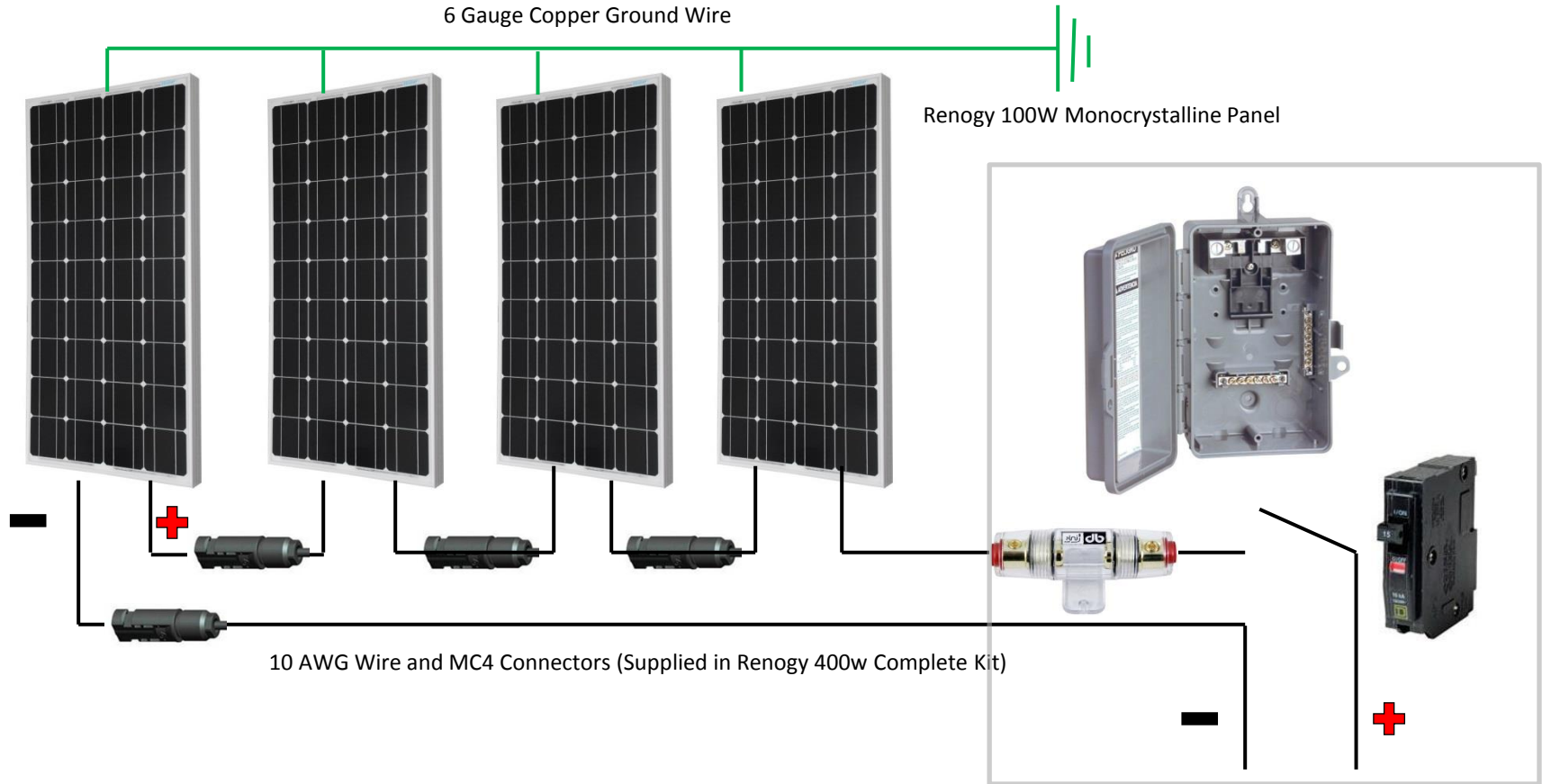




# Tin Hat Ranch 400 Watt Solar System- Outdoor Portion

8ft Copper Ground Rod

6 Gauge Copper Ground Wire



10 AWG Wire and MC4 Connectors (Supplied in Renogy 400w Complete Kit)



This system utilized the [Renogy 400W Complete Kit](#)

