

# 470W-490W / ICMD-108BDE

**108**

HALF CELLS

**24.00%**

MAXIMUM  
EFFICIENCY

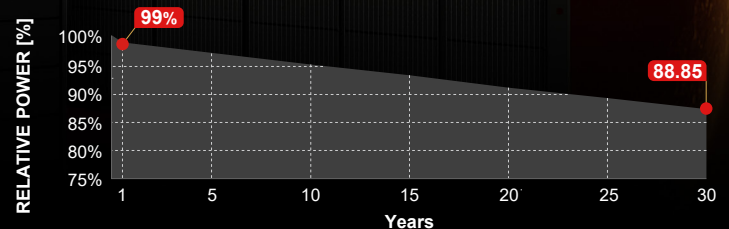
- ◆ 5% higher power density per unit area versus conventional modules
- ◆ True all-black aesthetics with **front gridless cells** for architectural integration
- ◆ >88.8% power retention guaranteed after 30 years – industry-leading durability
- ◆ **Hotspot-resistant** design prevents fire risks under shading conditions
- ◆ **-0.26%/°C** temperature coefficient ensures superior performance in heat

**30 YEARS**  
Performance Warranty

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

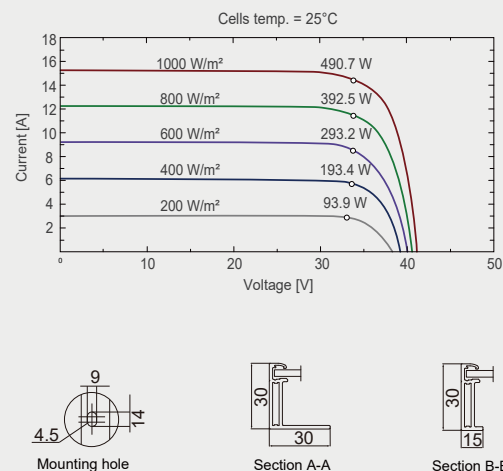
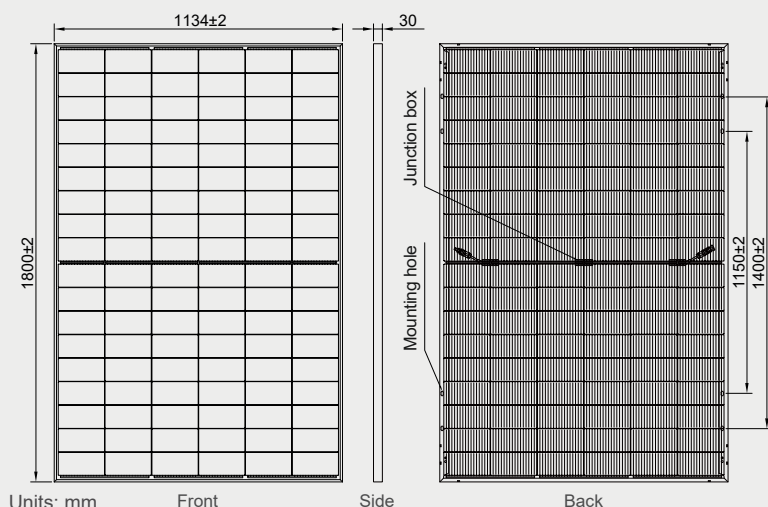
\*The regular product warranty is 15 years, please refer to the latest version of AESOLAR Limited Warranty for the duration of the product warranty under special conditions. for extensions, please contact AESOLAR staff.

## OUR PERFORMANCE WARRANTY



**AESOLAR**

SINCE 2003



## Electrical specifications (STC\*):

|                            |                |               |       |       |       |       |
|----------------------------|----------------|---------------|-------|-------|-------|-------|
| Nominal max. power         | $P_{max}$ (Wp) | 470           | 475   | 480   | 485   | 490   |
| Maximum operating voltage  | $V_{MPP}$ (V)  | 33.29         | 33.40 | 33.51 | 33.62 | 33.73 |
| Maximum operating current  | $I_{MPP}$ (A)  | 14.13         | 14.23 | 14.33 | 14.43 | 14.53 |
| Open-circuit voltage       | $V_{oc}$ (V)   | 40.31         | 40.42 | 40.53 | 40.64 | 40.75 |
| Short-circuit current      | $I_{sc}$ (A)   | 14.78         | 14.88 | 14.98 | 15.08 | 15.18 |
| Module efficiency          | $\eta$ (%)     | 23.00         | 23.30 | 23.50 | 23.80 | 24.00 |
| Power tolerance            |                | 0~3%          |       |       |       |       |
| Maximum system voltage     | (V)            | DC1500V (IEC) |       |       |       |       |
| Maximum series fuse rating | (A)            | 30            |       |       |       |       |

