



BERLIN ALTERNATIVE ENERGY INDUSTRY

Renewable Energy Solutions

El Kilo Circle, Mecca Str. 136, 3rd. Floor, Amman-Jordan www.baeindustry.com

Stand alone Solar Street Light

General Description:

The stand-alone-street-lamp permits an illumination on the street of about 4000 Lumen at 11m height with a power consumption of 48W. Electric power is provided by a 300Wp photovoltaic solar panel.

Solar panel may rotate 350° and tilt up to 90° in 5° steps, to position the panel in the optimal performance tilt/direction on any geographical location.

Battery box has ventilation holes, that prevent rain penetration, it is provided with a hermetic compartment to accommodate the electronics charge controller. Both charge controller and battery are accessible by individual, lockable doors.

Bulk head composed 36 Led of 3W each is mounted on a telescopic Ø60mm aluminum tube composed of 2 X 55cm sections thus the bulkhead ends at 160cm from the pole.

The materials used are treated to withstand high salinity and high temperatures weather conditions.

Specifications:

- a. Photovoltaic solar panel M72-300 with a maximum voltage rating equal to 36.58V of V_{mpp} and maximum current rating equal to 8.21A of I_{mpp} , hinges allowing inclinations from approximately 0 ° to 90 °.
- b. Battery box anodized aluminum with sulfuric anodizing, ventilation openings to allow cooling of the battery compartment and preventing rain water penetration with access for maintenance and inspection.
- c. Electronic box battery conditioning and control, anodized aluminum with sulfuric anodizing, hermetic connection with the battery box with an access to allow for maintenance and inspections.
- d. Battery 12v 150Ah , Sealed AGM battery technology, designed to be used both in the running buffer in cycles. Seal against possible leakage of gas or acid in operating position without causing any reduction in the capacity or the expected life. Designed to facilitate the recombination of gas up to a rate of 99%. Maintenance free and can also run in a wide temperature range
- e. Charge regulator of 10A with led indicator for some function. This type of charge controller is suitable to charge the battery from a PV input of one or more panels. The battery is charged through PWM charging algorithms to avoid damaging the battery.



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Construction:

f. Reinforced cap for wooden/metal mast

Consisting of a 500mm long and Ø150mm inner diameter aluminum tube perforated at 350mm from the bottom to accommodate the lamp shaft, a 150mm long tube Ø150mm outer diameter is inserted in it welded to a flange supporting the battery box, the charge controller compartment and the PV panel with its aluminum frame and adjusting perforated bars. All components are made of anodized aluminum with sulfuric anodizing.

g. Bulk-head lamp shaft

Aluminum telescopic shaft total extended 1.1m long, Ø63mm to affix the bulk-head LED lamp.

h. Bulk-head lamp:

Consisting of 36 led of 3w/each for a total light of 4000 to 4600 Lumen. The LEDs installed on a collimator / reflector mounted on high heat dissipating support, which in turn is mounted on another heat sink located inside armature road. This is an ideal cooling system for this type of applications.

i. LED driver:

Capable of feeding a constant current range of LED 3w 7 each so as to ensure in the event of a fault line, 85% of the total luminosity.

j. Dc/dc converter:

Supply lines of led to: 18-21Vdc 12Vdc out I out max 6A.
Sink for led mounting bracket.

k. Battery box:

Anodized aluminum with sulfuric anodizing, ventilation openings to allow cooling of the battery compartment without allowing rain water penetration.

l. Electronic box:

Battery conditioning and control, anodized aluminum with sulfuric anodizing, watertight connection with the battery box with an access to allow for maintenance and inspections.

m. Battery:

12v 150Ah or 120Ah, Sealed AGM battery technology, designed to be used both in the running buffer in cycles. Seal against possible leakage of gas or acid in operating position without causing any reduction in the capacity or the expected life. It facilitates the recombination of gas up to a rate of 99%. Maintenance free and can also run in a wide temperature range.

n. Charge regulator:

10A with led indicator for some function. This type of charge controller is suitable to charge the battery from a PV input of one or more panels up to a total of 120Wp if you use a 12V battery. The battery is charged through PWM charging algorithms to avoid damaging the batteries.

o. Reinforced support for PV panel:

adjustable with holes arranged in steps of approximately 5 ° on top of battery box, and charge controller compartment, anodized aluminum with sulfuric anodizing.



