

 Greenshine

OUTDOOR SOLAR LIGHTING SOLUTIONS



BRIGHTTA

BRIGHTA | GENERAL SPECIFICATIONS



Greenshine

Light Fixtures

| | |
|-------------------------|--------------------|
| Luminaire Input Voltage | DC 12V 24V |
| Power Consumption | 30W 40W |
| Lumen | 3929 5288 lumens |
| Color Temperature | 3000-4000-5000K |
| IES Lighting Type | Type II III V |
| Material | Die-cast aluminum |



260P

Solar Panel (1 or 2 Units)

180W

| | |
|-----------------------|-------------|
| Rating Power | 180 W |
| Maximum Power Voltage | 18.95 V |
| Maximum Power Current | 9.50 A |
| Open Circuit Voltage | 22.74 V |
| Short Circuit Current | 9.98 A |
| Size | 58.5" x 27" |
| Weight | 29.5lb |



290D



NSBP

Battery (1 or 2 Units)

| | |
|-------------------|---|
| Battery Type | GEL Deep Cycle Lead-Acid |
| Operating Voltage | 12 V |
| Capacity | 150 Ah at 20 hr-rate to 1.75 V per cell at 77°F |
| Dimensions | 16(L)×7(W)×9.2(H) (in) |
| Expected Life | 5 ~ 7 years |

Solar Charger

| | |
|----------------------------|------------------------------------|
| Operating Voltage | 12 V/24 V auto recognition |
| Max. Charge / Load Current | 5 A/ 10 A/ 20 A (different models) |
| Night / Day Detection | 2.5 V – 10 V |
| IP Class | IP68 |

Pole

| | |
|-----------|-------------------------------------|
| Height | 20 ft |
| Diameter | 6 3/4" at the bottom, 4" at the top |
| Thickness | 5/32" |
| Material | Galvanized Steel |
| Finishing | Powder Coating |



BRIGHTA | GENERAL SPECIFICATIONS



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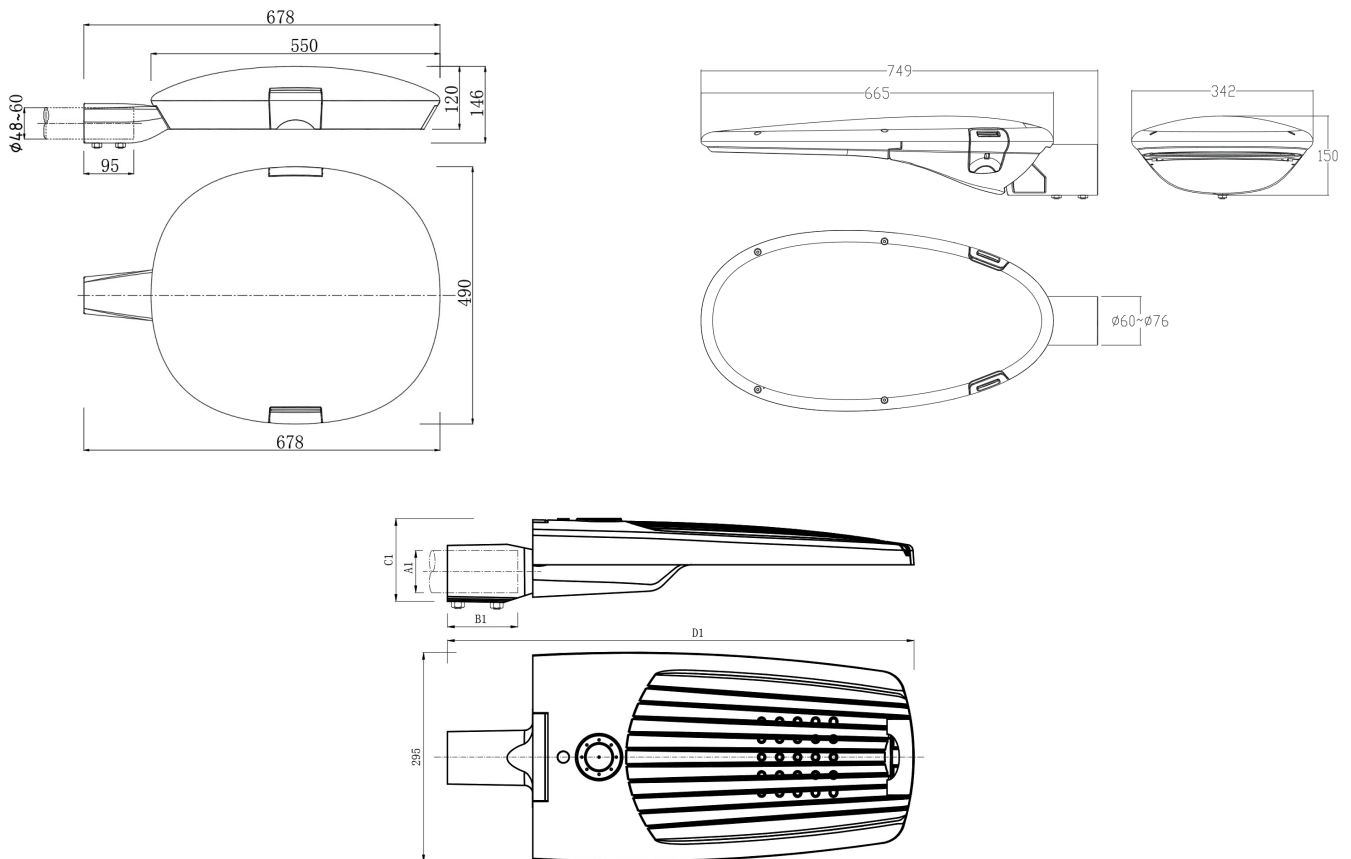
SPECIFICATIONS

Luminaire Input Voltage
Power Consumption
Lumen Output
Color Temperature
IES Lighting Type
Material
Lens
IP Class
Insulation
Operating Temperature
CRI

DC 12V | 24V
30W | 40W
3929 | 5288 lumens
3000-4000 K
Type II | III | V
High pressure die-cast aluminum
5mm toughened glass, optical grade PMMA
IP 65
Class I
-30°C ~+50°C/ -22°F ~+122°F
≥70

Weight: 8.3 kg | 18.3 lb

DIMENSIONS



A1 | B1 | C1 | D1
Ø60-90 | 119 | 663





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BRIGHTA SERIES

Solar Powered LED Lighting System

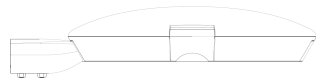
OVERVIEW

The Brighta Series features customizable outdoor solar light solutions depending on your specific application and an adjustable mounting bracket. Each system is completely customized according to your location, project and lighting requirements; also systems can be configured to run throughout the night or have them dim to save energy when full light is not required and with the option for a motion detection.

