



Deutsche  
Qualität  
Garantiert



N-TYPE TOPCON TECHNOLOGY

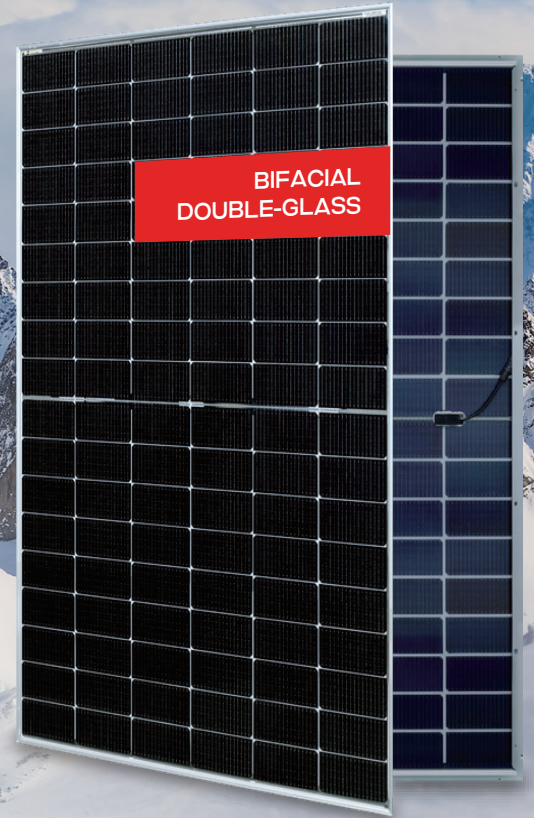
# CMD-108BDS-I 420W-440W

Hail-proof. Weather-ready. Solar strong.

**22.57%**  
MAXIMUM EFFICIENCY

**108**  
HALF CELLS

- ◆ Certified to endure 40mm hailstones with zero power loss.
- ◆ 3.2mm tempered safety glass, offering exceptional durability.
- ◆ T6 high-strength anodized aluminum alloy frame, ensuring stability in harsh conditions.
- ◆ Reducing maintenance costs, offering long-term reliability for hail-prone regions.

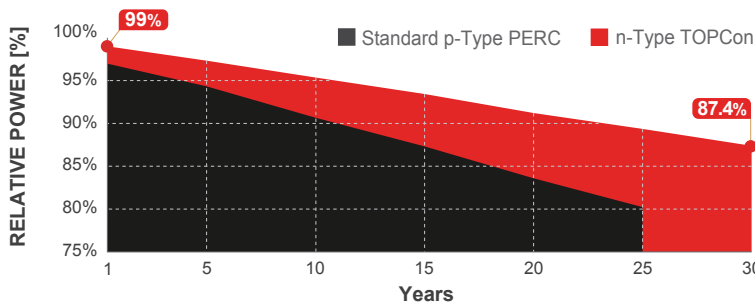


**30 YEARS**  
Performance Warranty

up to **30 YEARS\***  
Product Warranty

The regular product warranty is 15 years, please refer to the latest version of AESOLAR Limited Warranty for the duration of the product warranty under special conditions. For extensions, please contact AESOLAR staff.

