

# **RE Practices in Pakistan – Solar PV Technologies**

## **Solar PV Modules by Sharif International**



### **HIGH EFFICIENCY MULTI-CRYSTALLINE PHOTOVOLTAIC MODULES**

#### **Applications**

##### **1. Grid-Connected Systems**

- Residential Solar Power Systems
- Public and Industrial Solar Power Systems

##### **2. Stand-Alone Solar Power Systems for**

- Solar for villages in remote areas
- Solar for homes and summer cottages
- Solar for microwave / Radio repeater stations
- Solar for Medical facilities in rural areas
- Solar for emergency communication
- Solar System for water quality and environmental data monitoring
- Solar solution for drinking water and livestock water pumping
- Small-scale irrigation pumping
- Cathodic protection
- Solar Aviation obstruction lights
- Solar Environmental data monitoring
- Solar Railway signals
- Solar Street lighting
- Small-scale desalination

- Limited performance warranty
- 2 years limited warranty on material and workmanship
- 25 years limited warranty on power output.

(Long term output warranty shall guarantee that loss of output is not more than 10% of the minimum warranty value of the product specifications within 12 years and is not more than 20% within 25 years after the purchase of the product by customer).

## DC FLOURECSENT LAMPS by Sharif International



### GES 7/9/11/13

Working Voltage : 12V

Average life time :>3000 hours

Available :7W,9W,11W,13W

Tube style :2U

High luminous efficiency electricity saving of up to 80%. Excellent color rendering and distribution of light



### GES 15/18/20

Working Voltage :12V

Average life time :>3000 hours

Available :15W,18W,20W

Tube style :3U

High luminous efficiency electricity saving of up to 80%. Excellent color rendering and distribution of light

## LED LIGHT BULBS

Specification	Draw
ED-8	0.64 W
LED-12	1.1 W
LED-15	1.2 W
LED-18	1.5 W
LED-24	2.2 W
LED-48	3.84 W
LED-60	4.8 W



These attractive 12 VDC fluorescent fixtures have painted aluminum housings and acrylic diffuser lenses. Sizes range from 8 to 60 watts, and all use standard warm white tubes. These lights are ideal for shop areas, bathrooms, kitchens or general area lighting. High-efficiency and low power consumption make these lights ideal for the majority of your lighting needs.

## SOLAR CHARGE CONTROLLERS by Sharif International



### GES 10 Amp

Rated charging current: 10A  
Max Charging current: 13A  
Rated load current: 10A  
System voltage: DC 12/24



### GES 20 Amp

Rated charging current: 20A  
Max charging current: 26A  
Rated load current: 20A  
System voltage: DC 12/24



### GES 30Amp

Rated charging current: 30A  
Max charging current: 39A  
Rated load current: 30A  
System voltage: DC 12/24 V



### GES 40Amp

Rated charging current: 40A  
Max charging current: 52A  
Rated load current: 40A  
System voltage: DC 12/24V

## DC TO AC INVERTERS FOR SOLAR APPLICATIONS by Sharif International



### INVERTER MODELS

Model 375W

Model 750 W

Model 1250W

Model 1500W

Model 2000 W

Model 2400W

Model 3600W

Model APSX6048VR

400VA/12V

560VA/12V

800VA/12V

Sine Wave (800VA/12V)

Sine Wave (1400VA/24V)

Sine Wave (3KVA/48V)

Sine Wave High Frequency (800VA/12V)

Sine Wave High Frequency (1400VA/24V)

DSP PURE SINE WAVE INVERTORS.

1 PHASE IN 1 PHASE OUT

↳ 5KVA/120V

↳ 7.5KVA/120V

↳ 10KVA/180V

↳ 5KVA/96V

↳ 5KVA/48V

DSP PURE SINE WAVE INVERTERS

3 PHASE IN 3 PHASE OUT

↳ 20KVA/360V

↳ 25KVA/360V

↳ 30KVA/360V

↳ 40KVA/360V

↳ 10KVA/360V

↳ 15KVA/360V

↳ 50KVA/360V)

↳ 65KVA/360V)

↳ 80KVA/360V)

## SOLAR STREET LIGHTS by Sharif International



### Efficient Solar Street Lighting using LED

Green Energy also offers street lighting systems which use LED lights that are extremely efficient, and durable light sources. Only 1/10 the power is required with LED fixtures to produce the same light intensity as an incandescent bulb. Four packages are available that allow you to choose the lighting solution that best meets your needs. The LED Street Light is available with either 100 or 200 LEDs, which are equivalent to 100 W and 200 W incandescent light bulbs respectively.

### SOLAR SAFETY FLASHERS

Safety for students is of primary concern for school authorities and parents. Solar School Flasher is the product offered by Sharif International for schools, to ensure safety from any kind of accidents near the school vicinity. They are available in 3 models –R247C and R829, R829C.



MODEL R247C (Compact)



MODEL R829



MODEL R829C (Compact)

### FEATURES

- Compact design
- Installation takes minutes and requires no technical expertise
- Provides up to five years of operation with no maintenance or servicing
- Designed to operate reliably in the harshest of environmental conditions
- Designed to operate reliably at any location
- No external power required
- Charges daily under all types of weather conditions

### Technology Provider:

Sharif International  
Suite No.1, 1<sup>st</sup> Floor, Asghar Plaza,  
Imran Khan Avenue, Chaklala Scheme III,  
Rawalpindi, Pakistan 46000.

