

Part 1: Solar Module



ACGS AG

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PRODUCT CERTIFICATION



- IEC 61215_61730
- IEC 60068_Dust and Sand
- IEC 61701_Salt Mist Corrosion
- IEC 62716_Ammonia Corrosion
- IEC 62759_Packing & Transportation
- IEC 62804_PID
- IEC 61853_PAN File Test
- CE Certificate
- LAPI_Italy Fire Reaction (Italy)
- LETID Certificate
- MCS Certificate (UK)
- DEWA Listing
- WEEE (Module Recycling)
- PV-Cycle (Module Recycling)

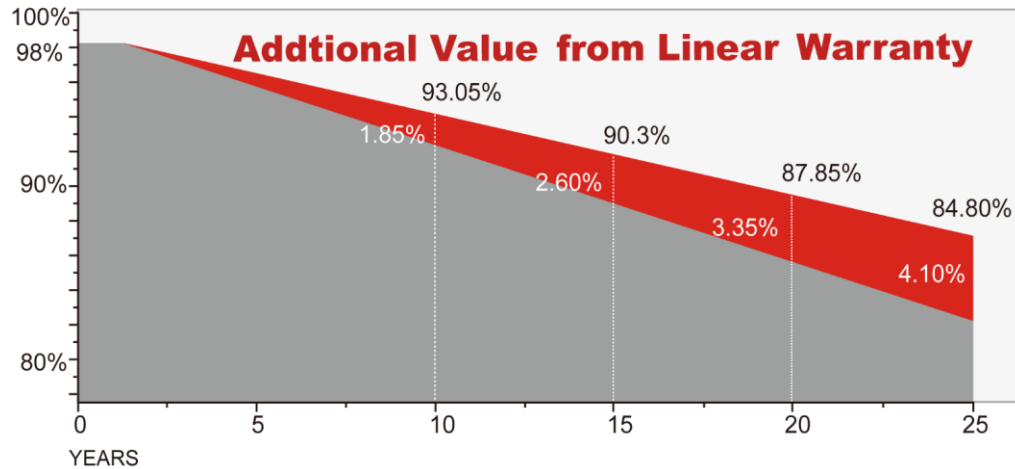


PRODUCTS INTRODUCTION



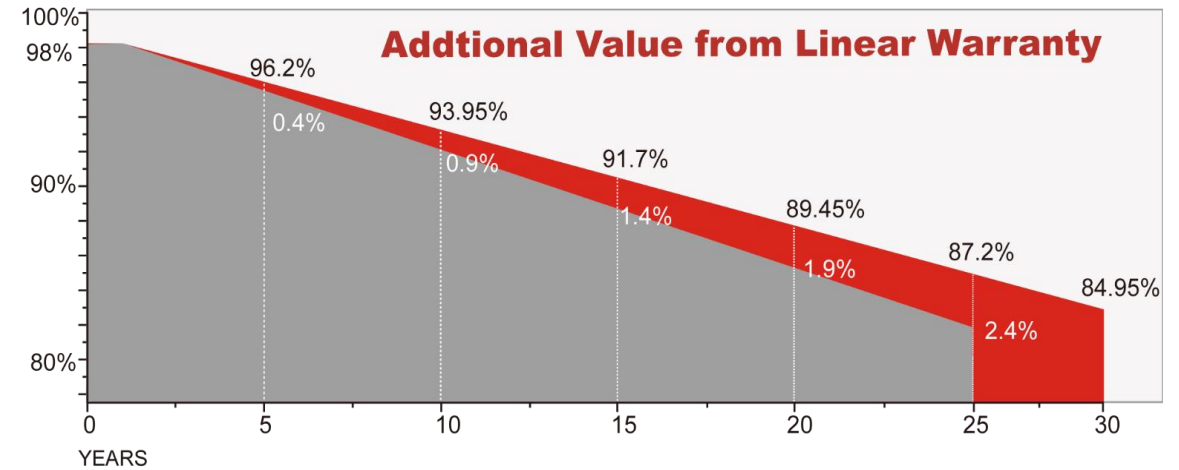
- Product Warranty: **15 years**
- Output Warranty: **25-30 years**
- Degradation(for the first year): **$\leq 2\%$**

