



Greenshine



SPG-150

Cost Effective Solar Lighting Solutions

SPG - 150 SERIES



Greenshine

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sales@streetlights-solar.com

www.streetlights-solar.com

General Specifications

Light Fixture (1-2 units - GS-LED-L9-10W)

Luminaire input voltage	12 V
Power consumption	10 W
Lumen	889 lumens
Color temperature	4500-5500 K
Material	Die-cast aluminum

Solar Panel (1 unit)

Rating Power	160 W
Maximum Power Voltage	18.95 V
Maximum Power Current	8.45 A
Open Circuit Voltage	22.6 V
Short Circuit Current	9.25 A
Size	57.5" x 27"
Weight	39.5 lb

Battery (1 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	19(L)×6.7(W)×9.5(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	8 ft. (4' for direct burial)
Diameter	3.4"
Thickness	5/32"
Material	Galvanized steel
Finishing	Powder coating

* Cables from the solar power generator to the light fixtures is
not included in the package

Fixtures



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Specifications

Luminaire input voltage	DC 12V/24V
Power consumption	10W
Lumen output	889 lumens
Color temperature	~4500-5500K
Material	High pressure die-cast aluminum
Lens	5mm toughened glass, optical grade PMMA
IP class	IP 66
Insulation	Class I
Operating temperature	-30°C ~+50°C/ -22°F ~+122°F
CRI	≥70

Weight : 1.8/3.5kg (4-7.8 lbs)

Dimensions (mm):

** Contact us for more details and options*



Greenshine

ENJOY COST EFFECTIVE NATURAL ENERGY

SPG-150 Fixture Options



SPOT LIGHT

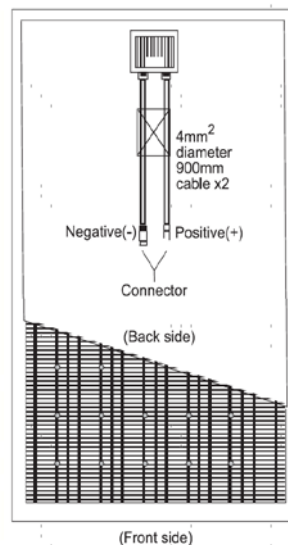
DIMENSIONS: 4" x 4" x 6"

WEIGHT: 0.4 lb

COLORS: Black or Grey

110W / 160W

- 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%.



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

Greenshine Gel-type Battery

(80Ah – 120Ah – 150Ah – 200Ah)

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			
Voltage per unit	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	26 kg/ 58 lb.	38 kg/ 84 lb.	46 kg/ 100 lb.	59.2 kg/ 131.5 lb.
Dimensions L x W x H	330×172×214(mm) 13''×7''×8.5''	406×173×233 (mm) 16''×7''×9.2''	483×170×240 (mm) 19''×6.7''×9.5''	522×240×218 (mm) 20.5''×9.44''×8.7''
Max discharge current	800A (5 sec)	1200 (5sec)	1500 (5sec)	1500A (5 sec)
Operating temperature range	-40°C~60°C/ -40°F~140°F			
Float charging voltage	13.6 to 13.8 VDC/ unit average at 25°C/ 77°F			
Recommended maximum 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 copper wire leads from the battery case			

Battery



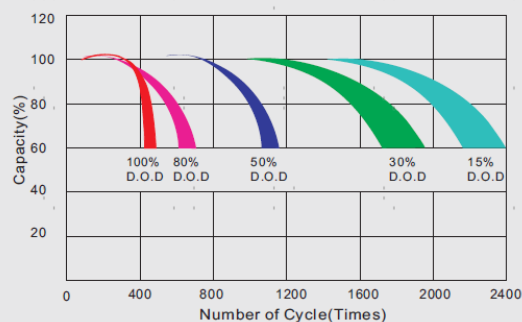
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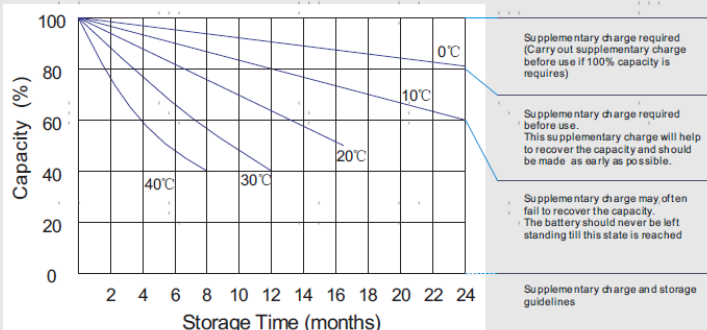
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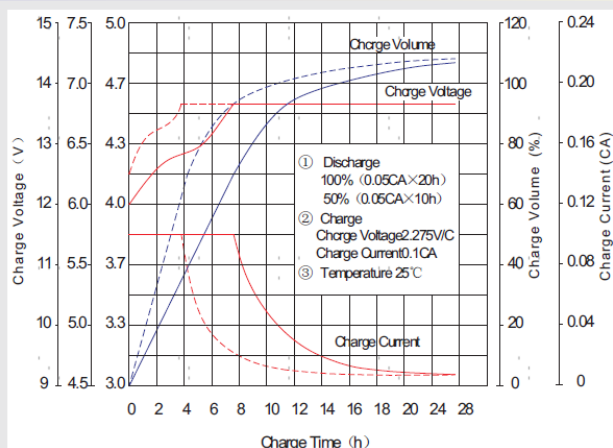
Life characteristics of cyclic use



