

# INCREASE CROSSWALK SAFETY



## BRIGHTA RRFB

# BRIGHTA | GENERAL SPECIFICATIONS



Greenshine

## Light Fixture (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 ( 1 or 2 Units)

### 110W

### 180W

Rating Power	110 W	180 W
Maximum Power Voltage	17.60 V	18.95 V
Maximum Power Current	6.25 A	9.50 A
Open Circuit Current	21.7 V	22.74 V
Short Circuit Current	6.71	9.98 A
Size	47.5" x 27"	58.5" x 27"
Weight	29.5 lb	23.4 lb

## 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



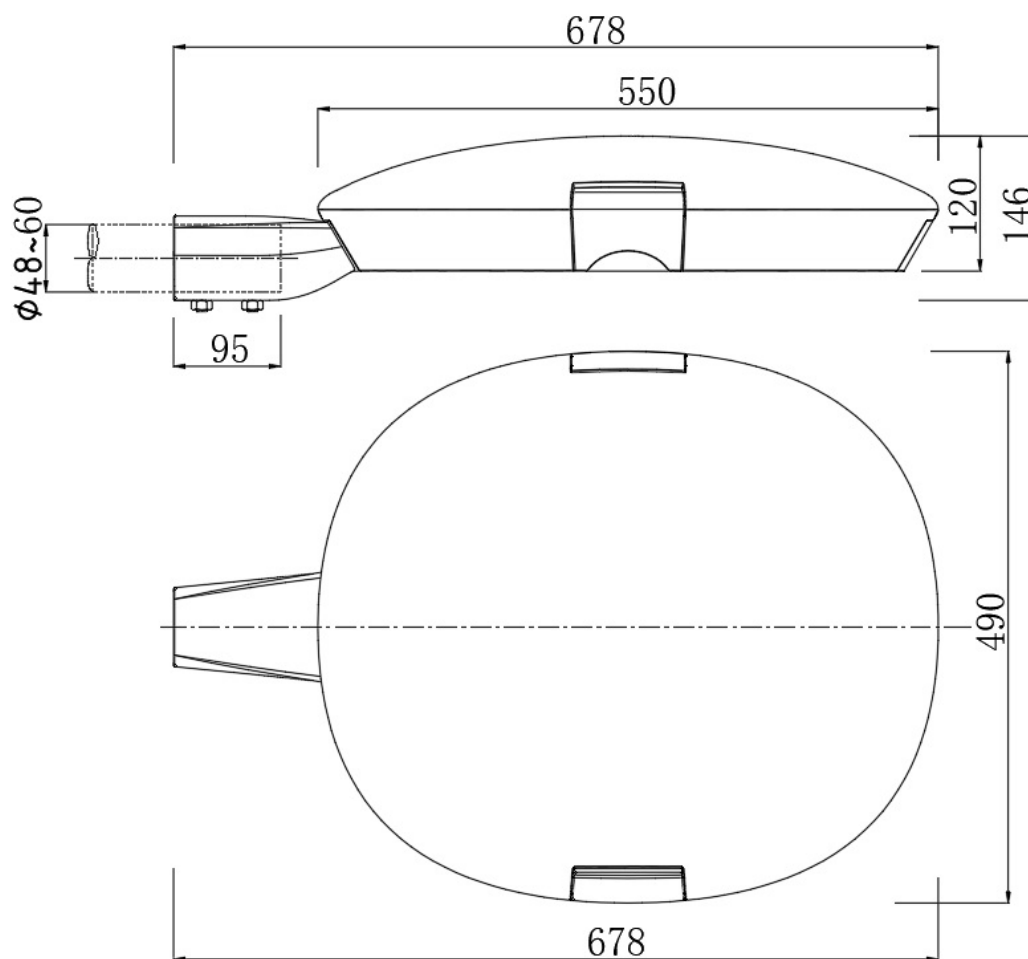
Greenshine

## 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



# Greenshine

## Increase Crosswalk safety & security with Solar BRIGHTA RRFB

### FIXTURE OPTIONS



### OPTIONAL

Decorative  
Bases  
Available

### GREENSHINE QUALITY ADVANTAGE

- ✓ RRFB Light Bars
- ✓ XAV Talking Push buttons
- ✓ Flash Controllers
- ✓ Wireless Transceivers
- ✓ Mounting Hardware
- ✓ Static Signage

The standard crosswalk system shall consist of two assemblies per pole. RRFB Controller housed in the battery box includes a two channel output for driving 2 RRFB units per pole. XAV talking push button is ADA compliant and provides a program-mable number of audible message repeats.

