

SOLAR LIGHTING

SOLS

Solar Obstruction Light System



Compliance with Standards

FAA: L-810(L) AC 150/5345-43 (Current Edition) and the FAA Engineering Brief No. 67. Solar equipment exceeds requirements of FAA Engineering Brief No. 76 "Using Solar Power for Airport Obstruction Lighting."

System Overview

The LED Solar Obstruction Lighting System (SOLS) is an FAA-compliant modular, stand-alone, self-contained solar-powered obstruction warning lighting system for towers and other structures. During the daytime, the solar panel charges the battery. At dusk, the solar panel automatically activates the LED obstruction light until dawn. Dusk-to-dawn light control is activated/deactivated by ambient solar lighting levels. For FAA compliant installations an FAA -approved photocell must be used for On/Off control of the obstruction light. Photocell (48A0089/DC) and socket (49A0095) not included with SOLS Solar Obstruction Light System.

- The system is designed to require very low maintenance for long periods, while operating in harsh environments.
- The L-810(L) is a steady burning red light fixture marking fixed obstructions to eliminate navigational hazards.
- High-efficiency high-flux LED obstruction light
- Weather- and corrosion-resistant light assembly and housing
- 32.5 cd brightness
- Minimum 5-year battery life

Operation

The LED Solar Obstruction Light operates as follows:

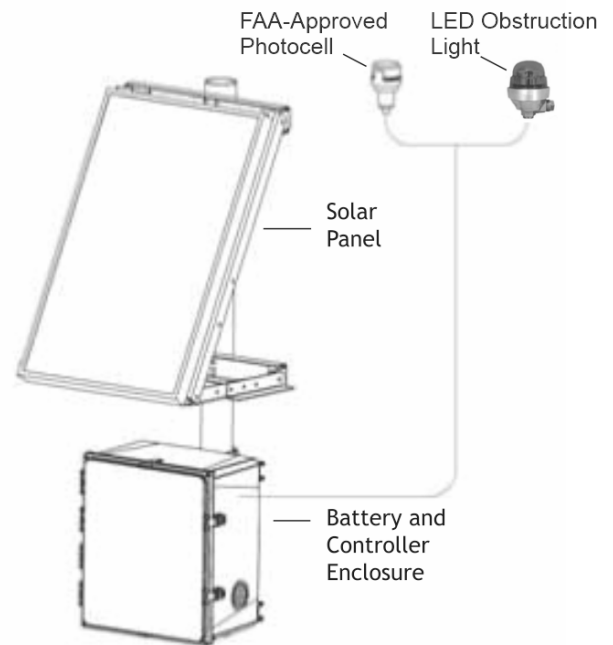
- The solar panel supplies DC current to charge the deep cycle battery operating at 12 V.
- Battery charging is regulated by the pre-installed and wired charge controller in the outdoor-rated battery and controller enclosure.
- The LED fixture is powered by the energy stored in the battery. System design is based on monthly site climate data such that the average solar panel output is greater than the average loading.

Theory of Operation

The SOLS operates automatically with no need for operator interaction under normal conditions. With normal daylight illumination, the solar panel is capable of producing sufficient current to charge the battery. The charging light indicates the battery is being charged by the solar panel.

If the battery discharges to the pre-set load disconnect voltage due to long periods of poor weather, the low voltage disconnect (LVD) relay is activated, the controller's red LED turns on, and the solar obstruction LED fixture is disconnected. Disconnecting the LED fixture prevents battery damage associated with complete discharge of the battery. The controller's red LED will turn off when the battery recovers to about 50% of its rated capacity and the light fixture is automatically reconnected.

Typical System Layout



Solar Panel Orientation

Full solar exposure is critical to the performance of the LED obstruction light. Ensure that the solar panel installation location has year-round, unrestricted sun exposure throughout the day. If required, the solar panel may be attached remotely to the controller using an appropriately-sized transmission cable. The bottom edge of the solar panel should be installed at a minimum height to clear growing vegetation and snow at the site.

