SolarPRO plug'n'play™ Instructions

IMPORTANT! – Please read before operating solar charger

•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 well-ventilated area free from flammable gases or vapours.
•For 12 Volt 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 the charge controller.

PRODUCT DESCRIPTION

SolarPRO plug'n'play 30: 30 watt (2 Amp) solar charger
SolarPRO plug'n'play 50: 50 watt (3.3 Amp) solar charger
SolarPRO plug'n'play 75: 75 watt (5 Amp) solar charger
SolarPRO plug'n'play 100: 100 watt (6.7 Amp) solar charger
SolarPRO plug'n'play 150: 150 watt (10 Amp) solar charger (2 x 75W)
SolarPRO plug'n'play 225: 225 watt (15 Amp) solar charger (3 x 75W)
SolarPRO plug'n'play 300: 300 watt (20 Amp) solar charger (4 x 75W)

Standard accessories included in all kits:
1. **Power cable** – AWG 12 gauge, 10ft per panel
2. **Panel-to-panel connector cable** – AWG 12 gauge, 3ft per panel
3. **Yellow power cord connector caps** – 2 per panel
4. **Mounting brackets with screws** – 6 sets per panel

Charge controllers (available in most kits or for purchase separately)
A. **7 Amp** – overcharge protection up to 105 watts
B. **21 Amp** – overcharge protection up to 315 watts w/ battery voltage tester and reverse polarity protection
C. **CC20 (20 Amp)** – overcharge protection up to 300 watts w/ digital LCD screen for voltage and current outputs & LED battery condition indicator

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, RV 's, etc . Ideally, try to have your panel facing perpendicular to the strong midday sun (straight upwards in most cases), 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. Secure the solar panels to the surface you selected using the mounting brackets and screws provided (installing at least one bracket on every side of the panel).

Step 3 – MULTI-PANEL CONNECTION
If you have more than one SolarPRO plug'n'play™ panel, simply connect the plug'n'play corner of one panel to the next using the quick-connect cable provided. 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 WILL ALSO DAMAGE YOUR SOLAR BATTERY CHARGER. PLEASE OBSERVE PROPER POLARITY.

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 (black or -). Then, connect the red positive (+) wire of the power cable to the positive (red or +) 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 in this kit.

TROUBLESHOOTING
If your SolarPRO plug'n'play charger 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 (-).

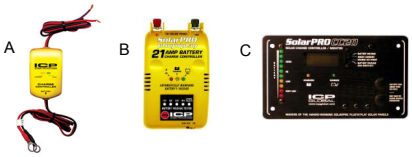
2 - Test the panel's open circuit voltage (Voc). To reduce risk of sparking, cover the panel before disconnecting it from the battery. Using a well-calibrated voltmeter, measure the open circuit voltage (Voc) across the positive (+) and negative (-) o-ring terminals. You should measure between 17 to 24 Volts DC under FULL sunny conditions.

3 - 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.

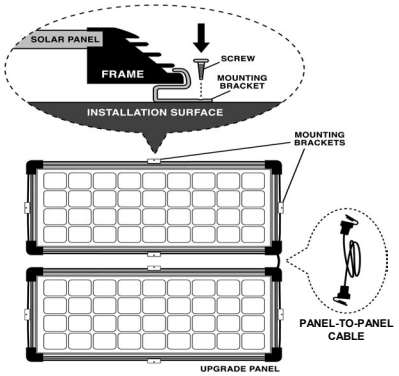
4 - Make sure your system is properly sized for your power needs. Please refer to the Application Chart for a guideline of what can be powered by your SolarPRO plug'n'play panel. If additional assistance is required for sizing your system, please contact our technical support department at customers@icpglobal.com .

Plug'n'play Accessories

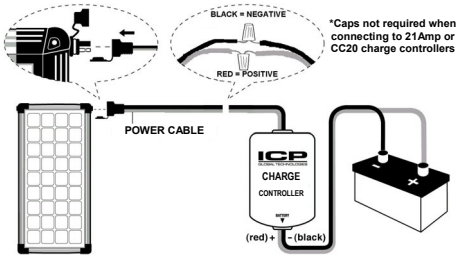
Charge Controllers



Mounting Diagram



Wiring Diagram



Battery Charging Times

Approx. Charging Times
(in hrs in full sunlight) for Batteries 50% Discharged

Battery Size	Solar Panel Output 15W	30W	45W	50W	75W	100W	150W	225W	300W
U1 (40Ah)	20	10	7	6	4	3	2	1	1
Group 24 (80Ah)	40	20	13	12	8	6	4	3	2
Group 27 (100Ah)	50	25	17	15	10	7	5	3	3
Group 31 (120Ah)	60	30	20	18	12	9	6	4	3
4-D (180Ah)	90	45	30	27	18	13	9	6	5
8-D (220Ah)	110	55	37	33	22	16	11	7	6
Golf cart* (220Ah)	110	55	37	33	22	16	11	7	6
L-16* (400Ah)	200	100	67	61	40	30	20	13	10

