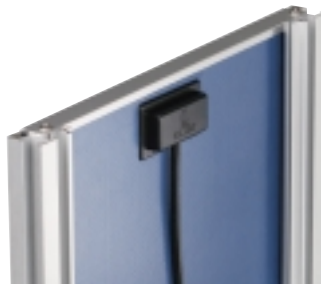


BP SX 40 and BP SX 50 photovoltaic modules are part of BP Solar's SX™ module series, providing cost-effective photovoltaic power for DC loads with moderate energy requirements. With 36 multicrystalline cells in series, they charge batteries efficiently in virtually any climate. Typical commercial applications of these modules, which generate nominal maximum power of 40 watts and 50 watts respectively, include remote telemetry, instrumentation systems, security sensors, and land-based navigation aids. They are also well-suited to providing subsistence power to homes in remote areas without utility (mains) service.

These modules are available in three configurations: the **M** configuration, which includes the versatile Multimount™ frame and an output cable; the **D** configuration, which mounts directly to many surfaces without additional hardware; and the **U** configuration, which includes the heavy-duty Universal frame and a high-volume junction box with dual-voltage output. In all configurations, cells are laminated between sheets of ethylene vinyl acetate (EVA) and high-transmissivity low-iron 3 mm tempered glass.

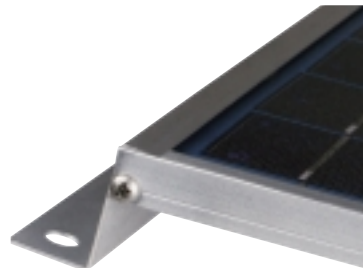
BP SX 40M and BP SX 50M

The BP SX 40M and 50M are general-purpose PV modules intended for single-module 12-volt applications with DC system voltage not exceeding 30 volts. Output is via a 4.6m (15-foot) PVC-jacketed 2.5 mm² (AWG 14-2) cable which terminates in a low-profile junction box on the module back. Epoxy-potted in the box, module electrical connections are sealed against corrosion and effectively strain-relieved.



Multimount Frame

The Multimount™ frame of the BP SX 40M and 50M provides great flexibility in mounting approach. Oriented parallel to the edge and back of the module, its dual channels accept the heads of 5/16 or 8mm hex bolts, allowing the module to be mounted from the side or back. Bolts may be located anywhere along the channels, a configuration which prevents them from turning during tightening and allows installation with just one wrench.



Direct-Mount Frame

BP SX 40D and BP SX 50D

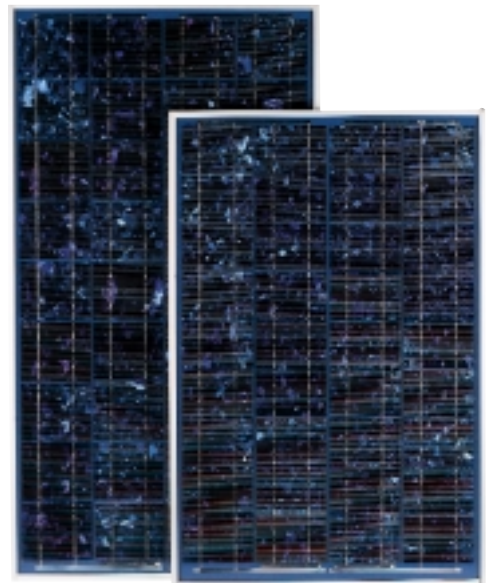
The Direct-Mount frame of the BP SX 40D and 50D enables these modules to be mounted on many surfaces (roofs, walls, etc.) without additional mounting hardware. They are easily and inexpensively installed on remote dwellings to provide limited electric power. Their electrical output circuitry and limitations are identical to the M configuration modules.



Universal Frame

BP SX 40U and BP SX 50U

The BP SX 40U and 50U are designed primarily for industrial use and other particularly demanding applications. Their rugged Universal frame is suitable for severe duty, and exceeds the requirements of all certifying agencies.



