AE SOLAR
alternative energy
It's time to save the world!

TECHNICAL DATA
AE SMM6-72 Series 325W-350W

ELECTRICAL DATA

		AE325SM M6-72	AE330SM M6-72	AE335SM M6-72	AE340SM M6-72	AE345SM M6-72	AE350SM M6-72
Nominal power	Pm (Wp)	325	330	335	340	345	350
Open circuit voltage	Voc (V)	46.62	46.74	46.84	46.94	47.08	47.23
Short-circuit current	Isc (A)	9.34	9.38	9.43	9.48	9.51	9.55
Voltage at max power	Vmp (V)	38.54	38.72	38.85	39.09	39.34	39.46
Current at max power	Imp (A)	8.43	8.52	8.62	8.70	8.77	8.87
Module efficiency	(%)	16.38	16.63	16.86	17.14	17.39	17.64
System Voltage	(V)	1000					
Temp. coefficient Voc	(%/°C)	-0.33					
Temp. coefficient Isc	(%/°C)	0.059					
Temp. coefficient Pm	(%/°C)	-0.41					
Operating temp.	(°C)	-40 to +85					
NOCT	(°C)	45±2					

The electrical data apply to standard test conditions (STC): Irradiance of 1000 W/m² with spectrum AM 1.5 and a cell temperature of 25°C.

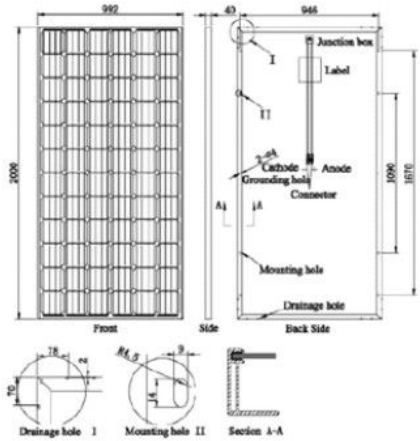
TECHNICAL DATA

Junction box	IP 67
Wire cross section (Ø, mm²)	4.0 / AWG 12
Cable length (mm)	900 or 1100
Connector type	MC 4 / MC 4 compatible
Dimensions (L x W x H, mm)	2000 x 992 x 40
Weight (kg)	24
Specification (mm)	Mono 156 / 6 x 12
Hail resistance	Max. Ø 28 mm, at 23 m/s
Wind load	2400Pa / 244kg / m²
Mechanical load	5400Pa / 550kg / m²

PACKAGING INFORMOTION

Packing configuration	54pcs / pallet
Loading Capacity	594pcs / 40HQ
Size / pallet (mm)	2040 x 1120 x 2335

SCALE



SOLAIRE ENERGY SYSTEMS

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SOLAIRE ENERGY SYSTEMS INTRODUCES SMART SOLAR MODULES

SES now optimizes commercial PV with our unique solutions of integrated solar panels as under:

a) AE smart solar modules

b) DC power optimizers

c) Sunsniffer system integrated with the ae smart modules

AE SMART HOT-SPOT FREE MODULE
AE SMM6-60 Series 275W-300W

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POWER RANGE
Plus-Sorting 0 to + 4,99WP

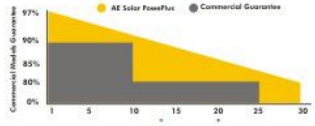
PID RESISTANT
Potential induced degradation free

SALT CORROSION RESISTANT
Certified for salt rich environment

SAND RESISTANT
Certified for sand rich environment

AMMONIA RESISTANT
Certified for ammonia rich environment

OUR PERFORMANCE GUARANTEE



PID RESISTANT
SALT MIST RESISTANT
SAND RESISTANT
CORROSIVE GAS (NH3)

