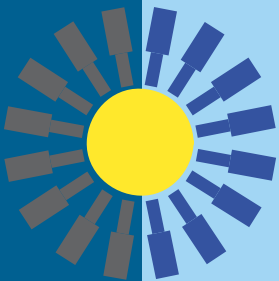




EnviroLight



Silicon Solar Inc
Innovative Solar Solutions™

DC Input HID Lamp Drivers

HIGH EFFICIENCY FOR SOLAR APPLICATIONS



Input, output and control connections

Solar powered lighting driven from battery sources needs to operate at the highest efficiencies possible, thereby conserving power to minimise the capital cost of a solar installation.

Our ultra high efficiency lighting conversion system allows the new breed of metal halides to be driven directly from DC sources with the advantage of fast start and instant restrike.



Electronic control

To reduce the warm up time, and to compensate for lamp ageing, the electronic control system holds the power delivered to the lamp at a constant level once the arc has been struck.

Recent innovations in metal halide and other HID lamps have delivered high light outputs, quality daylight colour with substantial power savings over conventional lighting technology. This makes them particularly suitable for solar applications allowing the designer to reduce PV panels, and batteries.

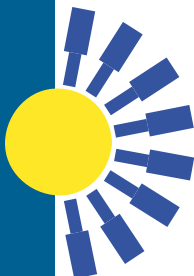
We have taken this a stage on with a single stage switch-mode DC input lamp driver optimised for ultra-high efficiency, reducing further installation power consumption, weight, size and cost.

Ultra high efficiency

By careful design of the magnetic components we have optimised for efficiency, the unit will drive high intensity discharge lamps with losses of less than 10% in the lamp driver. In the case of a 35W lamp this is less than 3W! The unit also has the effect of driving the lamp with a higher light intensity for a given power input.

How it works

The unit is designed to strike and run a variety of HID lamps from a low DC power source. The unit provides high frequency AC feed to the lamp in response to an isolated on/off control input. The lamp arc is struck using a high frequency resonant technique rather than the conventional high voltage impulse. In addition to providing superior starting characteristics, the possibility of interference with radio communications or the other electronic equipment is also reduced.



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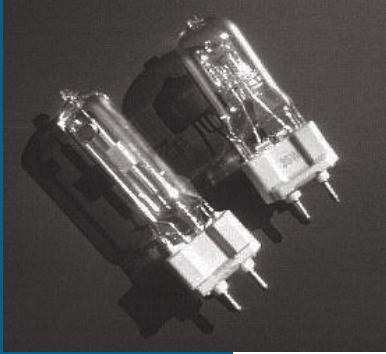
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DC Input HID Lamp Drivers

HIGH EFFICIENCY FOR SOLAR APPLICATIONS

EnviroLight

Solar Billboard Lighting Systems



35W Osram and Phillips metal halide lamps



High efficiency lamp driver

conditions arise and automatically resets after the condition is removed

- input reverse polarity
- input transients
- lamp open circuit
- lamp short circuit

Instant hot restrike

An innovative feature of our design is the ability to instantly hot restrike the lamp in applications where cooling down time before re-ignition is unacceptable. With hot restrike disabled this will extend to around 4 minutes.

Quick start

The HID lamp will typically take around 60 seconds to reach 75% luminosity.

Special engineering

The standard unit can be modified to the particular needs of the specifier. This may involve other lamp types, higher input voltage versions, and different sizes, extra control. If you have any applications not covered here please ask us.

System protection

The controller protects the unit and the attached lamp. Should the lamp current exceed predetermined upper and lower limits, a system fault alarm is raised. The alarm also triggers if any of the following

Proven reliability

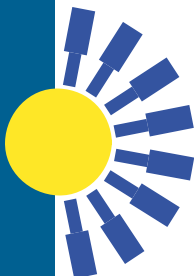
The unit has been proven in extensive field trials and is in current service with the UK Trinity Lighthouse Service, and the Northern Lighthouse board.

Specifications

Power	35W	70W	150W	35W	70W	150W
System voltage	12VDC	12VDC	12VDC	24VDC	24VDC	24VDC
Operating voltage	10-16VDC	10-16VDC	10-16VDC	20-32VDC	20-32VDC	20-30VDC
Efficiency (typ)	> 85%	>82%	>80%	>90%	>90%	>85%

All models

Indicators	System fault, input low lamps
Control	Remote On/Off, System fault indicator
Input Connections	6mm Studs
Output Connection	screw terminals
Dimensions	84mm (H) x 302mm x 246mm
Weight	4 .0Kg
Temperature range	Operating: -10 to +70°C, survival: -25°C to 100°C



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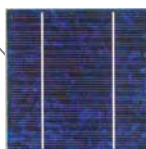
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**SS6-110 – 12V
HIGH EFFICIENCY
PHOTOVOLTAIC MODULE
With Universal Junction Box**

EnviroLight
Solar Billboard Lighting Systems



- Grid connected large scale system
- Power plants
- Buildings integration
- Water Pumping
- Telecommunications
- Rural electrification



The SS6-110 is made of 4 X 9 high efficiency (up to 15%) 6 inch polycrystalline solar cells (150 mm X 150 mm), with a silicon nitride anti-reflective coating.

