

AUTOMATE™

Solar Panel 2.0



**SOLAR
POWERED**



USB CHARGE

AUTOMATE | Solar Panel 2.0 provides supplemental power to all Li-ion wirefree motors or rechargeable battery packs. The monosilicon/crystal solar panel provides power in varied conditions including low light situations.

Users can refer to the AUTOMATE Solar Guide for direction related to regional solar conditions and expected performance available at <https://www.rolleaseacmeda.com>

FEATURES:

- Plug n' play for all 5V & 12V AUTOMATE Li-ion motors & rechargeable battery packs
- Sleek design allows for unobtrusive placement behind most headrails
- Monosilicon/crystal technology allow for up to 12% more efficiency than alternatives
- Low light harvesting technology supports power generation in varied conditions
- Panel Charges when Partially Shaded

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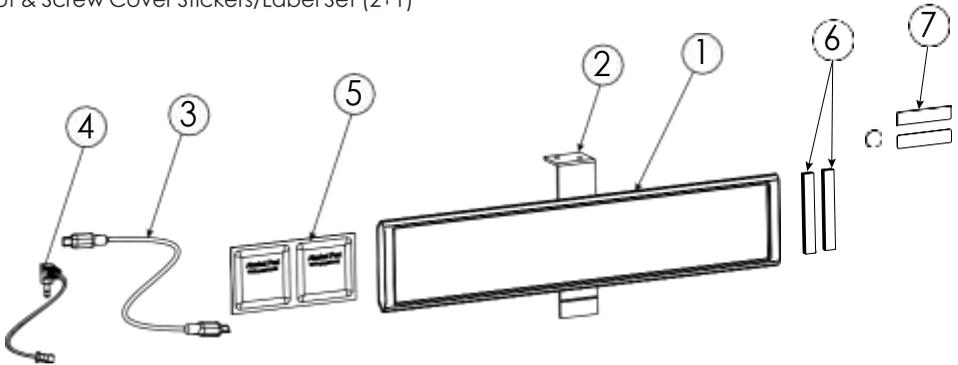
1 COMPLIANCE STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2 KIT COMPONENTS

1. Solar Panel
2. L-Bracket - Aluminium
3. Cable: Male Micro USB to male Micro USB Connector Cable
4. Cable: Male barrel to male 2 pin SMR
5. Alcohol Wipe Cloths (Twin Pack)
6. Dual Lock Type 250 fastener
7. Slot & Screw Cover Stickers/Label Set (2+1)



3 SAFETY INSTRUCTIONS

WARNING: Important safety instructions to be read before installation.

- Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- Incorrect installation can lead to serious injury and will void manufacturer's liability and warranty.



CAUTION

- Do not expose to moisture or extreme temperatures.
- Do not allow children to play with this device.
- Use or modification outside the scope of this instruction manual will void warranty.
- Installation and programming to be performed by a suitably qualified installer.
- For use with Li-ion Motors and Re-chargeable battery packs only.
- Do not cut power cables.
- Use only Rollease Acmeda hardware.
- NOT suitable for exterior application.
- Do not drill into motor body or Solar panel body.
- The routing of cable through walls shall be protected by isolating bushing or grommets.
- Ensure power cable is clear and protected from moving parts.
- If cable or power connector is damaged do not use.

Important safety instructions to be read prior to operation.

- It is important for the safety of persons to follow the enclosed instructions. Save these instructions for future reference.
- Persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge should not be allowed to use this product.
- Keep Solar Panel away from children.
- Frequently inspect for improper operation. Do not use if repair or adjustment is necessary.



Do not dispose of in general waste.
Please recycle batteries and damaged electrical products appropriately.



4 SOLAR PANEL INSTALLATION LOCATION GUIDE

4.1 Sun's seasonal declination differences

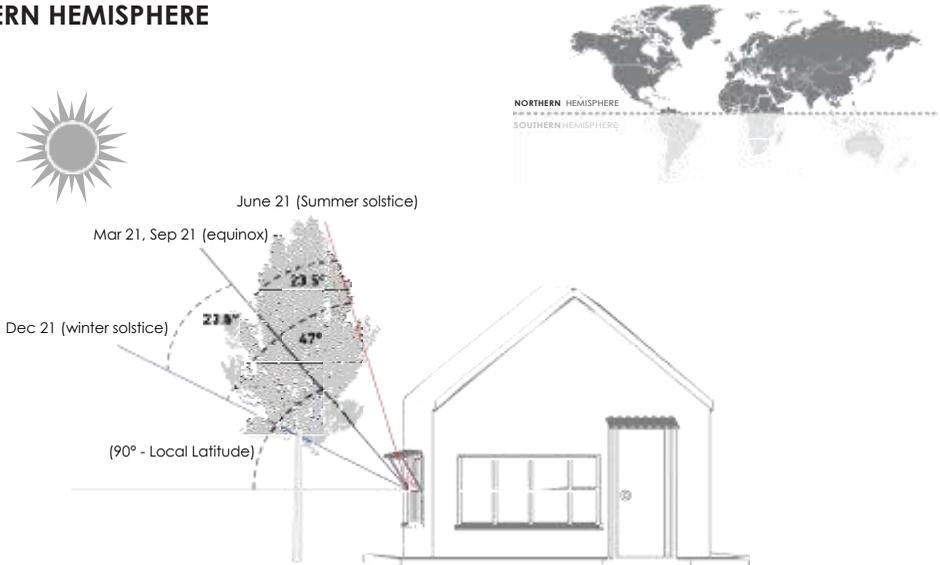
Take into account the movement of sun throughout the season.