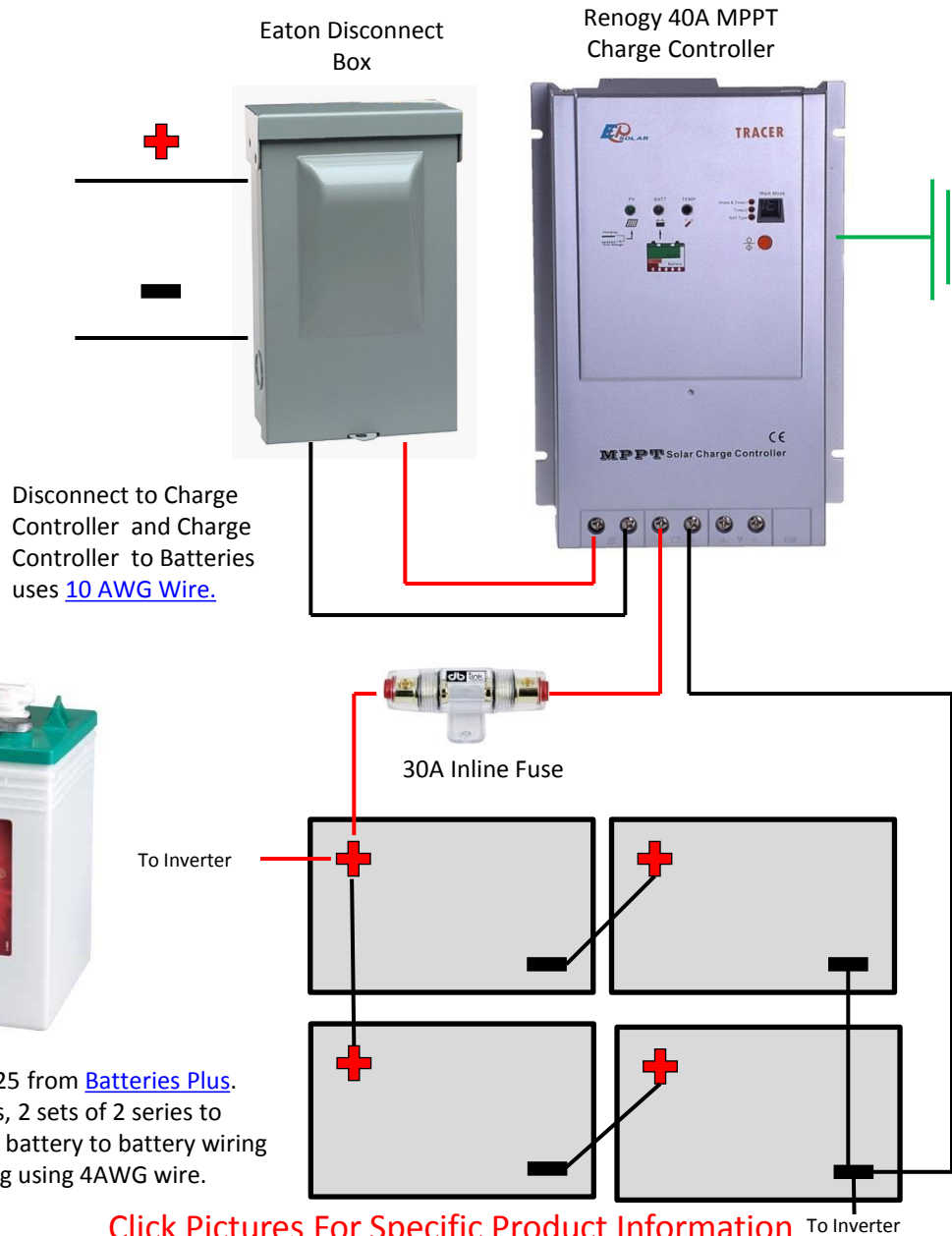
- (4) 100W Monocrystalline Panels
- 40A MPPT Charge Controller
- Panel Mounting Z Brackets
- MC4 Connectors
- 20ft 10AWG Wire

