

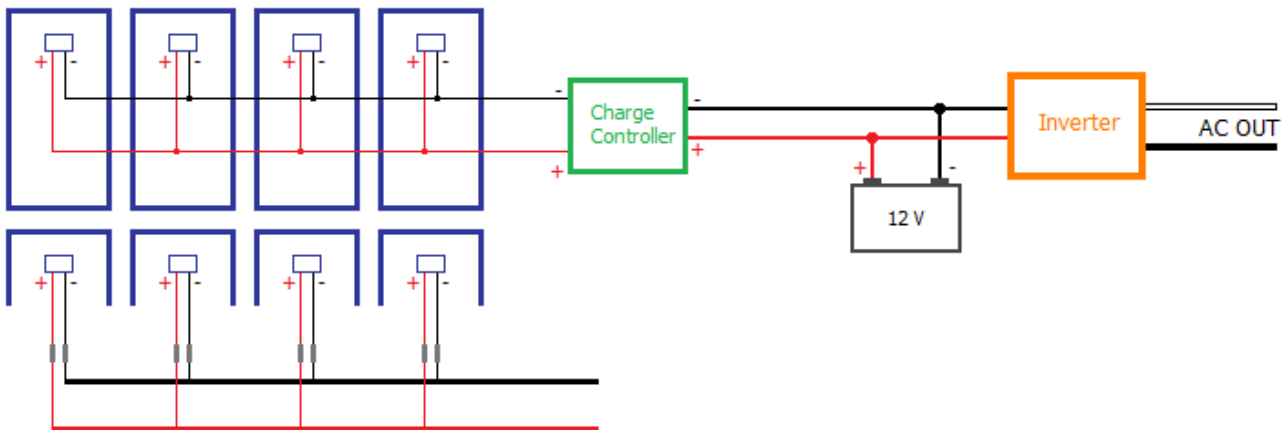


Grape Solar 400 Watt Off Grid Kit (GS-400-KIT) Installation Guide

IMPORTANT: Please read the Panel User Guide, charge controller and inverter manuals before connecting the kit components

For additional information about this kit visit grapesolar.com/manuals.html, or email support@grapesolar.com

Basic Wiring Diagram



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QuickStart Setup

Step 1: Check your order to make sure that all parts are included. For the 400 watt off-grid kit, this is four 100 watt solar panels, four 10 amp inline fuses, a pair of MC4 parallel cable sets (4 inputs and 1 output on each), a pair of 15-foot MC4-to-MC4 cables, a red/black 6" MC4-to-bare cable pair, a 5-foot (10 AWG) red/black bare-wire-to-ring-lug cable pair (charge-controller-to-battery), a 5-foot 4 awg red/black pair (battery to inverter), a Grape Solar PurePower 1800 inverter, and a GS-PWM-COMET-40 charge controller.



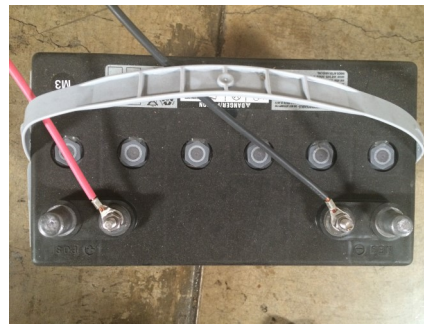
Step 2: For optimum output, place the panels so they are facing due south at approximately the same angle as your latitude, in full sun. If you are connecting the system during daylight, cover the panel with cardboard, cloth, or a similar option so that it does not output power. Place the panel so it is facing due south at approximately the same angle as your latitude, in full sun.



QuickStart Setup

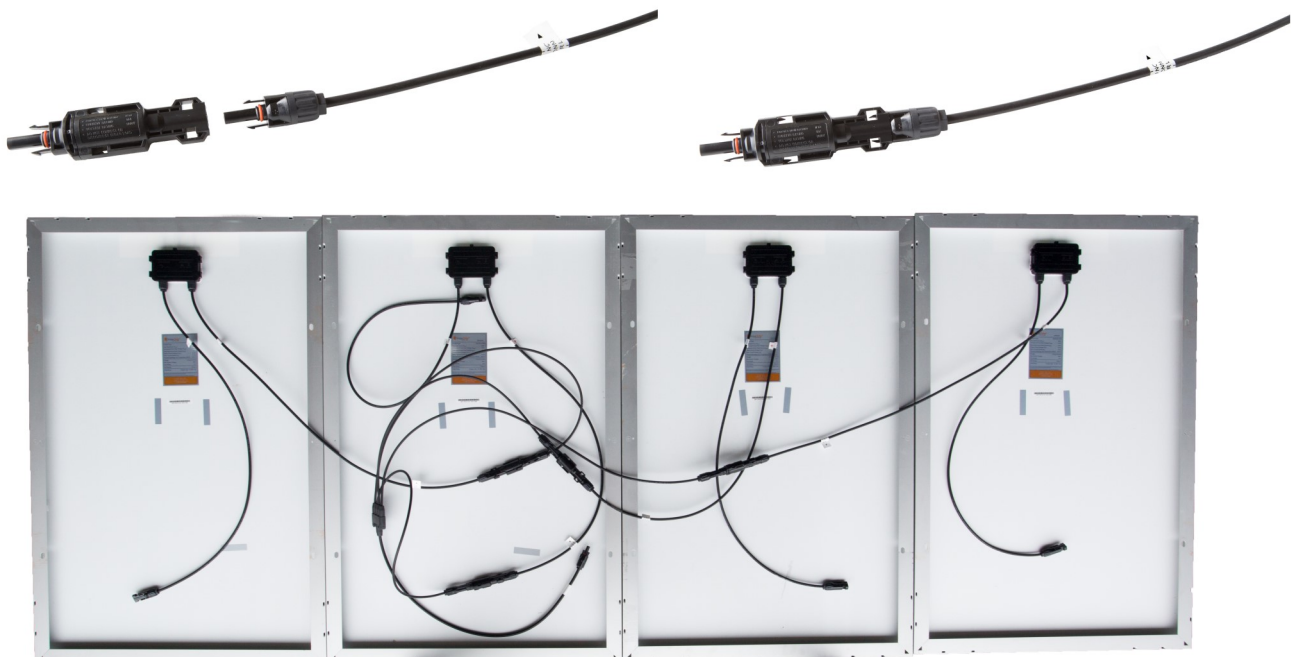
Step 3: Mount the controller if desired (note that it must be in a NEMA-4 rated enclosure if it is outdoors).

