

T11 Electrical Components

T11.6 Brake System Plausibility Device

- T11.6.1 A standalone non-programmable circuit, the BSPD, must open the shutdown circuit, see EV 6.1 and CV 4.1, when hard braking occurs, whilst
- [EV ONLY] ≥ 5 kW power is delivered to the motors.
 - [CV ONLY] the throttle position is more than 25 % over idle position.
- The shutdown circuit must remain open until power cycling the LVMS or the BSPD may reset itself if the opening condition is no longer present for more than 10 s.
- T11.6.2 The action of opening the shutdown circuit must occur if the implausibility is persistent for more than 500 ms.
- T11.6.3 The BSPD must be directly supplied, see T 1.3.1, from the LVMS, see T 11.3.
- T11.6.4 Standalone is defined as there is no additional functionality implemented on all required Printed Circuit Boards (PCBs). The interfaces must be reduced to the minimum necessary signals, i.e. power supply, required sensors and the shutdown circuit. Supply and sensor signals must not be routed through any other devices before entering the BSPD.
- T11.6.5 To detect hard braking, a brake system pressure sensor must be used. The threshold must be chosen such that there are no locked wheels and the brake pressure is ≤ 30 bar.
- T11.6.6 [EV ONLY] To measure power delivery, a DC circuit current sensor only must be used. The threshold must be chosen to an equivalent of ≤ 5 kW for maximum TS voltage.
- T11.6.7 It must be possible to separately disconnect each sensor signal wire for technical inspection.
- T11.6.8 All necessary signals are System Critical Signal (SCS), see T 11.9.
- T11.6.9 [EV ONLY] The team must prove the function of the BSPD during technical inspection by sending an appropriate signal that represents the current, in order to achieve ≤ 5 kW whilst pressing the brake pedal. This test must prove the functionality of the complete BSPD except for any commercially available current sensors.
- T11.6.10 [EV ONLY] The BSPD including all required sensors must not be installed inside the TSAC.

T11.7 Low Voltage Batteries

- T11.7.1 LV batteries are all batteries connected to the LVS.
- T11.7.2 LV batteries must be securely attached to the chassis and located within the rollover protection envelope, see T 1.1.15.
- T11.7.3 Any wet-cell battery located in the cockpit must be enclosed in a non-conductive, water proof (according to IPX7 or higher, IEC 60529) and acid resistant container.
- T11.7.4 LV batteries must have a rigid and sturdy casing.
- T11.7.5 Completely closed LV battery cases must have an overpressure relief. Venting gases must be separated from the driver by a firewall.
- T11.7.6 LV batteries must be protected from short circuits, not more than 100 mm from ungrounded terminals.