



SOLARCHARGER 4000/6000/8000



Operating Instructions

PRODUCT DESCRIPTION

SolarCharger 4000:

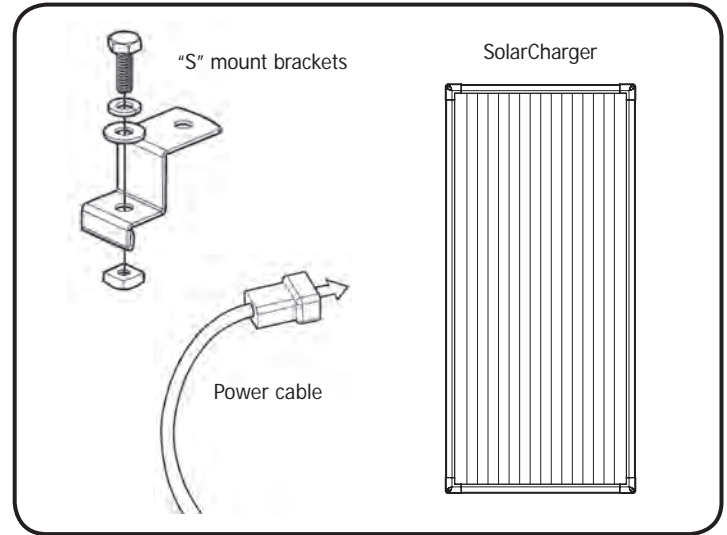
- 1 Sunsei™ Solar Module 4A, 16.5V (65W)
- 1 Power cable, AWG12 gauge, 10 feet
- 4 Standard stainless steel "S" mount brackets, with accessories

SolarCharger 6000:

- 1 Sunsei™ Solar Module 6A, 16.5V (100W)
- 1 Power cable, AW G12 gauge, 10 feet
- 4 Standard stainless steel "S" mount brackets, with accessories

SolarCharger 8000:

- 1 Sunsei™ Solar Module 8A, 16.5V (130W)
- 1 Power cable, AWG12 gauge, 10 feet
- 6 Standard stainless steel "S" mount brackets, with accessories

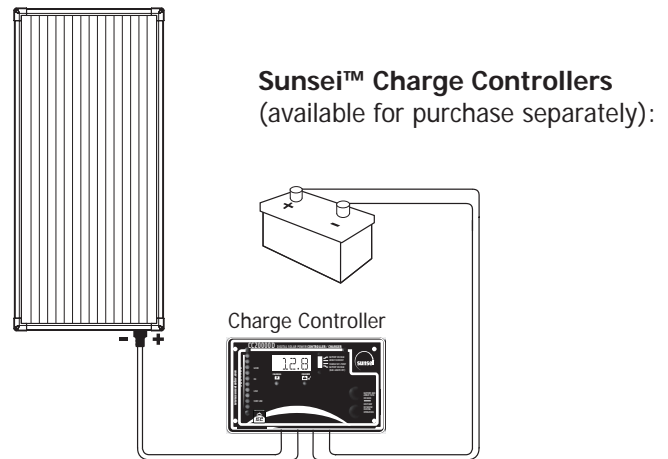


Important Note: It is essential to use a Sunsei™ Charge Controller with the SolarCharger 4000/6000/8000 to protect your battery from overcharging and optimize the charging process.

IMPORTANT!

Please read the instructions before operating.

- When working around batteries and other electrical equipment, please observe industry standard and manufacturer's safety procedures.
- Install solar charger in low light conditions to reduce the risk of electrical sparking.
- Make connections in a well-ventilated area free from flammable gases or vapors.
- For 12V systems, ALL connections should be in PARALLEL: Positive (+) to Positive (+), Negative (-) to Negative (-).
- DO NOT attempt to recharge NON-RECHARGEABLE batteries.
- Always CONNECT the charge controller to the battery FIRST.
- When disconnecting your solar panel DISCONNECT the battery LAST.
- Do not connect the solar panel directly to the battery without using a Sunsei™ Charge Controller.
- Fuse wires extending from the battery to protect against battery short circuits.



CC10000: Two-step charging, overcharge protection; used in systems up to 10A capacity (150W).

CC20000D: Overcharge protection; used in systems up to 20A capacity (300W) with digital LCD for voltage and current outputs & LED battery condition indicator.

CC25000: Two-step charging, overcharge protection; used in systems up to 25A capacity (390W) with battery voltage indicator and reverse polarity protection.

If the vendor from whom you have purchased this solar panel does not carry Sunsei™ Charge Controllers, please visit www.sunseisolar.com for a dealer near you.



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INSTALLATION

STEP 1: POSITIONING

Select a location where your solar panels will get maximum daily sunshine exposure avoiding any shade. This may be on the roof or exterior walls of homes, cabins, RVs, etc. Ideally, try to have your panel facing perpendicular to the strong midday sun, between 10AM and 2PM.

