



400 Watt Off-Grid Charging Kit (GS-400-KIT)

Quick Connect Guide

IMPORTANT: Please read GS-PWM-COMET-40 charge controller owner's manual and GS-STAR-100W Connection Guide (included with products) before assembling kit.

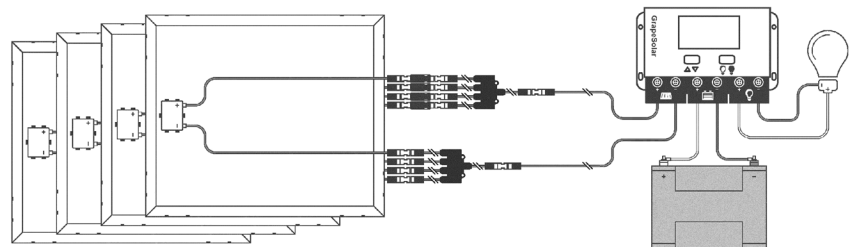
For additional information about Grape Solar products:
email Support@GrapeSolar.com, or
call **1-877-264-1014** for live telephone support.

To estimate how much average monthly power this system should produce in your area, please use the **PV Watts Calculator** found at:

<https://pvwatts.nrel.gov/>

This System Size= 0.4 kW DC

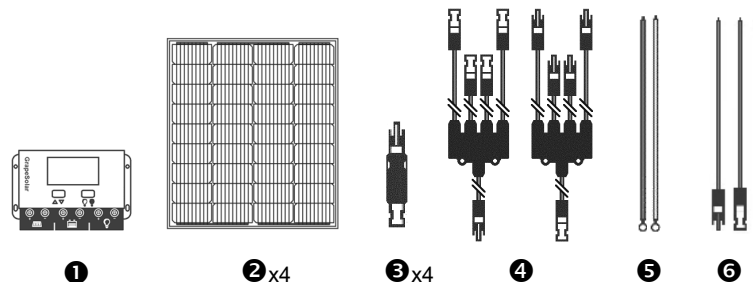
(only applicable for zip codes in the U.S.A.)



[diagram not to scale.]

1 Check your order to make sure that all parts are included:

- ❶ GS-PWM-Comet40 Charge Controller
- ❷ 4x GS- STAR-100W Solar Panel
- ❸ 4x 15-Amp MC4 In-Line Fuse
- ❹ MC4 4-to-1 Parallel Cable Pair
- ❺ 5-ft. Red/Black 10 AWG Cable Pair
- ❻ 15-ft. MC4-to-Bare-Wire Cable Pair



[diagram not to scale]

Additional tools and equipment you will need:

- Screwdriver– Philips Head
- 12-Volt Deep-Cycle Battery Bank
- Voltmeter (for Troubleshooting)

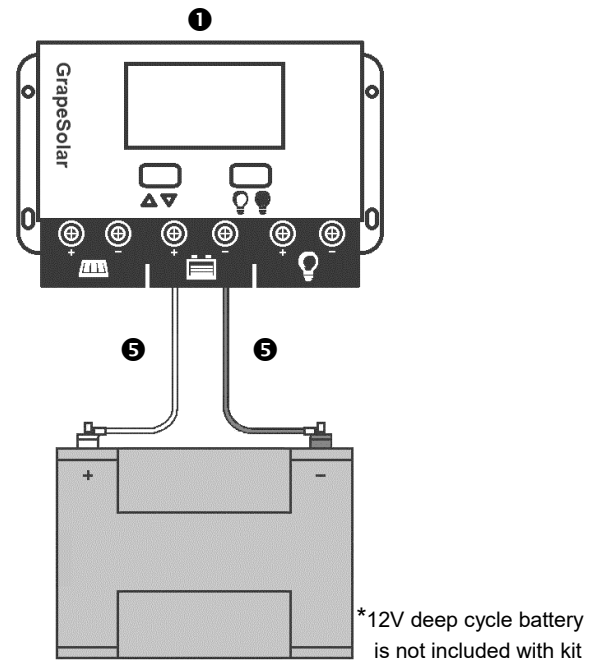


- 2** Mount the 100-watt solar panels **2** so that they are facing due South at approximately the same angle as your latitude. The ideal area has full sun and no shading. If the following connections are made during daylight, cover the panels with cardboard, cloth, or a similar opaque material so that the panel does not output power.