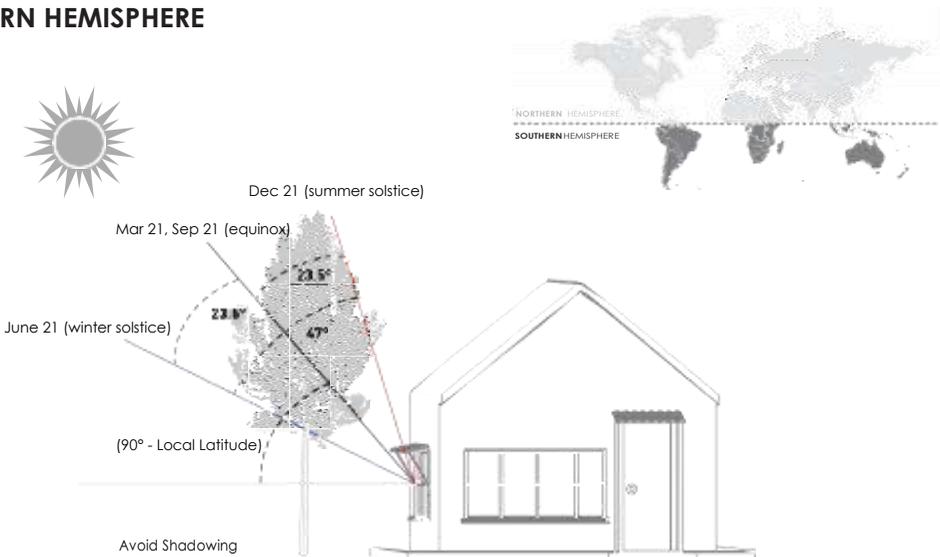
IMPORTANT!

Avoid Shadowing from trees, awnings, etc for optimal performance.

