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SPLT-2.1K-1000A-30-4X160W-LED-DNS-10KWINV

2.21KW Solar Powered Security Light Tower - (4) 160W LED Lights, Day/Night, Hybrid Inverter

Product ID: 308462

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.

SPLT-2.1K-1000A-30-4X160W-LED-DNS-10KWINV Trailer Mounted Solar Generator Light Mast

Light Mast Specs
Tower Length: 12` to 20`
Mast Head Length: 44"
Materials: Steel
Finish: Powder Coated - Gloss Blue
Operation: (2) 1,000lbs Hand Winch
Mast Cable: 3/16" Galvanized Aircraft Cable

Solar Specs
Panels: (8) 265 Watt panels
Method of Deployment: Fixed Mount
System Voltage: 48 Volts
Battery Bank: (8) 250aH SLA batteries
MPPT Trackers: (2)

Hybrid Inverter Specs
Rated Power Output: 10,000W
Output Voltage: 120V AC and 240V AC
Waveform: Pure Sine Wave/ 50/60 Hz

Light Specs
Total Watts: 640W
Total Lumens: 86,400
Luminous Efficacy: 135 Lm/W

Quick Summary

12` to 20` Light Mast
Steel Construction
Powder Coated Finish
Removable Mast Head
(4) 1,000lb Outriggers
125 mph Wind Resistance
Manual or Optional Electric Operation
A-Frame for mounted (8) 265 Watt Solar Panels
Fully Solar, No Fuel Needed
Four 160 Watt LED Light Heads

Waterproof Rating: IP67

Trailer Specs

Materials: Steel

Trailer Dimensions: 16`L x 6`W trailer bed

Hitch: 3" Pintle Eye Type Hitch

Wiring: 7-Pin Flat

Axle: 3,500lb

Suspension: 3,500 Lb 4-Leaf Double Eye Springs

Outriggers: (4) 1,000 Manual Leveling Jacks

Wheels: (2) 15" 5x4.5 Steel Rims

Tires: ST205/75/D15 H188

Weight: +-600 lbs

Shipping: Common Freight

Shipping Dimensions: 18`-L x 8`-W x 12`-H

Shipping Weight: +-600 lbs

Options: Length- Mounting-Fixtures/ Call Us for Special Requirements

Special Orders - Special Requirements

Contact us for special requirements

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Made in the USA

The SPLT-2.1K-1000A-30-4X160W-LED-DNS-10KWINV from Larson Electronics is a Solar Powered Three-Stage Trailer Mounted Light Tower that produces 86,400 lumens of high intensity LED light for a wide area of coverage. This light tower is completely solar powered which makes it ideal for work areas and job sites that are not close to traditional power sources. The lack of a generator being required to power the SPLT-2.1K-1000A-30-4X160W-LED-DNS-10KWINV eliminates the noise associated with gas powered generators. The trailer upon which the light tower is mounted makes transportation of the SPLT-2.1K-1000A-30-4X160W-LED-DNS-10KWINV a simple affair. Equipped with a dust-to-dawn sensor, this tower is designed to operator for eight continuous hours uninterrupted.

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

This solar powered security light tower includes (8) 265 watt solar panels, solar charging system, (8) 250aH SLA batteries, 3-stage manual crank mast, four high output LED light heads, hybrid inverter and motion sensor mounted on trailer with outriggers and removable tongue. This 2.21KW solar generator system replenishes 500 amp hours of usable battery capacity per day, assuming 5.5 hours of peak charging sunlight. This system delivers 24 volts for lighting, cameras, sensors or other electronics equipment This solar security system is equipped with four 160 watt LED light heads atop a 20-foot collapsible, manual mast and is equipped with a motion sensor for instant illumination whenever motion within the secured area is detected.

Solar Panel Assembly: This unit is comprised of eight 265-watt solar panels, generating a total maximum output of 2.12 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 fourth panel on each array is mounted to a slide assembly,

allowing operators to slide the panels towards the tongue of the trailer and extending the total array. 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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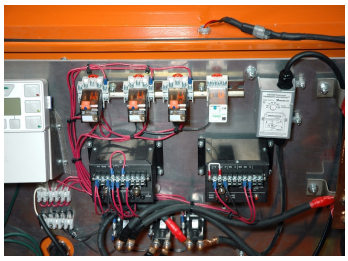
Solar Charging System: In this 24 volt system, each panel is terminated with a fused combiner box with a single lever action cut-off switch. With the switch set to the `on` position, the combiner box passes power to the 80-amp capacity Outback Extreme charge controller.
This solar light tower uses the 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 1000aH capacity battery bank. This 24 volt battery system in comprised of (8) 250aH SLA 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 1000aH battery bank keeps the system at the minimum 50% battery capacity to prevent the batteries from going below the minimum depth of discharge and destroying the batteries.
The eight panels produce approximately 11 amps per hour each, for a combined 88 amps per hour to charge this system. On a bright sunny day, the eight panels would generate and deliver more than 500 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 (8) 250aH 8D SLA AGM 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