Tel: +92 51 5766 380

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Web: <http://sharifinternational.net>

## RE Practices in Pakistan – Solar PV Technologies

### Solar PV Modules by Haroon Brothers

#### Solar Modules



Model	Watts (W)	Optimum operating Voltage (V)	Optimum operating Current (A)	Short Circuit current Isc (A)	Open Circuit Voltage Voc (V)	Measurement L x W x H (mm)	Weight (Kg)
HB-5	5	17.5	0.29	0.82	21.5	266*276*28	1.0
HB-8	8	16.8	0.48	0.52	21.4	340*270*23	1.5
HB-10	10	17.5	0.57	0.65	21.5	356×301×28	1.4
HB-15	15	17.5	0.88	0.97	21.5	346×426×28	2.0
HB-20	20	17.5	1.14	1.29	21.5	346×592×28	2.7
HB-25	25	17.5	1.13	1.61	21.5	356×676×28	3
HB-30/35	30/35	17.5	1.71/2.00	1.94/2.26	21.5	356×818×28	5
HB-40/45	40/45	17.5	2.29/2.57	2.58/2.91	21.5	670×576×28	5.5
HB-50/55	50/55	17.5	2.86/3.14	2.23/3.55	21.5	510×880×40	6
HB-60/65	60/65	17.5	3.43/3.71	3.88/4.20	21.5	670×816×40	6.5
HB-75/80	75/80	17.5	4.29/4.57	4.84/5.17	21.5	670×990×40	7
HB-85/90	85/90	17.5	4.86/5.14	5.40/5.81	21.5	548×1198×40	8.5
HB-100	100	17.5	5.17	6.46	21.5	670×1154×40	12
HB-165	165	35	4.72	5.19	43	808x1580x42	15
HB-180	180	23.5	7.66	8.62	29	808x1580x42	15

Contact:

Haroon Brothers

204-Soofi Chambers, Link McLeod Road.

Lahore, Punjab, Pakistan

Phone: +92-42-7238421

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Email: [info@haroonbrothers.com](mailto:info@haroonbrothers.com)

[www.haroonbrothers.com](http://www.haroonbrothers.com)

## **RE Practices in Pakistan – Solar PV Technologies**

### **Solar Street Lamps by Haroon Brothers**

They have three types of solar street lights:

1. Low Pressure Sodium lamp Solar Lights
2. Metal Halide Lamp Solar Lights
3. LED based Solar Street Lights



#### **Main Features:**

Easy Installation  
Maintenance free  
Fully Automatic  
Timer Adjustable (optional)  
VRLA Battery (Long Life Span)  
Mono Crystalline Solar Panels

#### **Applications:**

Remote Area Lighting  
Pathways  
Driveways  
Security Lighting  
Boundary Wall Lighting  
Spot Lighting

#### **Contact:**

Haroon Brothers  
204-Soofi Chambers, Link McLeod Road.  
Lahore, Punjab, Pakistan  
Phone: +92-42-7238421  
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Email: [info@haroonbrothers.com](mailto:info@haroonbrothers.com)  
[www.haroonbrothers.com](http://www.haroonbrothers.com)

## RE Practices in Pakistan – Solar PV Technologies

### Solar Power Systems by POWER TECH International Group



## Solar Power Systems

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### Solar Power - Grid Connect 1Kw-20Kw

	1Kw Solar Power Systems Grid connect	2Kw Solar Power Systems Grid connect	3Kw Solar Power Systems Grid connect	5Kw Solar Power Systems Grid connect	5 Kw Solar Power Systems Grid connect	20 Kw Solar Power Systems Grid connect
<b>Price Range</b>	\$3,693	\$7,278	\$14,557.5	\$36,396	\$72,793.5	\$72,793.5
<b>CE Certified</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Guarantee</b>	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year
<b>Solar Panels</b>	Captures the light energy from the Sun to produce DC electricity					
<b>Panel Type</b>	170 Watt Solar Panels, mono-crystalline Cells	170 Watt Solar Panels, mono-crystalline Cells	170 Watt Solar Panels, mono-crystalline Cells	170 Watt Solar Panels, mono-crystalline Cells	170 Watt Solar Panels, mono-crystalline Cells	170 Watt Solar Panels, mono-crystalline Cells
<b>Dimensions-H*W*D</b>	1580*808*45	1580*808*45	1580*808*45	1580*808*45	1580*808*45	1580*808*45
<b>Number of Panels</b>	3 Pcs	6 Pcs	12 Pcs	18 Pcs	22 Pcs	59 Pcs
<b>System Surface Area</b>	3.8 m <sup>2</sup>	7.7m <sup>2</sup>	15.3 m <sup>2</sup>	23.0 m <sup>2</sup>	28.0 m <sup>2</sup>	75.3 m <sup>2</sup>
<b>Weight</b>	46.5Kg	93Kg	186Kg	279Kg	341Kg	790.5Kg
<b>CE Certified</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Power Performance</b>	20 Year	20 Year	20 Year	20 Year	20 Year	20 Year
<b>Guarantee</b>	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year
<b>Inverter</b>	Converts DC electricity produced by the Solar Panels to AC electricity					
<b>Model</b>	ZDEG 500Watt Grid Connect Inverter GSG 0.5KD	ZDEG 1kw Grid Connect Inverter GSG 1KD	ZDEG 2kw Grid Connect Inverter GSG 2KF	ZDEG 3kw Grid Connect Inverter GSG 3KF	ZDEG 5kw Grid Connect Inverter GSG 5KF	ZDEG 10kw Grid Connect Inverter GSG 10KF
<b>Max DC Input Power</b>	600W	1200W	2400W	3600W	6000W	12000W
<b>Weight</b>	25Kg	30Kg	60Kg	75Kg	80Kg	100Kg
<b>Dimensions-H*W*D</b>	330*410*198	340*410*213	380*410*240	420*410*240	570*470*262	500*600*1300
<b>CE &amp; TUV Certified</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Standards</b>	IEEEE929, EN61000	IEEEE929, EN61000	IEEEE929, EN61000	IEEEE929, EN61000	IEEEE929, EN61000	IEEEE929, EN61000
<b>Guarantee</b>	2Year	2Year	2Year	2Year	2Year	2Year

