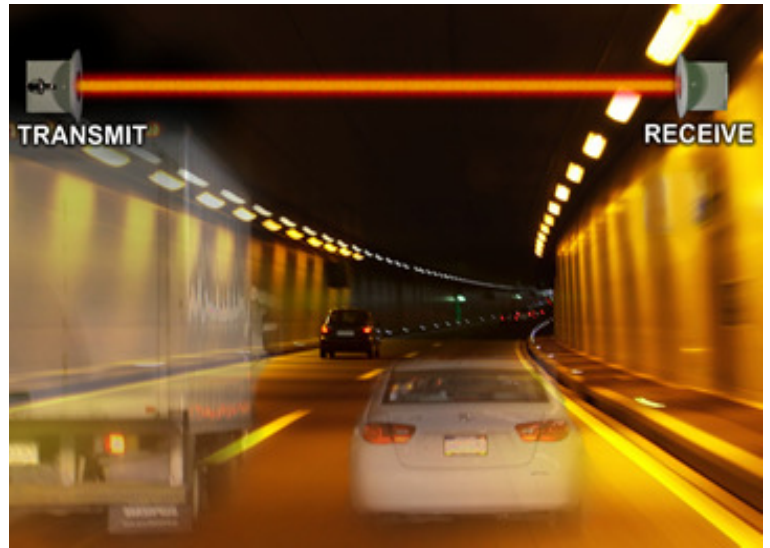


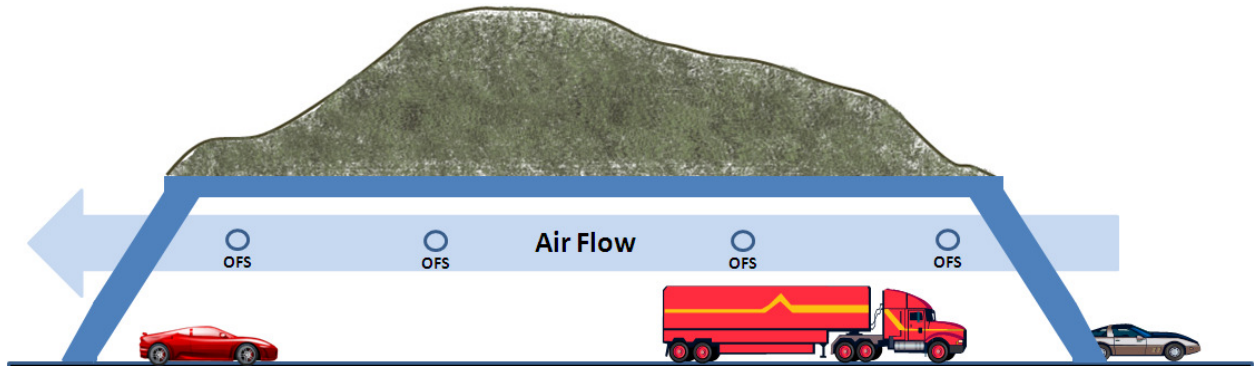


# WSS-300-DS Tunnel Wind Speed and Smoke Sensor

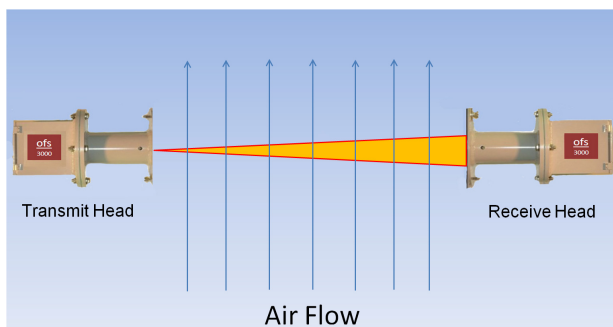
OSi's patented **Wind Speed and Smoke Sensor (WSS™)** makes drift free air flow measurements across the tunnel, calculates true average wind speed, and detects smoke. The *WSS-300-DS* model is equipped with *Automatic Gain Control (AGC)* to compensate for variations in opacity caused by particulate matter, smoke, or moisture suspended in a tunnel. The WSS-300-DS uses OSi patented 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 tunnel air flow and provides highly accurate, path-averaged wind speed measurements.



Unlike ultrasonic flow sensors the WSS-300-DS measures true average wind speed across the tunnel and detects smoke in the optical path. The WSS-300-DS is perfect for tunnel ventilation monitoring and smoke detection.



The WSS-300-DS consists of DSP / multiprocessor - based control unit teamed with a set of optical transmit and receive heads. The heads are easily installed on opposite sides of a tunnel above the expected height of vehicles. The transmit head sends a visible diverging light beam directly across and perpendicular to the flow.



View looking up from road bed

The control unit processes the scintillation detected by the receiver, 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.

Applications Include traffic tunnels, rail tunnels, and mine tunnels.



## WSS-300-DS Tunnel Wind Speed and Smoke Sensor Specifications

Performance Specifications	
Measurement Technique	Optical Scintillation (OSi Patented)
Dynamic Range	±40 m/s
Accuracy	± 0.1 m/s or ± 2% of reading, whichever is greater
Repeatability	± 0.1 m/s 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.
Smoke Detection	Optical
Environmental	
Tunnel Diameter	30 – 100 ft standard - - consult factory for other ranges
Ambient Temperature	-40 to +60 °C ( -40 to 140 °F)
Humidity	0 – 100%
Light Source	
Light Source	Eye safe visible red LED
Wave Length	670 nm
Divergent angle	5 °
Size	
Transmit Head	9 x 9 x 13 inches; 13 lbs; NEMA 4X
Receive Head	9 x 9 x 13 inches; 13 lbs; NEMA 4X
Control Unit: Rack Mount Version (standard)	5 x 17 x 20 inches, 13 lbs. (for indoor use) -or-
NEMA4 Wall Mount (optional)	12 x 16 x 10 inches, 15 lbs. (for outdoor / equipment floor use)
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	Up to 300-DS ft (shielded, 10 conductor, 22 AWG)

(Specifications subject to change without notice.)

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