

## Compact Laser Doppler Velocimeter

### 1-D Velocity Measurement

*Industrial, R&D,  
and educational  
applications*

*Process monitoring  
and control*

*Turnkey operation*

## Compact LDV Probe

**Artium Technologies Inc.** continues to advance the state-of-the-art in Laser Doppler Velocimeter (LDV) instrumentation. The **Compact LDV Probe** has been specifically designed for rugged, industrial and R&D applications that require turnkey operation. It is also excellent for educational purposes. It measures one component of velocity of individual particles as they enter the measurement probe volume. Various flow statistics such as mean velocity and turbulence are computed and can be used to monitor and control the flow process in real-time.

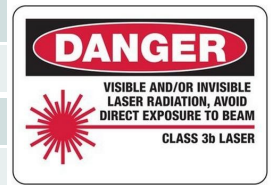
The instrument incorporates an optical transceiver that includes a DPSS laser, Bragg-cell and PMT. The probe head can be rotated to allow for changing the axis of velocity measurement. The system is aligned and calibrated in the factory. Routine alignment and calibration is not required. The high powered DPSS lasers built into the transceiver provides stability, compactness, ruggedness, and high reliability; it eliminates the need for inefficient and unreliable fiber optics and bulky Arion lasers.

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 **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. A new version of the ASA is now available for improved data accuracy at high speeds in dense environment.

## Technical Specifications

<b>LDV-200TRX</b>	
<b>Velocity measurement range</b>	-400 to 1200 m/s
<b>Velocity accuracy</b>	+/- 0.1%
<b>Transceiver focal length</b>	100 mm, 200 mm, 350 mm, 500 mm, 750mm, 1000 mm, or 2000 mm
<b>Laser type</b>	Diode pumped solid state (DPSS)
<b>Wavelength</b>	491 nm, 532 nm, 561 nm, 660 nm
<b>Signal Processing (ASA)</b>	
<b>Maximum Input Frequency</b>	200 MHz
<b>Processor bandwidth</b>	160 MHz
<b>Input voltage</b>	200 $\mu$ V to 1V
<b>Minimum transit time</b>	100ns
<b>Max sampling frequency</b>	Quadrature, 320 MHz
<b>Measurement resolution</b>	0.01% of the sampling frequency (frequency)
<b>Minimum SNR</b>	-6 dB
<b>Maximum data rate</b>	>250,000 per second
<b>Number of ADC samples</b>	Adaptive 16 to > 100,000 quadrature
<b>Burst detection</b>	Frequency domain burst detector Quadrature analog burst detector
<b>Run time</b>	64 bits, 0.5 $\mu$ s resolution
<b>Transit time</b>	32 bits, 0.1 $\mu$ s resolution
<b>High pass filters</b>	10 MHz
<b>Low pass filters</b>	8 filters, software selectable, 100 KHz to 80 MHz
<b>Mixers</b>	Variable (10MHz to 45 MHz) , 80 MHz
<b>Bragg cell driver (frequency shift)</b>	40 or 45 MHz, 0.5V into 50 Ohm
<b>Coincidence</b>	Hardware, Software
<b>External Input</b>	One analog signal and one 16-bit digital signal may be synchronized with data collection
<b>PC Interface</b>	Optical Link



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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