

PUT YOUR IDLING AND BATTERY WOES ON THE BACKBURNER

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MCE VEHICLE POWER



PURKEYS

xantrex





Photo Courtesy of Volvo Trucks North America

Feeling powerless takes many forms, but we have all experienced it at some point in our lives. Nothing seems to be in your control anymore. As a result, you feel that you are a victim of your circumstances. A lack of power can be particularly troublesome for long haul truckers, especially those who still rely on standard batteries and APUs to provide the power to run the hotel loads needed to keep them comfortable during mandatory hours of service downtime.

Amenities such as refrigerators, coffeemakers, microwaves, flatscreen TVs, electric blankets, and satellite entertainment systems, not to mention portable tech from cell phones to laptops, drain power reserves. According to the North American Council for Freight Efficiency (NACFE) Confidence Report, the combined load of all these devices might only be sustained for about eight to 10 hours by a truck's batteries before reaching a critically low voltage. Engine idling has traditionally been the source for supporting power reserves. Without idling a driver could wake up without enough power left to crank the engine and get back on the road.

The downsides to idling are significant, including noise and air pollution, the impact of wear and tear on the vehicle engine and the cost of wasted fuel. According to the Environmental Protection Agency (EPA), excessive idling doubles the wear and tear on engine component. Then there's the environmental factor — state and federal agencies are proposing stricter laws to reduce emissions caused by idling. The California Air Resources Board (CARB) has adopted phased-in regulations which would require current NOx (nitrogen oxides) standards be cut about 75% below current standards beginning in 2024 and 90% below current standards in 2027. And everyone in the trucking industry knows that when something happens in California, it can spread across the rest of the country.

To reverse the situation, Xantrex, Mission Critical Electronics (MCE) and ZeroRPM have responded with alternative power solutions that meet the demand of today's trucking industry without sacrificing performance and reliability.



ZERORPM ANTI-IDLING SOLUTION TRANSFORMS A CONVENTIONAL TRUCK INTO A HYBRID WHEN IN PARK

Exactly as it says, ZeroRPM Provides a reliable onboard power supply without the need for constant idling. Once a vehicle is in park, the ZeroRPM system automatically shuts down the engine and provides house power utilizing high-density lithium-ion batteries. The batteries (covered by a five-year warranty) are charged natively from a 12-volt alternator and can also be integrated with solar panels and shore power.

For extended times of stationary use of the vehicle, the ZeroRPM system manages the engine start/stop to recharge the batteries as needed. You might not think that a little idling would add up to a lot, but fleets that have made the investment in ZeroRPM technology are reducing idling by more than four hours per day on average, and typical payback from fuel savings alone can be achieved in less than three years.

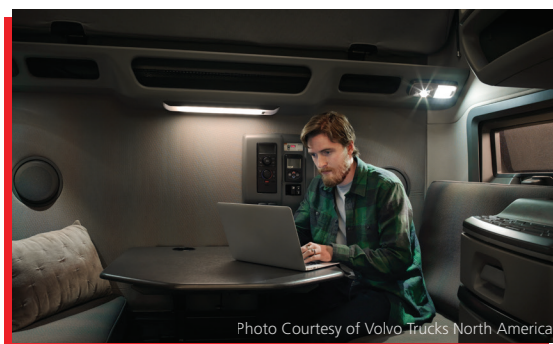


Photo Courtesy of Volvo Trucks North America



ZeroRPM system is more than just a rechargeable electric APU — it's a completely integrated system that works with existing electrical system to supply automatic engine-off A/C and heating through factory vents, plus full power for hotel loads in the cabin including fridge, microwave and induction cooktop.

Developed by a team of IT engineers, ZeroRPM employs Intellimetrics software to give users detailed insight into the data collected by their vehicles. A secure portal provides customized reports and graphs of fuel savings, emissions reduction, and overall efficiency.



FREEDOM eGEN

BY MISSION CRITICAL ELECTRONICS

FULLY CUSTOMIZABLE SOLUTION TO REDUCE IDLING AND MEET THE SPECIFIC NEEDS OF YOUR FLEET

Xantrex's FREEDOM eGen solution also leverages the remarkable performance of today's advanced lithium-ion batteries. Available from 125Ahr as part of a fully customizable power generation system, FREEDOM eGen batteries supply up to 6,000 charge-discharge cycles compared to 400 to 600 discharge cycles from traditional lead acid or AGM batteries. Regulated by the built-in Xantrex Intelligent Battery Management System (BMS), FREEDOM eGen supports charging from both a second alternator (included) and shore power. The batteries are also equipped with a heating pad enabling operation in colder climates which may be an issue with many other lithium ion battery brands.