[Click Pictures For Specific Product Information](#)

Fuse, connection and breaker inside the [Square D Outdoor Load Center](#). CAUTION: the breaker is NOT present as a safety device. In this case it is nothing more than a switch to cut power in the box. From this point your wire from panel connection box will vary depending on distance, volts, and amps. In the case of the THR Solar System (as pictured), the distance between the load center and the batteries was 60ft. (18m). I used [12/2 Direct Burial Cable](#) in outdoor PVC electrical conduit. [Click here for a solar wire gauge calculator.](#)



# Tin Hat Ranch 400 Watt Solar System- Disconnect to Charge Controller

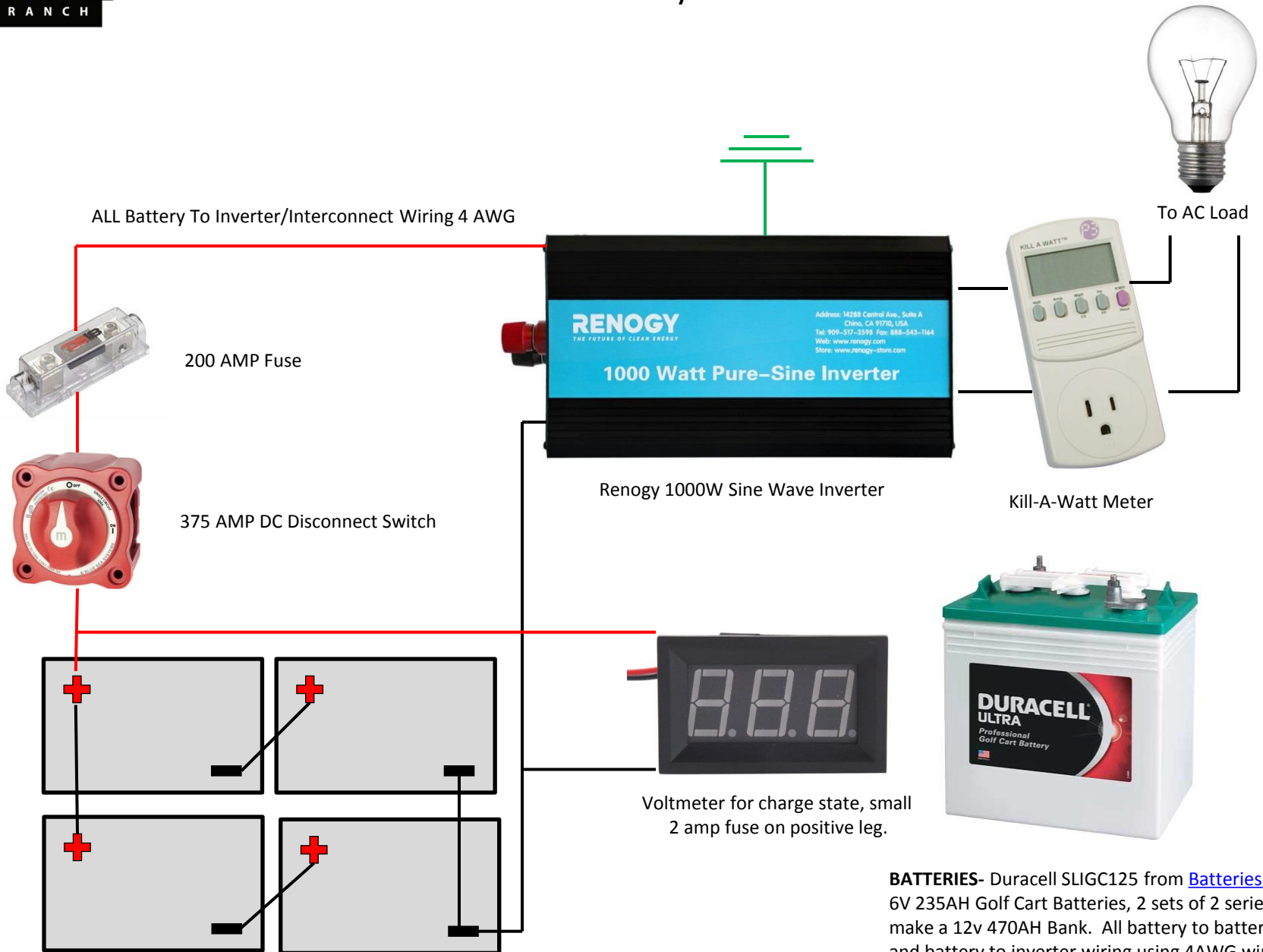


**BATTERIES-** Duracell SLIGC125 from [Batteries Plus](#). 6V 235AH Golf Cart Batteries, 2 sets of 2 series to make a 12v 470AH Bank. All battery to battery wiring and battery to inverter wiring using 4AWG wire.

[Click Pictures For Specific Product Information](#)



# Tin Hat Ranch 400 Watt Solar System- Batteries to Inverter to Load

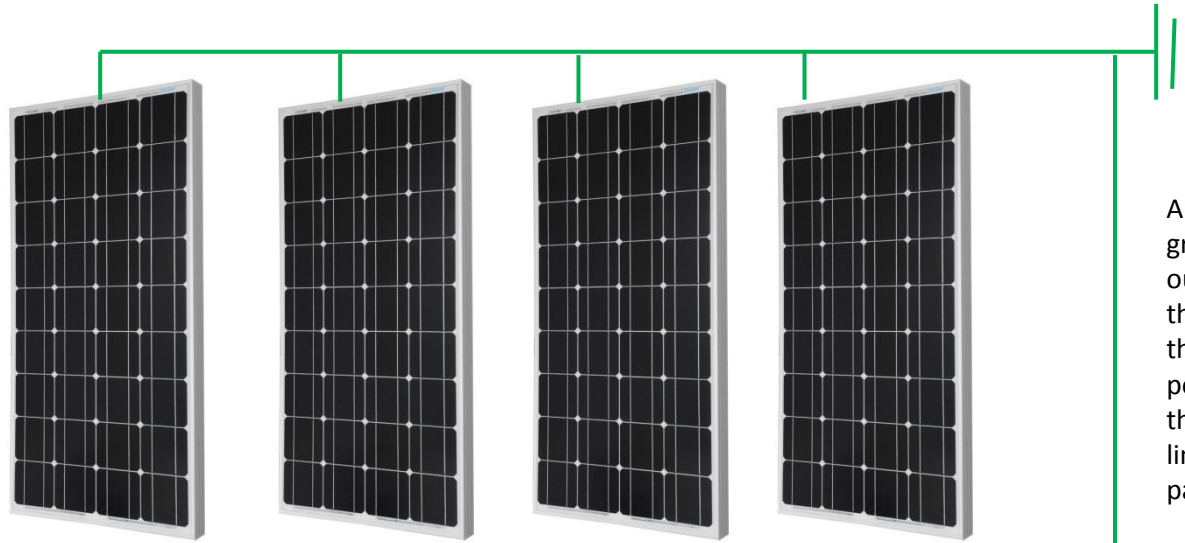


**BATTERIES-** Duracell SLIGC125 from [Batteries Plus](#). 6V 235AH Golf Cart Batteries, 2 sets of 2 series to make a 12v 470AH Bank. All battery to battery wiring and battery to inverter wiring using 4AWG wire.

