



Manual: Solar LED SLS and Solar LED High Mast SLS (Generally Conforming to HAREDA/DSND Specs)

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SOLAR PHOTOVOLTAIC PRINCIPAL

Sun light is converted into DC Electricity when it falls on the top surface of the solar cells inside the SPV module by means of direct Photovoltaic conversion process. The generated electricity can either be directly used during the sunshine hours or may be stored in storage batteries to be used later. Solar Home Lighting system essentially comprises a solar PV module / battery, electronic charge controller, luminaire with built in high frequency inverter, Fan, TV etc.

RSPL offers a wide range of Solar PV Home Lighting Systems with standard and custom-built versions. The standard models generally conform to MNRE specifications.

SOLAR BASED LED STREET LIGHT SYSTEM

GENERAL SPECIFICATIONS

- 1) System Voltage: 12 Volts DC
- 2) Solar PV module of 75Wp: 1 No.
- 3) Battery Lifepo4 12.8V/30AH with min 3.2V 10Ah Cell: 1 No
- 4) IP 65 Aluminium PDC LED Luminaire 12W max: 1 No
- 5) MPPT Solar Charge Controller: 1 No
- 6) Hot Dip GI Battery Box: 1 No
- 7) Module Mounting Frame suitable for 75 Wp Solar Panel: 1 No
- 8) Nuts/Bolts/Hardware/Cable: 1 Set

SOLAR BASED LED HIGH MAST STREET LIGHT SYSTEM

GENERAL SPECIFICATIONS

- 1) System Voltage: 12 Volts DC
- 2) Solar PV module of 110Wp: 4 Nos.
- 3) Battery Lifepo4 12.8V/50AH with min 3.2V 10Ah Cell: 4 Nos
- 4) IP 65 Aluminium PDC LED Luminaire 22W max: 4 Nos
- 5) MPPT Solar Charge Controller: 4 Nos
- 6) Hot Dip GI Battery Box: 1/2/4 Nos
- 7) Module Mounting Frame suitable for 110WpX4 Solar Panel: 1 No
- 8) Nuts/Bolts/Hardware/Cable: 1 Set
- 9) CCTV Camera and Wifi HotSpot Dongle: Optional
- 10) Power Source for CCTV Camera ie 1X30 Ah LiFePO4 Battery Pack + 1X60Wp Solar Panel + 1 CC : Optional

CONSTRUCTION FEATURES AND PROVISIONS

SPV MODULE

- 1) 36/72 Nos. mono/poly crystalline solar cells in 12 V Configuration.
- 2) Laminated in EVA.
- 3) High Transmission toughened glass as superstrate
- 4) Anodized Aluminum Frames.
- 5) Terminal box with terminals.

- 6) Pmax minimum 75Wp(For Solar LED SLS)/110Wp(For High Mast Solar LED SLS)

BATTERY

- 1) Type. of battery: 12.8V LiFePO4 Battery Pack
- 2) Capacity: 1X30AH for Solar LED SLS and 4X50Ah for Solar LED HLS
- 3) Terminals: Two Wires

LED LUMINAIRE (12W/22W Max)

- 1) Aluminum IP 65 Luminary Cabinet with adequate heat dissipation
- 2) Lens can be used for LEDS or as needed
- 3) LED driver used is Boost Type Constant Current
- 4) Adequate protection against open circuit, short-circuit and reverse polarity.

INBUILT MPPT SOLAR CHARGE CONTROLLER

- 1) MPPT Solar charge controller.
- 2) Constant current type LED driver.
- 3) Adequate protection against open circuit, short circuit and reverse polarity.
- 4) LED indication for:
 - a. Load disconnect (Red LED)
 - b. Charging in progress (Green LED).
- 5) Connection/Points for module and battery connection.
- 6) Solder free installation.
- 7) No load, short circuit, battery deep discharge, battery overcharge and reverse polarity protections.
- 8) Blocking diode to prevent reverse flow of current from battery to module.
- 9) Very low idle power consumption < 20 mA for standard models.