LINEAR DEGRADATION $\leq 0.55\%$



Monofacial Modules

LINEAR DEGRADATION $\leq 0.45\%$



Bifacial Modules

OUR PARTNER

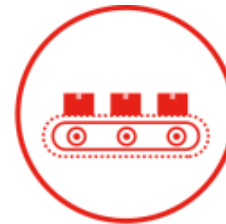
Founded in 2011, Our partner has become a respected leader in the photovoltaic manufacturing industry. By the end of 2021, the company has a global production capacity of 7.5GW, and is listed as a Tier 1 solar module manufacturer by BNEF, as well as the Top Performer by PV Evolution Labs. Seraphim is committed to R&D and has been awarded more than 100 technical patents. By the end of 2021, 14GW of Seraphim products have been installed in over 40 countries.



1500+
Global Employees



7.5GW
Capacity



40 Destination Countries
14GW Shipment



50+ Global Financial
Partners



100+
R&D Technicians



100+
Technical Patents



Tier 1 Solar Module Maker
Listed by BNEF



Top Performer Liste
by **PVEL**



TECHNOLOGICAL ADVANCEMENT

Our product innovation delivers consistently great value to the customers in reaching their goals. We have been launching ground-breaking new products and to date have been granted over 100 technological patents.

- High efficiency module combined with shingling and half-cell technology using mono PERC cells
- Launched Mini Eclipse module
- P Type PERC bifacial module development
- Rapid shutdown and optimization module

2018

- 166 MBB half-cell module R&D and mass production
- 182 MBB half-cell module R&D and mass production
- HJT half-cell module R&D and mass production
- HJT shingled module R&D and mass production

2020

- 218.2 module R&D and mass production

2022

2017

- 1500V module development
- High-reflective ribbon and EVA application
- Launch Blade module (half-cell technology), up to 2% power output gain
- 5BB cell application (in standard and half-cell module)

2019

- Large size cell application, also combine with half-cell technology
- P type PERC bifacial module enter mass production
- 158.75 cell module R&D and mass production
- PERC half-cell bifacial module mass production

2021

- 182 half-cell module R&D and mass production
- 210 half-cell module R&D and mass production









STRINGENT QUALITY CONTROL






Quality is our core value. With the unceasing efforts, we have developed our exclusive quality management system based on international advanced management experience.

MATERIAL CONTROL

-  Stringent Supplier Management
-  Automatic Material Filtration and Sorting
-  Spot Check Every Feedstock Batch
-  Proper Storage at Fixed Temperature and Humidity
-  Supplier Quality Engineering
-  Incoming-material Quality Assurance

PRODUCTION CONTROL

-  300+ Quality Check Points
-  100% 3x EL Testing
-  In-process Quality Control

AFTER PRODUCTION

-  Open Box Audit (OBA) Test

Our product has received certifications for Quality Management Systems (ISO 9001:2015), Environment Management System (ISO 14001:2015) and Occupational Health and Safety Management System (ISO45001:2018) from both PV Evolution Labs and GZCC.



PROVEN TOP QUALITY



PVEL: PASSED PQP

Seraphim passed the strictest accelerated stress testing and performance characterization under PV Evolution Labs Product Qualification Program (PQP). The PQP is a comprehensive evaluation of environmental sensitivities and degradation mechanisms of PV module designs.



