MANUAL

Version 2511

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CONTENTS

1. BASIC CONCEPTS

SenSei application

The SenSei application, built with Unreal Engine, handles all visual generation, mixing and manipulation. To launch the SenSei application, add the s_SenSei Control + Main Camera.amxd plug-in to your Live Set. The plug-in will launch the application automatically.

Use this plug-in to adjust the render quality and anti-aliasing quality. These settings allow you to balance visual fidelity and system performance. It significantly affects how elements such as lighting, shadows, transparency, reflections, motion blur, and depth of field are rendered and it also has a major impact on GPU performance.

The application runs in the background in a separate instance from Ableton Live, so all video processing is done outside Ableton Live to maximise performance and reliability. The SenSei application is controlled by the SenSei plug-ins in Ableton Live.

The plug-ins

SenSei includes a wide range of plug-ins, here are a few key ones:

Cameras
The Camera is the most important plug-in, as it determines how you view and navigate your scenes. You can add as many cameras as you like and switch between them using the Activate button. Use the Overview Map to get a top-level view of all elements in the scene. Take advantage of Depth-of-Field, Scene Light, and the built-in Post-Processing effects to shape your visuals. Switching cameras will also change these settings, allowing you to create very different and unique scenes or views.

Lights
Use lights to illuminate your scene. Without them, nothing will be visible. You'll find three types of lights in the Lights folder. Another way to light your scene is through the Scene Light in the Camera plug-ins, which interacts with the Sky plug-in.
If the Sky plug-in is included in your Live set, it controls the sun's direction and brightness to create a realistic day/night cycle. The Sky plug-in also adds an option for Sky Light, which provides gentle, ambient illumination across the entire scene, even in darker areas where no direct light reaches, making everything look more natural.

Video Planes
Most SenSei plug-ins can have video applied to them, but there's also a dedicated collection of plug-ins for displaying video, found in the Video Planes folder. You can stream video directly from EboSuite sources or from any other video application that supports Spout/Syphon using the Video Route plug-in. The most basic plug-in is the Plane plug-in. A special category is the 3DFX plug-ins, these are planes that can be distorted and manipulated in many creative ways. Use SenSei's 2DFX to manipulate incoming video from EboSuite or external video applications.

Post-Processing
Post-processing effects are visual effects applied to the final rendered image in real time. They're used to enhance the overall look. You'll find them in the camera plug-ins. Creative post-processing effects (data-moshing and feedback), you'll find in the Post-Process folder.

Mesh Loader
Use the Mesh Loader plug-in to add any mesh into your scene.

Text
Use the Text plug-in to add 3D text to your scene. Take advantage of the built-in 3D FX for extra creative control.

Assets
SenSei includes many plug-ins for building scenes. Combine them to create your own unique compositions.

Presets
Seamlessly add scenes to your Live set by dragging grouped plug-ins (including cameras, lights, and more) into your set. Use the Macro Mapper plug-in to automatically map controls to your MIDI controller, Envelope Follower, automation, and other sources.

Plug-in Interface

Each plug-in has a Transform section to adjust position, rotation, and scale. The position of a plug-in in the 3D scene is determined by its origin and the position offset from that origin. You cannot automate or map the origin parameter, but the offset parameters are fully automatable and mappable.

Each plug-in has an opacity slider to fade it in and out. Note that the fading may appear dithered, this is necessary for Unreal to render it in the main render thread with correct depth sorting. In some plug-ins, you can control this by switching between Masked and Translucent modes. Translucent provides

smoother fades and better alpha, but can produce artifacts when depth sorting is critical (e.g. for shadows, intersections, or depth-of-field).

Each plug-in can either move to the camera's LookAt point or bring the camera's LookAt to make it visible in the camera view. Moving to the LookAt changes the plug-in's position in the scene, while bringing the LookAt moves the LookAt point itself, adjusting the camera's viewing direction. Use the Focus in Overview button to enlarge the plug-in's icon within the camera's Overview Map.

Most plug-ins support video input.

2. THE PLUG-INS

2.1 Cameras

SenSei includes two types of camera plug-ins: s_Camera and s_SenSei Control + Main Camera. You can add multiple s_Camera plug-ins to your Live set, but only one instance of the s_SenSei Control + Main Camera plug-in. This is because the latter not only serves as the main camera controller but also manages the core configuration settings for the SenSei application.

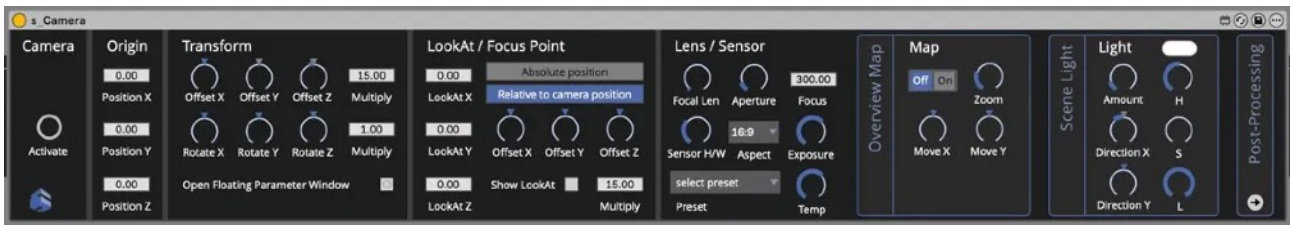
SenSei Control + Main Camera

In the SenSei section, you can adjust the Render Quality and Anti-Aliasing settings. The Render Quality setting allows you to balance visual fidelity and system performance. It significantly affects how elements such as lighting, shadows, transparency, reflections, motion blur, and depth of field are rendered and it also has a major impact on GPU performance.

