

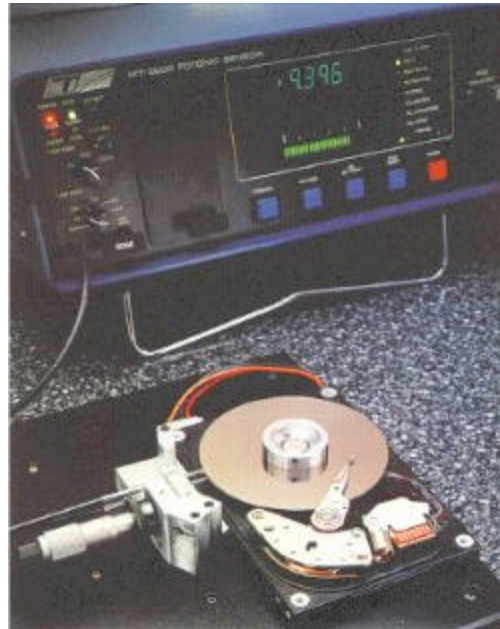
Fotonic Edge Probe

Measure Dynamic Edge Position, Displacement, Vibration or Runout at Speeds up to 150 kHz

The MTI-2000 Fotonic Edge Probe provides precise, accurate and repeatable measurements of displacement, runout and vibration of thin objects. The unique probe design is unaffected by target reflectivity or shape, making it ideal for wide variety of applications such as computer disk drive runout, magnetic tape motion or ultrasonic tool vibration. The ultra-low noise characteristic of the Fotonic Edge Probe produces static and dynamic measurements with resolutions to 0.05 μin (1.25 nm).

The MTI-2000 provides outputs of peak-to-peak vibration and displacement via the digital display, analog dc voltage output or RS-232 computer interface. The dual channel design allows two probes to simultaneously measure displacements and vibrations at different target locations.

Along with its high sensitivity, the Fotonic Edge Probe is easier to set up and use than other techniques. It only takes a minute to position the probe and obtain accurate, high-resolution measurements. Custom designs are available to adapt to almost any application or space requirement.



Specifications:

Range.....0.008 in. (0.2 mm)

Frequency Response.....dc to 150 kHz

Prism Sizes.....0.120, 0.080, 0.052, 0.040 in
(3.0, 2.0, 1.3, 1.0 mm)

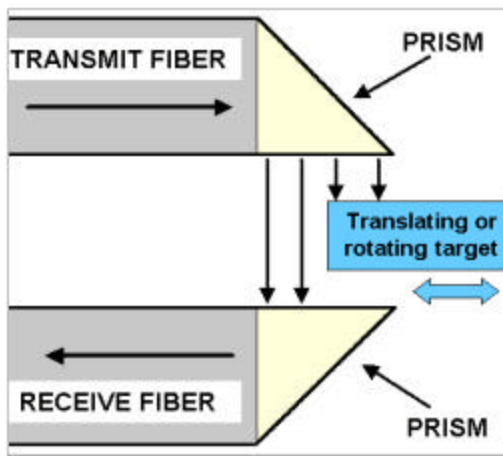
Prism Spacing....1.0, 2.0 & 3.0 mm typical

Sensitivity.....to 0.1 $\mu\text{in}/\text{mV}$ (2.5 nm/mV)

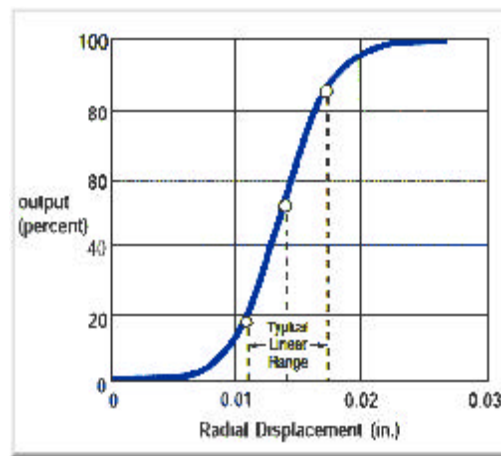
Resolution.....to 0.05 μin (1.25 nm)

Built-in high and low pass filters

Custom probes available upon request



The fiber optic probe directs a "curtain" of light past the measurement target edge to an opposing receive fiber bundle. As the target moves within this "curtain", the intensity of light received changes proportionally with the edge position. The MTI-2000 Controller precisely converts this signal to an edge position or vibration amplitude.



This plot shows a typical response curve for the Photonic Edge probe that relates the amount of light received to the radial displacement of the edge under measurement. With the Photonic Edge probe, you can make measurement as sensitive as $0.1 \mu\text{in./mV}$ (2.5 nm/mV) over a linear range of approximately 0.004 in. (0.1 mm).



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