The FREEDOM eGEN delivers AC power through Freedom XC Pro inverter/charger available in 2000W/100A and 3000W/150A models. The FREEDOM XC Pro supplies continuous 120V true sine wave power — this is especially important for proper function of surge-sensitive electronics and medical devices such as laptop computers and CPAP machines. As added protection, the FREEDOM XC Pro is able to generate an industry-leading five seconds of surge, also known as temporary power boost, for up to 2X the inverter's watt rating. This easily handles the initial surge required for the high initial draw that appliances and tools require. Most other inverters have surge power for less than one second.

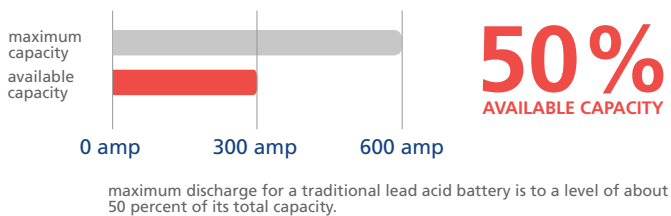
The FREEDOM XC Pro is also the industry's first inverter charger with built-in communication. This means the truck will send commands directly to the inverter. Fleets will no longer have to juggle different voltage settings and set points to ensure engine auto-starting. To protect batteries with a low voltage disconnect, the inverter can be set to disconnect to match best with the type of battery used. If it's connected to the starting batteries, the XC Pro can set the voltage a little higher to ensure enough power to start the rig. If it's connected to deep-cycle batteries or lithium ion, it can be set lower for more power over a longer period of time. What's more, when installed in an outside protected location, the FREEDOM XC Pro is able to maintain peak performance in temperatures up to 104 degrees F and as low as -4 degrees F.



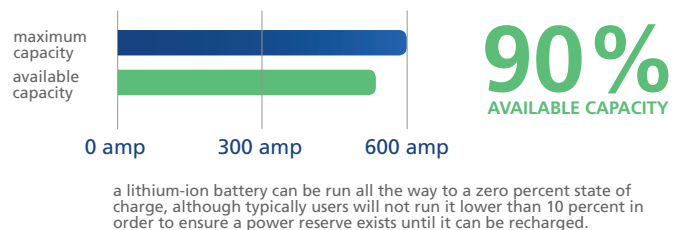
LI-ION IS KING

Let's talk about the benefits of Li-Ion batteries. The big plus is that they can be completely discharged without damage — so if you have a 600-amp hour lithium battery, you have 600-amp hours of usable power. The typical traditional battery banks on commercial vehicles have 400-amp hour capacity, which only gives you only 200-amp hours of usable power. Making that even less effective, most OEMs only allow you to discharge the batteries 30%, so in that case, you're hardly getting any usable battery power at all.

TRADITIONAL BATTERY



LITHIUM-ION BATTERY



You might assume more capacity means more bulk. Just the opposite is true. As the world's lightest metal, lithium boasts a huge weight advantage — Li-Ion batteries are 60-80% lighter than their lead counterparts. A typical Group 31 battery weighs about 75 lbs. while a similar Li-Ion battery only weighs 28 lbs.

Electric APUs that use Li-Ion battery banks also have an advantage over diesel APUs that still require fuel and maintenance. Using an inverter charger paired with a Li-Ion battery bank can supply both DC and AC power solutions to run all sleeper cab hotel loads, including battery-powered HVAC, in a clean, quiet environment. Xantrex Li-Ion batteries are also UL listed battery for mobile applications -- equipped with redundant safety features making them the safest in the market today.

HERE COMES THE SUN

There's one more charging source that adds to the efficiency of Li-Ion batteries, whether as part of ZeroRPM or FREEDOM eGen systems — solar power.

Using the sun to top off and support battery levels, means cutting out idling completely because the truck engine doesn't need to run, nor do you need to hunt down shore power to get a charge. As an OEM for the trucking industry, Xantrex has been promoting solar for years because it simply makes sense.

Solar panels connect to the batteries by way of a "charge controller" that regulates the power being delivered and insures it's the right voltage for the specific type of battery. Xantrex also has products that integrate with its inverters and chargers that display pertinent data that lets you know exactly how the solar system is functioning.

Wait a second, isn't solar dependent on the sun? Technically, you're correct. But don't worry if you're dealing with bad weather because modern solar panels can even harvest power on cloudy days. Even if you're just off-setting parasitic loads, a major issue with sleeper cabs, a 165-watt solar panel measuring approximately 3'x4' is more than enough.

