POINT OBSTRUCTION LIGHTS
SOL LED
SOLAR POWERED OBSTRUCTION SYSTEM

Compliances: ETL Listed to UL 1598 Wet Locations
ETL Listed to CSA C22.2 No.250.0-04 Canada
FAA Approved L-810 & L-864 by Advisory Circular 150/5345-43H
Verified to ICAO Annex 14
Registered ISO 9001: 2015

Point Lighting Corporation obstruction lights are combined with an SOL solar power system to provide reliable air hazard marking where commercial power is not available. Each system is analyzed by computer based on the latitude, longitude and weather history of the site. Components are selected to provide days of backup power with unattended charge recovery year round. Unlike less critical types of solar power systems, obstruction lights must not fail due to lack of battery recovery. All SOL systems are custom designed and optimized to meet the particular site requirements.

Point Type — Power Photometric — Mounting — Style — Options

LIGHT: ICAO LOW INTENSITY & FAA L-810

See file OL190LEDv5 & OL189POL for complete selection data

Point Type	Power	Photometric	Mounting	Style	Options
POL-21005-R or POL-22001-R	3: 12v DC 4: 24v DC	F: FAA L-810 F: ICAO Type A B: ICAO Type B B: Trans. Canada	34B: ¾-inch, Bottom 10B: 1-inch, Bottom	S: Single S3: Single w/J-Box D: Double DT: Double w/Transfer	MT: Green Marine Treat. CF: Cable Entry NC: NVG Compatible

LIGHT: ICAO MEDIUM INTENSITY B & FAA L-864

See file OL213PFBv2 for complete data

PFB-37002-R 3: DC 10.8 to 26.4V (red)

SOLAR POWER SYSTEM

SOL-62000 — (serial number)

Consisting of: Solar Controller, Solar Battery, Junction Box, Photovoltaic Module Array, NEMA 4X Enclosure, Interconnection Cables

PFB-37002-R-3-F4
FAA MEDIUM INTENSITY RED BEACON
WITH YELLOW MARINE TREATMENT

POL-21005-4F-R-34B-S3-MT
WITH JUNCTION BOX
& GREEN MARINE TREATMENT

POL-21005-3F-R-34B-S
LOW INTENSITY FAA L-810

OL-1.8.0 June, 2018

POINT LIGHTING CORPORATION

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SOL POWER SYSTEM SPECIFICATIONS

Note: Please see files OL190LEDv5, OL189POL and OL213PFBv2 for the detailed specifications of each light.

The system manufacturer shall produce a computerized report and graph based on published annual temperature and solar radiation data for the latitude and longitude of the site. The report shall prove that the minimum PV to load ratio exceeds 1.0 and states the minimum days of battery backup during the full calendar year. The sizing calculations shall compensate by derating the battery based on the actual monthly average temperatures during the coldest and hottest months. Cold weather reduces battery capacity by five (5) percent for every 10 deg F below 70 deg F.

The manufacturer of the lighting must be an FAA certified manufacturing facility. The lighting manufacturer shall supply all operational solar power system components. All lights shall be FAA approved as verified by Intertek Testing Service (ETL).

Daytime OFF and nighttime ON operation is automatic based on the output current from the solar array sensed by the solar controller which is directly related to the ambient light level.

The batteries shall be valve regulated (VRLA) type designed for solar power systems to withstand deep discharge cycling. The solar array shall be high-efficiency polycrystalline photovoltaic modules shall be listed by Underwriter' Laboratories for electrical and fire safety per UL1703. The photovoltaic modules shall have passed the following tests:

Thermal cycling & shock	Hailstone impact
Salt mist	High & low temperature cycling
Wind loading	Light & water exposure

The solar controller shall be solid-state, encapsulated and mounted in a NEMA 4X rated outdoor enclosure. The controller shall not have a low battery cutoff as the obstruction lights must stay ON despite marginal conditions.

FEATURES & BENEFITS

- Typically five (5) days battery backup demonstrated by solar report
- Proprietary computer calculations using solar radiation data published by NASA from the World Radiation Data Centre
- FAA certified manufacturer
- No under sizing as done by distributors of solar products
- Automatic operation based on light levels sensed by the output from the solar array to the solar controller
- Photovoltaic array output to load ratio always exceeds 1-1 year round
- Sealed marine grade deep discharge batteries
- PV panels using high quality crystalline silicon cells