MODULE MOUNTING FRAME

- 1) Comprises of members made from 35x35x5mm angle iron or as required.
- 2) Necessary Nut/Blots hardware.
- 3) Degree Plate

*Module mounting structure can be made to varying designs as per actual site requirements

CABLE

- 1) 1.5/2/2.5/4mm² twin core wire or any other size as per requirement.
- 2) Length as per requirement.
- 3) Insulated PVC cable.

LIGHT OUTPUT FOR SOLAR LED SLS

- 1) > 24 Lux for each luminaire when measured from a height of 4m below the light at high illumination
- 2) > 12 Lux for each luminaire when measured from a height of 4m below the light at low illumination
- 3) The light is glaze free and not have any shadow band.

LIGHT OUTPUT FOR SOLAR LED HIGH MAST SLS

- 1) First 3 hours full light (min. 8.0 lux), 60% for next 3 hours (min. 5 lux) and rest of time at lower light (50%, min. 4 lux) level.
- 2) The lumens output of each luminaire should not be less than 2700 lumens.
- 3) The lux level over a 16 meter of radius should not be less than 5% at the point mentioned below in the lux level distribution chart. The average Lux should be min 8.0 lux and average/min = min 0.25.

WORKING

As soon as the sun rises in the morning, photovoltaic cells start generating electric power. This electric power is stored in the battery through charge controller in the luminary. As the sun sets in the evening, the photovoltaic cells stop power generation. The electric power stored in the battery is used for lighting the luminary during night.

Electronic charge controller and LED luminaires have electronic circuits. Electronic charge controller protects the battery from overcharge and deep discharge. It also has the facility to protect from reverse polarity if battery connections are made by mistake in the reverse manner. MPPT Charge Controller in the luminary protects the battery from being over charged and keeps the battery in good health. If battery is deep discharged then Red LED marked "LOW" will start glowing on the luminary and the same will be disconnected. The glowing of green "LED" indicates battery charging. The Luminary works from Dusk to Dawn automatically switching on and off depending on voltage levels set.

INSTRUCTIONS FOR USE

INSTALLATION

The Solar module/modules is/are to be installed at any place where shade free sun is available throughout the day on the pole. The solar PV modules is/are fixed in such a direction that it faces south at appropriate inclination. The solar PV modules can be installed as per indicative figure at the end which is self-explanatory.

The PV modules, LED Luminary with inbuilt charge controller and the battery are connected. The appropriate cable size should be used for making these connections. Wiring has to be as per requirements.

REPLACEMENTS

FUSE

Resettable Fuse is provided in the luminary.

BATTERY

The battery can be replaced by removing wires from PCB mounting terminals.

PRINTED CIRCUIT BOARD

In case of faults in the PCB's (Driver and LED Card) of the luminary, these can be easily replaced by removing the connectors and unscrewing the mounting screws.

PRECAUTIONS

DO'S

- 1) Ensure that Solar PV modules are installed in the shade free sun in a proper direction.
- 2) The PV modules connections should be made in the last
- 3) The solar PV modules are to be cleaned regularly to remove dust.
- 4) In case red LED marked "LOW" glows, charge the battery for 1-2 days before use.
- 5) In case the system is not in use, ensure that the battery is regularly charged so that it is in full charged condition.

DONT's

- 1) Do not clean solar PV modules with Acid/Chemicals/Detergent etc.
- 2) Don't tamper with settings of charge controller.

TROUBLE SHOOTING

If the system does not work, please ensure:

- 1) That the module, charge controller, battery, fans and the luminaires are connected in proper polarity. Make correct connection if found wrong.
- 2) That the fuses are intact in the charge controller of the luminary. If fuse is blown out, replace by new one.
- 3) Ensure that the lamp is OK.
- 4) Even then if the system does not work, call the technician to check up the PCB etc. for component level trouble shooting.