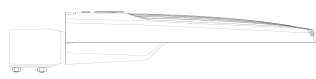
PART NUMBER

| SYSTEM | LUM. QTY. | LUMINAIRE | OPTICS | LOAD | COLOR TEMP. | DRIVER | ARM | BOX QTY. |
|--|----------------------------------|--|--|--|---|--|--|------------------------------------|
| BR Brighta | 1 Single 2 Dual | 260P 290D NSBP | T2 Type 2 T3 Type 3 T5 Type 5 | 30W 40W ## | 3K 3000 Kelvin 4K 4000 Kelvin 5K 5000 Kelvin | 350MA 525MA 700MA 950MA | A4 4' Arm A6 6' Arm A# Custom | 1 1 Box 2 2 Boxes |
| BATTERY QTY. | BATT. MNT. | BATTERY | PV QTY. | PV WATT | POLE HEIGHT | COLOR | OPERATING PROFILE | |
| 1B 1 Battery 2B 2 Batteries 3B 3 Batteries 4B 4 Batteries | H High L Low | 120 120 amp 150 150 amp 200 200 amp | 1 Single 2 Dual 4 Quad | 110W 180W AC 345W | P20 20ft P26 26ft P# Custom | BK Black C# Custom | 5/40 DIM 6/40 DIM 7/40 DIM 8/40 DIM D2D | |

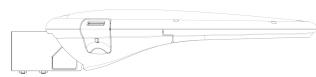
FIXTURES



260 PRO
30W-40W TYPE 2, 3 & 5



NSB PRO
30W-40W
TYPE 2, 3 & 5

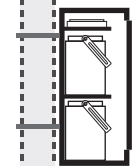
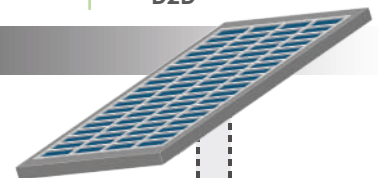


290D
30W-40W
TYPE 2, 3 & 5

Decorative Luminaire Series available. See Decorative Data-sheets for more info.

SPECIFICATIONS

- ▶ **Luminaire**
 - 60,000 hours.
 - 3000K - 5000K available with standard 4000K.
 - Turtle Friendly compliant fixtures available.
- ▶ **Panel Mount**
 - Rated to 145mph. 185mph available.
- ▶ **Solar Panel**
 - Mono-crystalline Photovoltaic solar panels.
- ▶ **Battery Enclosure**
 - Vented, corrosion resistant stainless steel battery box.
 - Holds battery and controller.
 - Includes lock.
- ▶ **GEL-Type Battery**
 - Greenshine Battery - Maintenance-free 99% recyclable.
 - 120Ah - 200Ah seal GEL Cell batteries.
- ▶ **Smart Controller**
 - Controller - Solar Charge controller that monitors and regulates charging and discharging of batteries. Also, programable to specific operating profile for project.
- ▶ **5 Year Limited Warranty**
 - Includes 10 year warranty on solar panel. 5 and 10 Year Full Warranty available.



GREENSHINE SOLAR PANEL

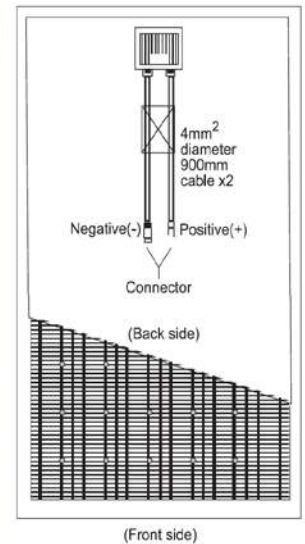
Solar Powered LED Lighting System



Greenshine

OVERVIEW

- Mono-Crystalline solar cells
- Aluminum frame with a unique design to withstand strong winds
- Highly resistant tempered glass
- Multilayer EVA encapsulation with triple layer back sheet
- 25-year power output warranty: 5 years/95%, 12 years/90%, 25 years/80%.



| Rating Power | 110W | 180W |
|-----------------------|--|--|
| Product Tolerance | ± 3% | ± 3% |
| Maximum Power Voltage | 17.60V | 18.95V |
| Maximum Power Current | 6.25A | 9.50A |
| Open Circuit Voltage | 21.7 V | 22.74 V |
| Short Circuit Current | 6.71 A | 9.98 A |
| Frame | Anodized aluminum, 4mm thickness | |
| Dimensions | 1208mm x 682mm 47.5" x 27" 10.6kg 23.4lb | 1486mm x 682mm 58.5" x 27" 13kg 29.5lb |
| Test Temperature | 25°C 77°F, 1000w/m², Air Mass 1.5 | |
| Junction Box / Wiring | IP65 Junction box with 900mm cable with MC4 connectors | |



BRIGHTA SERIES

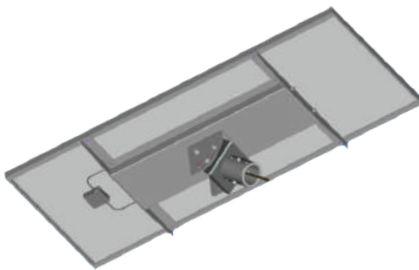
Solar Powered LED Lighting System



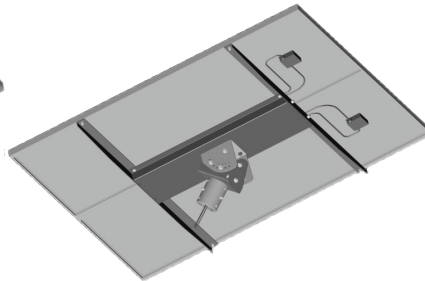
TECHNICAL

| Description | Mount Dimensions (L x W) | Solar Panel | PV Dimensions (L x W) | EPA @ 45° Power Unit | System Weight | Pole Tenon |
|-------------|---------------------------------|-------------|-------------------------------|----------------------|---------------|--------------------|
| SINGLE | 1208mm x 682mm 47.5" x 27" | 110W | 1208mm x 682mm 47.5" x 27" | 0.8 sq meter | 25kg 55lb | 3" O.D 76mm O.D |
| | 1486mm x 682mm 58.5" x 27" | 180W | 1486mm x 682mm 58.5" x 27" | 1 sq meter | 38kg 83lb | 3" O.D 76mm O.D |
| DUAL | 1208mm x 1400mm 47.5" x 55" | 110W | 1208mm x 682mm 47.5" x 27" | 1.6 sq meter | 27kg 60lb | 3" O.D 76mm O.D |
| | 1486mm x 1400mm 58.5" x 55" | 180W | 1486mm x 682mm 58.5" x 27" | 2 sq meter | 43kg 94lb | 3" O.D 76mm O.D |
| QUAD | 1208mm x 3000mm 47.5" x 118" | 110W | 1208mm x 682mm 47.5" x 27" | 3.2 sq meter | 54kg 120lb | 3" O.D 76mm O.D |
| | 1486mm x 3000mm 58.5" x 118" | 180W | 1486mm x 682mm 58.5" x 27" | 4 sq meter | 86kg 188lb | 3" O.D 76mm O.D |

