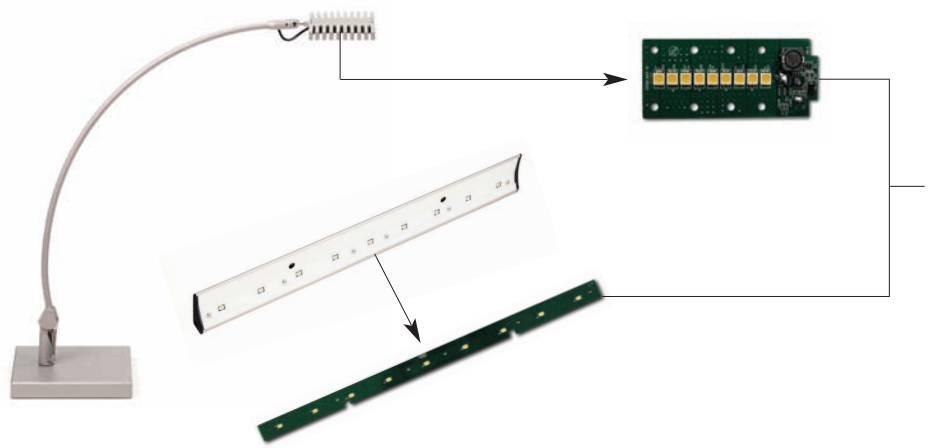
FINELITE'S **PERSONAL LIGHTING SYSTEM**

FREQUENTLY ASKED QUESTIONS

Q. **What are PLS's Sustainability Features?**

A. In addition to providing significant energy savings, PLS is sustainable for several other reasons. Minimalist design uses few materials in the initial manufacturing, mitigating energy use in production and reducing the cost/environmental burden of shipping. A 6W Desk Lamp with weighted base weighs only 4.65 pounds, about half the weight of a leading CFL desk lamp. A 6W Undercabinet fixture weighs only .85 pounds, less than 1% of the weight of a 3 or 4 Ft. fluorescent undercabinet.

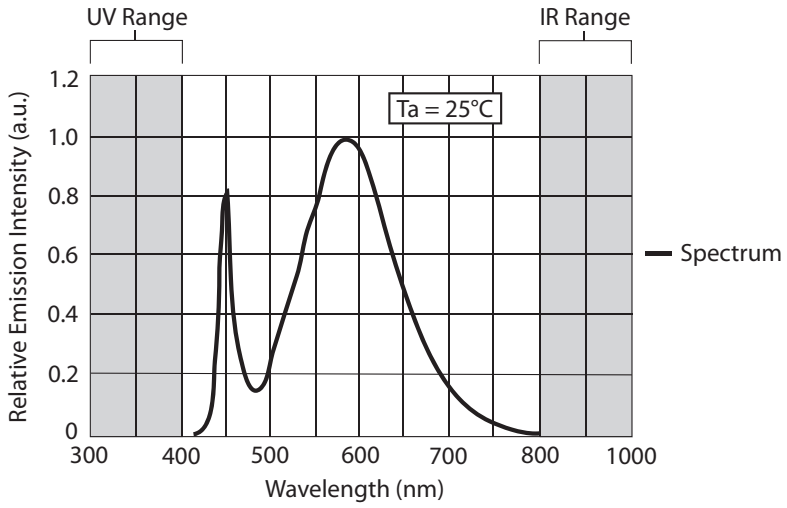
The L70 life rating (the time at which light output of the LEDs equals 70% of the initial rated lumens) of 45,000 hours equates to 15-30 years of useful life in typical office applications. At the end of life, units may be disassembled and recycled. Over 98% of the unit is steel, aluminum, copper, or cardboard shipping materials. All of these materials can be 100% recycled.



The easily removable, lead-free LED/printed circuit board can be disposed of by using a U.S. electronics-recycling program.

Q. **Does PLS produce UV or IR?**

A. Most LED light sources have minimal output in either UV or infrared bands. Refer to the Spectral Power Distribution Chart below for data related to the LEDs incorporated in PLS.



