BP SX 60

60-Watt
Multicrystalline Photovoltaic Modules

BP Solar's SX series provides cost-effective photovoltaic power for general use, operating DC loads directly or, in an inverter-equipped system, AC loads. With 60 watts of nominal maximum power, the BP SX 60 is well-suited to traditional applications of photovoltaics such as telecommunications, remote villages and clinics, pumping, and land-based aids to navigation. Its 36 series-connected cells charge batteries efficiently in virtually any climate.

Proven Materials and Construction

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

- Frame strength exceeds requirements of certifying agencies;
- 36 multicrystalline silicon solar cells configured as two 18-cell series strings;
- Cells are laminated between sheets of ethylene vinyl acetate (EVA) and high-transmissivity low-iron 3mm tempered glass.

Clear Anodized Universal Frame

Limited Warranties

- Power output for 25 years;
- Freedom from defects in materials and workmanship for 5 years.

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

High-Capacity Versatile Junction Box

The junction box is raintight (IP54 rated) and accepts PG13.5 or 1/2" nominal conduit or cable fittings. Its volume (411cc, 25 cubic inches) and 6-terminal connection block enable most system array connections (putting modules in series or parallel) to be made right in the junction box. Options include:

- blocking and bypass diodes;
- oversize terminal block which accepts conductors up to 25mm^2 (AWG #4); standard terminals accept up to 6mm^2 (AWG #10);
- Solarstate™ charge regulator.

Shipped in 12V configuration, modules may easily be switched to 6V configuration by moving leads in the junction box. Six-volt modules are intended to support 6V loads, and are not recommended as series elements in higher voltage arrays.

Quality and Safety

- Manufactured in ISO 9001-certified factories;
- Listed by Underwriter's Laboratories for electrical and fire safety (Class C fire rating);
- Certified by TÜV Rheinland as Class II equipment for use in systems with voltage up to 1000 VDC;
- Approved by Factory Mutual Research for application in NEC Class 1, Division 2, Groups C & D hazardous locations;
- Compliant 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).

BP SX 60

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Mechanical Characteristics

Weight
7.2 kg (15.9 pounds)

Dimensions
Unbracketed dimensions are in millimeters.
Bracketed dimensions are in inches.
Overall tolerances ±3mm (1/8")

Section X-X

SX 55, SX 60

Grounding Detail

Electrical Characteristics[1]

	BP SX 60	BP SX 55[4]
Maximum power (P_{max})[2]	60W	55W
Voltage at P_{max} (V_{mp})	16.8V	16.5V
Current at P_{max} (I_{mp})	3.56A	3.33A
Guaranteed minimum P_{max}	55W	50W
Short-circuit current (I_{sc})	3.87A	3.69A
Open-circuit voltage (V_{oc})	21.0V	20.6V
Temperature coefficient of I_{sc}	(0.065±0.015)%/°C	
Temperature coefficient of V_{oc}	-(80±10)mV/°C	
Temperature coefficient of power	-(0.5±0.05)%/°C	
NOCT[3]	47±2ºC	
Maximum series fuse rating	20A	
Maximum system voltage	600V (U.S. NEC rating) 1000V (TÜV Rheinland rating)	

Notes

1. These data represent the performance of typical modules in 12V configuration as measured at their output terminals, and do not include the effect of such additional equipment as diodes or cables. 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/m² (1 sun) at spectral distribution of AM 1.5 (ASTM E892 global spectral irradiance);
   - cell temperature of 25°C.
2. During the stabilization process which occurs during the first few months of deployment, module power may decrease approximately 3% from typical P_{max}.
3. 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/m², and wind speed of 1m/s.
4. The power of solar cells varies in the normal course of production; the SX 55 is assembled using cells of slightly lower power than the SX 60.

BP SX 60 I-V Curves

bp solar

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** or may be obtained from your local representative.

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