

eVan with on-board power supply



Van with Solarsystem

New technology in the vehicle market:

In the future, on-board electronic systems will increasingly be installed in battery-powered vehicles. The key question revolves around the possibility of charging an additional onboard battery. Here is a vehicle eNV200 from Nissan presented where all the different technologies are installed and work.



Inverter and Lilon Battery

Storage of energy in auxiliary battery:

All types of batteries can be used. In order to be able to ensure the operation of fully-fledged CAD computer systems and the charging of various lithium-ion batteries for the various measuring devices in the GeoTech area, the IBS-Lilon100Ah battery is used as storage.



Charger and DBM20A

Charge of the additional battery:

There are 3 sources available for charging:

- shore connection with Victron 30A Lilon charger
- Solar system with 2x110W gives max. 12A charging current
- IBS-DBM20A (InCarCharger) charges up to 23A when the ignition is on.



System battery and electric motor

Charging the onboard battery with InCarCharger is possible in vehicles where a 12V system battery (in the Nissan 50Ah) is present and is charged via an internal 12V InCarCharger from the traction battery.

The vehicle based InCarCharger must be designed sufficiently strong so that the charging voltage can be maintained at maximum charging current of the IBS-DBM20A and all possible switched-on onboard systems such as light, air conditioning, audio, etc. The Nissan charges the system battery at 14.4V, no smart charge system can be seen. Operation of the IBS on-board system reduces the drive range of the electric van.



3 charging sockets

A classic dual battery system such as IBS-DBS or DBR can not be installed, as the charge capacity of the Nissan InCarCharger is limited. The Lithium battery takes a lot of charge, which provokes a shut down of the InCarCharger. The DBM20A operates as a charge current limiter, in this case maximum of 23A.



External charge

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display panel

Supply and consumers:

The 230V double socket is powered by the IBS 1600W Inverter US160 / 12V or the external land line power supply. The IBS transfer switch US-TSFI automatically switches between inverter and land line. While there is a land line connection present, the IBS Lithium battery is charged via the Victron 30A Lilon battery charger.

Energy display:

The iQ Pro energy display system monitors the energy balance of the lithium battery, indicating charge current, discharge current, system voltage, discharge depth, and remaining run time of the system. The iQ is configured for correct measuring on Lilon battery.



DBM charging current (23A) and System battery voltage 14.4V

Comment:

The 100Ah lithium battery was chosen to ensure a full day of operation of the vehicle. Recharging via the IBS-DBM20A allows to recharge 100% of the IBS Lithium battery per day, the car has not to be driven, an ignition on status is sufficient.

The solar charge guarantees a full IBS lithium battery even when the vehicle is not being used.

Depending on the work done a full charge of the traction battery gives a drive range up to 170Km which corresponds to a journey time of 1.5 to 3 hours.

When the vehicle is connected to charge the traction battery, the charging system of the IBS Lithium battery should be connected at the same time. All 3 charging ports are located in the front of the vehicle.