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p. Mast support with reinforcement for shaft:

Sulfuric anodized aluminum telescopic support shaft of street lamp.

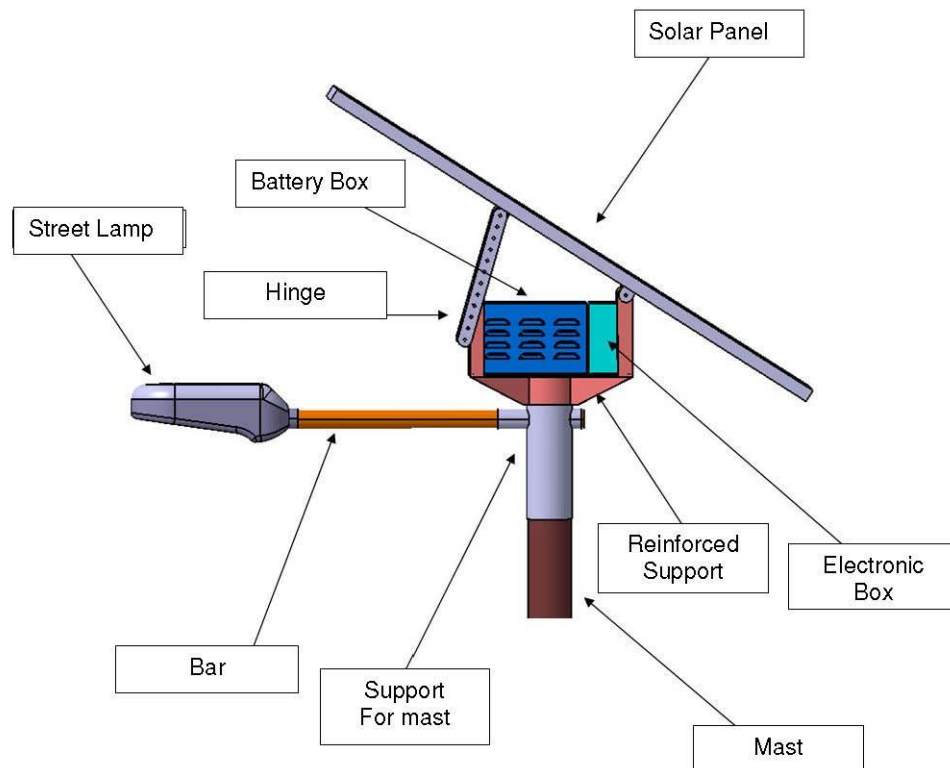
q. Shaft:

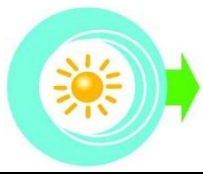
shaft for street lighting in diameter suitable for fitting lamp with attachment of 60mm to 76 mm, achieved through an aluminum tube about 63mm in diameter and about 1.1 meters in length, treated with sulfuric anodizing.

r. Street lamp:

Made of:

- 36led of 3w/each for a total light of 40004600 Lumen. The LEDs will be equipped with collimator / reflector and mounted on high heat dissipation, ideal for these applications, which in turn supports will be mounted on another heat sink located inside armature road.
- LED driver capable of feeding a constant current range of LED 3w 7 each so as to ensure in the event of a fault line, 85% of the total luminosity.
- Dc/dc converter supply lines of led to : 18-21Vdc 12Vdc out lout max 6A.
- Sink for led mounting bracket.





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