3D miniLDV™

Integrated 3D miniature laser Doppler velocimeter

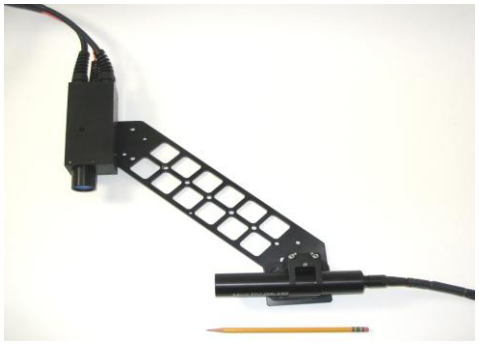
The 3D miniLDV sensor incorporates (1) 2D miniLDV and (1) 1D probes into a single structure with adjustment for co-locating probe volumes. The 3D system could also be fabricated using (3) 1D miniLDV sensors. In each case, adjustment mechanisms are used for alignment of the probe volume. Setting up takes less than a few hours.

ADVANTAGES OF THE 3D MINILDV:

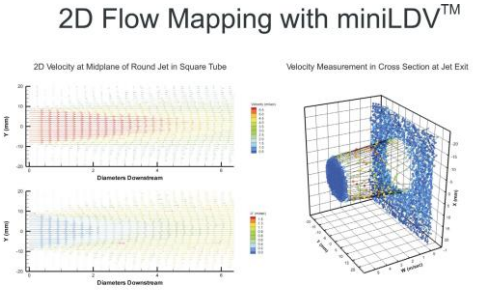
- Self-contained
- Factory sealed individual probes
- High power lasers at 660, 785 and 830 nm
- Adjustment mechanisms / structures provided
- No calibration needed
- Frequency shifting on all components
- No water cooling required
- Accurate measurement of fluids of varying temperature, pressure, and density
- Computer controlled 1, 2, and 3-axis traversing system
- 2D and 3D automated profile measurement
- Battery operated option
- Options such as waterproof housing

APPLICATIONS INCLUDE:

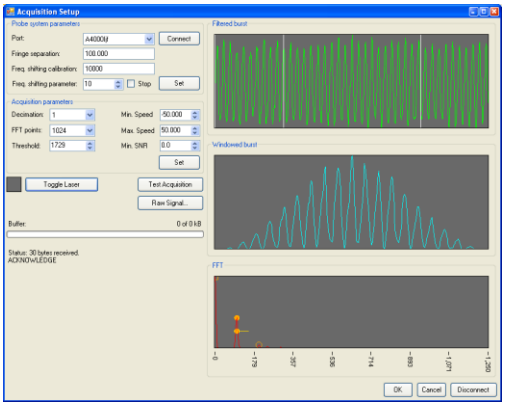
- Fluid mechanics, aerodynamics, turbulence, oceanography, and atmosphere studies
- Wind, water, oil tunnels and channels



The 3D miniLDV probe is extremely compact, self contained, and permanently attached to a structure; no calibration or alignment by the user is required. The probe contains three high power lasers, miniature beam shaping optics, and detection optics.



The 3D miniLDV System includes the 3D miniLDV probe, Processing Engines, and a multidimensional Burst Processor Acquisition Manager software. With the optional computerized traverses, setting up a flow-mapping experiment for unattended acquisition is a matter of minutes, not hours.



The interface of the acquisition software complements the probe's ease of use.

MEASUREMENT SPECIFICATIONS	
Velocity range	-50 to 300 m/sec
Repeatability	0.1%
Accuracy	99.7% or better

PROBE VOLUME	
Size (air) (*x* by *y* by *z*)	20 by 40 by 100 μm to 100 by 200 by 1200 μm (depends on standoff distance)
Standoff distance (air)	1.30, 1.97, 3.94, 5.91, or 9.45 inches (33, 50, 100, 150, or 240 mm)

PROBE SPECIFICATIONS	
Probe weight	500g
Dimensions	Depends on final configuration

LASER SPECIFICATIONS	
Laser power	3 x 80 mW
Wavelength	660, 785 and 830 nm
Laser type	Class IIIb

OPERATING PARAMETERS	
Temperature	0 to 65°C
Pressure	Atmospheric
PC requirements	Laptop or PC

OPTIONAL FEATURES
Water resistant housing
High pressure & temperature housing
Traversing stage for profile measurements
Battery operated
1-D, 2-D, and 3-D traversing systems

POWER SUPPLY
12 VDC power supply
12 Volt battery (optional)

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