### Solar Power - Grid Connect 20Kw-500Kw

	20 Kw Solar Power Systems Grid connect	30 Kw Solar Power Systems Grid connect	50 Kw Solar Power Systems Grid connect	100 Kw Solar Power Systems Grid connect	200 Kw Solar Power Systems Grid connect	500 Kw Solar Power Systems Grid connect
<b>Price Range</b>	\$97,058 - \$97,458	\$145,588- \$145,988	\$242,647- \$243,047	\$485,294- \$485,694	\$970,588- \$970,988	\$2,426,470-\$2,426,870
<b>CE Certified</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Guarantee</b>	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year
<b>Solar Panels</b>	Captures the light energy from the Sun to produce DC electricity					
<b>Panel Type</b>	170 Watt Solar Panels, mono-crystalline Cells	170 Watt Solar Panels, mono-crystalline Cells	170 Watt Solar Panels, mono-crystalline Cells	170 Watt Solar Panels, mono-crystalline Cells	170 Watt Solar Panels, mono-crystalline Cells	170 Watt Solar Panels, mono-crystalline Cells
<b>Dimensions-H*W*D</b>	1580*808*45	1580*808*45	1580*808*45	1580*808*45	1580*808*45	1580*808*45
<b>Number of Panels</b>	117 Pcs	177 Pcs	294 Pcs	588 Pcs	1177 Pcs	2941 Pcs
<b>System Surface Area</b>	149.4 m <sup>2</sup>	255.9m <sup>2</sup>	375.3m <sup>2</sup>	750.7 m <sup>2</sup>	1502.6 m <sup>2</sup>	3754.6 m <sup>2</sup>
<b>Weight</b>	1813.5Kg	2743.5Kg	4557Kg	9114Kg	18243.5Kg	45585.5Kg
<b>CE Certified</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Power Performance</b>	20 Year	20 Year	20 Year	20 Year	20 Year	20 Year
<b>Guarantee</b>	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year
<b>Inverter</b>	Converts DC electricity produced by the Solar Panels to AC electricity					
<b>Model</b>	ZDEG 20Kw Grid Connect Inverter GSG 20KF	ZDEG 30kw Grid Connect Inverter GSG 30KG	ZDEG 50kw Grid Connect Inverter GSG 50KGC	ZDEG 100kw Grid Connect Inverter GSG 100KGC	ZDEG 200kw Grid Connect Inverter GSG 500KGC	ZDEG 500kw Grid Connect Inverter GSG 500KGC
<b>Max DC Input Power</b>	24KW	36KW	60KW	120KW	240KW	600KW
<b>Weight</b>	120Kg	150Kg	300Kg	450Kg	550Kg	700Kg
<b>Dimensions-H*W*D</b>	500*700*1400	500*700*1400	600*1000*2000	700*1200*2000	700*1200*2000	700*1200*2000
<b>CE &amp; TUV Certified</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Standards</b>	IEEEE929, EN61000	IEEEE929, EN61000	IEEEE929, EN61000	IEEEE929, EN61000	IEEEE929, EN61000	IEEEE929, EN61000
<b>Guarantee</b>	2Year	2Year	2Year	2Year	2Year	2Year

System Price Includes: Grid Connect of complete Solar System including Mono-crystalline Solar Panels, Grid Tie Inverter and cables with accessories.

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# Solar Powe Systems

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## Solar Power - Off Connect

Item No.	Inverter	Rated Output Power	System Voltage	Battery			Solar Panel			Price FOB Shanghai (USD)
				Capacity	Model	QTY	Capacity	Model	QTY	
ZD-SH20	20VA	16W	12V	12V17AH	12V17AH	1	10W	10WP	1	216
ZD-SH60	60VA	48W	12V	12V33AH	12V33AH	1	20W	20WP	1	338
ZD-SH150L	150VA	120W	12V	12V75AH	12V75AH	1	50W	50WP	1	945
ZD-SH150H	150VA	120W	12V	12V120AH	12V120AH	1	100W	100WP	1	1364
ZD-SH300L	300VA	240W	24V	24V65AH	12V65AH	2	100W	100WP	1	1526
ZD-SH300H	300VA	240W	24V	24V100AH	12V100AH	2	200W	100WP	2	2417
ZD-SH500L	500VA	400W	24V	24V100AH	12V100AH	2	200W	100WP	2	2633
ZD-SH500H	500VA	400W	24V	24V200AH	12V200AH	2	400W	100WP	4	4293
ZD-SH1000L	1000VA	800W	48V	48V120AH	12V120AH	4	400W	100WP	4	4779
ZD-SH1000H	1000VA	800W	48V	48V240AH	12V120AH	8	800W	100WP	8	8815
ZD-SH2000L	2000VA	1600W	110V	108V100AH	12V100AH	9	900W	100WP	9	9720
ZD-SH2000H	2000VA	1600W	110V	108V200AH	12V200AH	9	1800W	100WP	18	17347
ZD-SH3000L	3000VA	2400W	110V	108V150AH	12V150AH	9	1600W	100WP	16	16038
ZD-SH3000H	3000VA	2400W	110V	108V300AH	12V150AH	18	2700W	100WP	27	26325
ZD-SH5000L	5000VA	4000W	220V	216V100AH	12V100AH	18	1800W	100WP	18	19575
ZD-SH5000H	5000VA	4000W	220V	216V200AH	12V200AH	18	3600W	100WP	36	35775

Remark: 1.Price is not include freight cost

2.Payment: 30% T/T deposit, 70%before shipment.

3.500 sets -- 30 working days;2000 sets -- 45working days

4.Price validity: 30 days



Solar Panel



SH20W-SH500H  
system Inverter with  
battery



SH1000L system  
Inverter with battery



SH1000H-SH5000H  
system Inverter



Battery



solar panel Shelf



System Price Includes: Off-Grid of complete Solar System including Mono-crystalline Solar Panels, Off Grid Hybrid Inverter and charger controller, battery, solar panel shelf and cables with accessories.

