



madVR Envy

Epson Setup Guide

LS12000

www.madvyenvy.com

Rev 1.04

Introduction

Welcome to the madVR Envoy Setup Guide for the Epson LS12000 projector. Although setting up the Envoy itself is straight forward, it is important that your Epson projector be set optimally for use in conjunction with the Envoy. This guide covers the recommended set up for Epson projectors when used with Envoy.

Please make all the menu changes with “Base Settings” selected in the Profile Bar (the bottom selection in each Envoy menu) so the changes will be permanent. Otherwise, if you make changes when “Active Settings” is selected in the Profile Bar, the changes will only be temporary and later lost, unless you use the “Save to Base” option. For a better understanding of how settings in the Envoy work, please see Introduction to Profiles guide at <https://madvrenvy.com/#resources>.

Epson Configuration

The following steps are recommended to best configure the Epson for use with the Envoy.

1. First, let's configure important settings in the Envoy's Display Configuration menu. Press the button on the Envoy remote with the three horizontal lines or gear icon depending on remote to access the Configuration menu. Then follow the steps below. An example of the completed settings is shown in the image on the next page.
 - A. **Resolution setting:** Set the “Resolution” to **3840 x 2160**, which will likely be selected by default.
 - 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, lamp/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 third 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 Envoy's Test Pattern Menu which can be accessed by holding the Green flex key button.

Additionally the desired SDR luminance value can be used to target a specific luminance level for SDR content, **but only if you find SDR to be overly bright** Note that rather than using this

setting to adjust the SDR luminance, it is best to use a lower laser percentage output for SDR, while keeping Desired SDR Luminance set to Auto. This will maximize your contrast, but at the expense of having to change the projector settings (laser percentage) based on SDR vs HDR. If that is inconvenient, the Desired SDR Luminance can be used more easily/



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

It is important that the Envy Transfer Function value reflects the gamma correction being used in the Epson. Therefore, we recommend setting the Gamma Correction value to -2 in the Epson, which typically results in a 2.4 effective gamma. And setting the Envy Transfer function to **2.4**. You can access the Gamma Correction setting in the Epson from the main "Image" menu and selecting "Gamma"

- Next, change the Gamut in the Display Configuration Envy menu to **BT2020**.

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. Note: Please leave the **HDR Flag** set to **Off**. Turning this on will cause problems with HDR images, unless you know exactly why you are turning on this flag, which is for advance use only.

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.

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 that 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.

6. In the Epson “**Image**” menu, we recommend **turning the following settings off**, located in the “Image Enhancement” sub menu: Noise Reduction, MPEG Noise Reduction, Super-resolution, and Auto Contrast Enhancement. This enables the Envy to handle all processing of the image.

7. **Basic Picture** settings should use the following values for a good starting baseline to an accurate picture.

Color Mode: Natural
Brightness: 50
Contrast: 50
Color Saturation: 50
Tint: 50
White Balance > Color Temp: 6500K

8. **Dynamic Contrast** should be set to High Speed.
9. **Scene Adaptive Gamma** – This feature should be turned Off.
10. **Image Processing**, which is in Source > Image Processing, should be set to Fine.
11. Ensure that **Color Space**, located in Signal I/O, is set to **Auto**, which is the default.

Note: If a calibration will be performed, choose **Color Mode: Dynamic**, to take advantage of the more aggressive laser dimming available in that mode. This will provide better fade to black transitions while viewing content.

12. For the highest quality motion handling, set **Frame Interpolation to Off**, which is in the **Image menu** and use **MotionAI** exclusively in the Envy Extreme. See the [MotionAI User Guide](#) for more information. If using an Envy Pro, the Epson Frame Interpolation can be enabled and set to taste.

Note: Frame Interpolation should always be Off when performing a calibration.

13. In the Epson “Network” menu, set **PJLink** to On. This will be useful once we introduce the integration that enables the Envy to control the Epson directly.

14. Epson Signal I/O Configuration:

- A. Located in the Epson “**Signal I/O**” menu, set the **Signal Format** for the **HDMI port Video Range** to Limited 16-235, to be sure the Epson picks the proper levels (Auto will usually pick Limited, but sometimes this can cause a level mismatch).
- B. The EDID mode setting default for the LS12000 is “Up to 4K 120Hz 40Gbps”. Please note that if using 4K/120Hz for use with MotionAI **this setting requires certified full bandwidth 48 Gbps HDMI cables**. For cables over thirty feet this typically means using an active fiber HDMI cable. If you have HDMI dropouts or handshaking issues after changing this setting, one option is to change the EDID Mode to “Up to 4K 60Hz 18Gbps”, though this will not allow the Epson to output at 4K/120Hz, which is generally recommended as the best way to run MotionAI.

15. Aspect Menu:

- A. The **Aspect** option located in Image > Aspect or accessed by the Aspect button on the Epson remote should be set to Auto. This is the setting that should be used with and without an Anamorphic Lens. If you have an anamorphic lens, you will configure the Envy Screen Configuration menu settings to use its AI-based anamorphic stretch instead.

Quick Sanity Check

After completing the setup of the Envy with your Epson 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. If the colors look undersaturated or oversaturated, please check the Epson menu to confirm the projector is using the correct, corresponding color space (revisit steps 10).

Additional Resources

This concludes the Epson setup instructions. We recommend also 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. Thank you and enjoy your Envy!