The SS6-110 is Silicon Solar's new born high efficiency module. Easy to handle, this module delivers a maximum power with an optimal

The SS6-110 module uses Photowatts multicrystalline technology. The solar cells are individually characterized and electronically matched prior to interconnection. Encapsulation beneath high transmission tempered glass is accomplished using an advanced, UV resistant thermal setting plastic. The encapsulant, ethylene vinyl acetate, cushions the solar cells within the laminate and protect the cells from etching. The rear surface of the module is completely sealed from moisture and mechanical damage by a continuous high strength polymer sheet.

The SS6-110 is using a reinforced transparent anodised aluminium frame, designed to meet Silicon Solar's High Quality Standards for corrosion resistance (lifetime tested 3 times longer than requested by CEI 61215).

With a tolerance improvement to +/- 5%, the SS6-110 module ensures more power homogeneity in installations, and a financial investment corresponding to the real power produced.

POWER TOLERANCE : +/-5%

EFFICIENCY WARRANTY : 25 YEARS*

PRODUCT WARRANTY : 5 YEARS*

SS6-110		12 V Configuration	
	W	110	
	W	106	
Voltage at typical power	V	17,2	
Current at typical power	A	6,4	
Short circuit current	A	6,9	
Open circuit voltage	V	21,7	
Maximum system voltage	V	770V DC	
Temperature coefficient	$\alpha = +2,085 \text{ mA}/^\circ\text{C}$; $\beta = -79 \text{ mV}/^\circ\text{C}$; $\gamma \text{ P/P} = -0,43 \text{ \% } /^\circ\text{C}$		
Power specifications at 1000 W/m ² : 25°C : AM 1,5			



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*According to general warranty conditions

EnviroLight

Solar Billboard Lighting Systems

Module dimensions

- ← Module weight: 13 Kg
- ← Module Size : 1439 mm x 657 mm x 45 mm
- ← Packaging per 2 units : 1563 mm x 689 mm x 102 mm, 28 Kg
- ← Maximum pallet size (34 modules) 1600 mm x 700 mm x 1770 mm, 491 Kg

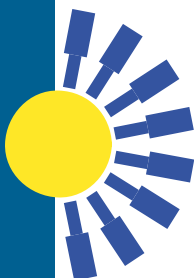
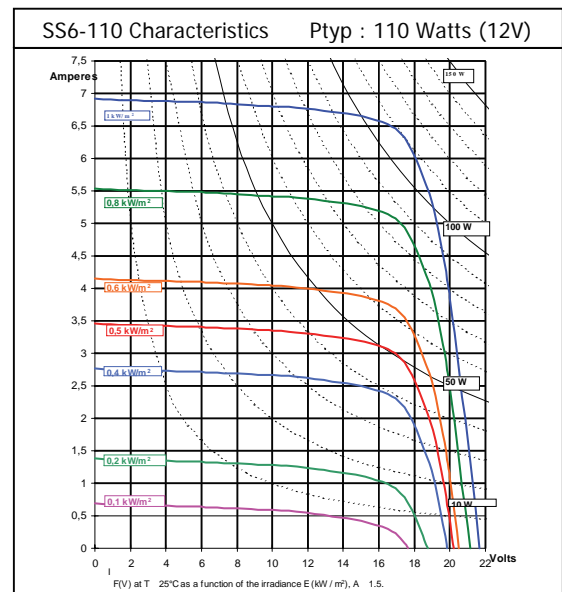
The universal junction box accepts cables as large as 1,5 mm² to 4 mm² (AWG11 to AWG16)

The module is protected by 2 schotky diodes (1 by-pass diode for 18 cells)

Frame

Module's mounting oblong hole

The mounting frame screw not passing beyond the frame



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EnviroLight

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EnviroLight Model 4X

The EnviroLight 4X model is designed to illuminate double sided billboards that measure up to 48' wide, and up to 14' high.

Each kit is fully customized to your specific location and hours of operation needs, making the EnviroLight the perfect, low cost choice for lighting all of your billboard facings.



Base Price (no panels) \$ 4,900

Light Fixtures 4 (2 per side)

Light Output 400W per fixture

Light Distance (from sign) 5 - 6 feet

Hours of Operation 2, 4, 6, 8

Battery Backup 2x 108ahr

Charge & Lighting Controller Included

Battery/Controller Storage Case Included

Panel Mounting Options Ground/Top

Panel Configuration Available

3 panels	+\$1,700	\$6,600.00
4 panels	+\$2,265	\$7,165.00
5 panels	+\$2,830	\$7,730.00
6 panels	+\$3,400	\$8,300.00

Overcast Protection

Hours per night	Standard	w/Expansion
4	3 days	5 days
6	2 days	3 days
8	1 day	2 days

Recommended Upgrades

Winter Expansion Pack-	\$1,200.00
Solar Panel Mounting Hardware	
- 3 panel Ground/Tilt	\$192.00
- 4 panel Ground/Tilt	\$220.00
- 5 panel Ground/Tilt	\$286.00
- 6 panel Ground/Tilt	\$384.00
Battery/Controller Storage Case	
- Durable Plastic	Standard
- Aluminum	\$425.00
- Aluminum (w/expansio)	\$545.00



EnviroLight

Innovative Solutions™

EnviroLight Model 2X

The EnviroLight 2X model is designed to illuminate double sided billboards that measure up to 30' wide, and up to 14' high.

