



# PERUN GLASS DUO

## KS440MNHTR3-BI

Kensol modules use special glass to increase transparency. Bifacial modules can generate up to 30% more energy compared to traditional panels.



Polish Brand  
Polish Guarantor

30

30-year product  
performance warranty  
30-year linear warranty



More power  
with standard size

TÜV

Certificate TÜV

MCS

Certificate MCS

440W

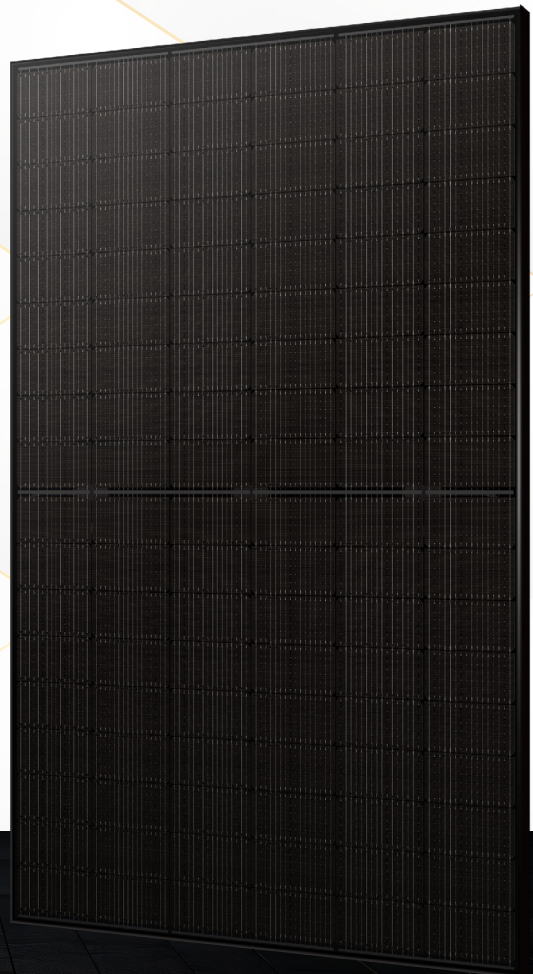
Maximum Power Output

22.77%

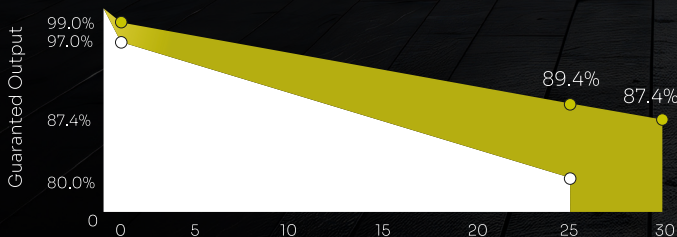
Maximum Module Efficiency

0~+3%

Power Output Tolerance



Linear Performance Warranty



## Electrical properties of STC\*

Module type	KS430 MNHTR3-BI	KS435 MNHTR3-BI	KS440 MNHTR3-BI	KS445 MNHTR3-BI	KS450 MNHTR3-BI
Testing conditions	Front side	Front side	Front side	Front side	Front side
Peak power (Pmax) (W)	430	435	440	445	450
MPP voltage (Vmp) (V)	32.97	33.15	33.33	33.51	33.69
MPP current (Imp)(A)	13.04	13.12	13.20	13.28	13.36
Open circuit voltage (Voc)(V)	38.37	38.57	38.77	38.97	39.17
Short-circuit current (Isc)(A)	13.86	13.93	14.00	14.07	14.14
Module efficiency (%)	21.52	21.77	22.02	22.27	22.52

\*\*STC: Radiant intensity 1000 W/m<sup>2</sup>, cell temperature 25°C, AM1.5 The above data are for illustrative purposes only and the actual data are in accordance with practical tests Power measurement tolerance ±3%.

## Electrical properties of NOCT\*

Testing conditions	Front side	Front side	Front side	Front side	Front side
Peak power (Pmax) (W)	322	326	330	333	337
MPP voltage (Vmp) (V)	31.57	31.74	31.91	32.08	32.26
MPP current(Imp)(A)	10.20	10.27	10.33	10.39	10.45
Open circuit voltage (Voc)(V)	36.74	36.93	37.12	37.32	37.51
Short-circuit current (Isc)(A)	11.19	11.25	11.30	11.36	11.42

\*NOCT: Radiant intensity 800 W/m<sup>2</sup> Ambient temperature 20°C, wind speed 1 m/s

## Operational features

Operating temperature (°C)	-40°C~+85°C
Maximum system voltage (V)	1500V DC (IEC)
Maximum serial fuse (A)	30
Front static load	Snow load 5400 Pa, Wind load 2400 Pa
Bifaciality*	80%

\*Bilaterality=Pmax back (STC)/Pmax front (STC), Bilaterality tolerance: ±5%.

