



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%



Philadelphia Solar's Mono-Crystalline N-type modules with power up to **440Wp** are reproduced 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

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

Life And Extended Reliability Test
IEC 61853 PAN File
IEC TS 62804 PID Resistance
IEC 60068 Dust and Sand Resistance
IEC 62716 Ammonia Resistance
IEC 61705 Salt Mist Resistance
Bankability Report
EN ISO 9001: 2015
Quality Management System

EN ISO 14001: 2015

Environmental Management System

EN ISO 45001: 2018



APPLICATIONS



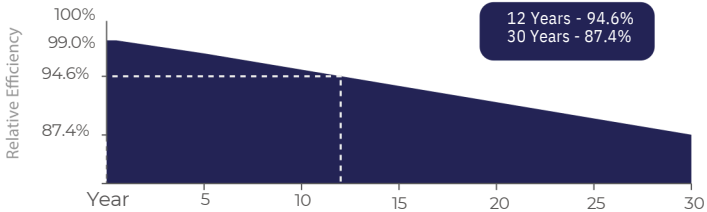
FEATURES

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



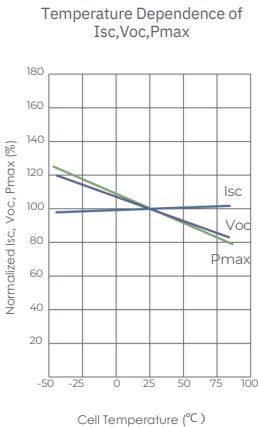
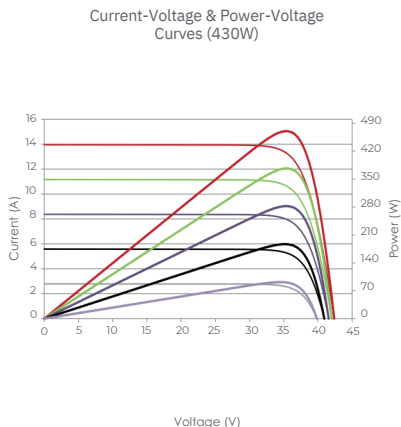
Made In Jordan

LINEAR PERFORMANCE WARRANTY



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

Electrical Performance & Temperature Dependence



ELECTRICAL CHARACTERISTICS POWER AT STC

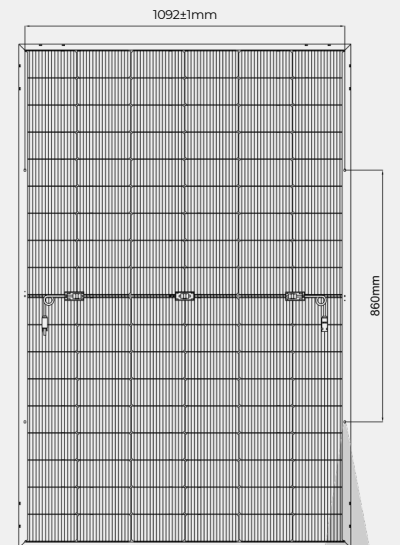
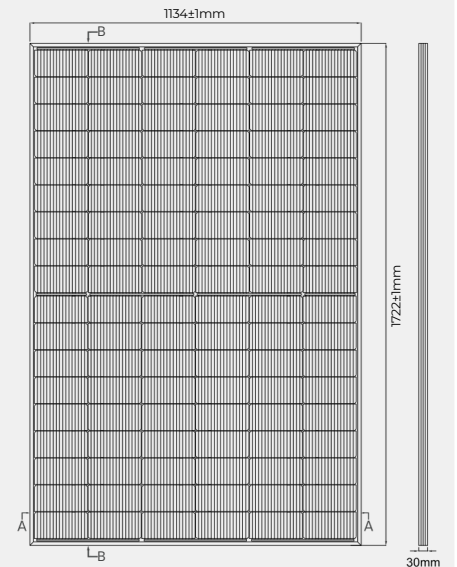
	425 W	430 W	435 W	440 W
Short Circuit Current - Isc (A)	14.05	14.13	14.22	14.30
Maximum Power Current - Impp (A)	13.23	13.28	13.32	13.36
Open Circuit Voltage - Voc (V)	38.29	38.42	38.50	38.63
Maximum Power Voltage - Vmpp (V)	32.23	32.49	32.76	32.98
Module Efficiency - η' (%)	21.80%	22.05%	22.31%	22.57%
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 25o C).