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## Solar Panels by POWER TECH International Group

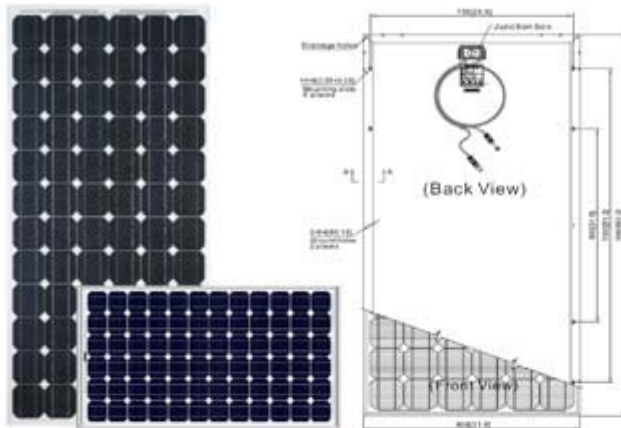


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150 155 160 165 170 175 180 Wattages Available

### Blueprint of the module



ZDEG photovoltaic modules offer high-powered, reliable performance for solar projects, both on- and off-grid.

### Electrical Characteristics

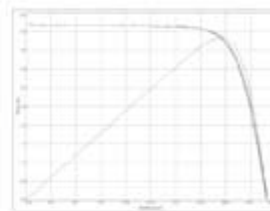
Maximum Power	$P_{max}$	150 W	155 W	160 W	165 W	170 W	175 W	180 W
Open Circuit Voltage	$V_{oc}$	43.4V	43.5V	43.5V	44.0V	44.5V	44.8V	45.0V
Short Circuit Current	$I_{sc}$	4.88A	4.90A	5.00A	5.10A	5.12A	5.17A	5.20A
Maximum Power Voltage	$V_{mp}$	34.8V	35.4V	35.6V	35.8V	35.9V	36.0V	36.0V
Maximum Power Current	$I_{mp}$	4.31A	4.38A	4.50A	4.61A	4.74A	4.86A	5.00A
Module Efficiency (%)		11.8	12.2	12.5	12.9	13.3	13.7	14.1
Tolerance		± 5%						

Electrical characteristics at Standard Test Conditions (STC), defined as: irradiance of  $1000W/m^2$ , Spectrum AM 1.5, and Cell temperature of  $25^\circ C$ .

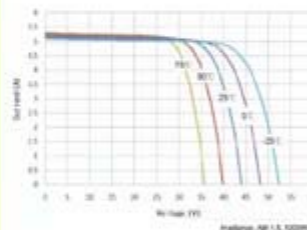
### Mechanical Specifications

Dimensions	1560 × 808 × 45 mm [62.2 × 31.8 × 1.8 in.]
Weight	15 kg [33 lbs.]
Frame	Aluminium-alloy
Packing Configuration	4 pcs per carton
Size of Pallet	1.66 × 0.9 × 2.14 m [66.4 × 35.4 × 84.3 in.]
Loading Capacity (40 ft container)	560 pcs

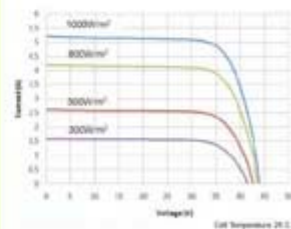
### IV CURVES



### Various Temperatures



### Various Irradiance Levels



Specifications and designs included in this datasheet are subjects to change without notice.


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## Solar Street Lights by POWER TECH International Group



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www.powertech-group.com

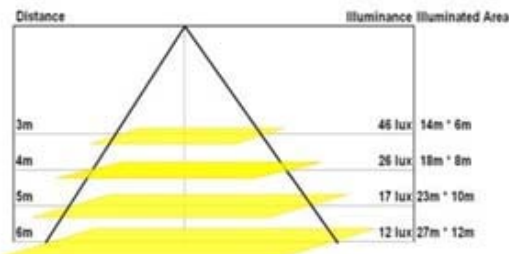
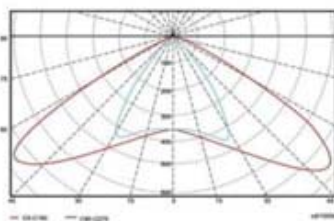
### Solar Street Light

Item No.	ZD-SR24	Guarantee	
solar panel	40W, poly/monocrystalline, conversion efficiency: 15%	5 years	
LED lamp	24W, CREE LEDx8pcs, 1500lm, 25lux on the floor	2 years	
color temperature	5000K~7000K		
pole	4m high, steel, with galvanizing treatment	5 years	
controller	10A 12V Solar charge controller	2 years	
battery	12V55AH, deep recycle lead-acid storage battery	3 years	
working time	9 hours/day, and 3 overcast and rainy days		
wind resist	118Km/h(12 grade Beaufort)		
Packing	individual packing for each part		
Price without pole:	US\$566.27		
pole:	USD119.64		
FOB Port:	shanghai China		
Mark:	More information, check next page for details		
20'GP	25 complete units		
40'GP	50 complete units		
working condition:	6 hours high effective bright(19:00 ~ 01:00), 3 hours for energy saving mode bright(03:00~06:00) time bucket can be set up first freely		

Solar road lamp system:



Light distribution curve:



### Contact:

Power Tech International Group  
50-56 LGF Trust Plaza LMQ Road Multan 60000,  
Multan Karachi Lahore Islamabad, Pakistan 60000  
Telephone: 9261-4544373 -4785971  
FAX: 9261-4518180  
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## RE Practices in Pakistan – Solar PV Technologies

### SOLAR PV PRODUCTS by ASJID Energy Systems

#### PV MODULES

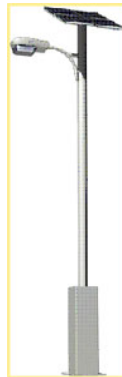


<b>Specifications:</b>	<b>Model 1</b>	<b>Model 2</b>
Open Circuit Voltage Voc(V)	: 43.2	21.6
Short Circuit Current Iso(A)	: 5	4.67
Watt Peak Wp(W)	:160	
Optimum Power Voltage Vm (V)	: 34.4	17.2
Optimum Operating Current Im(A)	: 4.65	4.36
Dimension of Modules(mmxxmmxmm):	1800x900	1195x541x30
<b>Special Features:</b>		
<ul style="list-style-type: none"> <li>• Long working life</li> <li>• Durable</li> <li>• Available in various colours</li> <li>• Work in extreme climatic conditions</li> <li>• Easy to install</li> <li>• Water proof</li> </ul>		