As shown in the spectral power distribution curve, the LEDs used in the PLS produce no radiant power in the UV (below 400 nm) or IR (above 800 nm) range.

Therefore the PLS is ideal for lighting artwork and other sensitive materials because it will not cause discoloration or fading associated with light sources that contain UV or IR energy.

Q. **What listings are available for PLS?**

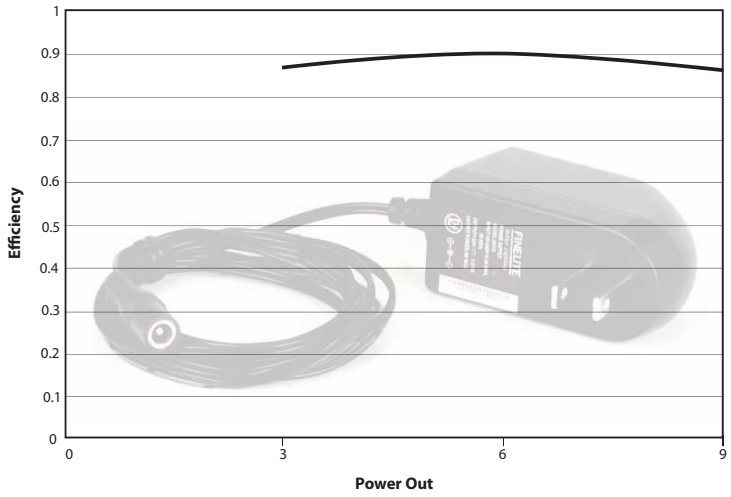
A. The entire PLS family of products is CUL listed. CUL means that PLS is listed under UL for both Canada and the US.

Q. **How do I calculate the system wattage?**

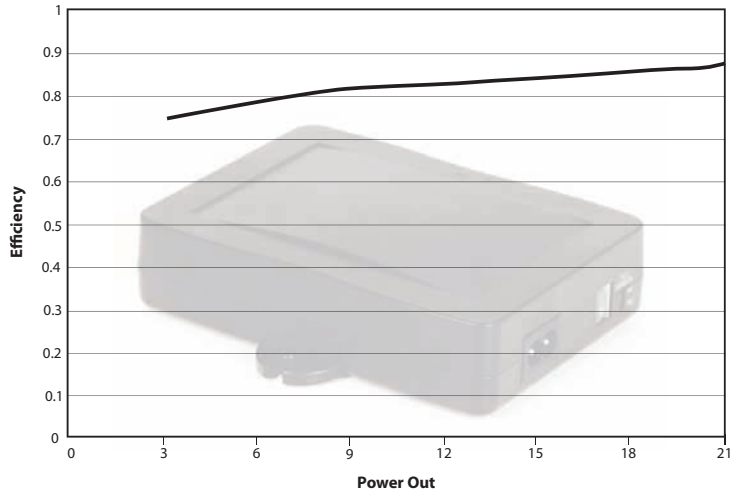
A. Our data shows that the Power Supply operates between 70% and 90% efficiency depending on load. The supplies tend to be more efficient when operating near their capacity. For example, the 21W Power Supply works at the highest efficiency when driving a number of Undercabinets and/or Desk Lamps that equal a 21W load.

In order to calculate your system wattage, please refer to the following graphs that show the efficiency for the 9W, 21W, and 60W Power Supplies.