The Anti-Aliasing setting also impacts performance. It determines how Unreal Engine smooths out jagged edges (aliasing) that appear along diagonal or curved lines in rendered images, resulting in cleaner and more visually polished visuals.

This section also shows if Ableton Live is connected to the SenSei application.

Camera



Use the Activate button in the Camera section to set a camera as the active one (the view that appears in the output window). You can automate this parameter to switch between cameras dynamically. Deactivating a camera has no effect, but activating one will take control of the final output view and automatically deactivate any other active cameras.

The Origin and Transform sections control the camera's position and rotation, in other words, its point of view. The Origin defines the camera's location in World Space, while the Transform parameters determine the camera's position and orientation relative to that origin.

The LookAt / Focus Point section defines the position of the camera's focus target. You can set its location using a World Position and apply an additional offset.

There are two operation modes:
– Absolute Position: The camera pivots around the fixed LookAt point.
– Relative to Camera Position: The LookAt point moves along with the camera's position (but not its rotation).

Make the LookAt Point visible by enabling the Show LookAt toggle.

Most plug-ins include a Camera section. Here, you can either move the plug-in to the camera's LookAt point or move the LookAt point to the plug-in.

In the Lens / Sensor section, you can control Depth of Field, zoom, focus, and exposure/ temperature settings.

To create an exaggerated Depth of Field effect, use a large Focal Length, large Sensor Height/Width, and a small Aperture value.

Use the Overview Map to get a top-level view of all elements in the scene. Cameras are represented by a red arrow, lights by a yellow icon, assets by a blue dot, vertex shapers by a pink shape, video planes by a pink rectangle, and text by a green "T".

Use the map controls to zoom in/out and navigate the top-level view.

Enlarge a plug-in's icon in the Overview Map by enabling the Focus in Overview toggle in its Camera section.

Use the controls in the Light section to adjust the scene's lighting. If the Sky plug-in is included in the Live set, it controls the sun's direction and brightness, creating a realistic day-and-night cycle.

Post-Processing

Use the Post-Process section to apply post-processing effects to the final render. Each camera can have its own settings, so switching between cameras will automatically apply their respective post-processing configurations, allowing you to create well-composed and visually consistent shots.

2.2 Lights

SenSei includes three types of light plug-ins: Point Light, Rectangle Light, and Spot Light. You can add unlimited lights to your scenes to achieve the desired illumination.

Point Light

The Point Light is an omnidirectional light source. Its Attenuation Radius determines how far the light reaches.

You can add additional light effects using the Shape dropdown menu.

To display a visible representation of the light in the output window, enable the Show Icon in Scene toggle.

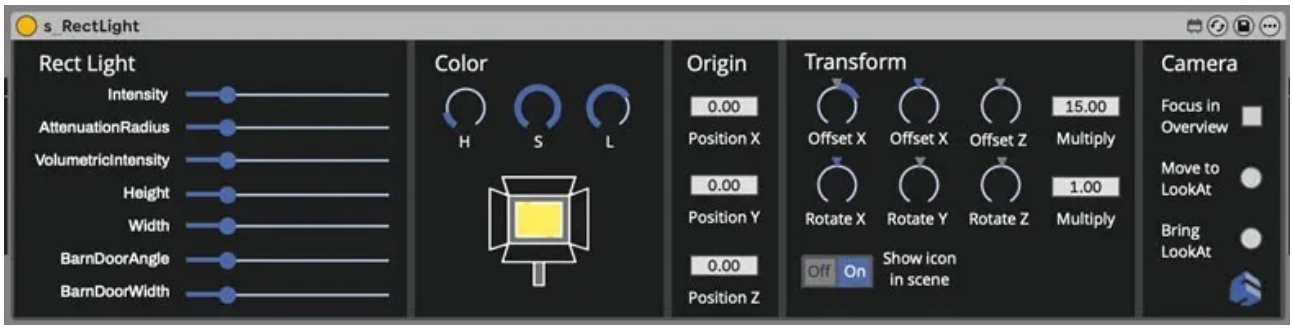
Spot Light

The Spot Light is a directional light source. Its Attenuation Radius determines how far the light reaches.

You can add additional light effects using the Shape dropdown menu.

To display a visible representation of the light in the output window, enable the Show Icon in Scene toggle.

Rect Light



The Rectangle Light is a directional, rectangular light source. Its Attenuation Radius controls how far the light reaches.

You can adjust its shape using the Height, Width, BarnDoor Angle, and BarnDoor Width parameters.