<b>Specifications:</b>	<b>Model 1</b>	<b>Model 2</b>
Open Circuit Voltage Voc(V)	: 21.6	43.6
Short Circuit Current Iso(A)	: 3.2	5.04
Watt Peak Wp(W)	:50	165
Optimum Power Voltage Vm (V)	: 17.2	34.8
Optimum Operating Current Im(A)	: 2.9	4.74
Dimension of Modules (mmxxmmxmm):	995x453x30	1580x808x50

#### ASJID SOLAR STREET LIGHTS



<b>Specifications:</b>	
Open Circuit Voltage Voc(V)	: 1.9V
Short Circuit Current Iso(A)	: 80mA
Watt Peak Wp(W)	:
Optimum Power Voltage Vm (V)	: 1.2
Optimum Operating Current Im(A)	: 600mA
Dimension of Modules	: 15.8cm
<b>Special Features:</b>	
<ul style="list-style-type: none"> <li>• Light Brightness 1 LED (8000 MCD)</li> <li>• White colour of light</li> <li>• ABS, PC material</li> <li>• ON/OFF switch available</li> <li>• 1 XNI-CD (600mA, 1.2V)</li> </ul>	

Contact:  
 Asjid Energy System  
 6 Fazla-E-Qadir Road Sialkot Cantt  
 Pakistan  
 Tel: +92-52-4600001-7 Lines  
 Fax: +92-52-4600008  
 Cell: +92-300-8615587  
 Email: [info@asjidenergysystems.com](mailto:info@asjidenergysystems.com)  
 Web: <http://www.asjidenergysystems.com>

## **RE Practices in Pakistan – Solar PV Technologies**

### **Solar PV Technologies by ‘The SOLAR Energy’**

#### **SOLAR HOME LIGHTING SYSTEM (10 W OR 20 W)**



Model = SE 10

Model = SE 20

Solar compact system driving up to 12 V DC LED Lamps, Cellophane, Electrical Fan, TV and Radio etc.

#### **Specifications:**

- 10 W or 20 W Multi-crystalline silicon (Tempered Glass Encapsulated)
- 12 V/12AH Sealed Maintenance free Lead-Acid Battery
- Input: Sunlight and Regular 110/220 V AC
- Output: 4 x DC 12V outlets

#### **Accessories:**

- 4 x 12 V LED Lamps with lamp holders for model SE-10 and 8 x 12 V LED Lamps with lamp holder for Model SE-20
- Power cable for cell phone charging
- 2 fuses included
- Multi-purpose adapter plug (optional)
- 110/220 V AC universal charger (optional)
- DC Fan (optional)
- Steel box + Battery box
- Steel frame

#### **Life of system:**

Solar panel : 25 Years

LED Lamps : 50000 Hours

Battery : 7 Years

Duration Time:

One LED bulbs (18 pcs) 40 Hours

Two LED bulbs (18 pcs) 20 Hours

For LED bulbs (18 pcs) 10 Hours

#### **Contact:**

The Solar Energy

A-1530 Phase 1 Alfalah Town Lahore Cantt Pakistan.

Ph: +92-42-5086233,

Fax: +92-42-5733055

E-mail: [info@solarenrgy.com.pk](mailto:info@solarenrgy.com.pk); [www.solarenergy.com.pk](http://www.solarenergy.com.pk)

## RE Practices in Pakistan – Solar PV Technologies

### SOLAR LED STREET LIGHTING SYSTEM by ‘The SOLAR Energy’

#### SE-SOLAR LED STREET LIGHTS SPECIFICATION

Through the innovative of solar power and led technology, the solar panels charges the batteries during the day even under cloudy conditions and Solar LED Street lights turns “ON” manually or automatically at night. These lights use durable, ultra bright light emitting diodes (LEDs), which have long operating life.



SPECIFICATION	SE-24	SE-32	SE-45	SE-75	SE-90
Power (W)	24W	32 W	45 W	75 W	90 W
Voltage Input	24 V AC/DC	24 V AC / DC	24 V AC / DC	24 V AC/DC	24V AC/DC
Colour Temp. K	3000/4000	3000 / 4000	3000/4000	5000/6000	5000/6000
Lamination Flu x clm	1090	1450	3000	4800	5400
Lux Distance H / M	15 / 7M	20 / 7 M	25 / 8M	160 /6M	30 / 11M
LED Angle	130	130	130	80	130
Lam Sources	H.POWER LED	H.POWER LED	H.POWER LED	H.POWER LED	H.POWER LED
Light Colour	White / warm	Whit/ warm	Whit/ warm	Whit/ warm	Whit/ warm
Operating TEMP	30 c- + 60c	30 c- + 60c	30 c- + 60c	30 c- + 60c	30 c- + 60c
Consumption	Low Power	Low Power	Low Power	Low Power	Low Power
Light efficiency	90 %	90 %	90 %	90 %	90 %
Brightness of each LED	3600MCD	3600MCD	3600MCD	3600MCD	3600MCD
Life of LEDs	50000 Hrs	50000 Hrs	50000 Hrs	50000 Hrs	50000 Hrs
Safety Standard	Class I	Class I	Class I	Class I	Class I
Solar Module	60 W@ 24V	85 W@ 24V	120 W@ 24 V	200 W@ 24 V	250 W@ 24 V
Battery	50AH@ 12Vx 2	60AH@ 12V x2	75 AH@ 12 Vx2	100 AH@ 12Vx2	120 AH@ 12 Vx2
Charge controller	6A @24 V	8A @24 V	10 A@24V	15 A@24V	20 A@24V
Other Accessories	As Required	As Required	As Required	As Required	As Required

