

2021 RV INDUSTRY DIRECTORY ISSUE!

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RV ONE

The Meteoric Rise of RV Retailer 3-Year-Old Dealer Group 'Reinvents the Wheel'

10 Great RV interiors:
Designs trend toward residential

2021 Yearbook:
A look into the data that
helped define the industry

RV Retailer executives (L to R) Don
Strollo, Jon Ferrando and Jim Humble

Xantrex Takes FREEDOM eGEN to the Max

New 'eGEN Max' uses RV's engine to keep batteries charged, cabin cooled



An advanced and intuitive metric panel provides real-time data on the system.

At the heart of this system is an extremely powerful and safe lithium iron phosphate battery bank.

Increasingly, RVers are wanting to get away from it all.

That doesn't just mean getting away from urban areas. It means getting away even from campgrounds with convenient hookups that are just a step away from civilization.

That, of course, means getting off the grid and being as independent as possible.

To help make that dream a reality, Xantrex, a brand owned by Mission Critical Electronics (MCE), has introduced the FREEDOM eGEN Max, a power management system designed to create automatic climate control and, in a sense, turn even the largest Class A into a sort of hybrid vehicle – not for propulsion, but in terms of electrical energy.

"We've taken control of the engine to charge the house batteries," Xantrex Applications Engineer Don Wilson, better known as the Tech Doctor, tells *RVBusiness*. "The house electronics still

feed off the house battery, but now instead of the user looking to see if his batteries are dead and starting the generator to charge his house batteries, the engine can charge them. Further, rather than manually monitoring the batteries to know when to start the engine, the system will do it automatically for him."

And in a post-COVID world where importing goods from overseas can often result in delays and where traditional generators may soon become obsolete, such a system can give boondocking enthusiasts one less piece of equipment to lug on that journey to wherever the road takes them.

Generator X

From some of the earliest days of RVing, an off-grid camper's best friends have been

the old reliable generator and a solid stock of lead-acid batteries.

Whether camping in a motorized vehicle or a towable, the electricity used to run TVs, lights or air conditioners – or even heaters – could be built up by cranking up the gas-powered generator and accessing the charge stored in the batteries.

But something of an electrical revolution – combined with some political upheaval – may be creating the perfect storm where neither of those devices will have much use for much longer.

The development of light lithium batteries, which can store far greater amounts of energy and recharge much more quickly, is quickly putting lead-acid batteries on the "remember when" list.

Two recent developments are doing much the same to generators. Tariffs have added to the cost of importing goods and backups of material in U.S. ports has resulted in ships – loaded with products such as generators – sitting offshore while consumers wonder what's the holdup.

In the meantime, innovations such as eGEN Max are beginning to offer alternatives to generators.

"Some components like generators are having some deliverability issues in the current environment," Wilson said. "For builders, we have an option: stop using generators. Use the propulsion engine that's already on the chassis. We're using the quieter, more efficient engine that came with the chassis that uses much less fuel."

The vehicle's engine not only burns more cleanly, it also is more efficient in how it produces power.



"Generators are louder than your engine," he said. "If you have to run an engine, we'd rather run a Mercedes, Ford or Chrysler engine that doesn't make a lot of noise and is way more efficient than a carbureted, loud small generator pack that you can see in a B van."

Generators run at almost full fuel consumption, while generating a relatively low current output. High in-rush demands also can result in voltage sag, causing sensitive electronics to temporarily shut down and then come back on once the generator makes up for the sag in output.

"Generators don't surge very well," Wilson said. "They're great at putting out max power for long periods of time, and that's fine. But if you need an immediate in-rush of power like a compressor or a motor or something like that, they can't react fast enough. Inverters can. That's what they're designed to do. When you have a heavy immediate load, an inverter doesn't even blink at it, it just feeds it. Your system works more effectively."

Keeping Your Cool

Possibly the biggest benefit of the eGEN Max occurs when it comes to cooling an RV – particularly a Class B.

When the eGEN Max senses the battery bank needs a charge, it starts the vehicle's engine. Once the engine starts, the vehicle

"The furnace that's meant for the cab is fine, but you still have a lot of heat loss through the front of the van."



Don Wilson
Xantrex Applications Engineer

resorts to its built-in belt-driven air conditioning for the front of the vehicle because it is more efficient.

The rear of the coach remains on its separate air conditioner.

"It will charge the battery, and it will still power the dash air with the engine," Wilson said. "Then as soon as the battery gets to full, it shuts the engine off and the additional compressor goes back to running the dash air off of the stored energy in the battery."

