



For immediate Release

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Silex HyperCharging Technology

“Silex Power’s is developing a charging technology that promises to give electric vehicles the same level of comfort and convenience of fuel powered cars.”



Silex Power and a number of strategic partners are developing a fast charging solution that can charge a 200KWh battery pack in less than 10 minutes. This technology, known as HyperCharging Technology, is based on advanced hardware and software, aiming to create not only charging stations that will fully charge EVs in a few minutes, but also a software system that will bring an unprecedented level of convenience to drivers. All these innovations aim to eradicate completely the perception of long charging time inconvenience in electric vehicles, thus making the latter a valid alternative to fuel powered cars.

HyperChargers are fast DC-to-DC Chargers that can deliver up to 1.5MW power to the battery packs. These chargers are intended for highway / motorway charging stations and not for domestic use. HyperChargers will connect to medium tension power lines, providing sufficient current and voltages that fully cater for the HyperCharger’s power requirements. Silex’s first objective was to create a powerful charger that would be able to charge large battery packs in lightning speeds. Battery technology is rapidly increasing in power density and achieving faster charging times. Inevitably, this will bring to a scenario where very powerful chargers will be necessary in order to cater for future battery packs. Silex Chreos already offered the challenge of charging a 200KWh battery pack in less than 10 minutes, and although this is a rather unique and ambitious objective at present, it will become a mainstream solution in a few years.

One crucial element that HyperCharging tackles is the removal of the inverter from the vehicle. This solution, not only decreases drastically the weight of the vehicle, but also its cost, allowing this technology to integrate easily into high-volume / low-cost electric vehicles of the future. HyperCharging technology will utilize a proprietary plug that is currently being designed and studied. Through this plug, the HyperCharger can deliver currents of up to 1000A and voltages that vary between 360V and 1440V, depending on the type of vehicle that it is charging. This will allow a

variety of vehicles, from low-end 360V city cars to high-performance 1440V sedans and sport cars to charge from the same outlet at very rapid speeds.

An important feature in the HyperCharger is the HyperCharger to Vehicle Communication Protocol – HVCP. The HVCP is a wireless communication system between the EV and the HyperCharger, and comes only second in innovation to the HyperCharger's charging speed. As indicated in previous press releases and information, Chreos and future Silex vehicles will all be connected to a centralized processing centre. Same applies to HyperChargers. All installed HyperChargers will be geo-tagged and will allow cars that are equipped with a HyperCharging port to plan the route and plan necessary stops at fuel stations that have HyperCharging technology throughout the journey as necessary.

This technology brings further convenience as the vehicle navigation software can even pre-book a charging station so that once the driver arrives to the station, he will know to which HyperCharger to attach his vehicle and thus optimise his time at the charging station. Once the car arrives at the HyperCharging station, a wireless signal will communicate with the HyperCharging station and engage in bidirectional communication. At this stage, the driver can authorise communication between the HyperCharging station and the vehicle from the vehicle control panel. This will immediately give the driver information about the charging time, charging cost and other necessary information that is available. At this stage the driver can select how much to charge the car (either a full charge, or a pre-determined amount of money), confirm the charge and then proceed to plug the car to the charger.

At this stage, the charger software reconfirms all the necessary information with the vehicle and starts the charging process. The process of charging will also include battery pack and other vehicle component diagnostics, carry out software updates / adjustments if necessary and upload the information to the vehicle and the data centre. Upon charge completion, a message is sent to the driver's mobile number indicating that the car is ready, and the charging cost will be automatically deducted from the account associated with the vehicle.

HyperCharging Technology is also a vital component in Chreos and other future EVs as an on-board technology. In addition to the HyperCharging port, all vehicles will feature country standard EV charging ports (Mennekes Type 2 in Europe, J1772 in the USA, CHAdeMo in Japan, etc.), allowing all vehicles to charge off standard charging stations (including domestic ports). Additionally, Chreos and other future Silex EVs will be equipped with a 7KW or 20KW Wireless Charging station, so that drivers, upon parking their EV in their car-port/garage at home, will automatically charge the car without the need to attach or remove plugs.

Silex HyperCharging technology is currently in advanced development and the first systems are to be installed for testing purposes in 2014. Silex is open to third parties automotive manufacturers who are interested in adopting HyperCharging ports in their vehicles.

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