USER MANUAL — SOLAR GENERATORS

CAUTION
THINK SAFETY FIRST

The warnings, precautions, and instructions discussed in this instruction guidelines cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator. **While Cutting Edge Power is proud to be an American company dedicated to producing a high quality product, we are not responsible for any property or personal damage to you or your device(s) due to use/misuse of this product. Always use good judgement and never try to modify or disassemble this product.**

SAFETY INFORMATION

- This product is not waterproof. It is designed to be used indoors, or outdoors temporarily without rain or water ingress. Except for the Fortress Solar Generator which is waterproof and designed to be used indoors or outdoors.

- Some wires may be supplied in parallel sets. Do not separate them. Doing so will void the Solar Generator warranty.

- Note: when connecting the charge controller to batteries, a small initialization spark is typical.

- Follow the directions for the charge controller and the inverter. Manuals are included in your package.

- Please check the output voltage specifications “Voc”: of the solar panels. It must be the same or less input voltage of the charge controller. Not following these guidelines could result in damage to the charge controller.

- Keep away from any combustible material.

- Allow adequate ventilation. This unit generates heat; without proper ventilation it may overheat, potentially causing a fire hazard. Think of it like a small space heater; just leave a few inches of cleareance all around and avoid enviroments over 86°F (30°C)

- Leave the inverter power switch “off” whenever the box is not in use to help prevent draining the battery.

- Switch any device to be powered “off” before plugging into this device.

- Keep away from children.

- Use as intended only.

GENERAL INFORMATION

A solar generator is merely a battery or a bank of batteries being charged by solar panels. All batteries must use a charge controller, and typically an inverter is required for using the power stored in the battery bank.

Cutting Edge Power Solar Generators always include the charge controller, and depending on the user's choices: the batteries, the inverter and the solar panels.

COMMON PARTS AMONG THE DESIGNS

	**12V Socket:** **-** Input and Output. - Plug a Cutting Edge Power Mini Wind Turbine, and/or a car charger, to charge your battery or batteries. - Power any device up to 30A (360W max output)
	**30A Circuit Breaker:** - Protects the socket(s): It automatically disconnects the 12V sockets when current AMP exceeds 30A (Total combined including all 12V sockets). To turn them back on, wait a couple of minutes until the Circuit Breaker cools down, then press the button. (No need to take the cap off)
	**Terminal Posts:** - Input/Output - Meant for connecting extra batteries, powering external inverters, connecting battery chargers, others devices, etc. - To connect additional battery in Parallel: Remove the caps, connect negative wire to black post, and positive to red. We highly recommend using a Cutting Edge Power Series/Parallel Kit. - Use 6 AWG 90°C Wire. Ideally larger wire size. If in doubt, use larger size wire or additional Parallel sets.
	**Series/Parallel Kit** - For wiring extra batteries.

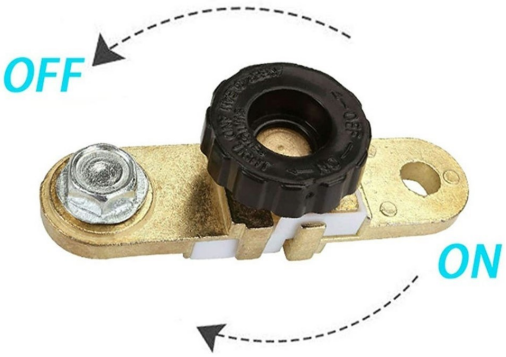
QUICK START

1.Connect the red cable(s) to the positive terminal of the battery bank. Then, connect the black cable(s) to the negative terminal of the battery bank.

- When connecting the charge controller to batteries, a small initialization spark is typical.

