User Guide: Popims 3Design Dual Interlacer (v2023.10.10.0)

---

1. Introduction

Popims 3Design Dual Interlacer is a professional software solution for generating interlaced images optimized for 3D Moiré, lenticular 3D and motion effects. This guide is designed for experienced printers using flatbed digital presses, with working knowledge of Adobe Photoshop.

The guide is divided into three main sections, corresponding to the general parameters and buttons, and the two types of lenticular lenses supported by the software:

- **Main interface buttons**
- **Spherical Lens** (for advanced 3D Moiré effects and color changes)
- **Cylindrical Lens** (for standard 3D and motion effects)

---

2. System Requirements

Operating System: Windows 10 or later
RAM: Minimum 8 GB (16 GB recommended)
Display: Full HD (1920x1080) minimum resolution
Disk Space: 500 MB for installation + additional space for image processing

---

3. Installation

1. Download the Software from your printer manufacturer website or using download button on: https://www.lensprinter.com/tips4interlacer
2. Run the installation executable.
3. Follow on-screen instructions.
4. Enter your machine number and press number and fill in the form. The license key will be automatically sent to the indicated mail address.
5. Enter the license key when prompted.
6. Restart the computer if required.

---

4. Launching the Software

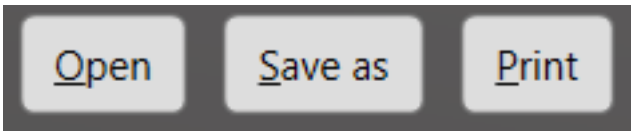
After installation:

- Launch the application via desktop shortcut or Start Menu.
- The main interface displays a project window, a preview pane, and tool panels for parameter input and file management.
- Examples of .psd images, .piproj final projects and standard and seamless patterns are included in the installation file.

---

5. General Software Parameters

Main Interface Buttons



Open

- Use the **Open** button to load either:
    - A **.piproj** file: a Popims project file that contains all current parameters and layer configurations.
    - A **.psd** file: an Adobe Photoshop file to which you can apply 3D parameters using Popims software.

Save As

- The **Save As** button enables you to:
    - Save your working file as a **.piproj** so you can reopen and edit it later.
    - Export an animated version of your project as a **.gif**. This is particularly useful for sharing a visual preview with clients or internal stakeholders.

Print

- The **Print** button creates a **high-resolution, highly compressed PDF** file ready for production.
- The output PDF includes **three embedded layers**:
    1. **Coded Image** – the interlaced graphic to be printed at maximum resolution (to be followed by a **White Layer)**
    2. **3D Layer (Optional)** – printed in varnish **before the lens**, useful to standardize surface tension, adhesion properties, and optimal lens print conditions.
    3. **Lens Layer** – to be printed using specifications provided by the **lens or printer manufacturer**.

Print Preview

- The **Print Preview** option allows you to see the **coded image** as it is printed.
- Without it, the preview simulates the visual result **magnified by the lens**, helping users assess whether the 3D or motion effect will appear correctly before launching a print.

Image Parameters

- **Width and height**: define the physical size of the print (in cm).
- **Media thickness** (in mm), which influences the lens geometry calculations. thicker media = bigger lens = lower resolution = increased 3D = more complex pattern
- **Viewing distance** is defined in meters and adjusts the interlacing for optimal perception (a small image will be seen at an “arm distance” around 60cm)

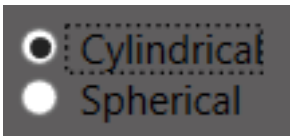
- Lower **varnish thickness** (%) if the final result is fuzzy and doesn't become better when seen from the side (See : lens fine tuning).

Important note:

- The **larger the final print format**, the **thicker the media** should be.
- Thicker media corresponds to **bigger lenses**, allowing for **stronger 3D effects** and **more complex patterns**.
- Thin media is adapted to **small format images** (e.g., a 2 cm 3D effect on a 20x20 cm print).
- Thick media is suited for **large format outputs**, allowing much bigger 3D and more complex patterns.

Popims Software Mode

- Upcoming: this section will explain the difference between **Cylindrical** and **Spherical** lens design modes and how the interface changes accordingly.