## Temperature coefficient

Temperature coefficient Pmax*	-0.300%/°C
Temperature coefficient Voc	-0.250%/°C
Temperature coefficient Isc	+0.045%/°C
Nominal operating temperature of the cell (NOCT)	42±2°C

\*Temperature coefficient Pmax±0.03%/°C

## Mechanical properties

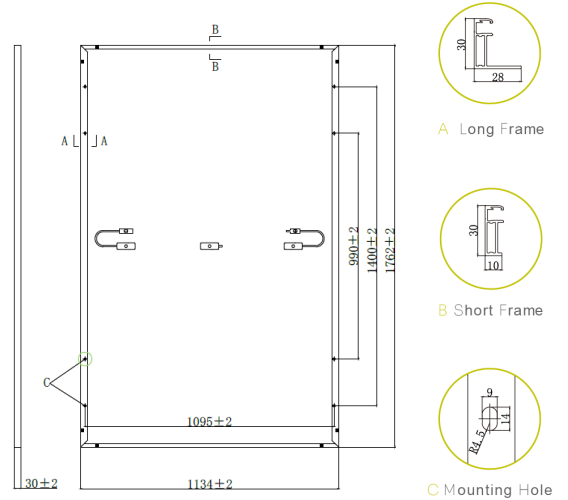
Number of cells	108
Module dimensions	1762mm*1134mm*30mm
Weight	21.2kg
Front/rear glass*	1.6 mm/1.6 mm Heat strengthened glass
Rama	Anodyzowany stop aluminium
Junction box	IP68 (3 diodes)
Cable length	4.0mm <sup>2</sup> , +1200mm/-1200mm (cable length can be cusotmized)
Packaging configuration	36pcs/pallet, 936 pcs/40'HQ

\*thermally strengthened glass

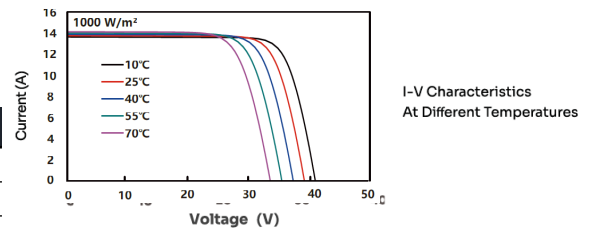
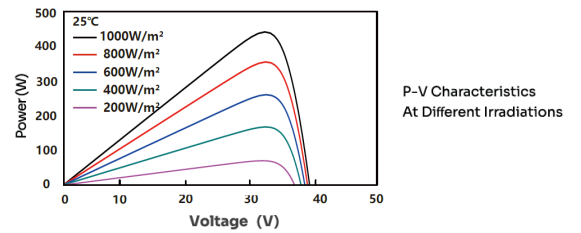
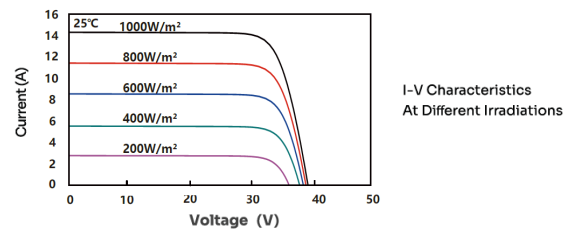
## With different power increments (using 415 W as an example)

Power gain (%)	Peak power (Pmax) (W)	MPP voltage (Vmp)(V)	MPP current (Imp)(A)	Open circuit voltage (Voc) (V)	Short-circuit current (Isc) (A)
10	495.00	33.69	14.69	39.17	15.55
15	517.50	33.69	15.36	39.17	16.26
20	540.00	33.69	16.03	39.17	16.96
25	562.50	33.79	16.65	39.27	17.63
30	585.00	33.79	17.31	39.27	18.33

## Technical drawing (unit: mm)



## Characteristic curves



\*Specifications and key features described in this data sheet may vary slightly and are not guaranteed. Due to continuous innovation, R&D development, Kensol Ltd reserves the right to make changes to the information described in this document at any time and without notice. The latest version of the data sheet must always be obtained and will be duly incorporated into a binding agreement between the parties governing all transactions relating to the purchase and sale of the products described in this document.

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