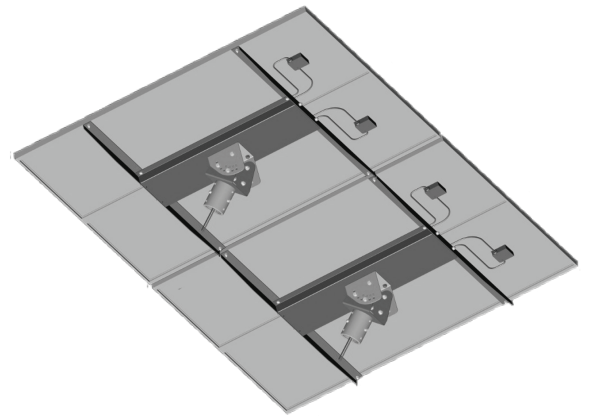
MOUNTS



SINGLE MOUNT



DUAL MOUNT

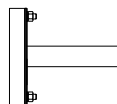


QUAD MOUNT

ARMS



Universal - 4', 6', 8'



Straight - 6", 1', 2'

GREENSHINE GEL-TYPE BATTERY

Solar Powered LED Lighting System



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OVERVIEW

GEL deep cycle battery with a 12 years floating design life is especially designed for frequent cyclic discharge under extreme temperature.



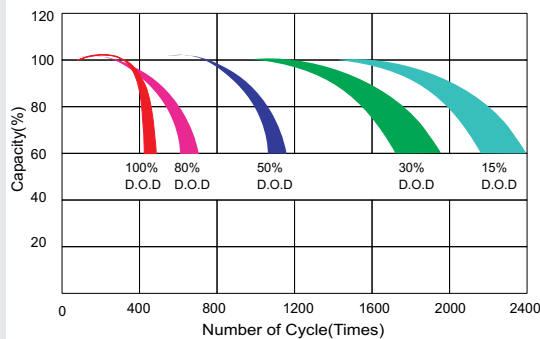
| | GS-GEL-H120 | GS-GEL-H150 | GS-GEL-H200 |
|-----------------------------------|--|---|---|
| Cells per unit | 6 | 6 | 6 |
| Voltage per unit | 12V | 12V | 12V |
| Capacity | 120Ah @ 20hr-rate to 1.75V per cell @ 25°C / 77°F | 150Ah @ 20hr-rate to 1.75V per cell @ 25°C / 77°F | 200Ah @ 20hr-rate to 1.75V per cell @ 25°C / 77°F |
| Weight | 38kg / 84lb | 46kg / 100lb | 59.2kg / 131.5lb |
| Dimensions L x W x H | 406 x 173 x 233(mm) 16" x 7" x 9.2" | 483 x 170 x 240(mm) 19" x 6.7" x 9.5" | 522 x 240 x 218(mm) 20.5" x 9.44" x 8.7" |
| Max Discharge Current | 1200A (5 Sec) | 1500A (5 Sec) | 2000A (5 Sec) ² |
| Operating Temp. range | -40°C~60°C -40°F~140°F | | |
| Flot Charging Voltage | 13.6 to 13.8 VDC / unit average at 25°C / 77°F | | |
| Recommended max. charging current | 24A | 30A | 40A |
| Self-discharge | Valve Regulated Lead Acid can be stored for more than 6 months at 25°C/77°F. Self-discharge ratio less than 3% per month at 25°C/77°F. Please charge batteries before using. | | |
| Equalization and cycle service | 14.6 to 14.8 VDC / unit average at 25°C / 77°F | | |
| Terminal type | 5ft cooper wire leads from the battery case | | |



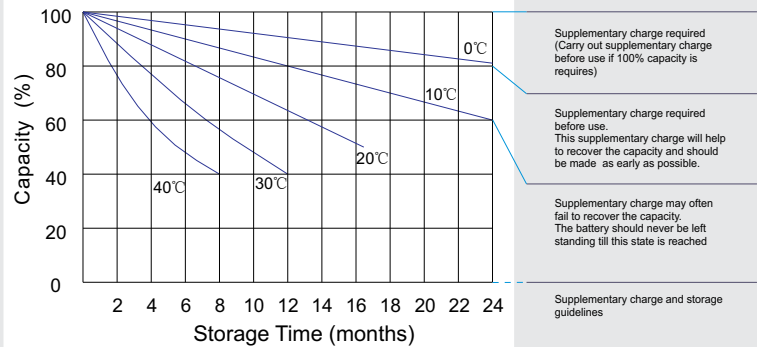
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GREENSHINE GEL-TYPE BATTERY

Life characteristics of cyclic use



Storage characteristic



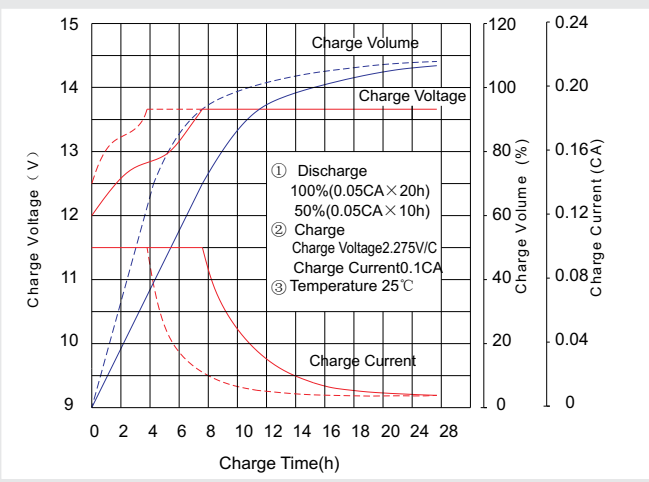
Supplementary charge required (Carry out supplementary charge before use if 100% capacity is required)

Supplementary charge required before use. This supplementary charge will help to recover the capacity and should be made as early as possible.

