

Pylon Light Kit

Lighting in formZ just got a lot easier.

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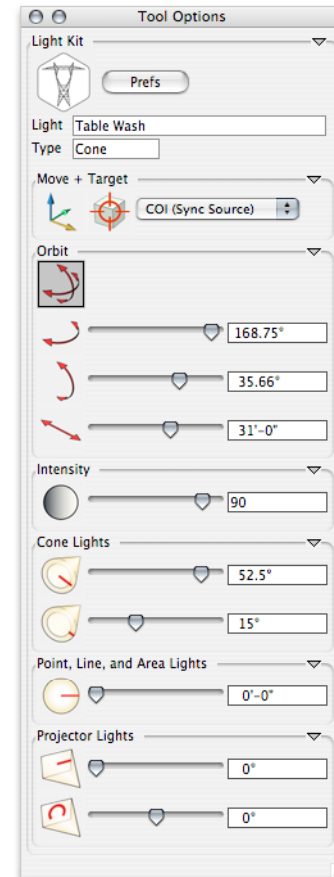
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1 Introduction

Pylon Light Kit is a general purpose light manipulator tool. All Light Kit's modes are interactive. As you change light parameters, you see the results immediately in the modeling window. No more clicking into each lights' dialog, making a change, then back out again... just to see if your adjustment had the intended effect. Light Kit's orbiting and targeting features make it possible to light an entire scene without switching viewpoints.

Features Include:

- *Subject Orbiting.* Tumble about a light's center of interest by azimuth and altitude.
- *Subject Distance.* Adjust the distance between the light source and the subject (without altering the light's angle, relative to the subject)
- *Light Targeting.* Click on an object to make it the light's center of interest (or source).
- *Live Intensity.* Manipulate the intensity of lights. Watch them update immediately in interactive shaded modes or small renderzone renders.
- *Live Cone lights.* On-screen, in-model manipulation of cone light angle and penumbra.
- *Live Projector Lights.* On-screen, in-model manipulation of projector light angle and spin.
- *Live Point, Area, and Line lights.* On-screen, in-model manipulation of light radius.
- Lots more.



2 Getting Started

2.1 Finding Light Kit

After installing the Pylon Lighting Collection, a new row of tools will be added to your tool palette, called 'Lighting and Rendering.' You'll find Light Kit in this new row. (If you want, you can move your new tools to another location by selecting Palettes > Customize Tools.)

2.2 Selecting a Light

You may pre-pick or post-pick the light you intend to manipulate, either through the modeling window or the lights palette. Light Kit was designed to act on one light at a time. When a new light is selected, any previously selected light will be deselected. If you pre-pick more than one light, the light that was initially created first will be used. When picking within the modeling window, a single click on a light toggles its selection status. Note that clicking in the modeling window away from a light will not deselect it, but instead activates one of the manipulator tools (see below).

3 Lightkit Tool Modes

Tip

Where the instructions call for setting the origin for a transformation by clicking anywhere in the modeling window, it is usually best to click near the center.

3.1 Move



Use this mode to move a light source, its center of interest, or both, in the traditional cartesian (XYZ) manner. Use the pulldown menu to the right to specify what the move tool will act on:

<i>COI</i>	The light's center of interest will be moved.
<i>COI (Sync Source)</i>	The light's center of interest and source will both be moved.
<i>Source</i>	The light's source will be moved.
<i>Source (Sync COI)</i>	The light's center of interest and source will both be moved. (With the move tool mode, <i>COI (Sync Source)</i> and <i>Source (Sync COI)</i> are effectively the same.)

Select the move icon, then click in anywhere in the modeling window to begin the move. Click again to confirm the move. The perpendicular switch can be toggled before a move, but not during (see *Known Issues*, below).

3.2 Target



Use this mode to target a light's source or center of interest to an object. Use the pulldown menu to specify the target behavior:

<i>COI</i>	The light's center of interest will be targeted to the object
<i>COI (Sync Source)</i>	The light's center of interest will be targeted to the object, and the light's source will be moved in tandem, so the angle and distance between the source and COI remain unchanged.
<i>Source</i>	The light's source will be targeted to the object.
<i>Source (Sync COI)</i>	The light's source will be targeted to the object, and the light's center of interest be moved in tandem, so the angle and distance between the source and COI remain unchanged.