## OUR PERFORMANCE WARRANTY



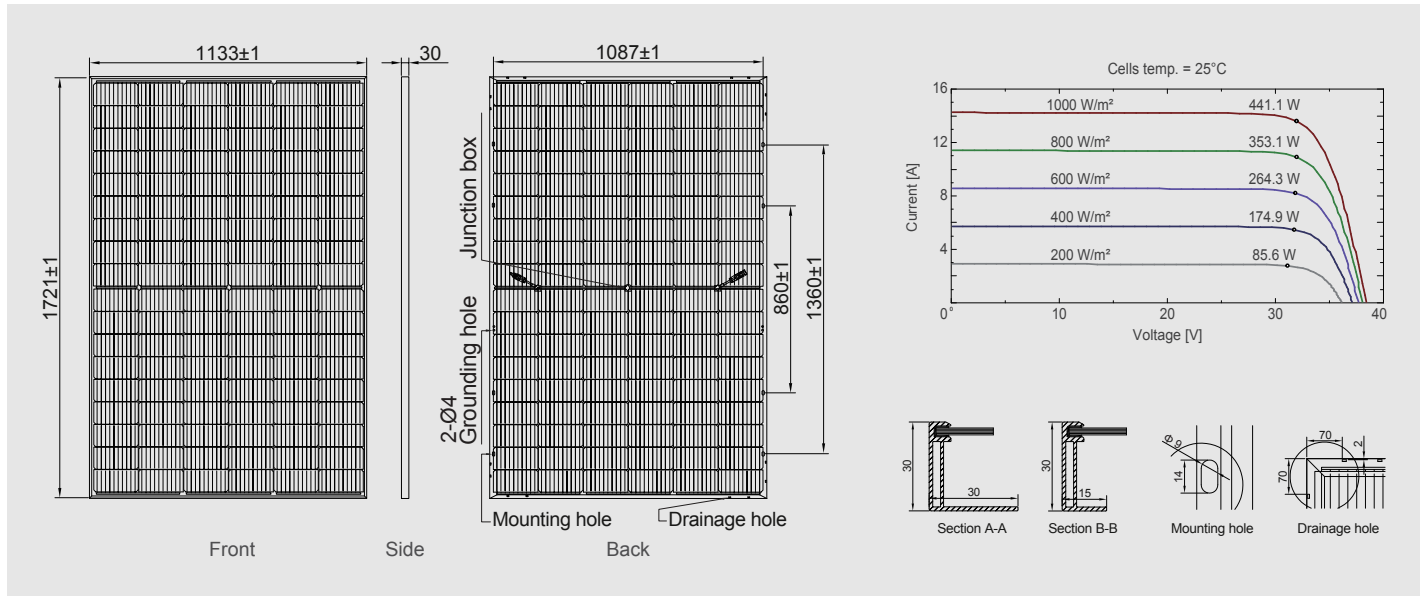
## SYSTEM AND PRODUCT CERTIFICATIONS



# AE CMD-108BDS-I 420W-440W

N-TYPE TOPCON TECHNOLOGY PV MODULE

BIFACIAL • DOUBLE-GLASS



## Electrical specifications (STC\*):

	$P_{max}$ (Wp)	420	425	430	435	440
Nominal max. power	$P_{max}$ (Wp)	420	425	430	435	440
Maximum operating voltage	$V_{MPP}$ (V)	32.04	32.25	32.43	32.64	32.84
Maximum operating current	$I_{MPP}$ (A)	13.11	13.18	13.26	13.33	13.40
Open-circuit voltage	$V_{oc}$ (V)	37.86	38.08	38.26	38.46	38.66
Short-circuit current	$I_{sc}$ (A)	14.03	14.10	14.17	14.23	14.30
Module efficiency	$\eta$ (%)	21.54	21.80	22.05	22.31	22.57
Power tolerance	(W)	0~+5				
Maximum system voltage	(V)	1500				
Maximum series fuse rating	(A)	25				

\*STC: Standard Test Conditions (irradiance 1000 W/m<sup>2</sup>, cell temperature 25°C and air mass of AM1.5), measurement tolerance  $P_{max}$ : ±3%

## Electrical specifications (NMOT\*):

	$P_{max}$ (Wp)	320.0	323.5	327.1	331.0	335.3
Nominal max. power	$P_{max}$ (Wp)	320.0	323.5	327.1	331.0	335.3
Maximum operating voltage	$V_{MPP}$ (V)	29.70	29.90	30.10	30.30	30.51
Maximum operating current	$I_{MPP}$ (A)	10.76	10.81	10.87	10.93	10.99
Open-circuit voltage	$V_{oc}$ (V)	35.80	36.00	36.20	36.40	36.60
Short-circuit current	$I_{sc}$ (A)	11.31	11.37	11.42	11.48	11.54

\*NMOT: Normal Module Operating Temperature (irradiance 800 W/m<sup>2</sup>, ambient temperature 20°C, air mass of AM1.5 and wind speed of 1 m/s)

## Bifacial electrical specifications

Max. power front-side	420		425		430		435		440	
$P_{max}$ front (Wp)	420		425		430		435		440	
Backside Power Gain	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%
Total equivalent power	441	462	446	468	452	473	457	479	462	484
$P_{max}$ equ (Wp)	441		462		446		457		462	
Module efficiency	22.62	23.70	22.89	23.98	23.16	24.26	23.43	24.54	23.70	24.83
$\eta$ (%)	22.62		23.70		22.89		23.98		23.16	

\*Bifacial Gain: The additional gain from the back side compared to the power of the front side at the standard test condition. It depends on the mounting (structure, height, tilt angle, etc.) and albedo of the ground.

## Mechanical and design specification

Cell type	n-Type TOPCon technology, half-cut cells
No. of cells	108
Bifaciality	80 ± 5%
Front cover	3.2 mm glass, high transmission, AR coated, tempered
Encapsulation	POE
Back cover	2.0 mm white glazed glass, tempered
Junction box	IP68 rated, 3 bypass diodes
Frame	30 mm anodized aluminium alloy
Cable (Including Connector)	1 x 4 mm <sup>2</sup> , 350 mm length or customized
Connectors	MC 4 / MC 4 compatible
Dimension	1721 mm x 1133 mm x 30 mm
Weight	29.5 kg
Hail resistance	Max. Ø 40 mm at 27.5 m/s
Wind load	2400 Pa or 244 kg/m <sup>2</sup>
Snow load	5400 Pa or 550 kg/m <sup>2</sup>
Fire rating	Class A (according to UL 790)

## Temperature ratings

Operating temperature	-40 to +85°C
Temp. coefficient of $P_{max}$	-0.29 %/°C
Temp. coefficient of $V_{oc}$	-0.25 %/°C
Temp. coefficient of $I_{sc}$	0.046 %/°C
Nom. operating cell temp. NOCT	42 ± 2°C

## Packaging information

Packaging configuration	36 pcs / pallet
Loading capacity	936 pcs / 40 HQ
Size / Pallet	1755 mm x 1140 mm x 1245 mm
Weight	1096 kg / pallet

The specifications and characteristics contained in this datasheet may deviate slightly from our actual products due to the product developments and uncertainty of measurement devices. The specifications included in the datasheet are subject to change without prior notice.