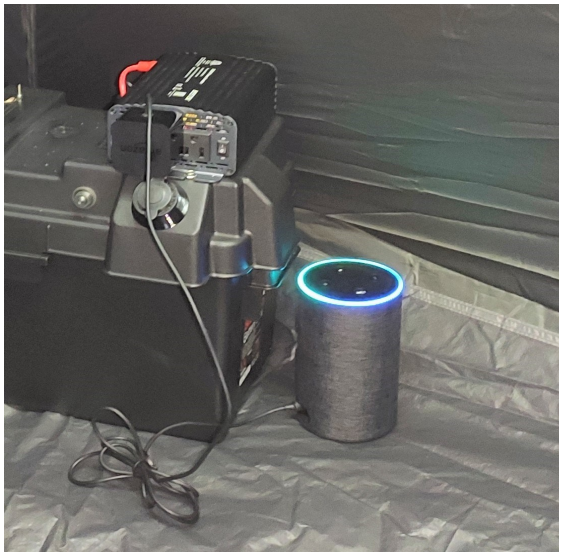
- Battery connection types may vary. As long as the ring terminals are fastened tight (snug) and cannot accidentally be pulled off the battery, the connection is acceptable.

- Solar generators equipped with battery switches (Rebel, Trailblazer, Scout and Fortress): turn the black knob clockwise. Tighten as much as possible by hand. Not tightening this switch may cause intermittent issues with solar generator output. If you are experiencing connection issues, check this switch first. Do not use a hand tool to tighten the battery switch as overtightening could damage it.



2. Plug the solar panel(s).

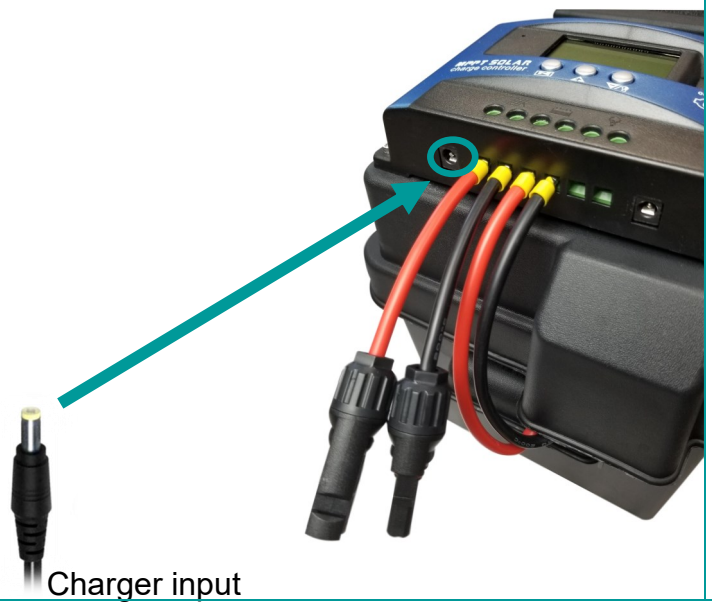
3. Plug devices to the inverter and turn the inverter on.



ABOUT THE CHARGE CONTROLLER

Cutting Edge Power Solar Generators use two different MPPT charge controllers. They are always prewired, and preset for 12V Lead Acid Batteries (Blue Charge Controller) , or Lithium ion batteries if equipped (CEP200 Black MPPT charge controller)

Please refer to the manuals respectively for further information. Manuals are supplied with the solar generators, and published in the Drawings and Instructions page on our website: ***CuttingEdgePower.com***

Blue MPPT Charge Controller	**CEP200 Black MPPT Charge Controller**
Please check the specifications of your solar panels before plugging to Charge Controller.	
• Maximum solar panel voltage: 23VDC for charging 12V battery/batteries. • It is rated for 1,200W of solar panel charging max. *Go to complete User Manual*	• Maximum solar panel voltage: 92VDC (@25C ambient) for charging 12V battery/ batteries. • Maximum solar panel current: 20A • It is rated for up to 520W of solar panel in-put (520W @ 12V DC) *Go to complete User Manual*
 Charger input	