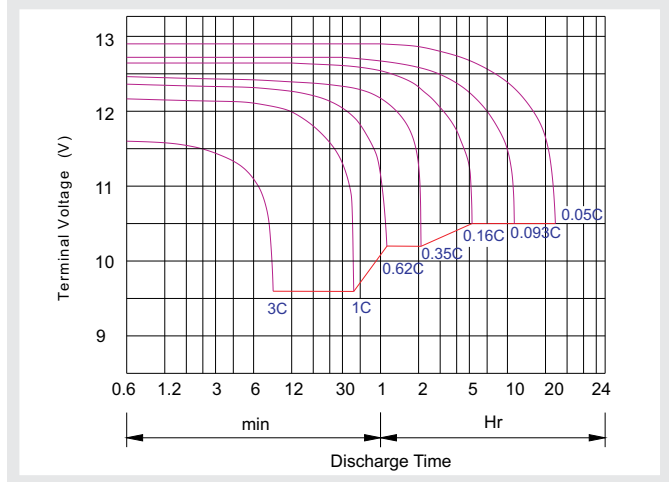
Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this state is reached

Supplementary charge and storage guidelines

Charge characteristic curve for cyclic use



Discharge characteristic curve



Capacity Factors With Different Temperature

| Battery Type | | -20°C | -10°C | 0°C | 5°C | 10°C | 20°C | 25°C | 30°C | 40°C | 45°C |
|--------------|--------|-------|-------|-----|-----|------|------|------|------|------|------|
| GEL Battery | 6V&12V | 50% | 70% | 83% | 85% | 90% | 98% | 100% | 102% | 104% | 105% |
| | 2V | 60% | 75% | 85% | 88% | 92% | 99% | 100% | 103% | 105% | 106% |
| AGM Battery | 6V&12V | 46% | 66% | 76% | 83% | 90% | 98% | 100% | 103% | 107% | 109% |
| | 2V | 55% | 70% | 80% | 85% | 92% | 99% | 100% | 104% | 108% | 110% |

Discharge Current VS. Discharge Voltage

| | | | |
|---------------------------------|-----------|------------------|-----------|
| Final Discharge Voltage V /cell | 1.75V | 1.70V | 1.60V |
| Discharge Current (A) | (A) ≤0.2C | 0.2C < (A) <1.0C | (A) ≥1.0C |

Charge the batteries at least once every six months, if they are stored at 25°C.

Charging Method:

| | |
|------------------|--|
| Constant Voltage | -0.2Cx2h+14.4-14.7Vx24h, Max. Current 0.2C |
| Constant Current | -0.2Cx2h+0.1Cx12h |
| Fast | -0.2Cx2h+0.2Cx6h |

| Bolt | M5 | M6 | M8 |
|----------|-----------------------|------------------|-----------------------|
| Terminal | F3 F4 F13 F18 T25 T26 | F8 F11 F12-1 F15 | F5 F9 F10 F12 F14 F16 |
| Torque | 6-7N-m | 8-10N-m | 10-12N-m |

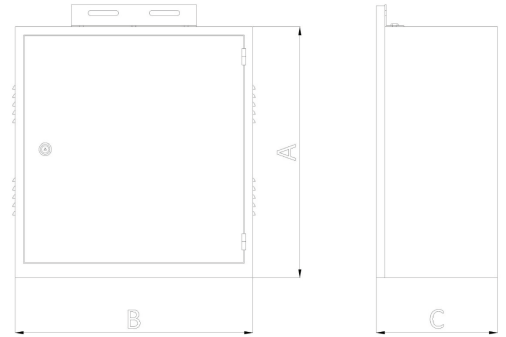
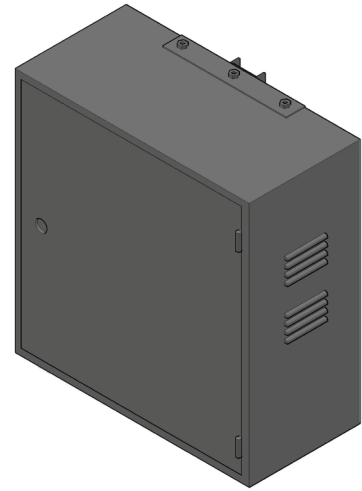
Maintenance & Cautions

| Cycle service |
|---|
| ※ Avoid battery over discharge, especially battery series connection use. |
| ※ Charged with recommend voltage, ensure battery can be full recharged. |
| In general, recharge capacity should be 1.1-1.15 times discharge capacity. |
| ※ Effect of temperature on cycle charge voltage: -4mV/°C/Cell. |
| ※ There are a number of factors that will affect the length of cyclic service. |
| The most significant are depth of discharge, ambient temperature, discharge rate, and the manner in which the battery is recharged. |
| Generally speaking, the most important factors is depth of discharge. |

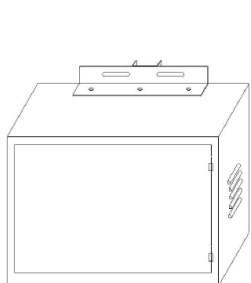
BATTERY ENCLOSURE

OVERVIEW

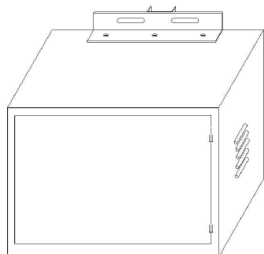
- Housing - Made of 201 stainless steel with powder coating finish unit that holds battery and smart controller. Vented to allow air circulation around batteries. Easy access through hinged/removable front cover to allow quick servicing or battery replacement. Maintenance-free 99% recyclable.
- Mounting - Mounted to Pole at low, mid or high placements.
- Battery - Our battery enclosures are designed to fit our 80Ah, 120Ah, 150Ah and 200Ah GEL TYPE batteries.
- Five Year System Warranty - Includes five year limited warranty on batteries.
- Controller - Mounted inside of hinged battery enclosure for ease of maintenance.
- The Battery Box is a stainless steel enclosure that has a lock for additional security.



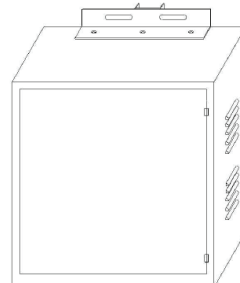
| TYPE | # OF BATTERIES | DIMENSIONS: L x W x D (A x B x C) | WEIGHT | EFFECTIVE PROJECTED AREA (EPA) |
|------|----------------|--|------------------|-----------------------------------|
| 1150 | 1 X 150AH | 15.75"x22.4"x10.6" (inch) 40x57x27 (cm) | 30 lb 13.6 kg | 3.43 sq ft 0.319 m2 |
| 1200 | 1 X 200AH | 15.75"x23.6"x12.2" (inch) 40x60x31 (cm) | 35 lb 15.8 kg | 3.61 sq ft 0.336 m2 |
| 2150 | 2 X 150AH | 23.5"x22.4"x10.6" (inch) 60x57x27 (cm) | 40 lb 18.1 kg | 5.11 sq ft 0.476 m2 |
| 2200 | 2 X 200AH | 24.4"x23.6"x12.6" (inch) 62x60x32 (cm) | 45 lb 20.4 kg | 5.58 sq ft 0.518 m2 |



