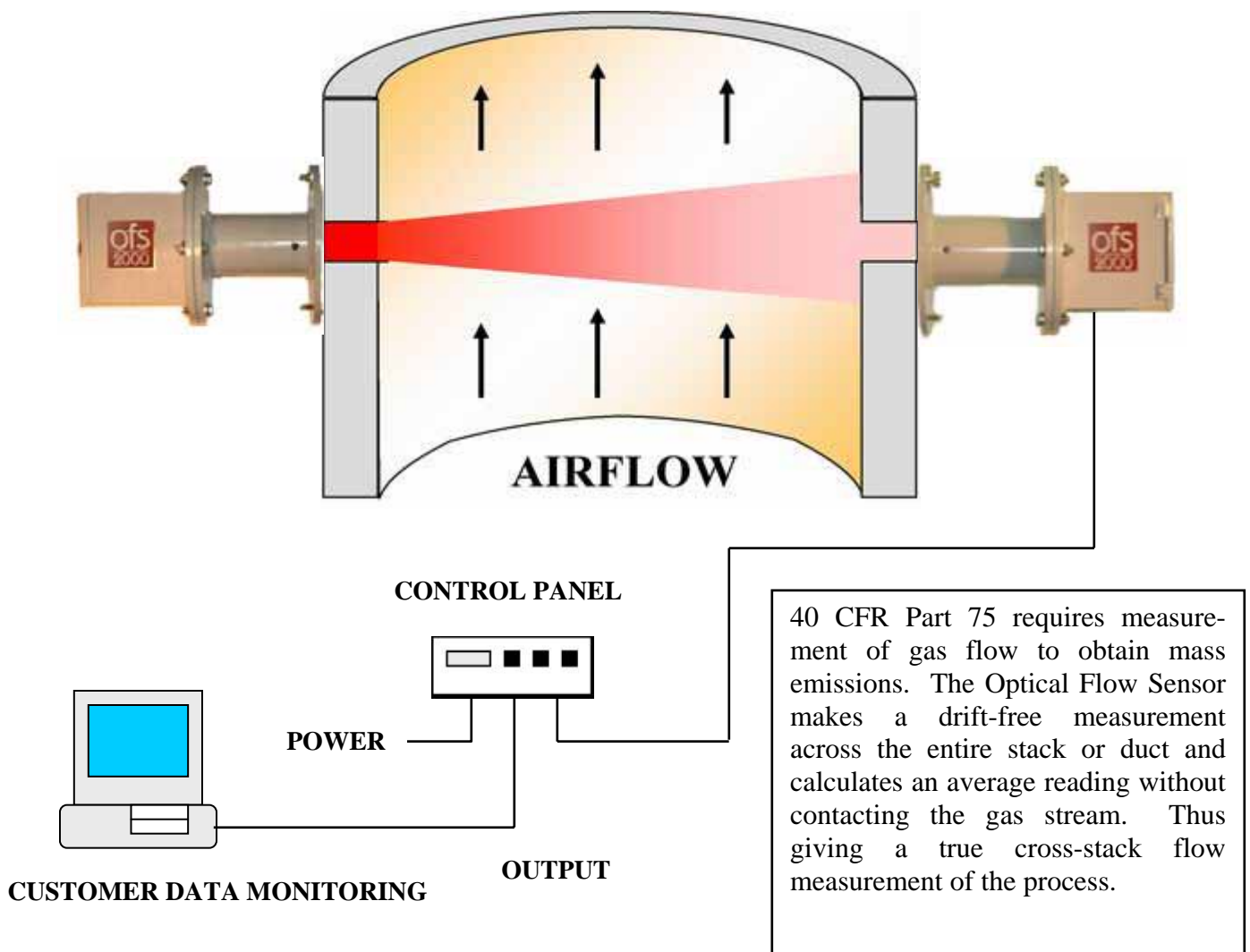




Optical Flow Sensor

- ➡ True straight across the stack flow measurement - Costly 45 degree angle offset or extra platforms are not required
- ➡ 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 the true, average velocity across the diameter between the optical sensors along this path. 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 composition, whether wet or dry, hot or cold, has no adverse effect on the measurement of velocity.

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

To order OFS or for more details please contact us at:

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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 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 greater durability. 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 diagnostics 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 (consult factory for other ranges)
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 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
Data Interface	RS-232 ASCII fixed data string, 4-20ma current loop output or Fiber Optic digital output
User Interface	Remote display w/ key pad for data entry; Serial port for setup from user provided laptop computer

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 for the control panel. There are two versions: 1) rack mount (shown below) and 2) NEMA-4 box (shown at right).

