Formula Student 2017 Energy Meters

Due to the unavailability of the FSG Energy Meters for Formula Student 2017 due to a clash of dates with a number of other events we have had to make alternative arrangements.

The energy meters this year will consist of three separate components which teams will have to install separately. The three components are:

Data Logger

- The logger requires a standard automotive spec 12V supply – teams will need to ensure that a suitable supply is available from the GLVS.

- The data logger must be located in an accessible position within the car to allow officials easy access to the Memory Stick for downloading of data. It must not be located within any HV enclosure.

High Current Sensor

- The sensor must be fitted and secured around a non-shielded, insulated cable in the HV- line from the accumulator(s) in accordance with EV4.8.1 and EV4.9.1. Teams must ensure that they are able to install/remove the sensor as required at the event (e.g. a removable section in the HV wiring over which the current sensor will fit).

- Teams are permitted to manufacture their own intermediate cables if required for ease of installation.

High Voltage Sensor

- The Sensor must be connected between the HV+ and HV- lines from the accumulator(s) in accordance with EV4.8.1 and EV4.9.1.

- Teams are permitted to manufacture their own intermediate cables if required for ease of installation.

Specifications of each element are detailed on the following pages.

Teams are remined that the Formula Student 2017 rules gave clear instruction that the requirements of EV4.9.3 (*"The energy meter must be in an easily accessible location so that the recorded data can be quickly downloaded by the officials…"*) would be enforced. The rule can be taken to mean that the data logger must be in an easily accessible location.

Any teams with additional questions should post them on the FSQD so that one of the scrutineering team can get back to you.

Data Logger

The logger has been commissioned for the event and records onto a Ruggedised memory stick. The dimensions of the Logger are 60x55x30mm (excluding the memory stick). The Memory Stick is 51x18x6mm and when inserted in the logger it protrudes by 30mm

The logger has 3 connectors on the front face:

1. Connection to the Vehicle 12V power supply (3-way Binder).
2. Connection to the Current Sensor (4-way Binder).
3. Connection to the High Voltage Sensor (4-way Binder).

There are two Tricolour LEDS which will give Status and warnings.

The logger requires a **standard automotive spec 12V supply** – teams will need to ensure that a suitable supply is available from the GLVS.

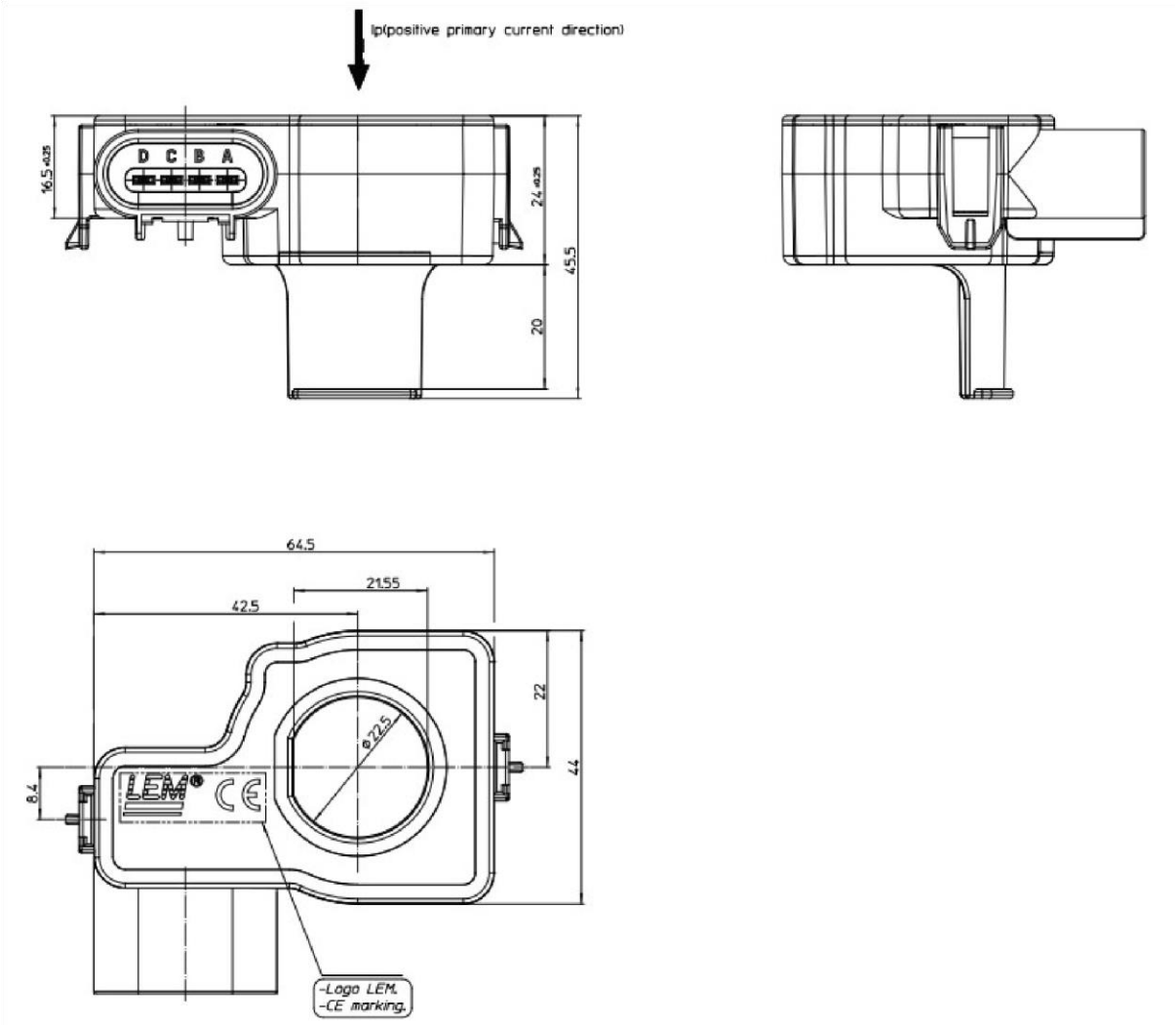
High Current Sensor

The current sensor is a non-contact hall effect sensor based a DHAB S/15.

It must be fitted and secured around an insulated cable in the HV- line from the accumulator(s) in accordance with EV4.8.1 and EV4.9.1. Teams must ensure that they are able to install/remove the sensor as required at the event (e.g. by having a removable section in the HV wiring which the current sensor will fit on). Note that the sensor is not split and its internal diameter is 22.5mm.

The sensor will be supplied with a 2m Cable which plugs directly into the logger via dedicated plug (CN2).

The sensor must be mounted with the LEM symbol towards Battery +ve.



High Voltage Sensor

The high voltage sensor is a Hall effect current balance sensor with 2.5kV Isolation between the high voltage side and the output to the logger. The high voltage side has an impedance of 95K and should have a current draw of < 10mAmps.

The Sensor is housed in metal case measuring 60x55x30mm. It has two wires for connection between the HV+ and HV- lines from the accumulator(s).

The unit should be mounted away from heat sources and in environment with an ambient temp <80 deg C.

The sensor has 2m cable with a 4-way connector for direct contact with the Logger.