

# Solar Installation Outline



## BP Solar Module Tech Tips

### Mechanical Installation Tips

1. For maximum module performance, where possible face the module towards the equator (ie. due north in the Southern Hemisphere).
2. Ensure an unshaded location throughout the year and select a tilt angle from the table below. Within 10° of the equator the module can face either pole without any reduction of performance. Detailed system design reports with performance simulations at optimum tilt angles are generally available.

Contact RFI for more information

Latitude (°)	Tilt (°)
0-10	10
11-15	15
16-20	20
21-25	25
26-30	30
31-35	35
36-40	40

Latitude (°)	Tilt (°)
41-45	45
46-50	50
51-55	55
56-60	60
61-65	65
66-70	70
71-75	75

### The Need for Regulation

#### *36 Cell Modules - Better by design*

To boost charge a nominally 12 volt standard flooded lead acid battery the terminal voltage must be taken to 15 volts at 20°C. At this voltage the battery will be gassed sufficiently to remove stratification and to ensure cell equalisation. In some applications it is necessary to ensure that the boost voltage is reached as quickly as possible even at high temperatures. To ensure that this happens most modules are manufactured with 36 silicon solar cells connected in series which will yield approximately 17 volts at the maximum power point. The additional 2.0 volts are required to overcome cabling and blocking diode losses. However, systems using 36 cell modules must be equipped with a charger controller to ensure that the batteries are not over-charged during periods of surplus energy.

### Preventative Maintenance Tips

- As a minimum requirement PV installations should be inspected annually. In particular, check that all fixings and electrical connections are tight and corrosion free.
- Accumulated dust and dirt can be removed from the front surface the PV modules by washing gently with water and a detergent solution. Do not use solvents or abrasive cleaners on any part of the PV module.

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(continued)



## Quality and Safety

BP Solar modules are manufactured in ISO 9001 certified factories to demanding specifications.

They comply with the requirements of IEC 61215, including:

- repetitive cycling between  $-40^{\circ}\text{C}$  and  $85^{\circ}\text{C}$  at 85% relative humidity;
- simulated impact of 25mm (one inch) hail at terminal velocity;
- 2200 VDC frame/cell string isolation test;
- static loading, front and back, of 2400 pascals (50psf);
- front loading (e.g. snow) of 5400 pascals (113 psf).

