



Greenshine



DUAL BRIGHTA

260 PRO

Cost Effective Solar Lighting Solutions

DUAL BRIGHTA | GENERAL SPECIFICATIONS



Greenshine

Light Fixture (2 * GS-LED-260P)

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



Solar Panel (2 Units)

110W

160W

Rating Power	110 W	160 W
Maximum Power Voltage	17.60 V	18.95 V
Maximum Power Current	6.25 A	8.45 A
Open Circuit Current	21.7 V	22.6 V
Short Circuit Current	6.71	9.25
Size	47.5" x 27"	58.5" x 27"
Weight	29.5 lb	39.5 lb

Battery (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



DUAL BRIGHTA | GENERAL SPECIFICATIONS



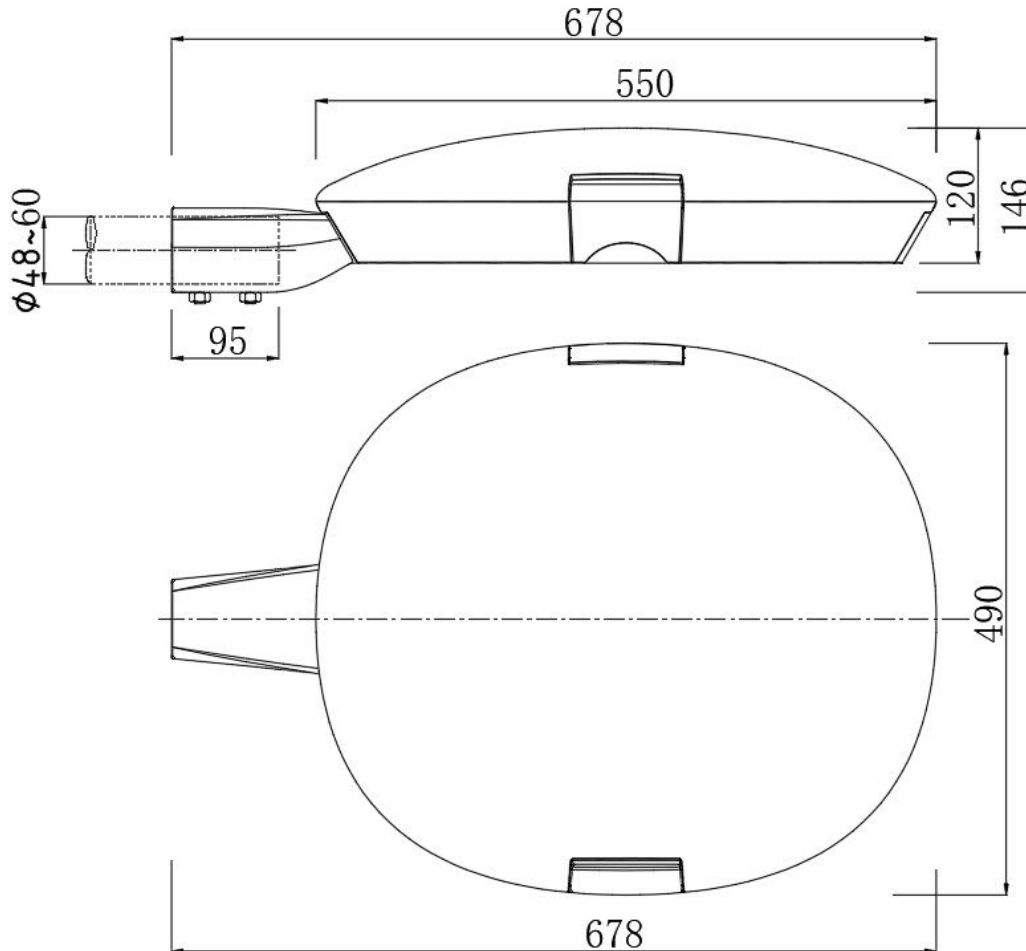
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SPECIFICATIONS

Luminaire Input Voltage	DC 12V 24V
Power Consumption	30W 40W
Lumen Output	3929 5288 lumens
Color Temperature	3000-4000 K
IES Lighting Type	Type II III V
Material	High pressure die-cast aluminum
Lens	5mm toughened glass, optical grade PMMA
IP Class	IP 65
Insulation	Class I
Operating Temperature	-30°C ~+50°C / -22°F ~+122°F
CRI	≥70