- 3** Connect the bare wire end of the 10 AWG red battery cable **5** to the (+) battery terminal on the bottom of the Comet-40 charge controller **1**. Connect the bare wire end of the 10 AWG black cable **5** to the (-) battery terminal. A Phillips head screwdriver can be used to loosen and tighten the screw clamps onto the wires.

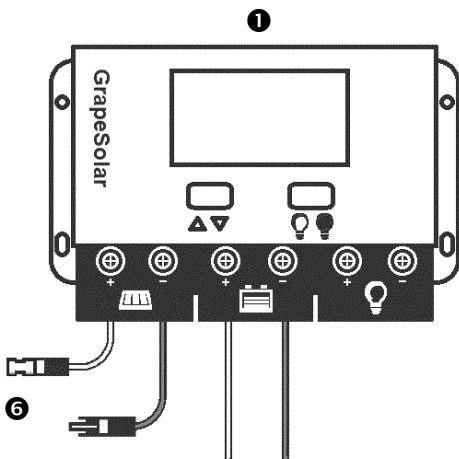
Attach the ring lug end of the red cable **5** to the positive terminal of a 12V deep cycle battery. Attach the ring lug end of the black cables **5** to the negative terminal of the battery.

The charge controller **1** display screen will be visible if the battery has sufficient charge. If the display screen is not visible, the battery must be charged from an another source before processing solar power. The charge controller, which regulates solar power flow to the battery, is powered by the battery.

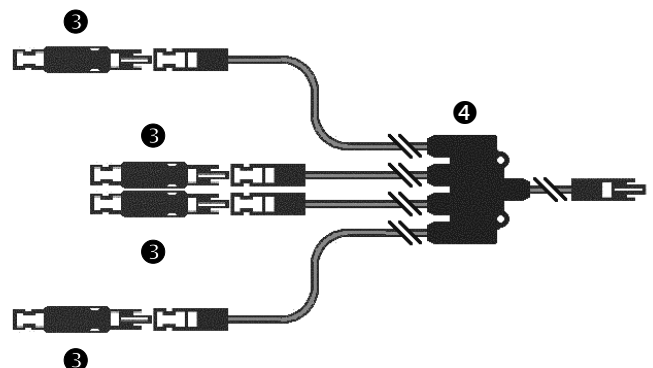


- 4** Connect the bare-wire ends of the MC4-to-Bare Wire pair **6** to the charge controller **1**.

The positive wire connects to the (+) input and the negative wire connects to the (-) input.



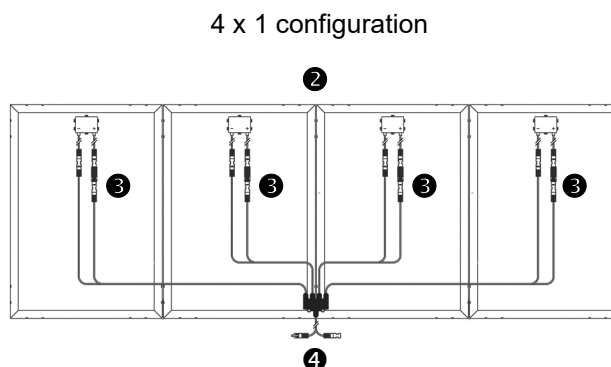
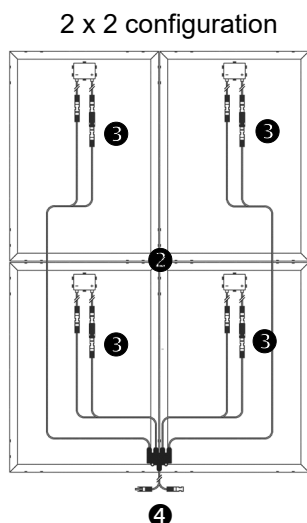
- 5** One of the MC4 parallel cables **4** has 4 female inputs. Attach an MC4 In-line fuse **3** to each of the female inputs.



