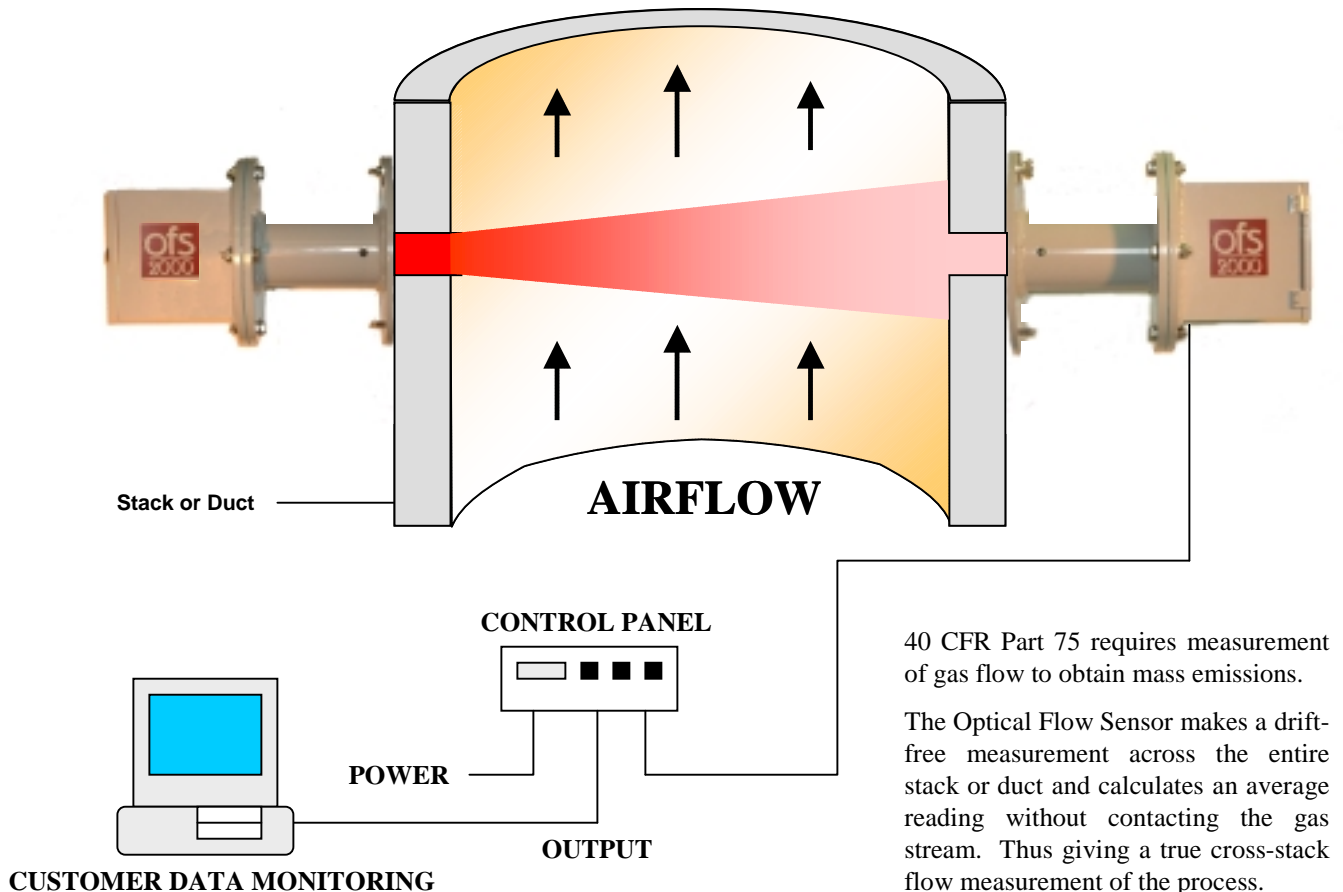




# Optical Flow Sensor

- ➔ True straight across the stack flow measurement – no requirement for 45 degree angle offset or costly extra platforms.
- ➔ Path-averaged result; more representative than point sensors
- ➔ No moving parts, non-intrusive, non-contacting, no parts are directly exposed to stack gases
- ➔ OFS measurement is independent of stack diameter, media, temperature, pressure, moisture, or opacity levels



## OFS Features

### Revolutionary, non-intrusive setup greatly reduces maintenance

The OFS is a patented, advanced, continuous flow measurement system for large and small stacks or ducts. The instrument is isolated from the flue gas. This non-contacting method ensures reduced maintenance over traditional flow sensors.

### True cross-stack, path-averaged result is exceptionally accurate...

### Long-term drift less than +/-1%

OFS provides a true, path-averaged velocity measurement across the diameter of the duct or stack. The accuracy of the OFS is traced back to the NIST wind tunnel standard. Long term drift for the system is less than +/-1% over the entire life of the instrument.

### Calibration and other checks verify all system components

OFS meets all 40 CFR 75 requirements, including daily calibration zero and span checks. System components and interference checks are completed on a continuous basis.

### Velocity measurement independent of temperature, pressure and density of flue gas

OFS measures flue gas velocity. Path angle and gas conditions (composition, temperature and pressure) have no effect on the measurement in all but the most extreme applications.

\*OFS has CE, CSA, and UL marks. Optical Scientific Inc. is ISO-9001 certified.



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Specifications subject to change without notice

## OFS Description\*

The OFS is easier, more accurate, and cost-effective than current sensors to measure flow. The OFS uses EPA approved technology. The sensor consists of a control panel teamed with an optical transmitter and optical receiver which are easily installed on opposite sides of a smokestack, duct, vent or other confined space. The OFS resides outside the stack chamber behind optical windows for easy access, more accurate measurements, and completely isolated from the damaging effects of the gases. The instrument mounts on the same level, in order to transmit the LED beam directly across and perpendicular to the flow.

The optical scintillation technique measures the movement of the turbulence found in exhaust flow streams to provide highly accurate, path-average air velocity measurements. Using fast and highly efficient DSP (digital signal processing), the control panel processes the data, and then transmits it to a PC, PLC, DAS or other data collection device that accepts 4-20 ma or digital input. The OFS's self-testing and diagnostic software monitors its own performance to alert the user to any maintenance issues. In addition, the OFS can be easily installed temporarily with "C" clamps, facilitating its use if your existing flow sensor fails (existing angled flanges can be used).

## OFS Specifications

Technique	Patented Optical Scintillation
Range**	0.1 to 40 m/s velocity
Accuracy**	+/-0.1 m/s basic or <5% of reading, whichever is greater
Repeatability	+/-0.1 m/s basic or <2% of reading, whichever is greater
Long Term Drift	< 1% per year
Stack/Duct Diameter	1-10 m standard, consult factory for other ranges
Light Source	670 nm red LED, 10 degree divergence
Optics	Quartz
Calibration	Automatic 2-point calibration (or 3-point) once per day
Diagnostics	Continuous monitoring of sensor status including power supply voltage check, performance check, optics contamination, etc.
Ambient Temperature	-40 to 60 C
Temperature/Pressure	No effect
Moisture	0-99%
Transparency	Up to 95% opacity

RS-232 ASCII, fixed data string, 4-20ma output or Fiber Optic Output

Remote display w/ user-selectable key pad (Rack mount or NEMA 4 panel)

\*\*For other ranges or different accuracies please consult factory

### Control Panel Description

The panel receives the signals from the stack electronics, displays the data, and produces the digital and analog outputs from the system. Instrument malfunction, and limit alarms are available. There are two versions: 1) rack mount and 2) NEMA-4 box. (See pictures to the left).



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