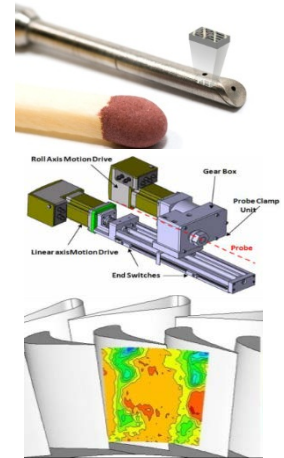


Fast-Response Aerodynamic Probe (FRAP) Turn-Key Measurement System



- Miniature fast-response aerodynamic probes
- 2 or 3-axis traversing system
- Signal monitoring and acquisition system
- Automated measurements
- Data processing and visualization software



The fast-response aerodynamic probe turn key system is designed to measure the temporal fluctuation of the 3-dimensional flow velocity field either in air or steam. The system consists of calibrated fast-response aerodynamic probes delivered with a 2 or 3-axis traversing system and a rack mounted system comprised of a PC, data acquisition boards, probe signal conditioning units.

The system is designed to operate with LSc's Fast-response aerodynamic probes such as the FRAP-ST for high measurement bandwidth, FRAP-HT for high temperature applications, FRAP-HTH for measurement in wet steam or FRAP-7S for large flow angles measurements. The system is also compatible with the FRAP-STE measuring concurrently the 2D unsteady total pressure and total temperature field. The probes are equipped with encapsulated pressure sensors into probe tips as small as 0.9mm. The probes enable the measurement of the 3-dimensional flowfield (flow angles, total pressure and static pressure) up to a frequency of 48KHz, as well as the measurement of total temperature up to 1Hz. For more information about the various fast-response aerodynamic probes, please refer to the FRAP probes' respective product sheet.

The full turnkey system consist of a fast-data acquisition and monitoring system which enables automated aerodynamic flow measurements through a 3-axis traversing system. The measurements are controlled using a Labview based executable software. The system comes with a data processing and visualization software, providing a simple user interface and a powerful full-suite analysis tool for complex aerodynamic design and development.

General Specifications:

- Probe tip diameters: 0.9 – 2.5mm
- Measurement bandwidth: 3 – 48KHz
- Maximum Mach number range: 0.8
- Temperature range: 10°C – 220°C
- Flow angle range: $\pm 30^\circ$ / $\pm 60^\circ$ (FRAP-7S)
- Integrated control and measurement software
- Integrated data processing and visualization software