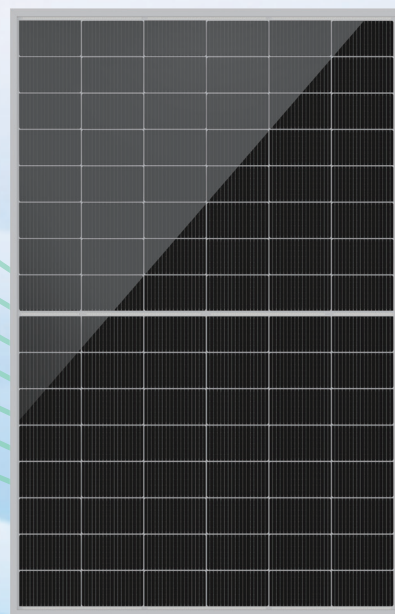


HT^{210R} TOPCon Bifacial Series

445~465W

HY-NT11/48GDF



Main Features



N-TYPE TOPCON TECH

- Lower LID
- Excellent Low Irradiance Performance



SMBB + NON-DESTRUCTIVE CUTTING

- Reduced Internal Current Loss
- Minimized Micro-Crack Impact



HIGH RELIABILITY

- Salt Mist Resistance, Ammonia Resistance, Sand & Dust Resistance
- Anti-PID



HIGH CONVERSION EFFICIENCY

- Module Conversion Efficiency Up to 23.3%
- Bifaciality Rate Up to 80±5%



SUPERIOR POWER GENERATION PERFORMANCE

- Low Temperature Coefficient: $-0.28/^{\circ}\text{C}$
- Lower Operating Temperature



LOWER LEVELIZED COST OF ELECTRICITY

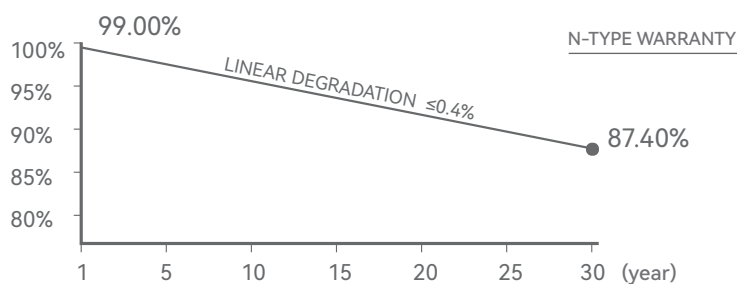
- Lower BOS and LCOE
- Higher ROI

Comprehensive Products and System Certificates

- IEC 61215, IEC 61730
- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018



Munich RE



30 YEAR

Product Workmanship Warranty

30 YEAR

Linear Power Warranty

≤1%

First - year power attenuation

≤0.4%

Linear power attenuation



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The product specifications are subject to change without prior notice.
Please use our latest version.



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Web: <https://www.hysolar.com>

N-Type Bifacial Series HY-NT11/48GDF

445~465W
POWER RANGE

23.3%
EFFICIENCY

0~+5W
POWER SORTING

ELECTRICAL PERFORMANCE PARAMETERS

***STC :** Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmax/W)	445	450	455	460	465
Rated voltage (Vmpp/V)	29.66	29.86	30.06	30.26	30.46
Rated current (Impp/A)	15.01	15.08	15.14	15.21	15.27
Open circuit voltage (Voc/V)	35.24	35.44	35.64	35.84	36.04
Short-circuit current (Isc/A)	15.90	15.97	16.02	16.09	16.15
Module efficiency	22.3%	22.5%	22.8%	23.0%	23.3%

BNPI : Front irradiance 1000W/m², Back irradiance 135W/m², Cell Temperature 25° C, AM=1.5

Rated output (Pmax/W)	490.3	495.7	501.1	506.9	512.0
Rated voltage (Vmpp/V)	29.66	29.86	30.06	30.26	30.46
Rated current (Impp/A)	16.53	16.60	16.67	16.75	16.81
Open circuit voltage (Voc/V)	35.24	35.44	35.64	35.84	36.04
Short-circuit current (Isc/A)	17.51	17.58	17.64	17.72	17.78

DIFFERENT REAR POWER GAINS (455W)