NORTHERN HEMISPHERE

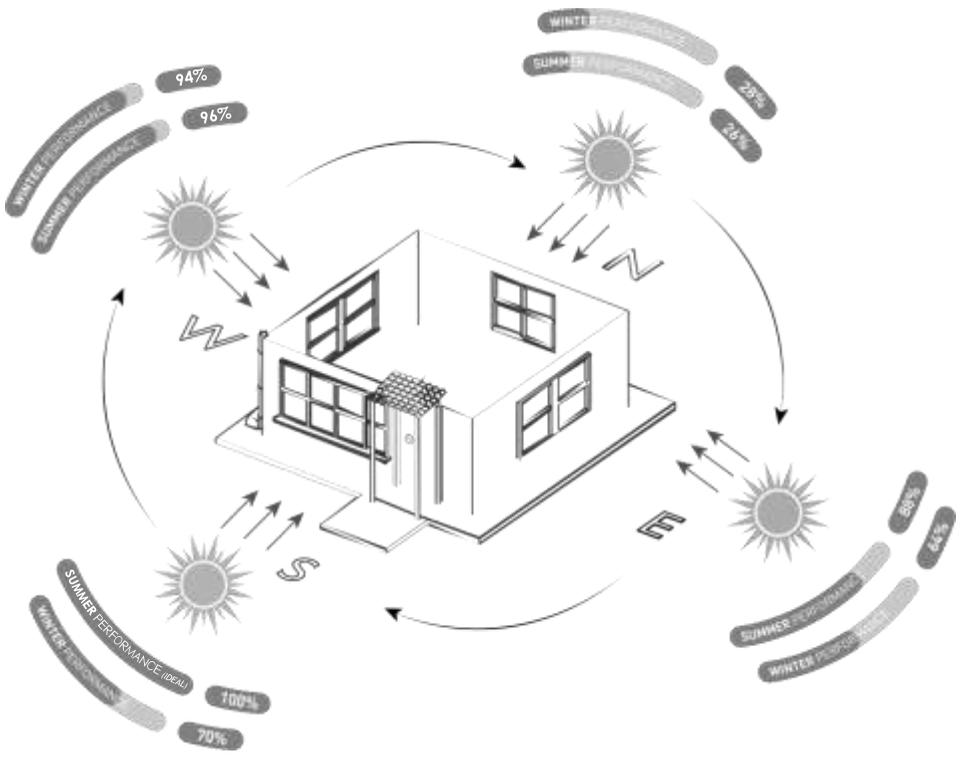


SOUTHERN HEMISPHERE

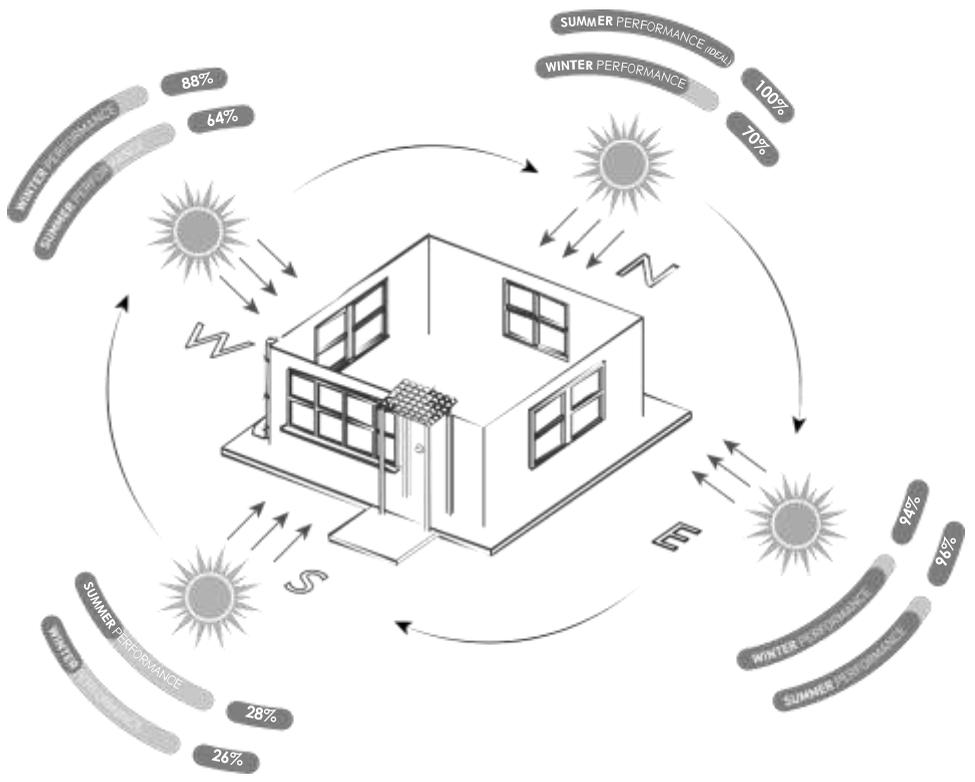


4.2 Sun's seasonal performance

NORTHERN HEMISPHERE



SOUTHERN HEMISPHERE



4.3 LightTransmission

Light transmission can vary widely with the number of window panes and types of coatings. The type of glass needs to be assessed. Approximate transmission factors are:

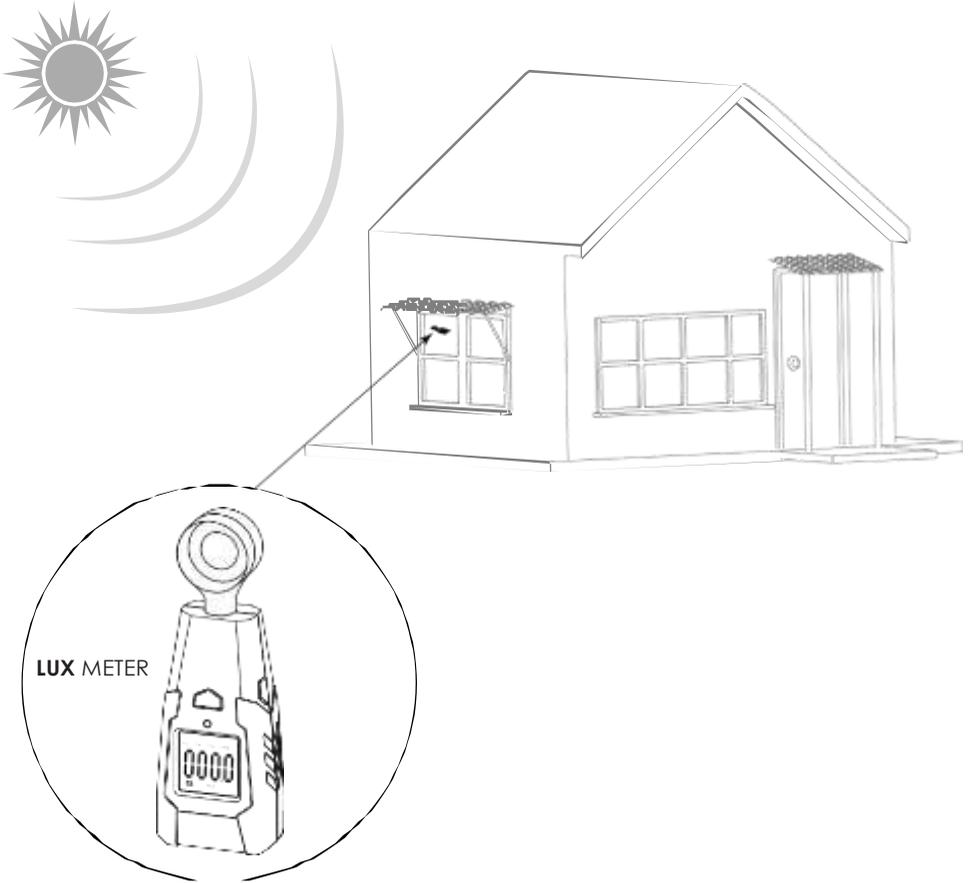
GLASS TYPE	TRANSMISSION FACTORS
Single panel	70%
Double panel	63%
Double panel with bronze tint	30%
Double panel with selective low-e coating	45-57%

5 ASSESSING THE INSTALLATION LOCATION

5.1 Pre-installation Assessment

Step 1: Measuring sunlight through the window

Hold the Lux meter directly against the window glass indoors, in the location you wish to mount the solar panel, and observe the KLux Reading.



Step 2: Estimate performance

Using the time of the day that the measurement was taken, select the coefficient that corresponds to your region/time of year.