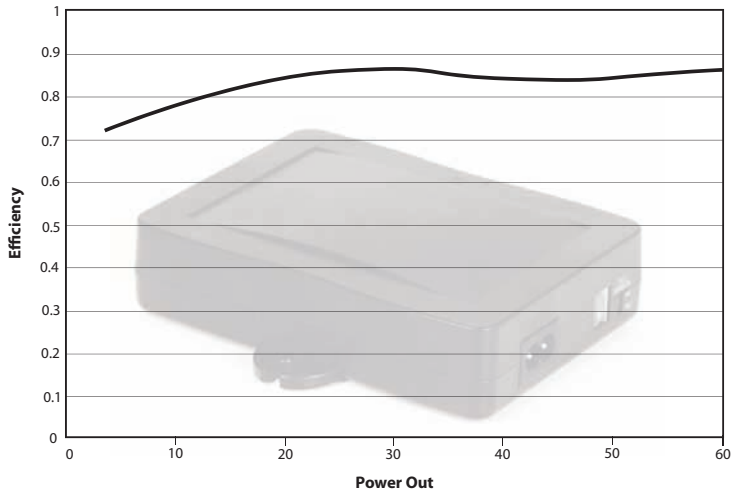
9W Power Supply Efficiency



21W Power Supply Efficiency



60W Power Supply Efficiency

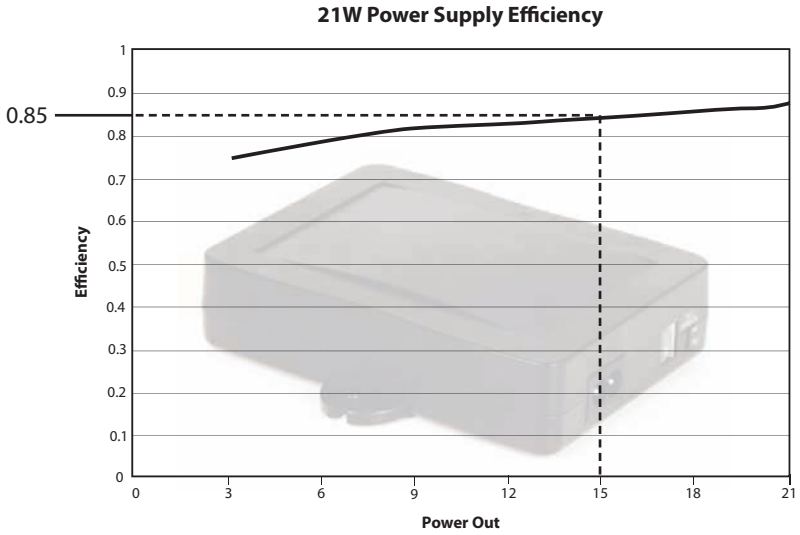


Example:
A commonly used system configuration of (2) 6W UC's, (1) 3W DL, and (1) Occupancy Sensor using a 21W power supply:

When calculating your total system wattage, refer to the nominal wattage listed in the PLS Spec Guide.

The (2) 6W UC's have a nominal wattage of 12.4, plus the (1) 3W DL with a nominal wattage of 3.1 Add in the Occupancy Sensor with a nominal wattage of 0.5 to obtain a total nominal wattage for the system of 15W.

Using the graph for the 21W Power Supply, find the point on the graph where the 15W meets the % efficiency.



In this case, your PLS system is operating at 86% efficiency.

To determine the actual system wattage, divide the nominal wattage (15) by the 85% efficiency. The actual system wattage is 17.6W.

Q. **Why aren't lenses required on PLS for use in laboratories and other environments that typically expect a lens?**

A. Our LED's are embedded in an epoxy resin. The epoxy protects the LED from the environment, and the environment is protected from any outfall of particles from the light source. The entire surface of the luminaire can be wiped with a soft cloth using a 90% isopropyl alcohol solution, making sure that luminaries are fully cool before cleaning.

Since the units are so easy to clean, and the cleaning agent is anti-bacterial and anti-viral, PLS is an ideal lighting system for hospitals or laboratories, which require the utmost standards of hygiene.

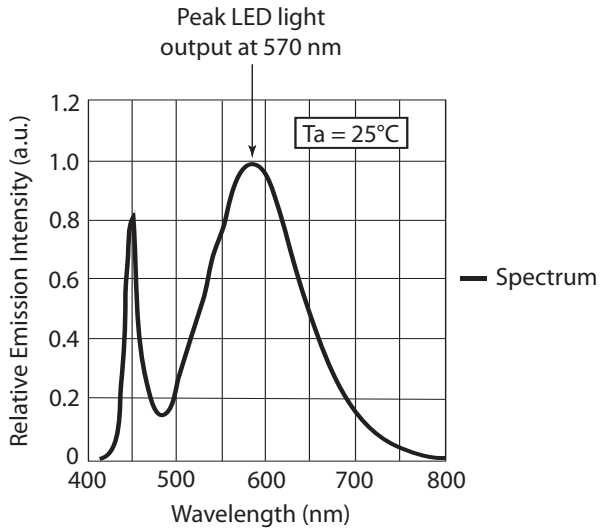
Q. **What is the PLS factory warranty period?**

A. Finelite warranties all PLS components to be free from defects in materials and workmanship for a period of three years. Should a warranty claim occur, contact Finelite Inside Sales at (510) 441-1100 for return information.