THE FIRST COMPANY TO PASS 3X IEC TEST



OUR PRODUCTS INTRODUCTION



Mainstream: 182mm SRP-BMA-HV Mono PERC

540W	545W	550W
20.89%	21.08%	21.28%

Mainstream: 182mm SRP-BMB-HV Mono PERC

450W	455W	460W
20.78%	21.01%	21.25%

Mainstream: 182mm SRP-BMD-HV Mono PERC

405W	410W	415W
20.64%	20.89%	21.15%



PRODUCTS INTRODUCTION



Mainstream: 210mm SRP-BMC-HV Mono PERC

660W	665W	670W
21.25%	21.41%	21.57%

Mainstream: 210mm SRP-BMB-HV Mono PERC

600W	605W	610W
20.20%	21.38%	21.55%



SRP-(410-420)-BMD SERIES

Mechanical Specifications

External Dimension	1722 x 1134 x 28 mm
Weight	18.5 kg
Solar Cells	PERC Mono crystalline(108 pcs)
Front / Back Glass	1.6mm AR coating semi-tempered glass, low iron
Frame	Anodized aluminium alloy
Junction Box	IP68, 3 diodes
Output Cables	4.0mm ² , 250mm(+)/350mm(-) or Customized Length

Packing Configuration

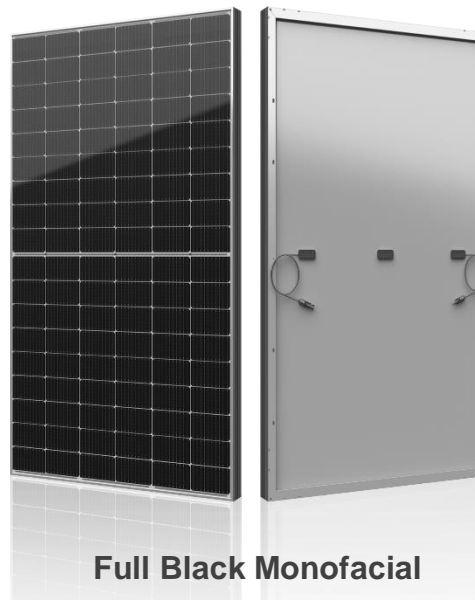
Container	20'GP	40'HQ
Pieces per Pallet	39	39
Pallets per Container	6	26
Pieces per Container	234	1014

Application Conditions

Maximum System Voltage	1500V DC
Maximum Series Fuse Rating	25 A
Operating Temperature	-40~+85 °C
Nominal Operating Cell Temperature	45±2 °C
Bifaciality	70%±10%
Mechanical Load	Front side 5400 Pa / Back side 2400 Pa



