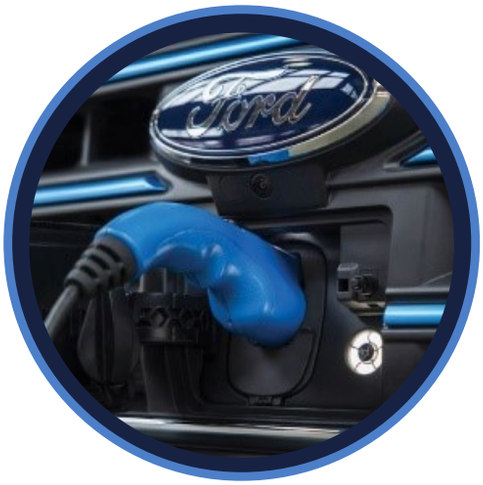
SECONDARY HV BATTERY SYSTEM

Specifications



Secondary HV Battery System (SBS):
A secondary HV (High Voltage) approximately 400 VDC battery system shall be installed independent of the OEM BEV. This secondary battery system shall handle all the aftermarket E/E (Electrical/Electronic architecture) HV loads such as the heat and air conditioning as well as the LV (Low Voltage) approximately 12 VDC loads such as the wheelchair lift. A second J1772 plug shall be installed in the grille to charge the secondary system, both the primary and secondary battery systems shall be charged independently. The SBS shall have load shedding features to ensure critical functions remain active, wheelchair lift, Shift n Step, and Interlock in case of a low battery event.

Secondary Battery System (SBS) shall include the following:

1. Hi Line SVCU (Secondary Vehicle Control Unit)
2. Hi Line Charger – On Board Charger (receives power from charging station)
3. High Voltage Battery (15.785 kw hours), optional second battery
4. Hi Line DC/DC Converter – Converts 400vdc-12vdc (2 kw)
5. HMI – Human Machine Interface, touch screen control and data point
6. Power Distribution Box – High Voltage power distribution
7. HVIL – High Voltage Interrupt Loop on all HV applications (safety)
8. LOI Protection- Loss of insulation monitoring on High Voltage harnesses
9. Low Voltage Power Distribution with load shedding
10. HV Harnesses, Can Bus harnesses, J1772 Grille connection
11. Installation brackets and hardware

Optional
1.Charging Station
2.Dual Battery (15.785 kw) Doubles the Secondary system run time

FENTON

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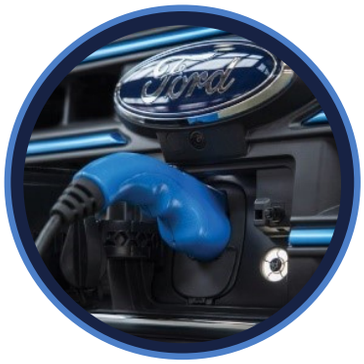
1. Secondary Vehicle Control Unit - The Secondary Vehicle Control Unit (SVCU) shall be a flexible control unit that will be used to manage the E\E components integration on a pure electric vehicle system.

The VCU hardware shall be designed to be capable of implementing a safety mechanism during a safety critical event such as a vehicle crash.

2. On Board charger – Shall be a charger capable of 6.6 kw charging, ≤ 92% efficient and IP67 rated



3. The following test results must be provided for the HV batteries

38.3.4.1 Test T1 Altitude Simulation
38.3.4.2 Test T2 Thermal Test
38.3.4.3 Test T3 Vibration
38.3.4.4 Test T4 Shock
38.3.4.5 Test T5 External Short Circuit
38.3.4.7 Test T7 Overcharge

4. The DC/DC converter shall have an output power ≤ 140 amps 13.8 volts, with a peak of 2400 watts. The DC/DC converter shall be IP 67 rated

5. Human Machine interface (HMI) – Shall have a dual mode Drive and Charging. The HMI shall display the following at all times in Drive Mode, cell balance, electrical system status, HV system status, and system status. The total power rate of consumption and Sate of charge shall also be displayed. The HMI shall display the following during Charge Mode, charge ongoing, fail, charge suspended, charge completed.

6. The HV Power distribution box shall be contained inside the low voltage distribution box away from any exterior environmental conditions inside the vehicle.

7. The secondary battery system shall have a complete HVIL loop that immediately disconnects the high voltage batteries when the loop is broken.

8. All HV harnesses must be monitored for Loss of insulation events. If a LOI event occurs, a warning must be issued through the HMI alerting the driver for the need for service.

9. The Low voltage distribution must contain available fuses for auxiliary items such as destinations signs and fire suppressions systems. This system shall have the capability of shedding loads that are designated non-critical during a low battery state of charge.

10. The Secondary systems shall use Can bus communication protocols and the charging port must comply with J1772

11. All battery installation brackets and hardware must comply with the battery manufactures method of attachment