

Go Power! Install Guide: 30/50/100/200/300W Liftgate Charging Systems

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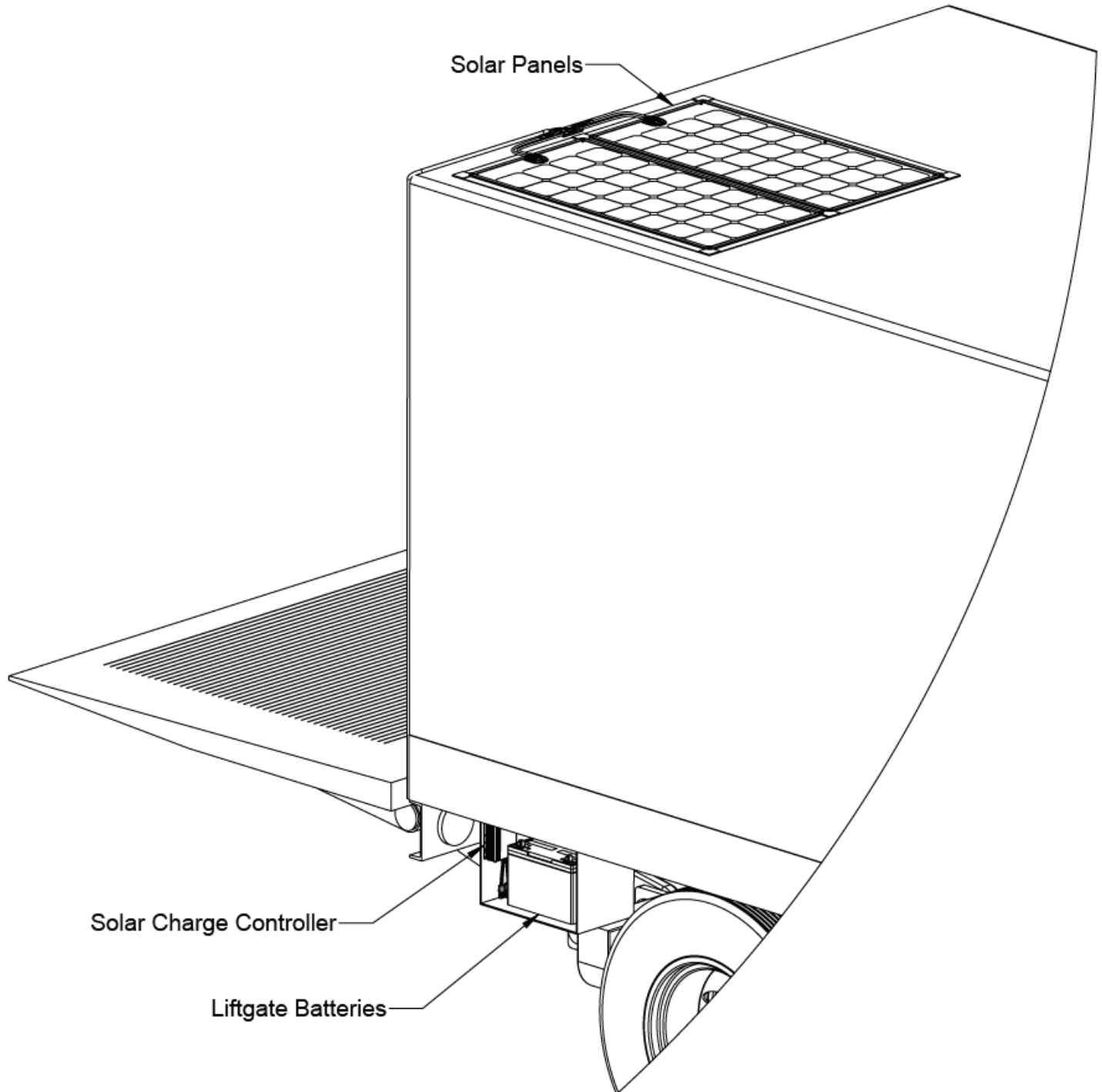


1 GENERAL

The Trailer Liftgate System is designed to increase the life and performance of your liftgate batteries by providing a clean, quiet and sustainable power source.

NOTE

This manual will aid in the process of installing the Go Power! Solar Kit. Please read and understand this manual before installation. Review all figures included in this guide for the easiest and safest installation.



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2 DISCLAIMERS

IMPORTANT: Please follow installation and wiring instructions exactly as outlined to ensure safety. We recommend installation by a technician or professional electrician to ensure adherence to relevant electrical codes. We have made every reasonable effort to ensure the accuracy of the instructions in this manual, but Go Power! does not guarantee that the information is error free, nor do we make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. For additional information please see www.gpelectric.com.

