

# PoliStar Solar Panels

The interior lighting of shelters has many benefits, most notably improving shelter visibility and security. The solar lighting kit provides all materials required for stand-alone illumination of shelters. Available in three configurations, the system can be sized to meet the lighting requirements of a variety of shelter sizes.

**4.5 Watt Kit:** A single 4.5 watt lamp unit provides adequate lighting for the smaller shelter.

**9 Watt Kit:** The 9 watt lamp unit provides adequate lighting for many mid-sized shelters.

**18 Watt Kit:** Two 9 watt lamps expand the lighting capability of this system.



The kit includes the photovoltaic (PV) cell and mount, L.E.D. lamp unit, storage battery(s), lamp driver / battery controller, battery enclosure, and required wiring.

Illumination times, generally 4 hours after sunset and 3 hours prior to dawn, are program controlled and are maintained as an automatic system function.

The actual amount of illuminance provided by the solar lamp(s) will vary by the mounting height of the lamp and the size of the area being illuminated but is approximately 10 lumens or 1 foot candle, a level roughly equivalent to the ambient light available at twilight.



*Improving shelter  
visibility and security*

**poligon<sup>®</sup>**

4240 North 136th Avenue • Holland, MI 49424  
T- 616.399.1963 • F- 616.399.9123 • E- info@poligon.com

[WWW.POLIGON.COM](http://WWW.POLIGON.COM)

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## Description:

- **Lamp Unit:** The L.E.D. lamp is encased in a metal low profile enclosure. The lamp contains three or six 1.5 watt L.E.D. emitters mounted behind a polycarbonate shield.
- **Photovoltaic Panel (PV):** PV cells are UL and CSA rated crystalline module which typically offer a 20 year service life. Size of the cell will vary depending on the size and number of lamp units powered and the location of the shelter, with sunnier locals requiring smaller cells than areas that tend to have more overcast conditions.
- **PV Panel Mounting:** The PV panel can be either rail mounted flat to the roof or oriented using an adjustable angling rail mount. For shelters that require it, a frame mounted bracket is also available to mount

the PV cell, which offers optimum orientation for difficult situations. With PV efficiency directly related to the orientation of the cell relative to the sun, mounting is an important consideration. Sun exposure can also be impacted by trees or other obstacles near the structure.

- **Battery / Battery Enclosure:** Batteries are a key element in a well-designed solar system. Battery capacity is designed to operate the system for three days under heavy overcast conditions. The system AGM (Absorbed Gas Mat) battery(s) provided with the kit are fully sealed as well as totally liquid and gel free, the latest in solar battery technology. Batteries have a 2 year full and 3 year prorated warranty. Battery(s) are enclosed in an inconspicuous HDPE in-ground vault located near the shelter site.
- **System Wiring:** Shelters with solar lighting are designed to include both electrical access in frame members and hand cutouts to allow concealed wiring of the system. In addition, flex conduit is included to protect wiring between the solar cell and structural frame, and rigid conduit is provided for the wire run to the battery enclosure and ground rod.
- **System Controller:** System electronics, including the lamp driver and battery controller are located in a lock protected column mounted NEMA enclosure. This small 6" x 8" enclosure also contains system circuit breakers. The lamp driver powers the L.E.D. emitters and automatically controls on-off times for the lighting. Battery controller regulates and balances night time lighting power requirements with daytime battery charging and battery capacity.