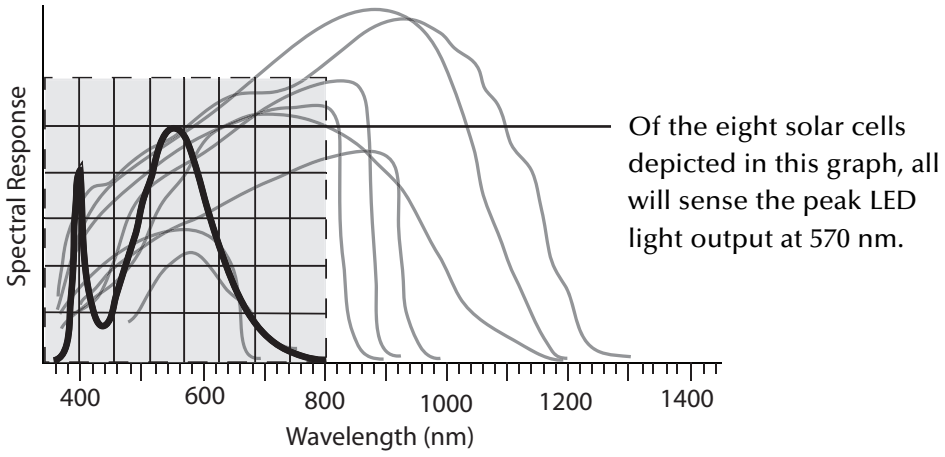
Q. **Will PLS provide the type of light to keep a solar-powered calculator running?**

A. PLS will keep most solar-powered calculators running, illustrated below.

The following diagram shows the spectral power distribution of the LEDs in PLS. You will note that peak output occurs at roughly 600nm with output from 400nm to 800nm.



When compared to response curves of common solar cells (see diagram below), you will see that these cells will sense that there is light available at the wavelengths produced by the LEDs, with a healthy response at 600nm.



For verification, we ran an in-house test using a Casio FX260 solar-powered calculator and a 9W PLS Desk Lamp with favorable results.

Some older solar-powered calculators may not have high enough sensitivity to respond at very low illumination levels, but since PLS in typical application will add 30 to 100 footcandles of illumination to the ambient level at task locations, we anticipate that most solar-powered calculators will function properly.

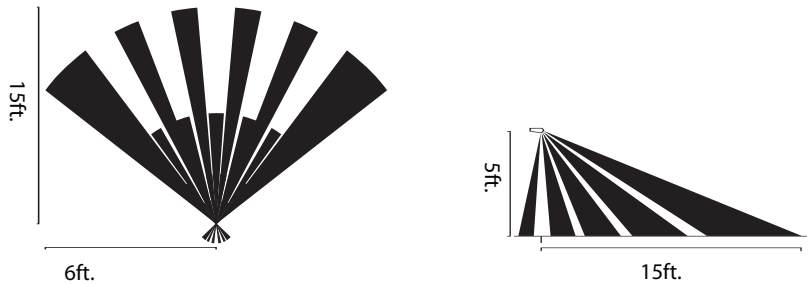
Q. **How do I place my Occupancy Sensor?**

A. Typically recommended locations for your Occupancy Sensor are:

1. Under your desk
2. Under a binder bin or shelf

For these recommended mounting locations, place near the location where you are seated and make sure that the Occupancy Sensor is aimed towards you. In some cases, depending on how the Occupancy Sensor is aimed, and if a directly pointed toward a nearby circulation area, false tripping may occur. To avoid false tripping, you may need to mask parts of the lens using the white strips included with the Occupancy Sensor. By shielding parts of the lens, you can mitigate its sensitivity and limit its view like using blinders on a horse. These adjustments, typical of Occupancy Sensors, fine-tune your Occupancy Sensor to best suit your personal workstation.