Part I: Using Spherical Lenses

1. Introduction to Spherical Lens Projects

Spherical lenses are designed for **3D Moiré effects**, which involve patterns that appear to float in front of or behind the printed surface with a 360° parallax view. This creates a dynamic visual effect where the printed pattern shifts as the viewer moves around it.

---

2. Image Preparation

1. Create or prepare your source images in Adobe Photoshop.
2. Ensure all layers are aligned and organized correctly (top layer are hiding the bottom ones, it should be coded from more positive 3D effect to less positive 3D layer, to less negative 3D layers to max negative 3D layers).
3. 3D layers:
    - For Spherical animations, 3D layers should show the part you want to apply later a pattern to, the layer should be in black or any color in full. Multiple zones should be created on different layers if you want to apply different 3D parameters to it (different pattern, 3D power or 3D direction)
    - For Cylindrical lens, each layer can be later applied a 3D. Each component you want to put in the back or in front of the image should be in a separate layer with a corresponding name at its correct location.
4. Save the image as a .psd image coded in CMYK

---

3. Project Setup for Spherical Lenses

Select **Spherical** lens type in the project menu. This activates specific parameters in the right-hand settings menu.

Click **Open** button and select the .psd file prepared earlier.

Check the image size and the correct media thickness to ensure proper preview and settings.

---

4. Spherical options for moiré layers (right menu)

Each layer of your original .psd image will appear on the right.

To apply a 3D effect to a layer:

- click the **“load pattern” button,**

- **select the desired pattern**
- **define the 3D**

Depth (3D Power)

- Range: top to bottom, **from 20** to **1** (for front), **then -1 to -20** (for back),
- The **higher the absolute value**, the **larger and fuzzier** the pattern appears (though the pattern itself is printed at the same size).

Zoom

- Alters the **size the pattern occupies** in the visual field.
- Setting zoom to maximum activates **"Fill" mode**. (Best used with **Seamless Patterns**, creating a continuous visual flow.)

Lens Direction/Orientation

- Choose between **Vertical** or **Horizontal honeycomb** orientation.
- Influences the final appearance and should be selected based on the pattern’s layout and directional design.
- At the same spot you cannot use different lens directions.

---

5. Tips for Pattern Creation:

- Avoid background clutter or gradients that reduce Moiré impact.

- Design with 360° movement in mind.
- The final Photoshop image and the pattern must both use the same color mode (RGB or CMYK).
- Patterns should be **highly contrasted** to stand out under the lens.
  Use consistent resolution. Maintain high-quality.
- A 3D pattern should be simple. Keep in mind: each complete pattern is rendered under a **single lenticular lens**, meaning the visible pattern has **very limited pixel space**.
- Be deliberate in your design to ensure recognizability and effect strength.
- The software includes **example patterns, full image files**, and .piproj **project files** that illustrate different effect configurations. It can and should be used as examples.
- You are free to **create as many patterns** as needed to experiment with different visual effects.

---

6. Photoshop Layer Setup for Spherical Projects:

- Start by creating your full composition in **Adobe Photoshop**.
- Create multiple **distinct layers** where you want to apply different 3D Moiré effects.
- All Photoshop layers will be **recognized and listed** in the right-hand menu of the Popims software when imported.
- Ensure that your layers are **stacked in visual depth order**: the top-most layer (closer to the viewer) should appear at the top of the Photoshop stack.
- Name your layers with **explicit names**.
- In Popims, assign **Depth values** accordingly: top layers should have **greater Depth values**, while bottom layers should have lower or negative values.
  (This maintains the correct parallax effect and prevents rear layers from hiding in front of upper elements.)

---

7. Interlacing and Output

- Use preview to test zoom and depth effects.

- Export using settings matched to the lens and print media.

---

8. Tips for Printing & Tricks for Pattern Complexity

- **Media Thickness and Pattern Design**: Thicker media supports **larger lenses** and allows for **more complex patterns**. When working on larger prints, increasing media thickness improves visual depth and tolerance for intricate patterns.
- **Resolution Matters**: The final print result is magnified by the lenticular lens. Therefore, always print the coded image at the **highest possible resolution** to maintain clarity and detail.
- **Monodirectional Printing**: Consider testing **monodirectional print modes** for sharper results, especially on high-resolution flatbed presses.
- **Pattern Clarity for Spherical Effects**: Each visible pattern under a spherical lens is created by combining **hundreds of individual printed patterns**. If these are **inconsistent, fuzzy, or low contrast**, the resulting image will be blurry, and the 3D effect will be degraded.
- **Contrast Is Key**: For both spherical and cylindrical effects, use high-contrast images and patterns to preserve depth and visual impact.
- **Registration and Alignment**: Proper **registration between the front and back sides** of the print is crucial. Ensure perfect angular alignment to maintain correct lens effect. Always align and print from the same side of the media (usually the bottom side) to guarantee consistency.

