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SPG-1.8K-400A-ISG

1.8KW Solar Power Generator - 120V Output - Instant Start Gasoline Generator

Product ID: 71160

Please see last page for supporting documentation for this product(certificates, CAD files & drawings, IES files, wiring diagrams, etc).



Larson Electronics LLC manufactures a wide variety of products, including custom built to spec designs. The pictures displayed for this unit are a general representation of form factor for the product line and may not accurately represent this exact configuration in every detail due to custom builds and changes between similar products in our standard catalog. The specifics for this configuration are listed in the specification table and supporting documentation (CAD files, Dimensional Drawing, Name Plate Diagram, Wiring Diagram, etc.). This means that specific details (receptacles, plugs, wires, connections, mounting brackets, external finishes, etc.) may not be accurately represented in images vs specifications. Please review specifications and do not order based solely on images.

SPG-1.8K-400A-ISG Mobile Solar Powered Generator

Panes: (6) 300-Watt panels
Method of Deployment: Rotating axis, hand winch
Average charge capacity: 75 amps per hour
Panel protection: Fused combiner box
System Protection: Battery over/under and ground fault
System Voltage: 24 Volts DC
Battery Bank: 8 X 6-volt 200ah batteries
Battery capacity: 400ah total and 200ah usable
Trailer Coating: powder coated or 2-part epoxy steel
Trailer axle: 3500 pound rating
Leveling: Four 1200 lbs crank jacks
Inverter: 300 Watt - 24V DC to 120V AC
Dimensions:
Weight:
Lights:

Features

Fully Solar, No Fuel Needed
Backup Gasoline Generator

Special Orders - Special Requirements

Contact us for special requirements

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Made in the USA

PLEASE NOTE: ANY FREE SHIPPING OFFERS DO NOT APPLY TO MASTS OR TRAILERS

Solar Generator

This solar generator includes 6 solar panels, solar charging system, battery bank and backup gasoline generator mounted on trailer with outriggers and removable tongue. This 1.8KW solar generator system replenishes 200 amp hours of usable battery capacity per day, assuming 5.5 hours of peak charging sunlight. This

system delivers 120 volts AC for lighting, cameras, sensors or other electronics equipment.

Solar Panel Assembly

This unit is comprised of six 300-watt solar panels, generating a total maximum output of 1.8 KW. The panels are mounted to a rotating axis assembly. There are two assemblies, one on each side of the solar trailer. The panels can be rotated until they face inwards, which protects the panels during transport. When deployed, the panels are rotated until they face upwards. On most models, we offer a locking pin system, preset with a winter and summer angle position for the panels.

In order to optimize the sun capture, the panels are set to +/- 15 degrees of the latitude of the trailers location on the earth. Houston, Texas, for example, is at latitude of 30 degrees, so the winter setting is 45 degrees and the summer setting would be 15 degrees. While this doesn't make a huge difference, every little bit helps.

Once the panels are set the correct solstice position, one section of panel is elevated into position via a manual crank winch system. This sets one set of 3 panels above the other section of three panels so they make a consistent plane angle to the sun. The entire panel deployment can be done easily by one person, since the axis system and manual winch support the weight of the panels during positioning. The entire process takes just a few minutes.

As part of the deployment, operators will set the 4 outriggers into position by pulling them out and pinning them into position. This will offset the effects of wind on the panels and the light mast.






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Solar Charging System

In this 24 volt system, each panel is terminated with a fused combiner box with a single lever action cut-off switch. With the switch set to the 'on' position, the combiner box passes power to the 80-amp capacity Outback Extreme charge controller. A 300 watt DC to AC inverter allows operators to power equipment that required 120V AC.

