ASSURED Open Workshop
UC1 Altra-Heuliez e-Bus

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September 18th, 2018, Berlin

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 769850.

Generalities

Superfast DC conductive charging of IVECO battery electric bus

- Vehicle: BEB 18m articulated bus in final development and in preliminary testing phase in controlled Heuliez site to be prepared for the future real demos.
- Goal: To demonstrate BEB for PT with superfast charging (< 5 min) and electric driving range up to 10 km between charging stations, with a power transfer capability > 400 kW.
  - e-Bus adapted according superfast charge with top-down pantograph needs.
- The main technological objectives are:
  - 1. To optimize the chemistry and sizing of the Energy Storage System based on exploitation requirements and batteries life-cycle.
  - 2. To allow Opportunity Charging Power up to 450 kW to minimize feeding time improving service availability and/or to improve full electric range.

Overview Heuliez e-bus case

- A BEV articulated urban electric bus with super-fast charge developed for urban transportation.
- ≥ 200 km and 16 h ZEV range with super-fast charge > 400 kW at bus terminal/last stop.
- Up to 30 km electric range from 100% SOC
- OPPCharge type A top down pantograph with a max power greater than 400kW and Combo 2 CCS mode 4 in the depot.
- Charging time < 5 min (superfast charging)
- TCO should be not far from similar diesel bus by considering environmental cost according green public procurement directive, exemptions and institutional support
- Minimize impact on the power grid
- Superfast charge standardization and reference definition
- Guarantee interoperability

Verification site: Rorthais/Heuliez (France)

Demonstration on real operation: Barcelona and Osnabrück.

Operational / system requirements

Customer's operational Requirements

Daily Range	≥ 200 Km
Number of Charging Stations	≤ 2 for each Line route
Time for Opportunity Charging	Best solution ≤ 5 min Max 10 min
Time for Overnight Charging	≤ 6 hours

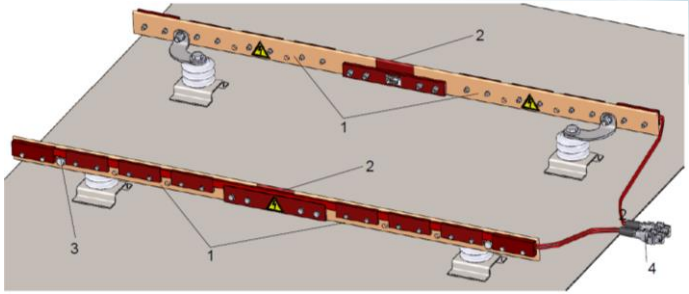
Charging System Main Overall Specs

Max Power	≈ 450 kW
Max Current	≈ 600 A
Max Voltage	≈ 800 V

Technical Constraints

Electric Range	> 30 km
Required Usable Energy	≈ 90 kWh
Number of intermediate charging	≥ 16 times/day
Power of superfast Charging Station	> 400 kW
Power of overnight Charging Station	≥ 50 kW
18 m Bus with A/C energy consumption	≈ 3 kWh /km

WP7 UC1



1	contact rails, four poles	2	Insulating between two poles
3	Heating	4	Connector of Heating

Thank You!

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Altra

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