

Installation Suggestions for 100Ah LiFePo4, with Two 100W Panels, Solar Power System

Grants includes the following components (links for underlined items for more specific information). The solar power system should allow the user to run small 120AC household items, 12V DC items like fans or lights, along with charging USB devices.

- Two 100W solar panels
- 100Ah LiFePO4 Lithium Battery
- 20A Charge Controller
- 500W inverter
- Cigarette lighter socket with USB
- 12V Fuse Block
- 32A 2 Pole Battery Breaker Protector for Solar PV System
- 20A 1 Pole Battery Breaker Protector for Solar PV System
- 150A Common Busbar
- 3 ANL Fuses
 - 100A
 - 40A
 - 30A
- 15A Waterproof in-Line Fuse Holder w/Fuse
- Wiring materials
 - Wire Lug ring connectors
 - Wiring terminals
 - 8 gauge
 - 10 gauge
 - 12 gauge
 - Y branch connectors
 - 12AWG Solar Extension Cable
- Mounting items
 - Gland Box
 - Z Mounting Brackets
 - Ratchet strap
 - D Ring anchors

This document will help the installer understand the design of the system and how it all fits together.

First, here is an overview of some good practices to ensure a safe installation:

Follow Manufacturer Guidelines:

Adhere closely to the guidelines provided by the manufacturers of the solar power system components. This includes instructions for solar panels, charge controllers, inverters, batteries, and any other relevant components.

Proper Wiring and Connections:

Use appropriate-sized wiring for the installation, and make sure all connections are secure. Follow the provided schematics and wiring diagrams carefully. Properly insulate wires to prevent any electrical issues.

Mounting and Securing Components:

Securely mount solar panels, charge controllers, and other components to prevent them from shifting or becoming dislodged during travel or adverse conditions.

Battery Safety:

Follow safety guidelines for battery installation. Ensure secure mounting, proper ventilation, and follow guidelines for connecting and disconnecting batteries.

Fuse Protection:

Install fuses or circuit breakers as recommended by the manufacturer to protect the system from electrical overloads or faults. This adds an extra layer of safety to prevent damage to the system.

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Ventilation for Electronics:

Ensure that electronic components, such as charge controllers and inverters, have proper ventilation to prevent overheating. Install them in locations where they can dissipate heat effectively.

Grounding:

Follow grounding recommendations provided by the manufacturer. Proper grounding is crucial for safety and helps prevent electrical issues.

Emergency Disconnect:

Install an emergency disconnect switch that allows you to quickly cut off power from the solar panels in case of an emergency or when maintenance is needed.

Regular Inspections:

Conduct regular inspections of the entire solar power system. Check for loose connections, signs of wear, and any visible damage. Regular maintenance helps ensure the system's reliability.

Fire Safety Precautions:

Be mindful of fire safety. Avoid overloading circuits, use appropriate fusing, and keep flammable materials away from electrical components.

Consult with Professionals:

If you're unsure about any aspect of the installation, or if you lack experience with electrical systems, consider consulting with a professional for guidance and assistance.

Always prioritize safety and take the time to carefully implement the suggested information and schematics. Safety measures are crucial for a reliable and secure solar power system installation in a camping vehicle.

Instructions to Installer:

Attached you will find a Schematic and a Sample Layout for you to use as a guideline for the system. The schematic notes the cable, lug, and connector sizes. Being an experienced installer you will have all the tools and knowledge to complete a successful and safe system installation.



