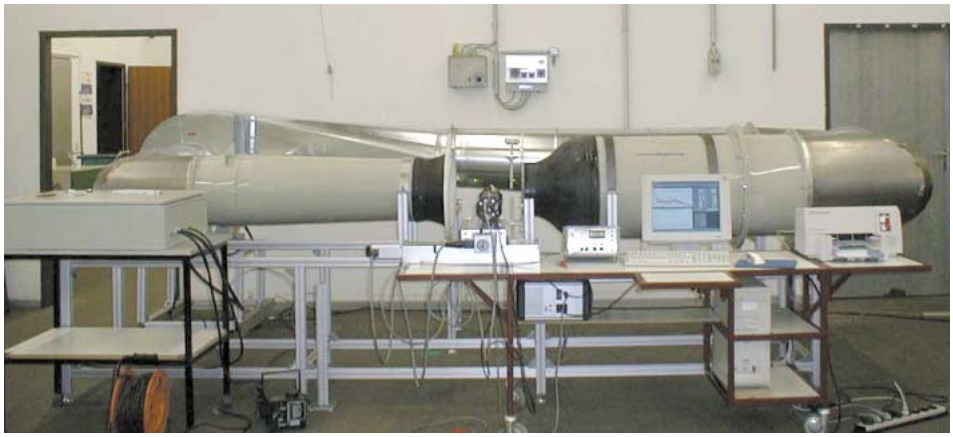
AIR LDV System for Wind Tunnels and Flow Sensor Calibration



Test & Calibration wind tunnel equipped with LDV system

Applications

- Test and calibration of flow velocity instruments and sensors
- Small-scale aerodynamic experiments

Description

AIR is a system for the calibration of instruments that measure flow velocity, for instance hot wire anemometer, propeller anemometer, cup anemometer etc. AIR controls the complete wind tunnel test station and records the necessary analog signal data such as pressure, temperature and humidity that are essential for the calibration of the velocity measurement instrument.

AIR is modular and can be adapted to most test and calibration wind tunnels. The system integrates reference velocity measurements from the flowPOINT fp50-fus LDV probe, analog data acquisition and processing, and report generation in a single package. If an existing source of calibration data is already in place, only the data acquisition and reporting components are needed, with the option of wind tunnel control if needed.

Advantages

- Highly accurate
- Robust
- Easy to install and operate
- Low maintenance
- Automatic generation of test and calibration certificates
- Non-intrusive
- Fits on an existing wind tunnel, or option to purchase the whole instrumented wind tunnel
- Approved by PTB (*) (Germany) for calibration purposes

(*) Physikalische Bundesanstalt: the prestigious German Bureau of Standards. One of the tasks of the PTB is to define accuracy and calibration standards for metrology equipment.

Specifications

LDV Probe

- Beam separation: 45 mm
- Focal distance: 250 mm or 400 mm
- Laser source: HeNe 22 mW, Nd:YAG 10, 75, 100 or 150 mW
- Receiver: photomultiplier via fiberoptic coupling
- Velocity range: 0.01...100 m/s
- A/D bandwidth: 200 MHz
- Operating system for application software: Windows2000
- Power supply: 230 V / 110 V, 50...60 Hz
- Absolute accuracy: 0.2 % (f=250 mm)

Analog Signal Inputs

- 16-bit A/D
- 8 differential input channels, std configuration: Ch.1 4...20 mA current , Ch. 2-8 voltage inputs
- Signal connections: via termination panel and shielded cable

Flow Controller

- Industrial PID
- 4...20 mA differential pressure input
- RS422/485 communications
- Determination of regulation parameters for maximum stability
- Self-optimisation possible
- Supplied in 19" rack enclosure

LDV probe mounted on a small open-jet wind tunnel, anemometer being calibrated

Software interface

- Acquisition and display of analog signal sources
- Integration of LDV system or other source of primary calibration data
- Remote control of flow controller
- Automated calibration reports
- Load / Save probe-specific measurement programmes including parameters such as probe position and velocity resolution
- Direct data display in Excel spreadsheets

Options

Traversing system, manual or automatic (software-controlled), up to 3 axes PID controller

Complete calibration facility

The components of the AIR system can be either purchased together or individually. We also sell complete turnkey calibration solutions, including the flow rig (wind tunnel) and instrumentation. Please consult us for more information.

Intelligent Laser Applications GmbH
Karl-Heinz-Beckurts-Straße 13
D-52428 Jülich
T +49 (0) 2461. 690 430
F +49 (0) 2461. 690 439
info@ila.de www.ila.de