

Solar Site Selector

The shadows caused by trees, buildings and other objects can cause solar energy systems to become less effective. This is called 'shading'.

The Solar Site Selector allows you to assess the likelihood of shading on planned module or collector surfaces, thereby optimising the performance of solar energy systems.

The transparent sunpath sheet displays relevant annual sunpath curves with respect to daily sunshine hours. Using the built-in compass to align it south, if you look through the device you will be able to identify objects that could obstruct the path of the sun and therefore cast a shadow. The compass blades tip which helps to indicate when the device is level.

The optimal installation location for solar collectors or solar modules is one where no shading occurs, or where shading only occurs very early or late in the day.

Especially during the transition periods of autumn and spring, a solar system should not be subject to strong shading. For example, a system mounted on a roof with Western orientation must not be shaded during the afternoon.

Astronomical Information

In the northern hemisphere, December 21st is the shortest day of the year with the fewest sunshine hours. Hence, on this day the sun follows its lowest path. Different sun-paths can be determined depending on the latitude. For the UK, the sunpath diagram between 51st and 58th latitude is usually sufficiently precise. These foils are included, and other latitudes are available on request. These do not show details for the peak summer months between May and July. If strong shading is shown above the highest line of the diagram then normally an alternative location should be found for solar energy applications.

For UK customers, this product includes our exclusive MCS-aid sunpath diagram. For more details about how to use this to assist with the MCS method, visit www.solardesign.co.uk/mcs-shading.php. Non-MCS foils are also available upon request.

Note: You can calculate the precise time at which the sun's position is at its highest by adding the official sun-rising and sun-setting times and then dividing the answer by 2. If, for example, the sun-rising time is 07:08 and the sun-setting time is 17:10, the sun will reach its highest position at exactly 12:09. The sun-rising and -setting times can be obtained from many daily newspapers, the MET office or the Internet. The device uses indicated clock times for Greenwich Mean Time (GMT).

Computer simulation programs such as T*SOL and PV*SOL allow you to enter shadow data and so can give a precise calculation of the solar fraction.



Figure 1. The Solar Site Selector can be mounted on a tripod for greater stability (mount not included)

Negligible Magnetic Deviations

In many locations, the magnetic north-south direction deviates from the geographical north-south direction by up to 2%. The technical expression for this is 'magnetic declination'. Deviations from the solar south result from the elliptical orbit of the earth around the sun. If in doubt, try to establish the highest location of the sun in the sky at the solar 'noon' and rotate the device to match this direction to 12.00.

Please keep in mind the one hour summer-time/daylight savings adjustment during your measurements. In the summer, British Summer Time is one hour ahead of GMT.



Never look through the eyepiece into the sun!



Please observe safety guidelines when using the device on roofs!

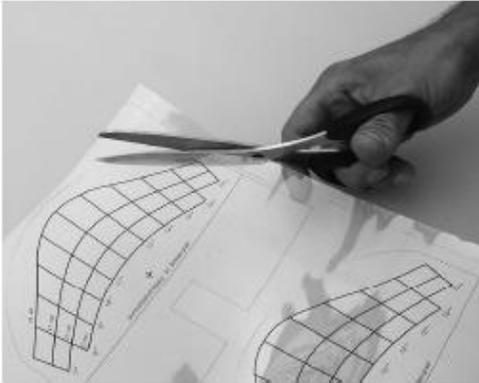


Figure 2. Select the correct sunpath foil (e.g. 51° lat. = D. NL. B. Southern UK; 48° lat. = AU. CH, etc; 53° lat. = IE, Northern UK), cut out the correct foil for your region along the thin markings and insert it into the stainless steel holder.



Figure 3. Go to the proposed location of the solar system.



Figure 4. Use the compass to align the Solar Site Selector south, levelling it horizontally. The compass blades tip and help to do this.



Figure 5. You can trace the outlines of trees and buildings on to the smooth side of the sunpath sheet using a non-permanent OH pen.

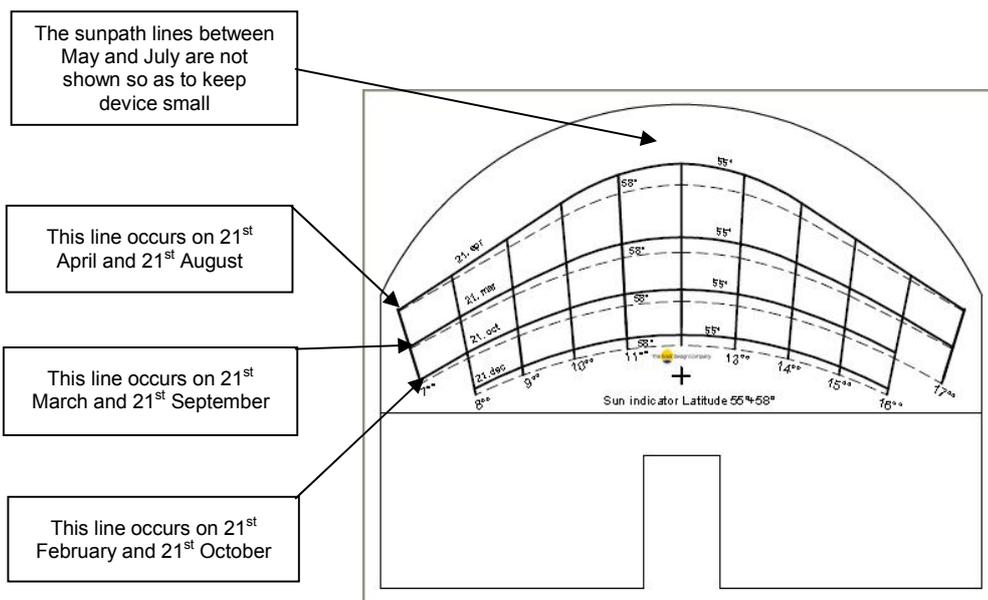


Figure 6. Example sun-path sheet for Latitude 55° + 58°