with Envy.

After completing the setup, we recommend reviewing the Quick Sanity Check section at the end of this document.

JVC Configuration

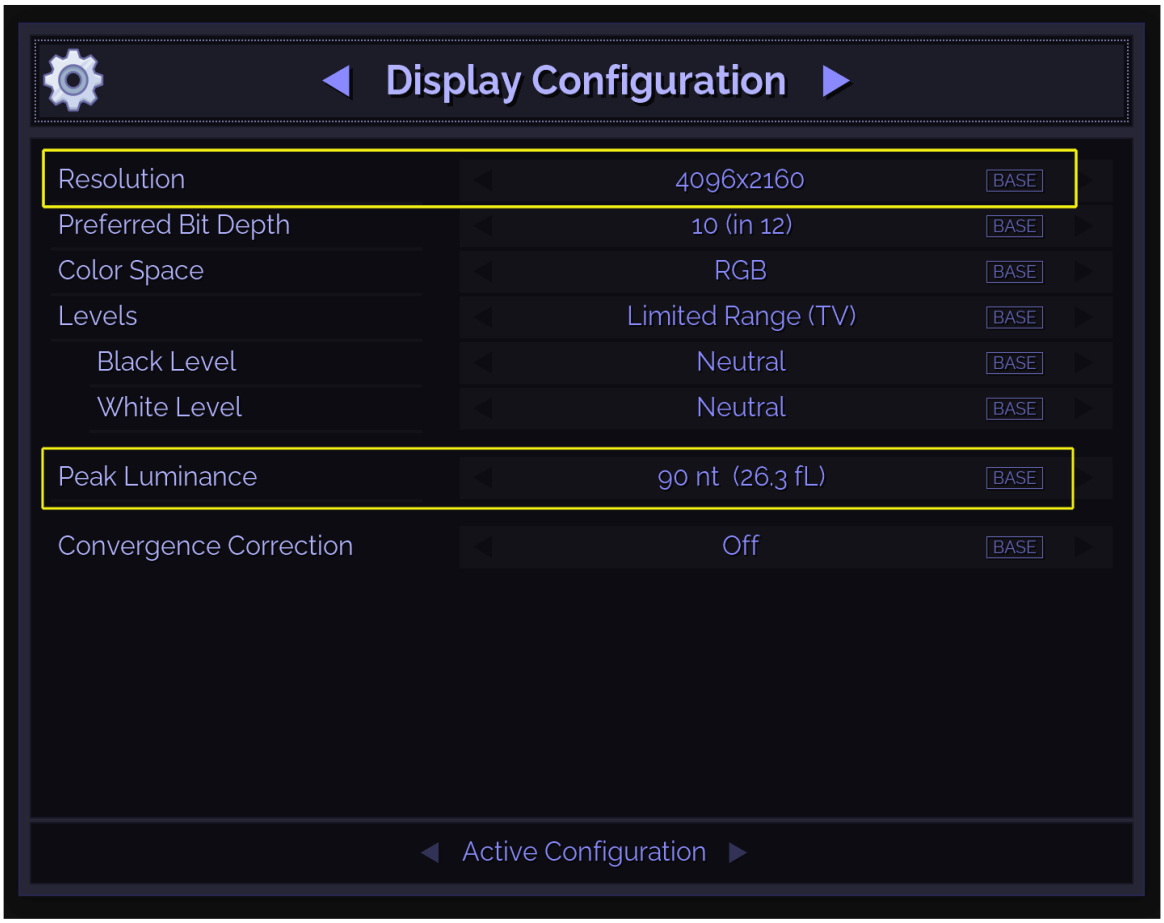
The following steps are recommended to best configure the **DLA-NZ500 / RS1200 & DLA-NZ700 / RS2200** for use with the Envy. On this model, the main JVC menu groups used below are **Picture Settings**, **HDMI Settings**, and **Installation Settings**.

1. First, let's configure important settings in the Envy's Display Configuration menu. Press the top-right button on the Envy remote to access this menu. Then follow the steps below. An example of the completed settings is shown in the image on the next page.

    A. **Resolution setting**: If you are using a screen with an aspect ratio of 1.85:1 or larger, such as a 2.35 or 2.40, the "Resolution" can be set to the menu option **4096 x 2160** and the JVC will use its full panel chip of 4096x2160. After changing to **4096 x 2160**, adjust your lens zoom position to fit the screen. If using a 16:9 screen, set the "Resolution" to **3840 x 2160** (4096 would be slightly determental for 16:9 screens).

