PHILADELPHIA SOLAR
DELIVERING CLEAN ENERGY SOLUTIONS

NEXUS

PS-MNB108(HCBF)-xxxW

Half-Cell N-Type 16BB Bifacial Module

425 - 440Watt

Positive power tolerance of 0 ~+3%

EUPD RESEARCH TOP BRAND PV MODULES 2024

Made In Jordan

Philadelphia Solar's Mono-Crystalline N-typemoduleswith powerupto**440Wp** areproduced using the state-of-the-art (automated)roboticproduction lines. These modules are suitable tobeusedformostelectrical powerapplicationsandhave excellentdurabilitytoprevailing weather conditions

CERTIFICATIONS

UL 61215 / UL 61730
IEC 61215 / IEC 61730
CSA C22.2#61730:2019
HALT TEST Highly Accelerated

Life And Extended Reliability Test
IEC 61853PAN File
IEC TS 62804PID Resistance
IEC 60068 Dust and Sand Resistance
IEC 62716Ammonia Resistance
IEC 61701 Salt Mist Resistance
Bankability Report
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

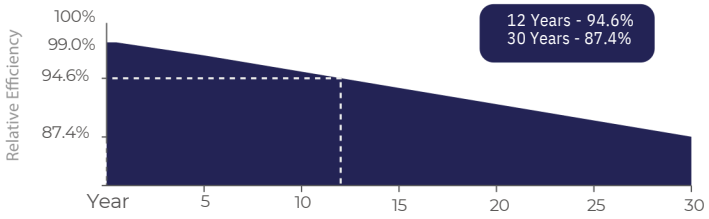
O -Grid Systems (Including Lighting Systems)

Solar Power Plants

FEATURES

- Power output increases by 5-25% from the backside resulting in significantly reduced LCOE and (IRR).
- Withstand High Mechincal load : Front (5400 Pascal) Back (5400 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.

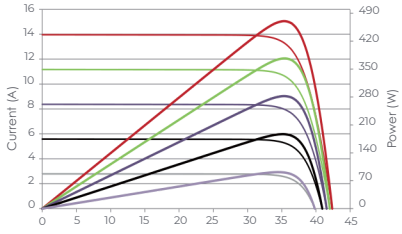
LINEAR PERFORMANCE WARRANTY



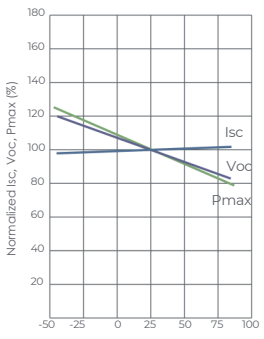
- **12** Year Product Warranty
- **30** Year Linear Power Warranty
- Only **-0.4%** Annual Degradation

Electrical Performance & Temperature Dependence

Current-Voltage & Power-Voltage Curves (430W)



Temperature Dependence of Isc,Voc,Pmax



ELECTRICAL CHARACTERISTICS
POWER AT STC

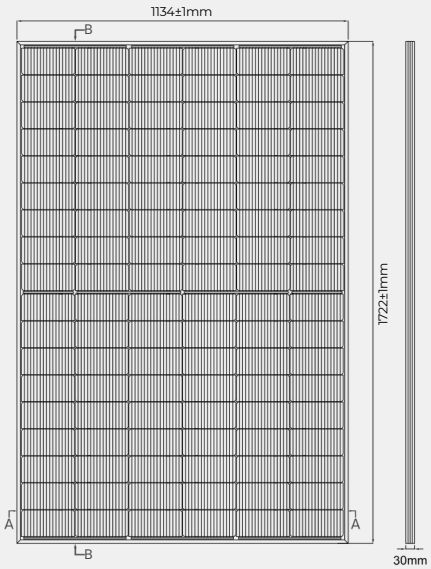
	425 W	430 W	435 W	440 W
Short Circuit Current - Isc (A)	14.05	14.13	14.22	14.30
Maximum Power Current - Impp (A)	13.23	13.28	13.32	13.36
Open Circuit Voltage - Voc (V)	38.29	38.42	38.50	38.63
Maximum Power Voltage - Vmpp (V)	32.23	32.49	32.76	32.98
Module E€ciency - η' (%)	21.80%	22.05%	22.31%	22.57%
Bifaciality Ratio (%)	80% ± 5			
Power tolerance (%)	0~+ 3%			

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

MATERIAL CHARACTERISTICS

Characteristics	Value
Cells per Module	108 (54x 2)
Cell Type	N Type Mono-Crystalline
Front Surface	3.2mm Tempered AR Coated Glass
Back Cover	Transparent Backsheet
Frame	Anodized Aluminum(Black/Silver)
Junction Box	IP 68 With original MC4
Cable Length	1200mm Cable length could be customized
Fire Classification	Type 1

