



Home Lighting System

SOLAR PHOTOVOLTAIC PRINCIPLE

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 two solar PV modules/ battery, electronic charge controller, luminaries with built in high frequency inverter, Fan, TV etc.

Trans Solar Technologies offers a wide range of Solar PV Home Lighting Systems

with standard and custom built versions. The Standard models generally conform to MNES specification. **The major specifications are as under :**



General Specification

System voltage : 12 Volts DC

Composition (12V 20 Ah Battery System)	Model 1
Solar PV module of 18 Wp.	1 No.
12V 20 Ah at C/10 rate Lead Acid Battery	1 No.
CFL-9/11 Luminaire	1 No.
Charge Controller	1 No.
Battery Box	1 No.
Module mounting frame suitable for grouting	1 No.
Nuts/Bolts Hardware/Cable	1 Set



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Composition (12V 40 Ah Battery System)	Model 2	Model 3
Solar PV module of 37 Wp.	1 No.	1 No.
12V 40 Ah at C/10 rate Lead Acid Battery	1 No.	1 No.
CFL -9/11 Luminaries	2 Nos.	1 No.
Charge Controller	1 No.	1 No.
Battery Box	1 No.	1 No.
Module mounting frame suitable for grouting	1 No.	1 No.
DC Fan (With wattage less than 20 watts)	-----	1 No.
Nuts/Bolts Hardware/Cable	1 Set	1 Set
Composition (12V 75 Ah Battery System)	Model 4	Model 5
Solar PV module of 37 Wp.	2 Nos.	2 Nos.
12V 75 Ah at C/10 rate Lead Acid Battery	1 No.	1 No.
CFL -9/11 Luminaries	2 Nos.	4 Nos.
Charge Controller	1 No.	1 No.
Battery Box	1 No.	1 No.
Module mounting frame suitable for grouting	1 No.	1 No.
DC Fan (With wattage less than 20 watts)	1 No.	-----
DC operated television (Customer to buy himself. It should be preferable 12/14" B&W TV)	-----	1 No. (optional)
Nuts/Bolts Hardware/Cable	1 Set	1 Set

Electrical Specification

CHARGE CONTROLLER IN HOME LIGHT LUMINAIRE

Max Charging current	6A
Max. Load current	6A
Load disconnect battery voltage	11 ± 0.2 volts or as required
Load reconnect battery voltage	12.5 ± volts or as required
Constant Charging Voltage	14.5 ± 0.2 volts or as required
Idle current consumption	Less than 10ma

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Light Output

600 lumens (Nominal) for each luminaire of CFL 9 lamp and 900 lumens (nominal) for each luminaire.

Duration of Working :

Model	Hours of Operation
1	Lights 3-4 Hours
2	Lights 3-4 Hours
3	Lights 1-2 Hours Fan 1-2 Hours
4	Lights 2-3 Hours Fan 2-3 Hours
5	Lights 3-4 Hours

These hours of operations are under average Solar Radiation conditions of 5 KWH/sqm a horizontal surface. Actual duration of lighting will depend upon solar radiation condition. The average hours of operation per day will be reduced if TV Set is also energised from the system.

Variants

SPV Domestic Lighting Systems

PV Modules	15Wp, 20Wp, 37Wp, 2x30Wp, 2x35Wp, 2x37Wp. depending upon hours of lighting and type of lamp required.
Lamps Options	CFL 5 / 7 / 9 / 11 Watts TLD 18 / 20 Watts
Hours of Lighting Options	3 to 12 hours depending upon of lamps and number of lamps.
Battery Options	12V, 2 / 40 / 66 / 75 / 80 Ah Positive tubular plates at C/10 rate. or 12V 120 Ah Pasted plate battery at C/20 rate. or 12V 40 / 65 Ah Sealed Maintenance free battery at C/20 rate. or any other as per customer's requirement.
Electronic Options	Charge Controller : - Reverse polarity protection - Battery deep discharge protection - Battery overcharge protection Indications : - Charging 'ON' - Battery deep discharge - Battery overcharge
Luminaire Housing Options	Aluminium / MS / Glass fiber / ABS