

# 10-Watt Solar Panel

## Installation Instructions

The Solar Panel should be installed in an open, unobstructed southern exposure; preferably on the roof. Although the solar panel is waterproofed, any wire connections should be coated with silicone (or similar) to provide protection against the elements.

## Wiring

The red wire should be connected to the positive (+) terminal on the battery, and the black wire connected to negative (-). Since this solar panel is only 10 watts, it is very unlikely that it will ever overcharge a car-sized battery, even if the fan is turned off. Power from the solar panel can be disconnected, if so desired, by installing an optional switch (as small as 1 amp) in the positive line.

## Battery

A deep cycle battery, which you can purchase at most RV or Marine supply stores, is ideal for residential or heavy seasonal use. If you are using a cottage only a few weekends in the summer, and all that you have available is a car battery, that should do for such limited usage.

## Principle

The solar panel will charge the battery and run the fan during the day. The battery will then have enough charge to run the fan through the night, or on cloudy days.

## Specifications

Maximum output 10 watts, at 17.2 Volts and 0.59 amps

## Choosing a PV (photovoltaic) Site

### Where should I mount the panel?

Careful orientation of your solar panel will help you get the most power from your system. The ideal location would receive direct sunlight, particularly during the middle portion of the day when sunlight is strongest. An exposed rooftop is the most popular choice for the solar panel. The panel should be bolted to a strong mounting structure so that it is sturdy enough to avoid blowing away. When secured to your rooftop, the panel will be protected from accidental damage.

### What direction should it face?

In Canada and the Northern US, solar modules should be oriented due south. Consult a chart or topographic map of your area to determine due south from magnetic south. Note: If you are shaded through part of the morning, it may be of benefit to shift the panel more to the west to take advantage of the afternoon sun. The reverse holds true for afternoon shading. The following table shows the relative difference in panel output by season for panels facing other than due south, based on a panel tilted at 30 degrees from the horizontal (a typical slope). Notice the impact of direction is insignificant in summer but greater in the winter when the sun is lower on the horizon.

Panel Angle	Total %	Summer %	Winter %
South	100	100	100
115	99	100	97
130	97	100	97
145	94	99	70
160	90	98	64
175	84	96	49
East or West	70	93	35

### Choosing the correct gauge of wire

Distance (in feet ) of Solar Panel  
to 12 Volt Battery

Gauge of Wire

10'	18
15'	18
20'	16
25'	16
30'	16
40'	14
50'	12
60'	12
70'	12
80'	10