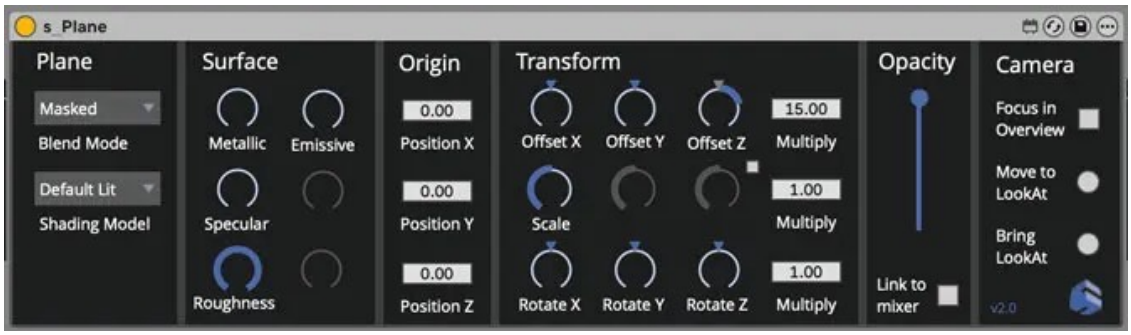
To show a visible representation of the light in the output window, enable the Show Icon in Scene toggle.

2.3 Video Canvasses

Most SenSei plug-ins can stream video and manipulate it creatively. The plug-ins listed in the Video Planes section are specifically designed for mixing and managing video streams. A special category within the Video Planes section is 3DFX. These planes are designed to creatively distort video streams using vertex effects.

To stream video with a SenSei plug-in, add an EboSuite Source plug-in before it, or use an s_Video Route plug-in to stream video from an external source such as Resolume, VDMX, TouchDesigner, or similar applications using Spout/Syphon.

Plane



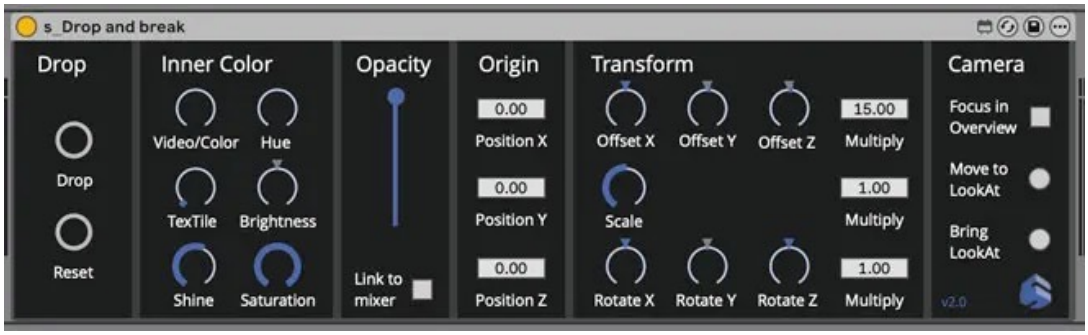
The Plane plug-in is a basic plane for streaming video from EboSuite sources or external applications directly into the SenSei scene.

It supports two Shading Models:
– Default Lit: it is affected by lights
– UnLit: it is unaffected by lights

It supports two Blend Modes:
– Masked: The plane is rendered in the main render path with correct lighting, shadows, intersections, and depth of field, but its transparency is dithered.
– Translucent: The plane's transparency is not dithered, producing a smoother appearance. However, it is rendered outside the main render path, which can cause issues with lighting, shadows, intersections, and depth of field.

Use the Surface settings to adjust the plane's reflectiveness and emissiveness.

Drop and break

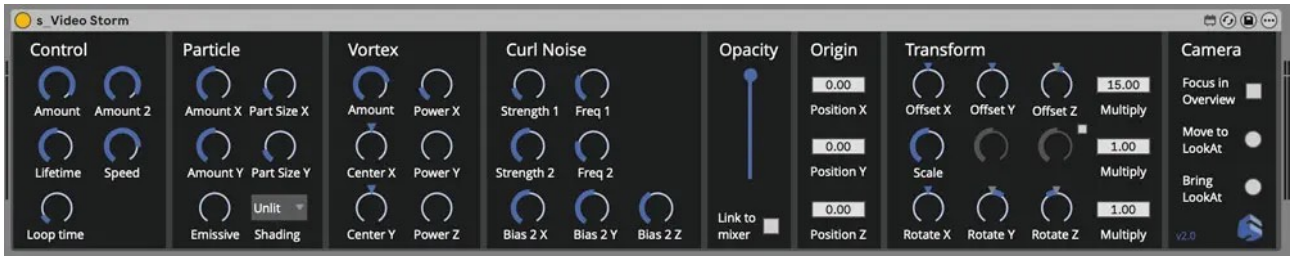


The Drop and Break plug-in allows you to drop a video plane, causing it to break upon hitting the underlying floor. **VIDEO**

Drop and Swing

The Drop and Swing plug-in lets you drop a video plane so it swings from a cable. You can also push it to control the swing timing. **VIDEO**

Video Storm



The Video Storm plug-in breaks a video plane into particles, which can then be manipulated using various forces. **VIDEO**

Robotic Arm

The Robot Arm plug-in allows you to control a video plane using a robotic arm. By using multiple robot arms, you can create complex, kaleidoscopic compositions. **VIDEO**

3DFX: Vertex Shapers

SenSei offers a wide range of vertex effects, which distort the video plane in 3D. For more details, see the section on 3DFX.

