



The BP 3160 photovoltaic module is designed to provide superior value and performance for residential, commercial and industrial use. With time-tested multicrystalline silicon solar cells, it provides cost-effective power for DC loads or, with an inverter, AC loads. With 72 enhanced-efficiency cells in series, it charges 24V batteries (or multiples of 24V) efficiently in virtually any climate. With 160 watts of nominal maximum power, it is used in utility-grid supplemental systems for residences, commercial buildings, and centralized power generation and in remote systems for applications including telecommunications, pumping and irrigation, remote villages and homes, and land-based aids to navigation.

Available versions include:

BP 3160S – Framed module with polarized cable connectors

BP 3160L – Unframed laminate version of the BP 3160S

BP 3160U – Framed module with a high-capacity junction box

### Proven Materials and Construction

BP Solar's quarter-century of field experience shows in every aspect of this module's construction and materials:

- 72 multicrystalline silicon solar cells in series, efficiency enhanced by improved cell coating;
- Cells are laminated between sheets of ethylene vinyl acetate (EVA) and high-transmissivity low-iron 3mm tempered glass;
- Frame strength exceeds requirements of certifying agencies.



### DC Connectors

### Output Options

The BP 3160 is offered with connector-equipped cables or a junction box.

**BP 3160S and BP 3160L** output is via heavy-duty AWG #12 (3.3mm<sup>2</sup>) output cables with polarized weather-proof DC-rated connectors which provide reliable low-resistance connections, eliminate wiring errors, and speed installation. These asymmetrical RHW cables enable side-by-side or end-to-end module placement in arrays.



### Clear Anodized Universal Frame

**BP 3160U** output is via a raintight (IP54 rated) junction box which accepts PG13.5 or 1/2" nominal conduit or cable fittings. Its volume (411cc, 25 cubic inches) and 6-terminal connection block enable series or parallel array connections to be made right in the junction box.

Options include:

- oversize terminal block which accepts conductors up to 25mm<sup>2</sup> (AWG #4); standard terminals accept up to 6mm<sup>2</sup> (AWG #10);
- Solarstate™ charge regulator.

### Limited Warranties

- Power output for 25 years;
- Freedom from defects in materials and workmanship for 3 years.

See our website or your local representative for full terms of these warranties.



BP 3160S



## Quality and Safety

All BP 3160 products are manufactured in BP Solar's ISO 9001-certified factories and conform to European Community Directives 89/33/EEC, 73/23/EEC, and 93/68/EEC. The BP 3160S and 3160U are:

- Listed by Underwriter's Laboratories for electrical and fire safety (Class C fire rating);
- Certified by TÜV Rheinland as Class II equipment;
- Approved by Factory Mutual Research for applications in NEC Class 1, Division 2, Groups C & D hazardous locations;
- Certified as complying with the requirements of IEC 61215, including:
  - repetitive cycling between -40°C and 85°C at 85% relative humidity;

- simulated impact of 25mm (one-inch) hail at terminal velocity;
  - a "damp heat" test, consisting of 1000 hours of exposure to 85°C and 85% relative humidity;
  - a "hot-spot" test, which determines a module's ability to tolerate localized shadowing (which can cause reverse-biased operation and localized heating);
  - static loading, front and back, of 2400 pascals (50 psf); front loading (e.g. snow) of 5400 pascals (113 psf).
- The BP 3160L is recognized by Underwriter's Laboratories for electrical and fire safety.

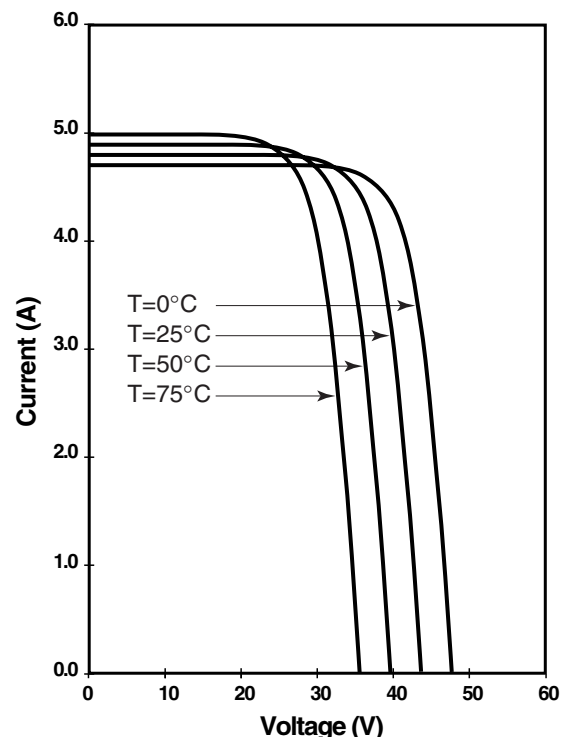
## Electrical Characteristics<sup>1</sup>

