PEM Installation Guide

Traction drive power and energy will be limited to the maximums set forth in Race Rules. An electronic instrument will be mounted on the vehicle to indicate and measure, at a minimum, instantaneous power from the battery and the accumulated energy used from the battery. This instrument is referred to as the Power and Energy Monitor (PEM).

The purpose of the PEM is to accurately measure and record the power and energy delivered by the battery of each racer during event competitions. Electric power from the battery, expressed in watts, is calculated using the instantaneous voltage multiplied by the instantaneous current. Energy consumed from the battery, expressed in watt-hours, is calculated by integrating the power over time. During a racing event, a penalty will be assessed to racers that exceed a defined peak power limit. At the conclusion of the event the total energy consumed by the racer will be noted by a race official and teams can be penalized for using more energy than allowed.

The objective of the PEM is to encourage electric drive innovation by removing restrictions on specified configurations and components, such as motors and controllers, in favor of a maximum performance envelope. This open formula fosters team competition and design variety while preserving tight wheel-to-wheel racing throughout the field, which is vital to spectator enthusiasm.

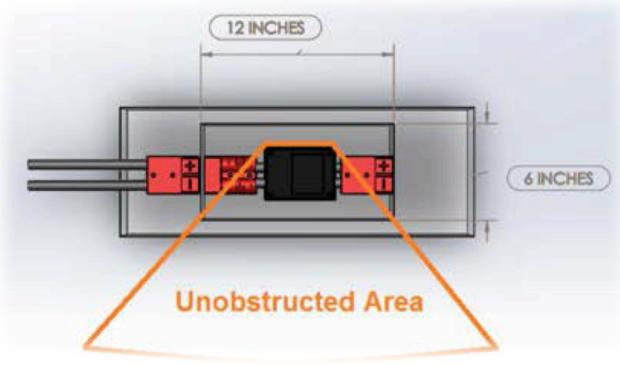
- **The PEM hardware module will be provided to teams by race officials prior to competition**
- **Teams are responsible for mounting the PEM using only the approved bracket and wire harness**
- **Proper PEM operation will be verified by officials after technical inspection and during open track practice**
- **It is the responsibility of teams to report any issues they have with the PEM to an official as soon as they become aware of such issue**

APPENDIX A (continued)

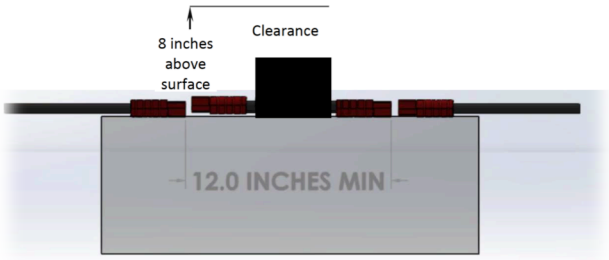
PEM Vehicle Integration Requirements

On each kart, the following mounting space will be required:

- A flat **unobstructed and non-conductive** area of 12 inches by 6 inches
- This area should be on top of the battery pack
- On one end of the PEM
  - + is the maximum battery voltage
  - – is the minimum battery voltage
- On the other end of the PEM
  - + goes to the positive-end of the drive system (the fuse is first in this system)
  - – goes to the negative end of the drive system (B- on the controller)
    ** See wiring diagram for details



The outermost side of the surface must be unobstructed to view



** The connectors to the vehicle's drive system and to the battery **MUST BE** the **RED ANDERSON SB175 POWERPOLE CONNECTOR** (175 amp).

Please note that **OTHER COLORS WILL NOT WORK** as they are notched differently.

See www.evgrandprix.org/parts for details and suppliers.