

TECHNICAL INFORMATION



Electric Fiat Scudo 9-seat minibus with fuel cell range extender

Introduction

Even with current technology, electric drive, commercial vehicles make good economic sense for local or urban operation. However, range limitations and a lack of recharging infrastructure still present challenges. The solution is certainly not more or bigger batteries.

Range Extension

Dramatically change the capability of electric commercial vehicles by adding an onboard fuel cell range extender. Fuel cells enjoy conversion efficiencies of up to 50% compared to the 20-25% achievable with an ICE.

The range extender works as an onboard charger for the battery pack continually feeding energy in during the working day, extending the range between recharges by anything up to 400%!

Innovative Technology

No need for expensive hydrogen tanks, the system runs on diluted methanol. A patented, compact, reformer/high temperature PEM fuel cell system from Serenergy A/S integrated with a Lithium balance A/S developed battery system are at the heart of the solution. This unique blend of Danish technology brings real world benefits from state-of-the-art technology.

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Specifications

Range: 500km with fuel cell; 100km without
Topspeed: 110km/h approx
Engine Power: 30kW nominal
Battery pack capacity: 44kWh
Battery pack voltage: 275 volts nominal
Fuel cell type: HTPEM, High temp polymer electrolyte membrane with attached methanol reformer

LITHIUM BALANCE
BATTERY MANAGEMENT SYSTEMS



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Serenergy

Serenergy is a leading manufacturer of fuel cell stack modules featuring HTPEM (High Temperature Polymer Electrolyte Membrane) technology. By combining a compact and efficient methanol reformer with their renowned fuel cell stack technology, Serenergy have created an ultra low emissions power source suitable for both transport and other applications. Methanol is an inexpensive fuel in comparison to petrol or diesel and given the high energy conversion efficiency of the fuel cell; this solution provides cost benefits, even before environmental considerations and potential tax benefits are considered. No moving parts and the availability of heat as a useful by product for warming the vehicle cabin or batteries during cold weather, makes this a very practical proposition for use all year round, all over the world. Serenergy supplies a full range of fuel cells and accessories.

To learn more visit **www.Serenergy.com**
This solution is marketed in cooperation with Metha Energy.



Metha Energy is a US based company focusing on commercializing innovative fuel cell technologies able to use methanol as an energy source.
www.methaenergy.com

Serenus 390 Air C
HTPEM fuel cell from Serenergy



LiTHIUM BALANCE
BATTERY MANAGEMENT SYSTEMS



LiTHIUM BALANCE

Located in Denmark, Lithium Balance is a leading supplier of Battery Management Systems (BMS) for industry. With two BMS platforms covering all applications from small machines and robots up to large trucks; Lithium Balance provides the key tools and technologies necessary for the safe use of Lithium Ion batteries in industrial applications. Full in-house engineering and development capabilities allow us to deliver fully integrated solutions for both transport and other industrial applications. Our award winning S-BMS (scalable BMS) provides system level management for the vehicle battery pack and the range extender, continuously monitoring the battery pack at individual cell level and controlling the fuel cell to prevent overcharging.

In addition, the BMS provides the necessary communications interface to the vehicle drivetrain and chassis.

To learn more visit
www.Lithiumbalance.com

Lithium Balance S-BMS, Control Unit &
Cell Monitoring Unit with cables