	BP 3160	BP 3150 <sup>2</sup>
Maximum power ( $P_{max}$ ) <sup>3</sup>	160W	150W
Voltage at $P_{max}$ ( $V_{mp}$ )	35.1V	34.5V
Current at $P_{max}$ ( $I_{mp}$ )	4.55A	4.35A
Warranted minimum $P_{max}$	150W	140W
Short-circuit current ( $I_{sc}$ )	4.8A	4.75A
Open-circuit voltage ( $V_{oc}$ )	44.2V	43.5V
Temperature coefficient of $I_{sc}$	(0.065±0.015)%/°C	
Temperature coefficient of voltage	-(160±20)mV/°C	
Temperature coefficient of power	-(0.5±0.05)%/°C	
NOCT <sup>5</sup>	47±2°C	
Maximum series fuse rating	20A (U version) 15A (S, L versions)	
Maximum system voltage	600V (U.S. NEC rating) 1000V <sup>4</sup> (TÜV Rheinland rating)	

## Notes

1. These data represent the performance of typical BP 3160 and BP 3150 modules and laminates as measured at their output connectors. The data are based on measurements made in accordance with ASTM E1036 corrected to SRC (Standard Reporting Conditions, also known as STC or Standard Test Conditions), which are:
  - illumination of 1 kW/m<sup>2</sup> (1 sun) at spectral distribution of AM 1.5 (ASTM E892 global spectral irradiance);
  - cell temperature of 25°C.
2. The power of solar cells varies in the normal course of production; the BP 3150 is assembled using cells of slightly lower power than the BP 3160.
3. During the stabilization process which occurs during the first few months of deployment, module power may decrease approximately 3% from typical  $P_{max}$ .
4. S and U versions only.
5. The cells in an illuminated module operate hotter than the ambient temperature. NOCT (Nominal Operating Cell Temperature) is an indicator of this temperature differential, and is the cell temperature under Standard Operating Conditions: ambient temperature of 20°C, solar irradiation of 0.8 kW/m<sup>2</sup>, and wind speed of 1m/s.