STEP 2: MOUNTING

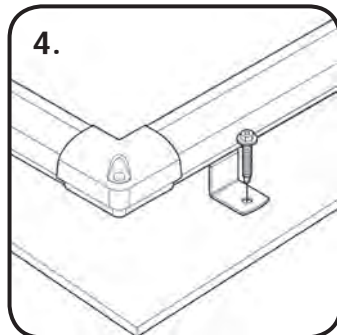
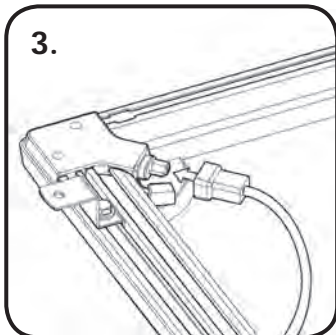
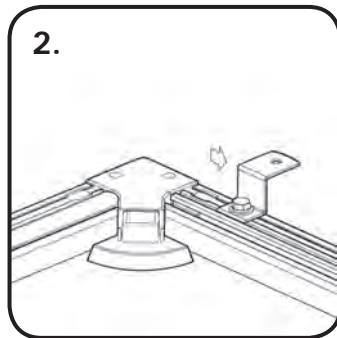
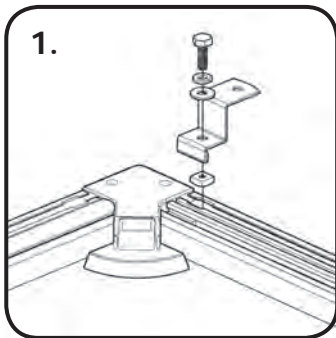
Choose a solid and supportive mounting surface, capable of withstanding all expected loads, including the weight of the solar panel as well as those imposed by wind and snow.

FIG. 1 - Attach "S" mount brackets to solar panel frame using screws and bolts provided. Use at least one bracket on every side of the panel.

FIG. 2 - Position brackets on frame by sliding along track. Tighten screws to secure brackets to frame.

FIG. 3 - Connect power cable to solar panel connector.

FIG. 4 - Using screws provided, secure solar panel to surface selected in step 1.



STEP 3: MULTI-PANEL CONNECTION

If you have more than one SolarCharger 4000/6000/8000 panel, simply connect the Plug'n'Play® corner of one panel to the next using the quick-connect cable (SKU#10222, available for purchase separately). Observe steps 1 and 2 when mounting additional panels.

STEP 4: CHARGE CONTROLLER TO BATTERY CONNECTION

Place the charge controller in a cool, dry and well ventilated area that can be easily accessible, usually around the battery compartment or in the cabin area. Connect the charge controller's output or BATTERY+ Negative (black or -) connection to the Negative (-) terminal of the battery. Next, connect the controller's output or BATTERY Positive connection (red or +) to the Positive (+) terminal of the battery.

WARNING! REVERSE CONNECTION TO THE BATTERY IS A FIRE HAZARD. IT MAY DAMAGE YOUR SOLAR BATTERY CHARGER. PLEASE OBSERVE PROPER POLARITY. CONSULT YOUR SUNSEI™ CHARGE CONTROLLER INSTRUCTION MANUAL.

STEP 5: CHARGE CONTROLLER TO PANEL CONNECTION

First, connect the power cable to the charge controller's input or "Solar Panel / Array" connection. Start by connecting the black negative (-) wire of the power cable to the charge controller's Negative (-) connection. Then, connect the red positive (+) wire of the power cable to the positive (+) connection of the controller. Second, plug in the quick-connect side of the cable to your solar panel's quick connect port.

NOTE: For more details on the charge controller operation, consult the controller instructions included with your Sunsei™ charge controller (available separately).

NOTE: Remove yellow wire protector caps prior to connecting to a Sunsei™ charge controller.

TROUBLESHOOTING

If your SolarCharger 4000/6000/8000 panel does not seem to be performing properly, start by addressing the following points:

1. Inspect connections for any sign of corrosion or loose wires. All connections for a 12V system should be in parallel, meaning positive (+) to positive (+), negative (-) to negative (-).
2. Test the panel's open circuit voltage (Voc). To reduce risk of sparking, cover the panel before disconnecting it from the battery. Using a well-calibrated voltmeter, measure the open circuit voltage (Voc) across the positive (+) and negative (-) o-ring terminals. You should measure between 19V to 24V DC under FULL sunny conditions.
3. Test the panel's output current between it and the battery. Connect the panel's negative wire to the battery and insert a DC amp meter with sufficient rating for the expected panel output between the positive wire of the panel and the positive post of the battery. You should get a reading close to the panel's peak operating current, depending on sunlight conditions.
4. Verify the condition of the battery. Over time, a battery will lose its ability to recharge, especially after repeated heavy cycles of charge and deep discharge. Contact your battery's manufacturer for more detailed guidelines on battery testing.
5. Make sure your system is properly sized for your power needs. Please refer to the Application Chart for a guideline of what can be powered by your SolarCharger 4000/6000/8000 panel. If additional assistance is required for sizing your system, please contact our Technical Support Department at customers@icpsolar.com.

FREQUENTLY ASKED QUESTIONS (FAQ)

Q1: Can I connect my SolarCharger 4000/6000/8000 solar panels together WITHOUT the panel-to-panel connector cable?

