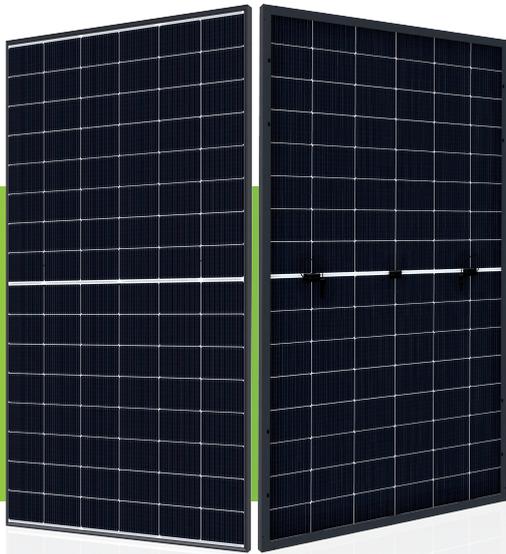


ELNSM48M-HC-HV-N Series



**MBB HC BIFACIAL
RECTANGULAR TOPCON CELL
PV MODULE
435 - 460W**

Bifacial N Type Glass Backsheet Series

Sirius redefined the high-efficiency module series by integrating 182*210 mm silicon wafers with multi-busbar and half-cutcell technologies. Sirius combined creative technology with 182*210 mm N Type module. This caused effectively and extremely improved the module efficiency and power output.

KEY FEATURES



With the composite frame, lower carbon footprint, severe weather endurance, enhanced PID protection and exceptional corrosion shielding.
(These features are only valid when the composite frame is used.)



Less mismatch to get more power.



Less power loss by minimizing the shading impact.



Competitive low light performance.



SMBB Technology
Better light trapping and current collection to improve module power output and reliability.



In stringent environment condition:
• Sand, acid, salt and hailstones
• 2400 Pa wind load and 5400 Pa snow load.
• PID free



3 times EL test to ensure best quality

QUALITY SYSTEM

- ISO 9001:2015 / Quality Management System
- ISO 14001:2015 / Environmental Management System
- ISO 45001: 2018 / Occupation Health Safety Management System
- ISO 50001:2018 / Energy Management System
- ISO 27001:2013 / Information Security Management System
- ISO 10002:2018 / Customer Satisfaction Management System
- ISO 37001:2016 / Anti-bribery Management Systems
- ISO 26000:2021 / Social Responsibility Management System

