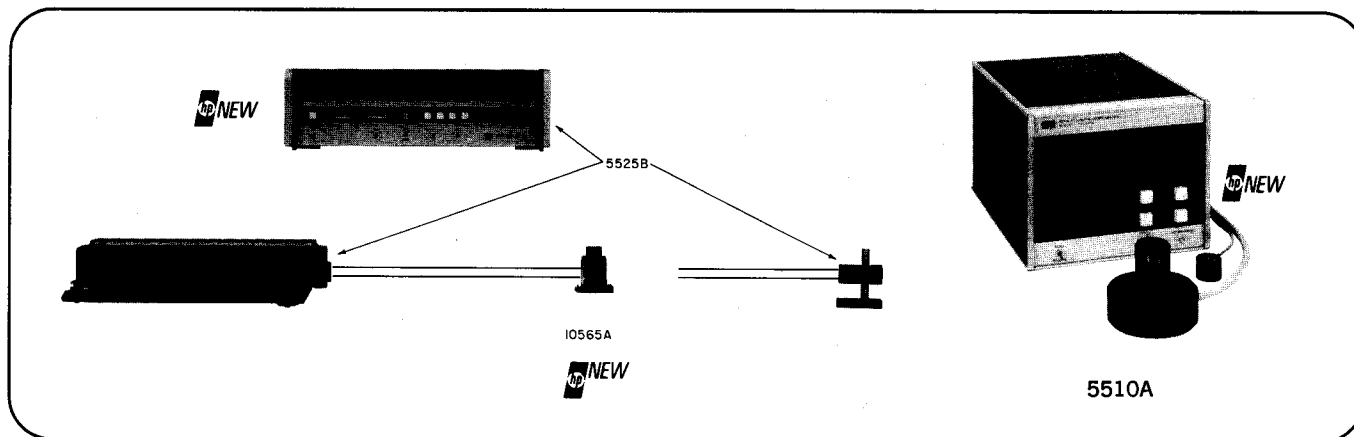




## LASER INTERFEROMETER

Linear and angular displacement

Models 5525B, 10565A, 5510A



### Model 5525B Laser Interferometer

The Model 5525B is a precise linear and angular displacement measuring instrument. It measures and displays distance and flatness to a resolution of 1 microinch, velocity to a resolution of .01 in/min, and pitch/yaw to a resolution of .1 arc-second. It consists of three parts—the 5500 laser head, 5505 display chassis and 10550 retroreflector. The 5525B is self tuning and has instant warm-up. Using a unique method of optical heterodyning, the 5525B is an A-C system, quite superior to D-C systems used in other laser interferometers. It functions well in adverse environments such as a machine shop. Even the small vibrations which perturb the ordinary interferometer can be averaged out if desired.

*Applications* of the 5525B: It is ideal for calibration of precision metrology instruments and step-and-repeat cameras, parts inspection, and machine tool calibration. Back-panel BCD output allows easy computer interfacing or use in closed-loop servo systems. Further applications include vibration analysis, when used in conjunction with an HP 5452A Fourier Analyzer.

*Options* available include *bending optics* to facilitate use in tight places, a *digital recorder*, and *quadrature/up-down* real-time pulse output. A custom *error-plotting* scheme using the HP 7035B X-Y recorder is ideal for operational machine tool certification. A *resolution extender* offers an order of magnitude increase in resolution.

### Model 10565A Remote Interferometer

When the Model 10565A is inserted into the beam of the 5525B, only movement of the retroreflector with respect to the remote interferometer is measured. This makes possible a great reduction in the measurement path and allows the laser source to be removed some distance from the measurement area. With the addition of a few simple optical components, the 10565A can be used to measure pitch, yaw, straightness/flatness, and make differential or non-contacting measurements.

### Model 5510A Automatic Compensator

The Model 5510A provides the 5525B Laser Interferometer with continuous, on-line automatic compensation for

the effects of air temperature, pressure and humidity on the wavelength of light with one ppm accuracy. It also compensates for the effect of material temperature on measured dimensions. Sensor values and other compensation factors may be read out on the interferometer display.

### Specifications, 5525B

- Accuracy:** 5 parts in  $10^7$ ,  $\pm 1$  count.
- Resolution:** (English/Metric units selected by front panel switch).
  - Normal and smooth modes:** 0.000,01 in (0.1 microns).
  - X10 mode:** 0.000,001 in (0.01 microns).
- Velocity:** 0.000,1 in/sec; 0.01 in/min (0.001 mm/sec; 0.1 mm/min).
- Max. operating range:** distance: 200 ft (60 m); velocity: 720 in/min (300 mm/sec).
- Power requirements:** 115 or 230 V  $\pm 10\%$ ; 50 to 60 Hz.
- Power consumption:** 150 watts.
- Overall dimensions:** display: 5.53" high x 16.75" wide x 13.25" deep (141 mm x 436 mm x 337 mm).
- Interferometer head:** 5.00" high x 7.00" wide x 20.70" long (127 mm x 179 mm x 526 mm).
- Weight:** display: 24 lbs (10,9 kg).  
Interferometer head and retroreflector: 19.5 lbs (8,94 kg).

### Specifications, 5510A

- Accuracy:**  $\pm 1.0$  ppm.
- Temperature:**  $\pm 0.2^\circ\text{F}$  ( $0.1^\circ\text{C}$ ), range of 55-105°F (13-40°C).
- Pressure:**  $\pm 0.03$  in Hg (0.75 mm), range of 22-31 in (560-790 mm).
- Humidity:**  $\pm 10\%$  RH, range of 10-100% RH.
- Laser interferometer/automatic compensator system accuracy:**  $\pm 1.5$  ppm  $\pm 1$  count in least significant digit (2 counts in metric).
- Coefficient of expansion range:**  $\pm 29.9$  ppm/ $^\circ\text{F}$  or  $^\circ\text{C}$ .
- Power requirements:** power supplied by 5505A Laser Display.
- Dimensions:** 6.25" high x 7.75" wide x 11" deep (159 mm x 197 mm x 280 mm).
- Weight:** 10.8 lbs (4,9 kg).

<b>Price:</b> 5525B Laser Interferometer		\$11,500
Option 002 Quadrature/Pulse Output	add	\$350
Option 010 Error Plotting Output	add	\$700
Option 011 Error Plotting System	add	\$1685
Option 020 Digital Recorder	add	\$1210
Option 040 Beam Bender/Alignment Mirror	add	\$595
Option K02 Resolution Extender	add	\$800
5510A Automatic Compensator		\$3750
10565A Remote Interferometer		\$2450