Target Pre-pick mode: Select one or more objects and a light, then select the target icon, then click anywhere in the modeling window. If more than one object was pre-picked, the target will be the average of all selected objects.

Target Post-pick mode: With a light selected, click on an object in the modeling window or objects palette. Clicking on subsequent objects will target the same light.

3.3 Free Orbit



Use this mode to orbit a light source about its center of interest, while maintaining a fixed distance. Select the icon, then click in anywhere in the modeling window. Moving the cursor horizontally controls the light's azimuth, while moving it vertically controls the altitude. Click again to confirm the change. Witness arcs are displayed to assist you in determining the light's position and heading.

3.4 Azimuth



Use this mode to constrain the orbit to the azimuth. To manipulate azimuth within the modeling window, select the icon, then click anywhere in the modeling window. Move the cursor horizontally to control the light's azimuth. Click again to confirm the change.

The slider to the right of the icon may also be used to directly set the azimuth, even when another manipulator tool is selected. The text box provides feedback and allows for numeric input. This layout and behavior is characteristic of the remaining Light Kit tool options.

The center of the slider represents the zero position; moving it to the left or right rotates the light up to 180 degrees clockwise or counter-clockwise, respectively. By default, reckoning is determined from the south (6 o'clock, or -Y). This may be changed via Light Kit Preferences (see below).

3.5 Altitude



Use this mode to change source altitude only. To manipulate altitude within the modeling window, select the icon, then click anywhere in the modeling window. Move the cursor vertically to control the light's altitude. Click again to confirm the change.

The center of the slider represents true horizontal, moving it to the left or right rotates the light up to 90 degrees downward or upward, respectively.

3.6 Distance



Use this mode to control the distance of a light source from its center of interest. To manipulate distance within the modeling window, select the icon, then click anywhere in the modeling window. Move the cursor to the left to move the light source closer to the center of interest, or to the right to move it further away. Click again to confirm the change.

The range of the distance slider may be changed via Light Kit Preferences (see below). After changing this preference, it is necessary to de-select and then re-select the Light Kit tool to see the results.

3.7 Intensity



Use this mode to control the simple intensity of a light source. To manipulate intensity within the modeling window (typically in Interactive Shaded display mode), select the icon, then click anywhere in the modeling window. Move the cursor horizontally to change the intensity. Click again to confirm the change. Note that only the 'simple intensity' parameter of the light is affected; the 'accurate intensity' settings are left unchanged. When using the in-window manipulator or slider, the light's maximum intensity is constrained to the value specified in Light Kit preferences. However, any value typed into the text box will be honored, regardless of the preference setting.

3.8 Cone



Use this mode to control the angle and penumbra of a cone light. To manipulate the angle within the modeling window, select the first icon, then click anywhere in the modeling window. Move the cursor horizontally to change cone angle (defined as halfway between the inner and outer cone angles). Click again to confirm the change.



The second icon works identically, but controls the penumbra angle (the partially illuminated, or 'fuzzy' region between the inner and outer angles). A penumbra value of zero will result in a sharp edge. The maximum penumbra is variable, as it depends on the cone angle.

Note that Light Kit manipulates cone lights using different parameters than FormZ (i.e., by 'angle' and 'penumbra' rather than 'inner' and 'outer'.) Our convention was introduced to make cone lights easier to interact with. Internally, however, nothing has changed. FormZ is still handling cone lights in the conventional manner, as 'inner' and 'outer' angles. Translations to and from our parameters are seamless.

3.9 Point, Light, Area



Use this mode to control the radius of a point, line, or area light. To manipulate the radius within the modeling window, select the icon, then click anywhere in the modeling window. Move the cursor horizontally to change the light's radius. Click again to confirm the change.

3.10 Projector



Use this mode to control the angle and spin of a projector light. To manipulate the angle within the modeling window, select the first icon, then click anywhere in the modeling window. Move the cursor horizontally to change projector angle. Click again to confirm the change.