ABOUT THE SOLAR PANELS

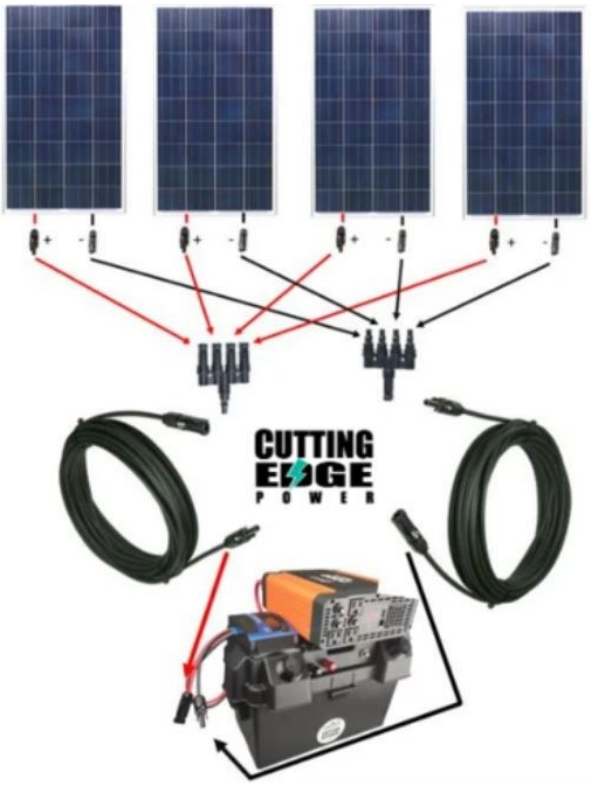
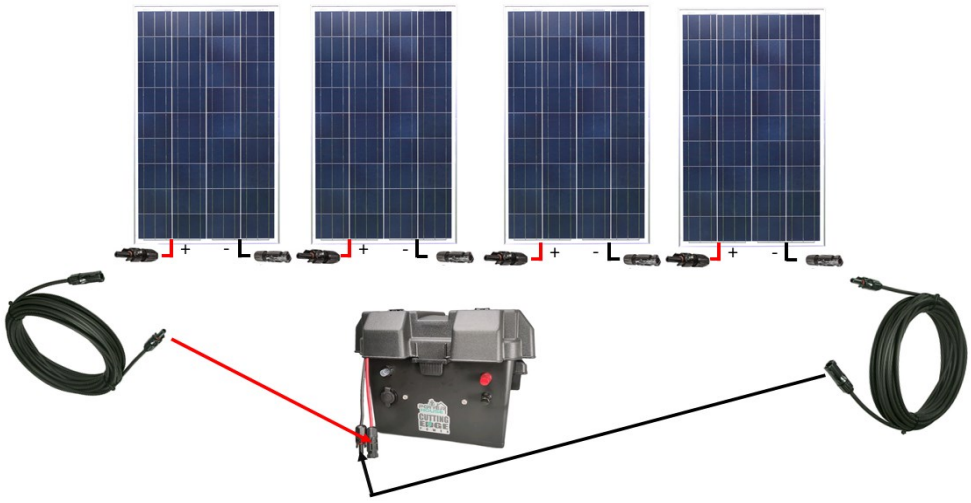
When using the Blue MPPT Charge Controller:

First, make sure your Voc Solar Panel Voltavge is under 23V DC. If so, use any size solar panel, (ex: 100W, 200W), up to 100A (0-1200W) whichever limitation comes first. If using multiple solar panels, please wire them in ***parallel (++ --).*** Wiring the solar panels in series will void your warranty and most likely damage the solar charge controller.

When using the CEP200 Black MPPT Charge Controller:

Use any size solar panel, any combination, up to 520W of solar panel input (520W @ 12V DC) If using multiple solar panels, wiring in series or in parallel is fine as long as the maximum voltage input is 92V DC.

Parallel	Series
• Best for beginners when dealing with solar power and wind power. • Allows wiring to remain at a safe, low voltage. Typically we consider anything under about 30V DC to be "safe". Of course all electricity should be respected but the risk of getting hurt is lower when your voltage is under 30V. • Requires larger gauge wiring due to low voltage, which can get expensive. • Requires longer "parallel" runs of wire which can be costly and labor intensive. • Less risk of damaging components due to lower voltage • Generally more compatible with mainstream components.	• For advanced users that are familiar with Ohm's Law (see below) • May be less safe when the resultant voltage is over 30V DC. 30V DC is widely regarded as the point at which you will be able to be shocked at a dangerous level. Especially high voltages (60+ V DC) can be even more dangerous. • Can save time and money by consolidating all wiring into one single circuit (basically one wire for all panels) • Higher risk of damaging components. Generally as a rule of thumb, components that can withstand higher voltages are more expensive. • Can be a huge advantage because you can use smaller gauge wire. An easy way to calculate this is with Ohm's law Power (P) = Voltage (V) x Current (A)

Solar Panels wired in Parallel	
Voltage stays the same as a single panel, while current and power increases.	
Solar Panels wired in Series	
Voltage and power increases while current remains the same.	

