

No Room for Error: Sustainable Onboard Solutions in Pharmaceutical Vehicles

Tackling power management challenges of the transportation vehicles in the cold chain sectors amid the shift to electric vehicles.

The push for decarbonisation is accelerating the shift to electric vehicles in the specialist vehicle industry. Whilst electric vehicle powertrains are powerful enough to sustain onboard systems, such as refrigeration, air conditioning, heating, power-hungry payloads will significantly compromise the vehicles expected range. This poses a particular challenge in the cold chain sector.

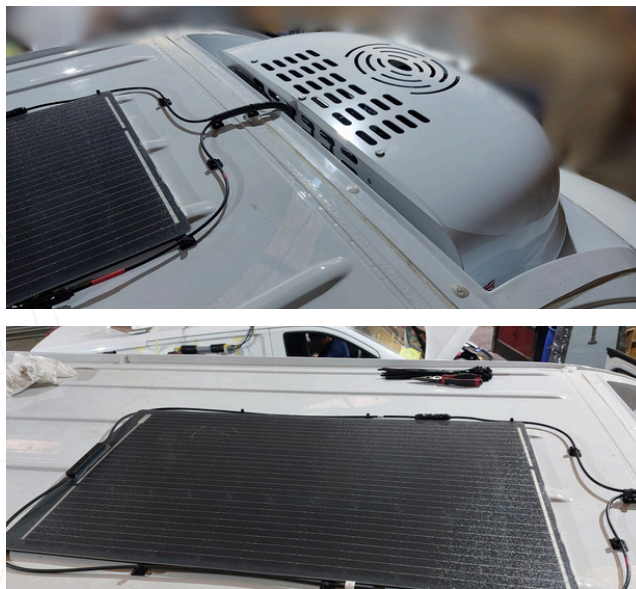
Ensuring the optimal temperature of pharmaceutical goods is not a compromise. Therefore, reliable and sustainable independent auxiliary power systems are critical to power the refrigeration units onboard the cold chain transportation vehicles. With over a century of combined engineering experience, Fischer Panda UK | Power Solutions supports businesses in developing and implementing onboard power systems.



“Without Fischer Panda UK we wouldn’t have made this project work; the battery they recommended powers both fridges within the vehicle as they cannot be powered from the vehicle battery.

The Fischer Panda UK’s team supported us throughout the process with their specialist knowledge in powering complex systems, such as the equipment for pharmaceutical vans.”

Cory James, Mertrux



Known as one of the leading mobile light commercial vehicle refrigeration system providers, GAH, have partnered with Mertrux, the UK’s exclusive Mercedes Benz dealer, to design the optimal temperature-controlled delivery vehicle of pharmaceutical products for their customer. The 4.2-tonne Mercedes e-Sprinter with a reliable power supply for the refrigeration unit was chosen to ensure the system could run continuously for the designated period of time.



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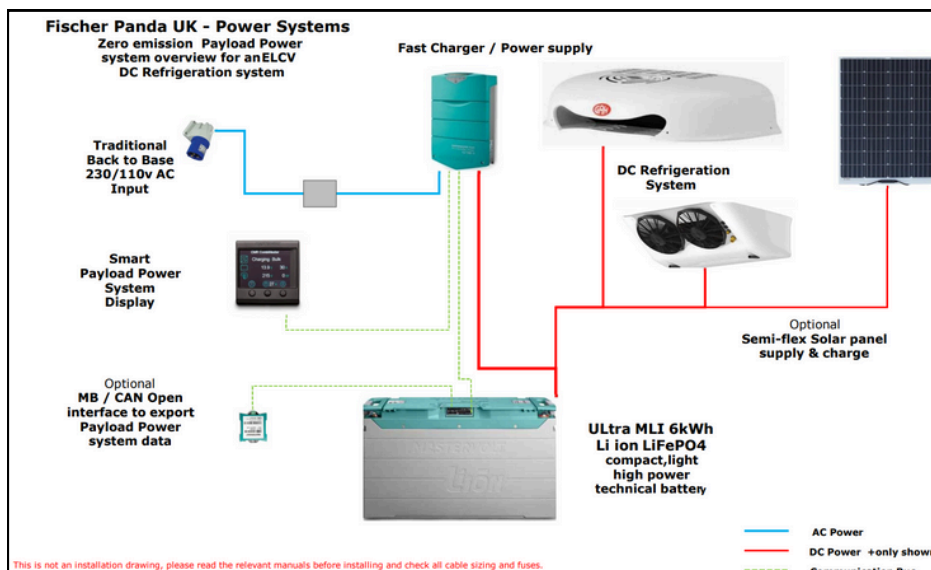
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Furthermore, it was important the system can run autonomously and independent from the vehicle's own OEM drive system, both inside and outside low-emission zones; be that Hybrid, or even a full EV as in this particular POC project.

Such systems are typically bulky and heavy, with compromised performance that can negatively affect a vehicle's range, payload capacity, and even its intended geographical duty and work cycle. These parameters needed to be challenged and addressed in the design process.

It was identified that the optimal solution to maximise operational power efficiencies was to keep the nominal power system voltage to that of GAHs latest DC refrigeration sets. That was done by utilising Mastervolt's class leading and latest generation compact, safe and ultra light-weight 6kWh MLI lithium LiFePO4 12V battery for the energy storage, configured with a fast Mastervolt HF Chagemaster for back to base recharge. Furthermore, a super slim rooftop semi flex solar panel offers some additional recharge to further extend runtimes from the sun when on the move.



The teams from GAH, Mertrux, and Fischer Panda UK | Power Solutions combined forces and delivered a fully integrated zero emission solution. Engineers and specialists from different fields, such as refrigeration, transportation, installation and power, came together to design and implement the system, as well as train all operators in efficient use and aftersales support. The project was carefully thought through over six months, with the first vehicle commissioned at the end of March 2025.

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