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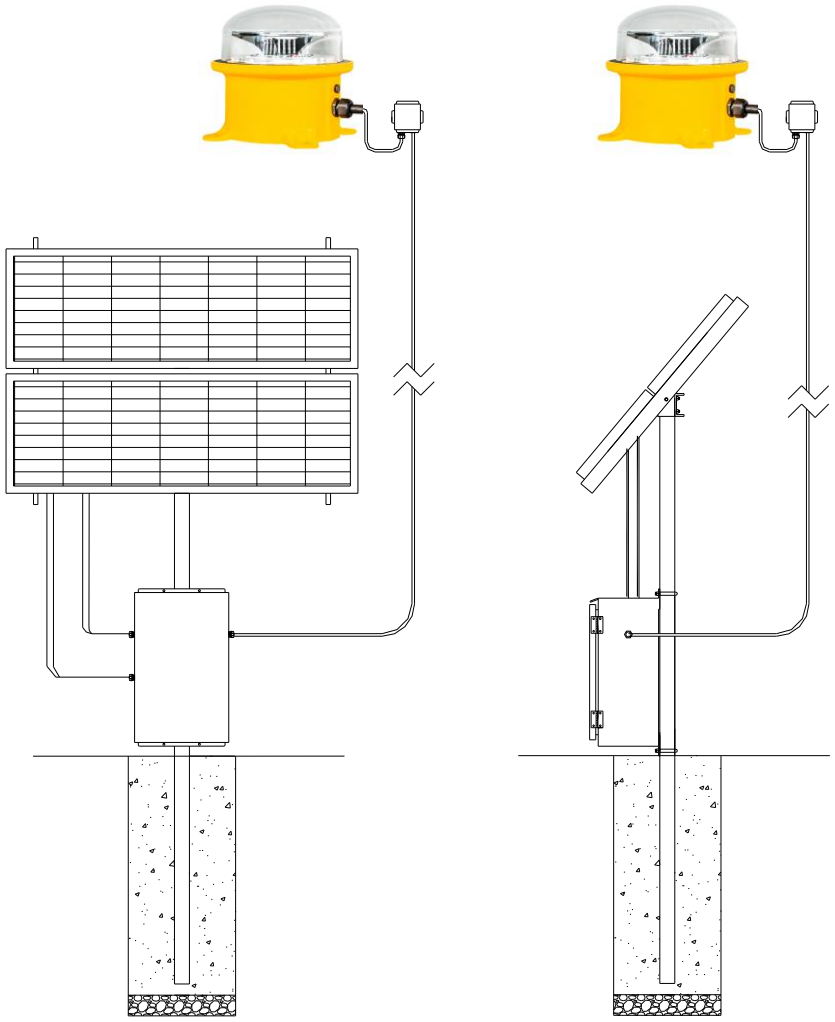
The sketches below represent typical red SOL systems. The battery is typically mounted on the post in the controller box, but may be on the pad depending on the system. Both low and high temperatures significantly affect battery performance and life. The solar array orientation and angle of declination are specified by the POINT LIGHTING CORPORATION solar calculation report included with every SOL system.

