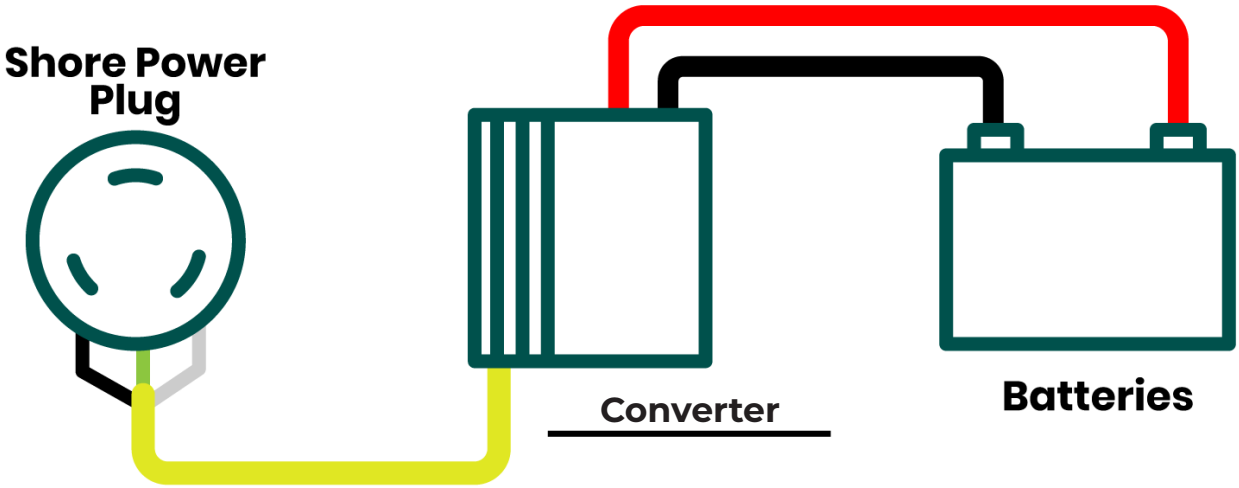
Chapter 4
Power Gear Answers

Converter

Your converter has two functions:

1. It takes the 30- or 50-amp power from being plugged in at a campground and **converts** it to 12 volt.
2. It uses that converted 12-volt power to **charge** your batteries and run your 12-volt appliances.



The converter has to be set to charge your battery **type**.

Converters may have 12-volt **blade** fuses on them (or near them) that can burn out just like any fuse.

Chapter 4
Power Gear Answers

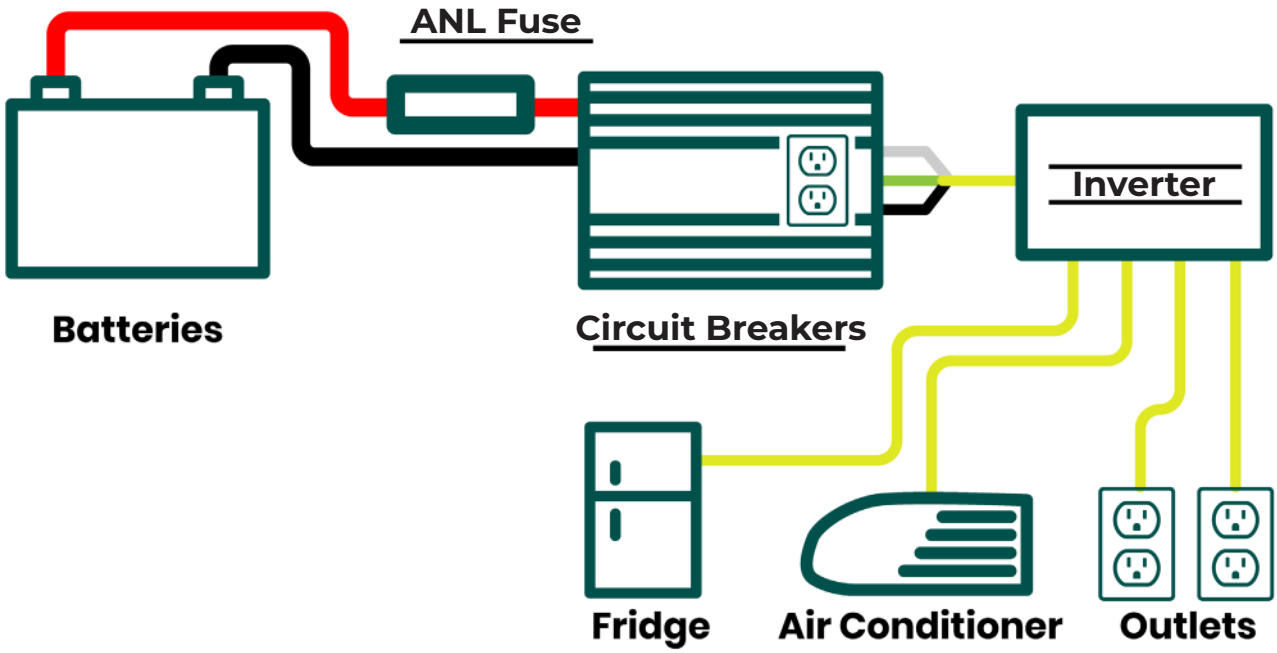
Inverter

An inverter “inverts” your 12-volt battery power to run **120V** volt appliances and outlets.

