Here is responses to questions / comments for our ESF. The accumulator section needs the most help because the MEs designing the accumulator were behind when we submitted the document. (Pictures are being updated)

1. The pack is a 72s3p with 6 - (12s1p)x3 modules.

2. We are. Is that OK?

2.1.2 - I am not quite sure what you mean about this. When we turn on precharge relay that bypasses the top AIR with a resistor. At the same time we turn on the bottom AIR. After the timer passes, we turn on the top AIR. Figure 8 is a high level diagram and therefore shows no fusing. We do fuse the AIR system to 2A. (Slow blow)

3. Our calcs state that the max current is 143mA

4. They are the same thing. We will have that fixed in V7 of our document.

5. Yea, the set point should be 147k. We have added images of our circuitry. We have it going into a NOT gate after a voltage divider. The output goes into a latching relay.

6. Yea, we have it fused @500mA

7. Your question confuses me. We follow EV 5.7.

8. 16.6A comes from rule EV5.6

9. As mentioned in our report, GLVMS is our reset. The reset button is unconnected (not installed) in our car.

13. The precharge and discharge resistor are both 2k. We will fix the ambiguity here.

15. The schematic only uses fundamental electronic components. The LED and test points are only for team testing and tuning. And will not be able to be viewed when installed in the car.

18. It is NC, The diagram looks better with a NO switch (you tell it is a switch)

19. We state we meet this rule in section 2.1.1

23. We have 72 temp sensors

28. We control that light from the same board. We will update the document.

33. Fusing of the LV wires?

34. That is controlled by the ECU

35. Wire-EXRAD Shielded XLE 2 cable. The AIR's are in the accumulator. Therefore no grounding is necessary. The motor has a box around the leads. I will show the box in the ESF. There will be no traditional service loop but there will be no tension on the wire between the inverter and the motor.

Responses 2

2.1.2 – Yes the “top” (positive) AIR will short out the precharge relay and resistor after the bypass time out.

7. The sensor is a switch. You smack it, it opens. We use the same 300v wire everywhere. This prevents using lover voltage wire where it can’t be used.

8. I used the power formula P=IV If the max tractive system voltage is 295V then the current trip point must be 16.6A at the highest end of charge.

9. Yes

10. What info are you looking into? We really don’t have great photos of this yet. It is two little pins molded into the plug that connect with two wires leaving out of the back of the housing. The two wires are shorted only when the plug is fully seated into the housing. You can see the sense lines in this photo: <http://www.te.com/usa-en/products/connectors/automotive-connectors/intersection/amp-service-disconnect-sd-125.html?tab=pgp-story> and kind of see the pins here: <http://uk.rs-online.com/web/p/electric-vehicle-connectors/8086762/>

It disconnects the negative side of the AIR coils. So if a connector is opened, there is no ground present to the AIR coils. We are thinking of moving this to the Safety switch loop.

11. We will update this in the ESF. The TSAL EN sends a signal to turn on 24V to the TSAL light with a few fets and a NOT gate.

12. Updated in the ESF. Worst case is 10k shorted to the other voltage prior to the other resistor. That would be a minimum of 9W. Looking at availability we would use this: http://www.vishay.com/docs/30204/rsns.pdf

14. Done

15. Implemented block diagram

16. This formula is for %of voltage over time. I added a second formula to convert back to voltage over time.

17. Updated

18. Updated.

20. Updated

21. There is three separate strings fuse up at the top of the stacks fused individually.

22. Figure 44 states they are located between every segment. They are removed by pulling up on them with no tools. More info at 3.1.11.

24. updated

25. updated

26. 27. 28 updated

Responses 3

10. – We will need to get photos of this so more detail can be provided.

16. – The inverter has 0.00088F of capacitance. This is defined in the inverter manual.

20. – Updated

28. – We can, the TSAL is connected to the output of the relay. The software on the car knows what is going on with the safety loop. We could add some code to the BMS to let us know when the TSAL turns off. If it doesn’t turn off when the safety loop opens, we would know a relay has not opened. Unless there is another / better way to detect this.

29. – Working on this still :)

30. Please look at figure 51.

31. – Working on this still :)

32. – Updated

35. – I have some cables made up to show this. I just need to take photos of this.

36. – I have pic’s of the cover. We are still working on this.