Weight: 8.3 kg | 18.3 lb

DIMENSIONS





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BRIGHTA SERIES

Solar Powered LED Lighting System

OVERVIEW

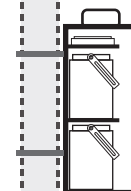
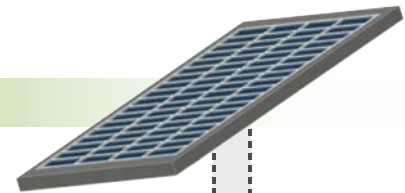
The Brighta Series features customizable outdoor solar light solutions depending on your specific application and an adjustable mounting bracket. Each system is completely customized according to your location, project and lighting requirements; also systems can be configured to run throughout the night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

PART NUMBER

COLOR	LUMINAIRE	LUM. QTY.	OPTICS	DRIVER	LOAD	BATT. BOX	AMPS	BATT. MNT.	PV QTY.	PV WATT	ARM	POLE
G Grey	2P 260P	1 Single	2 Type 2	L3 LED 350MA	30 30 Watts	1 Single	8 80 ah	H High	1 Single	11 110W	2 2' Arm	0 No Pole
Bl Black	2D 290D	2 Dual	3 Type 3	L5 LED 525MA	40 40 Watts	2 Dual	10 100 ah	L Low	2 Dual	16 160W	4 4' Arm	14 14' Pole
Br Bronze	NP NSBP		5 Type 5	L7 LED 700MA	50 50 Watts	4 Quad	12 120 ah		4 Quad	AC 345W	6 6' Arm	20 20' Pole
C Custom				L9 LED 950MA	60 60 Watts		15 150 ah				8 8' Arm	26 26' Pole
					80 80 Watts		20 200 ah				0 No Arm	30 30' Pole
					## Custom						# Custom	# Custom

FIXTURES

SPECIFICATIONS



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



NSB PRO
30W-40W-60W-80W
TYPE 2, 3 & 5



290D
30W-40W-50W-60W-80W
TYPE 2, 3 & 5

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

- ▶ **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**
 - Corrosion resistant stainless steel battery box holds battery and controller.
 - Includes lock
- ▶ **GEL-Type Battery**
 - Greenshine Battery - Maintenance-free 99% recyclable.
 - 80Ah - 200Ah seal GEL Cell batteries.
- ▶ **Smart Controller**
 - Controller - Solar Charge controller that monitors and regulates charging and discharging of batteries. Also, programmable to specific operating profile for project.
- ▶ **5 Year Limited Warranty**
 - Includes 10 year warranty on solar panel. 5 and 10 Year Full Warranty available.



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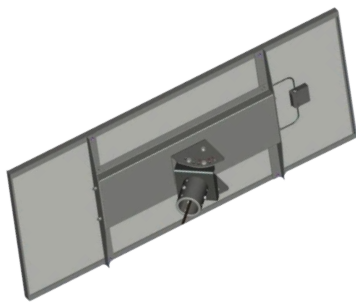
BRIGHTA SERIES

Solar Powered LED Lighting System

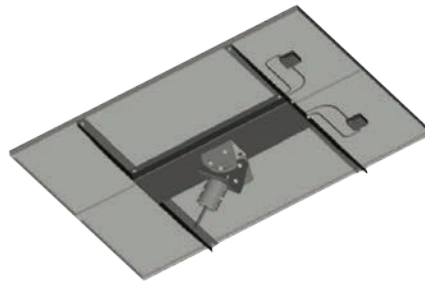
TECHNICAL

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"	160W	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"	160W	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"	160W	1486mm x 682mm 58.5" x 27"	4 sq meter	86kg 188lb	3" O.D 76mm O.D

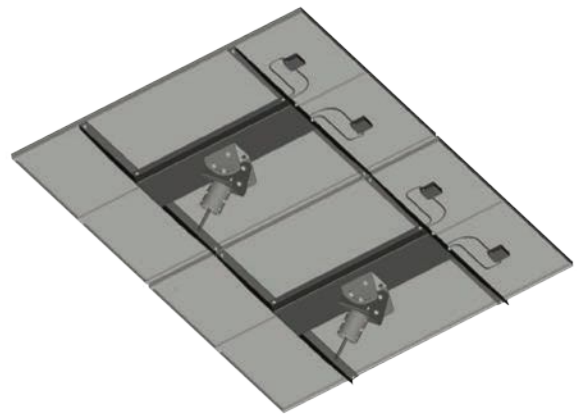
MOUNTS



SINGLE MOUNT



DUAL MOUNT

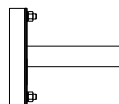


QUAD MOUNT

ARMS



Universal - 4', 6', 8'