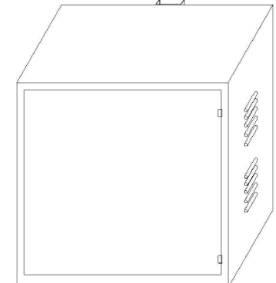
1 X 150AH



1 X 200AH



2 X 150AH



2 X 200AH

GREENSHINE CONTROLLER

Solar Powered LED Lighting System



Greenshine

FEATURES

- Corrosion-proof epoxy-encapsulated PCB (IP68)
- Four-stage battery charging (main, float, boost, equalization)
- Temperature compensated
- Automatic system voltage recognition (12V/24V)
- Customized by Greenshine to fit specific needs of clients
- Easy to install

SPECIFICATIONS

System Voltage

Max. charge / load current

Deep discharge protection:

Cut-off Voltage

Reconnect Level

Overvoltage Protection

Undervoltage Protection

Max. Panel Voltage

Temperature compensation

(Charge Voltage)

Ambient Temperature

Max. Altitude

Battery Type

Adjustment Range:

Evening / Morning Hours

Night / Day Detection

Wire Cross Section

Type of Protection

12V | 24 Auto Recognition

5A | 10A | 20A (Different Models)

11V - 12V | 22V - 24V

12.8V | 25.6V

15.5V | 31.0V

10.5V | 21V

$U_{BATmin} + 30V$ (if module and battery are connected with correct polarity)

-25mV | K at 12V

-50mV | K at 24V

-40°C to +60°C, -40°F to +140°F

4,000m above sea level

Lead acid (GEL, AGM, flooded)

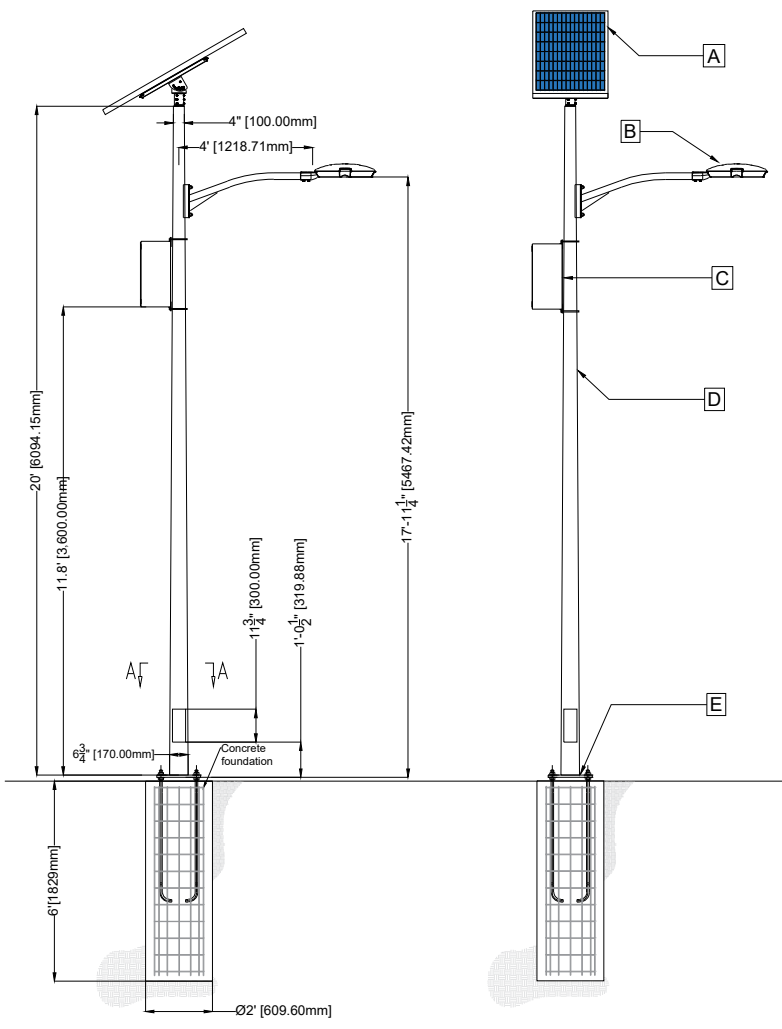
0 - 15h | 0 - 14h

2.5V - 10V

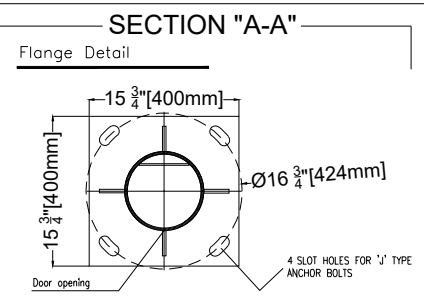
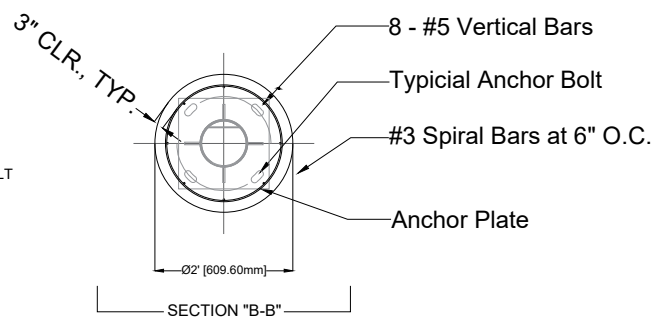
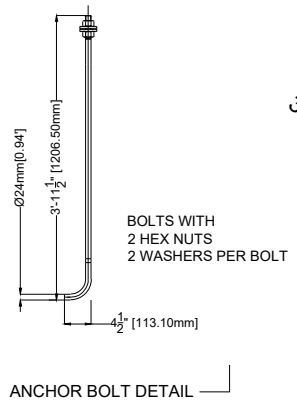
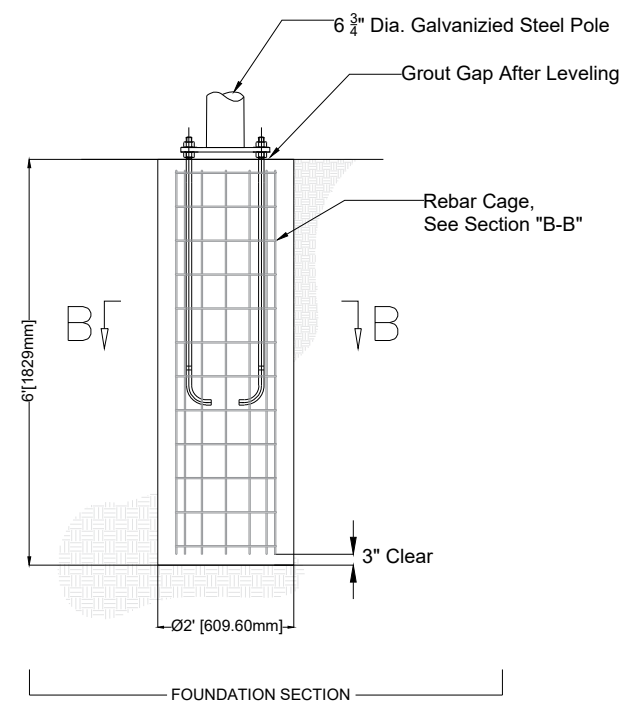
1.5mm²/ 1.5mm²/ 2.5mm², 15 (AWG)

