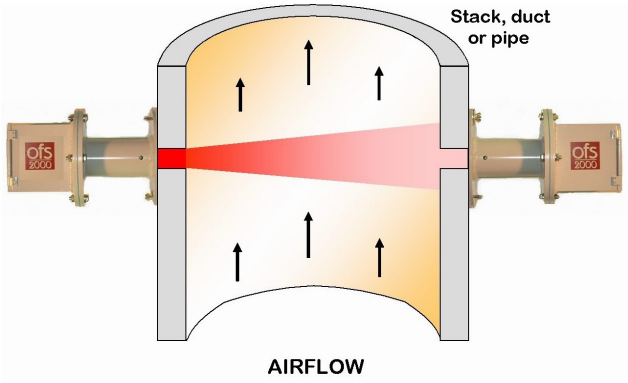
OFS 2000-W™ Emissions/Air Flow Sensor

OFS 2000-W™ Advantages

- Cross stack/duct/pipe line measurement for more accurate flow readings.
- Measurement path 90° to stack; second platform not required – save $100K or more
- Easily replaces existing ultrasonic sensors.
- Non-interfering; nothing in flow path.
- Easy installation and optical alignment.
- Minimal upstream/downstream diameters; typically 2 & 1, not 20 & 10 like others.
- Long-term reliability: no blowers or moving parts; operates unattended - 24 / 7 / 365.
- Rugged ultra-low maintenance. Designed for harsh environments.
- Automatic Gain Control (AGC) to compensate for opacity variation.
- Built-in continuous self-test diagnostics.
- Unaffected by media pressure, moisture.
- No flow media high temperature limits.
- Compliant with EPA 40CFR Parts 60 & 75.
- Wide versatility, NIST-tested and unbeatable combination of advanced technology, high performance and proven reliability!

OSi's patented Optical Flow Sensor (OFS) makes drift-free measurements across the entire stack, duct or pipe diameter and calculates a true average flow reading. *The OFS 2000-W model is equipped with Automatic Gain Control (AGC) to compensate for variations in opacity caused by particulate matter or moisture carried in the stack flow.* The OFS uses our EPA Method 14 approved optical scintillation technology. The optical scintillation technique relies on advanced Digital Signal Processing (DSP) electronics to "see" and measure the movement of turbulence found in a gaseous flow stream to provide highly accurate, path-averaged air velocity measurements. The accuracy of the OFS has been proven both in the NIST wind tunnel, and time after time in real-world applications.



OFS 2000-W™ Options:

- Order **Z-Purge Option** for Class I Div I/II applications.
- Standard Control Unit is rack mount; for wall mount, order **1910-301, NEMA4 Option.**
- For custom receiver cable length, order **1910-216-nnn** where “nnn” is cable length in feet (max 300).

OFS 2000-W™ Accessories:

- **1910-431-nn** Sight Glass w/ gaskets for media isolation (2 required, multiple models)
- **1910-420** Cast Iron Gate Valves for high temperature applications (2 required)
- **1910-804** Laptop DB9 serial communications cable

The OFS consists of DSP / multiprocessor - based control unit teamed with a set of optical transmit and receive heads which are easily installed on opposite sides of a stack, duct, vent or pipe. The OFS heads mount fully outside of the media volume behind optical windows for easy access, more accurate measurements, and greater durability. The transmit head sends a visible diverging light beam directly across and perpendicular to the flow (existing angled-path port can be used). Transmitter output is controlled using an AGC feedback signal from the receiver to compensate for variations in flow opacity. The control unit processes the scintillation detected by the receive head, displays the flow data locally and transmits it to a PC, PLC, DAS or other data collection device that accepts a serial data link and/or a 4-20 mA current loop. The control unit can be configured from either the local keypad and display, or from a laptop or portable terminal.

Rack mount (standard) or optional NEMA4 Control Units shown >>>

OFS 2000-W™ Specifications

Flow Performance	
Measurement Technique	Optical Scintillation (OSi Patented)
Dynamic Range	0.1 to 40 m/sec
Accuracy (absolute)	+/- 0.1 m/sec basic -or- +/- 2% of reading, whichever is greater
Repeatability (relative)	+/- 0.1 m/sec basic -or- +/- 1% of reading, whichever is greater
Long Term Drift	Less than 1% per year
Response Time	3 to 600 seconds, user-selectable
Automatic Calibration Check	2 or 3 point; user-selectable interval -or- on external command
Sensor Health Monitoring	Continuous self-test of voltages, performance, optics, etc.
Media / Environmental	
Stack / Duct / Pipe Diameter	0.2 to 12 meters standard -- consult factory for other ranges
Media Temperature / Pressure / Humidity	No effect on measurement
Media Transparency	Up to 95% opacity (OFS 2000-W is recommended for high opacity)
Ambient Temperature / Humidity	-40 to 60 C (-58 to 140 F) / 0 - 100% condensing
Physical Specifications	
Light Source	Eye-safe 670 nm visible red LED, 5 deg. divergence angle
Sensor Heads (w/ 4" sch.40 flange extender)	9 x 9 x 13 inches, 13 lbs. – NEMA 4 weather resistant
Control Unit: Rack Mount Version (standard) NEMA4 Wall Mount (optional)	5 x 17 x 20 inches, 13 lbs. (for indoor use) -or- 12 x 16 x 10 inches, 15 lbs. (for outdoor / factory floor use)
Purge Air for Heads	Normally not needed. 1 - 4 CFM max for demanding applications
Electrical Specification	
User Interface	RS-232 serial I/O and / or 4-20 mA optically isolated current loop; Relay contacts for fault alarm and calibration check initialization.
Power for Transmit Head	Universal 100-240 VAC, 50/60 Hz, 12 VA (fused & surge protected)
Power for Control Unit	Universal 100-240 VAC, 50/60 Hz, 40 VA (fused & surge protected)
Cable between Control Unit & Receive Head	15 foot standard; to 300 foot optional (shielded, 10 cond., 22 AWG)

[Specifications are subject to change without notice.]

Optical Scientific Inc.

2 Metropolitan Ct., Suite 6
Gaithersburg, MD 20878 USA
Ph. 301-963-3630
Fax 301-948-4674
website: www.opticalscientific.com
email: sales@opticalscientific.com

For the world's best performing and most reliable advanced optical instruments, contact OSi today!

OSi is ISO-9001 Certified