Similar energy efficiency can be gained in heating an RV.

In 2020, the number of ski enthusiasts who chose to use a Class B to travel to their favorite hills skyrocketed. With COVID keeping many hotels closed and making travelers squeamish about sleeping in a strange bed, the vans became a base camp on wheels.

"The furnace that is meant for the cab is fine, but you still have a lot of heat loss through the front of the van," Wilson said. "When you shut off your van engine, you've got tens of thousands of BTUs of stored heat in the engine itself. The dash heat can still run as if you were still running the engine as we cool off the engine."

Extremely Engineered

The eGEN Max system is not a boxed product. It must be manufactured for a specific application.

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COMING SOON!

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Currently, Xantrex partners with Forest River's Coachmen division and Newmar Corp. for optional systems and also has a partnership with KZ RV on the basic Freedom eGEN that is not tied into a built-in engine.

"At the manufacturing level, we have tech support in Elkhart, Ind., where we have many engineers available who are able to help RV manufacturers spec eGEN Max into their RVs," said Mitul Chandrani, marketing director for Xantrex. "From an education perspective, there's a

marketing department that can work with dealers of these manufacturers to create materials to educate sales guys as well as end users."

The technical support team can design a system to work with nearly any application in Class A, B or C.

It is just a matter of deciding what kind of features the manufacturer hopes to offer.

"It is fully customizable, so we can design it for different capacities of lithium batteries, we can offer different types of solar

panels and we can also offer different sizes of inverter chargers," Chandrani said. "It's not one size offered to all the manufacturers."

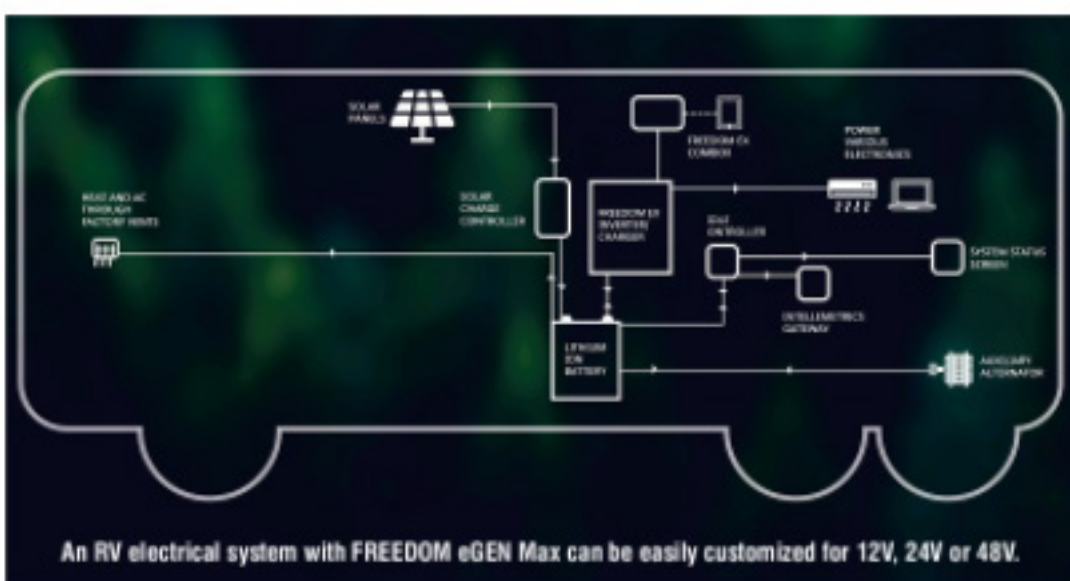
Wilson said he compares the eGEN Max to the point the automobile industry found itself in when Toyota first introduced the Prius. He says now that Tesla has fully electrical vehicles, the Prius seems old school.

But eGEN Max puts RVs in that same point of time, not with its propulsion system, but with its charging system. The

electronics run primarily off of electrical, but the vehicle uses its engine at the most efficient level to charge the electrical system and fill in the gaps.

eGEN Max is able to run the entire coach for up to eight hours a day without sacrificing creature comforts.

"It's definitely not an off-the-shelf product," he said. "Let us bring the applications and systems engineers in and let us design a system for you and match it up with your vehicle so it does what you are trying to accomplish." **RVB**



An RV electrical system with FREEDOM eGEN Max can be easily customized for 12V, 24V or 48V.

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