IP68 (1.5 m, 72 h)





- LEGEND**
- A. Mono-Crystalline Solar Cell - Solar Panel; Orient towards True South per manufacturer's recommendation.
 - B. Luminaire
 - C. Battery Box
 - D. 6 3/4" at the bottom, 4" at the top - Tapered Galvanized Steel Pole Flange
 - E. Flange



- Foundation dimensions shall be confirmed by a local engineering company, Greenshine New energy will not be held liable for any defect of the concrete foundation due to improper sizing.
 - Drawings are based using hot-dipped galvanized steel, powder coating with a thickness of 0.032"
 - *EPA of the system exclude the EPA of the pole, includes the solar panels, brackets, arm and LED fixture and battery box.
 - **Wind resistance of the poles are indicative and further customization can be provided.

| | | | | |
|--------------------------------|------|------|-------|-------|
| Tilt angle of the solar panels | 15 | 30 | 45 | 60 |
| EPA (ft ²)* | 3.94 | 7.58 | 10.76 | 13.13 |
| Wind resistance** (mph) | 150 | 150 | 150 | 150 |

| | |
|---------|-----------------------------------|
| System | Brighta - 260P - 1P |
| By | Luis Jimenez |
| Date | 4/27/2021 |
| Website | www.streetlights-solar.com |



Project 1

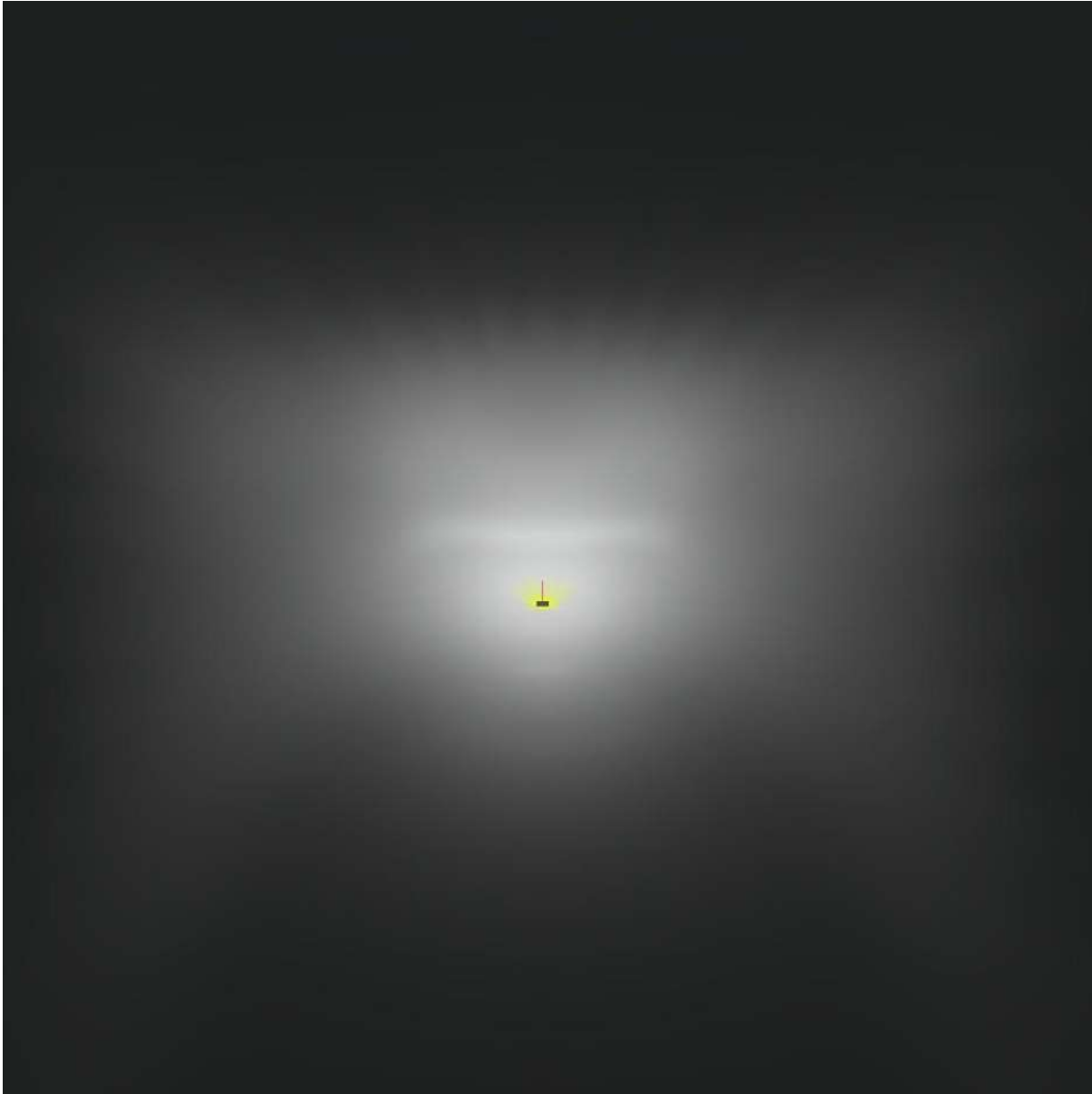


03 / 20 / 2020

Greenshine New Energy
23661 Birtcher Dr
Lake Forest, CA 92630

Operator Luis Jimenez
Telephone 949-609-9636 X 104
Fax
e-Mail luis.jimenez@streetlights-solar.com

