

Demeter PDI Probe

Phase Doppler Interferometry

Droplet Size and Velocity Measurement

Designed for large spray flow field characterization

Field testing of spray nozzles, spray, drift, and deposition studies

Aerial testing

Wind tunnel testing of nozzles

Wide size range

Turnkey operation

Demeter PDI Probe

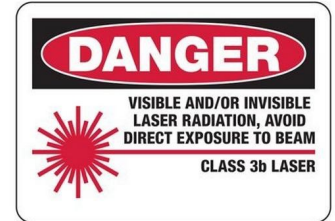
The **Demeter PDI Probe** has been specifically designed for outdoor applications that require turnkey operation in the field under difficult operating conditions. It measures the size and one component of velocity of individual spray droplets as they enter the measurement probe volume. Various spray statistics such as mean diameter, median diameter, and size-velocity correlation are computed and displayed in real-time. The probe can be used for characterizing spray nozzles, studying spray deposition, and measuring spray drift. The probe can also be used for wind tunnel testing and can be mounted in an aircraft for aerial spraying applications.

The instrument also includes the ASA signal processor, data management computer, and the AIMS system software. The Fourier transform based **Advanced Signal Analyzer (ASA)** incorporates a proprietary digital signal burst detection technique and adaptive Doppler burst sampling approach to provide high accuracy in signal detection and measurement. The electronics are mounted on a vibration proof electronic rack which also serves as a shipping crate. The instrument can be operated remotely using WiFi and can be run on AC or DC power.

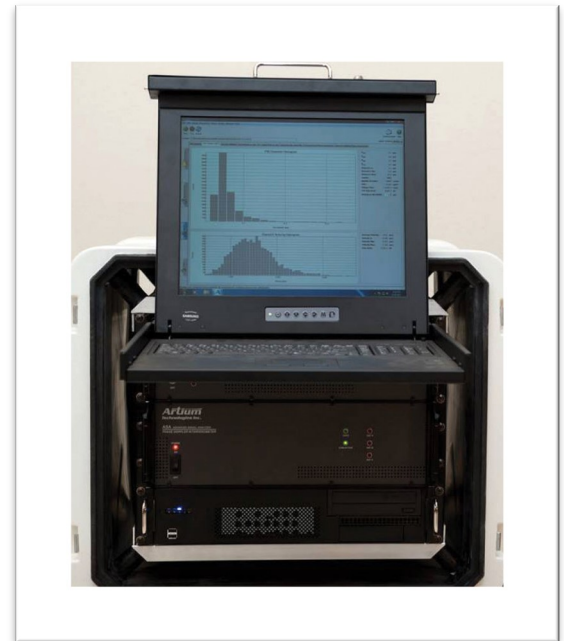
The **Automated Instrument Management System (AIMS)** provides fully automatic setup and operation of the instrument. A variety of standard and user-configurable views are available to analyze the data. It also offers remote operation and monitoring via the Internet. The AIMS software includes a patented auto-setup feature that automatically selects the processor and optics settings for optimal performance in complex sprays.

Technical Specifications:

Drop size measurement range	Small size range*: 0.5 to 100 μm Large size range*: 2.5 to 500 μm *can be customized for other size ranges
Size dynamic range	50:1
Estimated size accuracy	+/- 0.5 μm or 0.5% of full size range
Estimated size resolution	+/- 0.5 μm or 0.5% of full size range
Velocity measurement range	-95 to 350m/s -200 to > 500 m/s
Velocity accuracy	+/- 0.1%
Volume flux accuracy	+/- 10%
Receiver focal length	150 mm (fixed)
Transmitter focal Length	300 mm (fixed)
Laser type	Diode pumped solid state (DPSS)
Wavelength	532 nm



- The probe includes an optical transmitter and optical receiver which are packaged together in an aerodynamic, water-tight enclosure.
- Demeter electronics (ASA and computer) are mounted in a vibration isolation rack system which also serves as the shipping container.
- The system is aligned and calibrated in the factory. Routine alignment and calibration are not required.
- The operating measurement size range can be manually changed by the user.
- The high powered DPSS laser built into the probe provides stability, compactness, ruggedness, and high reliability; it eliminates the need for inefficient and unreliable fiber optics and bulky Ar-ion lasers.



US Patents: 7, 126, 694 B1, 7, 564, 564 B2, 7, 788, 067 B2, 8, 525, 093 B2 EPO Patent: EP 1 855 081 B1

Our offices, research facilities, and manufacturing plant are located in Sunnyvale, California, where we serve our North American customers. Our distributor partners provide valuable services to our customers in other parts of the world.

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