\*STC: Standard Test Conditions (irradiance 1000 W/m², cell temperature 25°C and air mass of AM1.5), measurement tolerance  $P_{max}$ : ±3%

## Electrical specifications (NOCT\*):

|                           |                |       |       |       |       |       |
|---------------------------|----------------|-------|-------|-------|-------|-------|
| Nominal max. power        | $P_{max}$ (Wp) | 357   | 361   | 365   | 369   | 373   |
| Maximum operating voltage | $V_{MPP}$ (V)  | 31.60 | 31.71 | 31.82 | 31.93 | 32.05 |
| Maximum operating current | $I_{MPP}$ (A)  | 11.30 | 11.39 | 11.48 | 11.56 | 11.65 |
| Open-circuit voltage      | $V_{oc}$ (V)   | 38.28 | 38.39 | 38.50 | 38.61 | 38.73 |
| Short-circuit current     | $I_{sc}$ (A)   | 11.84 | 11.93 | 12.02 | 12.10 | 12.19 |

\*NOCT: Nominal Operating Cell Temperature (irradiance 800 W/m², ambient temperature 20°C, air mass of AM1.5 and wind speed of 1 m/s)

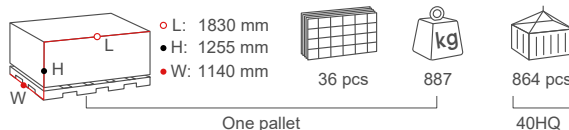
## Electrical specifications with different rear side power gain (reference to 470W front)

|                           |                |       |       |       |       |       |
|---------------------------|----------------|-------|-------|-------|-------|-------|
| Nominal max. power        | $P_{max}$ (Wp) | 494   | 517   | 541   | 564   | 588   |
| Maximum operating voltage | $V_{MPP}$ (V)  | 33.29 | 33.29 | 33.39 | 33.39 | 33.39 |
| Maximum operating current | $I_{MPP}$ (A)  | 14.82 | 15.53 | 16.19 | 16.89 | 17.60 |
| Open-circuit voltage      | $V_{oc}$ (V)   | 40.31 | 40.31 | 40.41 | 40.41 | 40.41 |
| Short-circuit current     | $I_{sc}$ (A)   | 15.52 | 16.26 | 17.00 | 17.74 | 18.48 |
| $P_{max}$ gain            |                | 5%    | 10%   | 15%   | 20%   | 25%   |

## Mechanical and design specification

|                             |                                                   |
|-----------------------------|---------------------------------------------------|
| Cell type                   | n-Type Back Contact technology, half-cut cells    |
| No. of cells                | 108                                               |
| Glass                       | Dual glass, 2.0+1.6 mm, semi-tempered             |
| Bifaciality                 | 70 ± 5%                                           |
| Junction box                | IP68 rated, 3 bypass diodes                       |
| Frame                       | 30 mm black anodized aluminum alloy frame         |
| Cable (Including Connector) | 4mm² +400, -200mm±1400mm length can be customized |
| Connectors                  | MC 4 / MC 4 compatible                            |
| Dimension                   | 1800 mm x 1134 mm x 30 mm                         |
| Weight                      | 23.5 kg                                           |
| Hail resistance             | Max. Ø 25 mm at 23 m/s                            |
| Wind load                   | 2400 Pa or 244 kg/m²                              |
| Snow load                   | 5400 Pa or 550 kg/m²                              |
| Fire rating                 | IEC Class C (UL type 29)                          |
| Protection class            | Class II                                          |

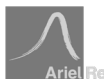
## Packaging information



## Temperature ratings

|                                |              |
|--------------------------------|--------------|
| Operating temperature          | -40 to +85°C |
| Temp. coefficient of $P_{max}$ | -0.26 %/°C   |
| Temp. coefficient of $V_{oc}$  | -0.20 %/°C   |
| Temp. coefficient of $I_{sc}$  | 0.050 %/°C   |
| Nom. operating cell temp. NOCT | 45 ± 2°C     |

## SYSTEM AND PRODUCT CERTIFICATIONS



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.



**AESOLAR**

Since 2003

+49 8231 978268 0  
sales@ae-solar.com  
www.ae-solar.com

**AESOLAR**  
Senefelderstraße 23  
86368 Gersthofen, Germany