Exterior Scene 1 / 3D Rendering



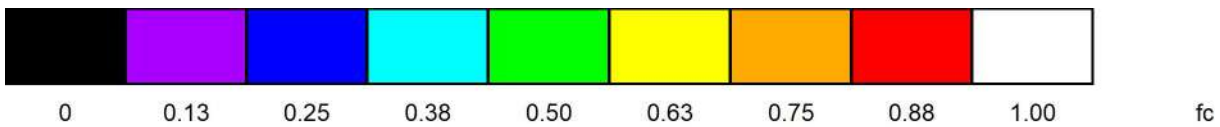
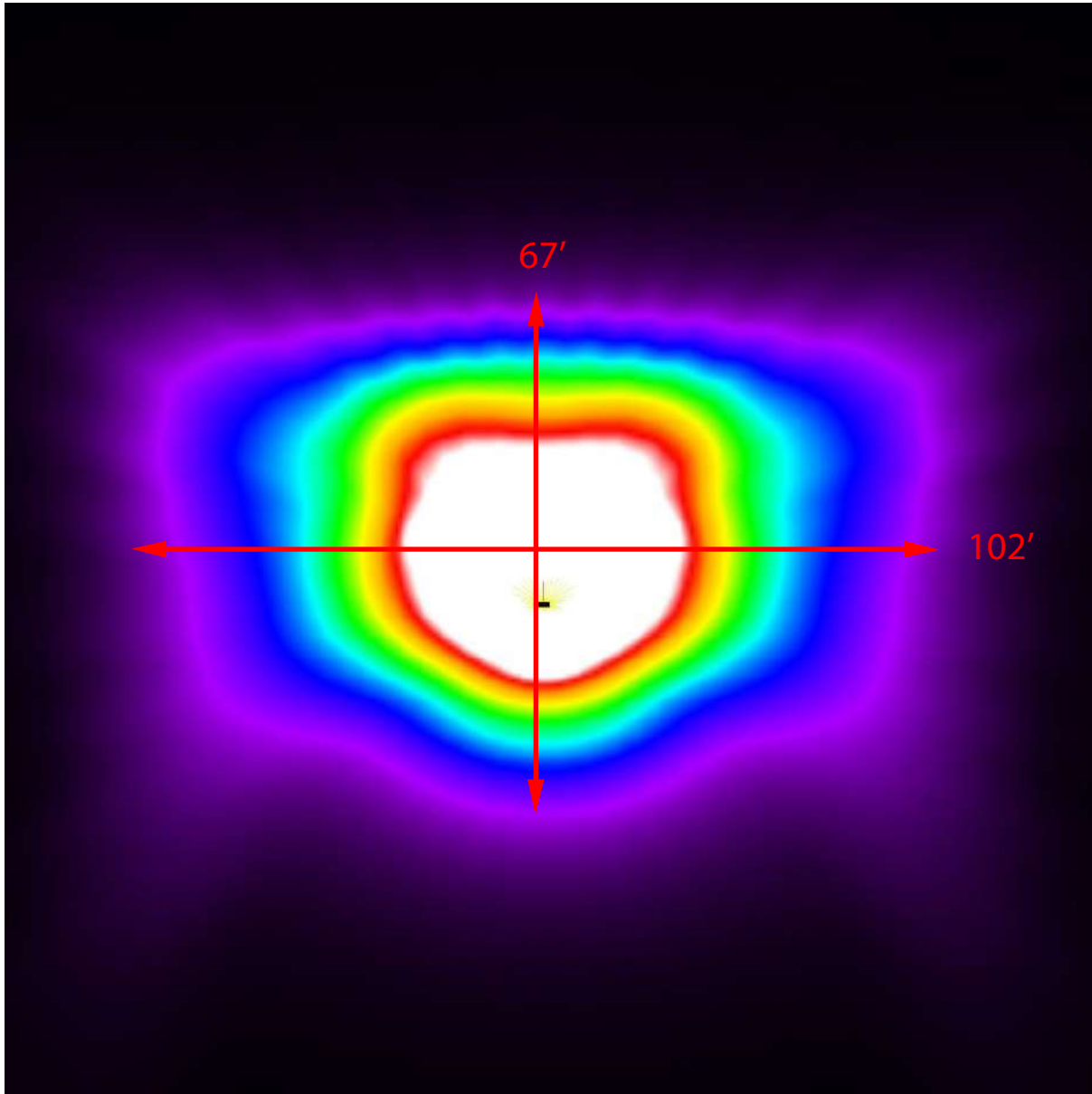


Greenshine New Energy

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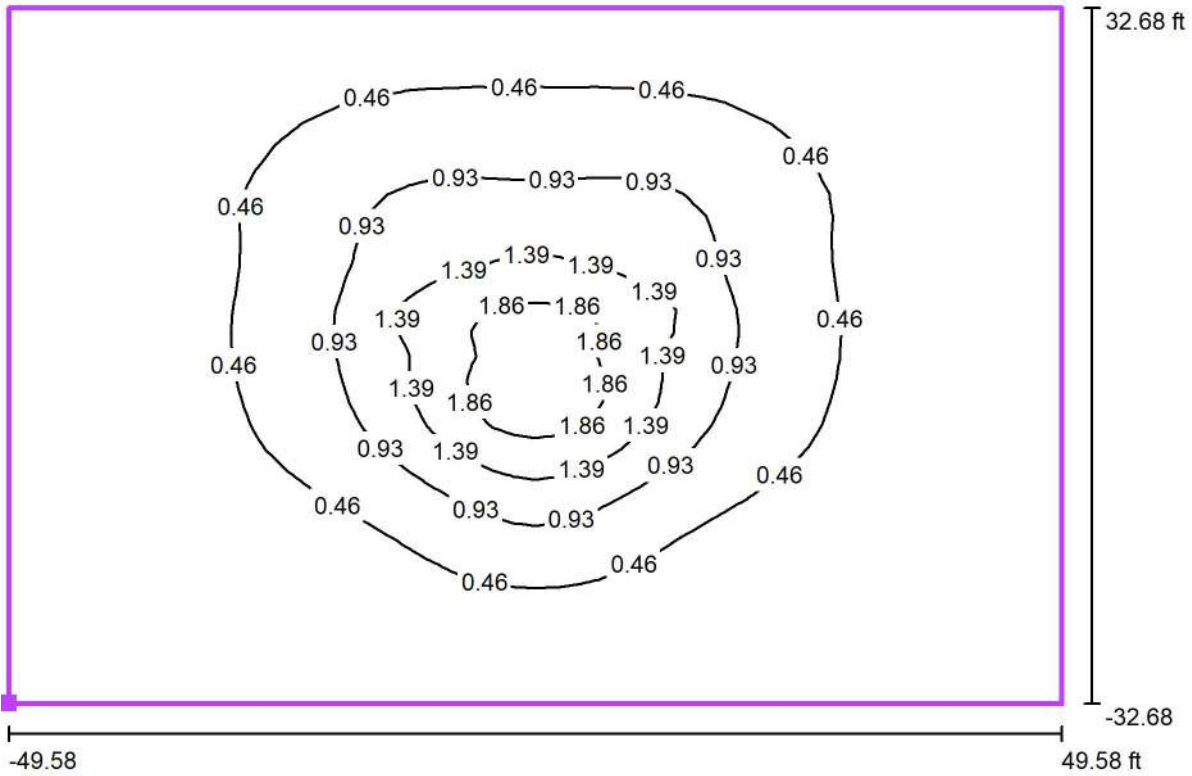
Exterior Scene 1 / False Color Rendering