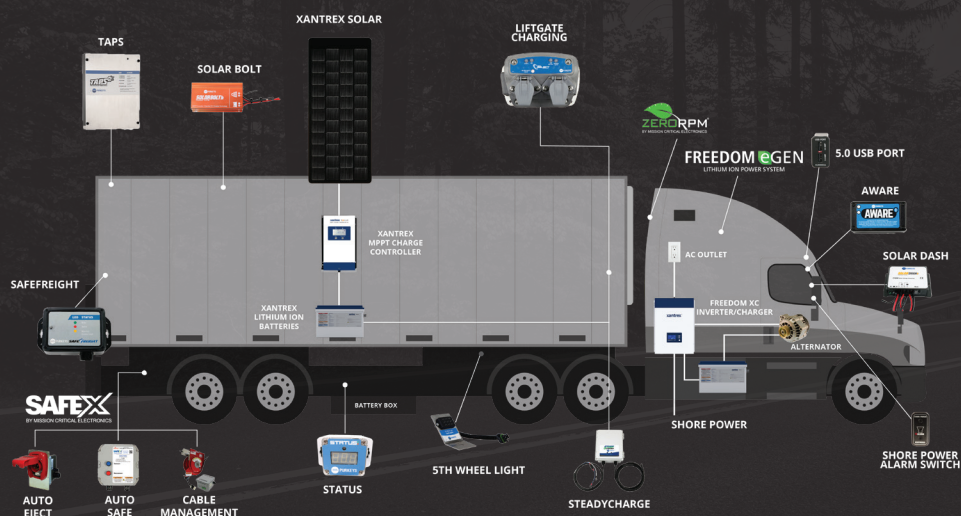


Unlike the thick, hard solar panels used on most buildings, solar panels on trucks are thin and flexible to better fit their curved surfaces. The Xantrex Solar Max Flex available in different power levels incorporate mesh grid-technology that allows the panel to be contoured to curved surfaces without impacting power output. In addition, the Max Flex panel can harvest up to 20% more energy during the day and in low light or shaded conditions compared to a rigid flat solar panel.

GOOD SENSE SOLUTION

Driver comfort is an important aspect of job satisfaction, recruitment, and retention. With hours-of-service rules requiring more rest periods, fleets are specifying trucks with more amenities than ever before. Add to those, mounting restrictions on idling and the necessity for fleets to be CARB compliant, and ZeroRPM and FREEDOM eGen alternative power solutions make good sense. By capitalizing on a dedicated, highly efficient and trustworthy battery bank, you effectively put the power for hotel loads back in your control.

HEAVY DUTY TRUCK





MCE VEHICLE POWER

PURKEYS

xantrex™



ABOUT MISSION CRITICAL ELECTRONICS (MCE)

Mission Critical Electronics (MCE) is parent of Xantrex and many other industry leading brands such as Kussmaul Electronics, ZeroRPM, Newmar Power, ASEA Power Systems, Power Products, Purkeys, and American Battery Charging. Headquartered in Huntington Beach, California, MCE is a leader in the development of innovative solutions for power conversion, energy storage, power generation and shore power connectivity for a wide variety of applications in vehicle, marine, industrial and network markets. MCE takes great pride in translating its customers' needs into the highest quality products and solutions available in the markets it serves. MCE delivers its products and solutions with an unmatched level of responsiveness. MCE serves its customers in North America through 9 offices and a 3rd party warehousing facility. MCE also maintains manufacturing facilities in the US and employs over 300 people. MCE continues to invest in advanced and innovative technologies for electrification of power systems in boats and vehicles. The introduction of FREEDOM eGEN, ZeroRPM and SAFX power systems are a testament to MCE's commitment of offering clean, green, environmentally friendly power solutions for both recreational and commercial applications. MCE offers a complete suite of AC and DC power solutions including energy storage and renewable energy source for vehicle and marine applications.

ABOUT XANTREX

The Xantrex brand, is one of the most successful and popular brands of onboard AC power technology. Xantrex products are used in a variety of applications in the RV, marine, military, construction, EMS, bus, work service vehicle and commercial truck markets. Xantrex ensures its products are put through extensive reliability testing and certifies its products to comply with various regulatory standards to meet or exceed the applicable requirements for safety, quality, efficiency and environment. With more than three decades of design, engineering and manufacturing experience, Xantrex power solutions offer an enviable mix of advanced technology and unmatched bankability. Xantrex is part of Mission Critical Electronics (MCE) headquartered in Huntington Beach, CA.

HOW CAN A FLEET BUY A XANTREX PRODUCT OR WANT MORE INFO?

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