



SOLAR LIGHTING

POWERED BY NATURE.
ENGINEERED FOR TOMORROW.

Commercial solar solutions for a
brighter, more sustainable future.



AREA LIGHT
JRL2-SOL | JRLP-SOL



ROADWAY LIGHTS
JSRL-SOL-SS



BOLLARDS
JPBOL-SOL



FLOOD LIGHTS
JFL-SOL-SS



POST TOP
JRPT-SOL

SOLAR LIGHTING SOLUTIONS

FIVE ESSENTIAL CATEGORIES FOR COMMERCIAL OUTDOOR APPLICATIONS.

AREA LIGHTING

JRL2-SOL | JRLP-SOL



Parking Lots | Campuses | Commercial Sites | General Area Lighting



ROADWAY LIGHTING

JSRL-SOL-SS



Roadways | Streets | Municipal | Infrastructure



BOLLARDS

JPBOL-SOL



Pathways | Parks | Pedestrian Areas



FLOODLIGHTS

JFL-SOL-SS



Landscape | Signage | Security | Site Lighting



POST TOP

JRPT-SOL



Parks | Plazas | Community Spaces



POWERED BY NATURE. LIGHTING THE FUTURE.

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SOLAR LIGHTING APPLICATIONS GUIDE

What to know when selecting solar lighting for your project.

Solar lighting can provide significant installation and operating savings, but proper system selection depends on climate, operating requirements, site activity and pole limitations. Understanding these factors is essential to designing a reliable solar lighting system.

01 WHERE ARE SOLAR FIXTURES BEST USED?

Climate matters.



33°F – 86°F

OPTIMAL OPERATING TEMPERATURE

Solar fixtures use lithium ion batteries that perform best between 33°F to 86°F. It is therefore not advisable to use battery powered solar fixtures in freezing ambient temperatures. Charging lithium batteries in freezing ambient temperatures causes permanent internal damage to the battery's components and electrolytes.

In some cases, solar fixtures are available with thermal battery blankets or thermal shielding which may allow for a certain amount of exposure to freezing temperatures, but the viability of doing so is determined on a case by case basis and in consideration of the precise installation location of the solar fixture.

02 HOW DO SOLAR AREA LIGHTS WORK?

Solar area lights collect energy on the solar panel which is stored in the fixture's lithium battery. Solar panels are only about 20% to 24% efficient which means collecting more energy requires larger and larger solar panels.

There is a practical size limit to solar area lights in terms of their ability to be safely installed on a light pole. Light poles of any type have a fixture weight and size limitation. Exceeding the poles limits causes the pole to be at risk of falling when exposed to normal winds. Solar fixtures are large and heavy and rarely exceed 150 watts LED or else the solar panel and battery needed would exceed the weight and size limitation of a typical light pole.

For this reason, all solar area lights are programmed to dim when no motion is detected. Typically, solar fixtures work on 70% to 100% of their power for the first 2 to 4 hours of the evening but will dim down to 30% power or less during the middle of the night when no motion is detected which preserves battery life.

SMART DIMMING EXTENDS NIGHTTIME BATTERY LIFE



DAYLIGHT COLLECTS ENERGY



SOLAR CHARGING DURING THE DAY



BATTERY STORAGE FOR NIGHTTIME USE



NIGHTTIME LIGHTING WITH SMART DIMMING

03 WHAT ABOUT ROADWAY APPLICATIONS?

Roadways require a different approach.

Most municipalities will not allow a streetlight to dim and turn back on to full brightness on a road with active traffic. It would be problematic for vehicles to approach a streetlight that was dimmed and suddenly came on to full brightness as the car passed. Driver's need to see the road clearly hundreds of feet before approaching a dimmed street light. For this reason, using a solar roadway light on a busy road requires the fixture to have fixed light output operation.

Solar area lights can be programmed for fixed light output operation however the fixture capacity has to be oversized while at the same time programmed to function at 50% to 60% of the oversized capacity. So for example, a roadway that requires a 50 watt solar area light in terms of light output may use a 100 watt solar area light programmed to 50 watt operation in order to achieve fixed light output all night long.

50W

REQUIRED LIGHT OUTPUT



100W

SOLAR FIXTURE PROGRAMMED TO OPERATE AT 50W

Although the problem is solved with oversizing the solar fixture, it should be noted that a larger solar area light will require a stronger pole to meet the wind load capacity requirements of the installation location. Even in areas not exposed to hurricanes or storms, wind load capacity is a primary issue that inspectors review in order for that lighting project to pass city or county inspection.

04 WHAT ABOUT PARKING LOT & SECURITY APPLICATIONS?

Ideal for motion-based operation.

Solar area lights are ideally suited for parking lot and security because these applications can accept fixtures that dim when no motion is detected. Unlike a roadway application, a parking lot or property security can be managed using solar area lights that dim when no motion is detected. Typically, the dimming level of a solar area light continues to provide plenty of lighting for security purposes and video recording.

The only exception would be parking lots or properties that are highly active in the middle of the night. In this case, those areas would probably still require an oversized system despite having active dimming. Repeated triggering of the solar fixture's motion sensor is the same as having the fixture on at full brightness for longer than expected and therefore may require an oversized solar area light to manage the car and foot traffic observed.

SOLAR EXPERTISE YOU CAN RELY ON

Jademar has dozens of completed solar area light projects for major airports, parking lots and many other locations. We are solar experts and have the ability to design a solar fixture for your particular application.

In countries and states with high power costs, solar fixtures typically pay for themselves within 12 to 24 months of operation. Our fixtures have a 5 year warranty and replaceable batteries so end users can enjoy years of energy free lighting! Let's not forget the up-front savings achieved by not having to install electric cables, trenching and related labor costs.