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## RE Practices in Pakistan – Solar PV Technologies

### Solar Garden Lighting by ‘The SOLAR Energy’

#### SOLAR GARDEN LIGHTING

**Specifications:**

Type : FDS10301  
Product Name : Stainless Steel Lawn Light  
Light Source : 6 LEDs/10/20  
Light Colour : Red, Yellow, Green, Blue, White  
Solar Panel : Mono crystalline silicon  
Wattage of Solar Panel: 1W/3W/5W  
Batteries : Sc1800ni-cd  
Lighting time : 8/10 hours  
Material : Stainless Steel

**Specifications:**

Type : FDS10310  
Product Name : Cast aluminum/steel lawn light  
Light Source : 12 LEDs  
Light Colour : Red, Yellow, Green, Blue, White  
Solar Panel : Mono crystalline silicon  
Wattage of Solar Panel: 2.5W  
Batteries : D5000ni-cd  
Lighting time : > 10 hours  
Material : Cast aluminum/PMMA

**Specifications:**

Type : FDS10323  
Product Name : Stainless Steel Lawn light  
Light Source : 12 LEDs  
Light Colour : Red, Yellow, Green, Blue, White  
Solar Panel : Mono crystalline silicon  
Wattage of Solar Panel: 2.5W  
Batteries : D5000ni-cd  
Lighting time : > 10 hours  
Material : Cast aluminum/PMMA

**Specifications:**

Type : FDS10302  
Product Name : Stainless Steel Lawn light  
Light Source : 6 LEDs  
Light Colour : Red, Yellow, Green, Blue, White  
Solar Panel : Mono crystalline silicon  
Wattage of Solar Panel: 1W  
Batteries : SC1800ni-cd  
Lighting time : 8 hours  
Material : Stainless Steel

**Contact:**

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## RE Practices in Pakistan – Solar PV Technologies

### Solar LED Lantern by ‘The SOLAR Energy’

#### SOLAR LED LANTERN

**Features:**

- It is waterproof lantern with LED charging indication
- Charging time 8hrs in the day
- Working time 8~10 hrs mid-bright, 4~5 hrs full bright
- Charging cycle >1,000 times under properly using condition

**Accessories:**

- Rechargeable batteries
- AC/DC adopter
- Solar panel
- Auto adopter

Note: Other Models also available with 80 hrs backup

**Solar Camp Shower****Detailed Product Description**

- 5 gal (20L) Camp Shower:
- Material: 0.42 mm PVC, Pass SGS Test
- Each in Colour Box Packed

This camp shower can hang up with plastic string, included 2 pipes available, 1 for water pouring out with small sprayer

**Solar Cooling Cap****Key Specifications/Special Features:**

- A little fan in front of the forehead powered by amorphous solar cell
- Auto adjust of the fan flow according to the change of solar radiation
- Always keep a cooling world for your summer tour
- Low noise, long life, reliable and safe
- Different colors available
- Adjustable cap size

**Solar Fan****Salient Features:**

- Light weight, Easy to use and low Cost
- Charging time solar panel: 6-7 hrs
- Operating time: Up to 4 hrs
- Life of battery: Rechargeable 500 times
- Life of solar panel: 25 Years

**Components:**

- 5 W multi-crystalline solar panel
- Rechargeable maintenance free battery (6V, 5Ah)

**Contact:**

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# RE Practices in Pakistan – Solar PV Technologies

## Solar Traffic Lights by ‘Clean Power’

### SOLAR TRAFFIC LIGHTS



Cats Eye

Cats Eye

#### 1. Solar Traffic Signal Light

##### Technical Specifications

Solar Cell Type	: Monocrystal.
Solar Power	: 5 watt .
Light Source Type	: High Power Bright LEDs 4000 mcd, 260 pieces.
Light Source Colour	: Red, Yellow, Green.
Battery Capacity	: 6V, 40Ah.
Operating Temperature	: -20 deg to 80 deg. C
Charging Time	: 5 hrs
Operating Time	: 24 hrs

#### 2. Solar Road Signs

##### Technical Specifications

Flashing frequency	: 1 to 3Hz.
Solar power	: 6.5W .
Battery Capacity	: 6V / 12Ah.
Light Source Type	: High Power bright LEDs, 4000 mcd, 115 pieces, 200 mA
Light Source Colour	: Yellow or Red
Visibility range	: 2km
Operating Temp.	: -20 to 80 deg. C
Charging Time	: 5 hrs
Operating Time	: 6 cloudy or rainy days

#### 3. Solar Traffic Cat eyes

##### Technical Specifications

Solar Type	: Monocrystal .
Solar Power	: 0.2 watt .
Light Source Type	: Super Bright LEDs, 4000 mcd to 6000 mcd, 4 to 6 pieces.
Light Source Colour	: Yellow
Battery Capacity	: 1.2V/1200mAh
Height	: 22mm
Operating Temp.	: -20 deg. to 80 deg. C
Charging Time	: 6 hrs
Operating Time	: 200 hrs / 10 days
Available in variety of attractive designs	

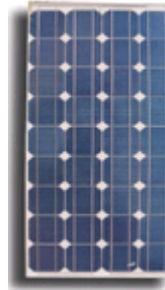
### Contact:

Clean Power (Pvt.) Ltd  
216, Street 74, I-8/3, Islamabad, Pakistan.  
Off: +92 51 4102271-3, Fax: +92 51 4102274  
[www.cleanpower.com.pk](http://www.cleanpower.com.pk)

## RE Practices in Pakistan – Solar PV Technologies

### Solar PV Panels by ‘Clean Power’

#### SOLAR PANELS



#### Solar Panels

##### Features

- Available in wide range of specifications.
- CPL's costs are competitive with International market.
- Orders of large quantities can be met.
- The principles of CPL regarding Solar Panel are feeding panels to Europe, China & Japan for projects that require 1 MW per year.