Step 4: Use the 5-foot 10 awg red & black cable pair to connect your positive and negative battery terminals to the “Battery Positive” (use red cable from the positive battery terminal) and “Battery Negative” (use black cable from the negative battery terminal) inputs of the charge controller (the center set of terminals).



If your battery has sufficient charge (11.5 volts or more), the LCD screen on the controller should activate. This means the controller has power (controllers are powered by the battery, not the panels). This does NOT mean that the batteries are full—typically full batteries read around 13.6 volts.

Step 6: Connect the positive and negative outputs of the four panels to the inputs of the parallel cables, adding the inline fuses on the positive leads. Note that the parallel cables have two shorter center leads for the center two panels, and longer leads on the left and right for the panels on either side.



QuickStart Setup



4-panel parallel cable connection

Step 7: Connect the MC4 outputs of the parallel cables to the 15-foot MC4 extension cables. Then connect the MC4 outputs of the 15-foot cables to the 6" MC4-to-bare wire pair as shown below:

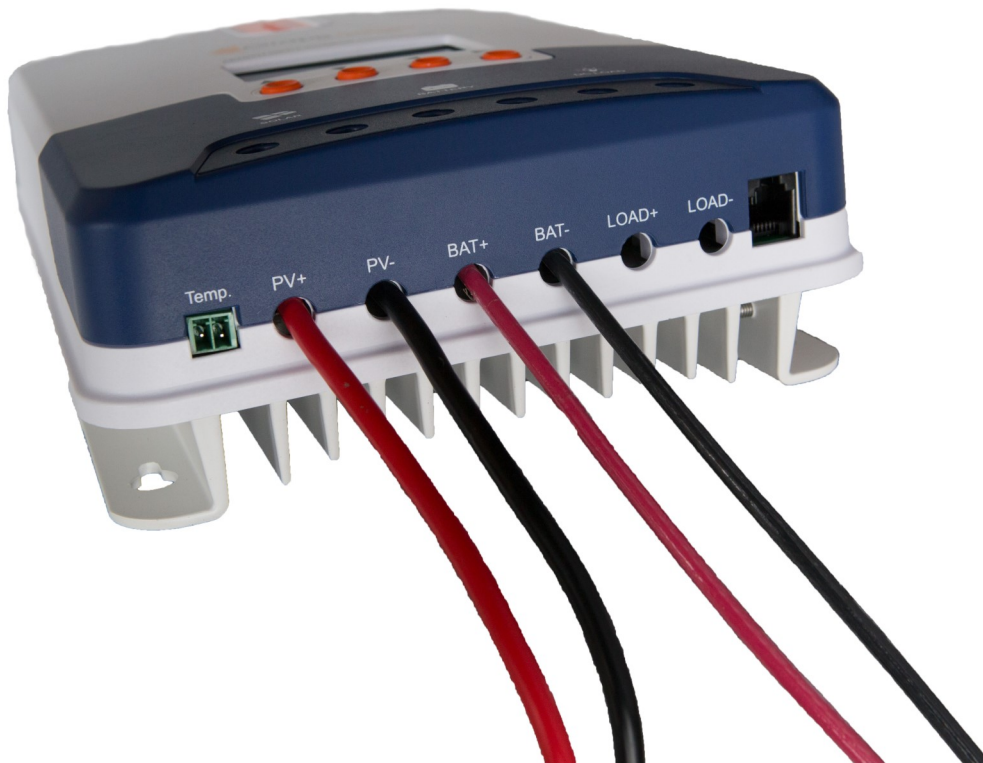


QuickStart Setup



MC4 to bare connection

Step 8: Connect the bare wire end of the red cable to the “PV Positive” input of the charge controller, and the black cable end to the “PV Negative” input (the left-hand set of terminals).



Step 9: Mount the inverter, if desired, as per the instructions in the inverter manual. Connect the red (positive) and black (negative) 4 awg 5-foot cable from battery to inverter. NOTE: As per the inverter manual, the outputs cannot be hardwired to an electrical panel.



Step 10: Uncover the panel — you should see the icon on the upper left of the controller display change from a moon to a sun after this is done. As time passes, you should the battery charge increase, until the controller is in “Float” mode (NOTE: time to reach Float will vary depending on many factors including weather, location, time of year, and battery capacity). Once in Float mode, the battery can be used to provide power. It is best practice to ensure that the battery bank reaches Float at least once per week.

Exclusion for Documentation

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Important: Installations of this kind must be certified/approved as “code-compliant” to the national and local building and electrical codes. Installers should have adequate knowledge of national and local code to ensure the installation passes inspection by the local electric authority.

Important: Proper fuses or breakers should be used to comply with all local and national codes. Contact Grape Solar for specific recommendations.

Important: All batteries used for this system should be identical. Do not mix battery types or sizes. Do not mix old batteries with new batteries. Performance and charging anomalies can occur if types, sizes, or age of batteries are not identical.