

# Phase Doppler Interferometer

## PDI-X00MD

The new, **modular phase Doppler system** offers turnkey operation with a fully automated setup feature. The modular system can be used for the real-time, non-intrusive measurement of individual droplet size and 1, 2, or 3 velocity components in a variety of applications. The complete instrument includes the optical transmitter, optical receiver, ASA signal processors, and the AIMS system software. The high powered DPSS lasers used in the transmitter provides stability, compactness, ruggedness, and high reliability; it eliminates the need for inefficient and unreliable fiber optics. The Fourier transform based **Advanced Signal Analyzer (ASA)** incorporates a proprietary signal burst detection technique and adaptive Doppler burst sampling approach to provide improved accuracy in signal detection and measurements. The **Automated Instrument Management System (AIMS)** provides fully automatic setup and operation of the instrument. It also offers remote operation and monitoring via the Internet.

Stable

Compact

Rugged

Turnkey

Automatic Setup

### Modular Phase Doppler System



# Technical Specifications



## PDI-200MD

<b>Drop size measurement range</b>	0.5 to 2000 $\mu\text{m}$ or larger
<b>Estimated accuracy</b>	+/- 0.5 $\mu\text{m}$
<b>Estimated resolution</b>	+/- 0.5 $\mu\text{m}$
<b>Velocity measurement range</b>	-100 to 300 m/s
<b>Velocity accuracy</b>	to +/- 1%
<b>Volume flux accuracy</b>	to +/- 15%
<b>Receiver focal length</b>	350 mm, 500 mm, 750 mm, or 1000 mm
<b>Transmitter focal Length</b>	350 mm, 500 mm, 750 mm, or 1000 mm
<b>Laser type</b>	Diode pumped solid state (DPSS)
<b>Wavelength</b>	415 nm, 532 nm, 660 nm



## ASA

<b>Processor bandwidth</b>	5-150 MHz
<b>Input voltage</b>	200 mV to 1V
<b>Minimum transit time</b>	100 ns
<b>Max sampling frequency</b>	Quadrature, 320 MHz
<b>Measurement accuracy</b>	0.02% of the sampling frequency (frequency) 0.5 degree (phase)
<b>Minimum SNR</b>	-6 dB
<b>Maximum data rate</b>	100,000 per second
<b>Number of samples</b>	Adaptive 16 to 4096 quadrature
<b>Burst detection</b>	Phase domain burst detector Quadrature analog burst detector
<b>Run time</b>	32 bit, 0.5 $\mu\text{s}$ resolution
<b>Transit time</b>	16 bit, 0.1 $\mu\text{s}$ resolution