MODULE DRAWINGS



THERMAL CHARACTERISTICS

Characteristics	Value
Open Voltage Temperature Coe€cient VOC (%/C°)	-0.25
Short Circuit Current Temperature Coe€cient ISC (%/C°)	+0.046
Power Temperature Coe€cient PMP (%/C°)	-0.30
NOCT (°C)	45±2

OPERATING CONDITIONS

Maximum Sytem Voltage - Vmax (V)	1500
Maximum Series Fuse (A)	30
Operating Temperature Range (°C)	IEC: -40 to +85 UL: -40 to +90

PHYSICAL CHARACTERISTICS

Characteristics	Value
Module Dimensions (mm)	1722 x 1134 x 30
Module Weight (kg)	20.5± 1K g

Packaging	Value
Modules per Pallet	37
40 Feet High-Cube Container	962 Modules

Mechanical Load**	Value
Max Static load (Front)	5400P a
Max Static load (Back)	5400P a
Dynamic load	1000 Pa

- Tolerance of power Current and Voltage (ISC,VOC)+-3 %
- 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

Updated 2 Sep 2024

MIN 8200~11400TL-XH-US

- Battery Ready for DC Coupled and AC coupled system
- Support backup power and dark start operations
- With Rapid shutdown solution & AFCI integrated
- Integrated EMS, support multiple energy management modes:self-consumption, zero export,TOU and off-grid
- UL1741SA, CA Rule 21 & HECO compliant
- Built-in 4G/Wi-Fi Comm. with APP. IoT integrated Cloud and monitoring

POWER-ING TOMO-RROW

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Datasheet	MIN 8200TL-XH-US	MIN 9000TL-XH-US	MIN 10000TL-XH-US	MIN 11400TL-XH-US
Input Data (PV)				
Max. Recommended PV Power(STC)	16400W	18000W	20000W	22800W
DC/AC Ratio	2			
Max. DC Voltage	600V			
Startup Voltage	50V			
Nominal Voltage	360V			
Operating MPPT Range	50~550V			
No. of MPP Trackers	4			
No. of PV Strings per MPP Trackers	2			
Max. Input Current per MPP Trackers	13.5A			
Max. Short-circuit current per MPP trackers	16.9A			
Input/Output Data (DC)				
Battery Voltage Range	360V~550V			
Nominal DC Voltage	400V			
I/O DC Current	14.3A			
I/O DC Power	5000W			
Battery Technology	LFP			
Battery Capacity per Module	9.9kWh			
Scalability	Up to 2			
Output Data (AC)				
AC Nominal Power @240V AC	8200W	9000W	10000W	10000W
Max. AC Apparent Power	8200VA	9000VA	10000VA	11400VA
Nominal AC Voltage	208V/240V			
AC Voltage Range @208V AC @240V AC	183V~229V/211V~264V			
AC Grid Frequency	50/60Hz			
AC Grid Frequency Range	45~65Hz			
Max. Output Current	42A	45A	47A	47A
Power Factor(@Nominal Power)	>0.99			
Adjustable Power Factor	0.8 leading~0.8 lagging			
THDi	<3%			
AC Grid Connection Type	L1/L2/N/PE			
Output Data (Backup)				
AC Nominal Power	10000W			
Max. AC Power Output	11400VA			
Nominal AC Voltage	240V			
Max. Output Current	47A			
THD	5%			
Efficiency				
Max. Efficiency	98.50%			
CEC Efficiency	98.00%			
Protection Devices				
DC Reverse-polarity Protection	Yes			
DC Switch	Yes			
DC Surge Protection	Type II			
Insulation Resistance Monitoring	Yes			
AC Surge Protection	Type III			
AC short-circuit Protection	Yes			
Ground Fault Monitoring	Yes			
Grid Monitoring	Yes			
Anti-islanding Protection	Yes			
Residual-current Monitoring Unit	Yes			
AFCI Protection	Yes			
General Data				
Dimensions (W / H / D)	15.8/25.2/7.4inch(400/638/187mm)			
Weight	45.2 lbs /20.5kg			
Operating Temperature Range	–13°F~+140°F (–25 °C ~ +60 °C)de-rating above 113°F			
Altitude	9843ft (3000m)			
Internal Consumption at Night	<1W (for PV inverter)/ <5W (for storage inverter)			
Cooling	Natural Convection			
Electronics Protection Degree	NEMA4X (IP65)			
Relative Humidity	0~95%			
Inter faces				
RS 485	Yes			
WIFI/4G Communication	Optional			
Warranty: 10 Years	Yes(optional for extended 15 and 20 years warranty)			
Revenue Grade Meter	ANSI C12.20 (meet 0.5% accuracy)			
IEEE1547, CA Rule21, Rule14(HECO Compliant),FCC Part15 Class B,UL1741,UL1741SA,CSA C22.2, UL1699B, UL1741 CRD				

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