

## Application

Fuel dilution in a used oil or hydraulic system is a measure of the fuel present in the sample. In diesel engines fuel dilution is usually caused by excessive idling, defective injectors, or loose connections. In aircraft turbines, the usual cause for fuel dilution is leakage of an inter-cooler. In all instances, excessive fuel in the lubricant or hydraulic fluid reduces the oil film strength due to viscosity decrease, thus increasing metal-to-metal contact and wear. Excessive fuel also leads to premature oil oxidation.

Through periodic oil analysis with instruments such as the Fuel Sniffer fuel dilution can be detected giving the user the an opportunity to react accordingly and make adjustments to rectify the problem before it gets out of hand.

## SpectroFDM Q<sup>600</sup> Fuel Dilution Meter (Fuel Sniffer)



*“The Fuel Sniffer was developed in collaboration with the U.S. Navy.”*

## The Fuel Sniffer

The SpectroFDM Q<sup>600</sup> Fuel Sniffer is a portable fuel dilution meter that can be used in the laboratory or in the field to provide rapid and accurate measurements of fuel contamination in crankcase oil. It was developed in collaboration with the U.S. Navy to fulfill a need to provide a simple and rapid determination of fuel dilution in the oils.

Fuel Sniffer employs a Surface Acoustic Wave (SAW) Vapor Microsensor to measure the concentration of fuel in used lubricating oil samples by sampling the “head-space” in the sample bottle. Based on Henry’s Law, the fuel vapor concentration is directly related to the fuel present in the oil sample. A pump inside the instrument draws head-space vapors across the SAW sensor which detects absorbed hydrocarbons by a change in frequency of a surface acoustic wave (SAW). Single point calibration is used to periodically verify performance.

## Features

- Small size, ideal for field or laboratory use.
- Easy to operate, rugged and reliable.
- Inexpensive to use, requires no chemicals or consumables.
- Measures fuel dilution up to 10%.
- Fast and accurate, measurement time is less than 1 minute.
- Low maintenance, self-diagnostic test.
- Single point calibration.

The SpectroFDM Q<sup>600</sup> Fuel Sniffer takes just over 60 seconds to perform a measurement. The next sample can be introduced quickly with the specially designed “clamp and sample” bottle platform, so that 40 or more samples can be analyzed per hour. The sample bottle platform also keeps the sample bottle below the level of the instrument to prevent potential damage due to liquid sample coming in contact with the sensor.

Single point calibration with a 5% fuel in oil standard takes about one minute so that the Fuel Sniffer is ready to make accurate measurements. Accuracy is comparable to that achieved by gas chromatography, but without the time, expense or inconvenience. The percentage fuel dilution is displayed on a backlit LCD display and can also be sent to a printer or external computer via a built-in RS-232 output.



*Operating instructions are displayed on the LCD screen and functions are selected from the menu by pressing a single key.*

## Specifications

Measurement Range	0 to 10% fuel dilution.
Fuels	Diesel, gasoline, or other light hydrocarbons.
Measurement Time	63 seconds.
Accuracy	± 0.2%
Sensor	Solid state SAW chemical microsensor.
Display	LCD with LED backlight.
Data Log Memory	5000 measurements.
Serial Output	RS-232, 9600 baud
External Power	110/220 VAC, 50/60 Hertz
Dimensions	89 x 203 x 279 mm (3.5 x 8 x 11 inches)
Weight	2.7 kg (6 pounds)

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