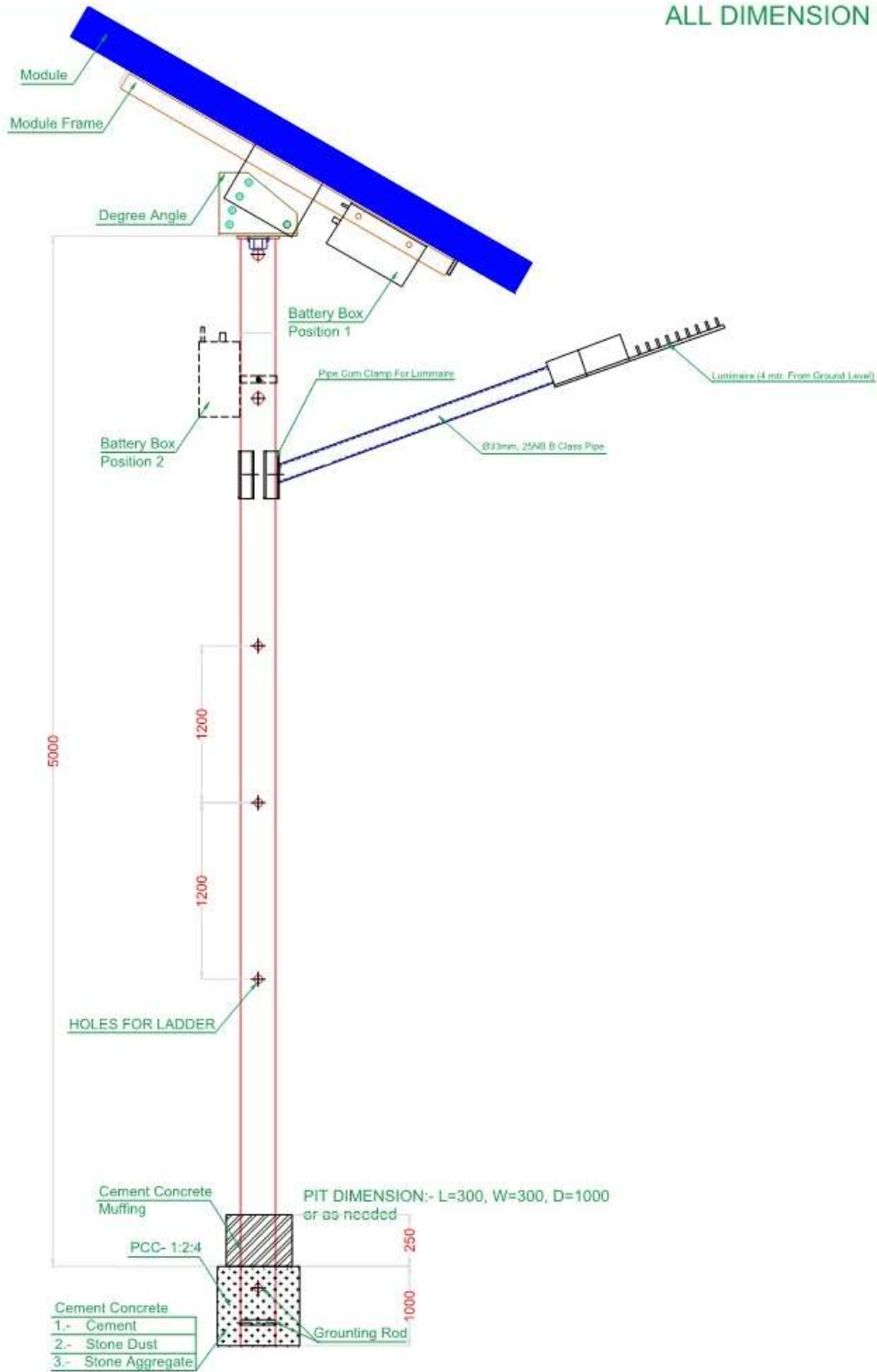
P.S.

In case of any problem please contact the source from where you have procured the system. In case of any problem with the battery or SPV modules please write to the manufacturer with copy to us and the source from where you have procured the system. Battery and SPV modules carry the warranty of respective manufacturers also. Please note that the light output of lamp is dependent on temperature, direction of lamp. The Luminaries should be preferably used with lamp in horizontal position. If the system does not behave properly, kindly contact the source from where you have procured/nearest dealer or us at the following address:

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Indicative Drawing for Solar LED SLS

ALL DIMENSION ARE IN MM.



Indicative Drawing for Solar LED High Mast SLS

