



One Daytona Blvd.
Daytona Beach, FL 32114
P: +1 (386) 310-6500



TECHNICAL MEMO

IWSC TECHNICAL MEMO #24-09

To: All IMSA WeatherTech SportsCar Championship Participants
From: IMSA Competition
Date: June 6, 2024
Re: 2025 GT Classes Torque Sensor Integration

GTD-PRO and GTD Classes:

IMSA to adopt MagCanica UHA (Ultra High Accuracy) Driveshaft Torque Sensors in 2025:

IMSA will implement updates to the required Series Electronics which will be utilized in the 2025 IMSA WeatherTech SportsCar Championship (IWSC), effective for the IMSA Sanctioned Test at Daytona in November of 2024.

This Technical Memo is an informational guide. The 2025 Technical Regulations by Class will serve as the official IMSA requirements.

- 1. To date, IMSA has determined initial Powertrain settings and the sensitivities of adjustment through the gathering of:**
 - A. OEM Baseline Data
 - B. GT3 Homologation Authority
 - C. IMSA Engine Test Data

- 2. IMSA currently monitors and regulates GT Powertrain performance through the analysis of controlled parameters including, but not limited to:**
 - A. Charge Pressures
 - B. Air Restrictor Area
 - C. Ignition Angle
 - D. Air-Fuel Ratio
 - E. Fuel Capacity
 - F. Associated IMSA Powertrain Modelling

This is not a comprehensive or exhaustive list as each of the 11 GT Manufacturer platforms display different technical characteristics when subjected to varying dynamic conditions and fuel saving measures.



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3. **Benefits:** The introduction of DriveShaft Torque Sensors will allow for the following:
 - A. Real time measurement of power deployment at the driveshafts.
 - i. Based on IMSA's experience of the application of torque sensors, they provide a significant benefit by regulating powertrain performance with equivalency across all Manufacturer platforms. In addition, Controlled Powertrain Parameter Sporting Regulations provides IMSA with the ability to assess a prescribed in-session penalty structure for any corresponding violation.
 - B. Stint Length
 - i. In 2025 the current fuel capacity and fill time regulation will evolve to a "Maximum Stint Energy" regulation. This regulation will limit the amount of energy deployed through each axle torque sensor during a stint, eliminating the requirement of a maximum fuel volume regulation and enabling the driver to be the differentiator in extending the vehicle's stint length.
 - ii. The current fuel flow regulations will not carry forward to 2025 as the energy fill time (or replenishment) will be a fixed ratio of the Maximum Stint Energy, as regulated directly by the IMSA Scrutineering System. This will create significant simplification and a savings of Car and Autonomous Tank preparation time.
 - C. Engine Dyno Testing
 - i. Reduces or eliminates the need for Engine Dyno Testing.
4. **Ordering:** Stakeholders are reminded that driveshafts are often long lead-time components and this lead-time will be further extended due to the Torque Sensor integration and calibration process, as conducted by MagCanica.
 - A. **Torque sensors and Driveshafts will be ordered and serviced through each GTD-PRO / GTD Manufacturer:**
 - i. Driveshaft mileage limitations and sensor calibration thresholds must be considered when budgeting and ordering.
 - ii. IMSA has arranged for technical support specialists from MagCanica to attend future IMSA sanctioned events beginning at the 2024 November Sanctioned Test to support the Stakeholders with this transition.
 - B. Additional dedicated Scrutineering System sensors will be required:
 - i. Engine Speed and Wheel Speed Sensors
 - o These sensors have been an optional requirement for 2024 and are already in place for nearly all GT Manufacturers.
 - ii. Fuel Probe Proximity Sensor
 - o This can be adapted through a modification of the current wiring loom or through connection to the expansion port. Further integration details will be released in an upcoming update to the Bosch Scrutineering System Manual (BSSM).