TABLE 1.1

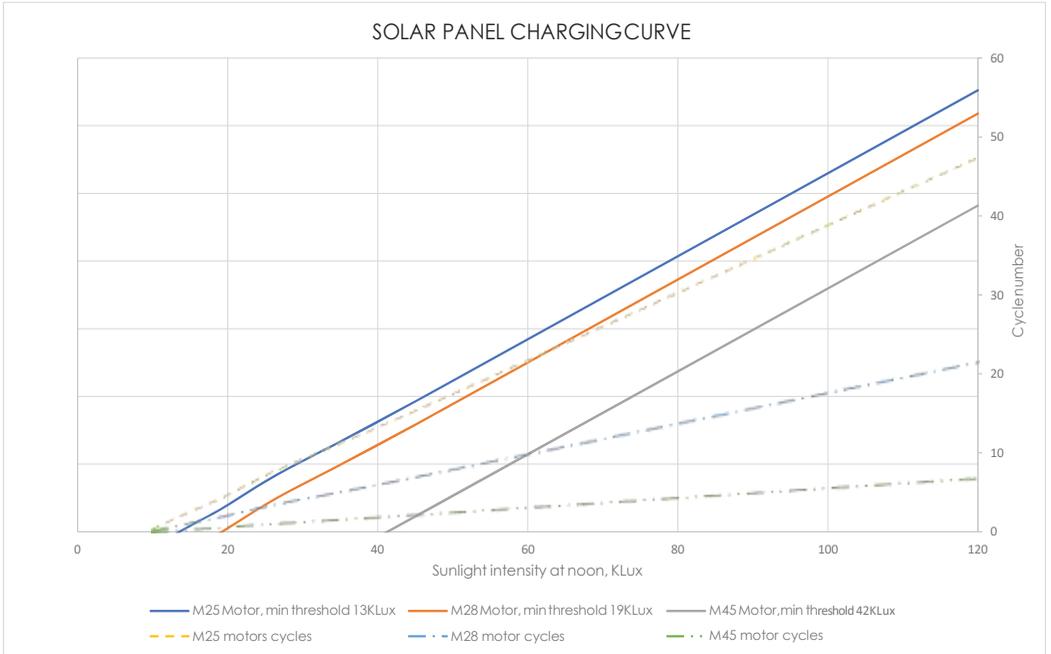
TIME OF MEASUREMENT ON A PARTICULAR DAY	COEFFICIENT IN JANUARY (NORTH HEMISPHERE) & JULY (SOUTH HEMISPHERE)	COEFFICIENT IN JULY (NORTH HEMISPHERE) & JANUARY (SOUTH HEMISPHERE)
1:00am	0	0
2:00am	0	0
3:00am	0.00	0.00
4:00am	0.00	0.00
5:00am	0.00	0.00
6:00am	0.00	13.64
7:00am	0.00	4.96
8:00am	0.00	2.97
9:00am	5.57	1.95
10:00am	1.79	1.53
11:00am	1.24	1.34
12:00pm	1.00	1.09
1:00pm	1.02	1.00
2:00pm	1.06	1.07
3:00pm	1.51	1.16
4:00pm	2.26	1.32
5:00pm	0.00	1.69
6:00pm	0.00	2.56
7:00pm	0.00	5.34
8:00pm	0.00	0.00
9:00pm	0.00	0.00
10:00pm	0.00	0.00
11:00pm	0.00	0.00
12:00am	0.00	0.00

Note: 0.00 coefficient means that the sunlight intensity is too low to be measured accurately.

Step 2: Estimate performance - continued

Use the value calculated from Table 1.1 with Graph 1.0 to estimate the number of cycles that the solar panel can provide over a 24 hour period.

GRAPH 1.0



5.2 Example of Pre-installation Assessment

Example:

Measuring sunlight intensity at 3:00pm during winter of Northern Hemisphere, for a M25 motor installation:

Step 1:

Measure the KLux using a Lux meter as shown in Fig 1.0

Measured Value = 20KLux

Step 2:

Multiply the measured Value by the coefficient in Table 1.0

Sunlight intensity = Measured Value x coefficient

Sunlight intensity = 20KLux x 1.51 = 30.2KLux



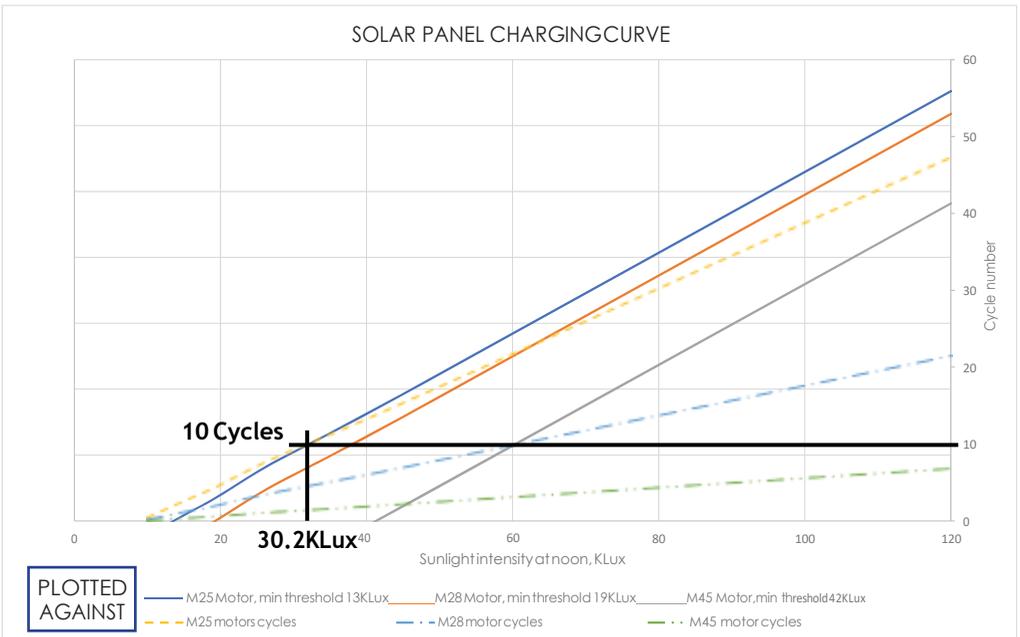
Fig 1.0

3:00pm	1.51	1.16
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Step 3:

Calculated sunlight intensity = 30.2KLux

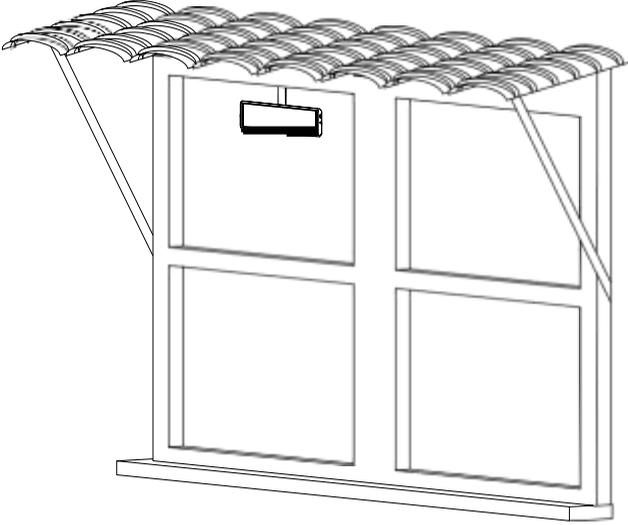
Locate 30.2KLux on the x-axis and draw a vertical line from it until it meets the motor curve. Draw a horizontal line intersecting the vertical line and the y-axis; gives an estimated number of cycles (within a 24-hour period) that can be achieved without depleting the battery level. i.e. the motor is only consuming energy harvested from the sun. In this case it is approximately 10 cycles.



