

How the Solar Pathfinder Assistant Works

The Solar Pathfinder Assistant is your fast track to producing comprehensive reports on all of your solar panel installations.

Enabling the Assistant to make the calculations for you is easy. Just follow these steps and generate your report in seconds!

1. Arrange the Solar Pathfinder unit as you would at any installation site, setting it up at the prospective site level and pointing it to “magnetic south.”

2. Take a picture of the Solar Pathfinder with your digital camera and upload the image to the Solar Pathfinder Assistant.



3. Choose type of report (PV, thermal, ecological). Type in the zip code (for USA, otherwise, use latitude/longitude) of the solar site.

Entering the zip code automatically inputs the following data:

- ❖ Latitude
- ❖ Magnetic declination
- ❖ Tilt angle* (assumes tilt = latitude)
- ❖ Closest global weather data station*
- ❖ Closest NREL data station*
- ❖ DC Rate (kWh)*
- ❖ Derate Factor*
- ❖ Azimuth (degree east/west of true south)*
- ❖ Cost of electricity* (cents/kWhr)
- ❖ Tilt mode*

*denotes data you can override manually

Create New Report

Analysis Settings

[Use Factory Settings](#)

Angle Estimator Scheme
The scheme is used to display the numbers on the azimuth / altitude table and the azimuth values at the top of the report columns. This does not affect the Array Orientation.

Default (South = 0 degrees)

Array Orientation

☒ Enter Compass Azimuth

True Azimuth: 180

Compass Azimuth: 184.4

Declination: -44.22m

Azimuth Note
North = 0
East = 90
South = 180
West = 270

Ideal Settings
These values define the "ideal" settings that you want your site to be compared to (for percentage purposes).

Ideal Tilt (deg): 38.4883 [Set Default](#)

Ideal Azimuth (deg): 180 [Set Default](#)

Help << Previous Next >> Cancel

4. Input azimuth

[Ideal settings at bottom of page are usually left as default. See software for more instructions.]

5. Input cost of electricity.

Select the panel and inverter make, model, and count you plan to install at the site.

Create New Report

Inverters And Panels

☒ Use Known Inverters ☒ Use Known Panels

Cost of Electricity: 0.12 (\$/kWh)

Inverter Make: Fronius USA 62 Manufacturers

Inverter Model: IG 4000 POS 709 Models

4000V Grid-tied unit with Integrated Disconnects and Performance Meter

Panel Make: Canadian Solar 253 Manufacturers

Panel Model: CSP-210M 4411 Models

210V Monocrystalline Module

Inverter Count: 1

Panel Count: 1

Inverter Derate (for a single inverter): 0.94

DCRate (in Watts for a single panel): 210.0

System Total: 210.0 Watts

Help << Previous Next >> Cancel

Edit Report - [No Title]

Derate Settings

The DC to AC derate factor is a percentage (in decimal form) that accounts for losses from the manufacturer's DC nameplate power rating. There are different ways to come up with this factor. Different states in the US are currently requiring different settings (CA uses "Inverter Derate Only", WI uses "Set Derate" = .80, etc.) Please check your energy rebate requirements to see which type of derate factor is needed.

☐ Set Derate: Allows user to insert a set derate (this derate is usually given by a local energy rebate entity for everyone to use). (DEFAULT)

☒ Calculated Derate: Calculates the overall derate from user-supplied component derate information.

☐ Inverter Derate Only: Uses the inverter derate.

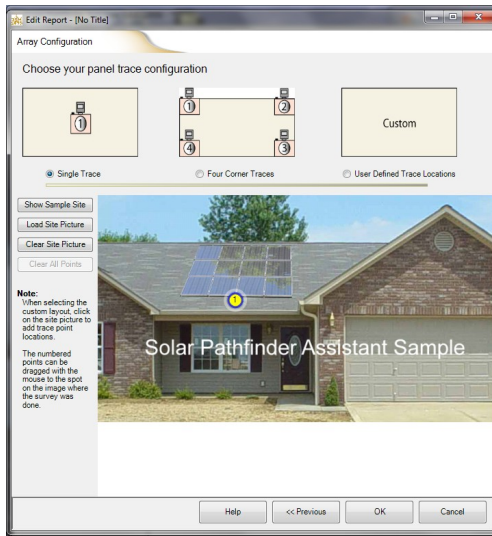
Derate Factors for AC Power Rating at STC
[For information on this table see the PV Watts site.](#)