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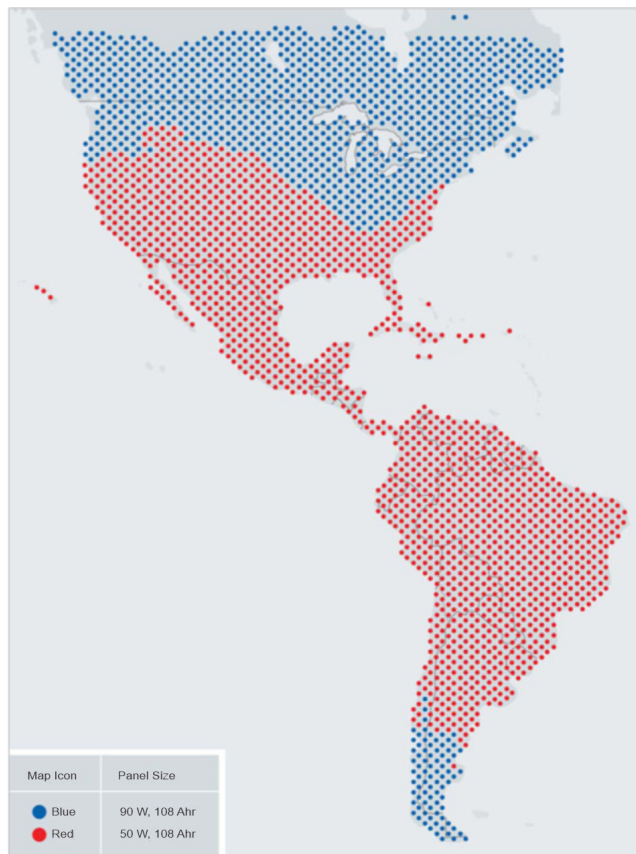
- Shading even a small portion of the solar panel will significantly reduce the output of the LED fixture.
- SOLS systems installed at a latitude greater than 55° are subject to special design considerations due to lower levels of solar radiation during the winter months.
- For inclination angle installation, see map in the manual.

Installation

A solar panel mounting structure is provided for attaching the solar panel to an appropriate support structure or foundation. Instructions for assembling the mount and attaching the solar panel are provided in the mounting structure package.

The panel and enclosure mounting kits are both designed to mount to standard 2 in pole (4 in pole mounting kits available upon request). A minimum Schedule 40 wall thickness is required. The pipe can be attached to the obstruction structure or other location. The solar panel may be mounted at whatever height is deemed safe and free of vandalism.

Solar Sizing Map



Use the above map to determine the size of the solar panel required for specific locations. For full-size versions of all solar sizing maps, see data sheet DS-3037 in the solar section of the Product Center on our website.

Solar Panel

Size

- 1 = 50 W
- 2 = 90 W

Voltage

- 0 = 12 V, 108Ah
- 1 = 24 V, 54Ah

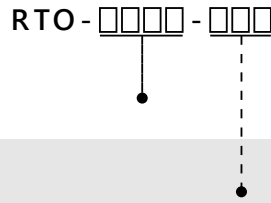
Notes

- Contains solar panel power supply only. The obstruction light is ordered separately. See ordering code below.
- See the Solar Sizing Map to determine the size of the solar panel required for specific regions.
- For Dual Fixture Obstruction Lights the 90 W solar panel is recommended for all regions.
- For IR Obstruction Lights the 24V solar panel is required.

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Obstruction Light



Infrared

CR28= With IR¹
 1R08 = Without IR

Fixture

001 = Single Fixture
 002 = Dual Fixture

Notes

- 1 ETL Certified L-810(L) obstruction light. FAA Red with IR. Peak IR intensity 860 nanometers.
- For ICAO Type A fixtures, contact your Sales Representative.

Dimensions

Obstruction Light, Single Fixture			
Height	Width (Dia.)	-	Weight
5.9 in (150 mm)	4.6 in (117 mm)	-	2 lb (0.9 kg)
Obstruction Light, Dual Fixture			
Height	Width (Dia.)	-	Weight
8.9 in (227 mm)	14.4 in (365 mm)	-	4.6 lb (2.09 kg)
Controller and Battery Enclosure - 50 W & 90 W			
Height	Width (front)	Depth (side)	Weight
18 in (457 mm)	16 in (406 mm)	9.5 in (241 mm)	95 lb (43.1 kg)
Solar Panel - 50 W			
Height	Width	-	Weight
21.1 in (536 mm)	32.9 in (836 mm)	-	23.2 lb (6.0 kg)
Solar Panel - 90 W			
Height	Width	-	Weight
21.1 in (536 mm)	47.4 in (1204 mm)	-	27 lb (7.7 kg)