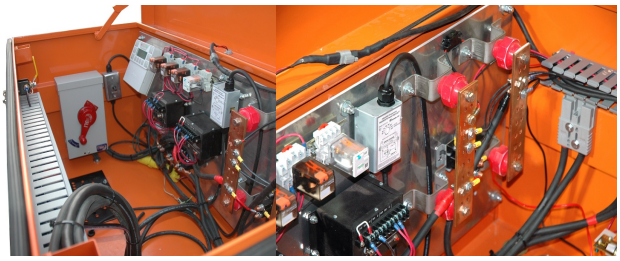
provides security and also shaded protection from the sun. The construction of the battery tray system enables the batteries to ventilate while shading and securing them. Much like a forklift battery bank, the entire battery tray system can be replaced in one operation. The trailer includes room for an additional battery bank system or a supplemental generator, both of which can be purchased separately and installed in the field.

Hybrid Inverter: The system comes with a 10,000W hybrid inverter. This pure sine wave unit provides 120V and 240V, 50/60 Hz power.

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 shut off power distribution when the battery capacity falls below 50%. This protects the batteries from failure. 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.

Manual Light Mast: The SPLT-2.1K-1000A-30-4X160W-LED-DNS-10KWINV features a telescoping three stage steel light mast that is designed to allow operators to quickly and safely deploy lighting, cameras, and other electrical

equipment in locations where this equipment must be elevated to heights up to 20 feet for effective coverage. This light boom can be extended to 20 feet for maximum area coverage and collapsed to 12 feet for applications where a smaller footprint is required. The tower is constructed of square steel tubing with a lower section 12 feet in length and 4 inches in diameter, a middle section 8 feet in length and 3.5 inches in diameter, and an upper section 6 feet and 3 inches in diameter. Each section has 2` of overlap. The mast is elevated using an included 1,000 lbs. hand winch with 3/16 inch cable and extended to its full height using a second 1,000 lbs. winch.

The series of towers used on this unit are powder coated with a glossy blue finish for corrosion resistance and aesthetics. This light mast is mounted to the trailer via a 15" by 13" by 1/8" thick mounting base-plate and six 9/16" anchor bolts. A 44" wide and 2" x 2" x 1/8" thick mounting plate is attached to the upper section of the mast which provides a strong and stable platform for equipment.

The LM family of telescoping towers feature a proprietary mast guidance system, which provides increased stability during high winds. By loosening the T-Handle, operators can rotate the mast with ease in either direction. The mast can be positioned in one of four different directions, and locked back in place by re-tightening the T-handle. The mast itself spins freely with ease, and can typically be rotated with a single hand.

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. A 3" vertically adjustable pintle eye type hitch is equipped to the removable tongue and the tongue is equipped with safery chains. For an additional charge, we offer removable wheels in addition to the removable tongue for extra security. The four built in outriggers can be slid out from the frame and pinned into place. A standard crank style support leg can be used to secure each outrigger to the ground. The outrigger feet are over-sized and equipped with through holes for additional ground anchoring mechanisms. A spare tire is mounted to the tongue of the trailer. The trailer is finished with an industrial grade AL82807 school bus yellow paint. All equipped stop, turn, tail, and running lights are compliant with FMVSS no. 108 and California vehicle code. All electrical wiring are within factory wiring looms and all connections are sealed from the elements.

Lighting: The lighting system on this unit is comprised of four 160 watt GAU-LTL-150W-LED lamps producing 21,600 lumens each attached to the end of the telescoping light boom. These floodlights produce a wide flood light pattern capable of illuminating a minimum of 4 acres with a combined total of 86,400 lumens of light. Each floodlight is securely fastened to the light boom and each lamp includes a support bracket to help maintain lamp stability within its housing. The lamps are connected to the power source via a water tight male pin connector that attaches to a receptacle located on the end of the telescoping boom. The lights are controlled from within the job box.

The tower is equipped with a dust to dawn sensor to turn the lights on when ambient lux levels drop below a set level. An internal 3-way switch allows operators to power the lights on, off, or on via the day/night sensor. When set to power on via the day/night sensor, the lights will automatically turn on whenever ambient light drop belows a preset level, detected by the equipped photocell. With LED technology, there is no warm up period, providing instant high powered illumination. This means that the lights instantly power up and illuminate the secured area when activated.

At Larson Electronics, we do more than meet your lighting needs. We also provide replacement, retrofit, and upgrade parts as well as industrial grade power accessories. Our craftsmen can custom build any lighting system and/or accessories to fit the unique demands of your operation. A commitment to honesty, quality, and dependability has made Larson Electronics a leader in the lighting and electronics business since 1973. Contact us today at 800-369-6671 or message sales@larsonelectronics.com for more information about our custom options tailored to meet your specific industry needs.

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Frequently Asked Questions (FAQ)









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