DISCLAIMER: This kit has been engineered for use in a mobile application. Any variance by the end-user is solely of their own discretion. Valterra Power LLC (Go Power!) assumes no responsibility for improper installation in accordance with any laws and regulations governing: cottage, residential or commercial applications. Go Power! disclaims liability for any direct, indirect or incidental damages caused by, or in case of, installation not performed following the instructions and cautions in this manual. Go Power! will refuse requests for exchanges or returns, resulting from the purchase and installation of items which do not comply with local codes. To avoid such concerns Go Power! recommends installation by a professional electrician or technician. Examples that are shown within this manual are for illustrative purposes only.



WARNING: The solar panels must be securely fastened only to a rigid surface on your truck/trailer roof. Failure to do so could cause the panels to lift, flex and separate from the roof while in transit which could cause significant damage, fire and/or injury.

3 CAUTIONS

Disconnect all power sources before attempting installation

Electricity can be very dangerous. Installation should be performed only by a licensed electrician or qualified personnel.



Solar panel safety

Photovoltaic panels generate DC electricity when exposed to sunlight or other light sources. Contact with the electrically active parts of the panel, such as terminals, can result in burns, sparks and lethal shock whether the panel is connected or disconnected.

When panels are connected in series, voltages are additive. Consequently, a system assembled from photovoltaic panels can produce high voltages, which constitute an increased hazard. Do not touch terminals while panel is exposed to light. Cover the panel face completely with opaque material to halt the production of electricity when installing or working with panels or wiring.



Battery and wiring safety

Observe all safety precautions of the battery manufacturer when handling or working around batteries. When charging, batteries produce hydrogen gas, which is highly explosive. Work in a well-ventilated area and use caution when making or removing electrical connections. Ensure wires are disconnected from their power sources when wiring. Do not expose battery to open flame, cigarettes or sparks. Shield skin and eyes from battery acid.



Ensure all connections are tight and secure. Loose connections may generate sparks and heat. Be sure to check connections one week after installation to ensure they are still tight.



Work safely

Wear protective eyewear and appropriate clothing during installation. Use extreme caution when working with electricity and when handling and working around batteries. Use properly insulated tools only.



Observe correct polarity at all times

Reverse polarity of the battery terminals or solar terminals may damage the controller.



Do not exceed the voltage and current ratings of the Solar Controller

The total voltage of the solar system is the sum of the open circuit current of the solar panels in series. The voltage of the array is the rated open circuit voltage of the solar panels and is not to exceed the voltage rating on the controller

The system current (Imp) is not to exceed the current rating on the controller.

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4 PLANNING

1. Turn off any accessories or equipment, including connection(s) to the truck/tractor.
2. Disconnect all negative battery connections from the liftgate batteries.
3. Determine the location for solar panel installation. Usually the panels are mounted on the roof above the battery location to keep the wire run as short as possible.
4. Plan out wire routing before permanently mounting the solar panel and any wiring. In many installations it is better to mock up the whole installation before adhering the panels

NOTE

- Leave a gap of 1" between panels to allow for expansion and contraction and to ensure solar cells are not covered by 4EvaSeal Tape.
- Ensure that all wiring is protected from rough or sharp edges.
- Must use isopropyl alcohol or any other de-greaser. Must ensure the solar panel location is completely clean. This surface must be dry and above 45°F/8°C before adhering the panel to the trailer roof.

5 SOLAR PANELS

1. Remove the thin protective layer from the top surface of the panel.
2. Peel back a small portion (~5") of the nonstick layer of the adhesive backing tape (Figure 1) on the top or bottom of the solar module. Place the side of the panel with the exposed adhesive in the desired panel location.
3. Now that your panel is in position, remove the remainder of the nonstick layer. Press down on the panel. Apply even pressure to the entire panel to ensure it is properly adhered to the trailer roof.
4. Apply 4EvaSeal Tape over the perimeter of the panel. Ensure solar cells are not covered. If using tape, ensure good adhesion around entire perimeter of solar panel. (Figure 2)
5. If installing multiple panels, repeat steps 1–4 for each panel. Locate multiple panels adjacent to each other. A maximum of three 100W panels should be connected in series when using the Go Power! 20-amp MPPT controller.
6. If installing multiple panels, use the MC4 cables that are connected to the solar panel junction box. Connect the positive MC4 connector to the negative connector of the adjacent panel. This will connect the panels in series and compound the output voltage of the panel. (Figure 3)
7. Attach the MC4 solar extension harness to the unused positive and negative MC4 connectors on the panel(s). Note, ensure the positive connection from the panel(s) is made with the red wire on the harness and the negative with the black wire. If the wrong side of the solar harness is connected, the system will still work, but the wire colors will be reversed.
8. Secure all harnessing to roof using 4EvaSeal Tape. (Figures 3-4)
9. Route the harness down the trailer to the liftgate batteries. If available, use an existing conduit or channel. (Figure 4)
10. Cover solar panel(s) with opaque material or the boxes they came in to halt the production of electricity while working with solar controller wiring in Part 3.

