

OWV-300: Optical Wind & Vortex Sensor™



OSi's Optical Wind and Vortex sensor (OWV) is a breakthrough in measuring turbulence, large body air / wind movement over a long path (50 to 300 meters or more) – all in a single, low cost sensor. The sensor operates on atmosphere turbulence induced optical scintillation. All the electronics are housed in the OWV with a folded path being established by placing a corner cube reflector down-range at the desired distance.

The OWV uses our long-proven Digital Signal Processor (DSP) engine, which is at the core of every OSi optical sensor. The technology behind it was derived from our renowned Long-baseline Optical Anemometer (LOA-005™) which was developed to measure cross-wind and turbulence over paths up to 10km or longer.

The OWV uses a corner cube reflector to “fold” the path, this has significant advantages over a double ended technology: it offers *more than twice* the signal to noise ratio, reduces siting to a single installation, and eliminates pointing and alignment issues.

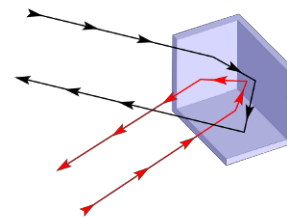
As a further benefit, the OWV can also be configured for use at airports as a wake vortex detection system. This has been extensively field tested in this application as part of NASA's Airspace Systems Program. This makes the OWV

OWV™ Advantages

- Provides 1D / 2D or 3D wind movement data as well as turbulence (C_n^2) strength, option for C_T^2
- Can be used in Wake Vortex detection systems
- Long-term reliability: operates unattended 24/7/365
- Low maintenance
- Rugged, all-weather design: designed for harsh conditions
- Easy installation
- Self diagnostics & Testing: continuously monitors performance & informs user of trouble

an incredibly versatile sensor that can be applied to many different applications in environments as diverse as airports, petrochemical plants (for fence-line monitoring) and across rivers and inlets.

Communications are simple. The user can choose between two basic serial communications protocols: RS-232 or RS-485. The user can connect directly or through network via Ethernet.



Corner cube reflectors (retroreflectors) return light beams precisely back along the incoming axis, no matter the direction from which they arrive.

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No other sensor can provide so much capability for a fraction of the cost. The OWV delivers much more, with adaptability to a very wide range of applications.

Contact our sales office to learn more about the OWV and possible applications. We can provide anything from a single sensor for integration into your own system – to a complete system with multiple sensors, analysis software, and graphical display stations. A host of applications await your imagination and our capabilities!

OWV-300™ Specifications

Performance Specification	
Path Averaged Cross Winds	0.1 m/s to 60 m/s
Principle of operation	Optical scintillation (dual channel for wind)
Heat flux / C_T^2 Option	With optional Temperature / Pressure sensors
Turbulence / C_n^2 Range	1.0×10^{-18} to $9.99 \times 10^{-10} m^{-2/3}$
Electronic Specification	
Power Requirements	Factory selectable, 100/115/220/230 VAC, 50/60 Hz @ 50 VA 10-24 VDC optional, 50 VA nominal
Signal Output	RS-232 / RS 485 ASCII, Ethernet option
Transient Protection	All power & signal cables protected
Environmental Specification	
Temperature	-40° to 122° F (-40° to 50° C)
Humidity	0-100%
Precipitation / Dust	NEMA 4 type protection
Physical Specification	
Optical Transceiver Head Size	20 x 7 x 10 inches
Optical Transceiver Head Weight	10 lbs.
Retro-reflector Housing Size	8 x 8 x 10 inches
Retro-reflector Housing Weight	5 lbs.
Optical Path Length	Single cube reflector: 50-150m; multi-cube reflector: to 300m

[Specifications are subject to change without notice.]

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