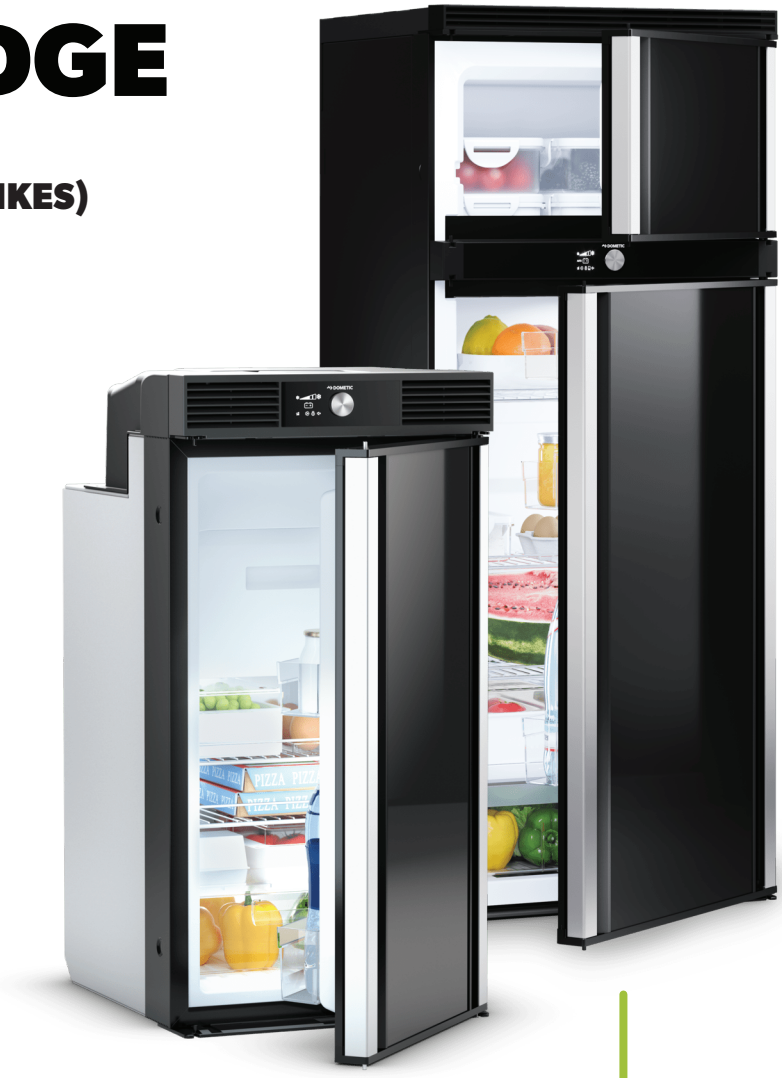
HOW TO RUN YOUR 12 VOLT FRIDGE

FRIDGE MATH (THE PART NO ONE LIKES)



A typical 12V fridge draws 10A when running and cycles about 50% of the time, averaging 5A. Over 24 hours, it consumes 120Ah per day.

To replenish this, you need to average 15A of charge over 8 hours. A 200W solar panel can produce up to 10A in ideal conditions, so two panels are recommended to meet the demand.

Solar output varies with weather and shading, so it's wise to size your battery bank to cover 2+ days of poor sun.

Think of your battery like a gas tank: if you fill it up faster than you burn fuel, it stays full; otherwise, it runs low.

Start with 1–2 panels and scale up if needed.

This calculation is based on a 10-amp draw from the fridge. If the fridge draws only 5 amps, it will use half as much power.

LETS BREAK IT DOWN.

FRIDGE POWER USAGE

Fridge uses 10 amps, runs half the time, so averages 5 amps.

DAILY BATTERY REQUIREMENT:

Needs 120 amp-hours (aH) per day (5 amps x 24 hours).

CHARGING REQUIREMENT:

15A for 8 hours = 2 x 200W solar panels.