Each kit is fully customized to your specific location and hours of operation needs, making the EnviroLight the perfect, low cost choice for lighting all of your billboard facings.



Base Price (no panels) \$ 3,270

Light Fixtures 2 (1 per side)

Light Output 400W per fixture

Light Distance (from sign) 5 - 6 feet

Hours of Operation 2, 4, 6, 8

Battery Backup 1x 216ahr

Charge & Lighting Controller Included

Battery/Controller Storage Case Included

Panel Mounting Options SP & GR

Panel Configuration Available

2 panels	+ \$1,130	\$4,400.00
3 panels	+ \$1,700	\$4,970.00

Overcast Protection

Hours per night	Standard	w/Expansion
4	7 days	11 days
6	5 days	7 days
8	3 days	5 days

Recommended Upgrades

Winter Expansion Pack-	\$1,200.00
Solar Panel Mounting Hardware	
- 2 panel Side Pole	\$172.00
- 2 panel Ground/Tilt	\$82.00
- 3 panel Ground/Tili	\$286.00

Battery/Controller Storage Case

- Durable Plastic	Standard
- Aluminum	\$425.00



EnviroLight

Innovative Solutions™

EnviroLight Model X

The EnviroLight X model is designed to illuminate single sided billboards that measure up to 30' wide, and up to 14' high.

Each kit is fully customized to your specific location and hours of operation needs, making the EnviroLight the perfect, low cost choice for lighting all of your billboard facings.



Base Price (no panels) \$ 2,385

Light Fixtures 1 (1 on side)

Light Output 400W per fixture

Light Distance (from sign) 5 - 6 feet

Hours of Operation 2, 4, 6, 8

Battery Backup 1x 99ahr

Charge & Lighting Controller Included

Battery/Controller Storage Case Included

Panel Mounting Options SP & GR

Panel Configuration Available

1 panels	+ \$565	\$2,950.00
3 panels	+ \$1,130	\$3,515.00

Overcast Protection

Hours per night	Standard	w/Expansion
4	7 days	N/A
6	5 days	N/A
8	3 days	N/A

Recommended Upgrades

Solar Panel Mounting Hardware

- 1 panel Side Pole	\$76.00
- 1 panel Ground/Tilt	\$54.00
- 2 panel Side Pole	\$171.00
- 2 panel Ground/Tilt	\$82.00

Battery/Controller Storage Case

- Durable Plastic	Standard
- Aluminum	\$395.00



EnviroLight

Solar Billboard Lighting Systems

Winter Expansion Pack

Designed for areas with harsh winters, plenty of snow, clouds, and shortened days, the winter expansion pack for your EnviroLight kit is built to ensure the best performance of your EnviroLight Billboard Lighting Kit despite the weather conditions.

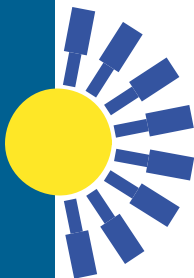
The winter expansion packs are available on all Model 2X and Model 4X EnviroLight kits in any panel configuration, and provide additional solar panel area, power, and battery backup to boost performance when other solar systems quit.

The Winter Expansion Pack Includes:

- 1 additional solar panel (26" x 56")
- 1 additional 108ahr battery

Expansion kit improves system autonomy
Increases Overcast Protection
Enhances the Value of Your EnviroLight

- **Sku:** Winter Expansion
- **Weight:** 125lbs (additional)
- **MSRP:** \$1,200.00



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EnviroLight

Solar Billboard Lighting Systems

Solar Panel Mounting Upgrades

Ground/Top of Structure Tilt Mounts



Silicon Solar Inc's tilt mounts can be used to mount the solar panels of your EnviroLight kit on the ground, or to the top of your billboard structure to maximize solar exposure.

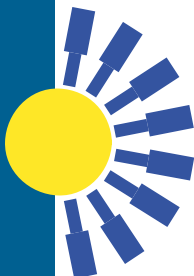
The tilt mount upgrade is available on every model of EnviroLight and for every panel configuration.

Ask your Product representative about the advantages of upgrading to ground/top mounts

Silicon Solar Inc carries a great line of made in the USA solar panel mounts to attach your solar panels securely to the side of a pole. We offer these great mounts as upgrades on a number of our EnviroLight kits to better serve our customers with the very best products available.

Side Pole mounts are available for every EnviroLight solar billboard lighting kits that use 1 or 2 solar panels.

Side of Pole Mount Kits



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