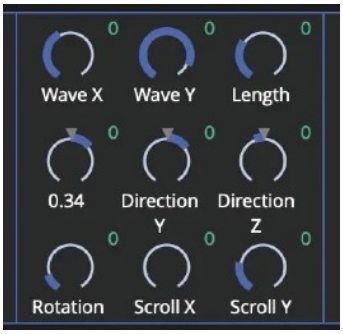
2.4 3DFX

SenSei's 3DFX section is a collection of Vertex Shaper Stack plug-ins. These plug-ins allow you to distort a video plane using vertex effects, which manipulate the vertices (the points that define the plane's shape).

Each Vertex Shaper Stack plug-in contains four unique 3DFX effects. The Master, Slicer, Displacement Texture, Opacity, Origin/Transform, and Camera sections are consistent across all plug-ins.

Use the Slicer section to cut up the shape into separate parts.

The Displacement Texture allows you to control FX parameters based on the texture's pixel luminance. Use the settings in the Displacement Texture section to adjust the image and fine-tune how it influences the effect parameters. Assign the displacement texture to a parameter by increasing the cyan number.



NOTE: Most SenSei plug-ins can have video applied to them, allowing them to function as 3DFX as well. For example, the Video Storm plug-in is an excellent 3D video effect.

Vertex Shaper Stack 01

Vertex Shaper Stack 01 consists of the Floral, SpiderWeb, Bend and Drop 3DFX.

Vertex Shaper Stack 02

Vertex Shaper Stack 01 consists of the Tessellator, CurlyShell, Bowtie and Radial Wave 3DFX.

Vertex Shaper Stack 03

Vertex Shaper Stack 01 consists of the JellyRoll, Hoover. Messuppalizer and Extrude 3DFX.

Vertex Shaper Stack 04

Vertex Shaper Stack 01 consists of the Worrell, Wavey, SlinkyCone, VSynthazisor 1 3DFX.

Vertex Shaper Stack 05

Vertex Shaper Stack 01 consists of the Spiral, Rose, Weave 1, Star Breaker 3DFX.

Vertex Shaper Stack 06

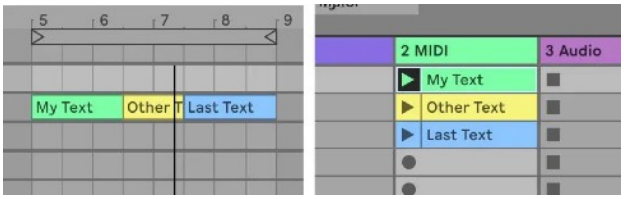
Vertex Shaper Stack 01 consists of the Twist, Weave 2, Pointy, Flag 3DFX.

2.5 Text

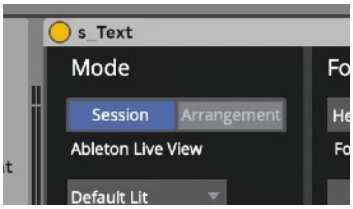
Use the Text plug-in to add 3D text to a SenSei scene. There are 60 fonts to choose from. **VIDEO** + **VIDEO**

Use 3DFX to transform and animate text in creative ways. By default, the plug-in includes three point lights to illuminate the 3DFX shape. Decrease/increase the light intensity to turn them off or enhance their effect.

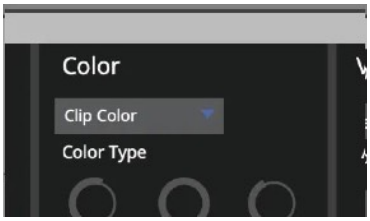
The plug-in will display the title of the active clip on the associated Audio/MIDI track.



Ensure the plug-in is set to the correct mode: Arrangement or Session.



If Color is set to Clip Color, the clip's color will be used to tint the text. Set it to Custom to choose any color you like.



It supports two Blend Modes:
– Masked: The plane is rendered in the main render path with correct lighting, shadows, intersections, and depth of field, but its transparency is dithered.
– Translucent: The plane's transparency is not dithered, producing a smoother appearance. However, it is rendered outside the main render path, which can cause issues with lighting, shadows, intersections, and depth of field.

It supports two Shading Models:
– Default Lit: it is affected by lights
– UnLit: it is unaffected by lights

2.6 Post-process

Post-process effects influence the entire final render, affecting all elements in the scene collectively.

Data Mosh Feedback

Use the Data Mosh Feedback plug-in to create data mosh and feedback effects. **VIDEO**

Camera Post-Processing effects

The Camera plug-ins have a Post-Process section to apply post-processing effects to the final render. Each camera can have its own settings, so switching between cameras will automatically apply their respective post-processing configurations, allowing you to create well-composed and visually consistent shots.

2.7 Mesh

These plug-ins either add a mesh to the scene or are centered around a mesh.

