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Solar Panel Guide Specification Data Sheet

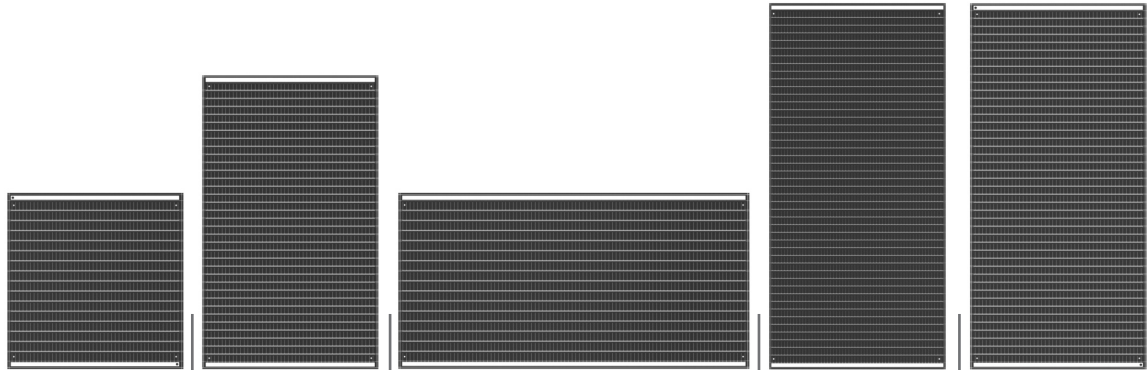
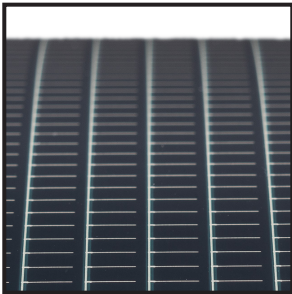
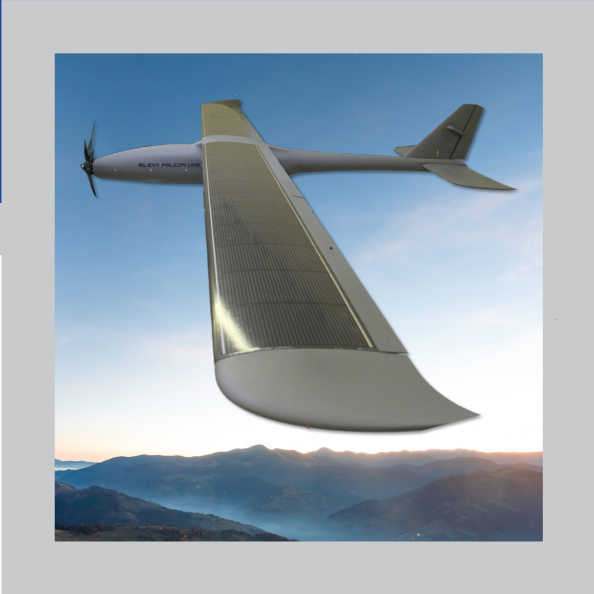
**Ascent Solar Technologies Inc.
Solar Bare Modules - Mid-Scale
B-023-190-065**

Also available on the web at
EnergyPal.com/ascent-solar-technologies-inc-solar-panels/b-023-190-065

Ascent SOLAR

BARE MODULES MID-SCALE GROUP

These medium-sized modules start at 1.9 Watts of power and have the capability to power items like personal electronics, cameras, and lights. Combined, these thin and lightweight modules are also ideal for fixed-wing drones. They even seamlessly integrate into plastics, fabrics, metals, and other materials.



Model	B-023-190-065	B-039-330-150	B-046-390-071	B-046-430-200	B-047-420-190
Dimensions	146 x 146 mm	244 x 146 mm	146 x 291 mm	303 x 146 mm	303 x 146 mm
Aperture Area	200 cm ²	340 cm ²	410 cm ²	430 cm ²	430 cm ²
# Cells	16	35	16	46	44
Mass	2.3 g	3.9 g	4.6 g	4.6 g	4.7 g
Pmax	1.9 Watts	3.3 Watts	3.9 Watts	4.3 Watts	4.2 Watts
Vmp	6.5 Volts	15 Volts	7.1 Volts	20. Volts	19 Volts
Imp	0.25 Amps	0.20 Amps	0.55 Amps	0.21 Amps	0.22 Amps

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



DURABLE | PORTABLE | FLEXIBLE | LIGHTWEIGHT

www.AscentSolar.com +1 720-872-5000 Sales@AscentSolar.com



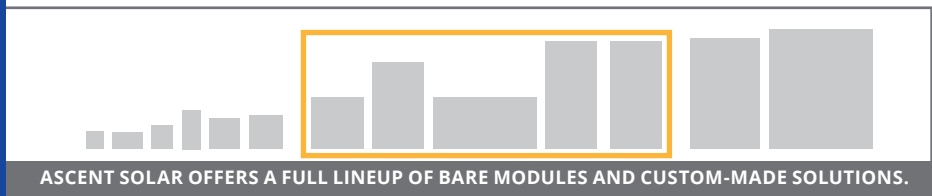
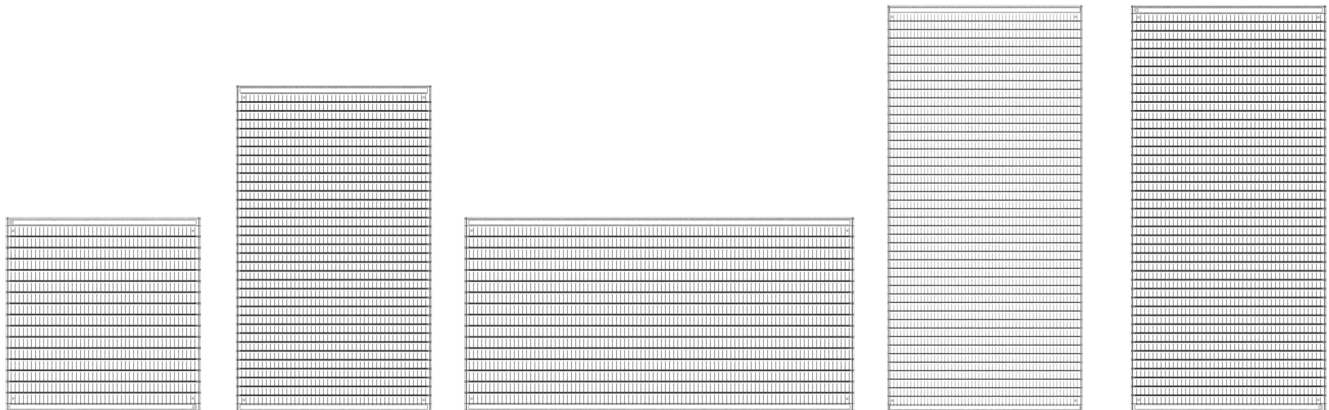
BARE MODULE CHARACTERISTICS

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



Contact your sales representative for more details.



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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.