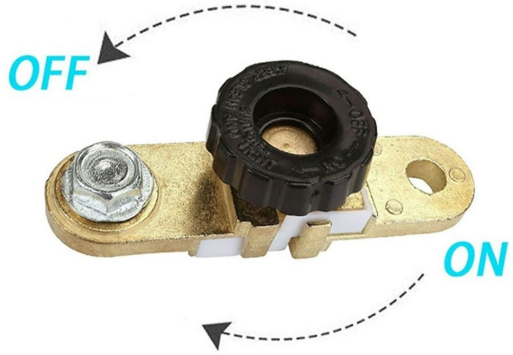
If you need to change your charge controller from onw model to another, please contact Sales@CuttingEdgePower.com for retrofit options.

Wiring in Series will DAMAGE the blue MPPT Solar Charge Controller. The ONLY CEP Charge Controller rated for series wiring is the Black CEP 200 supplied with Fortress Model

BATTERY RECOMMENDATIONS

- Battery connection types may vary. As long as the ring terminals are fastened tight (snug) and cannot accidentally be pulled off the battery, the connection is acceptable.

- Solar generator equipped with battery switches (Rebel, Trailblazer, Scout and Fortress): turn the knob clockwise. Tighten as much as possible by hand. Not tightening this switch may cause intermittent issues with solar generator output. If you are experiencing connection issues, check this switch first. Do not use a hand tool to tighten the battery switch as overtightening could damage it.



- When wiring batteries in parallel, be sure to use a cutting edge power parallel kit, or minimum 6AWG wire. If in doubt, it never hurts to add more (or thicker) wires. Adding more and thicker wires will increase the overall efficiency of your system because the lower resistance in the wires will produce less waste heat.

- Do not wire batteries in series unless your product specifically instructs you to do so. The only Cutting Edge Power products that may be wired in series are clearly marked by the factory at Cutting edge power.

- When connecting the charge controller to batteries, a small initialization spark is typical.

CUTTING EDGE POWER

"Innovative Renewable Energy Solutions"

OUR STORY

Cutting Edge Power Inc. was founded in 2014 by a father and son in Dallas, TX. Jim and Bobby are two engineers, still in their prime, who wanted to start a company with two requirements. True to their engineering spirit, they decided the company had to 1) be related to the latest cutting edge technology, and 2) only design really cool products!

Jim and Bobby learned that the true key to success would only come by helping other people achieve their own success. Thus their conclusion was that Cutting Edge Power must provide Innovative Renewable Energy Solutions to as many customers around the world as possible. To accomplish this we developed a unique, rigorous design process so that we ALWAYS remain cutting edge.

We are aware that to participate in this new global economy, companies must be lean, extremely knowledgeable in their field, and they must be able to produce the highest quality products. Also, we believe that American companies can still compete in this economy, and win. Almost all of our products are assembled or fabricated in USA by an exceptionally capable team of technicians. We are extremely proud of our team of driven individuals.

We're here to stay: Cutting Edge Power Inc. has received zero investor funding, zero government grants, zero government loans and we do not use crowdfunding sites to develop products. We are quickly growing but we are not another fly-by-night startup or foreign owned company. We develop products with our own US-based engineering team with feedback from customers like YOU!

We're the first to admit, independence is an American thing. Wait, maybe it's more of a Texas thing... Either way, our vision of the future is for everyone in the world to obtain Energy Independence. In other words, we think electricity should be supplied to a home through an appliance, NOT from a utility company that pollutes the environment or overcharges and abuses their customers month after month after month. Not only that, but we find it unacceptable for people in developing countries to live without electricity.
We won't stop until EVERYONE has Energy Independence!

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CUTTING EDGE POWER

"Innovative Renewable Energy Solutions"