

## **A Fast and High-Power Charging System for Electric Vehicles**

### **Applications**

Applications for this technique are found in electric charging stations for electric and hybrid vehicles

### **Problem addressed**

Electric and hybrid electric vehicles are increasingly injected in the market to replace fuel-driven cars and transportation systems. This strategy adopted already from several industrial countries aims to limit the green house gas emissions and to comply with international protocols and agreements concerning global warming mitigation.

### **Technology**

This invention consists of designing grid-connected high power fast chargers for electric vehicles that comply with grid requirements in terms of power quality, isolation and stability. It is based on the use of the multilevel inverters technology, combined with an isolated DC-to-DC conversion part. The developed system is characterized by reduced number of components compared to the current electric chargers, and consequently has better reliability, higher efficiency, higher power density and lower costs.

### **Advantages**

- Fast charging
- Better power quality
- Lower power losses and higher efficiency
- Better reliability
- Higher power density
- Lower costs

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