

INTRODUCTION

Please make sure the following points for installation before your decision to purchase.

Point 1: Can you install the solar panel to due south?

Point 2: Can the solar panel catch Sunlight directly?

(1) The Solar LED outdoor light assumes sun-light as its energy source.

Install it in a place which receives direct sun-light.

Time for Charging: approximately 5 hours for the basic design.

There may be some difference by model as well as season.

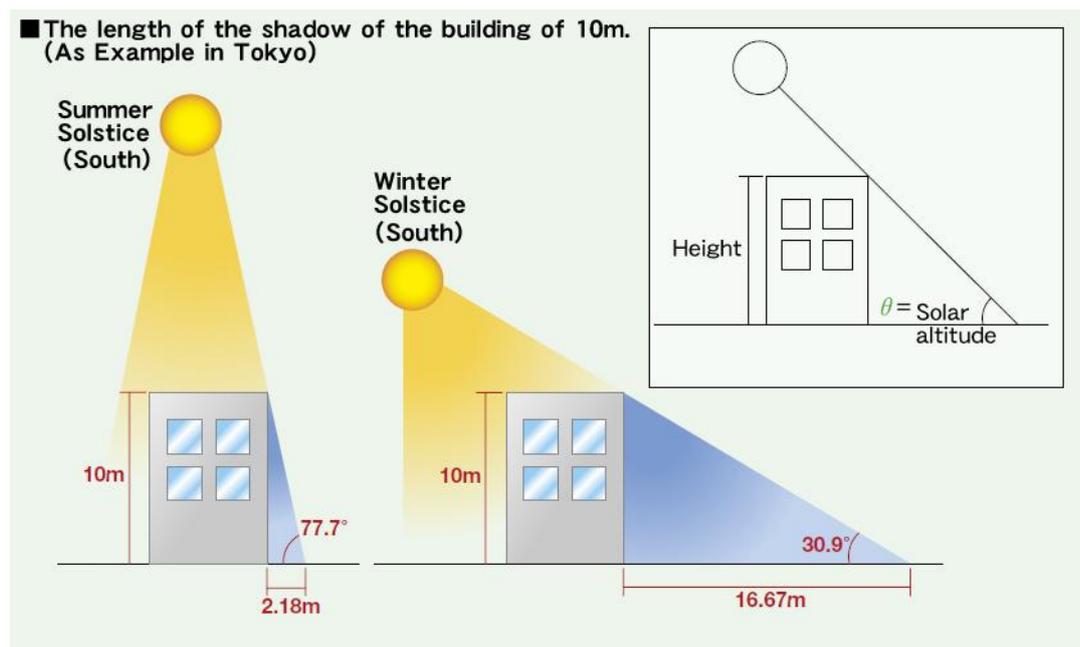
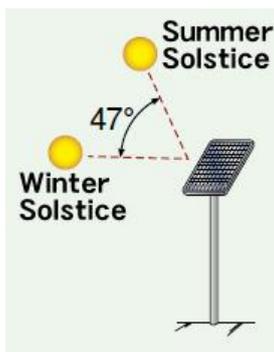
* The Best time for charging is Between 9.00 -15.00 in strong sun light. (in Japan)

Point 3: Installation for winter

(2) Due to change of altitude of sun in the winter, The Solar LED outdoor light should not be installed in the shade of trees, Building sign-board, stone walls, etc.

(As Example in Japan)

	Sapporo	Sendai	Tokyo	Nagoya	Osaka	Hiroshima	Fukuoka	Kagoshima	Okinawa
Summer Solstice	70.4°	75.2°	77.7°	78.3°	78.8°	79.0°	79.8°	81.8°	87.3°
Winter Solstice	23.6°	28.3°	30.9°	31.4°	31.9°	32.2°	33.0°	35.0°	40.5°



(3) The solar panel face the south direction. Due south is the best position.

Compared to 100% for due south, South East and South east is 90% in efficiency.

(4) If Solar Panel is placed in shade, even if partial, power generation may be reduced.

Keep mud, and birds droppings off the panel as may reduce power generation.

It is important to keep the face of solar panel clean.

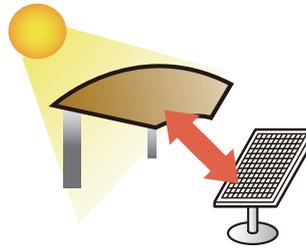
(5) Malfunction: The Solar LED may malfunction, if other lights such as outdoor lamps are placed in the near Solar LED. It may detect other light during the daytime.

(6) The Tress with long branches may reduce power generation. Do not install the Solar LED panel in a place where sun light may be blocked by buildings.

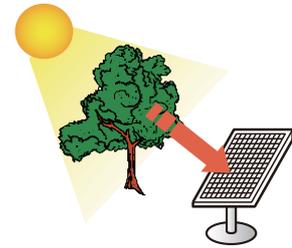
■ For Solar System, "SUN" is friend "SHADE" is enemy

● Let's think about sun shine

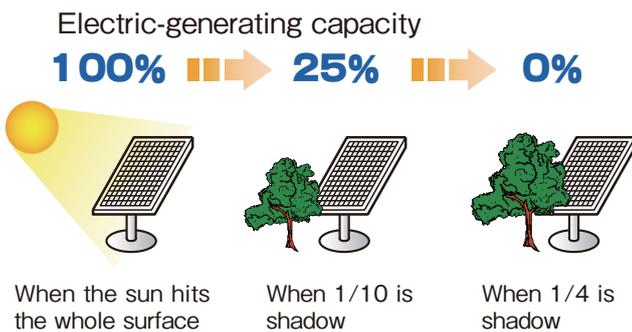
For instance, We assume q' ty of sun-light 100 at a place getting the direct rays of the sun Q' ty of sun-light through car port(Roof material brown) is about 1/2 and less than 1/20 at shade, which are Less than q' ty of Sun light at cloudy & rainy weather.



Amount of solar radiation about **1/2**



Amount of solar radiation about **1/20**以下



● Generation efficiency & Influence by shade

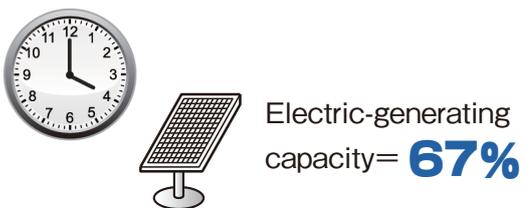
For instance, we assume Q' ty of generation 100 at Solar panel getting the direct rays of the sun , Q' ty of generation is reduced to 1/4, when 1/10 of panel will be covered by shade, and will be reduced to almost zero when 1/4 of panel will be covered by shade.. When there is a shade on the panel even a little, Panel can not recognize sun-shine.

SAMPLE

For instance, we assume q' ty of generation 100 at a place getting direct ray of the sun for 6 hours,

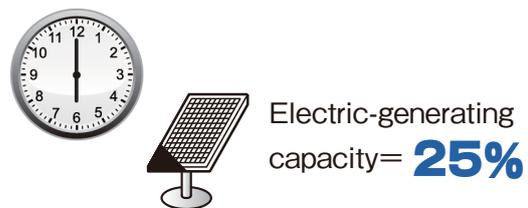
Sample 1

Q' ty of generation is 67%, at a place getting direct ray of the sun for 4 hours,



Sample 2

Q' ty of generation is 25% at a place 1/10 of panel will be covered by shades for 6hours.



In conclusion, a place of **Sample 2** is not suitable for installation of solar panel.