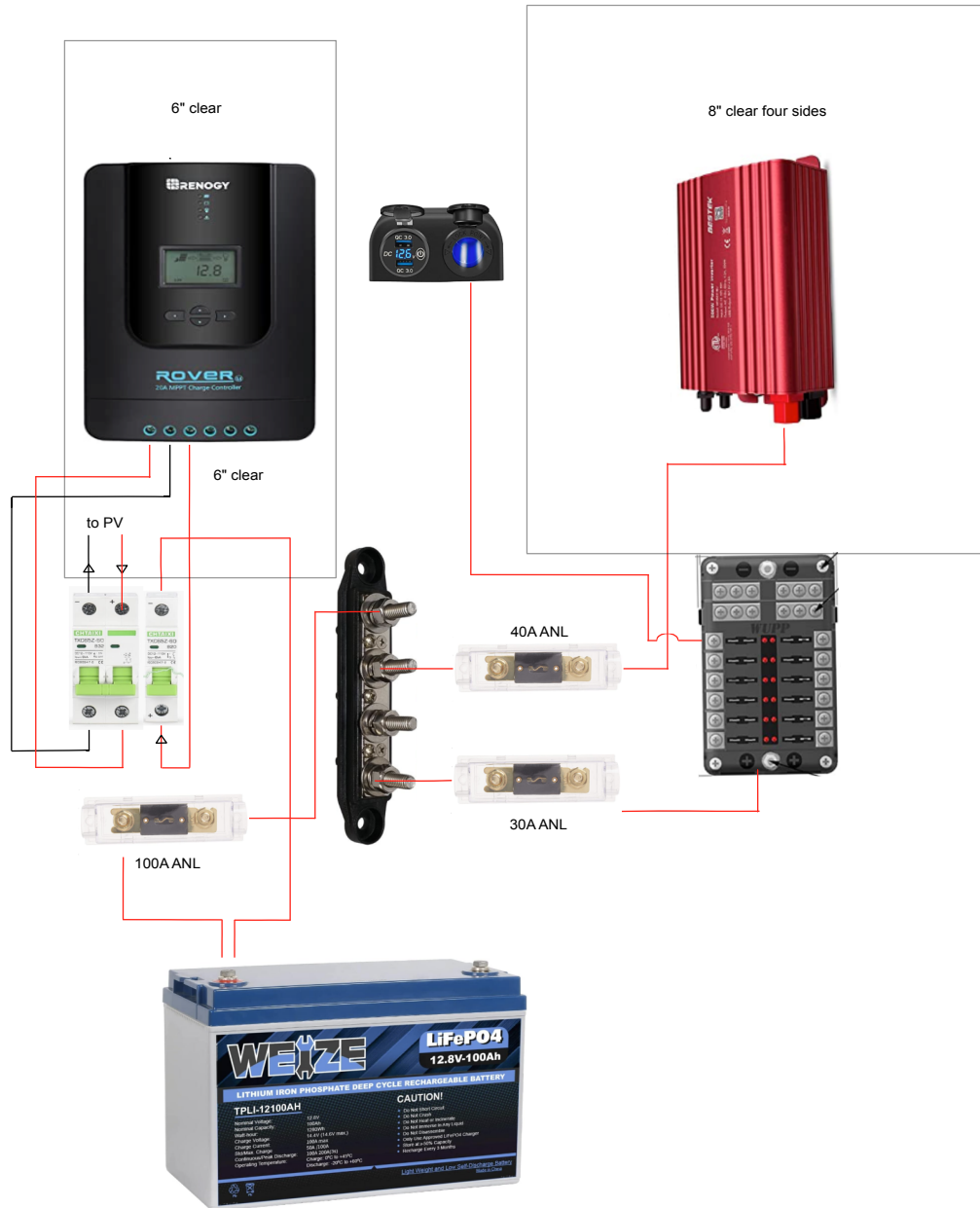
Note: The DC Miniature Circuit Breaker (MCB) you may not be familiar with. The “+” and “-“ signs do not denote the polarity but the direction of current flow at that terminal. The “+” is current flowing into the breaker whereas the “-“ is current exiting the breaker. The photo to the left is of the breaker to be used between the charge controller (CC) to battery (BAT). The positive cable from the CC will connect to the MCB’s bottom terminal, since the primary direction of flow is to the BAT and only flows to the CC when the system is not charging. MCB’s must be placed in an upright position, as shown in both the schematic and sample layout sheets. The last thing to note, is the color shown on the MCB’s status window. “Red” is for closed and “Green” for open circuit. Think red for danger and green for safe condition on the “-“ side of the positive cable’s terminal, that could be at the bottom or the top of the breaker.

Thank you for doing the installation of the recipient’s solar system and enjoy the project!