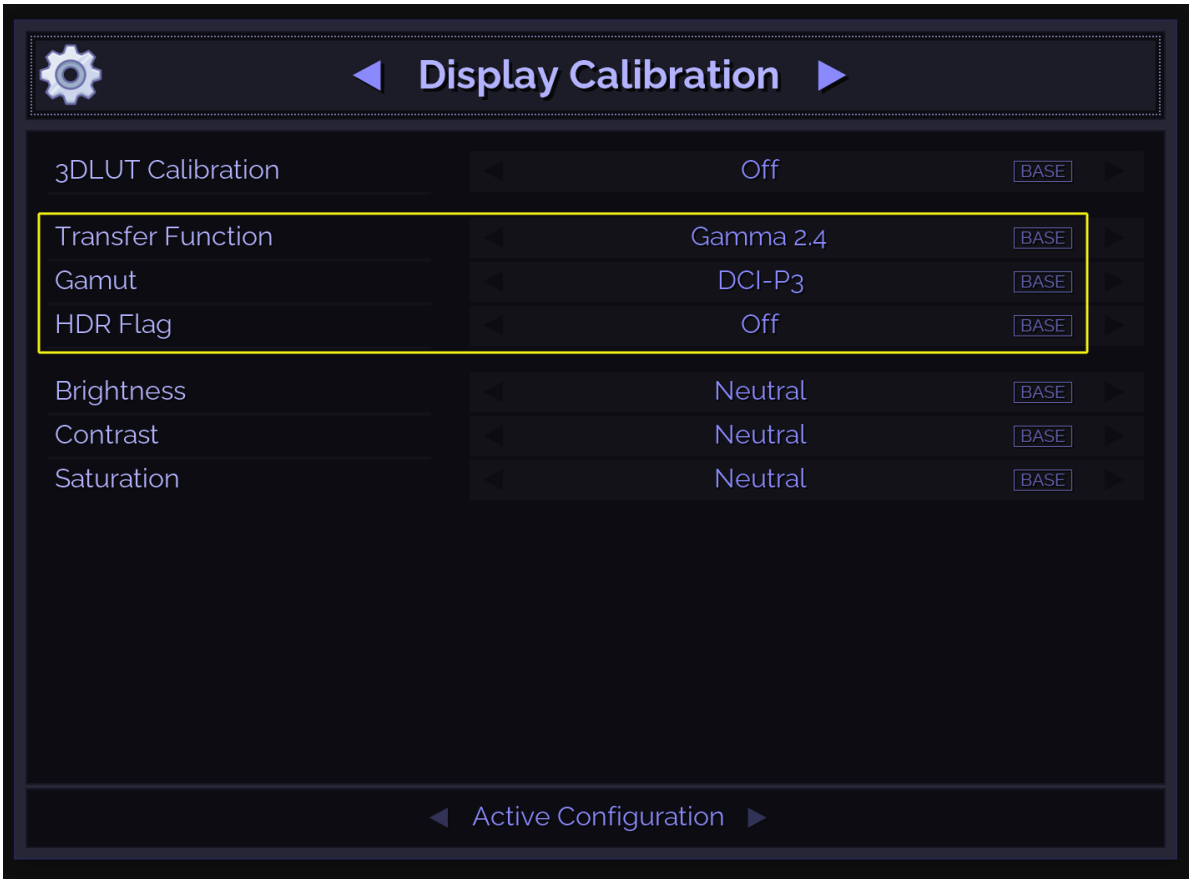
    B. **Peak Luminance:** Peak Luminance is a measure of the brightest image your display achieves for a specific system configuration. This depends on several factors, including your display's lumens, lens position, iris position, laser power mode, calibration settings, throw distance, and your screen size and gain.

The best way to determine your peak luminance is to display a 100% white pattern and measure it using 3rd party calibration software or a handheld lux meter. If measuring with calibration software, enter the "cd/m2" measurement as your nits value. If using a lux meter, multiply the lux reading by the screen gain and divide by 3.14 to get this value. If using a full screen white pattern, as opposed to a 10% or 20% pattern, add a 10% to the value. A full screen white pattern is available within the Envy's Test Pattern Menu which can be accessed by holding the Green flex key button.



2. Next, go to the Envy **Display Calibration** menu (shown below). To access this menu, press the top-right button on the Envy remote, then press the right arrow button once. Here we will focus on the **Transfer Function** and **Gamut** settings.

   It is critical that the Envy Transfer Function value set here matches the **Gamma** setting in the JVC menu. We recommend setting both the Envy Transfer Function and JVC **Gamma** to **2.4**. You can access this setting in the JVC from **Picture Settings > Mode Settings > Gamma** and select **2.4**. See the image on the next page. Although if using the HDR Flag approach in the Envy for different HDR vs SDR projector settings (see item 4), it is recommended to set the Transfer Function in the Envy to **2.2**.



3. Next, change the Gamut in the Display Configuration menu to **DCI-P3**.

   Note that when using a 3D LUT, the Transfer Function and Gamut options are not available in the menu, because in that case, the LUT fully manages the Transfer Function and Gamut.

