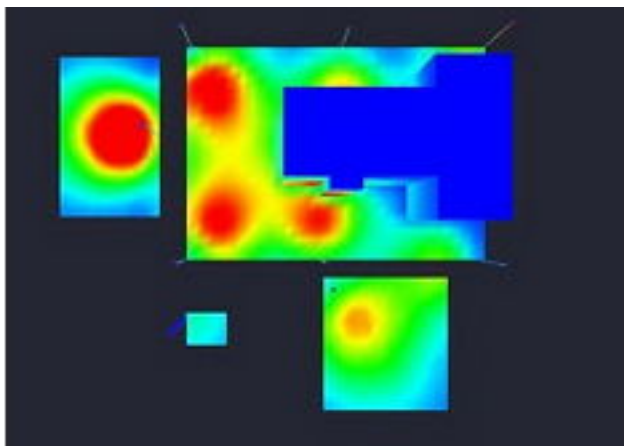


EXPLED-SOL-2X48.2L-4X150RT-4X300RT

Explosion Proof Solar Derrick Light Package - 9 LED Fixtures - 4 Hour Runtime - 24V DC Assembly

Product ID: 71472



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.

EXPLED-SOL-2X48.2L-4X150RT-4X300RT Solar Derrick

Panes: (7) 300-Watt panels

Average charge capacity: 84 amps per hour

Panel protection: Fused combiner box

System Protection: Battery over/under and ground fault

System Voltage: 24 Volts

Battery Bank: 12 X 6-volt 200ah batteries

Battery capacity: 600ah total and 300ah usable

Fixtures: (4) EPL-LED-150W-RT, (4) EPL-LED-2X150W-RT, (1) EPL-48-2L-LED-G2

Features

Fully Solar, No Fuel Needed

Off-Grid Light Options

Special Orders- Requirements

Contact us for special requirements

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Made in the USA

This Explosion Proof Solar Derrick LED Light Package from Larson Electronics is designed to provide up to 3.75 hours of illumination for remote derricks without a stationary power source. This low voltage solar package includes nine explosion proof fixtures for illuminating the oil derrick during inspections and repairs. Included with this package are the solar panels, battery bank, and charge controllers needed to operate the explosion proof LED light fixtures.

Lights: This LED light package comes with nine low voltage, high output LED light fixtures. Four 150 watt [EPL-LED-150W-RT](#)s, four 300 watt [EPL-LED-2X150W-RT](#)s, and one 56 watt [EPL-48-2L-LED-G2](#). These LED fixtures are Class 1 & 2, Divisions 1 & 2 rated and approved for marine and wet locations.

The EPL-LED-150W-RT and EPL-LED-2X150W-RT fixtures are Class 1 Division 1 & 2, Class 2 Division 1 & 2 explosion proof flood light fixture provides high quality light while drawing. The copper free aluminum alloy body is powder coated for

added durability and an attractive aesthetic appearance. Special heat dissipating design in conjunction with LED technology helps this fixture to achieve an excellent 60,000 hour rated lifespan with 80% lumen retention.

The EPL RT series of explosion proof LED lights features multiple LED drivers which helps to increase the operational life of the fixture. With traditional LED lights, in the event an LED array or driver fails, the entire fixture no longer illuminates. This series of light fixtures contains twelve (150 watt model) or twenty-four (300 watt model) individual LED boards configured in a series of banks. Each bank contains two LED boards with an individual driver. In the event of a driver failure, only one bank of LEDs will be effected while the other banks will continue to operate. In the event that of an LED failure, the mating LED will continue to operate.

The EPL-48-2L-LED-G2 is equipped with specially designed LED T-series bulbs which produce 30% more foot candles of illumination at 8 feet as compared to standard T8 lamps when measured with an Extech light meter. Our LED-T series bulbs are visibly brighter than standard T8s and have consistently surprised many of our customers with their unexpectedly high light output levels. We have replaced two 8 foot dual lamp T8 fixtures in our own facility with our LED T series lamps and produced more illumination in the work area with only one 2 lamp 4 foot long LED fixture.

We have eliminated the ballast box normally associated with fluorescent fixtures which reduces overall weight and creates a slimmer unit profile. There is no ballast in this unit and the included LEDT8-28W-V1 LED lamps have a 50,000+ hour service life, both of which result in extreme efficiency and greatly reduced maintenance costs. The solid state design of the LED lamps give this fixture superior resistance to damage from vibration, extremes in temperature and a lamp service life over twice that of standard T8 bulbs.