Mesh Loader

This plug-in allows you to import any mesh into the scene. You can download meshes from websites such as sketchfab.com, free3D.com, turbosquid.com, or create your own meshes with 3D software (like Blender) and drop them into the plug-in's drop zone.

Only GLTF / GLB meshes are accepted.

Imported meshes appear immediately in the scene with the correct materials and animations (if included).

Use the Scale Multiply number box to adjust the mesh's size, as imported meshes can vary greatly in scale. **VIDEO**

Mesh Slicer

A creative mesh slice plug-in. Doesn't work on imported meshes. 22 meshes are included. Great to stream video on and use as a 3DFX. **VIDEO**

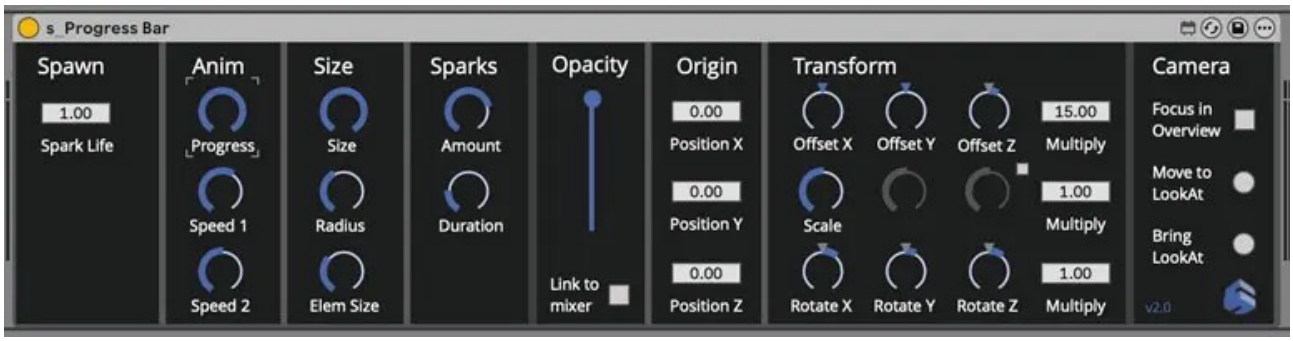
Mesh Swarm

A swarm of meshes. Doesn't work with imported meshes. 17 meshes are included. Great to stream video on. **VIDEO**

Disco Ball

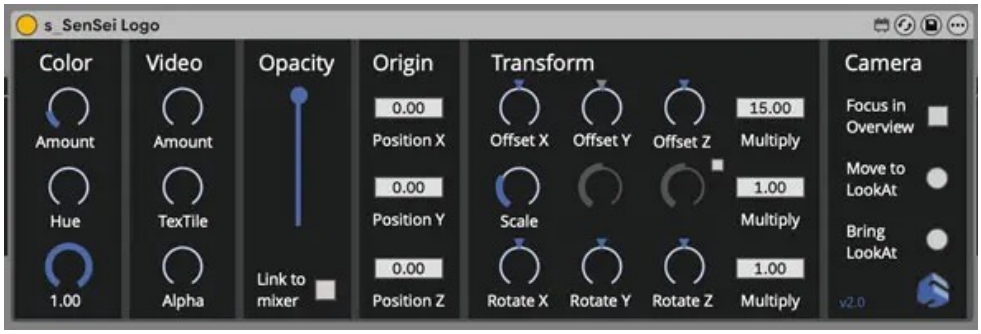
A disco ball with integrated lighting. Use an LFO to make it rotate continuously. **VIDEO**

Progress Bar



A progress bar that can be used as a countdown for events (for example). When the bar reaches 100%, it triggers a burst of particles. **VIDEO**

SenSei Logo



The SenSei logo. Use an LFO to make it rotate continuously.

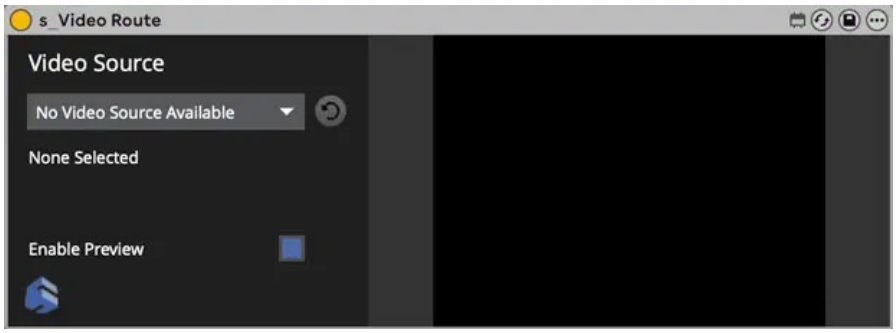
Watch

A watch with adjustable settings to distort its appearance. **VIDEO**

2.8 Tools

The Tools section contains a collection of plug-ins, each designed with different functionalities for various purposes.

Video Route



Use the Video Route plug-in to stream video from external applications (such as Resolume, VDMX, and TouchDesigner) into the SenSei scene via Spout or Syphon.

Place this plug-in in front of a SenSei plug-in on a track to send video to it. Most SenSei plug-ins can receive video and manipulate it in creative ways.

