

Scénario 2 : Jeanne Richiero

En tant que < 1 > je souhaite avoir < 2 > pour pouvoir < 3 >.

1 : participant au projet formula student.

2 : document indiquant des points clé du règlement de la formula student 2025.

3 : avoir les points clés de la réglementation pour rediriger mon travail plus facilement.

Recherche dans la réglementation tout ce qui pourrait être intéressant concernant la construction du BMS :

Réglementation sur l'électronique général :

- All electrical systems must have appropriate overcurrent protection.
- The continuous current rating of the overcurrent protection must not be greater than the continuous current rating of any electrical component, for example, wire, busbar, or other conductors that it protects.
- I.e. if multiple pins of a connector are used to carry currents in parallel, each pin must be appropriately protected.
- All used fuses must have an interrupt current rating which is higher than the theoretical short circuit current of the system that it protects.
- All types of cells except molten salt and thermal batteries are allowed. Fuel cells are prohibited.

Réglementation sur l'AMS (similaire à une BMS)

The AMS must continuously measure

- all cell voltages
- the TS current
- the temperature of thermally critical cells
- for lithium-based cells: the temperature of at least 30 % of the cells equally distributed within the TSAC(s)

Cell temperature must be measured at the negative terminal of the respective cell and the sensor used must be in direct contact with the negative terminal or less than 10 mm along the high current path away from the terminal in direct contact with the respective busbar. It is acceptable to monitor multiple cells with one sensor if this requirement is met for all cells sensed by the sensor.

The maximum cell temperature is 60 °C or the limit stated in the cell data sheet, whichever is lower.

An independent cell temperature monitoring device may be provided by the officials during accumulator inspection and must be installed, see IN 3.

The device must be placed on the warmest negative cell terminal of the TSAC and in direct contact with the terminal or less than 30 mm away from it on the busbar.

The AMS must switch off the TS via the shutdown circuit, if critical voltage, temperature, or current values according to the cell manufacturer's datasheet or these rules persistently occurs for more than:

- 500 ms for voltage and current values
- 1 s for temperature values

The accuracy, noise, and sample rate of the measurement must be taken into account.

AMS cell voltage measurement inputs, temperature measurement inputs, and supply voltage of decentralized AMS slaves may be rated below the maximum TS voltage if the team has proven by calculations in the Electrical System Form (ESF), that the input voltage rating is reasonably chosen.

A red indicator light in the cockpit that is easily visible from inside and outside the cockpit even in bright sunlight and clearly marked with the lettering "AMS" must light up if and only if the AMS opens the shutdown circuit. It must stay illuminated until the error state has been manually reset, see EV 6.1.6. Signals controlling this indicator are SCS, see T 11.9.

AMS signals are System Critical Signals, see T 11.9.

It must be possible to individually disconnect the current sensor, one temperature sensor, and one cell voltage measurement wire during technical inspection, if any wire is used.

The AMS must be able to read and display all measured values according to EV 5.8.3 e.g. by connecting a laptop to the AMS.