MEDIUM INTENSITY FLASHING BEACON SOL SYSTEM



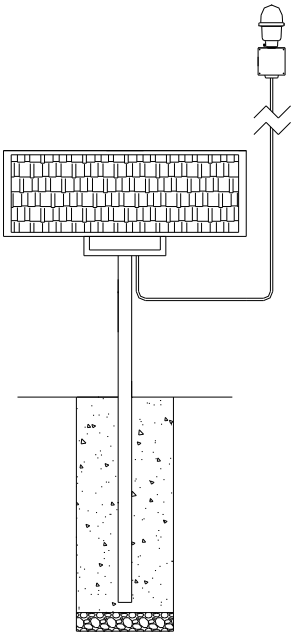
FRONT VIEW SIDE VIEW

GENERAL ARRANGEMENT DRAWING

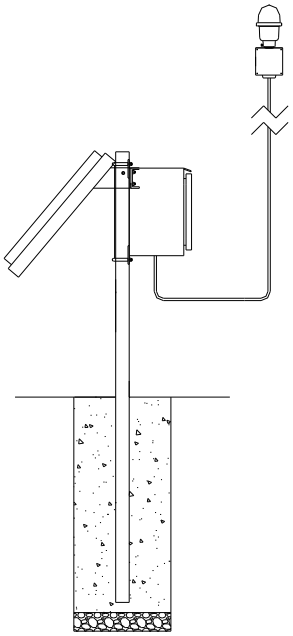
Point Lighting Corporation

Low Intensity Steady-Burning SOL System

for less than 45m height



Front View

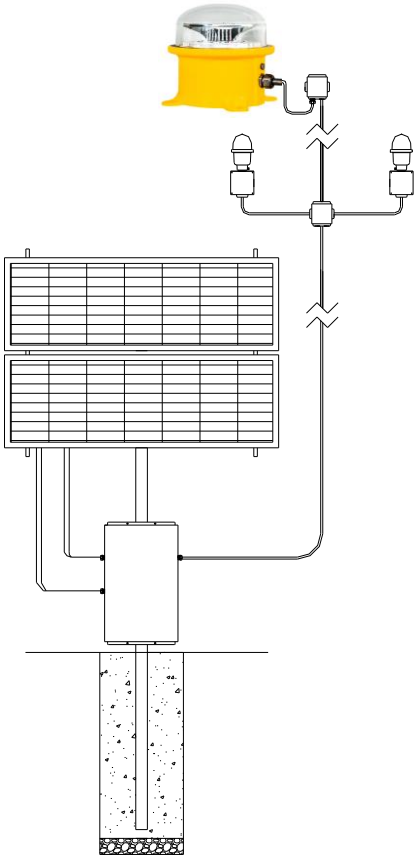


Side View

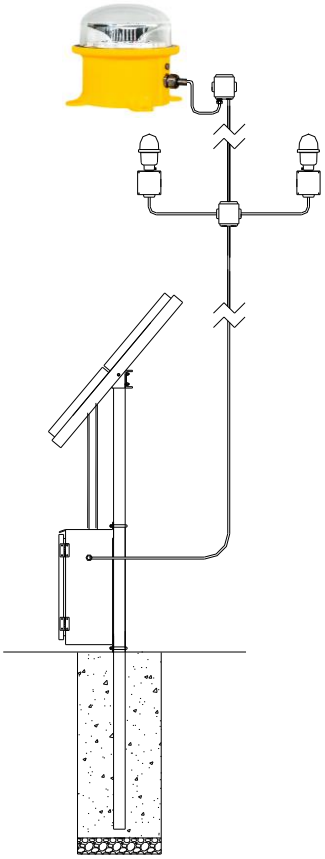
Point Lighting Corporation

Medium Intensity SOL System

for > 45m height



Front View



Side View

POINT LIGHTING CORPORATION

Solar System Report

Summary
10/15/2009
Q1002908

Site Summary

Location:	El Salvador, Ahuachapan	
Latitude:	13.95	N
Longitude:	-89.87	W

Load Summary

PFB-37001-4	Qty: 1	
POL-21003-R-4F-34B-S3-CF[C]	Qty: 2	
Load Voltage:	24.00	Volts
Load Wattage:	94.00	Watts

Photovoltaic Module Data

Module Rated Power:	175.00	Watts
Module Rated Voltage:	35.40	Volts
Module Rated Current:	4.95	Amps

Photovoltaic Array Summary

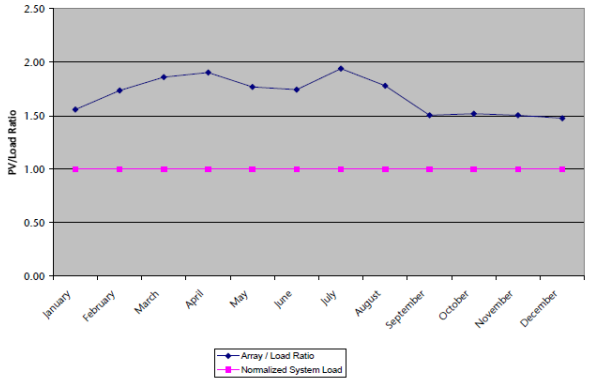
Number Of Series Modules:	1.00	Modules
Number Of Parallel Modules:	3.00	Modules
Total Number of Modules:	3.00	Modules
Rated Power:	525.00	Watts
Minimun PV to Load:	1.48	

Battery Cell

Cell Capacity:	253.00	Amp-Hour
Cell Nominal Voltage:	12.00	Volts

Battery Bank

Number of Batteries:	2.00	Batteries
Rated Power:	6072.00	Watt-Hour
Number in Series:	2.00	Batteries
Number in Parallel:	1.00	Batteries
Rated Voltage:	24.00	Volts
Estimated Backup:	4.08	Days



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Night Length (Hours):	12.723	12.449	12.080	11.685	11.357	11.191	11.273	11.561	11.938	12.325	12.651	12.809
Solar Insolation Data (Kwh/m2/d):	5.230	5.700	5.930	5.870	5.300	5.150	5.770	5.430	4.740	4.940	5.020	4.990
Average Daily Load (Amp-Hours):	49.833	48.760	47.312	45.768	44.482	43.833	44.151	45.282	46.757	48.273	49.550	50.169
Monthly Average PV to Load Ratio:	1.559	1.736	1.861	1.905	1.769	1.745	1.941	1.781	1.505	1.520	1.504	1.477

Photovoltaic Design Criteria

Critical Month:	December	
Critical Month Insolation Data:	4.99	Kwh/m2/d
Critical Month Longest Night:	12.82	Hours
Adjusted Daily Load Requirement:	57.76	Amps 15% System Losses Added
Optimal Array Tilt Angle:	37.00	Degrees
Array Direction:	South	

Photovoltaic Module Data

Photovoltaic Module:	Sharp NT-175U1	
Module Rated Current:	4.95	Amps
Module Rated Voltage:	35.40	Volts
Module Rated Power:	175.00	Watts
Module Current Derating Factor:	0.90	
Module Temperature Derating Factor:	0.80	

Photovoltaic Array Sizing

Number Of Series Modules:	1.00	Modules
Number Of Parallel Modules:	3.00	Modules
Total Number Of Modules:	3.00	Modules
Total Array Power:	525	Watts
Critical Month PV to Load Ratio:	1.48	December
Critical Month Array Output:	22.23	Amp-Hours

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