Please refer to the following diagrams that depict the sensor's vision coverage:



Overhead View **Side View**

Q. **What is the wattage used by the Occupancy Sensor?**

A. The nominal wattage of the Occupancy Sensor is 0.5W.

Since the Power Supplies are rated for a power output above their nominal wattage, Occupancy Sensors may be added to either a 21W or 60W Power Supply, even when the luminaire nominal wattage reaches 21W or 60W respectively.

Q. **Who is currently using the PLS?**

A. The following companies have incorporated the PLS into their office lighting in order to improve lighting quality and achieve better energy efficiency:

- **B of A — *Chicago, IL***
- **Boora Architects — *Portland, Oregon***
- **California Energy Commission — *Sacramento, CA***
- **California Lighting Technology Center — *Davis, CA***
- **California State University — *Long Beach, CA***
- **Clanton & Associates — *Boulder, CO***
- **Department of General Services Bateson Building — *West Sacramento, CA***
- **Genentech — *South San Francisco, CA***
- **Gexpro — *Hayward, CA***
- **Lighting Wizards — *Walnut Creek, CA***
- **Majestic Realty — *City of Industry, CA***
- **Moore Ruble & Yudell Architects and Planners — *Santa Monica, CA***
- **New York Times — *New York, NY***
- **Novartis Pharmaceuticals — *Cambridge, MA***
- **Oracle — *Redwood Shores, CA***
- **Pacific Gas & Electric Company — *San Francisco, CA***
- **Paramount Studios — *Hollywood, CA***
- **Peninsula Open Space Trust — *Palo Alto, CA***
- **Roche Molecular Systems — *Pleasanton, CA***
- **Rocky Mountain Institute —*Boulder, CO***
- **SBLD Studio & Design — *New York, NY***
- **Southern California Edison — *Irwindale, CA***
- **Stanford University — *Palo Alto, CA***
- **United Stationers Supply Company — *Sacramento, CA***
- **University of California — *Santa Barbara, CA***

Q. **What is the factory recommended limitation for the length of the PLS low voltage cables?**

A. Line losses with the low voltage cabling are less than 10mW/ft. An 8 ft extension cord would consume .08 watts. Assuming maximum wattage for luminaire combinations, the maximum length of low voltage cable that can be connected to a single power supply is as follows:

A 9W PS has about 2W of capacity for cable losses, which allows for a maximum run length of 25', including cabling between fixtures.

A 21W or 60W power supply has about 3W of capacity for cable losses, which allows for a maximum run length of 32', including cabling between fixtures.

Q. **How many undercabinet fixtures can be daisy chained together on a single run?**

A. Undercabinet fixtures may be daisy-chained together on a single run up to the maximum rating of the power supply, not to exceed the recommended maximum run length for the low voltage cables. Refer to the PLS Spec Guide for fixture wattage.

Q. **What is the science behind the product?**

A. PLS was co-developed by Finelite and the California Lighting Technology Center, funded partially through the California Energy Commission (CEC) Public Energy Interest Research (PIER) program. The purpose of the research was to develop a sustainable approach to lighting the office. The main result is that by getting the task lighting right, the ambient lighting can be reduced significantly, resulting in a 45% energy savings or more when compared to current energy standards. Savings potential would be much greater in existing office spaces. The research also covered many of the technical design features of PLS, such as the patent-pending thermal management of the desk lamp head. The final report for the research project will be completed early 2008.

Q. **Is there any way to provide dimming on this product?**

A. The current PLS generation is not dimmable. We are evaluating this feature for future generations.

Q. **Are there PLS undercabinet lights that are hard-wired?**

A. We do not have a hard-wired power supply at this time but are evaluating this feature for future generations. In the interim, a junction box with receptacle in a concealed (but accessible) location may be provided for the cord & plug connection.

FINELITE
Better Lighting

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