A: No. The panel-to-panel connector cables are designed specifically for Sunsei™ SolarCharger panels. Without them, you risk a poor or inversed connection.

Q2: What type of batteries can I recharge?

A: You can recharge all types of 12V batteries including lead-acid automotive batteries, deep cycle (traction type) batteries, gel-cell batteries, and heavy-duty (stationary type) batteries. When using the SolarCharger 4000/6000/8000 to run appliances on a regular basis, we recommend the use of deep cycle marine batteries, which are designed to withstand frequent charge and discharge cycles.

Q3: How long will it take my SolarCharger 4000/6000/8000 to recharge a dead battery?

A: Please refer to the Approximate Charging Times chart.

Q4: Can I charge more than one battery at the same time using the SolarCharger 4000/6000/8000?

A: Yes, the charge can be applied to a bank of batteries. When attached to a bank of two or more batteries, the total power input will be divided into that number of batteries. The higher the number of batteries, the longer it will take to recharge the battery bank.

Q5: Can the SolarCharger 4000/6000/8000 drain my battery at night?

A: Once a Sunsei™ Charge Controller is installed, there is no danger of reverse current so you can leave your SolarCharger installed overnight.

Q6: Without a Sunsei™ Charge Controller, can the SolarCharger 4000/6000/8000 overcharge my battery?

A: Yes, that is why it is important to install a charge controller between the solar panel and the battery. **Do not connect the charger directly to the battery.**

Q7: Can I run my 110V appliances using my SolarCharger 4000/6000/8000 panels?

A: Not directly. But it is possible to run your 110V appliances with the use of an inverter (purchased separately) that will change the battery's 12V (DC) output into 110V (AC) power.

Q8: Can I extend my wiring?

A: Yes. You can extend the wiring of 8A (135W) or less solar panels using AWG12 within 20 feet. For longer distances or higher currents, higher gauge wire with a smaller AWG number can be used.





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FREQUENTLY ASKED QUESTIONS (FAQ)

Q9: Can my SolarCharger 4000/6000/8000 be left outdoors without protective covering?

A: Yes. The SolarCharger 4000/6000/8000 panels have been weatherproofed and can be mounted outdoors, with the Sunsei™ charge controller kept indoors.

Q10: Should I disconnect my SolarCharger 4000/6000/8000 from the battery when I start my vehicle's engine or while recharging with an auxiliary power source?

A: No. It is safe to leave your SolarCharger 4000/6000/8000 panels connected to your vehicle's battery when starting the engine or when charging through an auxiliary power source. The charger will not be damaged nor will it interfere with on-board electronics.

WARRANTY

ICP Solar Technologies grants the original purchaser of the Sunsei™ SolarCharger 4000/6000/8000 a **20-year** warranty on the power output and a **2-year** warranty on the materials of the module. ICP guarantees that the unit will produce a minimum 80% of its original minimum power rating for the Warranty Period from the purchase date. ICP warrants the module to be free from defects in materials and workmanship under normal applications, installation, use and service conditions for the Warranty Period from the purchase date. ICP will, at its option, either repair or replace the product if it becomes inoperable due to a defect in material or labor during the Warranty Period. This warranty does not cover installation or costs derived thereof. ICP shall not be responsible for any costs due to removal, shipment, re-installation or any other loss due to warranty servicing. The maximum liability to ICP under this warranty shall not exceed the purchase price of this module. This warranty does not cover any module that has been damaged by misuse, neglect, improper installation or acts of God, including lightning, floods, earthquakes, fire and high winds. This warranty does not cover accessories included with the product. This warranty does not cover product that is broken after purchase. ICP shall not be responsible for any damage to persons or property caused by improper installation, misuse or improper handling of this product. Some states do not allow exclusion or limitation of accidental or consequential losses so the exclusions may not apply to the purchase. This warranty gives you specific legal rights and you may have other rights, which vary from one state (or province) to another. Please note that ICP will not accept returns without prior authorization. The original proof of purchase is required for warranty validation.

Warranty for accessories: A **2-year** warranty is given on accessories such as, but not limited to, cables included with the product. The warranty applies from the original purchase date.

APPROXIMATE CHARGING TIMES

(in hours full sunlight) for batteries 50% discharged

BATTERY SIZE	SE-4000	SE-6000	SE-8000
U1 (40AH)	5	3	2.5
Group 24 (80AH)	10	7	5
Group 27 (100AH)	13	8	6
Group 31 (120AH)	15	10	8
4-D (180AH)	23	15	11
8-D (220AH)	28	18	14
Golf cart (220AH)	28	18	14
L-16 (400AH)	50	33	25

SolarCharger Product Information Chart

	SE-4000	SE-6000	SE-8000
Operating voltage	16.5V	16.5V	16.5V
Maximum current	4A	6A	8A
Open circuit voltage	21.5V	21.5V	21.5V
Dimensions	104.1 cm x 50.8 cm x 3.6 cm	127 cm x 59.4 cm x 3.6 cm	153.2 cm x 71.1 cm x 3.6 cm
Weight	15 lbs / 6.8 kg	22 lbs / 10 kg	30 lbs / 13.6 kg