Solar Assembly: This unit is comprised of seven 300-watt solar panels, generating a total maximum output of 2.4 KW. This 2.4KW solar generator system replenishes 300 amp hours of usable battery capacity per day, assuming 5 hours of peak charging sunlight. These solar panels are enclosed in a powder coated steel frame. In order to optimize the sun capture, operators must mount the solar panels to +/- 15 degrees of the latitude of the physical location of the panels. 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.

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 its 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 they 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 600-amp capacity battery bank. This 24 volt battery system is 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 300 amps at 24 volts.

The panels produce approximately 12 amps per hour to charge this system. On a bright sunny day, the seven panels would generate and deliver more than 400 amps back to the batteries in 5 hours. This conservative number of 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 system 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

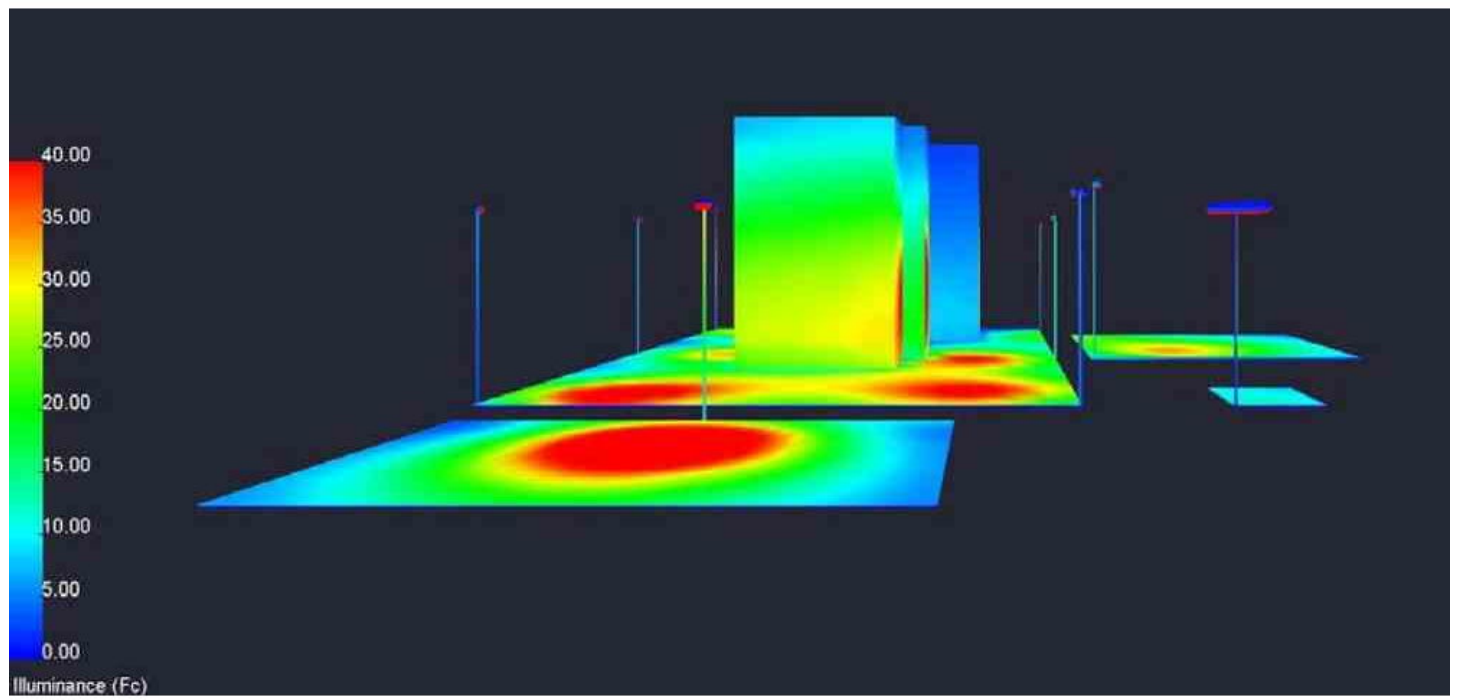
system.