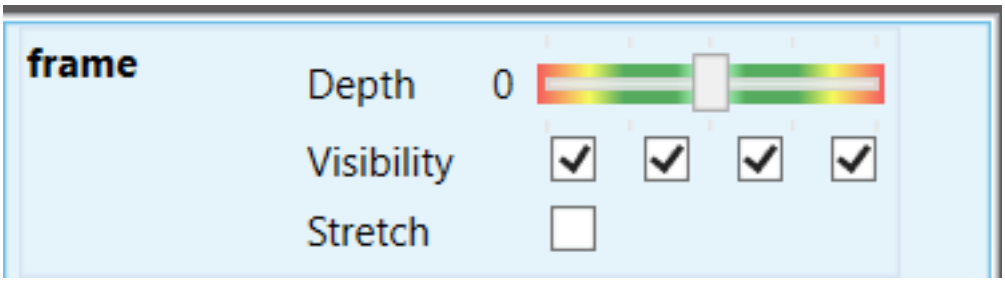
Part II: Using Cylindrical Lenses (Layer-Based 3D Motion Effects)

1. Image Preparation

- Create or prepare your source images in Adobe Photoshop.
- Ensure all layers are aligned and sized correctly.
- Save as a .psd file.
- Use consistent resolution and alignment.
- Maintain high-quality.
- Each layer can be applied to have a different 3D effect. Try to compute elements at the same depth in the same frame (layer).
- To appear moving in front, the element cannot be hidden by something that should be in the back or the 0 point. Therefore good positive 3D should be in the middle of an image.
- Contrary to what have been said a positive 3D frame could be applied on all the contours to maximize the movement / comparison with the center of the image.

---

2. Creating the Interlaced Image



- Import a Photoshop image with layers into Popims.
- Use the right-hand panel to assign depth values when needed.
    - More 3D = more movements = more fuzziness

- Assign the animation appearance range for each layer.
    - Motion is divided into 4 parts,
    - To make an image disappear it should be on 1/4th of the animation
    - If 2 images appear on the same spot, more visibility should be given to the less contrasted image. The 2 images should have reverse visibility.
- Use the preview pane to verify visual output.
- Save or export the final interlaced file for printing.

---

3. Managing Expectations

Popims 3Design Dual Interlacer was originally designed for **spherical lens technology**. While the software supports **cylindrical lens effects**, results will differ from traditional lenticular foil systems using calendared lenses:

- Cylindrical lens effects may exhibit **ghosting** or **visual leaks**, especially when attempting to create disappearing layers or flip-style animations.
- Popims lenses are **not joined** like standard foil lenses, making **coded images partially visible** between lens elements.
- Best results are achieved with **3D effects**. Limited flip or two-image animations may be possible under very specific conditions.
- For hybrid compositions, consider combining flip effects with **2D high-definition imagery**.

PART III: Lens fine tuning & FAQ

- **WARNING :** To analyze a visual effect, you should start by analyzing the lens.
    - Always look at the lens using a strong magnification (USB microscope)
    - The lens should be spaced apart (no bridges between lens)
    - The lens should be transparent (a bumpy lens will appear matt and won't work)
    - **IF lens are touching :** reduce the pixels during the lens RIP
- The printed result is more contrasted when looked from the side :
    - Your lens focuses too far
    - You need to add varnish (contact printer manufacturer if complex)
- The printed result is always fuzzy
    - Your lens may focus inside the media
    - Lower the number of varnish layers or the varnish density in the Popims Software.
    - This is expected with higher depth values. Adjust to a lower absolute value.
- The 3D moiré animation doesn't move accordingly (appear to move in diagonal).
    - The lens and the image are not aligned in angle, print again.