PRODUCT CERTIFICATION



IEC 61215 / 61730 , IEC 62804 (PID)
TS EN 61215 , TS EN 61730
UL 61730-1 , UL 61730-2

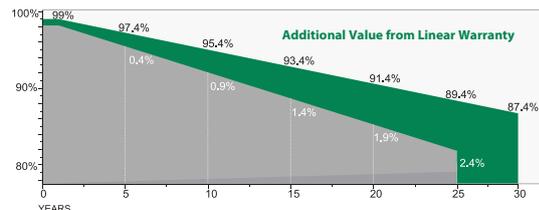
WARRANTY



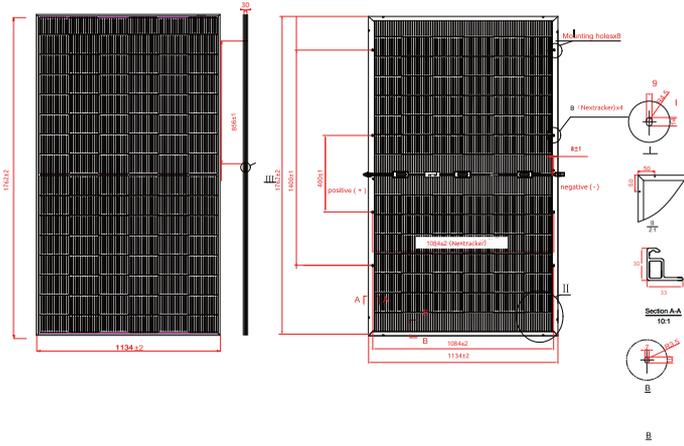
12 YEARS Guarantee on Product



30 YEARS Linear Power Output Warranty



ELNSM48M-HC-HV-N Series



MECHANICAL SPECIFICATIONS

External Dimension	1762 x 1134 x 30 mm
Weight	22.6 kg
Solar Cells	Topcon 182 x 105 mm (96 pcs)
Glass	3.2 mm AR coating tempered glass, low iron
Frame*	Composite (Black)
Junction Box	IP68, 3 diodes
Output Cables	4.0mm ² (IEC), 12 AWG (UL)
Cable Length**	350 mm (+) / 350 mm (-) or Customized Length
Packing Configuration	36pcs / Pallet, 864pcs / 24Pallet / 40' Container

*The frame is constructed from composite materials. If an aluminum frame is selected, it can be customized as silver/black.
 **Output cable lengths should be specified at the time of order.

ELECTRICAL SPECIFICATIONS (STC)

Module Type: ELNSM48M-HC-HV-N

	435	440	445	450	455	460
Maximum Power-P _{mp} (W)	435	440	445	450	455	460
Open Circuit Voltage-V _{oc} (V)	35.18V	35.38V	35.58V	35.78V	35.98V	36.18V
Short Circuit Current-I _{sc} (A)	15.75A	15.80A	15.85A	15.90A	15.95A	16.00A
Maximum Power Voltage-V _{mp} (V)	29.21V	29.41V	29.61V	29.81V	30.01V	30.21V
Maximum Power Current-I _{mp} (A)	14.90A	14.97A	15.03A	15.10A	15.17A	15.23A
STC Module Efficiency-η _m (%)	21.77%	22.02%	22.27%	22.52%	22.77%	23.02%

*Measurement Tolerance +/- 3%
 STC: Irradiance 1000W/m², module temperature 25°C, AM=1.5
 BNPI: front 1000 W/m² rear 135 W/m²

REAR SIDE POWER GAIN (ELNSM48M-HC-HV-N-450)

Module Type ELNSM48M-HC-HV-N

Power Gain	10%	15%	20%	25%	30%
Maximum Power-P _{mp} (W)	495	518	540	563	585
Open Circuit Voltage-V _{oc} (V)	35.78	35.78	35.78	35.78	35.78
Short Circuit Current-I _{sc} (A)	17.49	18.29	19.08	19.88	20.67
Maximum Power Voltage-V _{mp} (V)	29.81	29.81	29.81	29.81	29.81
Maximum Power Current-I _{mp} (A)	16.61	17.37	18.12	18.88	19.63

TEMPERATURE PARAMETERS

Power Tolerance (W)	(0, +4.99)
P _{max} Temperature Coefficient	-0.29 %/°C
V _{oc} Temperature Coefficient	-0.25 %/°C
I _{sc} Temperature Coefficient	+0.046 %/°C

APPLICATION CONDITIONS

Maximum System Voltage	1500 V DC
Maximum Series Fuse Rating	30 A
Operating Temperature	-40~+85°C
Nominal Operating Cell Temperature	45±2°C
Bifaciality	80%±5%
Mechanical Load	Ön Taraf 5400 Pa / Arka Taraf 2400 Pa
I _{sc} Temperature Coefficient	UL Type 4 / C Sinifi

Specifications included in this datasheet are subject to change without prior notice.
 Made in Türkiye.

ELECTRICAL SPECIFICATIONS (BNPI)

Module Type: ELNSM48M-HC-HV-N

	482	488	493	499	504	510
Maximum Power-P _{mp} (W)	482	488	493	499	504	510
Open Circuit Voltage-V _{oc} (V)	35.26V	35.46V	35.66V	35.86V	36.06V	36.26V
Short Circuit Current-I _{sc} (A)	17.45A	17.51A	17.56A	17.62A	17.67A	17.73A
Maximum Power Voltage-V _{mp} (V)	29.29V	29.49V	29.69V	29.89V	30.09V	30.29V
Maximum Power Current-I _{mp} (A)	16.46A	16.53A	16.61A	16.68A	16.75A	16.83A

BNPI: Front Side 1000 W/m², Rear Side 135 W/m².

I - V CURVE