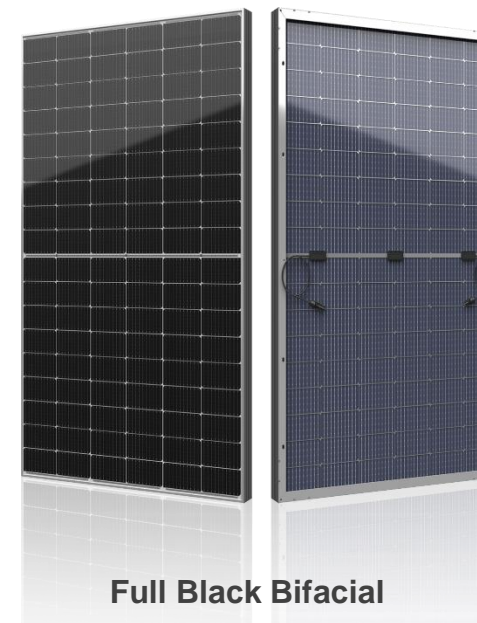
Monofacial



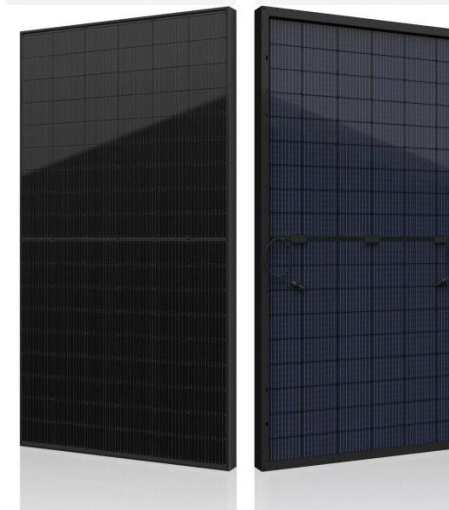
Full Black Monofacial



Bifacial



Full Black Bifacial



SRP-(445-460)-BMB SERIES



Monofacial



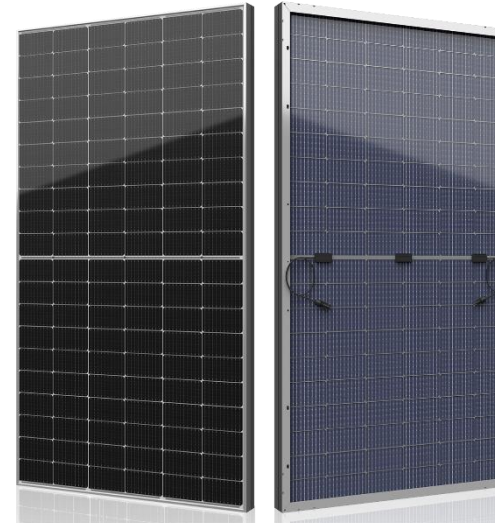
Mechanical Specifications

External Dimensions	1909 x 1134 x 35 mm
Weight	22.3 kg
Solar Cells	PERC Mono (120 pcs)
Front Glass	3.2mm AR coating tempered glass, low iron
Frame	Anodized aluminium alloy
Junction Box	IP68, 3 diodes
Output Cables	4.0mm ² , 250mm(+)/350mm(-) or Customized Length
Mechanical Load	Front side 5400Pa/ Rear side 2400Pa

Packing Configuration

	1909 x 1134 x 35 mm	
Container	20'GP	40'HQ
Pieces per Pallet	31+4*	31
Pallets per Container	5	24
Pieces per Container	175	744

Bifacial



Mechanical Specifications

External Dimension	1909 x 1134 x 30 mm
Weight	27.3 kg
Solar Cells	PERC Mono crystalline(120 pcs)
Front / Back Glass	2.0mm AR coating semi-tempered glass, low iron
Frame	Anodized aluminium alloy
Junction Box	IP68, 3 diodes
Output Cables	4.0mm ² , 250mm(+)/350mm(-) or Customized Length

Packing Configuration

Container	20'GP	40'HQ
Pieces per Pallet	36	36
Pallets per Container	5	24
Pieces per Container	180	864

EXTENSIVE PRODUCT RANGE



Diversified products meet diverse customer needs. In order to adapt to different application scenarios such as residential, commercial, industrial and utility projects, Seraphim has developed a variety of PV products, including the S3 series, S4 series, S5 series, and two smart PV solutions.

In order to achieve the ultimate cost-effective, seraphim launched a new generation of ultra-high efficiency modules in 2022, the S5 series. The new series integrated 210mm silicon wafers, with PERC, multi-busbar cell technology and high-density encapsulation, increasing the module efficiency up to 21.6%. The power output of the two formats, 60 and 66, has officially entered the era of 600W.

SV SERIES

SV SERIES



- Module efficiency is up to 21.6%
- Outstanding performance at low irradiance
- Less mismatch and parallel design reduce shading impact
- Lower risk of hot spot effects
- Significantly lower LCOE and more BoS savings



SV BIFACIAL SERIES



- Using reflected light, 10-30% more energy generation.
- Dual glass structure reduces micro-cracks, snail trails, and UV aging
- Less mismatch and parallel design reduce shading impact
- Lower risk of hot spot effects
- Significantly lower LCOE and more BoS savings

EXTENSIVE PRODUCT RANGE

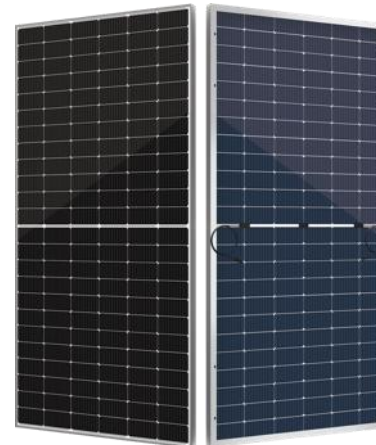
Our product launched the S4 series module in the fall of 2020. The series, specifically for large-scale PV power plants, integrates 182mm silicon wafers with PERC, multi-busbar, half-cell technologies and high-density encapsulation.