Component Derate Factors	Custom Derate Setting	PV Watts Range
PV module nameplate DC rating	0.95	0.800 - 1.050
Inverter and transformer	0.94	0.880 - 0.960
Mismatch	0.98	0.970 - 0.995
Diodes and connections	0.995	0.990 - 0.997
DC Wiring	0.98	0.970 - 0.990
AC Wiring	0.99	0.980 - 0.993
Soiling	0.95	0.300 - 0.995
System availability	0.98	0.000 - 0.995
Sun-tracking	1	0.950 - 1.000
Age	1	0.700 - 1.000
Overall DC-to-AC derate factor	0.787	

Help << Previous Next >> Cancel

6. Choose & Input Derate Settings

- Set Derate (used when regulatory authorities have a set derate that they want all to use, ex: ".85")
- Calculate Derate (used to calculate derate from individual parts of system)
- Inverter Derate (uses derate of inverter only)

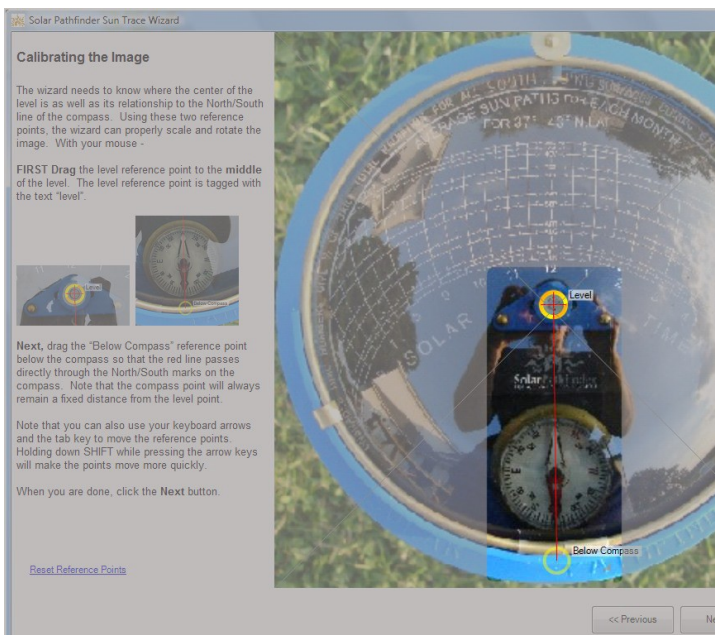
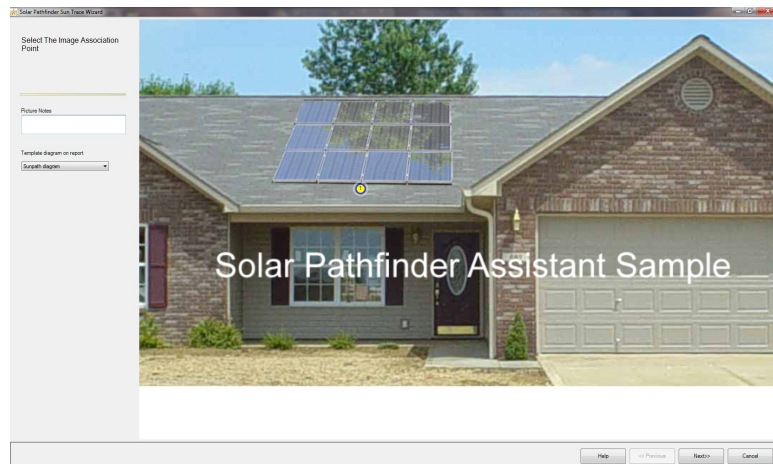


7. Insert picture of where panels will be located and show number of Pathfinder tracings and their location.

This documents your report and allows inspectors to know where tracings were taken.

8. Software will prompt you to input the first tracing picture (from your computer files) for your array.

9. Software will prompt you to mark which point on the “Array Configuration” page the picture is associated with.



10. Calibrate the site picture by simply cropping it and aligning the level and declination settings directly on the picture you have taken.

11. Next, you'll trace the shading around the site with a few clicks of the mouse.

12. Click "Create Report" to get your fully customizable solar site analysis.

The Assistant can create a report for a single analysis or the average of several analyses (4 corners of an array, etc.)!

Every report includes

- ❖ Ideal/Actual percentage of sunlight
- ❖ Ideal/Actual Solar Radiation (kWh/m2/day)
- ❖ Ideal/Actual kWhr
- ❖ Angle/azimuth values
- ❖ Cost Savings
- ❖ Side-by-side view/Single tracing view