Macro Mapper + Macro Mapper MIDI

Use the Macro Mapper to map plug-in groups, added to the Live Set, on the fly to a MIDI controller.

A practical workflow in SenSei is to create groups of plug-ins that form a compelling scene and save these groups or scenes to the User Library for later use in a live show. The Macro Mapper automatically maps a MIDI controller to the macro parameters of the group when it is dragged into the Live set.

To set this up:
1. Add a Macro Mapper to an audio/MIDI track.
2. Map its dials to your MIDI controller.
3. When you add a plug-in group behind the Macro Mapper, it will automatically connect to the group's macro parameters, allowing the MIDI controller to control them directly. **VIDEO**

2.9 Amplitude

The Amplitude plug-ins are specifically designed for use with an Envelope Follower. By mapping an Envelope Follower to the plug-in's Amplitude parameter, you can visualize audio in a 3D scene.

Amplitude 01

Use particle rings to visualize sound. **VIDEO**

Amplitude 02

Use particle rings to visualize sound. **VIDEO**

Amplitude 03

Use a circle of meshes to visualize sound. **VIDEO**

Amplitude 04

Use a line to visualize sound. **VIDEO**

Amplitude 05

Use a line to visualize sound. **VIDEO**

2.10 Background

Plug-ins in the Background category are used to create the backdrop for a SenSei scene. Many of the plug-ins can also be used as a floor or in other creative ways.

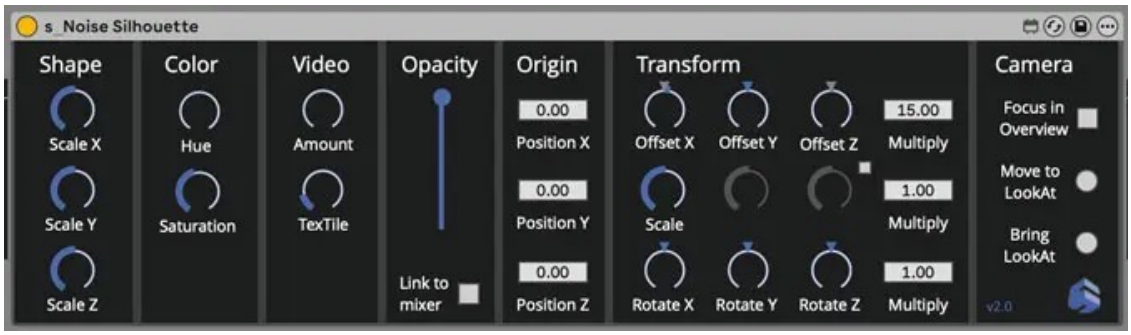
MGD Background 01

Use a grid of stretchy spheres as a backdrop. The color of each sphere is determined by the speed of its motion. **VIDEO**

MGD Background 02

Use a grid of spiky meshes as a backdrop. Adjust their reflectiveness for extra spice. Position them closer together to create a morphing shape. **VIDEO**

Noise Silhouette



Use a grid of messy meshes as a backdrop.

Sky Sphere

Use the Sky Sphere plug-in to create a 360° backdrop around the camera in your SenSei scene. Adjust the camera's Focal Length to make the space appear larger or smaller.

There are 44 360° backdrops available to choose from.

Sky

Use the Sky plug-in to create a sky with a sun, clouds, and Sky Light.

The Sky Light provides general illumination to the scene, ensuring that surfaces not directly lit by point, rectangle, or spot lights still receive some light. This helps bring your scene to life and adds realism.

The Sky plug-in interacts with the camera's scene light. By adjusting the camera's scene light parameters, you can control the sun's direction and brightness, enabling a realistic day-and-night cycle.

Studio

Use a studio floor as a backdrop.

Wall

The Wall plug-in provides 26 3D walls that can be used as a backdrop in your scene.

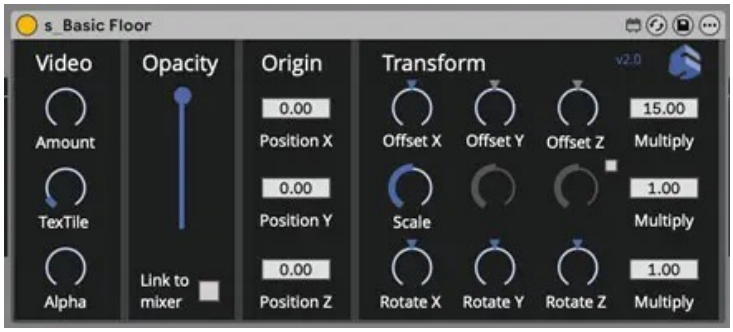
2.11 Basic plug-ins

This category includes several plug-ins for setting up a basic scene, ideal for testing purposes.

Basic Cube

A basic cube located at 0. 0. 0.

Basic Floor



A basic floor.

