

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 MINI LDV:

- 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 water-proof housing

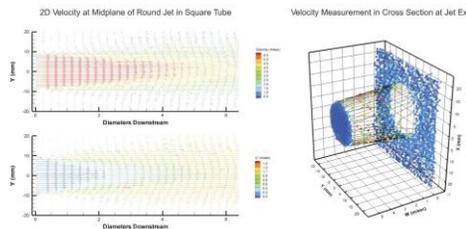
APPLICATIONS INCLUDE:

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

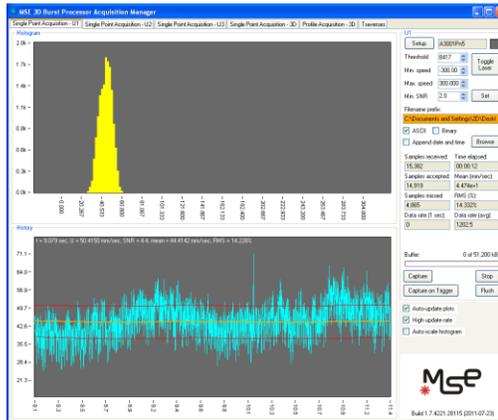


The 3D miniLDV probe is extremely compact, self contained, and permanently attached to a structure; no calibration or alignment by the user is required. The probe contains three high power lasers, miniature beam shaping optics, and detection optics.

2D Flow Mapping with miniLDV™



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 MSE Burst Processor Acquisition software complements the probe's ease of use.

MEASUREMENT SPECIFICATIONS	
Velocity range	-50 to 600 m/sec*
Repeatability	99.9 %
Accuracy	99.7 %

PROBE VOLUME	
PV dimensions (x by y by z)	Minimum: 30 x 60 x 200 μm^{**}
Available Standoff distances	35, 50, 100, 150, 240, 400, 500 and 700 mm

PROBE SPECIFICATIONS	
Probe weight	Depends on final configuration
Dimensions	Depends on final configuration

LASER SPECIFICATIONS	
Laser power	3 x 130 mW
Wavelength	658, 785, 830 nm
Laser type	Class IIIb

OPERATING PARAMETERS	
Temperature	5 to 35°C
Pressure	Atmospheric
PC requirements	Laptop or PC

OPTIONAL FEATURES	
Water proof, high pressure, and high temperature housing	
Traversing stage for profile measurements	
1-D, 2-D, and 3-D traversing systems	

POWER SUPPLY	
12 VDC Universal	

* Velocity range is a function of the fringe separation and the dynamic range. Please specify your required velocity range.

** Probe volume dimension is a function of the standoff distance

***Higher operating temps available

One or more of the following U.S. Patents apply: No. 6,654,102, 6,580,503, 6,608,6668, 6,717,172, 6,956,230

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