### KEY BENEFITS

- ✓ Improve visibility near & within your crosswalk
- ✓ Integrated RRFB for increased driver yield compliance
- ✓ Easy Installation
- ✓ Meets the needs of City, State, Federal DOT's, Police, Fire and Public Works Departments.

### CUSTOMIZABLE OPTIONS

- ✓ Powder-coating finish option
- ✓ Hurricane resistant poles
- ✓ Wattage
- ✓ LED fixture design



STREET CROSSWALK



# Greenshine

ENJOY COST EFFECTIVE NATURAL ENERGY

## Brighta Fixture Options



### GS-260 PRO

DIMENSIONS: 26.69" x 19.2" x 5.7"

WEIGHT: 18.3 lb

COLORS: Black or Grey



### GS-290D

DIMENSIONS: 26.2" x 13.4" x 5.9"

WEIGHT: 20 lb

COLORS: Black or Grey



### NSB PRO

DIMENSIONS: 26.1" x 11.6" x 4.6"

WEIGHT: 15.6 lb

COLORS: Black or Grey

# GREENSHINE SOLAR PANEL

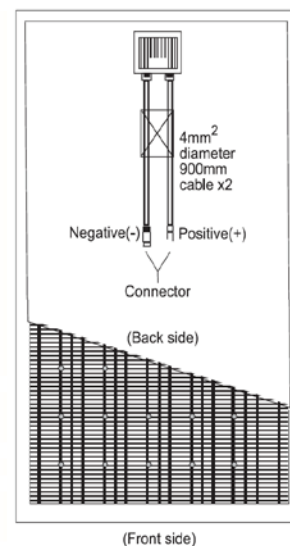
Solar Powered LED Lighting System



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" 13kg   29.5lb	1486mm x 682mm 58.5" x 27" 10.6kg   23.4lb
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



Greenshine

## 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

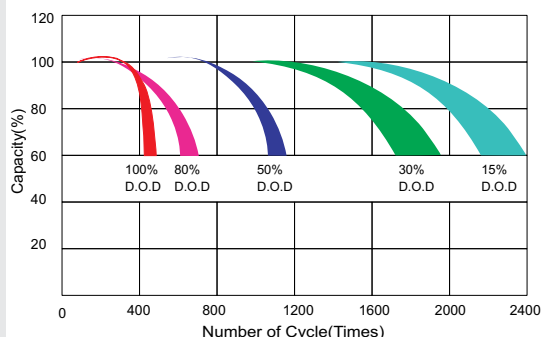
### GS-GEL-H200

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"	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	800A (5 Sec)	1200A (5 Sec)	1500A (5 Sec)	2000A (5 Sec) <sup>2</sup>
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			