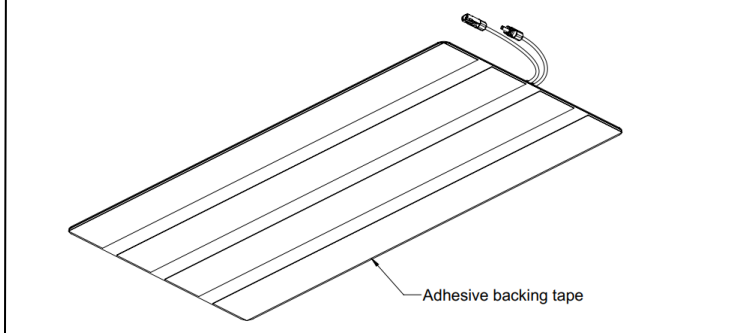


FIGURE 1

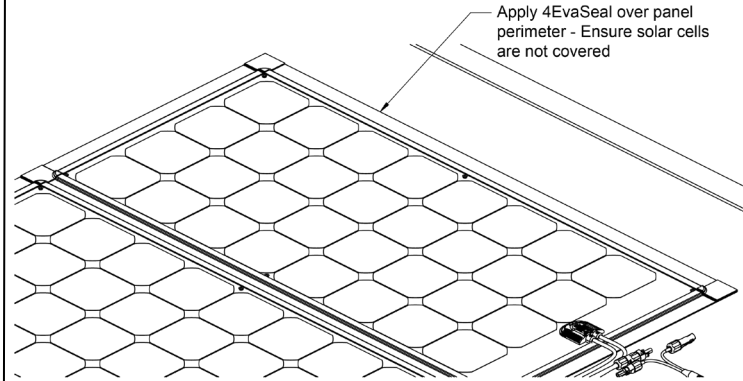


FIGURE 2

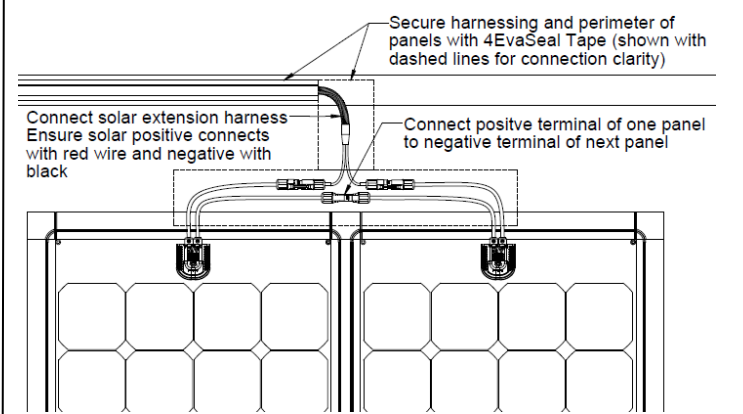


FIGURE 3

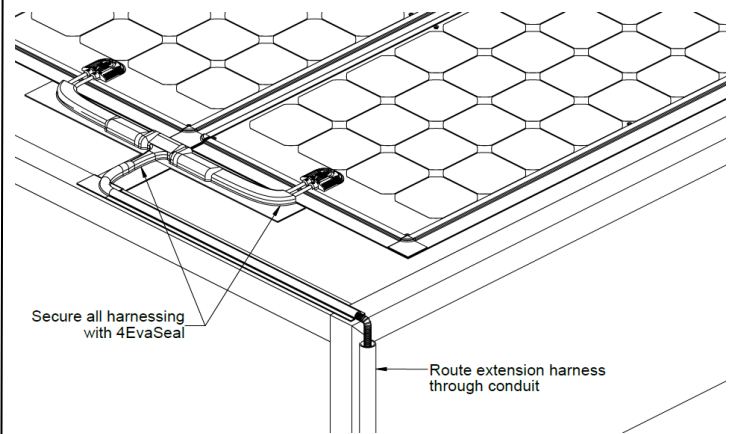


FIGURE 4

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6 SOLAR CHARGE CONTROLLER

1. Find a location close to the battery where the solar controller can be mounted. Make sure this location is close enough to the batteries to use the provided battery harness.
2. Use mechanical fasteners to secure the charge controller near the batteries. (Figure 5)
3. Connect the battery harness to the charge controller using the Delphi connectors. Route the solar controller's positive and negative connections to the positive and negative terminals on the battery. Attach the black wire to the negative terminal on the battery and the red/white wire to the positive terminal on the battery. (Figure 6)
4. If installing more than one battery, connect batteries together as shown to charge and discharge batteries evenly. (Figure 7)
5. Reconnect negative battery connections disconnected in Part 1.
6. Attach the MC4 solar extension harness to the solar controller using the MC4 connectors. (Figure 5)
7. To ensure the solar panels are charging the batteries, you will require a clamp-on ammeter. Make sure the solar panel(s) are in the sunlight. Clip the clamp-on ammeter around the positive solar connection between the solar controller and the liftgate batteries. Activate the liftgate for one cycle. You will see current on the ammeter as the power flows from the solar controller to the battery. The charge controller can take up to one minute to start charging, so there may be a delay before current flow is registered on the ammeter.

