

LOA-005™ Long-baseline Optical Anemometer



The Long-baseline Optical Anemometer (LOA™) measures path averaged crosswind and turbulence over distances of 100 meters to over 10 km. Based on optical scintillation technology, its optics 'see' the always present temperature and density variation in small parcels of air as they move through the infrared beam. For applications where wind field direction is also needed, two systems can be setup in an "X" pattern. By surrounding an area with three or more end-to-end links, even the vertical component can be measured. The LOA provides true remote sensing of cross winds and turbulence in all weather conditions.

OSI's patented LOA sensors are based on advanced technology tested and approved by the National Oceanic and Atmospheric Administration (NOAA), the



LOA-005™ Advantages

- True path-averaged crosswind and turbulence remote measurement
- Ultra low wind threshold — 0.01 m/s
- Field proven scintillation technology
- High reliability / Low maintenance
- DSP based – no field calibration needed
- Unaffected by dust buildup on lenses
- Rugged, all-weather design
- Transmitter can be battery powered
- Easy permanent or temporary install
- Continuous self diagnostics & test

Environmental Technology Laboratories (ETL) and the Environmental Protection Agency (EPA).

LOA-005™ Applications Include:

- **Environmental:** – Emergency response
– Plume dispersion – Roof vent flows
- **Airport Safety:** – Wake vortex – Runway crosswinds – Downdrafts / micro bursts
- **Weapons Testing:** – Artillery trajectory
– Laser propagation – Chemical dispersion
- **Micrometeorology:** – Convergence / Divergence – Diffusion Studies

LOA-005™ Ordering Information:

- Part number: LOA-005-UR
- (for indoor applications, see LOA-105 info)

LOA-005™ Accessories:

- 1506-106 Heavy duty tripod base (each)
- 1506-106-1 Pan-tilt vernier tripod head (ea.)
- MZ-0649-00 Limited Distance Modem



Our system design, based on decades of extensive field experience in harsh environments, provides for a rugged and extremely reliable sensor which is immune from the typical error mechanisms. The sensors use AGC circuitry to eliminate the effects of LED output power drop, contaminated optics, or dusty air. Internal diagnostics alert the user if the signal strength is getting too low for normal operation. Preventative maintenance, suggested every 6 months, is as simple as cleaning the optical windows and verifying optical pointing. Because of the DSP based design, no field calibration is ever needed.

LOA-005™ Specifications

Performance Specification	
C _n ² Turbulence Range	10 ⁻¹⁶ to 10 ⁻¹² m ^{-2/3}
C _n ² Turbulence Path Length	0.1 to 3 km
Wind Range	0.01 to 40 m/s
Wind Path Length	0.1 to 10 Km

Electronic Specification	
Power Requirements Transmitter	115 VAC, 50/60 Hz, 12 VA, or +12 VDC
Electronic Enclosure	Universal 100-240 VAC, 50/60 Hz, 40 VA, Surge Protected
Signal Output	RS-232 ASCII, simple polled protocol
Transient Protection	All power & signal cables protected

Environmental Specification	
Temperature	-40° to 140° F (-40° to 60° C)
Humidity	0-100%
Precipitation / Dust	NEMA 4 type protection

Physical Specification	
Transmitter Size	8.25 x 7.75 x 30 inch (210 x 195 x 760 mm) - H x W x D
Transmitter Weight	18 lbs (8 kg)
Receiver Size	14 x 8.25 x 30 inch (355 x 210 x 760 mm)
Receiver Weight	30 lbs (14 kg)
Enclosure Size	16 x 12 x 10 inch (400 x 300 x 250 mm) - H x W x D
Enclosure Weight	20 lbs (9 kg)
Head & Enclosure Cable Length	15 ft (5 m)

Note: For industrial applications such as smelting potroom roof vents, see our information on the LOA-105. [Specifications are subject to change without notice.]



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