YOUR BATTERY IS A FUEL PUMP:

Battery is a fuel tank: More power in than out = charge
More power out than in = discharge

Go Power! | DOMETIC

P: +1 866 247 6527
E: sales.gopower@dometic.com
W: gopowersolar.com

201 - 710 Redbrick St,
Victoria, British Columbia,
Canada, V8T 5J3

BATTERY GAS STATION ANALOGY

Imagine your battery is like a fuel tank. Using power, like running your fridge, is the same as driving your vehicle; it burns fuel.

Charging the battery with solar panels is like pulling into a gas station and filling up the tank. If you drive more than you refuel, your tank starts to empty and eventually you run out of gas. That means your battery dies.

But if you refuel more than you drive, your tank stays full and you're storing energy for later.

Your fridge burns about 120Ah of fuel per day, so you need to refill at least that much daily to keep going.

Two solar panels can usually keep up with that demand, but clouds and shade are like traffic jams or road closures. They slow you down and reduce how much fuel you can add.

That's why it's smart to have a bigger tank—a battery bank large enough to keep you running for a few days when the sun isn't shining.

AGM VS. LITHIUM BATTERIES – WHAT YOU REALLY NEED TO KNOW

LITHIUM BATTERIES ($LIFEPO_4$)

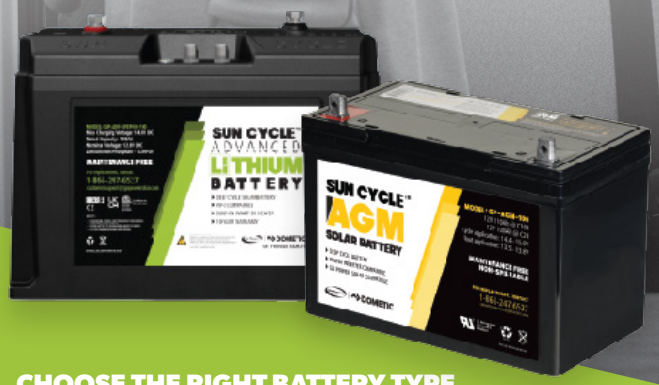
- Best for: Full-time RVers, off-grid setups, and high-performance needs.
- Usable Power: Nearly 100% of capacity is usable.
- Charging Speed: Up to 2x faster than AGM.
- Size & Weight: Lightweight and compact.
- Lifespan: 10+ years or 3000–5000 cycles.
- Cost: Higher upfront, lower long-term cost.

AGM BATTERIES

- Best for: Budget builds and occasional use.
- Usable Power: Only about 50% of capacity is usable.
- Charging Speed: Slower, especially with solar.
- Size & Weight: Bulkier and heavier.
- Lifespan: 3–5 years or 300–500 cycles.
- Cost: Lower upfront, less efficient over time.

QUICK TIPS

- Full-time RVing? Go lithium.
- Weekend trips? AGM might be enough.
- Tight on space or weight? Lithium wins.
- Thinking long-term? Lithium is the better investment.



PRACTICAL TIPS

PLAN FOR CLOUDY DAYS

Don't rely on perfect sun. Size your battery bank to last 2–3 days without charging, especially if you're storing perishable food.

START WITH TWO SOLAR PANELS

Begin with two 200W panels to meet daily fridge needs. Monitor performance and add more panels if you're falling behind on charge.

KNOW YOUR FRIDGE'S POWER DRAW

If your fridge draws 5A instead of 10A, it uses half the power—only 60Ah/day. Always check your fridge's actual specs.

USE A BATTERY MONITOR

Install a battery monitor to track charge/discharge levels. It helps you avoid surprises and manage power more efficiently.

CHOOSE THE RIGHT BATTERY TYPE

Lithium: Lightweight, long-lasting, charges faster, ideal for RVs and boats.
AGM: Lower cost, heavier, shorter lifespan, less efficient.

KEEP PANELS CLEAN & UNSHADED

Dirt and shade can cut solar output dramatically. Clean panels regularly and park in sunny spots when possible.

CONSIDER A DC-TO-DC CHARGER

If you drive often, a DC-to-DC charger can top up your battery from your vehicle's alternator—great backup on cloudy days.

Go Power! | DOMETIC

P: +1 866 247 6527
E: sales.gopower@dometic.com
W: gopowersolar.com

201 - 710 Redbrick St,
Victoria, British Columbia,
Canada, V8T 5J3