



## General Information

This instruction sheet is designed to give general installation and electrical guidelines for the PowerUp line of crystalline silicon photovoltaic panels.

### -NOTE-

Please read this instruction sheet in its entirety prior to installing any of the Power Up photovoltaic panels. If you are not familiar with electricity and your local electrical codes, please consult a licensed electrician for assistance.

## Disclaimer of Liability

Power Up Solar Inc. does not assume responsibility and disclaims liability for damage, loss, or expense arising from improper use, operation, or installation of this product. Power Up Solar Inc. assumes such position due to the inability to control the conditions and methods of installation and use of said product.

### -CAUTION-

PowerUp photovoltaic panels produce DC electricity when exposed to sunlight. When working around photovoltaic modules, batteries, and other related equipment, please observe standard industry safety practices as well as manufacturer's safety recommendations.

## Safety Notes

- Always cover solar panels with an opaque material prior to making any electrical connections. Doing so will prevent the solar panel from producing electricity thus reducing the risk of electrical shock or sparks.
- Use insulated tools and rubber gloves rated for the maximum system voltage when working with solar panels.
- Electrical connections should always be made in well ventilated areas free from hazardous gases and flames.
- PowerUp BSP1-12, BSP2-12 and BSP5-12 solar modules are equipped with blocking diodes built into the modules junction box. Solar modules larger than the BSP5-12 should utilize a charge controller with built in reverse current protection.
- The use of reflection equipment or concentrators to increase solar module output may cause damage to the solar array and will void all warranties.
- Solar panels are constructed with tempered glass. Do not walk on or drop heavy or sharp objects on the face of the solar panel as damage may occur.

## Orientation

Using a location free from daytime shadows, orient your solar array facing the equator at an angle equal to the latitude plus 10 degrees. For a more accurate optimum tilt angle, please visit our optimum tilt angle data sheet located at [www.powerupco.com/technical/TiltAngle.pdf](http://www.powerupco.com/technical/TiltAngle.pdf). For most applications, using your compasses magnetic directions will work fine but fine tuning of your solar arrays output can be accomplished by using our magnetic deviation chart found at [www.powerupco.com/technical/declination.php](http://www.powerupco.com/technical/declination.php). This chart explains the adjustment necessary to compensate for the differences found between magnetic and true orientations.

## Wiring

The wiring for each panel is 2 conductor 18AWG with insulation rated at 70° C. The white connector is positive (+) and the black connector is negative (-).

	BSP-112	BSP-212	BSP-512	BSP-1012	BSP-2012	BSP-3012	BSP-4012	BSP-6512	BSP-8012
Maximum Power (Pmax)	1W	2.5W	5W	10W	20W	30W	40W	65W	80W
Voltage at Pmax (Vmp)	16.7V	17.0V	17.0V	17.3V	17.3V	18.0V	17.8V	17.4V	17.8V
Current at Pmax (Imp)	.075A	0.15A	0.30A	0.58A	1.20A	1.67A	2.40A	3.75A	4.50A
Short-Circuit Current (Isc)	0.09A	0.17A	0.33A	0.66A	1.30A	1.80A	2.60A	3.99A	5.06A
Open-Circuit Voltage (Voc)	21.0V	21.0V	21.0V	21.3V	21.7V	22.1V	22.1V	21.7V	21.9V

## Grounding

The frame of your solar module should be connected to earth ground using one of the unused mounting holes provided on your module frame. When connecting to the module frame, a star lock washer must be used to ensure a solid electrical connection. Consult the NEC for grounding standards in your area.

## Maintenance

Check wire connections for tightness and corrosion, and exposed areas for chaffing and wear on a regular basis. Module surface may be cleaned as needed using a soap and water. Abrasive chemicals can not be used in the cleaning of your solar module. As the combination of water and electricity produces a large shock hazard, please disconnect your solar panel from the charge controller or battery prior to any cleaning process and always wear protective rubber gloves and rubber sole shoes when working with electricity.

## Warranty

### Ten Year Limited Warranty\*

\*BSP Dura Series Panels carry a 5 year limited warranty.

PowerUp Solar Inc. warrants 90% of the Minimum Rated Power specified at the time of sale for a period of 10 years from the date of purchase. Defects in materials or workmanship will be repaired or replaced at PowerUp's discretion. Solar panels with loss of power below the original 90% will be replaced after being tested at STC (standard test conditions) at our facility. This limited 10 year warranty does not cover misuse, neglect, abuse, alteration, lightning surges, or damaged caused by transportation of such product. All claims require the issuance of a Return Authorization Number which can be obtained from our office prior to sending any packages. Our office information is:

Power Up Solar Inc.  
Corporate Headquarters  
12230 Eastern Ave.  
Chase, MD 21220  
410.344.9206  
www.powerupco.com