##### Technical Specification

Options.	Panel Power (watts)	Charging Voltage (Volts)	Rated Voltage (VP)	Short circuit current	Dimensions (mm)
1	20	12	17.0	1.28	563x345x26
2	30	12	17.0	1.90	780x346x33
3	50	19	24.4	3.43	565*560*33
4	80	12	16.0	2.90	830x500x33
5	100	12	17.0	6.50	1260x658x33
6	110	12	16.7	7.50	1476x658x33
7	120	12	16.9	7.70	1476x658x33

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## RE Practices in Pakistan – Solar PV Technologies

### Solar Electrification of Villages by ‘Clean Power’



The exact energy solution can be created for any particular scenario. Typically CPL uses 40 W and 80 W panels that charge 12V DC, 100 Ah maintenance free batteries to light small applications like LED lamps, Lanterns, Fans etc.

#### CPL Solar Electrification Packages

##### PACKAGE ONE

Package Items	Qty	Package Price per home PKR
Solar Panel (80 watt)	01	50,000/-
LED bulbs (Approx watt)	04	
Electric Fan (15 watt)	01	
TV (15 watt)	01	
Battery (100 Ah)	01	

##### PACKAGE TWO

Package Items	Qty	Package Price per home PKR
Solar Panel (40 watt)	01	30,000/-
LED bulbs (Approx 3 Watt)	03	
Electric Fan or TV (15 watt)	01	

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## RE Practices in Pakistan – Solar PV Technologies

### Innovative Lighting Solutions by Clean Power

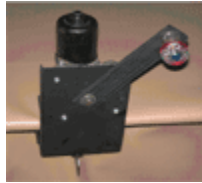
CPL has developed small products / solutions that consist of man operated small generators and subsequent battery operated appliances like lanterns, energy saving bulbs, LED lamps etc. Our man operated energy solutions include Pedal Generator and Hand generator that convert human energy into electricity. The batteries charged from these products can be used with a wide range of products, including lanterns, fans etc.

These solutions are specially devised for remote areas where electricity has yet not reached. CPL is trying to approach these remote areas to improve the living standards by providing its innovative lighting solutions. We offer attractive packages to serve this purpose. Our solutions are cost-effective, practicable and environmentally friendly.



#### PEDAL GENERATOR

It operates on the principle of a bicycle. The pedal generator charges diverse battery operated appliances such as Lanterns, Energy saving bulbs, LED Lamps etc. It is best recommended for charging 12 volt, 20 Ah batteries.



#### HAND GENERATOR

Hand Generator is a small device used to charge all battery operated appliances like Lanterns, Lamps etc. Its portability and size makes it best suitable for remote areas where electricity is not available.



#### LED LANTERN

The LED lantern can be charged by Solar Panel, Pedal Generator and Hand Generator.

### CPL Man Operated Electrification Packages

**PACKAGE 1 :** This package is a complete electrification solution for 4 homes

Package Items	Item Qty	Package Utility	Package Price PKR	Price per Home PKR	
Pedal Generator 27-54 W	1	4 Homes	30500/-	7625/-	
LED Lanterns	8				

**PACKAGE 2:** This package is a complete electrification solution for 3 homes

Package Items	Item Qty	Package Utility	Package Price PKR	Price per home PKR	
Hand Generator 21-27 watt	1	3 Homes	23000/-	7667/-	
LED Lanterns	6				

### CPL Solar Electrification Package

**PACKAGE 1:** This package provides complete solar electrification of a home

Package Items	Item Qty	Package Utility	Package Price PKR
Solar Panel (40 W)	1	1 Home	25000/-
LED Lamps	4		
Battery (12V, 100 Ah)	1		

#### Contact:

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## **RE Practices in Pakistan – Solar PV Technologies**

### **Solar Desk Light by ‘SBS (Pvt) Ltd.’**

#### **Solar Desk Light**



#### **Detailed Product Description**

LGT-XSD Solar eye lamp uses high-efficiency solar mono(poly)crystalline silicon battery board, High-brightness, long-life LED bulb and good nickel hydrogen rechargeable module. It combines with modern high technology and converts solar energy into electricity generation, reserve power for lighting. It is no need any external power, as long as the glare of irradiation 5-8hours, the sustainable use of lighting more than 10 hours. It applies to power shortage area emergency lighting such as the students reading, writing office and so on.

#### **Technical parameters:**

- 1 Solar module 2.5W,
- 2 A set of nickel hydrogen battery (DC9.6V),
- 3 High-brightness LED 36bulb, soft luminous stability, no stroboscopic ,not cause eye fatigue.
- 4 Life time (LED light source) >50000h
- 5 Weight : about 1kg
- 6 Appearance size : 21×15×35cm

#### **Contact:**

SBS (Pvt) Ltd  
Suite# 202, Rm Center, Moon Market, Iqbal Town  
Lahore, Punjab  
Pakistan.  
Zip: 54460  
Tel: 92-42-7821572  
Fax:  
Web:



## RE Practices in Pakistan – Solar PV Technologies

### Solar Water Pumping Systems by ‘The SOLAR Energy’

#### SOLAR WATER PUMPING SYSTEM PS 1200 HR/C

For location without power lines, we offer high quality solar submersible pumps giving a clean and simple alternative to fuel-burning generators. They require no fuel deliveries. A solar submersible pump extracts most water when the weather is sunny and dry



#### Applications:

Drinking water supply  
Live stock watering  
Pound management  
Irrigation

#### Features:

High life expectancy  
None-return valve  
Dry running protection  
Material: Stainless steel  
Brushless DC Motor, Max.  
efficiency 92 % (motor +  
Controller), 2 Years  
manufactures warranty

#### Overview:

Simple installation  
Maintenance free  
High reliability and life  
expectancy  
Cost efficient pumping