Power gains	Pmpp/Wp	Vmpp/V	Impp/A	Voc/V	Isc/A
5%	478	30.06	15.89	35.64	16.82
15%	523	30.06	17.41	35.64	18.42
25%	569	30.06	18.92	35.64	20.03

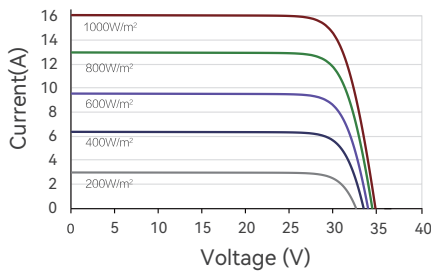
TEMPERATURE COEFFICIENT

Temperature coefficient (Pmpp)	-0.28%/°C
Temperature coefficient (Isc)	+0.043%/°C
Temperature coefficient (Voc)	-0.24%/°C
Nominal module operating temperature (NMOT)	42±2°C

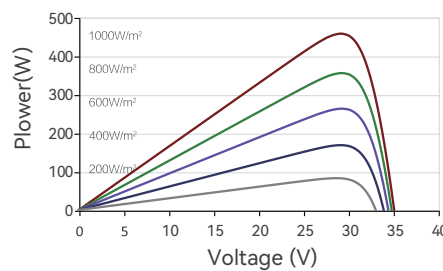
OPERATING PARAMETERS

Max. system voltage (IEC)	1500Vdc
Number of diodes	3
Junction box protection rating	IP 68
Max. series fuse rating	30A
Operational temperature	-40~+85°C
Bifaciality rate	80±5%

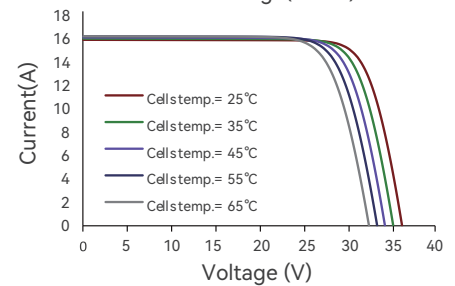
Current-Voltage(455W)



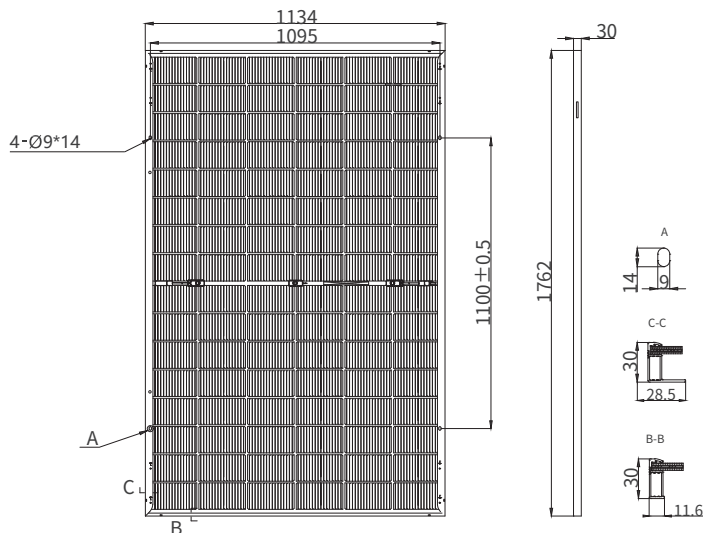
Power-Voltage(455W)



Current-Voltage(455W)



MECHANICAL PARAMETERS



Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell	N type mono-crystalline
Number of cells	96 (6*16)
Frame Type	Aluminum, silver/black anodized
Glass thickness	1.6+1.6 mm
Cable length (including connector)	Portrait: (+)300 mm,(-)300 mm; Customized length
Cable cross-sectional area (IEC)	4 mm ² / 12 AWG
① Maximum test mechanical load	5400Pa (front) /2400Pa(rear)
Connector type (IEC)	PV-HYC11xyz(standard)/MC4 EVO2(optional)
Module weight	21.0 kg
Packaging unit	36 pcs / box
Weight of packing unit	802 kg / box
Modules per 40' HQ container	936 pcs

① Please refer to the installation manual or contact us to confirm. The maximum test mechanical load = 1.5× maximum design mechanical load.

*The data above is for reference only and the actual data is in accordance with the practical testing. Power Measurement Tolerance ±3% under STC standard.