This solar light tower uses the Outback Extreme series since it standard temperature threshold is more than 160 degrees Fahrenheit, due to its integrated heat sink and fan assembly. Oddly enough, most charge controllers aren't rated past 104 degrees Fahrenheit despite the fact the will always be close to direct sunlight. In the summer time in Texas, our fabrication shop is normally warmer than that, so this solar light tower uses a charge controller that would support the southern heat. We improve on that capability by shading the charge controller and

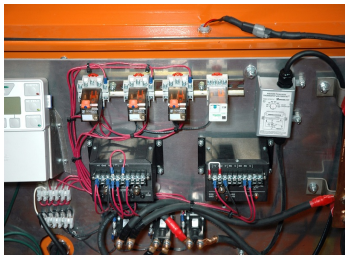
adding additional air flow from the exhaust of a 1400 CFM component cooling system.
The charge controller charges a 400-amp capacity battery bank. This 24 volt battery system in comprised of 6 volt batteries tied together in series and parallel. Of course, with most battery technology, the battery bank cannot be drained below 50% without destroying the batteries. With that in mind, this effectively reduces the total capacity of this system to 200 amps at 24 volts.
The panels produce approximately 12.5 amps per hour to charge this system. On a bright sunny day, the six panels would generate and deliver more than 400 amps back to the batteries in 5.5 hours. This conservative number of 5.5 hours is pretty standard conservative number for the solar industry. Many parts of the world have more and some have less. While this solar trailer can be optimized for the angle of the sun, the panel assemblies do not follow the path of the sun, so we use this conservative number to ensure successful operation. In areas with longer days, additional battery banks can be purchased to increase the capacity of the system. The solar trailer has capacity for 2 additional battery banks or 1 additional battery bank and supplemental generator for areas with shorter days or sporadic sunlight.

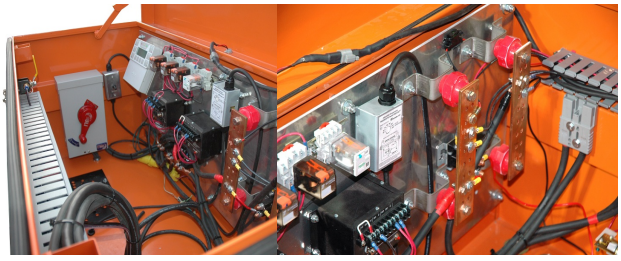
Battery Bank System

The battery bank consists of eight 6-volt batteries that are mounted to a removable tray. The batteries are spaced apart, strapped to the battery tray and covered with a protective shield. The shield provides security and also shaded protection from the sun. The construction of the battery tray system enables the batteries to ventilate while shading and securing them. Much like a forklift battery bank, the entire battery tray system can be replaced in one operation. The trailer includes room for an additional battery bank system or a supplemental generator, both of which can be purchased separately and installed in the field.

Component Control Center

In order to ensure that the 50% threshold on the batteries is controlled, this solar trailer includes a system of min/max voltage sensors and relays that monitor the voltage produced by the batteries and will automatically power on the gasoline generator when the battery capacity falls below 50%. This protects the batteries from failure. The gasoline generator will run all night on a single tank of gas. We also include ground fault protection and an Outback Mate 3 monitoring system to track and log all activities related to the charger controller and battery health. In the event there is an issue with the solar trailer, the SD card can be removed from the Mate 3 and sent to Larson Electronics for analysis.
All the electrical components, including the combiner panel, charge controller, over/under battery monitoring and ground fault isolation are encapsulated in a Nema 3R job box that is bolted to the trailer. Since most of these components are not rated for high heat, our component cooling system circulates air within the job box at 1400 CFM when the ambient temperature exceeds 90 degrees Fahrenheit. The component control center also includes a terminal block so that customers can mount additional electronic gear without interfering with the charging systems. The job box that contains the component control system includes locks for security purposes.





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Wire Management

The trailer itself houses a built in wire raceway that brings power from the component

control center and batteries to the light mast. At the base of the light mast there is an access panel for making connections from the power source to the cabling within the pneumatic mast.

Trailer

The trailer itself is built on a 3500-pound rated axle and is approximately 16 feet long and 6 feet wide. The trailer is equipped with a removable tongue for storage, transport and security purposes. For an additional charge, we offer removable wheels in addition to the removable tongue for extra security. The four built in outriggers can be folded out from the frame and pinned into place. Four 1200 lbs hand crank leveling jacks are used for leveling the unit up to a 37 degree slope. Jacks can be leveled by hand crank or attachment provided for power drills. The outrigger feet are over-sized and equipped with through holes for additional ground anchoring mechanisms into hard rock or concrete.

Customization

Larson Electronics is a manufacturer of light tower systems and can customize systems to meet custom requirements. Contact us at 1-800-369-6671 or sales@larsonelectronics.com to learn more.

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Frequently Asked Questions (FAQ)

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