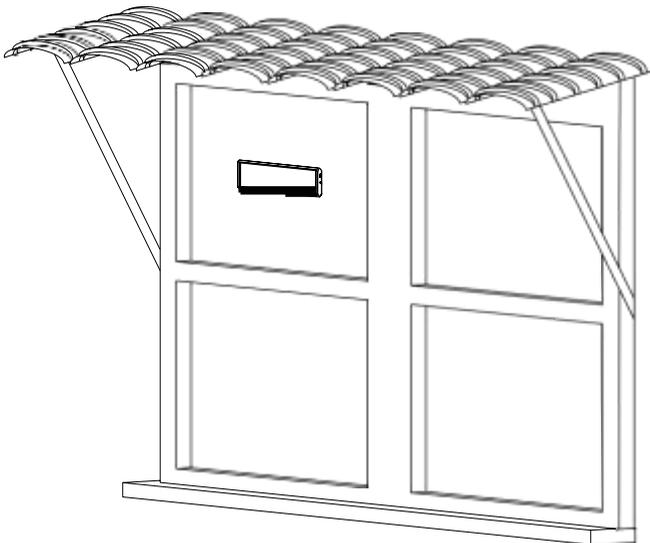
6 INSTALLATION

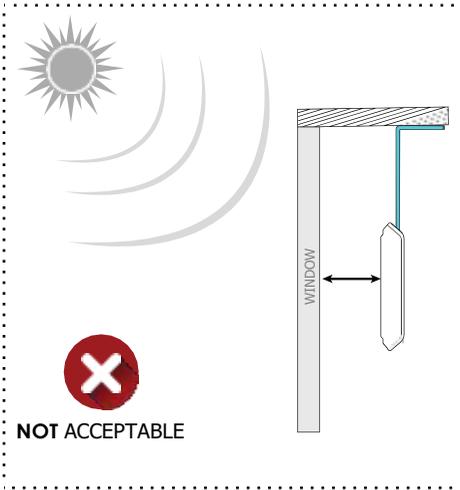
6.1 Mounting Options

OPTION A. Attaching Mounting Bracket to Window Frame

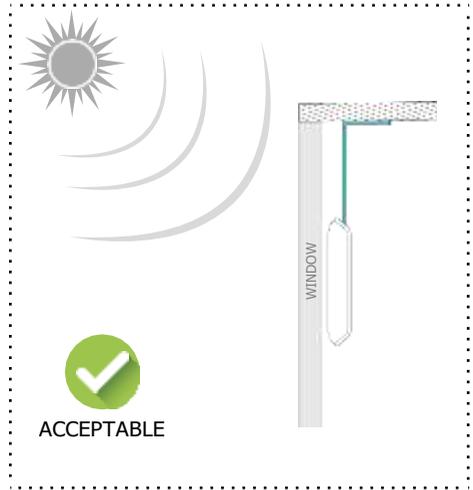


OPTION B. Attaching Solar Panel via Velcro Strip to a Window or surface

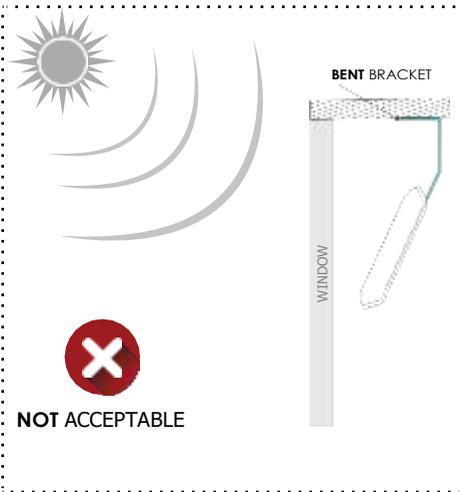




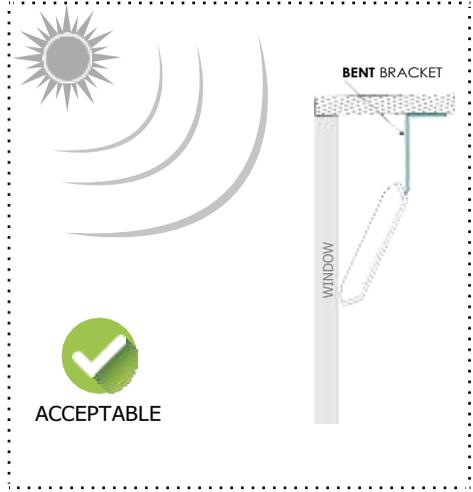
Solar panel should not be too far from the window because the performance will be reduced.



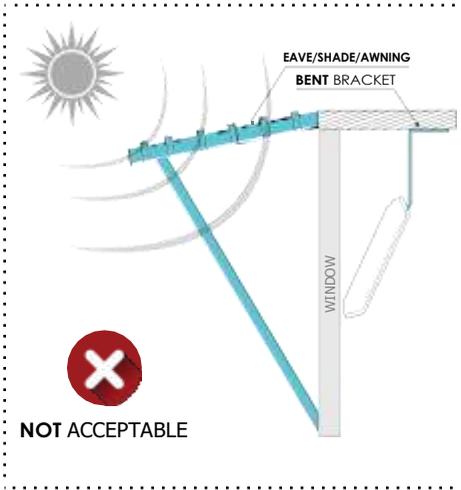
Keep the solar panel as close to the window as possible.



The back of the bracket should not be facing opposite to the window.

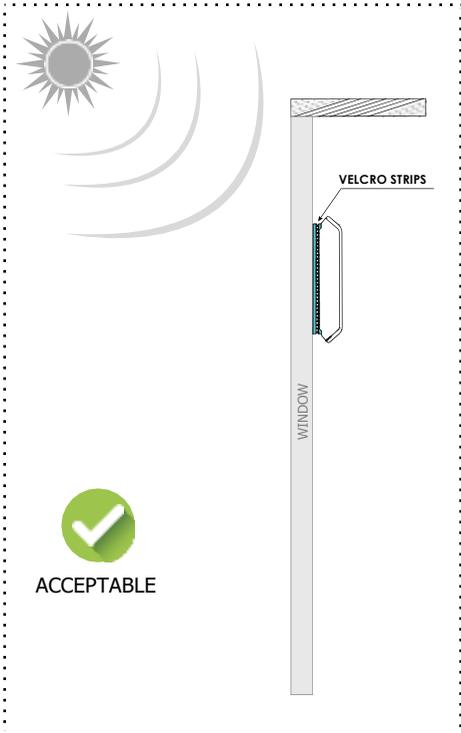


The back of the bracket should be facing towards the window.

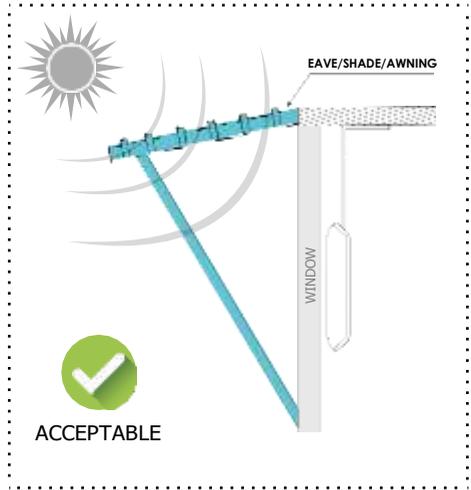


In case of an eave, shade or awning, the bracket should not be bent.

HORIZONTAL ORIENTATION



Use velcro strips to stick the bracket on the window (horizontal orientation).



VERTICAL ORIENTATION



Use velcro strips to stick the bracket on the window (vertical orientation).

6.2 Installation Process



IMPORTANT!

Fully charge the Motor or Battery Pack before beginning Solar Panel installation.

Step 1. Locate the optimal position for solar panel in window.

Ensure all components are available for installation scenario.



IMPORTANT!

Ensure solar panel has adequate exposure to sunlight.

When selecting a position for solar panel, consider any external obstructions like trees, building, signs, etc. that may limit the amount of sun light reaching onto the solar panel.



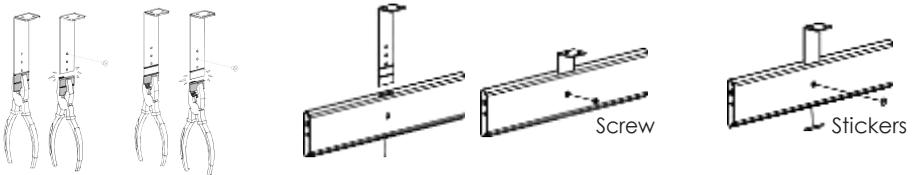
IMPORTANT!

The PV panel supports two motor voltages; however a single PV panel can only charge one motor-type at a time. That is, if the 12V port is connected to a 12V motor, the USB (5V) port is switched off. Conversely if the 12V port is NOT connected, the USB port is automatically switched on.

