This little box provides on-demand power when off the grid

EcoFlow’s Alternator Charger is a device you install in your pickup truck, van, or RV to charge the giant power station you carry to keep all your gear running.

While your vehicle’s on, the Alternator Charger produces up to 800W. That’s about eight times more power than you can typically extract from a 12V cigarette lighter jack, and it’s enough to charge EcoFlow’s new 1kWh Delta 3 from zero to full in a little over one hour of driving. It takes five hours if you’re traveling with EcoFlow’s larger 4kWh Delta Pro 3.

It’s also clever enough to reverse the flow of electrons, using the power station to maintain your starter battery with a trickle charge or jump-start it back to life. When you return home from the job site or vacation, those big-ass portable batteries can be connected to EcoFlow’s $200 balcony solar kit to help offset your energy bill and provide emergency power during a blackout.

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EcoFlow’s Alternator Charger is far from an industry first, and it uses proprietary connectors that only work with Ecoflow’s own batteries. But the company brings simplicity, elegance, and a superior user experience to a product usually designed for electricians and mechanics.

After 3,700 miles (6,000km) of testing, I can say that the $599 Alternator Charger could be a game-changer for many. It allowed my wife and I to live and work carefree from a

Sprinter van this summer, comforted by all the modern conveniences afforded by so much on-demand power.

8Verge Score

EcoFlow 800W Alternator Charger

$ 599

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The Bad

- Doesn’t charge power stations from other companies
- Automatic setting could degrade starter battery
- Routing the thick cable can be tricky

How we rate and review products
It’s fairly common for RV builders to install aftermarket DC-to-DC chargers on a vehicle’s alternator. They’re incredibly adept at keeping stacks of leisure batteries charged to power off-grid luxuries like e-bikes, projectors, 3-in-1 refrigerator-freezers with ice makers, coffee makers, and air conditioners. Some basic chargers cost less and others are more powerful than EcoFlow’s, especially when built around a secondary alternator — but those offer fewer features and require professional installation.

To avoid overloading the vehicle’s alternator, EcoFlow’s charger regulates itself so that only *surplus* power, which can be less than 800W, is sent to the power station. (The Alternator Charger can pull a maximum of 76 amps.) In my case, the Sprinter’s beefy alternator has enough capacity to easily deliver a near-continuous 800W even with the A/C running and the wipers and lights on.

I also travel with 420W of solar panels installed on the roof for an extra boost, resulting in just over 1,100W of simultaneous real-world charge when driving on sunny days. This combo also works while the van is parked and idling if I ever need the Sprinter to act like an emergency diesel generator.

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**a:hover]:text-black [&>a:hover]:shadow-underline-black dark:[&>a:hover]:text-gray-e9 dark:[&>a:hover]:shadow-underline-gray-63 [&>a]:shadow-underline-gray-13 dark:[&>a]:shadow-underline-gray-63″>*The five meter cable that runs to the starter battery is more than long enough for 6-meter L2 Sprinter vans.*

a:hover]:shadow-highlight-franklin dark:[&>a:hover]:shadow-highlight-franklin [&>a]:shadow-underline-black dark:[&>a]:shadow-underline-white”>Performance
After a straightforward installation, it was time to configure the Alternator Charger in the excellent EcoFlow app, which makes monitoring performance both fun and addictive.

The Alternator Charger only sends power to the power station after two conditions are met. First, the charger has to be turned on with a button on the unit itself or from a “start working” toggle in the EcoFlow app. Then, the voltage measured at the starter battery has to surpass the “start voltage” threshold you set in the EcoFlow app. If left on, it should automatically charge the attached power station when driving — but that didn’t quite work for my setup.