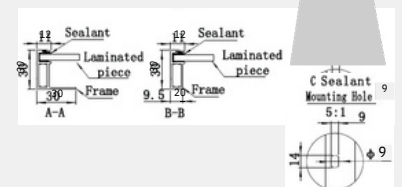
MATERIAL CHARACTERISTICS

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



Cross Section A-A & B-B



THERMAL CHARACTERISTICS

Characteristics	Value
Open Voltage Temperature Coefficient VOC (%/C°)	-0.25
Short Circuit Current Temperature Coefficient ISC (%/C°)	+0.046
Power Temperature Coefficient PMP (%/C°)	-0.30
NOCT (°C)	45 \pm 2

OPERATING CONDITIONS

Maximum System 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 \pm 1K g

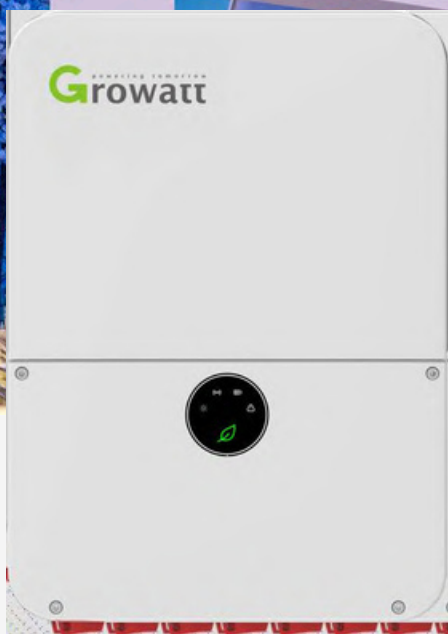
Packaging	Value
Modules per Pallet	37
40 Feet High-Cube Container	962 Modules

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

- ◆ Tolerance of power Current and Voltage (ISC,VOC) \pm 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

MIN 3000~7600TL-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



P O W E R
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Datasheet	MIN 3000TL-XH-US	MIN 3800TL-XH-US	MIN 5000TL-XH-US	MIN 6000TL-XH-US	MIN 7600TL-XH-US
Input Data (PV)					
Max. Recommended PV Power(STC)	6000W	7600W	10000W	12000W	15200W
DC/AC Ratio	2				
Max. DC Voltage	600V				
Startup Voltage	50V				
Nominal Voltage	360V				
MPPT Voltage Range	50~550V				
No. of MPPT	2				
No. of PV Strings per MPPT	2/2	2/2	2/2	3/2/2	3/2/2
Max. Input Current per MPPT	13.5A				
Max. Short-circuit Current per MPPT	16.9A				
Input/Output Data (Battery)					
I/O Voltage Range Nominal DC Voltage	360V~550V				
I/O DC Current	400V				
I/O DC Power	14.3A				
Battery Technology Battery Capacity per Module	5000W LFP				
Scalability	9.9kWh Up to 2				
Output Data (AC)					
AC Nominal Power@240V AC AC Nominal					
Power@208V AC Max. AC Apparent Power	3000W	3800W	5000W	6000W	7600W
Nominal AC Voltage	2600W	3290W	4330W	5200W	6580W
AC Voltage Range @208V AC @240V AC	3000VA	3800VA	5000VA	6000VA	7600VA
AC Grid Frequency	208V/240V				
AC Grid Frequency Range	183V~229V/211V~264V				
Max. Output Current	50/60Hz				
Power Factor(@Nominal Power)	45~65Hz				
Adjustable Power Factor	21A				
THDi	12.5A	16A	21A	25A	32A
	>0.99				
	0.8 Leading~0.8 Lagging				
	<3%				
AC Grid Connection Type	L1/L2/N/PE				
Output Data (Backup)					
AC Nominal Power	3000W	3800W	5000W	6000W	7600W
Max. AC Power Output	3680VA	4000VA	6000VA	7200VA	7600VA
Nominal AC Voltage	240V				
Max. Output Current	16A	16.7A	25A	30A	32A
THD	5%				
Efficiency					
Max. Efficiency	98.0				
CEC Efficiency@240V AC	%				
CEC Efficiency@208V AC	97.0	97.0%	97.0%	97.0	97.5
	%				
Protection Devices					
DC Reverse-polarity Protection	96.5				97.0
DC Switch	Yes				
DC Surge Protection	%				
Insulation Resistance Monitoring	Type II				
AC Surge Protection	Yes				
AC Short-circuitS Protection	Type III				
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)					
Weight	15.75/22.41/6.98 inch (400/569/170.5mm)				
Operating Temperature Range	32.3lbs (14.65kg)				
Altitude	-13°F~+140°F (-25 °C ~ +60 °C) de-rating above 113°F				
Internal Consumption at Night	9843ft (3000m)				
Cooling	<1W (for PV inverter)/<5W (for storage inverter)				
Electronics Protection Degree	Natural Convection				
Relative Humidity	NEMA4X (IP65)				
	0~95%				
Inter faces					
RS485	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 , U L1741, UL1741SA,CSA C22.2, UL1699B, UL1741 CRD					