Greenshine New Energy
 23661 Birtcher Dr
 Lake Forest, CA 92630

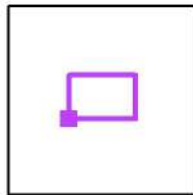
Operator Luis Jimenez
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 Fax
 e-Mail luis.jimenez@streetlights-solar.com

Exterior Scene 1 / Calculation Grid 1 / Isolines (E, Perpendicular)



Values in Footcandles, Scale 1 : 217

Position of surface in external scene:
 Marked point: (90.691 ft, 112.518 ft,
 0.000 ft)



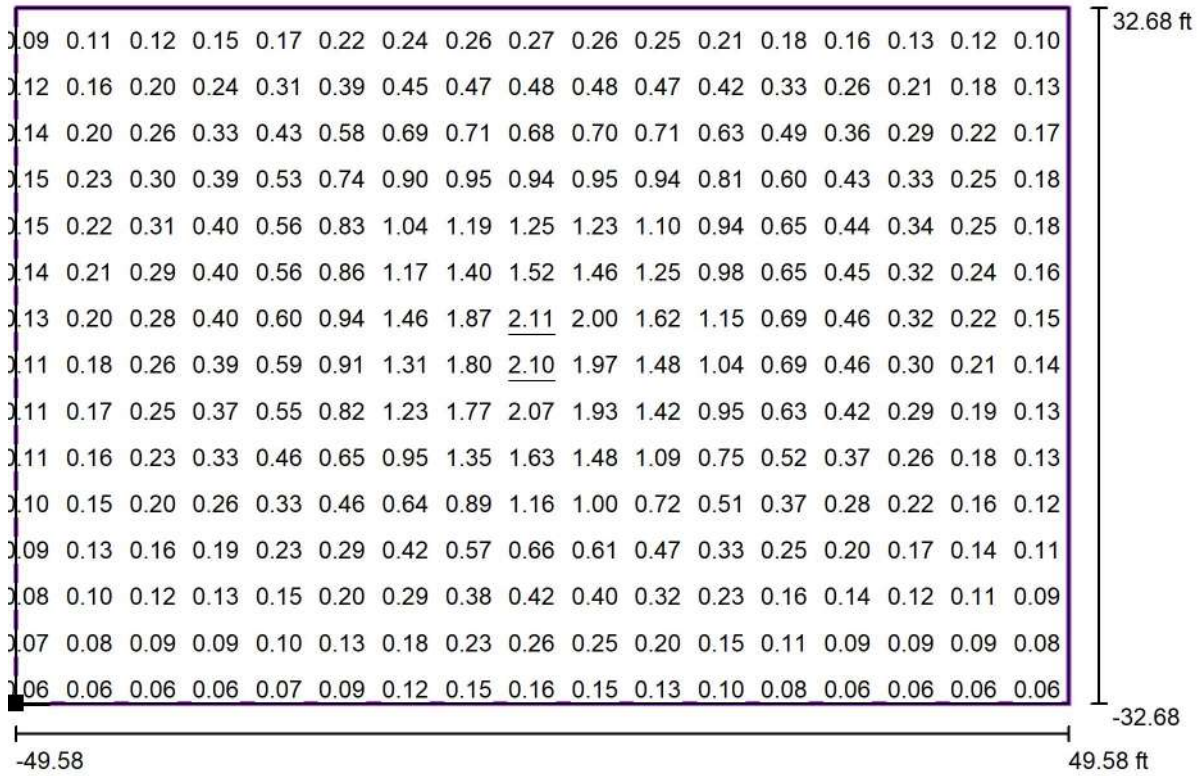
Grid: 50 x 30 Points

| | | | | |
|---------------|----------------|----------------|------|---------------------|
| E_{av} [fc] | E_{min} [fc] | E_{max} [fc] | u0 | E_{min} / E_{max} |
| 0.48 | 0.06 | 2.18 | 0.12 | 0.03 |

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 e-Mail luis.jimenez@streetlights-solar.com

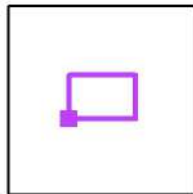
Exterior Scene 1 / Calculation Grid 1 / Value Chart (E, Perpendicular)



Values in Footcandles, Scale 1 : 217

Not all calculated values could be displayed.

Position of surface in external scene:
 Marked point: (90.691 ft, 112.518 ft, 0.000 ft)



Grid: 50 x 30 Points

E_{av} [fc]
0.48

E_{min} [fc]
0.06

E_{max} [fc]
2.18

u_0
0.12

E_{min} / E_{max}
0.03

GREENSHINE NEW ENERGY



Greenshine

5 YEAR LIMITED WARRANTY

Greenshine New Energy provides a 5 year limited warranty on its solar lighting system. Greenshine will, at its option, repair or replace any Greenshine system that is defective. Additionally, certain components within Greenshine's system have extended warranty protection against failure as defined below:

| COMPONENT | WARRANTY |
|----------------------------------|----------|
| *Solar Panel | 20 Years |
| Pole and Mounting Brackets | 5 Years |
| LED Light Fixture | 5 Years |
| Electronics (Controller, driver) | 5 Years |
| **Battery | 5 Years |

* Greenshine New Energy warrants that the power output of the PV Modules will be at least 80% of the minimum Peak Power rating for 20 years, and warrants that for 20 years beginning on the Warranty Start Date, its photovoltaic modules, shall be free from defects in materials and workmanship under normal application, installation, use and service conditions.

Specific restrictions may apply due to site-specific conditions, please check quote's details for more information.

This warranty does not cover damage or malfunction, as determined by Greenshine service technicians or engineers, due to abuse, misuse, incorrect installation, or accident such as, but not limited to:

- Failure to follow storage, installation, operation, and maintenance instructions provided by Greenshine
- Vandalism, theft, lightning, flood, "Acts of God", and other problems beyond the control of Greenshine
- Unauthorized or improper repairs or adjustments including use of any replacement parts not provided by Greenshine.
- Deployed in an abnormal or inconsistent manner from Greenshine New Energy written and verbal instructions
- Greenshine New Energy liability and Purchaser's remedy under Greenshine New Energy warranty is limited to the replacement of any defective item, but under no circumstance shall exceed the purchase price of the goods. Other warranties may be available for an additional cost with additional coverage and/or labor allowance included.
- Any repair cost not approved by Greenshine New Energy will not be reimbursed.
- Purchaser is responsible for any and all costs involved to service and/or replace defective good including labor, shipping, and rental of equipment.

**Greenshine New Energy provides a limited warranty for battery replacement with the following prorated coverage:

- 0 to 2 years: 100% credit (user pays 0% of the replacement battery price)
- 2 to 3 years: 60% credit (user pays 40% of the replacement battery price)
- 3 to 4 years: 40% credit (user pays 60% of the replacement battery price)
- 4 to 5 years: 20% credit (user pays 80% of the replacement battery price)