





## SOLAR MODULES

### Features & Performance





Our PV modules have been certified by the TUV, CE, CSA; SKY ENERGY is certified by ISO9001, ISO14001, OHSAS18001 etc. As a leading PV manufacturer in Indonesia, our prioritized goal is to keep developing and producing high quality and high efficiency modules.


-  **Maximum Power: 220Wp**
-  **Module Efficiency: 16.84%**
-  **Product Warranty: 10 years**
-  **Power Warranty: 10 years  $\geq 90\%$   
25 years  $\geq 80\%$**

**ST48M220/215/210**  
**ST48M205/200/195**  
**ST4M190/185**


#### Mechanical Property

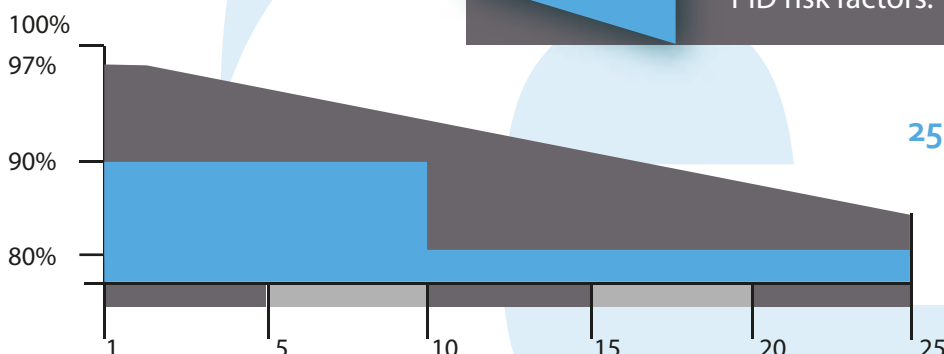
-  Snow loads up to 5400Pa
-  Wind loads up to 2400Pa

#### Low Light Performance

-  Excellent performance under low light (morning, evening and cloudy days)

#### High Durability

-  Durable PV modules, independently tested for harsh environmental conditions, such as exposure to salt mist, ammonia and known PID risk factors.



**25 Years Linear Warranty**



### Electrical Performance (STC : AM 1.5, 1000W/m<sup>2</sup>, 25°C)

Module Type	ST48M220	ST48M215	ST48M210	ST48M205	ST48M200	ST48M195	ST48M190	ST48M185
Maximum Power (Pmax / W)	220	215	210	205	200	195	190	185
Power Tolerance	0 ~ +3%							
Maximum Power Voltage (Vm / V)	25.8	25.3	25.0	24.8	24.5	24.3	24.1	23.8
Maximum Power Current (Im / A)	8.55	8.51	8.43	8.28	8.19	8.06	7.91	7.78
Open Circuit Voltage (Voc / V)	30.6	30.3	30.2	30.0	29.9	29.7	29.6	29.2
Short Circuit Current (Isc / A)	9.21	9.07	8.97	8.86	8.82	8.77	8.70	8.68
Module Efficiency (%)	16.84	16.45	16.07	15.69	15.30	14.92	14.54	14.16

### Electrical Performance (NOCT : wind speed 1m/s, 800W/m<sup>2</sup>, 20°C)

Module Type	ST48M220	ST48M215	ST48M210	ST48M205	ST48M200	ST48M195	ST48M190	ST48M185
Maximum Power (Pmax / W)	161	157	153	150	146	142	139	135
Maximum Power Voltage (Vm / V)	23.4	23.0	22.7	22.5	22.2	22.0	21.9	21.6
Maximum Power Current (Im / A)	6.86	6.83	6.76	6.64	6.57	6.46	6.34	6.24
Open Circuit Voltage (Voc / V)	28.3	27.9	27.8	27.6	27.5	27.3	27.2	26.9
Short Circuit Current (Isc / A)	7.45	7.33	7.25	7.16	7.13	7.09	7.03	7.02

### Mechanical Properties

Dimensions (LxWxH / mm)	1320x990x35
Weight (Kgs)	13.6
Solar Cells	Monocrystalline 156x156mm
No. of Cells	48 (6x8)
Glass	3.2mm low-iron tempered glass
Frame	Anodized aluminum alloy
Junction box	IP 65 above, 3 bypass diode
Cables	4mm <sup>2</sup> , length 1000mm
Connectors	IP67, MC4 compatible

### Operation Conditions

Maximum System Voltage (VDC)	1000 (IEC) / 600 (UL)
Maximum Series Fuse Rating (A)	15
Operating Module Temperature (°C)	-40 to +85

### System Design

Hail safety impact velocity	D 25mm at 23mm/s
Static Load (Front/Back)	5400Pa/2400Pa
Application class	Class A
Fire safety class (IEC61730)	Class C

### Packing Configuration

Container Sizes	20GP	40HC
Pieces per pallet	28	28/33
Pallets per Container	16	16+16
Total pieces	448	976

### Temperature Properties

Normal Operating Cell Temperature	45±2 °C
Temperature Coefficient of Pm	-0.38 %/°C
Temperature Coefficient of Voc	-0.356 %/°C
Temperature Coefficient of Isc	+0.056 %/°C