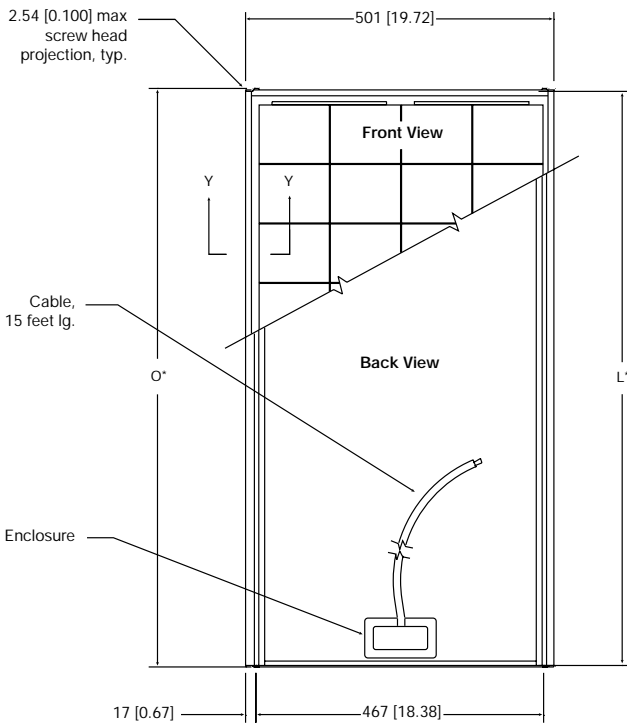
BP SX 40U and 50U

Limited Warranties

- Power output for 20 years;
- Freedom from defects in materials and workmanship for 1 year.

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

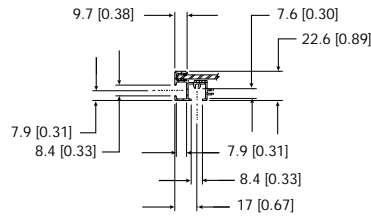




BP SX 40M, BP SX 50M

	O*	L*
BP SX 40M	$\frac{764}{[30.08]}$	$\frac{759}{[29.88]}$
BP SX 50M	$\frac{938}{[36.93]}$	$\frac{933}{[36.73]}$

Note:
 * O dimensions include 0.100 [2.54] max. screw head projection on each end. L dimensions do not include screw head projection.



Section Y-Y

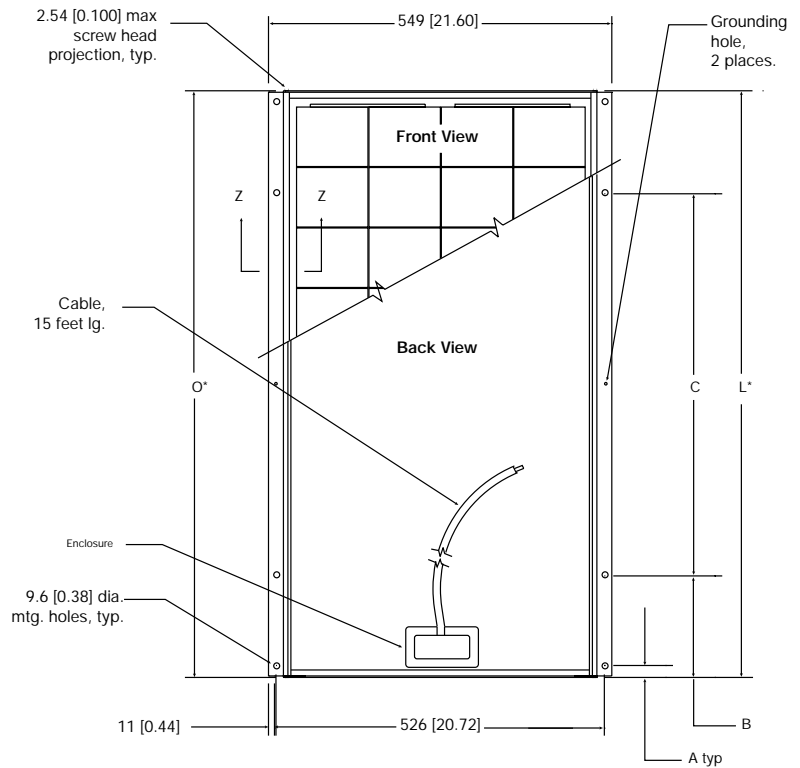
Mechanical Characteristics

BP SX 40M, BP SX 40D
 BP SX 40U
 BP SX 50M, BP SX 50D
 BP SX 50U

Weight
 4.9 kg (10.6 pounds)
 5.4 kg (11.8 pounds)
 5.7 kg (12.5 pounds)
 6.3 kg (13.9 pounds)

