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**Solar Panel Guide  
Specification Data Sheet**

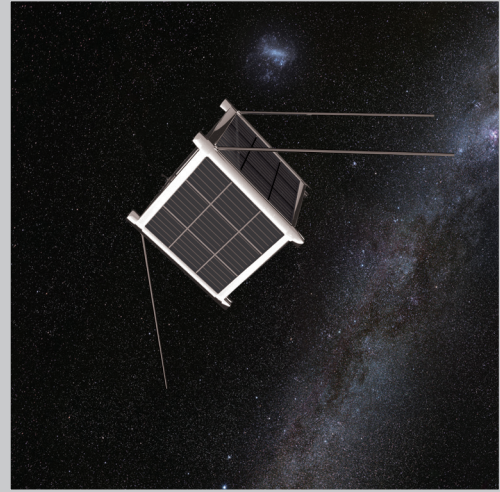
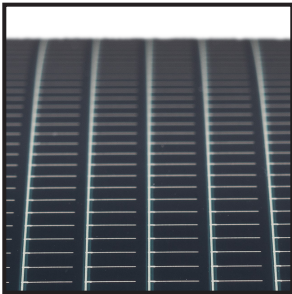
**Ascent Solar Technologies Inc.  
Solar Bare Modules - Mini-Scale  
B-004-036-031**


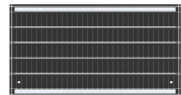
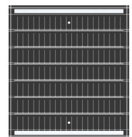
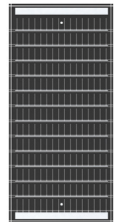
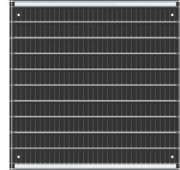
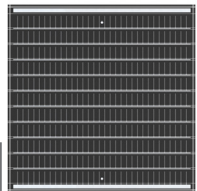
Also available on the web at  
[EnergyPal.com/ascent-solar-technologies-inc-solar-panels/b-004-036-031](http://EnergyPal.com/ascent-solar-technologies-inc-solar-panels/b-004-036-031)

Ascent SOLAR

# BARE MODULES MINI-SCALE GROUP

These mini-sized modules are perfect for integrating into small sensors and other electronic devices. They are also small enough for easy concealment for long-term trickle charging in remote locations.



|                      |   |   |   |  |   |   |
|----------------------|---|---|---|--|---|---|
|                      |  |  |  |  |  |  |
| <b>Model</b>         | <b>B-003-018-026</b>  | <b>B-004-033-021</b>  | <b>B-004-036-031</b>  | <b>B-007-050-055</b>   | <b>B-008-071-046</b>  | <b>B-010-083-048</b>  |
| <b>Dimensions</b>    | 48 x 48 mm  | 46 x 86 mm  | 67 x 60 mm  | 110 x 52 mm  | 86 x 86 mm  | 95 x 95 mm  |
| <b>Aperture Area</b> | 21 cm <sup>2</sup>  | 36 cm <sup>2</sup>  | 35 cm <sup>2</sup>  | 54 cm <sup>2</sup>   | 70 cm <sup>2</sup>  | 84 cm <sup>2</sup>  |
| <b># Cells</b>       | 6   | 5   | 7   | 13   | 10  | 11  |
| <b>Mass</b>          | 0.27 g  | 0.41 g  | 0.44 g  | 0.67 g   | 0.77 g  | 1.0 g   |
| <b>Pmax</b>          | 0.18 Watts  | 0.33 Watts  | 0.36 Watts  | 0.50 Watts   | 0.71 Watts  | 0.83 Watts  |
| <b>Vmp</b>           | 2.6 Volts   | 2.1 Volts   | 3.1 Volts   | 5.5 Volts  | 4.6 Volts   | 4.8 Volts   |
| <b>Imp</b>           | 0.064 Amps  | 0.15 Amps   | 0.12 Amps   | 0.088 Amps   | 0.16 Amps   | 0.17 Amps   |

All physical specifications are nominal. All electrical specifications are typical.



**DURABLE | PORTABLE | FLEXIBLE | LIGHTWEIGHT**

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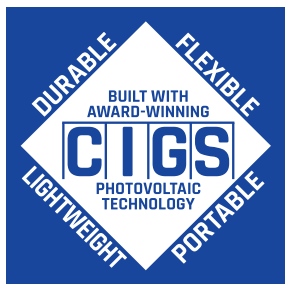
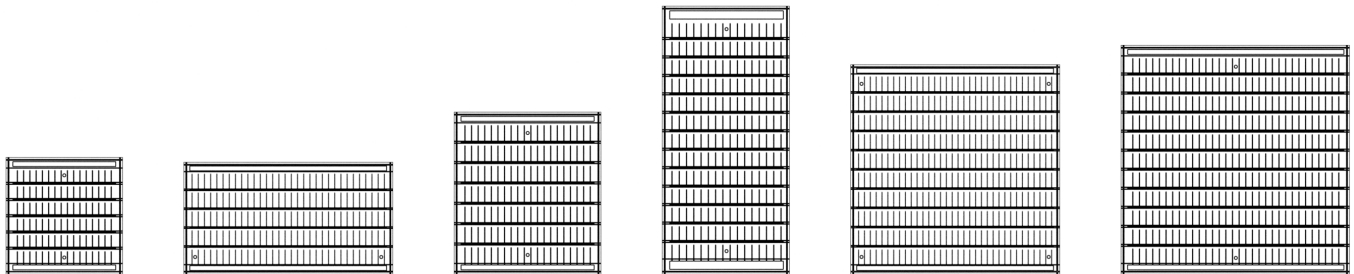
## BARE MODULE CHARACTERISTICS

|   |  |
|---|--|
| Operating Temperature Range                 | -140°C to 125°C  |
| Excursion Temperature Range                 | -196°C to 250°C (atmosphere dependent, non-oxidizing)  |
| Storage Temperature Range                   | 20°C to 30°C (dry and inert)   |
| Allowable Radius of Curvature               | 30 mm (installation around this small radius is discouraged as the resultant shading will severely degrade the electrical performance) |
| Nominal Module Thickness at the Device      | 0.052 mm   |
| Nominal Module Thickness at the Printed Bus | 0.080 mm   |

These values are representative of the bare modules only. Any coatings, applied materials or packaging may affect these values. All physical specifications are nominal. All electrical specifications are minimum typical.

## TEMPERATURE COEFFICIENTS

|       |            |
|-------|------------|
| Power | - 0.47%/°C |
| Vmp   | - 0.43%/°C |
| Imp   | - 0.06%/°C |



ASCENT SOLAR OFFERS A FULL LINEUP OF BARE MODULES AND CUSTOM-MADE SOLUTIONS.

Contact your sales representative for more details.



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Thornton, Colorado 80241  
USA

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Ascent Solar Technologies, Inc. is a developer of thin-film photovoltaic modules using flexible substrate materials that are more versatile and rugged than traditional solar panels. Ascent Solar modules were named as one of the top 100 technologies in both 2010 and 2015 by R&D Magazine, and one of TIME Magazine's 50 best inventions for 2011. The technology described above represents the cutting edge of flexible power and can be directly integrated into consumer products and off-grid applications, as well as other aerospace applications.

ISO 9001:2015 certified

Stock Ticker: ASTI

\*This document contains preliminary specifications. Contact Ascent Solar for most recent information. Updated Jan 17, 2018.