4. For simplified setups where users will use a single picture mode and luminance targets for both SDR and HDR please leave the **HDR Flag** set to **Off**. Setting this to **"On"** will cause problems with HDR images, unless you know exactly why you are turning on this flag, which is for advance use only. Instructions on how to have the JVC automatically switch picture modes based on HDR vs SDR, including how to use the HDR Flag for this purpose, are covered in **Appendix A**.

   Before continuing, make certain that you save these changes to the Base Configuration. Otherwise, the changes you make here will revert on the next signal change. To save these changes to the Base Configuration, highlight either of the values that shows an orange TEMP tag and press the green button on the Envy remote. If you have made the changes with Base Configuration already selected at the bottom of the menu, then this step is not necessary.

5. If using a scope screen (a screen that has an aspect ratio of 1.85 or greater, such as 2.35 or 2.40 aspect ratio), please go to the Envy Screen Configuration menu, and under **Screen Boundaries**,

click **Run Assistant**. Then follow the on-screen instructions. This is a critical step to ensure the Envy menus are properly positioned and that content is displayed properly.

6. ALL other settings in the various Envy Configuration Menus should be left on AUTO, unless you have a particularly good and specific reason to change it. Often people change these settings without understanding the full impact. Note: Changing the "Configuration" items should not be confused with the changing the Envy Settings Menu (the Envy remote control button with the 3 sliders on it) - those are there for you to change the image to suit your tastes.

7. Picture Settings

    a. Under **Picture Settings > Mode Settings > Picture Mode**, select a picture mode such as **Natural**, **Cinema**, **SDR 1**, or **SDR 2**. **Natural** is a good starting point for an accurate picture.

    b. Under **Picture Settings > Mode Settings > Color Profile**, set **Color Profile** to either **Auto** or **BT.2020** if a single picture mode is used for both SDR and HDR.

    c. Under **Picture Settings > Mode Settings > Color Temp.**, set **Color Temp.** to **6500K**. Generally, **6500K** is closer to measured D65 (6500K color temp) in these models. Though choose the option that provides the most neutral white appearance.

    d. Under **Picture Settings > Mode Settings > Gamma/Tone Mapping**, set **Gamma Correction Value** to match the gamma selected in Step 2. For most setups this should be **2.4**.

    e. Under **Picture Settings > Mode Settings > MPC**, set **Graphic Mode** to **Off** and both **Enhance** and **Smoothing** to **0** so MPC is effectively disabled.

    f. Under **Picture Settings > Mode Settings > Clear Motion Drive**, set **Clear Motion Drive** to **Off**. Users of the Envy Extreme can turn off all motion processing within the JVC and utilize MotionAI for their motion needs which will provide finer and more detailed levels of adjustment.

8. HDMI Settings

    a. On the HDMI input used by Envy, go to **HDMI Settings > HDMI 1 Settings / HDMI 2 Settings**, set **Content Type** to **SDR**, and then configure the following values.

        i. Input Level: 16-235 (Video)
        ii. Color Space: RGB

b. Under **HDMI Settings > HDMI 1 Settings / HDMI 2 Settings > Auto Pic.Mode Select > SDR**, select the same **Picture Mode** chosen in Step 7a, such as **Natural**, **Cinema**, **SDR 1**, or **SDR 2**.

Selecting **Auto** for **Input Level** should also work, as it will normally select video levels. However, there have been cases where the JVC could potentially select the wrong levels when set to Auto. Therefore, we find it is generally best to force it to video levels, so you do not need to worry about it being wrong on occasion.

9. Installation Settings

a. In **Installation Settings > Anamorphic**, set **Anamorphic** to **Off** regardless of whether an Anamorphic Lens is being utilized. If an anamorphic lens is being used, please proceed to the **Envy Screen Configuration** menu settings to use its AI-based anamorphic stretch instead, and follow the next step.

b. Set the **Anamorphic Lens** option to **Yes** within the Envy Screen Configuration menu. This will show the stretch factor to select for the lens in use. This will generally be **1.25x** for lenses that are made for **4096-pixel** width or **1.33x** for lenses that use **3840-pixel** width. Save these options to your Base Settings. Additionally, to make sure everything is displayed properly, re-running screen boundaries will help ensure the screen is properly formatted.

c. In **Installation Settings > Aspect**, set **Aspect** to **Auto**.

d. Screen Adjust is optional and can be configured in **Installation Settings > Screen Setting > Screen Adjust** if desired. Screen Adjust can be used to compensate for the color shift of the screen. If you are performing a calibration and taking measurements off the screen, this is not needed. Otherwise, this setting may help you get closer to the D65 target color temperature. You can input the **"Screen No."** code for the screen being used in **Installation Settings > Screen Setting > Screen No.** JVC provides codes in their manual and website for a wide variety of screens.