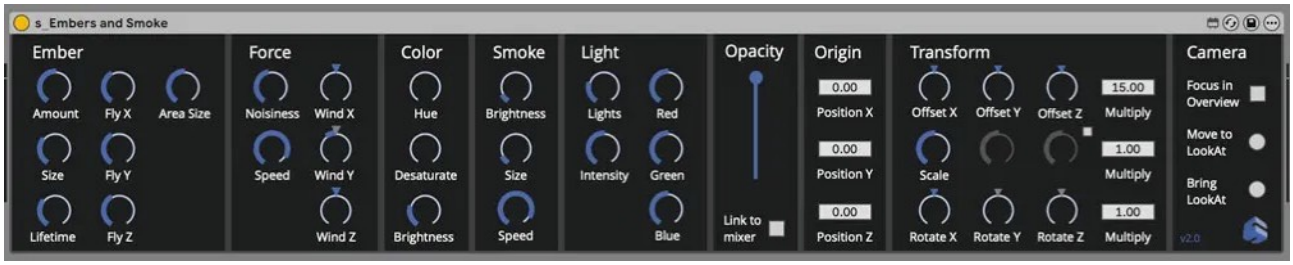
2.12 Fire and Smoke

This category contains fire and smoke related plug-ins.

Color Burster

The Color Burster plug-in works exclusively on a MIDI track. In Burst mode, MIDI triggers activate the flame, while in Stream mode, the flame remains continuous.
VIDEO

Embers and Smoke

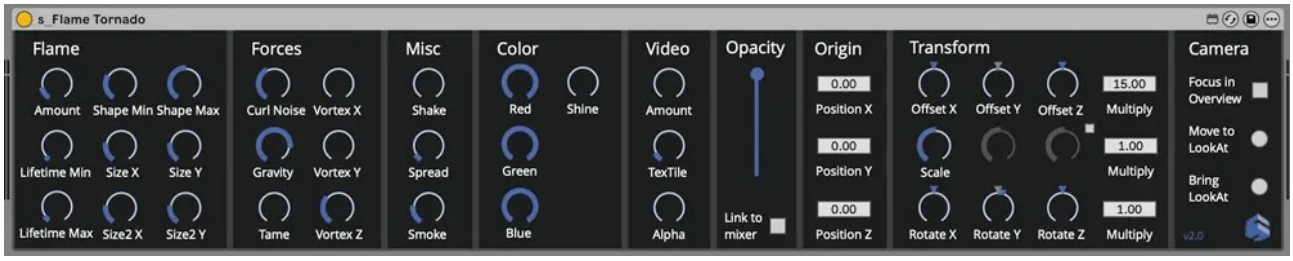


The Embers and Smoke plug-in adds dust particles to your scene, enhancing depth and increasing realism. **VIDEO**

Fire

This plug-in creates fire. **VIDEO**

Flame Tornado



A creative flames plug-in. **VIDEO**

Smoke

This plug-in generates different types of smoke. **VIDEO**

2.13 Floor

Plug-ins in this category are used to create a floor within your scene. They can also be used as backdrop or other creative ways.

Dynamic Floor 01

A floor composed of moving hexagons. **VIDEO**

Dynamic Floor 02

A floor composed of moving cubes. **VIDEO**

Dynamic Floor 03

A floor composed of moving cylinders. **VIDEO**

Floor

The Floor plug-in provides 13 3D walls that can be used as a backdrop in your scene.

The floors can be distorted in 3D to form hills and other artistic shapes. **VIDEO**

Water

This plug-in creates a circle of transparent water, which can also be used as a distortion filter when viewed through the camera. **VIDEO**

2.14 Impacts

These plug-ins use MIDI notes to trigger shapes in the scene. Great for rhythmical compositions. They work on MIDI tracks only.

impact Metal

This plug-in simulates a bullet hitting a metal wall, generating smoke and sparks on impact. Use the parameters to create colorful sparks. **VIDEO**

Mud Splash

This plug-in simulates a bullet hitting a mud, generating smoke and splashing mud on impact. Use the parameters to create colorful splashes. Use video input to make video splashes. **VIDEO**

Passiflora

A colorful, sparkling impact. Use video input to make the video bursts. **VIDEO**

Stylized Explosion

A cartoony explosion. Use video input to explode video. **VIDEO**

SynthaShock

A colorful shockwave. Looks nice with video input as well. **VIDEO**

2.15 Laser

This category contains plug-ins that create laser-based elements and effects.

Dynamic Laser

The Dynamic Laser plug-in generates a realistic laser in your scene that interacts with other meshes. You can control it through Live's automation or let it animate automatically. **VIDEO**

Kinetic

With the Kinect plug-in you can create complex color choreographies. **VIDEO**

Laser Beam

Use the Laser Beam for special effects and creative shapes. **VIDEO**

2.16 Lines

This category contains plug-ins that create line-based elements and effects.

Line Dancer

A randomly moving line. **VIDEO**

Uitarete

A complex shape composed of interconnected lines. **VIDEO**

2.17 Magical

This category features plug-ins with a magical theme.

Flash Ring

A flashy torus with flames. **VIDEO**

Gravity Star

An animating star. Works well with video input too. **VIDEO**

Magic Circle

A magical portal. **VIDEO**

2.18 Nature

This category includes plug-ins that are nature-related.