Dimensions

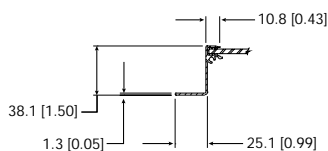
Unbracketed dimensions are in millimeters. Bracketed dimensions are in inches.
 Overall tolerances $\pm 3\text{mm}$ (1/8")



BP SX 40D, BP SX 50D

	O*	L*	A	B	C
BP SX 40D	$\frac{765}{[30.11]}$	$\frac{760}{[29.91]}$	$\frac{177}{[6.96]}$	$\frac{380}{[14.96]}$	—
BP SX 50D	$\frac{938}{[36.95\text{-}938]}$	$\frac{934}{[36.75]}$	$\frac{17}{[0.68]}$	$\frac{162}{[6.38]}$	$\frac{61024.00}{[24.00]}$

Note:
 * O dimensions include 2.54 [0.100] max. screw head projection on each end.
 L dimensions do not include screw head projection.



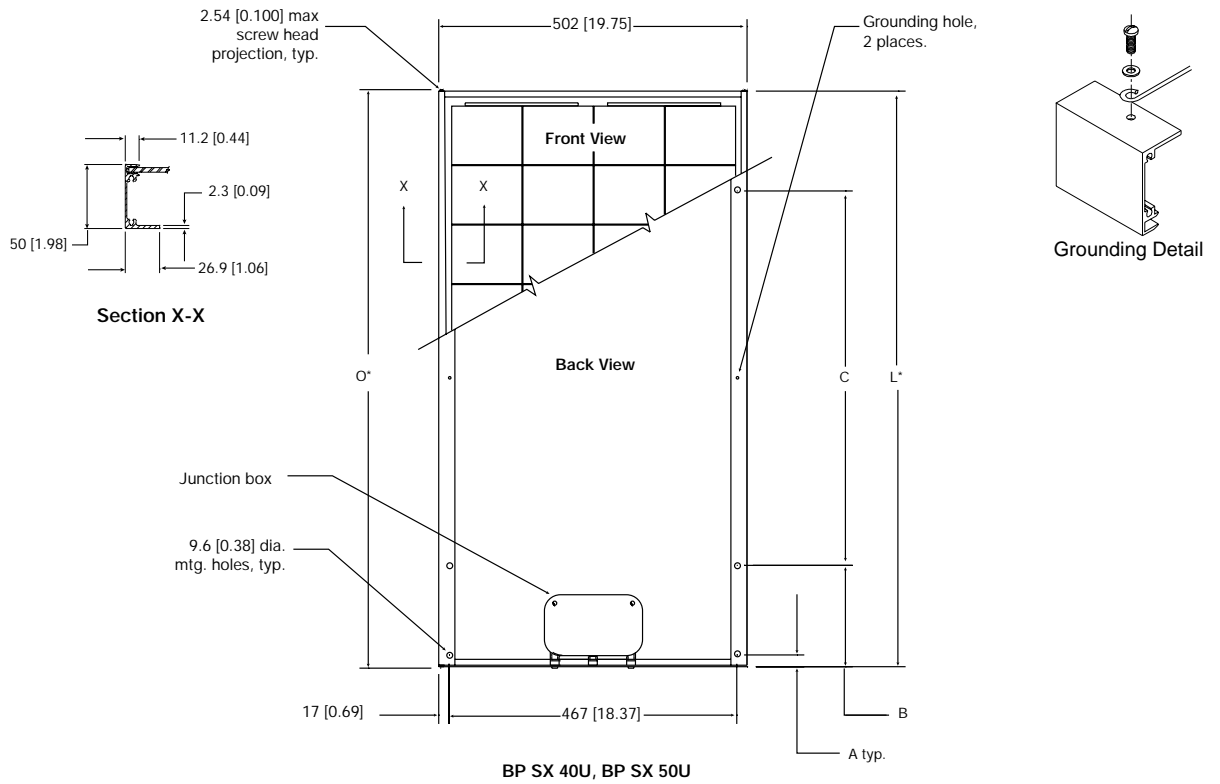
Section Z-Z

High-Capacity Versatile Junction Box

The large (411cc, 25 cubic inches) junction box of the U modules is raintight (IP54 rated) and accepts PG13.5 or 1/2" nominal conduit or cable fittings. With its six-terminal connection block, it enables most system array connections (putting modules in series or parallel) to be made right in the junction box. Optionally, this junction box can be fitted with:

