Electrical Systems Overview

# Enclosures

* Dashboard
* LV box/HVD (rear of car)
* Accumulator
* Toblerone

# Individual Boards

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Board** | **Location** | **Compliance State** | **Owner** | **Revision?** |
| Accelerator Pedal Position Sensor (APPS) | Dashboard | Undetermined | Matt | pcb |
| Brake System Plausibility Device (BSPD) | Dashboard | Undetermined | Matt | ? |
| Dash Face (data capture/display interface) + daughter card RTD  Teensy I/O expansion card | Dashboard/HVD | Undetermined | Dave | No |
| Tractive System Active Light (TSAL) | HVD | Undetermined | Michael | No |
| Discharge | HVD | Undetermined | Dave | No |
| Hard Fault Latch (HFL) | HVD | Undetermined | Dave/Michael | assembly |
| Charge | Accumulator | Undetermined | Michael | No |
| Battery Management System (BMS) | Accumulator | Undetermined | n/a | n/a |
| Supreme Monitor(s) | Accumulator | Undetermined | Dave | Assembly/testing |
| Insulation Monitoring Device (IMD) | Accumulator | Undetermined | n/a | n/a |
| DC-DC Power System (DPS) | Accumulator | Undetermined | Dave | No |
| Fan Controller (theoretical) | Accumulator | Undetermined | ? | pcb |
| CAN-ISOspi | Accumulator | Undetermined | Dave | assembly |
| PDB | All | Undetermined | Mitch | No |
| CAN data collector | Any | Undetermined | ? |  |
| Motec | ? | n/a | ? | n/a |

On dash rtd and estop

Switching board in hvd?

Toblerone:2 estops and 2 tsal lights

Datalogger gone, replaced by dash face, versatile for data capture, no storage or gps

Motec intended for data capture

# High Voltage

Just over 400

# Cooling Requirements

Need to run high current capacity line from DCDC (acc) to cooling box (branches off acc to dash loom)

Maximum Current (4.6 + 6.7) x 2 = 22.6 A

Options: Each line has a power and ground

2x 20 gauge line, max 11x2

Ideal for plug sizes, pushing it with the current limit

2x 18 gauge line, max 16x2

Not so nice for plug sizes, plenty of breathing room for current

1x 16 gauge line, max 22

Pushing it with current limit but may provide good plug sizes

# Shutdown Circuit

* 2x Master switches
  + GLVMS
  + TSMS
* 2x Toblerone estops
* 1x dash estop
* Inertia switch
* BOTS
* HVDi
* HVIi
* HFL
  + BMS
  + IMD
  + BSPD
  + Precharge

# CAN Buses

1 general canbus

1 motor controller canbus

Dash face board in HVD will provide interface between two buses

# Block Diagram Nodes (power supply bench test)

* Dashboard
  + APPS
  + BSPD
  + Dash Face
  + PDB
* HVD
  + TSAL
  + Discharge
  + HFL
  + Dash Face
  + PDB
* Toblerone
* Accumulator Essentials
  + DPS
  + Charge
* Motor Controller 1
* Motor 1
* Motor Controller 2
* Motor 2
* Throttle Pedal
* BOTS/brake switch
* Pressure Sensors
* Inertia Switch

Overide BSPD or simulate pressures?

IMD and BMS hard faults to be overridden

Power and can connections only between major nodes

Stripping ev2 of parts or replicating?

Dash face in dash controls brake light