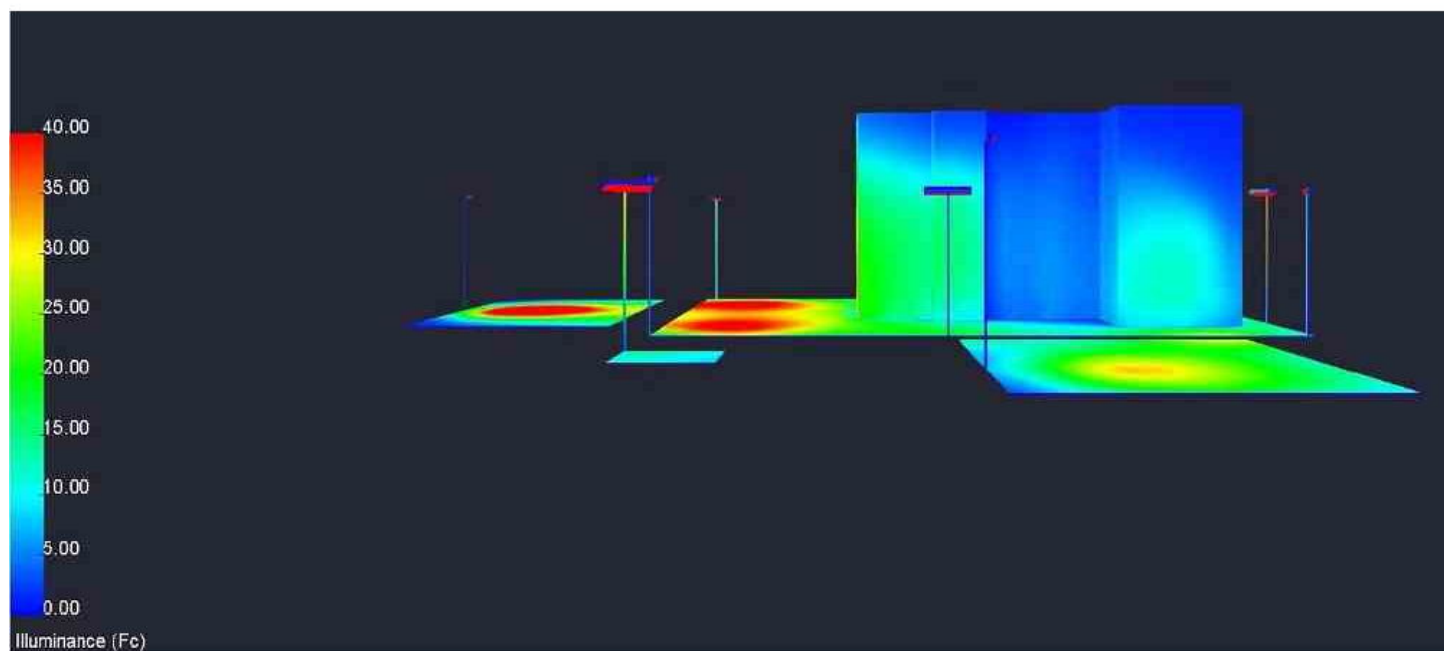
Battery Bank System: The battery bank consists of twelve 6-volt batteries that are mounted to a removable tray. The batteries are spaced apart, strapped to the battery tray and covered with a protective shield. The shield provides security and also shaded protection from the sun. The construction of 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.