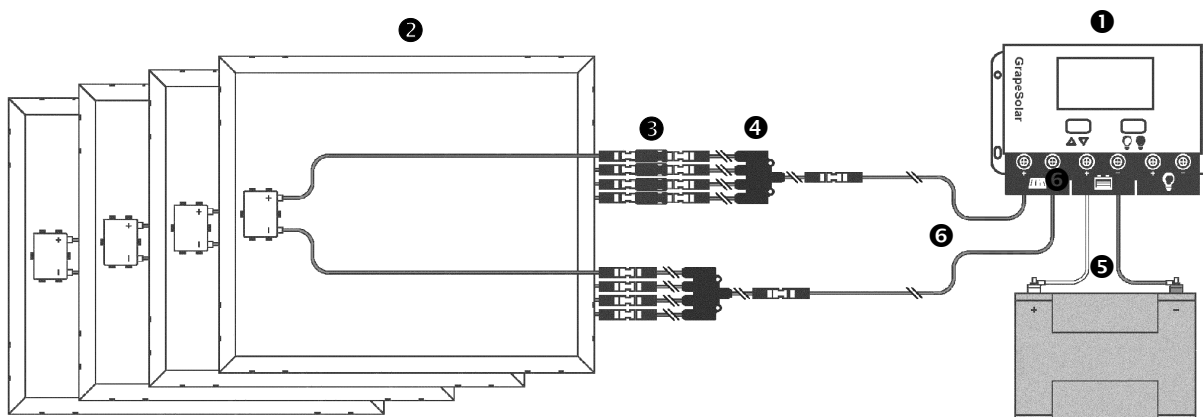


- 6** Connect the positive solar panel cables **2** to the “female” fuse ends **3** from the previous connections. Connect the negative panel cables **2** to the “male” parallel connector ends **4** of the other MC4 parallel cable.

Notice that for each MC4 parallel connector **4**, the two outer parallel cables are longer than the two inner parallel cables. Reserve the longer cables for the solar panels **2** that are further from the MC4 parallel connector “hub”.

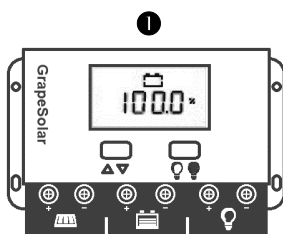


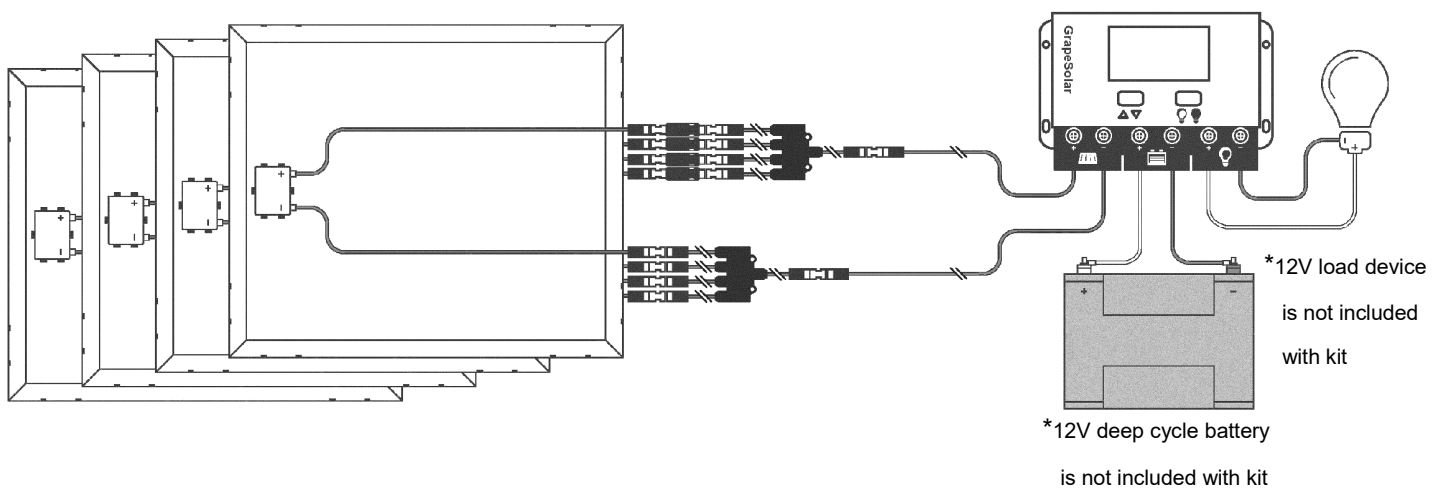
- 7** Use the two 15-ft. MC4 cables **6** to connect the Parallel Cable Pair **4** to the Comet-40 charge controller **1**.



*12V deep cycle battery is not included with kit

- 8** Remove the panel covering. In good sunlight, the charge controller's **1** "BAT %" should increase to 100%. When the controller is set to "LOAD ON," the system will provide power through the load control output or through the USB port.





DISCLAIMER:

Installations of this kit could be subject to 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.

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

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.

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