SIV SERIES



- 500W+ ultra-high power with 21% module efficiency
- High density encapsulation reduces the cell spacing to 0.5mm
- Lower internal loss and the risk of micro-cracking due to multi-busbar cells
- Significantly lower LCOE, and more BoS savings
- Perfect for utility scale projects

SIV BIFACIAL SERIES



- Using reflected light, 10-30% more energy generation
- High density encapsulation reduces the cell spacing to 0.5mm
- Lower internal loss and the risk of micro-cracking due to multi-busbar cells
- Significantly lower LCOE and more BoS savings



EXTENSIVE PRODUCT RANGE

Our product redefined the high-efficiency module series by integrating 166mm silicon wafers with multi-busbar and half-cut cell technologies, and developed the S3 Series and its Bifacial Series. This series brings more BoS savings and significantly lower LCOE.

SIII SERIES



- Up to 20% module efficiency
- Excellent low irradiance performance
- Less mismatch and parallel design reduce shading impact
- Superior temperature coefficient characteristic
- Effectively reduce hot-spot effects
- Significantly reduce LCOE and BoS cost

SIII BIFACIAL SERIES



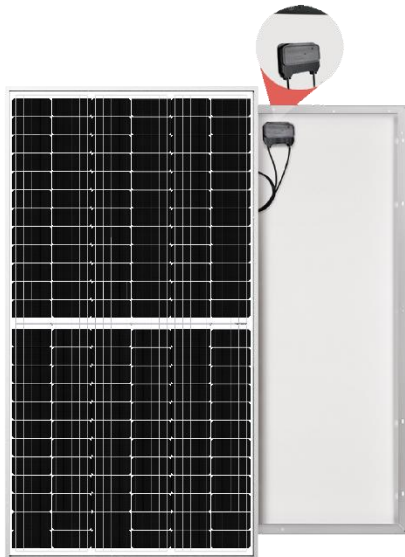
- Using reflected light, 10-30% more energy generation
- Class A fire resistance
- Excellent low irradiance performance
- Less mismatch and parallel design reduce shading impact
- Dual glass structure reduces micro-cracks, snail trails, and UV aging



EXTENSIVE PRODUCT RANGE

In line with product demand of specific applications, Our product has developed several smart solar solution platforms, whereby we combine standard modules with either a Maxim cell-string level DC optimizer, a Tigo smart junction box, or a SolarEdge optimizer to increase system design flexibility and compatibility.

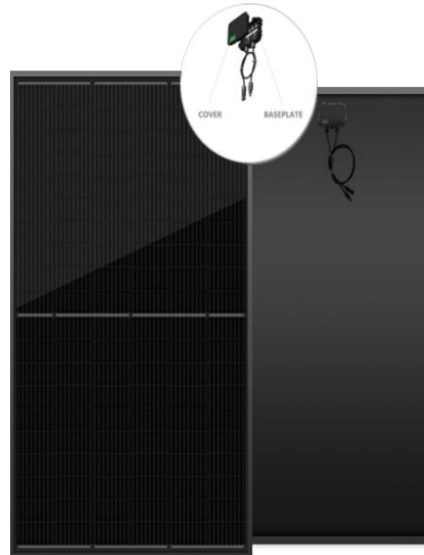
SERA. MX



- For Commercial and residential roofs
- Up to 25% more output than DC array
- Advanced cell-string level DC optimizer
- Flexible system design
- Significantly reduce BoS cost



SERA. SMART



- Enhanced J-Box heat dissipation capacity
- Quick field replacement and upgrades
- Smart installation with super integrated design
- Enhanced system reliability
- Fully compatible and multifunctional