Straight - 6", 1', 2'

GREENSHINE SOLAR PANEL

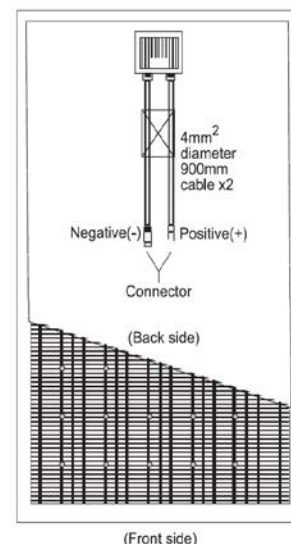
Solar Powered LED Lighting System



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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

160W

Rating Power	110W	160W
Product Tolerance	± 3%	± 3%
Maximum Power Voltage	17.60V	18.95V
Maximum Power Current	6.25A	8.45A
Open Circuit Voltage	21.7 V	22.6 V
Short Circuit Current	6.71 A	9.25 A
Frame	Anodized aluminum, 4mm thickness	
Dimensions	1208mm x 682mm 47.5" x 27" 13kg 29.5lb	1486mm x 682mm 58.5" x 27" 18kg 39.5lb
Test Temperature	25°C 77°F, 1000w/m², Air Mass 1.5	
Junction Box / Wiring	IP65 Junction box with 900mm cable with MC4 connectors	



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-H80	GS-GEL-H120	GS-GEL-H150	GS-GEL-H200
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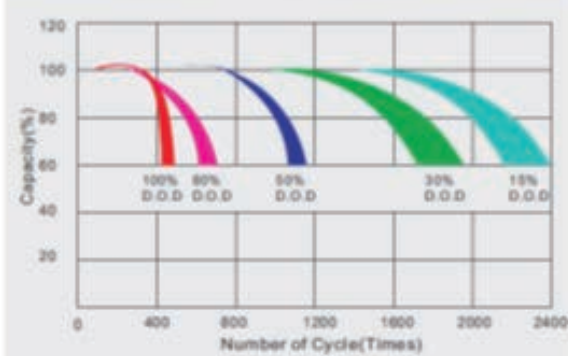
Cells per unit	6	6	6	6
Voltage per unit	12V	12V	12V	12V
Capacity	80Ah @ 20hr-rate to 1.75V per cell @ 25°C / 77°F	120Ah @ 20hr-rate to 1.75V per cell @ 25°C / 77°F	150Ah @ 20hr-rate to 1.75V per cell @ 25°C / 77°F	200Ah @ 20hr-rate to 1.75V per cell @ 25°C / 77°F
Weight	26kg / 58lb	38kg / 84lb	46kg / 100lb	59.2kg / 131.5lb
Dimensions L x W x H	330 x 172 x 214(mm) 13" x 7" x 8.5"	330 x 172 x 214(mm) 13" x 7" x 8.5"	330 x 172 x 214(mm) 13" x 7" x 8.5"	330 x 172 x 214(mm) 13" x 7" x 8.5"
Max Discharge Current	800A (5 Sec)	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	16A	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			

