

Beam N **DUAL GLASS** Solar Panel

440-455W

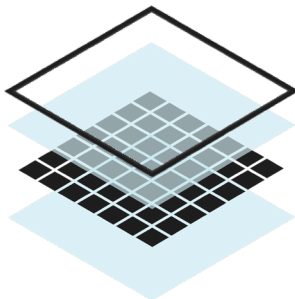
Bifacial - Black Frame

N-Type Half Cell Module

ENSP48NDG3440BF ENSP48NDG3450BF
ENSP48NDG3445BF ENSP48NDG3455BF



Built using N-Type Dual Glass technology, the Energizer® Solar Panels range combine two of the best technologies in the market.



Dual Glass Construction

- Panel Frame
- Front Glass Panel
- Solar Cells
- Rear Glass Panel



Dual glass technology



Lower operating temperatures



Improved fire & water resistance



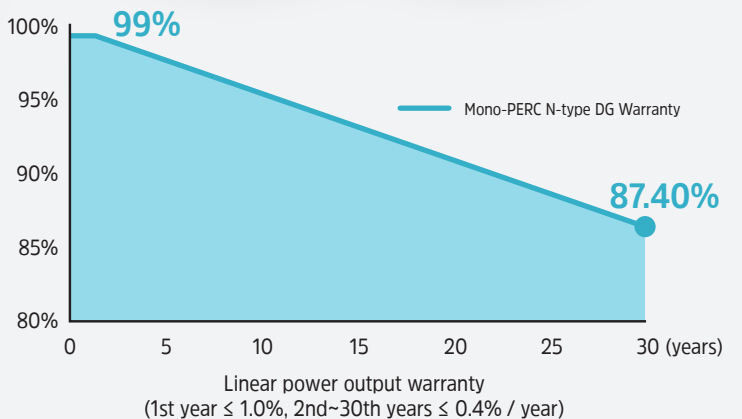
Improved durability with no extra weight



Quality controlled by artificial intelligence



Positive power tolerance of 0~+3%



hello@energizersolar.com energizersolar.com

Mechanical Specifications

Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell type	N-Type mono-crystalline
No. of Cells	96 (6*16)
Frame Technology	Aluminum, black or silver anodized
Front / Back glass	2.0+2.0 mm
Cable length (Including connector)	Portrait: (+)350 mm,(-)250 mm; Customized length
Cable diameter (IEC/UL)	4 mm ² / 12 AWG
Maximum mechanical test load	5400 Pa (front) / 2400 Pa (back)
Connector type (IEC/UL)	PV-HCB40 (Chint New Energy) or PV-KST4-EVO2A/xy,PV-KBT4-EVO2A/xy (Stäubli)
Module weight	24.4 kg
Packing unit	36 pcs / box
Weight of packing unit for 40'HQ container)	923 kg
Modules per 40' HQ container	936 pcs

Electrical Specifications

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

Rated output power (P _{mpp} / Wp)	440	445	450	455
Rated voltage (V _{mpp} / V)	30.06	30.20	30.33	30.47
Rated current (I _{mpp} / A)	14.64	14.74	14.83	14.93
Open circuit voltage (V _{oc} / V)	36.09	36.25	36.42	36.58
Short circuit current (I _{sc} / A)	15.47	15.57	15.68	15.78
Module efficiency	22.0%	22.3%	22.5%	22.8%

Measurement Tolerances: P_{mpp} ±3%, V_{oc} ±3%, I_{sc} ±4%

BNPI: Irradiance: front 1000W/m², rear 135W/m², Cell Temperature 25° C, AM=1.5

Rated output power (P _{mpp} / Wp)	484.9	490.4	495.9	501.4
Rated voltage (V _{mpp} / V)	30.07	30.21	30.34	30.48
Rated current (I _{mpp} / A)	16.12	16.23	16.34	16.45
Open circuit voltage (V _{oc} / V)	36.10	36.26	36.43	36.59
Short circuit current (I _{sc} / A)	17.13	17.24	17.36	17.47

Bifaciality: φP_{mpp}/φI_{sc}: 80% ±5%, Bifaciality: φV_{oc}: 98% ±5%

Electrical characteristics with 10% Bifacial Gains

Rated output power (P _{mpp} / Wp)	485	490	495	501
Rated voltage (V _{mpp} / V)	30.06	30.20	30.33	30.47
Rated current (I _{mpp} / A)	16.10	16.21	16.32	16.43
Open circuit voltage (V _{oc} / V)	36.10	36.26	36.42	36.58
Short circuit current (I _{sc} / A)	17.02	17.13	17.24	17.36

Operating Parameters

No. of diodes	3
Junction box IP rating	IP68
Max. series fuse rating	30A
Max. system voltage (IEC/UL)	1500 _{DC}
Fire Rating	Class C

Made in China, Made in Turkey.



Temperature Ratings

Temperature coefficient (P _{mpp})	-0.29%/°C
Temperature coefficient (I _{sc})	+0.043%/°C
Temperature coefficient (V _{oc})	-0.25%/°C

Curve

