



Photovoltaic (PV) lighting and power equipment

Safety certification considerations for providing light and power to users when grid power may be unavailable or not accessible

Certification of a PV lighting/power system

With lighting and power kiosks becoming more popular as convenience for customers that need to charge their phones, make an emergency call or stay in a lit area while waiting for transit, there are many considerations including safety that are evaluated in a full system certification for this equipment.

Reducing risk in the field is a primary priority for many municipalities that install this type of lighting. What are the benefits of looking for a UL Mark on this type of equipment?

Many manufacturers take the steps to choose UL Listed or Recognized components within their product design. Each component has their own considerations for use, but what happens when they are placed together in a single assembly?

The evaluation of the system needs to consider the requirements of UL 1741, the Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources, and the new system level Standard UL 8801, the Outline of Investigation for Photovoltaic-Powered Luminaire Systems.

In testing these systems, one major consideration is temperature limits when all four major heat-producing components (PV module, battery, control and luminaire) are within the same housing. Additionally, many PV luminaire systems are using high-energy density lithium-ion batteries that present significant fire hazard risk that must be properly managed.

Full system testing may include but is not limited to:

- Outdoor ratings including rain, heat and cold exposure
- Impact resistance of exterior electronic components like the PV module
- Battery charging system tests like charging/discharging

“Standards can be very low or non-existent when you are specifying solar lighting equipment. Requiring a Listing mark among other requirements sets a bar for safety and quality for the manufacturers that works with us.”

*— Joe Meer, Director of Procurement,
Morongo Basin Transit Authority*



SOLAR STREET LIGHTING
MARKET VALUED AT

\$11.5B
with **EXPECTED**
GROWTH
AT A CAGR OF
22.57%
FROM 2020 TO 2027



“When I go out to the public [with transit shelter lighting], there’s an extra layer of safety built in. I definitely see value in a Listing mark.”

– Jeff Reine, Senior Construction Project Manager, LYNX

How do you start a UL system certification for PV lighting?

In choosing a certification body, we know you have many decisions. You’re looking for speed to market to align with your launch and the best quality of safety certification at a competitive price. We’ve got you covered at UL, so how do you get started?

Our certification process is a straightforward, easy-to-follow method that builds in compliance learning for you along the way. Our engineers are committed to making sure our customers understand the “why” behind safety requirements so they can make even more educated compliance design decisions in the future.

The certification process

Our team reviews your information and provides a proposal that is unique to your product and its design. Once we have any questions cleared up, we can start on the certification process.

UL engineers start with the construction review process to make sure your product complies with the requirements around product design for example component review and validation, interaction between components and system mechanical integrity.

Our engineers then apply the test program that is specific to your product by either testing at a UL laboratory or witness testing at your site. Once compliant test results are confirmed, our engineers provide you with your finalized certification documents.

After you receive your documents, a UL field engineer will visit your manufacturing location to audit production against the documentation and authorize you to apply the UL Mark.

“Safety is our number one priority in the City of Tempe to keep our residents out of harm’s way. Safety certification of Listed PV lighting systems help with liability in our municipalities so our residents can enjoy the renewable energy features of their transit shelter lighting while knowing it has been marked safe to use.”

– Robert Yabes, Principal Planner, City of Tempe

Contact UL today to learn more or start your certification process at lightinginfo@ul.com or renewableenergyquote@ul.com.



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