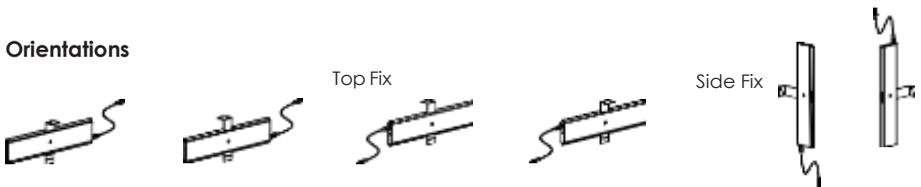
Step 2. Installing Solar panel

OPTION A. Attaching Mounting Bracket to Window Frame

- i. Break off excess bracket length using Pliers (if required).
- ii. Install mounting bracket to wall/mounting point.
- ii. Fix Solar panel to mounting bracket using screw.
- iii. Apply stickers onto the Solar Panel to seal unused mounting holes.

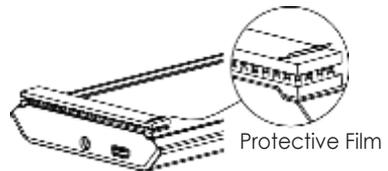


Possible Orientations

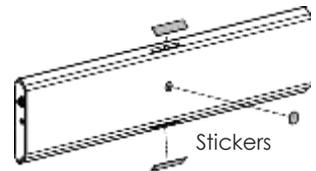


OPTION B. Attaching Solar Panel via Dual Lock to a Window or surface

- i. Clean Solar panel front surface with alcohol wipe.
Allow surface to dry.
- ii. Peel protective film off one side of Dual Lock and attach to one end of Solar panel.
Press adhesive tape firmly onto Solar panel surface for 5 seconds to ensure good adhesion.
Ensure that Dual Lock does NOT cover any portion of the Solar panel cells.
Repeat previous steps for attaching adhesive tape to other end of Solar panel.



- iii. Apply stickers onto the Solar Panel to seal unused mounting holes.
- iv. Clean the window or surface with alcohol wipe.
Allow surface to dry.
Peel protective film off Dual Locks.
Press firmly onto fixing surface.
Apply hand pressure for 5 seconds and check if firmly attached.



IMPORTANT!

Any partial or total covering of any solar panel cell will degrade solar panel performance.

6.3 Bending Bracket

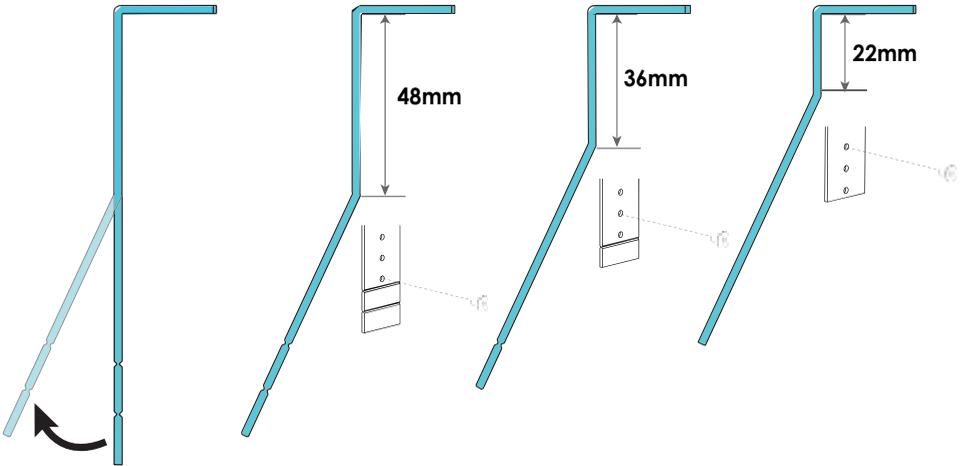
Bracket can be bent in order to receive more direct sunlight which provides more energy to the motor.



IMPORTANT!

Bend the bracket prior to installation of the solar panel

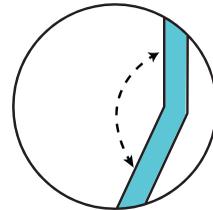
The bracket should be bent at a distance of 22mm, 36mm or 48mm from the base of the bracket as shown below:



IMPORTANT!

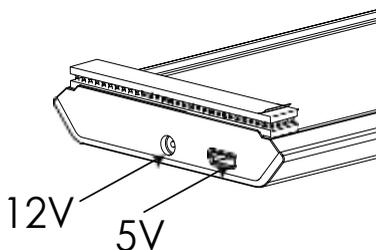
Ensure the bend angle is between 150° to 180°

Make sure that the solar panel has adequate exposure to sunlight

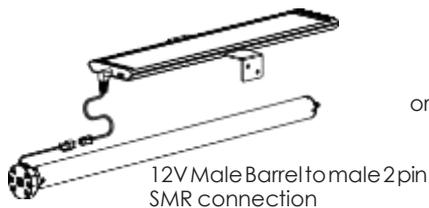


150° - 180°

6.4 Connecting Solar Panel 2.0 with Motor



Connect Solar Panel with the motor.



or



IMPORTANT!

Ensure any cables are kept clear of fabric at all times.