Butterflies

A flock of butterflies. When video is applied to them, they become videoflies. **VIDEO**

Flowers

This plug-in adds flowers to your scene. They work well with video applied to them. Use the Wind and Distort parameters to create creative shapes and turn them into a 3D video effect. **VIDEO**

Grass

A tile of grass for use in your scene. **VIDEO**

Plants

This plug-in adds plants to your scene. They work well with video applied to them. Use the Wind and Distort parameters to create creative shapes and turn them into a 3D video effect. **VIDEO**

Stone

Stones for use in your scene. **VIDEO**

Wood

Wood elements for use in your scene. **VIDEO**

2.19 Particle

The plug-ins in this category are creative particle effects.

Bounce Marbles

A flock of marbles. Great with video and with reflection. The marbles can also be distorted for creative effects. **VIDEO**

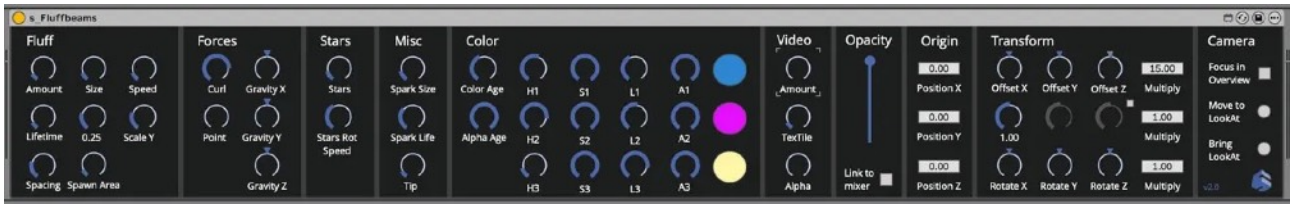
Cube Cluster

Rotating cubes. Play with the individual scale parameters and great for applying video. **VIDEO**

Spiral Cloud

A creative particle system. **VIDEO**

Fluff Beams



Fluffy beams. **VIDEO**

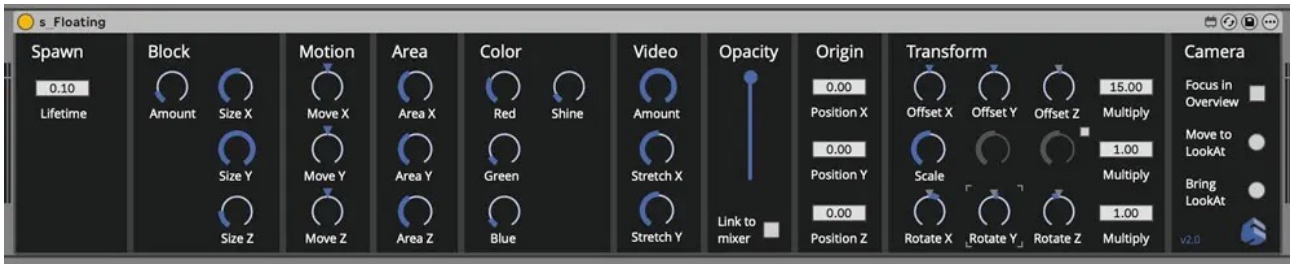
Whirlide

Works well with video applied to it. **VIDEO**

Dendro

A large particle system, to fill up an entire scene. **VIDEO**

Floating



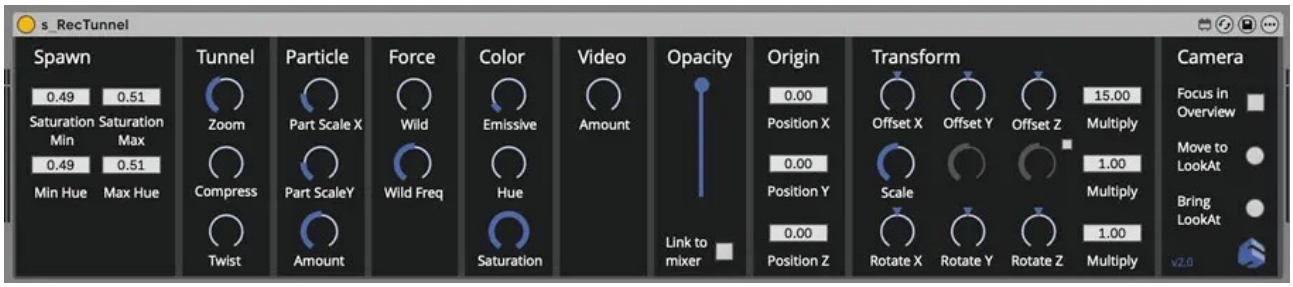
A flock of floating rectangles. Works well as a 3D video effect as well. **VIDEO**

2.20 Tunnel

The plug-ins in this category create tunnel effects.

RecTunnel

A basic tunnel created by particles flying towards the camera. Works well with video applied to it. **VIDEO**



2.21 2DFX

SenSei includes 60 2DFX plug-ins to manipulate incoming video from EboSuite or external video applications. These work well in combination with 3DFX, and since most SenSei plug-ins can have video applied, these 2DFX plug-ins are especially useful for adjusting video to fit perfectly onto the SenSei plug-ins.