The second icon works identically, but controls the spin.

4 Preferences

Witness Arcs: Color

Click on the color box to change the color of the witness arcs.

Witness Arcs: Transformation Origin

Set the direction from which the azimuth is calculated and the witness arcs are drawn on the XY plane. The default is from the South.

Sensitivity: Radius and Distance

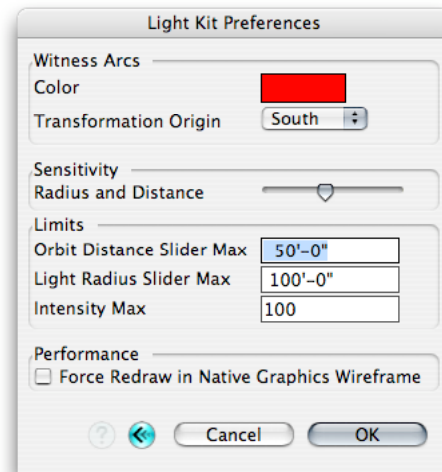
Controls mouse tracking sensitivity when interactively manipulating the distance of a light source from the COI, or the radius of a Point, Line, or Area light. Moving the slider to the left 'gears the mouse down,' while moving it to the right 'gears it up.' (Towards the left end of the slider, your mouse movements will have less effect, allowing for more precise control. At the right end of the slider, even slight mouse movements will have a great effect.)

Limits

Sets the maximum slider value for each parameter. Larger values may always be typed into text box for each parameter, regardless of the values set here.

Performance: Force Redraw in native Graphics Wireframe

If you are experiencing 'screen artifacts' while orbiting lights, turn this on. This doesn't seem necessary after some recent formZ patches, but we're leaving it in just in case. It will slow screen updates somewhat, so leave it off if your system doesn't need it. Off by default.



Saving Preferences

Changes made to Light Kit Preferences are by default only saved for the duration of your modeling session. Like all other tools, If you want to save your preferences for subsequent modeling sessions, go to formZ's general preference dialog (formZ > Preferences > System > General) and save a new general preference set (or save over your old one).

formZ tech support recommends that you make save your preferences only at the *beginning* of your modeling session. We at Pylon concur.

5 Obtaining Version Information

Click on the Pylon Logo in *Tool Options* for version information and credits.

6 Tips for Using Light Kit

Display mode

In general, Light Kit is best used with interactive shaded mode, or in with a small Renderzone window (so rendering is relatively quick).

Meshing surfaces

Try meshing large planes that will be receiving cone lights. This allows you to see the pool of light on the plane more accurately (where the cone intersects with the plane).

Watch those witness arcs

Light Kit's witness arcs allow you to determine a light's position and heading without changing your point of view or opening a second window.

Close-up manipulations

With Light Kit is that you can accurately target and move lights that are partially or completely offscreen. This means that you can be zoomed into a detail of the scene or a single object and still control the lights illuminating it, without opening a second window or switching views. You can often light an entire scene from one modeling window, without switching viewpoints.

7 Known Issues

The following minor issues are due to bugs in the formZ Application Programming Interface (API). They will be corrected if/when ADS attends to the underlying problems.

- When the radius of Line lights is manipulated, the onscreen light icon does not immediately update. Note that this does not affect the lighting solution itself, which updates as expected. Workaround: double-click on the light in the lights palette, then dismiss the light options dialog.
- When Area lights are manipulated, the change is not immediately registered in static renders (i.e., RenderZone). Workaround: Toggle between wireframe and static renderer to see the change. Note that interactive shaded renders do NOT exhibit this problem, and Area lights update as expected.
- In Move mode, the perpendicular switch can't be toggled while a move is taking place (between the first and second clicks). Workaround: Set the perp switch before your first click.
- Sometimes, in Move mode, when the perp switch is active, the light 'jumps' a little upon the first click. There is no workaround. We felt it was better to include perp switch control, despite this minor bug, rather than disabling it entirely.

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rev. 1.0.3