The amount of **watts** your inverter can put out determines what you can plug in.

The **size** of your battery bank will dictate how long you can run that item for.

Wiring Diagram



Chapter 4
Power Gear Answers

Inverter (Continued)

Should your inverter or AC appliance stop working, there are a few places to check:

1. The **GFCI** plug on the inverter may have tripped → it needs to be reset.
2. The **inverter** may have reached its limit and tripped → it has to be turned off and back on.
3. Another **GFCI** plug may have tripped → track them all down and reset.
4. A **circuit** breaker may have tripped in your breaker box → it needs to be reset.
5. The large **ANL** fuse may have blown → replace it.

Just having the inverter on will draw **1 to 2** amps even if you aren't running anything on AC power.

The most common issue you'll run into with an inverter is **overpowering** it.

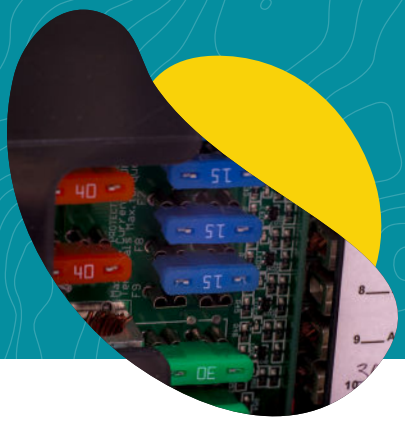
Fuses

There are multiple layers of **protection** built into your RV power system.

On the 12-volt side, **blade** fuses are the most common way to cut power to an appliance if it starts acting up.

Plan for **1.25** times the maximum amps an appliance will put out.

Chapter 4
Power Gear Answers



Circuit Breakers

On the AC or 120-volt side of your power, **circuit breakers** are used instead of blade fuses.

This is similar to the distribution **panel** in your house.

Overall the idea here is very similar to the 12-volt circuits. Major appliances get their own line, some or all outlets may be grouped together. The circuit is sized to match the output. The goal is to protect the system if an appliance or plugged-in item tries to use more power than it's rated for.

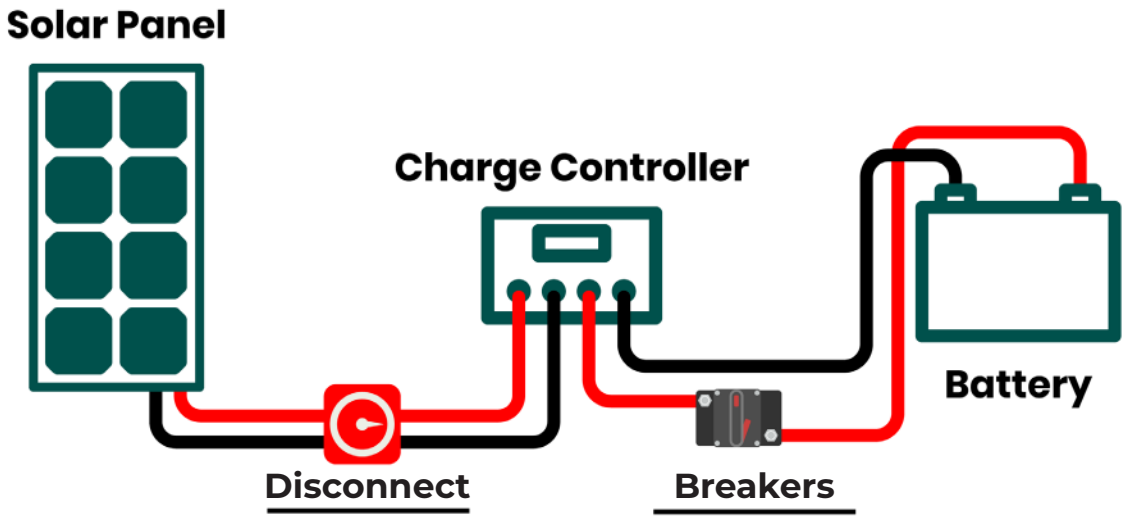
A circuit breaker doesn't blow or need to be replaced. It just **trips** and shuts off.

Solar Charge Controller

A solar charge controller needs to be set specifically to your battery **type** so it can fill and float without overcharging the batteries.

MPPT chargers will actually squeeze more charging power out of your panels.

Wiring Diagram



Chapter 4
Power Gear Answers

BMS

A battery **management** system is required if you have lithium batteries.

A BMS will keep track of the **temperature** and **voltage** of each cell.

It also helps **balance** the cells' voltage against one another to elongate their life.