CEC CE

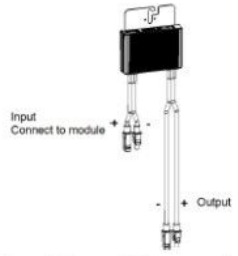


Figure 1: Power optimizer connectors

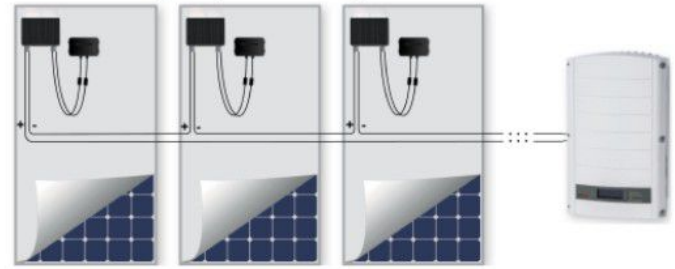


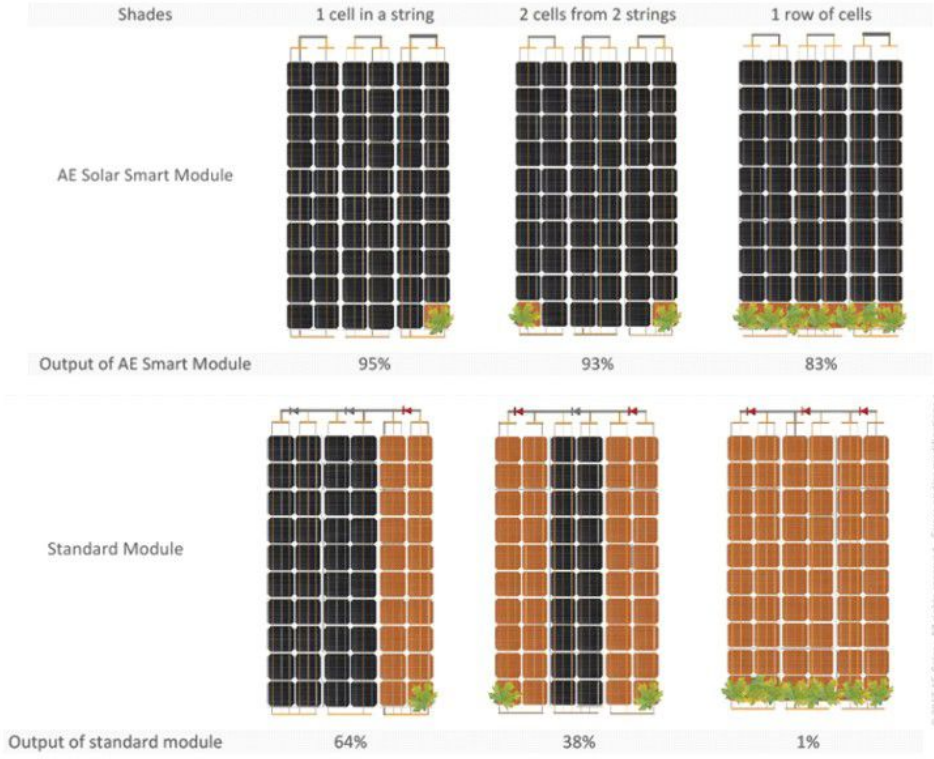
Figure 2: Power optimizers connected in series

Our AE Smart Modules in combination with the DC Optimizer increases the Power Output of any System installed in different orientations & partially shaded conditions as detailed below:

The system is conceptualised for :

a. Any type of roof weather east/west/south/north facing roof due to its unique design based on SOLAR EDGE system.
b. The modules used are smart modules which do not decrease the power of the string due to shading eg:
   i) If 1 cell of module is shaded then the output of the module will be 95% of module capacity ieloss of 5% in output compared to the standard module where the output becomes nearly 64% of module capacity ie loss of 36%
   ii) Similarly 2 cells shaded then output of module is 93% .loss is only 7% & if 1 row of cells are shaded then the output of the module is 83% . loss of 17 % only
   iii) The above is because of the latest module technology which protects each cell by an individual bypassdiode .

AE Smart Module Principle Of Working



When multiple cells are in shade, a hot-spot free module can generate up to 80% more power, compared to a standard module

It prevents sharp fall in module outpul caused by hot spots or module shading, also with the smart optimizer, reducing current and voltage mismatch to significantly increase in overall return for both rooftop and ground mounted installations.