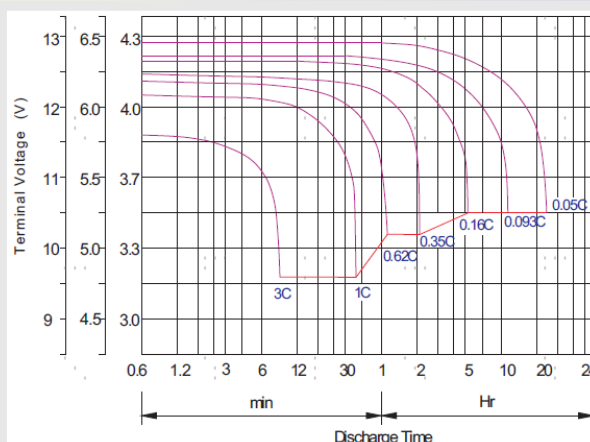
Storage characteristic



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.

GS-LED-CTRL

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

Specification

System voltage

12V/24V 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

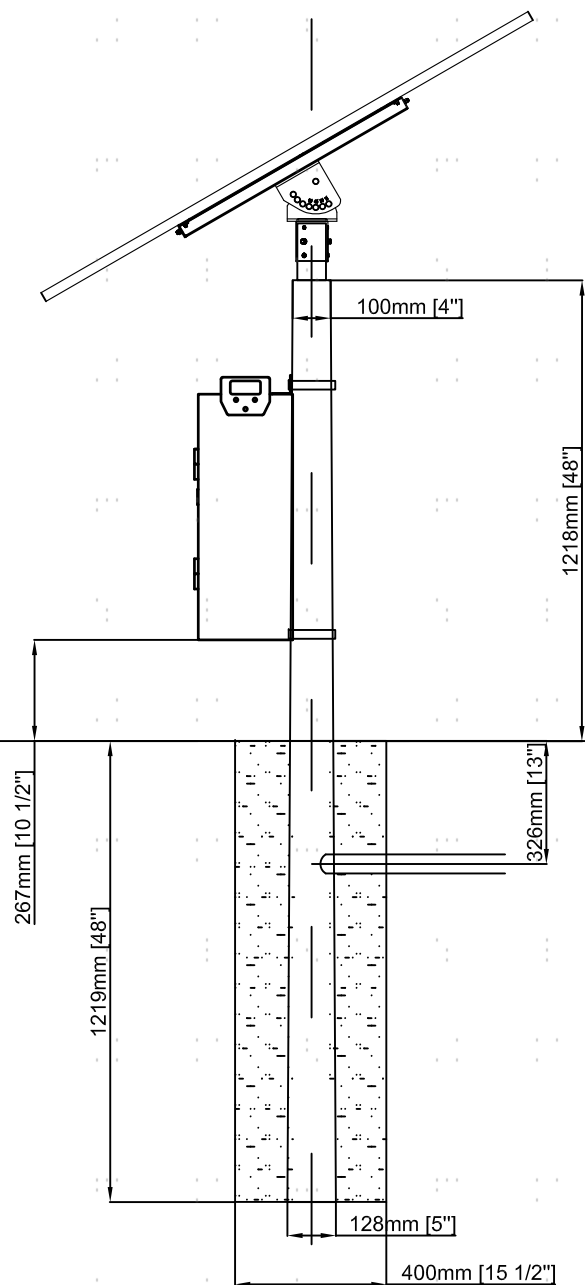
Wire cross section

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 $\frac{5}{32}$ "
- *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				
EPA (ft²)*				
Wind resistance** (mph)				

Proposal				
System	SPG series - 8' pole			
By		Date	3/23/2015	
www.streetlights-solar.com				

