

External Solar Power System

1.1 Solar module (20w) Poly or Mono-crystalline

Model	SM-20
Voc(V)	21.2
Isc(A)	1.35
Vmp(V)	17.2
Imp(A)	1.16
Pm(Wp)	20
Operating Temperature	-40 to +85°C
Maximum System Voltage	1000 V DC
NOCT	48°C±2°C
Current Temperature Coefficient (%/k)	0.06±0.01
Voltage Temperature Coefficient (mV/k)	-(155±10)
Power Temperature Coefficient (%/k)	-(0.5±0.05)
Connection	Standard Plug and Socket
Solar Cell	156mm*156mm poly-crystalline Silicon Solar Cell 156mm*156mm
Type of Solar Cell	Type P
No. of Cells and Connections	36
Weight	3.0kg



- Notes:**
- 1) By parallel and / or series connection to have different power capacity.
 - 2) Check periodically.
 - 3) Avoid connection of any metal materials with power electrodes;

1.2 Maintenance Battery:

Rated Voltage	12V
Capacity (10hr,1.80V/ Cell, 25°C)	40Ah
Weight	about 12.5 ± 0.5kg
Dimension(mm)	Height 180 mm
	Length 196mm
	Width 165 mm
Interior Resistance (Completely Charge)	about 4.5m Ω , 25°C
Self-Discharge (25°C)	<3% per month
Max.Discharge Current	400A
Using Temperature	Discharge: -45°C ~ 50°C Charge: -20°C ~ 45°C Storage: -30°C ~ 40°C
Recommended Using Temperature	15°C ~ 25°C
Max.Charge Current	10 (A)
Charge Voltage	Float Charge: 13.5V/12V-20mV/°C Average Charge: 14.4V/12V-25mV/°C
Charge Method	Standby use: 2.275 ± 0.025V/Cell Temperature parameter: ± 3 mV/Cell °C Cycle use: 2.45 ± 0.05V/Cell Temperature parameter: ± 5 mV/Cell °C
Cover Material	ABS Engineering Plastic
Terminal	Lead Output/Terminal Output(You choose)
Capacity Affected by Temperature	105 % @ 40°C 85 % @ 0°C 60 % @ -20°C
Capacity Affected by Timr	One month 25°C 97%
	Three month 25°C 92%
	Six month 25°C 88%

- Notes:**
- 1) Life expectation: 5 years
 - 2) By parallel to have batteries with different power capacity (Ah)
 - 3) Need to charge or discharge if no using in one month.
 - 4) Avoiding connection of any metal materials with electrodes.

1.3 Regulartors (integrated microprocessor):

序号	Items	Specifications
1	Rated voltage	12V
2	Rated charging current	5A
3	Rated load current	3A
4	Over discharging stop voltage	11.5V
5	Over discharging recovery voltage	12V
6	Over charging stop voltage	13.5V
7	Working temperature	从-20°C--- +70°C
8	Relative humidity	≅90%
9	Temperature factor	-3mV/°C

Notes: 1) Has mult-functions to prevent over charging or discharging, shut-cut etc to achieve stable operation.

2) When connection, first to battery, then to solar module, last to lights.

1.4 Project solution configuration:

By proper choosing different solar module and battery plus regulator, can have different power System required by the project. For 8 nms, we may use 80w solar power and 80Ah battery.