GREENSHINE GEL-TYPE BATTERY

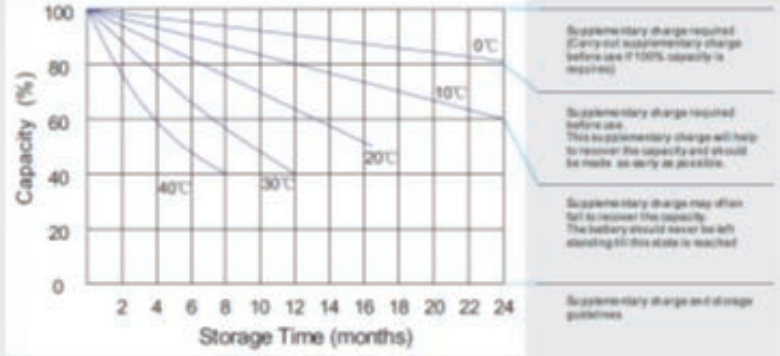


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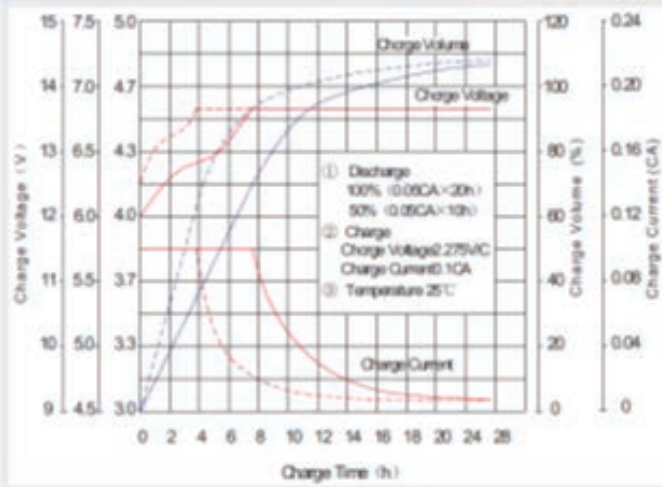
Life characteristics of cyclic use



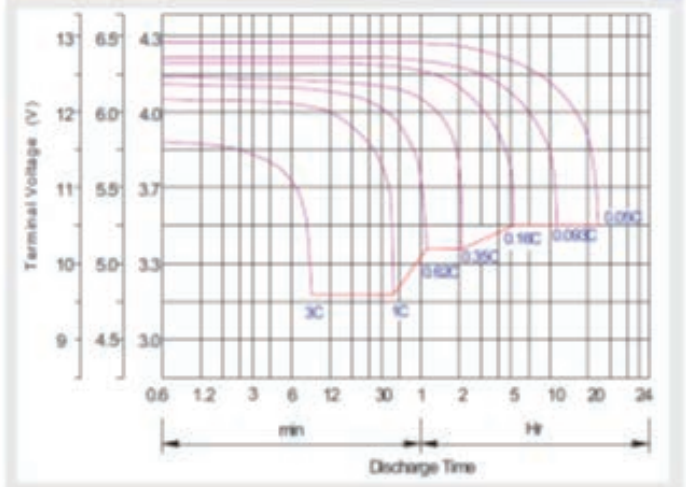
Storage characteristic



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.

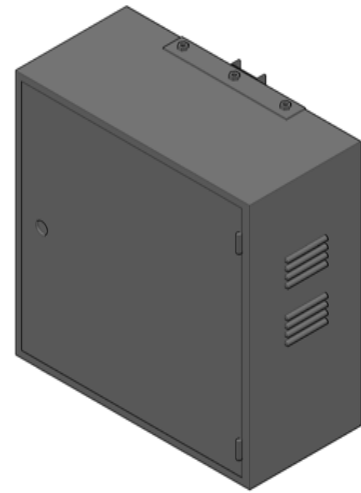
Charging Method:

Constant Voltage	-0.2Cx2h+2.4-2.45V/Cellx24h, Max. Current 0.3CA
Constant Current	-0.2Cx2h+0.1CAx12h
Fast	-0.2Cx2h+0.3CAx4.0h

Maintenance & Cautions

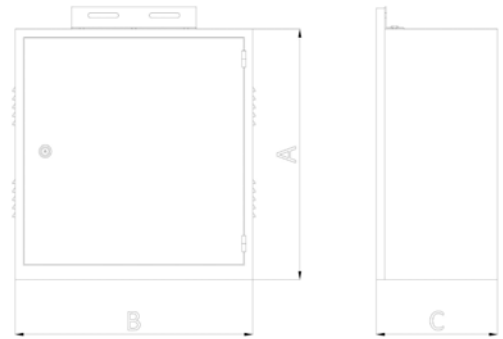
Cycle service
⊗ Avoid battery over discharge, especially battery series connection use.
⊗ Charged with recommend voltage, ensure battery can be full recharged.
In general, recharge capacity should be 1.1-1.15 times discharge capacity.
⊗ Effect of temperature on cycle charge voltage: -4mV/°C/Cell.
⊗ There 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

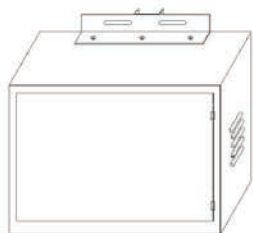


OVERVIEW

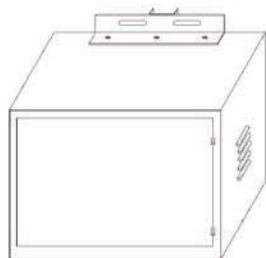
- Housing - Made of 201 stainless steel with powder coating finish unit that holds battery and smart controller. Vented to allow air circulation around batteries. Easy access through hinged/removable front cover to allow quick servicing or battery replacement. Maintenance-free 99% recyclable.
- Mounting - 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.