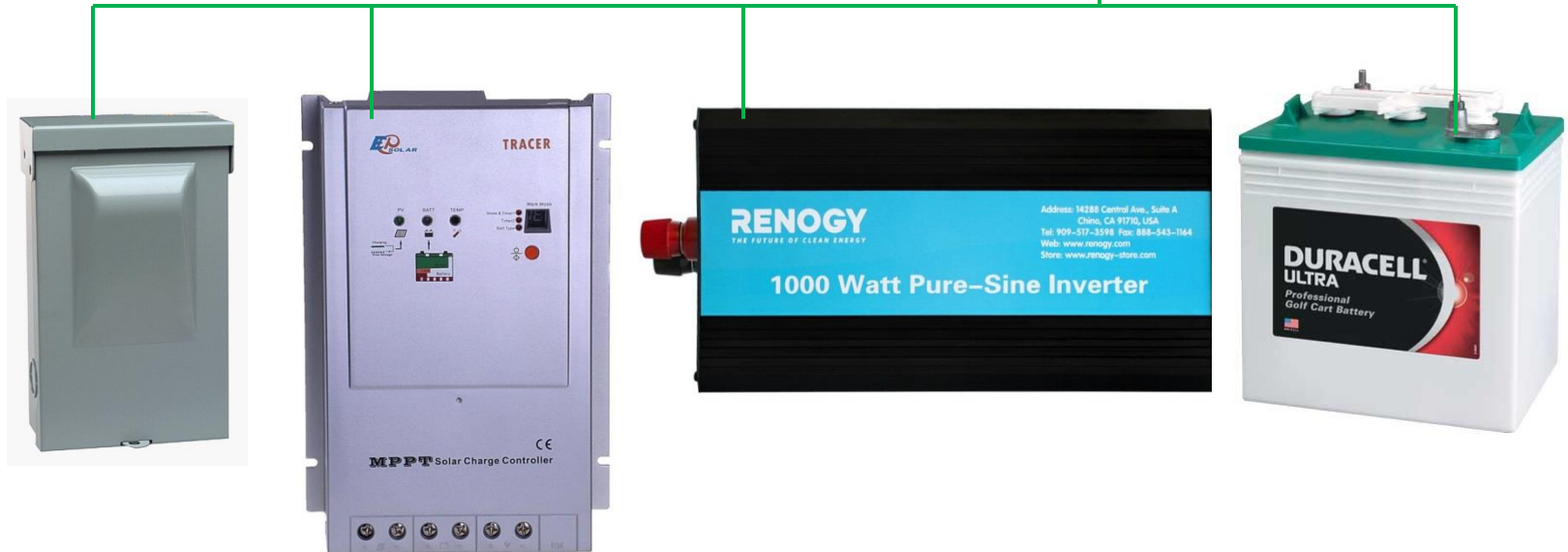
Click Pictures For Specific Product Information



# Tin Hat Ranch 400 Watt Solar System- Grounding



All metal system components are grounded to a copper grounding rod. In our case we connected the ground wire in the 12 ga. Direct burial to the same rod as the outdoor equipment to limit electrical potential differences, i.e., putting the all the components on the same ground limits charges from building up in certain parts of the system.





## Tin Hat Ranch 400 Watt Solar System- Parts List Links

### Main Solar Components

- [Renogy 400 Watt Premium Kit \(4- 100 Watt Panels, 40 Amp MPPT Charge Controller, MC4 Connectors, Wire\)](#)
- [Renogy 1000 Watt Pure Sine Wave Inverter](#)

### Boxes

- [Eaton Disconnect Box](#)
- [Square D Outdoor Load Center](#)

### Meters

- [Kill-A-Watt Meter](#)
- [Battery Volt Meter](#)

### Fuses and Switches (Fuse and Switch AMP ratings specific to YOUR system)

- [15 Amp Square D Circuit Breaker \(used as a switch because it fits in the load center\)](#)
- [30 Amp Inline Fuse Holder](#)
- [200 Amp Inline Fuse](#)
- [375 Amp Disconnect Switch](#)

### Batteries

- [\(4\)Duracell SLIGC125 from Batteries Plus](#)

The balance of system components are custom to your application. These include, panel mounts, panel to charge controller wiring, indoor equipment mounts, battery box, and cabling between all devices. Please make sure to watch our series and follow all national and local electrical codes when working installing your system. The Tin Hat Ranch is not responsible for the accuracy of the information in this series nor the consequences of someone duplicating what we have depicted. In other words and in plain English, this is an electrical system with large amounts of power. Proceed at your own risk.