Appendix A – Different Settings For HDR and SDR

Device IP Control Vs. HDR Flag Configuration

The initial steps listed in the JVC Configuration section are made for users who will NOT utilize the HDR flag within the Envy and will use a single picture mode for both SDR and HDR. However, users who have enough light and would like to have more tailored settings for content between SDR and HDR, such as running a higher laser power for HDR, have two options.

If you have the Envy Extreme, Pro, or Core with Core Premium Pack, the cleanest approach is to use the Envy's built in support for directly controlling displays via IP control to change picture modes, with no control system required. See the Envy Device IP Control configuration menu, and the Envy Academy Online - Device IP Control for more information on how to set this up.

Alternatively, you can make use of the HDR Flag within the Envy for this purpose without using device IP control. This setup, however, requires specific settings in the Envy and JVC, as listed below.

To begin setup for this method we will need to first set up the JVC correctly. On the HDMI input used by Envy, go to **HDMI Settings > HDMI 1 Settings / HDMI 2 Settings > Content Type** and select **HDR10**. Then go to **Picture Settings > Mode Settings > Picture Mode** and select **HDR 1** or **HDR 2**. Utilizing **HDR 1** and **HDR 2** can provide more flexibility and performance if calibration will be done in the future.

1. From **Picture Settings > Mode Settings > Color Profile**, select **BT.2020**. This is the correct **BT.2020** label on the DLA-NZ500 / RS1200 & DLA-NZ700 / RS2200.

2. Next select **Gamma/Tone Mapping** from **Picture Settings > Mode Settings**. With **Picture Mode** set to **HDR 1** or **HDR 2**, the **Correction Value** option will be available. The **Correction Value** will need to be set to **Import** which is defaulted to a **2.2** Gamma. Use **HDR 1** or **HDR 2** for this workflow.

3. Proceed to **HDMI Settings > HDMI 1 Settings / HDMI 2 Settings > Auto Pic.Mode Select**, and for **HDR10** select **HDR 1** or **HDR 2** picture mode that was used in Step 2.

4. Once the above changes are completed change the **Content Type** in **HDMI Settings > HDMI 1 Settings / HDMI 2 Settings** back to **Auto**. The picture modes defined in **Auto Pic.Mode Select** will switch automatically with SDR and HDR10 content based on the incoming signal.

5. In the Envy proceed to **Display Calibration** and set the **HDR Flag** to **Yes** and save to Base settings.

6. The **Transfer Function** in the Envy should be set to **Gamma 2.2** to match the **HDR 1 / HDR 2 Correction Value** when **Correction Value** is set to **Import**, which defaults to **2.2** within the JVC.

7. Ensure that the Picture mode being used for HDR is the picture mode that is measured for Peak Luminance so Envy's DTM can be performed correctly.

Quick Sanity Check

After completing the setup of the Envy with your JVC projector, we recommend reviewing the following checklist as a final "sanity check" to help ensure everything is set up optimally:

A. Play any 4K HDR movie (except Gemini Man or Billy Lynn). Check the Envy Incoming Signal Menu (press OK on the Envy remote when no Envy menu is active) and make sure that the "Framerate" shows 23.976. If instead it shows 59.94, and you are using an Apple TV or Kaleidescape, then your source device(s) are not set up for proper playback – check our setup Apple TV and Kaleidescape guides on our website for more information. Or if you are using a different source device, check its settings and make sure it outputs in a "native" or "direct" mode.

B. While playing the 4K HDR movie, check the Envy Incoming Signal Information to make sure the "Transfer Function" shows "HDR". If not, Envy is not receiving HDR from the source player. This could be caused by a "rogue" device in the HDMI chain, or if using an AVR like the Denon/Marantz, make sure it is set to use "Enhanced" HDMI, so that it outputs the full 18 Gbps bandwidth and is not restricted to 9 Gbps.

C. While on the Envy Incoming Signal menu, press the right arrow once to access the Outgoing Signal Information. Make sure that the “Framerate” shown here matches the “Framerate” from the Incoming Signal Information menu (in this example, both should show 23.976).

D. If the colors look undersaturated or oversaturated, check the Envy Outgoing Signal Information and verify that the Outgoing “Colorimetry” matches the color space you expect for the current content being played (e.g., “BT.2020” or “BT.709”), and check the JVC menu to confirm the projector is using the corresponding correct color space (revisit Steps 7b and 8).

Additional Resources

We highly recommend reviewing the Envy Academy Online video course or reviewing the Envy Introduction to Profiles guide, MotionAI guide, and the setups guides for source devices such as Kaleidescape and Apple TV. This and other such resources are available at www.madvrenvy.com/#resources. You may also wish to seek out calibration services from third parties or from the madVR Labs Professional Services Group. Email psg@madvr.com for more information.

Thank you and enjoy your Envy!