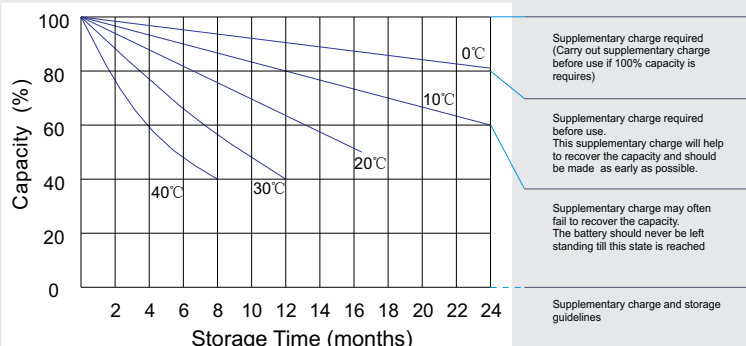
# GREENSHINE GEL-TYPE BATTERY



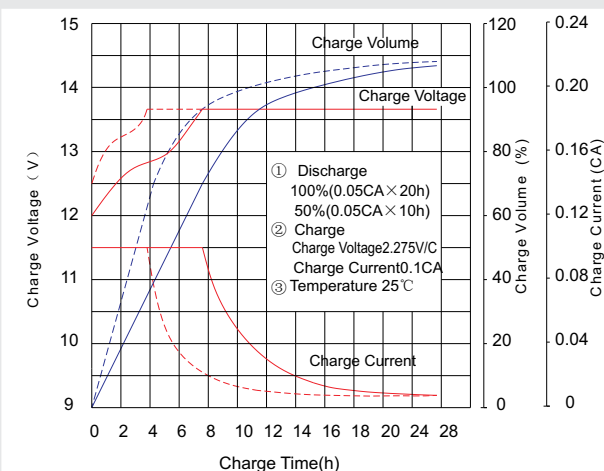
Life characteristics of cyclic use



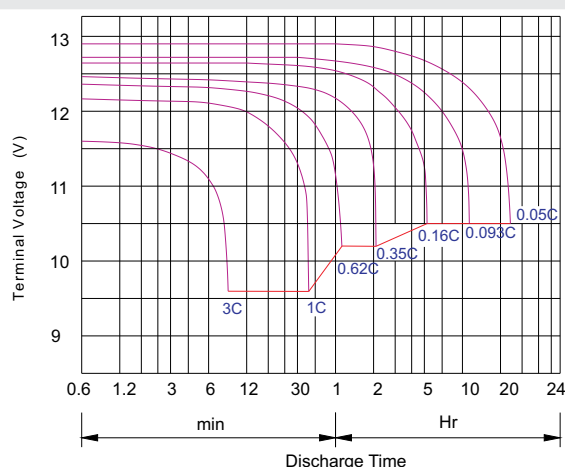
Storage characteristic



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+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.

# 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

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)