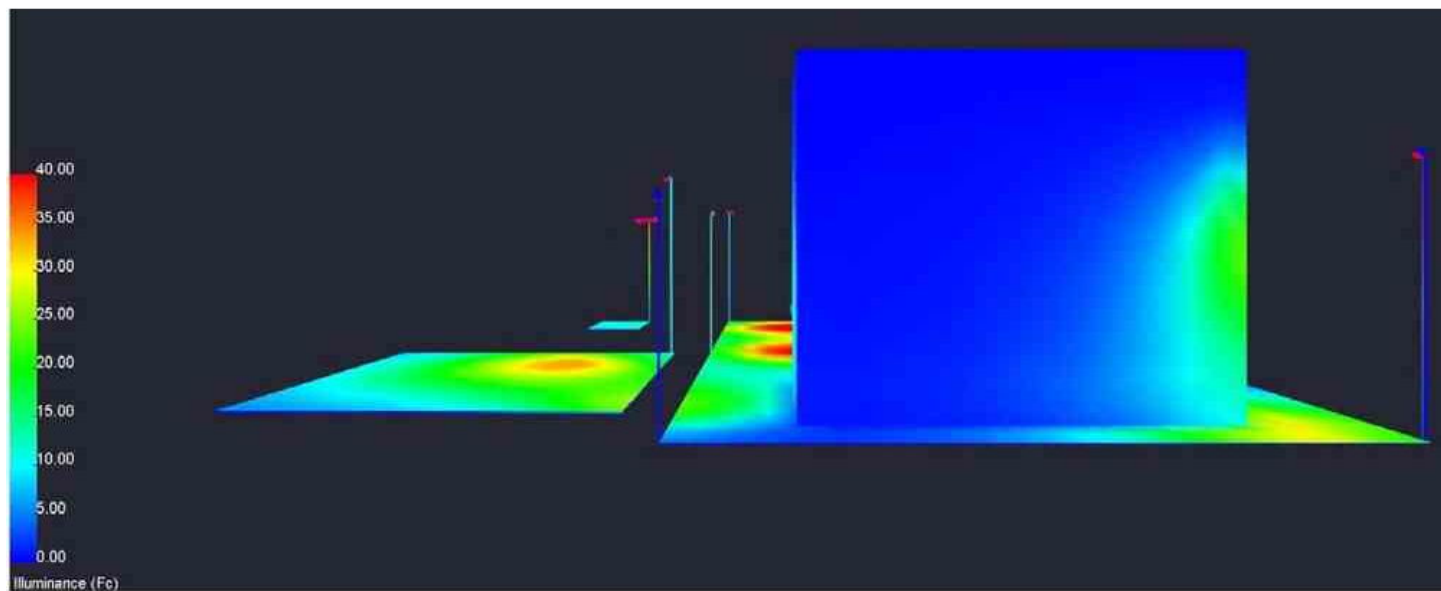
Component Control Center: In order to ensure that the 50% threshold on the batteries is controlled, this solar trailer includes a system of min/max voltage sensors and relays that monitor the voltage produced by the batteries and will automatically shut off power distribution when the battery capacity 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.

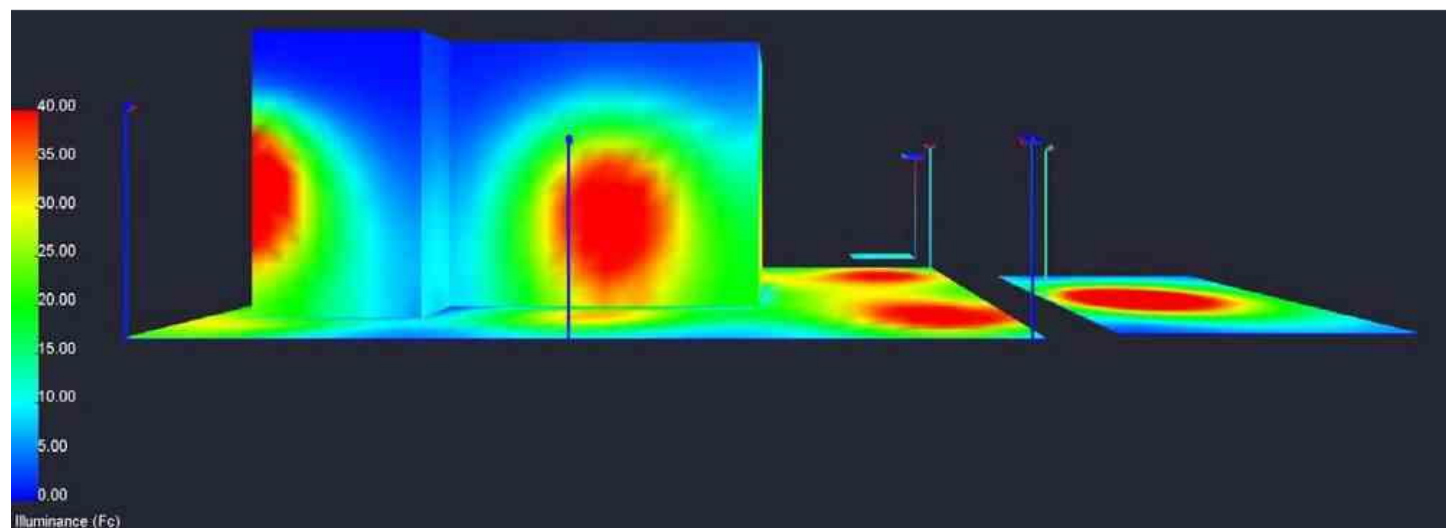
All the electrical components, including the combiner panel, charge controller, over/under battery monitoring and ground fault isolation are encapsulated in a Nema 3R job box that is bolted to the trailer. Since most of these components are not rated for high heat, our component cooling system circulates 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.

Note: The solar panel and charge assembly must be installed outside the hazardous environment. The light fixtures are C1D1 rated explosion proof. Operators provide cabling from solar system to the LED light fixtures.









Frequently Asked Questions (FAQ)