- blocking and bypass diodes;
- an oversize terminal block which accepts conductors up to 25mm² (AWG #4); standard terminals accept up to 6mm² (AWG #10);
- a Solarstate™ charge regulator.

The BP SX 40U and 50U junction box may be field-wired to provide 12V or 6V nominal output. Six-volt modules are intended to support 6V loads, and are not recommended as series elements in higher voltage arrays. The BP SX 40U and 50U are certified by TÜV Rheinland as Class II equipment and for use in systems with voltage up to 1000VDC (D and M models are certified to 30V). They are approved by Factory Mutual Research for application in NEC Class 1, Division 2, Groups C & D hazardous locations.



	O*	L*	A	B	C
BP SX 40U	$\frac{767}{[30.20]}$	$\frac{762}{[30.00]}$	$\frac{178}{[7.00]}$	$\frac{381}{[15.00]}$	—
BP SX 50U	$\frac{939}{[36.97]}$	$\frac{934}{[36.77]}$	$\frac{17}{[0.69]}$	$\frac{162}{[6.39]}$	$\frac{610}{[24.00]}$

Note:
 * O dimensions include 2.54 [0.100] max. screw head projection on each end.
 L dimensions do not include screw head projection.

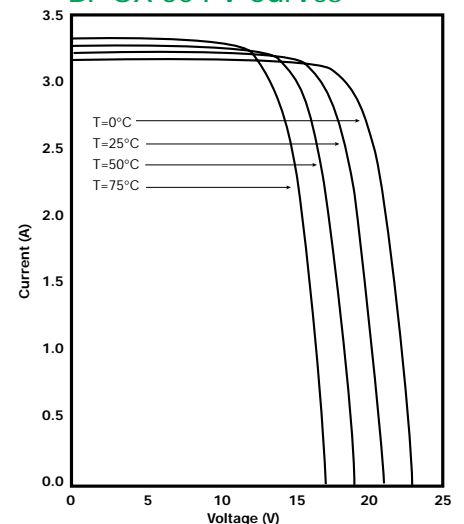
Typical Electrical Characteristics⁽¹⁾

	BP SX 40	BP SX 50
Maximum Power (P_{max}) ²	40W	50W
Voltage at P_{max}	16.8V	16.8V
Current at P_{max} (I_{mp})	2.37A	2.97A
Warranted minimum P_{max}	36W	45W
Short-circuit current (I_{sc})	2.58A	3.23A
Open-circuit voltage (V_{oc})	21.0V	21.0V
Temperature coefficient of I_{sc}	(0.065±0.015)%/°C	
Temperature coefficient of V_{oc}	-(80±10)mV/	
Temperature coefficient of Power	-(0.5±0.05)%/°C	
NOCT ⁴	47±2°C	

Notes

- 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 E1036-85 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 E892-87 global spectral irradiance);
 - cell temperature of 25°C.
- During the stabilization process which occurs during the first few months of deployment, module power may decrease approximately 3% from typical P_{max} .
- U versions.
- 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 1 m/s.

BP SX 50 I-V Curves



Quality and Safety

All BP SX 40 and 50 modules are manufactured in ISO 9001-certified factories, listed by Underwriter's Laboratories for electrical and fire safety (Class C fire rating), and compliant with the requirements of IEC 61215, including:

- repetitive cycling between -40°C and 85°C at 85% relative humidity;
- simulated impact of 25 mm (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, U only).



bp solar

This publication summarizes product specifications and warranty. For details of construction, performance, and warranty, see our website www.bpsolar.com or contact your local representative. Specifications subject to change without notice.



BP Solar uses recycled and recyclable materials in its operation to the fullest extent.