## BP 3160 I-V Curves



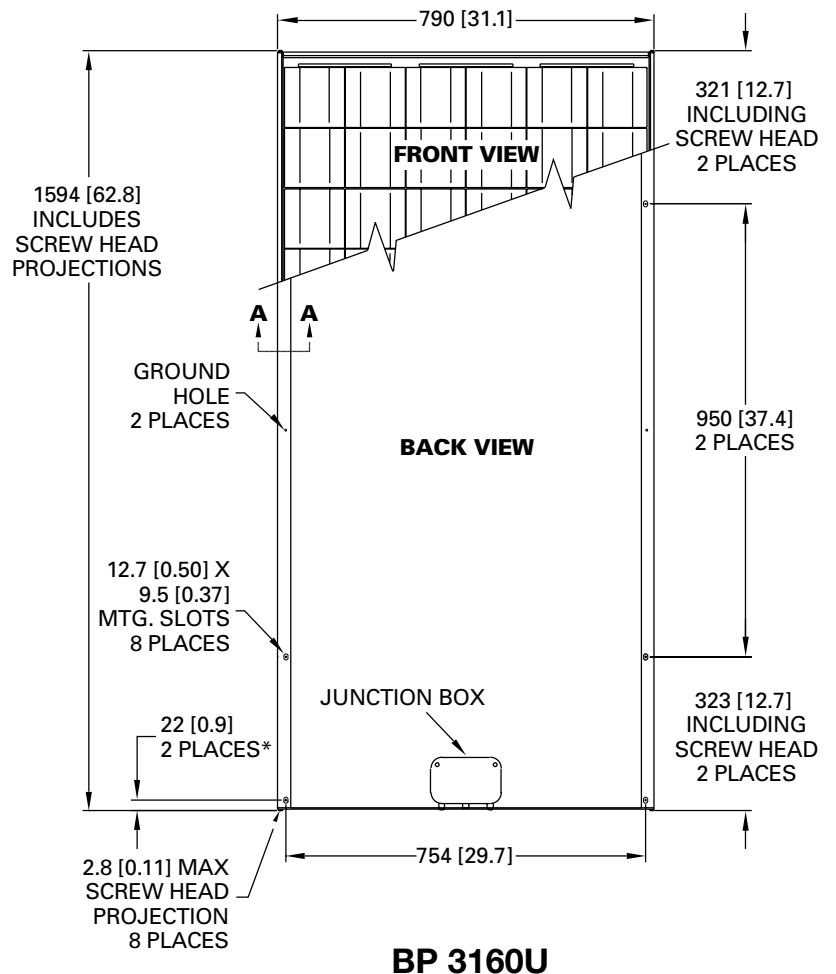
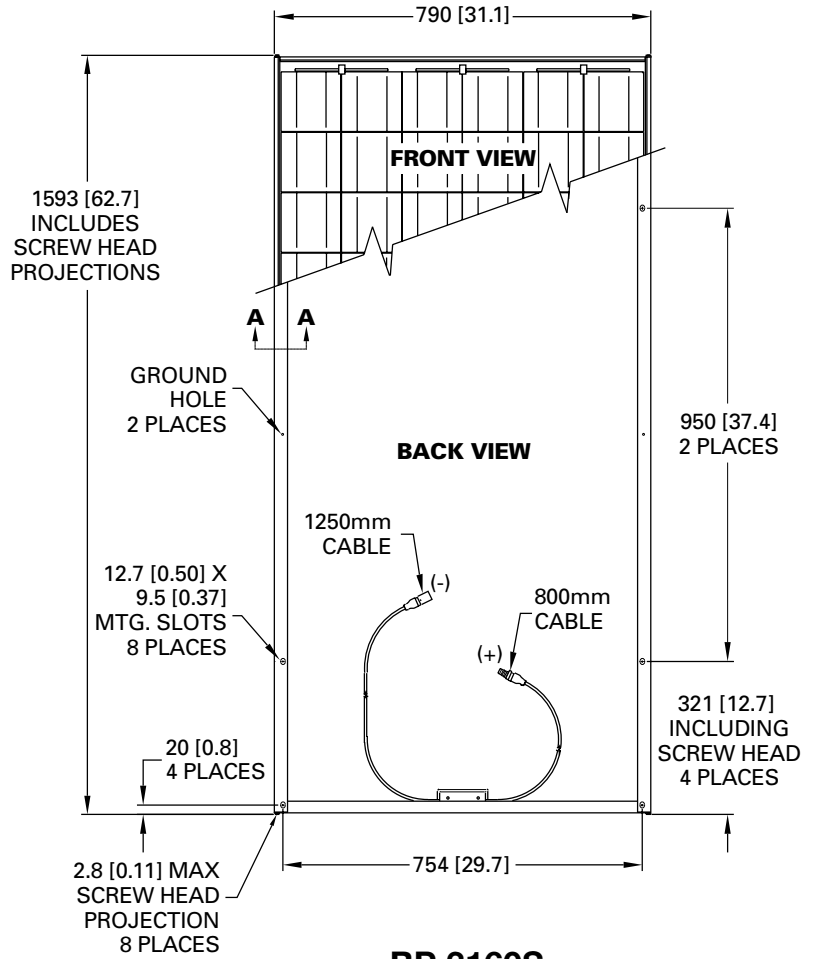
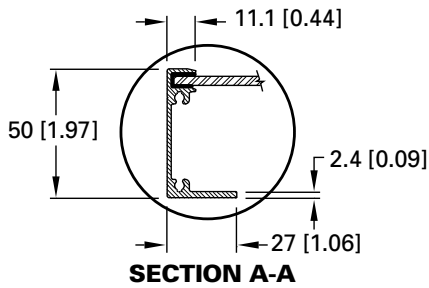
## Mechanical Characteristics

### Weight

BP 3160S, 3160U 15.4 kg (34 pounds)  
 BP 3160L 12.4 kg (27.3 pounds)

### Dimensions

BP 3160S, 3160U: See drawings  
 BP 3160L: 1580 [62.2] x 783 [30.8] x 19 [0.75]  
 Dimensions in brackets are in inches.  
 Unbracketed dimensions are in millimeters  
 Overall tolerances  $\pm 3\text{mm}$  (1/8")



\* Dimension on Opposite End is 20 [0.8] 2 Places



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This publication summarizes product warranty and specifications, which are subject to change without notice and should not be used as the definitive source of information for final system design. Additional warranty and technical information may be found on our website [www.bpsolar.com](http://www.bpsolar.com) or may be obtained from your local representative.



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