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Sample Layout

All Positive runs are shown with some Negative near DC Breakers



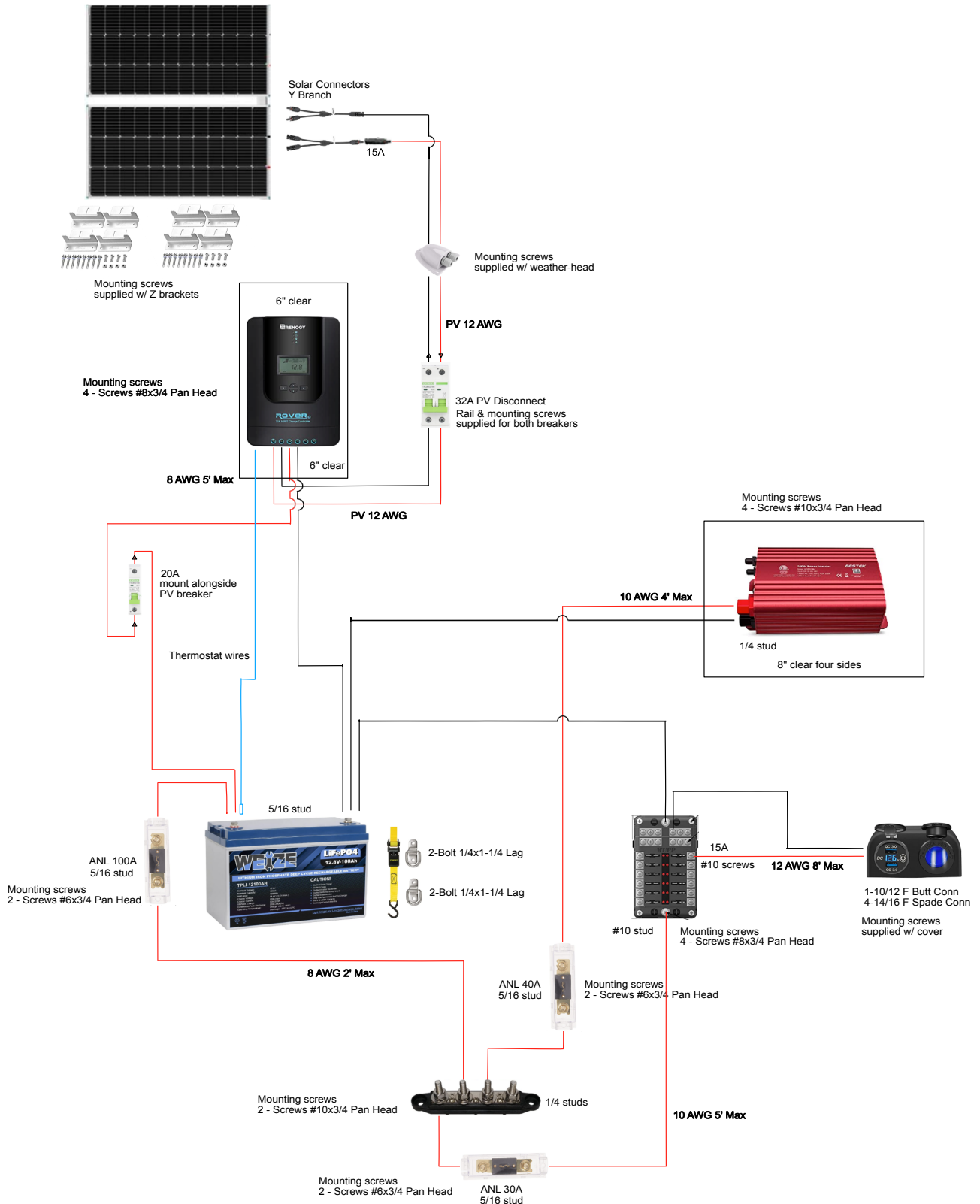
See Schematic Drawing for more wiring information

These guidelines are presented as recommendations. Installers and users are encouraged to exercise their own best discretion. Homes On Wheels Alliances does not assume responsibility for the installation of any granted solar power system components. All components are awarded are brand new and in their original packaging. Grantees are advised to retain receipts in the event of a component failure to facilitate communication with the respective manufacturer.

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Schematic

See Sample Layout Drawing for additional Information.
 Cable max length: Both black and red cables can run that length from battery or busbar to component (ignoring the ANL fuse).
 Δ Denotes direction of current flow.



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