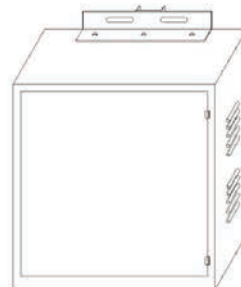
TYPE	# OF BATTERIES	DIMENSIONS: L x W x D (A x B x C)	WEIGHT	EFFECTIVE PROJECTED AREA (EPA)
1150	1 X 150AH	15.75"x22.4"x10.6" (inch) 40x57x27 (cm)	30 lb 13.6 kg	3.43 sq ft 0.319 m2
1200	1 X 200AH	15.75"x23.6"x12.2" (inch) 40x60x31 (cm)	35 lb 15.8 kg	3.61 sq ft 0.336 m2
2150	2 X 150AH	23.5"x22.4"x10.6"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



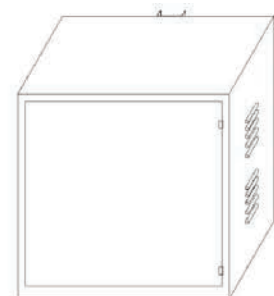
1 X 150AH



1 X 200AH



2 X 150AH



2 X 200AH



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GREENSHINE CONTROLLER

Solar Powered LED Lighting System

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

12V | 24 Auto Recognition

Max. charge / load current

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

Deep discharge protection:

Cut-off Voltage

11V - 12V | 22V - 24V

Reconnect Level

12.8V | 25.6V

Overvoltage Protection

15.5V | 31.0V

Undervoltage Protection

10.5V | 21V

Max. Panel Voltage

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

Temperature compensation

-25mV | K at 12V

(Charge Voltage)

-50mV | K at 24V

Ambient Temperature

-40°C to +60°C, -40°F to +140°F

Max. Altitude

4,000m above sea level

Battery Type

Lead acid (GEL, AGM, flooded)

Adjustment Range:

Evening / Morning Hours

0 - 15h | 0 - 14h

Night / Day Detection

2.5V - 10V

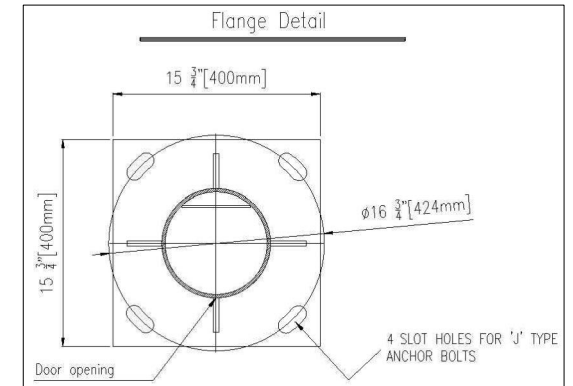
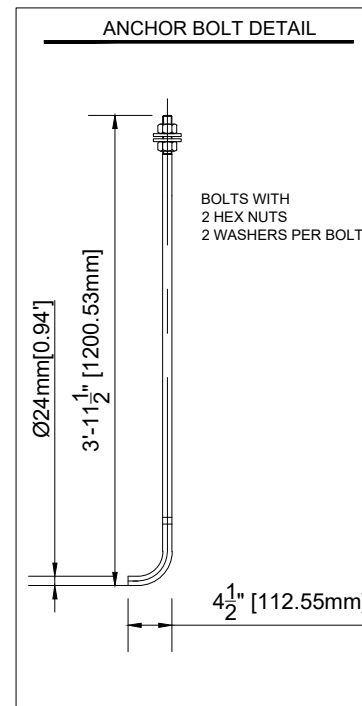
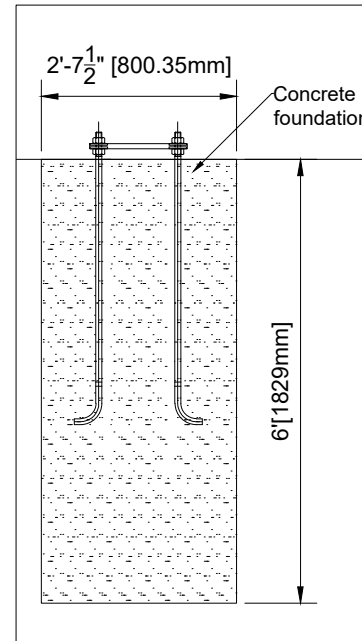
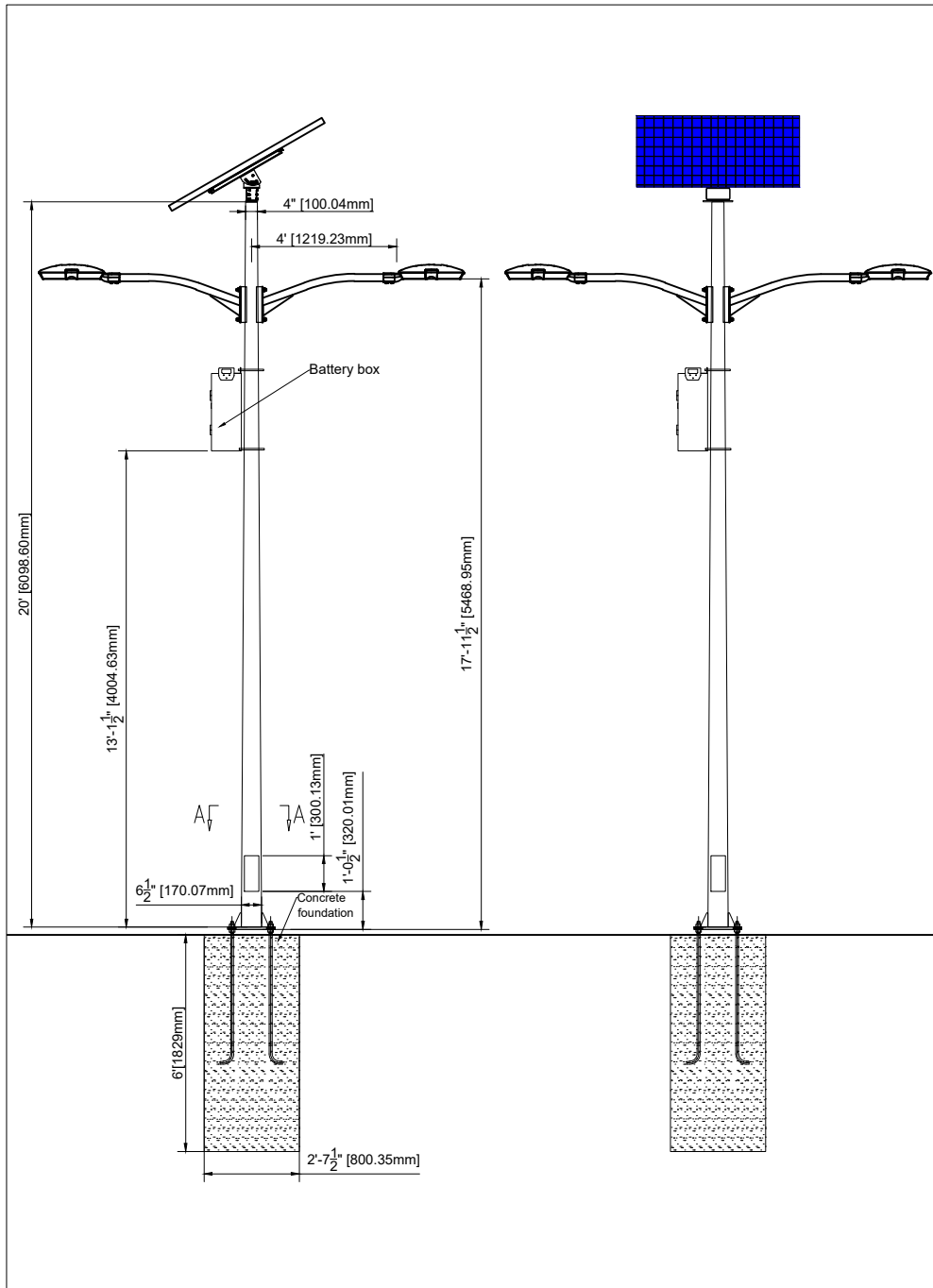
Wire Cross Section

1.5mm²/ 1.5mm²/ 2.5mm², 15 (AWG)

Type of Protection

IP68 (1.5 m, 72 h)





- 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 $\frac{1}{16}$ ".
- *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)*				
Wind resistance** (mph)	150	150	150	150

Proposal			
System	BRIGHTA - 2 PANELS - BOP		
By	Luis Jimenez	Date	6/24/2019
www.streetlights-solar.com			