

Monocrystalline 120 cells

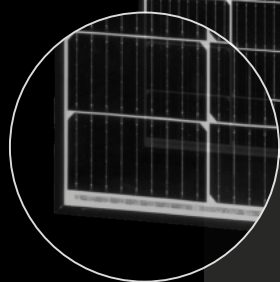
# MARS

**M10 182**  
10BB

Guaranteed positive output  
selection 0 ~ +5 Wp  
by single measuring



3.2 mm anti-reflective glass



BLACK | WHITE



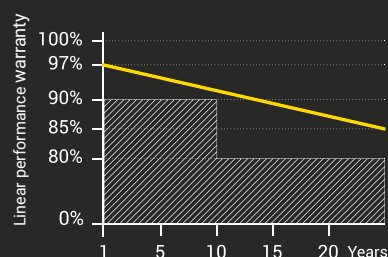
Maximum stability through  
aluminium soft grip frame



Maximum 5400 Pa snow load



15 years manufacturer's warranty  
25 years linear performance guarantee



## OUTPUT: 440 - 460 WATT

MARS monocrystalline 120 halfcut cell series with multibusbar M10 cells is the newest top efficiency series. Halfcut cells are split in two halves to improve the performance and they are arranged in two parallel strings for a better management of shading. Featuring a 35 mm black anodized aluminium frame, MARS series can combine visual attractiveness to conversion efficiency over 21 %.



power for a better world

| STC                                 | A-HCM440/120 | A-HCM450/120 | A-HCM455/120 | A-HCM460/120 |
|-------------------------------------|--------------|--------------|--------------|--------------|
| Maximum Power (Pmax) (W)            | 440          | 450          | 455          | 460          |
| Open Circuit Voltage (Voc) (V)      | 41.00        | 41.40        | 41.60        | 41.80        |
| Short Circuit Current (Isc) (A)     | 13.58        | 13.68        | 13.73        | 13.78        |
| Voltage at Maximum Power (Vmpp) (V) | 34.20        | 34.60        | 34.80        | 35.00        |
| Current at Maximum Power (Impp) (A) | 12.84        | 12.96        | 13.02        | 13.08        |
| Module Efficiency (%)               | 20.32        | 20.78        | 21.01        | 21.24        |

STC (Standard Testing Condition): Irradiance 1000 W/m<sup>2</sup>, Cell Temperature 25 °C, Spectra at AM 1.5; Test uncertainty tolerance for Pmax, Voc and Isc: ±3 %

| Electrical Parameters at NOCT       | A-HCM440/120 | A-HCM450/120 | A-HCM455/120 | A-HCM460/120 |
|-------------------------------------|--------------|--------------|--------------|--------------|
| Maximum Power (Pmax) (W)            | 324          | 331          | 335          | 339          |
| Open Circuit Voltage (Voc) (V)      | 38.28        | 36.68        | 38.88        | 39.08        |
| Short Circuit Current (Isc) (A)     | 10.68        | 10.78        | 10.83        | 10.88        |
| Voltage at Maximum Power (Vmpp) (V) | 31.94        | 32.34        | 32.54        | 32.74        |
| Current at Maximum Power (Impp) (A) | 10.14        | 10.24        | 10.30        | 10.35        |

NOCT (Nominal Operating Cell Temperature): Irradiance 800 W/m<sup>2</sup>, Ambient Temperature 20 °C, Spectra at AM 1.5, Wind at 1 m/s

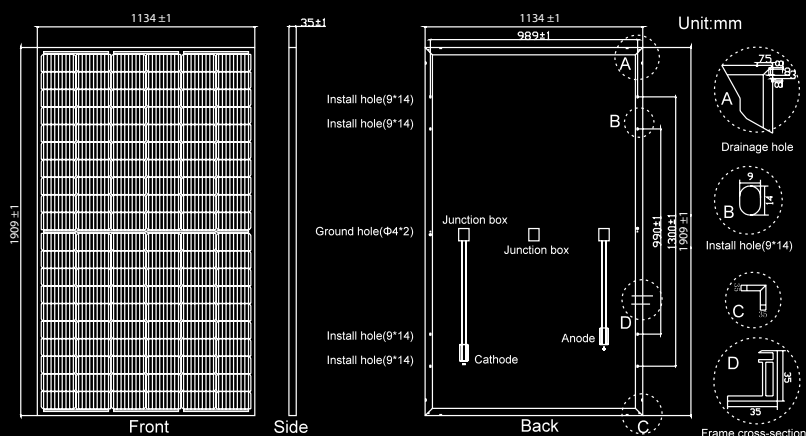
| Temperature Characteristics                  |              |
|----------------------------------------------|--------------|
| Pmax Temperature Coefficients (W / °C)       | -0.36 % / °C |
| Voc Temperature Coefficients (V / °C)        | -0.28 % / °C |
| Isc Temperature Coefficients (A / °C)        | +0.05 % / °C |
| NMOT Nominal Operating Cell Temperature (°C) | 45 ±2 °C     |

| Operating Conditions         |                 |
|------------------------------|-----------------|
| Operating Module Temperature | -40 °C ~ +85 °C |
| Maximum System Voltage       | 1500 V          |
| Maximum Series Fuse Rating   | 25 A            |
| Selection                    | 0 ~ +5 W        |
| Nominal Front Load           | 5400 Pa         |
| Nominal Rear Load            | 2400 Pa         |
| Class of Protection          | II              |

| Specifications           |                                                         |
|--------------------------|---------------------------------------------------------|
| Cell Type                | Mono M10 182 10BB                                       |
| Weight                   | 23 kg ±3 %                                              |
| Dimensions               | 1909x1134x35 mm (±0.7 %)                                |
| Cable Cross Section Size | 4 mm <sup>2</sup> , cable approx 130 cm, QC4 compatible |
| No. of cells             | 120 (6x20)                                              |
| Junction Box             | IP68, 3 diodes                                          |
| Frame                    | Black anodized aluminium                                |
| Front glass              | 3.2 mm high transmission, low iron, tempered glass      |

| Packing Details           |       |
|---------------------------|-------|
| Container Type            | 40'HC |
| No. of Pallets            | 24    |
| Pieces per Pallet         | 31    |
| Total quantity of modules | 744   |

(1909x1134x35)



I-V Curve: (A-HCM450)