Drastic reduced temperature on hot-spot cells from 160oC to 85oC henceforth eliminates the potential hazards such fire and material degradation and ensures better safety, log life and high returns.

DC OPTIMIZERS INTEGRATED WITH THE MODULE JUNCTION BOX
Our DC Optimized Inverter solution have the following unique advantages:

- **Reduced Balance of System Cost** due to lower DC Strings/Cables
- Avoids Module mismatch loss & **increases the Power generation**
- **Module Level Monitoring capability** & Free Monitoring system)
- Can accommodate more modules on the roof due to shadow tolerance
- **Flexible Design options** - Allow Multiple Tilt/ orientation of Modules in one Optimizer string
- Allow **Future compatibility of Modules** & avoided Module Inventory costs
- **Reduced O& M costs** due to pinpoint alerts from monitoring system & effective fleet management.
- **Long Term Warranty.. 12 Years for Inverters(with 25 years of extended warranty option) & 25 Years for Optimizers.**
- **Full-fledged Local Service**

DC Power optimizers enable installation of:
Modules in partially shaded areas
Strings of uneven lengths
Strings in multiple orientations and different roof facets

The optimizer integrated sun sniffer AE smart solar modules do not get affected by the shading effect due to trees, passing of clouds,neighbouring buildings & any other means.
The shading effect is minimal in our integrated panel due to our unique design which increases your energy yield & gives you faster return on your investment.
but this energy yield also gets affected due to passage of time as modules are not performing /working properly. this happens during their lifetime due to varied reasons viz:

a) Hot spots caused because of badly soldered connections/structural defects in the cell cause selective heat productions at those spots. any hot spot is a power leakage
b) Defective diodes ,1 defective diode reduces the module's voltage by 66% & 2 diodes by 33%
c) PID which reduces the performance of module if not detected in time & corrective action not taken timely all the above problems if not detected in time reduces the pv plant output for which our sun sniffer enabled smart modules detect the fault by measuring the power of each module alongwith temperature of module.

SUN SNIFFER integrated module system this consists of :
a) Sun Sniffer sensorwhich measures the voltage & temp which arelinked with the module serial no& sent to the stringreader
b) Sun Sniffer string reader: this reads the module data every 30 secs & sends the same of each string via rs 485 to the gateway. max 30 modules per string is its capacity
c) Sun Siffer gateway : this receives the data from every stringreader & sends via any desired internet router to the webportal
d) Sun Sniffer webportal:this analyzes the plant's data to module level .analysis is made by artificial intelligence & simulation engine & points directly to problems in an easy to understand way.
e) Optional Sun Sniffer rapid shutdown sensor:this is integrated in the b of the module .in case of emergency the electrical current is cut off at its origin . the Sun Sniffer gateway contnuously sends the signal, permission to operate to the sunsniffer sensors . 10 secs after absence of this signal the system switches to shutdown mode & de energizes the complete system to risk free voltage for max. safety

Special Functions of Webportal:
I) Intelligent warning system: performance variations of every component of module on a percentage basis are individually adjustable eg performance loss can be set at 10% -so warnings will be sent only when the performance of a module drops below this value
ii) Yield Gain &loss Calculations : all relevant data & values of same are shown.it even shows the additional gain obtained by an early module exchange . all modules with performance reductions together with yield reductions are displayed together. it also displays weather an exchange of module is economically viable
iii) Warranty Calculations : the webportal shows exactly the performance losses & therefore warranty claims are easy :sufficient way to prove in the field . depending on the manufacturer the respective thresholds can be set
iv) Maintenance plan for technicians on site(or app) :service engineers just need the printed maintenance plan:it will show exactly which modules need service & what to do/use the sunsniffer app which guides through the whole repair/exchange process step by step & instantly documents the service

Every module data is monitored remotely by the sunsniffer webportal which analyses the plant data down to the module level & in plantview you can see all modules where they are located & if they have a problem. Modules with problems are marked yellow & u can get a list of affected modules with voltage losses & the intervention calculator shows which modules are defective & should be changed/action to be taken. Complete documentation of the system can be received from the sunsniffer portal thereby alerting the plant owner on possible power losses of the plant thereby incresing the plant yield &roi