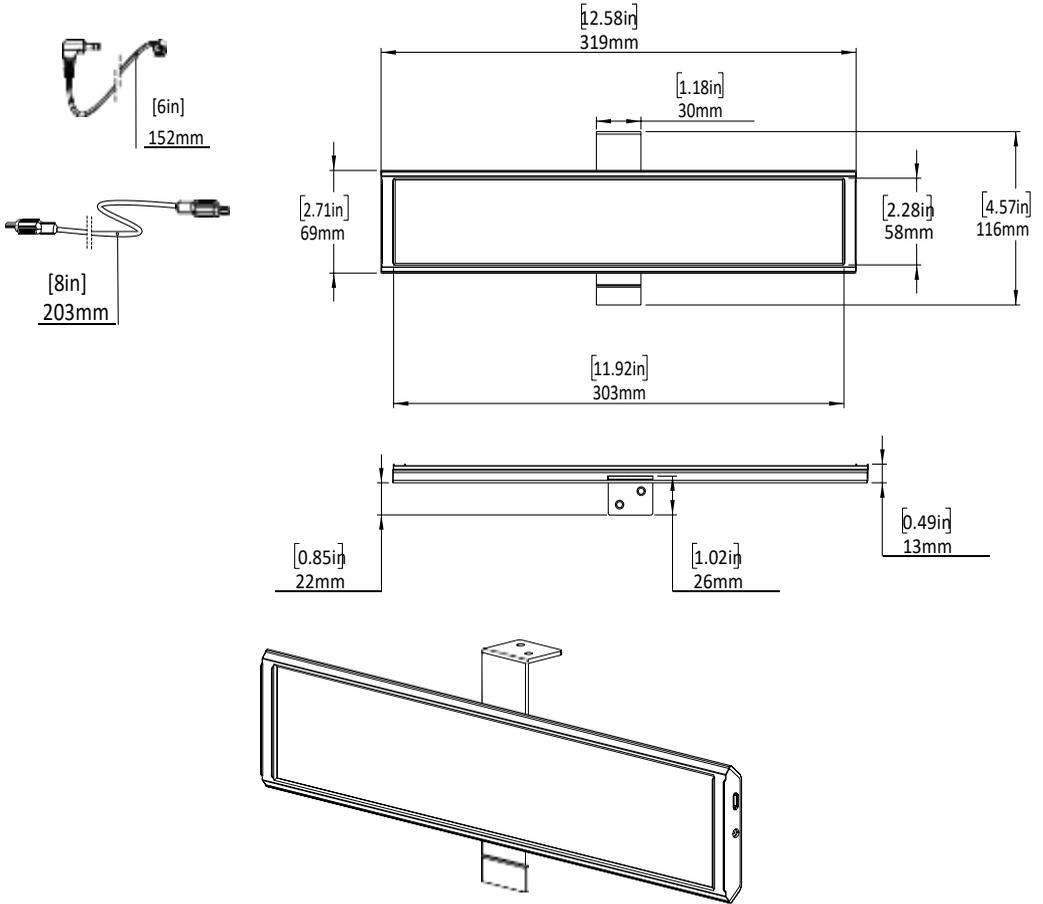
12V Compatible components:

PARTS	DESCRIPTION
MTBPCKR-28	Rechargeable Battery Pack <i>(Optional)</i>
MTDCB-CBLXT48	AUTOMATE 12V Li-ion Charger Cable ext 48"/1220mm
MTDCB-CBLXT6	AUTOMATE 12V Li-ion Charger Cable ext 6"/155mm
MTDCB-CBLXT96	AUTOMATE 12V Li-ion Charger Cable ext 96"/2440mm

5V Compatible components:

PARTS	DESCRIPTION
MG03-0302-xxx909 or Equivalent	Male Micro USB to male micro USB Connector

7 DIMENSIONS



SPECIFICATION TABLE

Parameters		Value
Max Output Power (Under 1 SUN - 1200W/m ²)		2.73W
Round Connector	Vmax	12.6V
	I _{max}	220mA
USB Connector	V	5V
	I _{max}	300mA
IP Rating		IP40

8 TROUBLE SHOOTING

Problem	Cause	Remedy
Motor is not responding	Remote control battery is discharged	Replace battery
	Battery is inserted incorrectly into remote control	Check battery polarity
	Radio interference/shielding	Ensure remote is positioned away from metal objects and the antenna on motor is kept straight
	Motor distance is too far from remote control	Move Remote to a closer position
	Battery power depleted	Recharge with AC adapter (Optional)
	Incorrect wiring	Check that motor wiring is connected correctly (refer to motor installation instructions)
Motor beeps 10 times when in use	Battery voltage is low / Solar Panel issue	Check connection and positioning of Solar panel. Ensure sun exposure is adequate.
	Solar Panel not providing enough power	Recharge with AC adapter (Optional)
No output Voltage from round connector	Not enough light	Turn the orientation of Solar Panel 2.0 for more light energy
	Round connector is open circuit	Connect battery motor for 5 minutes to check charge current
	Motor battery capacity is full	Run the motor continuously until the battery voltage is below 12V
No output of USB connector	Round connector is charging battery motor	Disconnect the motor from the round connector

ROLLEASE ACMEDA | USA

200 Harvard Avenue
Stamford, CT 06902 6320
T +1 203 964 1573 | F +1 203 964 0513

ROLLEASE ACMEDA | AUSTRALIA

110 Northcorp Boulevard,
Broadmeadows VIC 3047
T +61 3 9355 0100 | F +61 3 9355 0110

ROLLEASE ACMEDA | EUROPE

Via Conca Del Naviglio 18, Milan
(Lombardia) Italy
T +39 02 8982 7317 | F +39 02 8982 7317

info@rolleasacmeda.com
rolleasacmeda.com