

Micro Profile Meter (Micro S)



Year of Purchase: 2019

Cost: 39.00 Lac

Descriptions:

The microS is the world's first optical sensor for the direct measurement of the boundary sublayer velocity gradient and wall shear stress. Made possible by patented technology, it is capable of performing measurements just 75 μ m or 135 μ m from its face (in air) within a probe volume of only 30 by 30 by 15 microns. Designed to be flush-mounted to the surface in question, it is absolutely nonintrusive, has no moving parts, and can measure flow direction along with the gradient. The probe itself (the face) is only 0.375" (9.5 mm) in diameter and 1.18" (30 mm) long so it can be installed in even the tightest of spaces. Sensor electronics can be stowed safely away from the experiment, and since all the sensitive optics are fixed within the probe, no user alignment is necessary.

The microS is the only optical shear stress sensor that directly measures the wall velocity gradient with no calibration required on the part of the user. The microS is well suited for applications in liquid and gas fluidics. Its compact size (especially its length) allows it to be mounted where other sensors simply will not fit.

ADVANTAGES OF THE MICROS:

- Highly accurate up to $Re_x=2 \times 10^6$
- Extremely compact and rugged
- No alignment needed
- No calibration needed
- Makes accurate measurement of fluids of varying temperature, pressure, and density
- Can measure wall shear stress magnitude and flow direction
- Battery operated option

APPLICATIONS INCLUDE:

- Wall shear stress measurements
- Drag reduction
- Turbulence mixing
- Marine full-scale and model-scale vessel performance measurements

- Flow quality diagnostics
- Micro channels
- Wind, water, and oil tunnels and channels
- Boundary layer studies

MEASUREMENT SPECIFICATIONS	
Shear stress range	0.7 to 6500 Pa (water) 0.015 to 140 Pa (air)
Repeatability	99%
Accuracy	95% typical
PROBE VOLUME	
PV dimensions (x by y by z)	15 x 30 x 30 μm
Standoff distances (air / water)	75 /100 or 135/180 μm
PROBE SPECIFICATIONS	
Probe weight	40 g
Dimensions	9.5 (dia) x 30 mm 0.38 (dia) x 1.2 inches
LASER SPECIFICATIONS	
Laser power	110 mW
Wave length	658 nm
Laser type	Class IIIb
OPERATING PARAMETERS	
Temperature	0 to 55°C
Pressure	Up to 3 bar
PC requirements	Laptop or PC
POWER SUPPLY	
12 VDC Universal	