

# Digital Fuel Scale

This digital gravimetric fuel scale weighs fuel as it is consumed by the engine under test. The data is fed to the computer via serial (RS-232) communications link, allowing seamless integration with our dynamometer and DAQ systems. The weight of fuel is measured as a function of time allowing direct measurements of fuel consumption, and calculation of Break Specific Fuel Consumption (BSFC), and Fuel Mass Flow rate, for calculation of actual Air Fuel Ratio (AFR) when combined with an air flow sensor.

## Features

- 0.1 to 0.1 precision available
- 3.0 to 6.0 kg maximum fuel weight
- RS 232 Serial Communications
- Compatible with Focus Dyno Monitor
- Compatible with all types of fuel



## Overview

The Dyno Monitor program can communicate with several devices via serial port (RS-232) connections. We use this to report speed, torque, power and Throttle settings from the Dynamometer Controller, and we get fuel weight readings from the Fuel Scale this way as well. Fuel consumption is calculated by the change in the fuel tank mass divided by the amount of time lapsed. This is done in 2 ways: (1) an engine is run in a steady condition for say 1 minute and the change in fuel mass during this 1 minute test is the fuel consumption in grams/minute as that condition. Alternatively, a test sequence is run, for example the ECE-R40 test pattern, and the total fuel consumed is calculated. The total fuel consumed over the test can then be expressed in terms of distance traveled (about 1km for the ECE-R40 test) divided by the volume of fuel consumed, eg. km/liter.