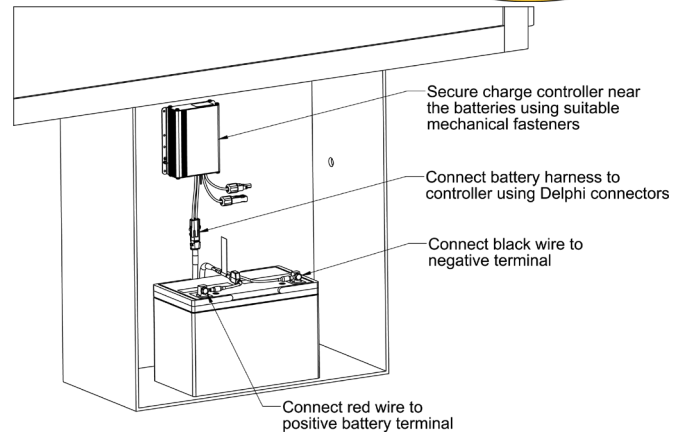


FIGURE 5

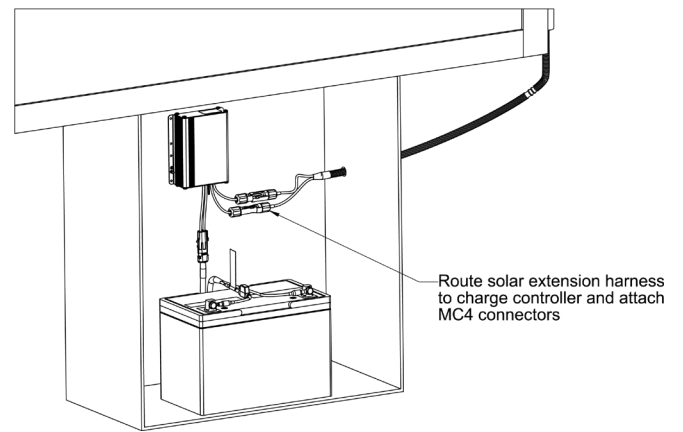


FIGURE 6

| LED Indications & Warning Functions | | |
|-------------------------------------|---------------------|-----------------------------------------------------------|
| LED | Status | Function |
| | On | Controller connected to battery, night detected |
| | Flash | Controller connected to battery, day detected |
| | Off | No battery connected |
| | On | Charging failure (overvoltage / overcurrent) |
| | Off | Charging OK |
| | On | Battery voltage very low or high voltage disconnect (HVD) |
| | Off | Battery voltage in normal range |
| All LED | Green->Red->Green-> | Programming |

7 SOLAR PANEL MAINTENANCE

Although Go Power Solar Kits are generally maintenance free, performance gains can be made with clean solar panels.

1. Clean the solar panels monthly. Use water and a soft sponge or cloth. A mild non-abrasive cleanser can be used for more stubborn residue. Rinse well.
2. Clean solar panels more frequently during drier months, as they may become covered in dust more quickly. A pressure washer is not recommended.
3. Visual inspection – check the exterior for cracks, missing or broken hardware or other potential problems. Check all roof penetrations and replace sealant areas as required

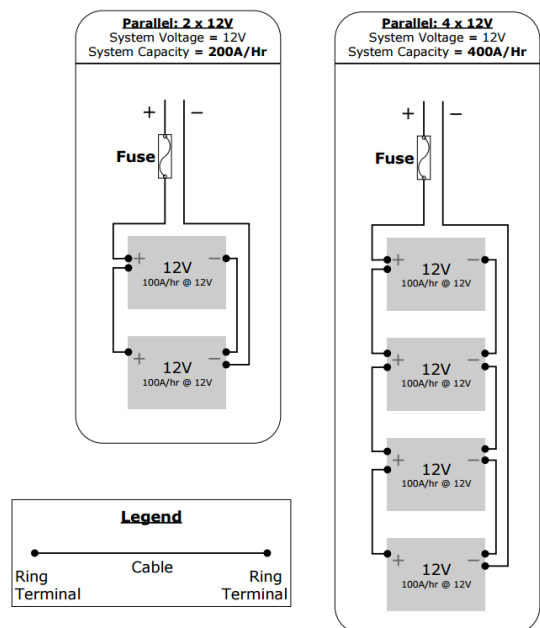


FIGURE 7