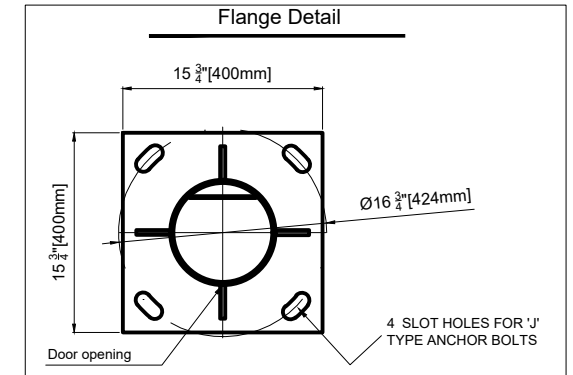
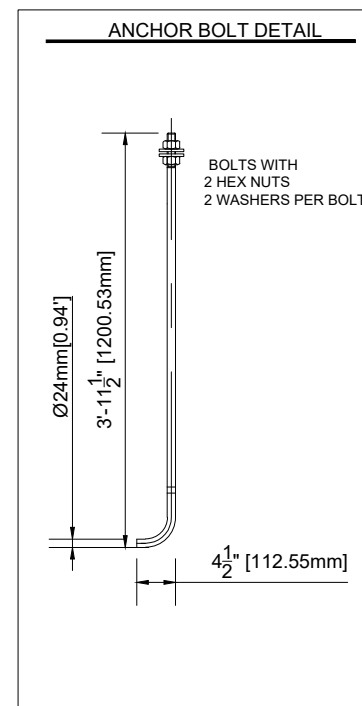
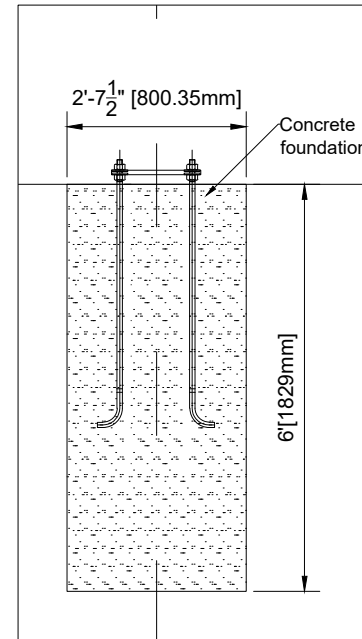
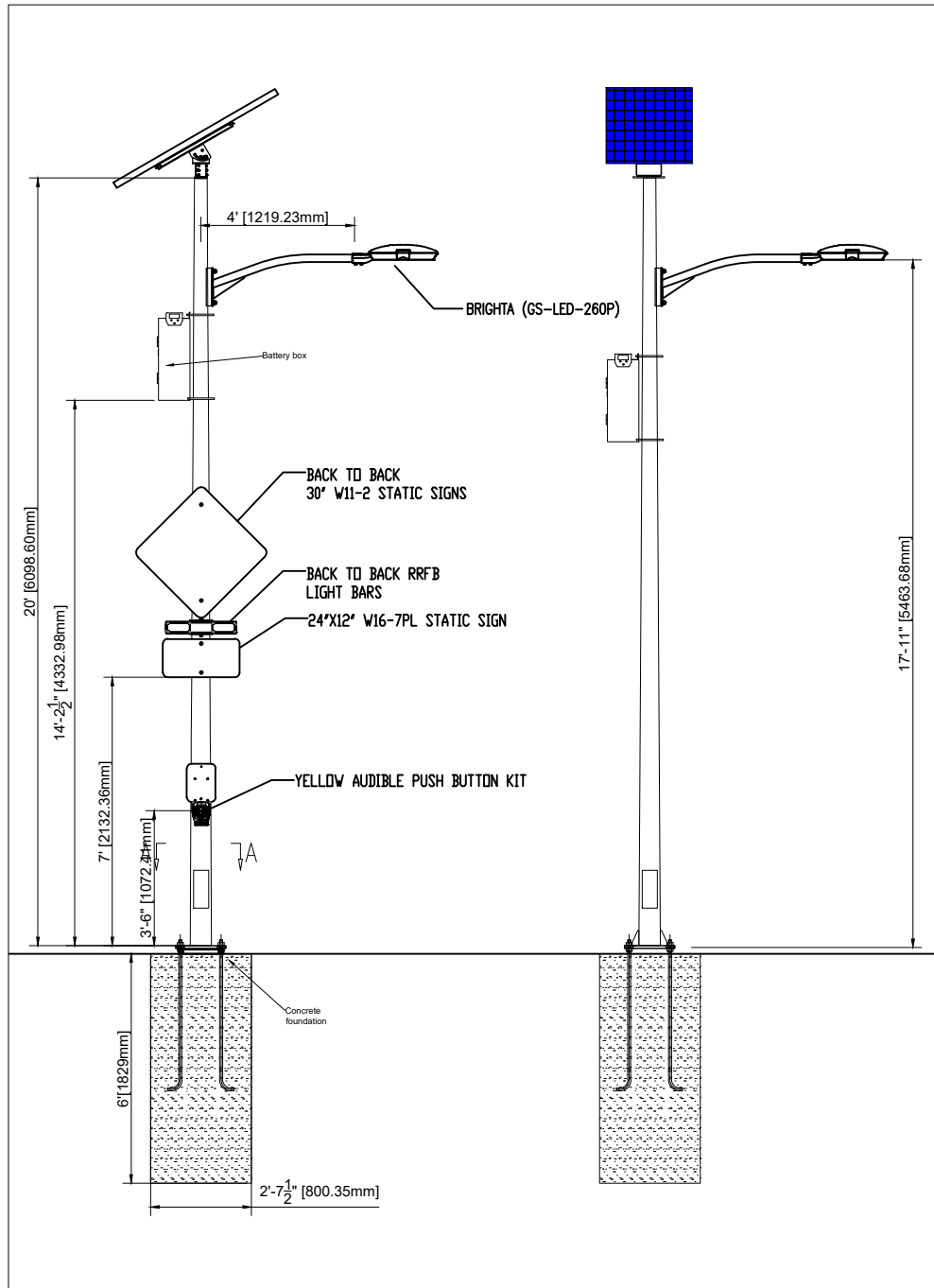
0 – 15h | 0 – 14h

2.5V – 10V

1.5mm<sup>2</sup>/ 1.5mm<sup>2</sup>/ 2.5mm<sup>2</sup>, 15 (AWG)


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  $\frac{3}{32}$ ".
- \*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 <sup>2</sup> )*	6.68	9.31	11.57	13.3
Wind resistance** (mph)	145	145	145	145

Proposal			
System	Brighta 40 RRFB - 20' Pole		
By	Luis Jimenez	Date	11/21/2019
<p style="text-align: right;">www.streetlights-solar.com</p>			