Solar generator	vertical lift	60m (200ft)		70m (230ft)		80m(265ft)		90m (300ft)		100m (330ft)		120m (400ft)		140m (460ft)		160m (600ft)		
	Array mounting	Fixed	Tracked	Fixed	Tracked	Fixed	Tracked	Fixed	Tracked	Fixed	Tracked	Fixed	Tracked	Fixed	Tracked	Fixed	Tracked	
		Flow Rate (M <sup>3</sup> /day)										1 cubic meter = 1000 liters						
300 Wp	Irradiation Kwh/m <sup>2</sup> /day	7.5	4.7	6.8	3.8	5.3	3.2	4.7	2.6	4.2	2.5	3.8	2.3	3.4	1.9	2.7	-	-
		6.0	3.7	5.3	3.0	4.2	2.6	3.7	2.1	3.1	1.8	2.7	1.6	2.3	1.3	1.8	-	-
		4.5	2.8	3.8	2.3	3.0	1.9	2.6	1.5	2.1	1.1	1.6	0.9	1.3	0.7	0.9	-	-
350 Wp	Irradiation Kwh/m <sup>2</sup> /day	7.5	5.7	7.9	4.9	6.8	3.8	5.1	3.4	5.0	3.2	4.7	3.0	4.3	2.7	4.0	-	-
		6.0	4.8	6.9	4.1	5.8	3.3	4.4	3.0	4.0	2.7	3.9	2.5	3.3	2.0	2.9	-	-
		4.5	4.0	5.6	3.5	4.8	2.8	3.8	2.6	3.5	2.2	3.0	1.7	2.3	1.2	1.8	-	-
420 Wp	Irradiation Kwh/m <sup>2</sup> /day	7.5	6.1	8.3	5.7	7.6	4.7	6.9	4.5	5.4	4.0	5.0	3.7	5.0	3.0	4.2	1.7	2.4
		6.0	5.4	7.2	4.8	6.4	3.9	5.5	3.7	4.7	3.2	4.2	3.0	4.1	2.5	3.4	1.4	1.9
		4.5	4.5	6.0	4.0	5.4	3.0	4.0	2.9	3.9	2.4	3.3	2.3	3.2	2.0	2.7	1.0	1.4
480 Wp	Irradiation Kwh/m <sup>2</sup> /day	7.5	8.7	13.0	6.1	8.7	5.7	8.2	5.5	8.0	5.0	7.0	4.5	6.5	3.3	4.5	2.3	3.0
		6.0	7.0	10.0	5.5	7.4	4.8	6.7	4.4	6.5	3.8	5.3	3.4	4.8	3.0	4.0	1.9	2.5
		4.5	5.0	6.5	4.5	6.0	3.9	5.2	3.3	4.5	2.6	3.5	2.2	3.0	2.6	3.5	1.5	2.0
660 Wp	Irradiation Kwh/m <sup>2</sup> /day	7.5	9.8	14.0	8.7	13.0	8.0	11.5	6.5	8.0	5.5	7.8	5.1	7.4	4.5	6.4	3.2	4.3
		6.0	8.5	12.0	7.3	11.0	6.5	9.2	5.5	7.4	4.9	6.7	4.0	5.8	3.5	5.0	2.8	3.7
		4.5	7.0	9.5	6.0	8.5	5.0	7.0	4.5	6.0	4.3	5.5	3.0	4.2	2.5	3.5	2.4	3.2
720 Wp	Irradiation Kwh/m <sup>2</sup> /day	7.5	11.0	14.0	10.0	14.0	9.4	14.0	8.7	13.0	6.0	8.0	5.7	8.0	5.3	7.0	3.5	4.7
		6.0	10.0	14.0	9.0	13.0	8.2	12.0	7.4	11.0	5.8	7.0	5.0	6.5	4.4	5.9	3.3	4.4
		4.5	9.0	12.0	8.0	11.0	7.0	9.5	6.0	8.1	5.5	6.1	4.0	5.4	3.5	4.7	3.0	4.0
840 Wp	Irradiation Kwh/m <sup>2</sup> /day	7.5	14.0	20.0	10.0	14.0	10.0	14.0	9.4	14.0	8.0	12.0	7.2	11.0	6.0	7.2	4.0	5.0
		6.0	12.0	17.0	10.0	14.0	8.9	12.0	8.4	12.0	7.3	10.0	6.5	9.0	5.2	6.4	3.6	4.7
		4.5	10.0	14.0	9.0	13.0	7.8	10.0	7.3	9.8	6.5	8.8	5.5	7.4	4.4	6.0	3.2	4.3
1000 Wp	Irradiation Kwh/m <sup>2</sup> /day	7.5	17.0	25.0	14.0	20.0	13.0	18.0	10.0	14.0	9.0	13.0	8.5	12.0	6.5	8.0	-	-
		6.0	14.0	21.0	12.0	17.0	11.0	15.0	9.0	12.0	8.0	11.0	7.6	11.0	5.8	7.4	-	-
		4.5	12.0	16.0	10.0	14.0	9.0	12.0	8.0	11.0	7.0	9.5	6.7	9.0	5.0	6.8	-	-
1200 Wp	Irradiation Kwh/m <sup>2</sup> /day	7.5	18.0	26.0	15.0	21.0	14.0	20.0	11.0	14.0	10.0	13.0	9.5	12.0	7.0	8.3	-	-
		6.0	16.0	23.0	14.0	19.0	13.0	17.0	10.0	13.0	9.0	12.0	8.5	11.0	6.4	8.3	-	-
		4.5	14.0	19.0	12.0	16.0	11.0	15.0	9.2	12.0	8.0	11.0	7.5	10.0	5.7	7.7	-	-

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E-mail: [info@solarenergy.com.pk](mailto:info@solarenergy.com.pk); [www.solarenergy.com.pk](http://www.solarenergy.com.pk)

Note: The list of suppliers of Solar PV Technologies is the same as the list given under Solar Thermal Technologies.