



PHILADELPHIA SOLAR
DELIVERING CLEAN ENERGY SOLUTIONS

NEXUS

PS-MNB108(HCBF)-xxxW

Half-Cell N-Type Bifacial Module

440 - 450 Watt

Positive power tolerance of 0 ~+3%



Philadelphia Solar's Mono-Crystalline N-type modules with power up to **450Wp** are produced using the state-of-the-art (automated) robotic production lines. These modules are suitable to be used for most electrical power applications and have excellent durability to prevailing weather conditions

CERTIFICATIONS

EN ISO 9001: 2015
Quality Management System
EN ISO 14001: 2015
Environmental Management System
EN ISO 45001: 2018
Occupational health and safety management systems



APPLICATIONS



On-Grid Commercial/
Industrial Roof-Tops



Off-Grid Systems
(Including Lighting Systems)



Solar Power Plants

FEATURES



Power output increases by 5-25% from the backside resulting in significantly reduced LCOE and (IRR).



Withstand High Mechanical load :
Front (5400 Pascal)
Back (2400 Pascal)



Exceptional Anti-PID performance through the use of optimized mass-production processes and strict materials control.



Improved light trapping and current collection technology enhance module power output and reliability.



Less partial shading current mismatch loss so more power output.

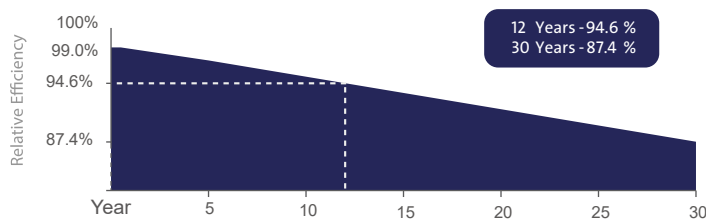


Better temperature coefficients come from half-cell design.



Made In Jordan

LINEAR PERFORMANCE WARRANTY



12 Years - 94.6 %
30 Years - 87.4 %



12 Year Product Warranty

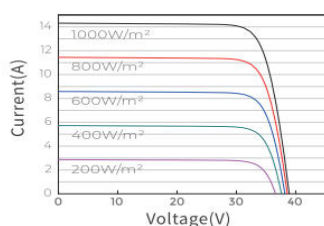


30 Year Linear Power Warranty

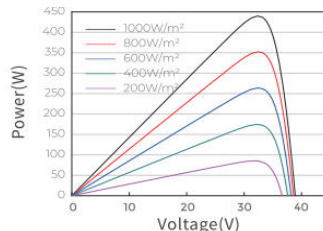


Only -0.4% Annual Degradation

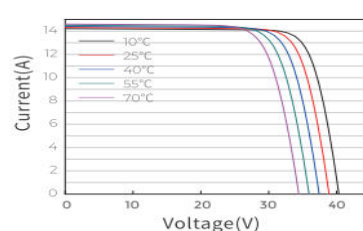
Electrical Performance & Temperature Dependence



Current-Voltage (440W)



Power-Voltage Curves (440W)



Current-Voltage Curves (440W)

ELECTRICAL CHARACTERISTICS			
POWER AT STC	440 W	445 W	450 W
Short Circuit Current - Isc (A)	14.30	14.39	14.47
Maximum Power Current - Impp (A)	13.36	13.40	13.44
Open Circuit Voltage - Voc (V)	38.63	38.71	38.84
Maximum Power Voltage - Vmpp (V)	32.98	33.24	33.51
Module Efficiency - η (%)	22.53%	22.79%	23.04%
Bifaciality Ratio (%)	80% $\pm$ 5		
Power tolerance (%)	0~+3%		

Values at Standard Test Conditions STC (Air Mass AM 1.5 , Irradiance 1000 W/m² , Cell Temperature 25° C).

MATERIAL CHARACTERISTICS		MODULE DRAWINGS	
Characteristics	Value		
Cells per Module	108 (54x 2)		
Cell Type	N Type (TopCon) Mono-Crystalline		
Front Surface	3.2mm Tempered AR Coated Glass		
Back Cover	Transparent Backsheet		
Frame	Anodized Aluminum (Black/Silver)		
Junction Box	IP 68With original MC4	Cross Section A-A&B-B	
Cable Length	1200mm Cable length could be customized		
Fire Classification	Type 1		
THERMAL CHARACTERISTICS		PHYSICAL CHARACTERISTICS	
Characteristics	Value	Characteristics	Value
Open Voltage Temperature Coefficient VOC (%/C°)	-0.25	Module Dimensions (mm)	1722 x 1134 x 30
Short Circuit Current Temperature Coefficient ISC (%/C°)	+0.046	Module Weight (kg)	20.5 $\pm$ 1kg
Power Temperature Coefficient PMP (%/C°)	-0.30	Packaging	Value
NOCT (°C)	45 $\pm$ 2	Modules per Pallet	37
OPERATING CONDITIONS		40 Feet High-Cube Container	962 Modules
		Mechanical Load**	Value
		Max Static load (Front)	5400 Pa
Maximum Sytem Voltage - Vmax (V)	1500	Max Static load (Back)	2400 Pa
Maximum Series Fuse (A)	30	Dynamic load	1000 Pa
Operating Temperature Range (°C)	IEC: -40 to +85 UL: -40 to +90		

- ◆ Tolerance of power Current and Voltage (ISC,VOC) $\pm$ 5 %
- ◆ Datasheet is subjected to change without prior notice, always obtain the most recent version of the datasheet.
- ◆ ** Caution: For professional use only, the installation and handling of PV modules and cleaning modules require professional skills and should only be performed by qualified professionals, please read the Installation and Operation Manual before using the modules, also Cleaning Guidelines