Product Information Chart

Specifications	30W	50W	75W	100W	150W	225W	300W
Rated Power (Watts)	30	50	75	100	150	225	300
Operating voltage (Volts)	15	15	15	15	15	15	15
Maximum Current (Amps)	2	3.3	5	6.7	10	15	20
Open Circuit Voltage (Volts)	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Dimensions (in. / mm)	41x11.5x1.4 / 1041x290x36	41x20x1.4 / 1041x508x36	50x23.4x1.4 / 1270x594x36	60.3x28x1.4 / 1532x711x36	2(50x23.4x1.4) / 2(1270x594x36)	3(50x23.4x1.4) / 3(1270x594x36)	4(50x23.4x1.4) / 4(1270x594x36)
Weight (lbs / kg)	9 / 4.1	15 / 6.8	22 / 10	30 / 13.6	44 / 20	66 / 30	88 / 40
Product number							
Expansion panel	20300	20502	20752	21002	n/a	n/a	n/a
With 7 Amp charge controller	20301	20500	20750	21000	n/a	n/a	n/a
With 21 Amp charge controller	n/a	20503	20753	21003	20770	20780	20790
with CC20 charge controller	n/a	20506	20756	21006	20771	20781	20791

FREQUENTLY ASKED QUESTIONS (FAQ)

Q: Can I connect my SolarPRO plug'n'play™ solar panels together WITHOUT the panel-to-panel connector cable?
A: No. The panel-to-panel connector cables are designed specifically for the SolarPRO plug'n'play panels and without them you risk a poor or inversed connection.

Q: What type of batteries can I recharge?
A: You can recharge all types of 12 Volt batteries including lead-acid automotive batteries, deep cycle (traction type) batteries, gel-cell batteries, and heavy-duty (stationary type) batteries. When using the ICP SolarPRO plug'n'play™ 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.

Q: How long will it take my SolarPRO plug'n'play™ solar panel to recharge a dead battery?
A: Refer to the chart bellow for average charging times.

Q: Can I charge more that one battery at the same time using the SolarPRO charger?
A: Yes, the charge can be applied to a bank of batteries. When attached to a bank of 2 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.

Q: Can the SolarPRO plug'n'play™ solar chargers drain my battery at night?
A: Once the ICP charge controller is installed there is no danger of reverse current, so you may leave your charger installed overnight.

Q: Without a charge controller, can a SolarPRO plug'n'play™ solar charger 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.

Q: Can I run my whole house on the power generated from a few SolarPRO chargers?
A: Unless you installed a very large number of solar chargers, the power generated will not enough to run your entire household. A few chargers can be used to supply your battery with reserve power to help run some 12 or 110 Volt appliances at the home, cottage, boat or RV.

Q: Can I run my 110 Volt appliances using my SolarPRO plug'n'play charger?
A: Not directly. But it is possible to run your 110 Volts appliances with the use of an inverter (purchased separately) that will change the battery's 12 Volt (DC) output into 110 Volt (AC) power.

Q: Can I extent my wiring?
A: Yes. You can extend the wiring of solar chargers of 100watts or less using AWG12 within 20 feet. For other length and outputs please refer to our chart on www.icpglobal.com/html/faqsolar.asp.

Q: Can my SolarPRO plug'n'play solar panel be left outdoors without protective covering?
A: Yes. The SolarPRO plug'n'play™ panels have been weatherproofed and can be mounted outdoors, with charge controller kept indoors.

Q: Should I disconnect my SolarPRO charger 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 SolarPRO charger 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:

Please register your panel online at www.icpglobal.com/html/warranty.asp
ICP Global Technologies (ICP) grants the original purchaser of this module a limited Lifetime warranty on the power output of the module. ICP guarantees that the unit will produce a minimum 80% of its original power rating for as long as the panel remains the property of the original owner.

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, which has been damaged by misuse, neglect or improper installation. ICP shall not be responsible for any damage to persons or property caused by 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.

If warranty service is required, please contact beforehand the dealer or distributor who sold you the module. For further assistance, contact ICP's customer service department at customers@icpglobal.com . Please note that ICP will accept no return without prior authorization. The original proof of purchase is required for warranty validation.

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