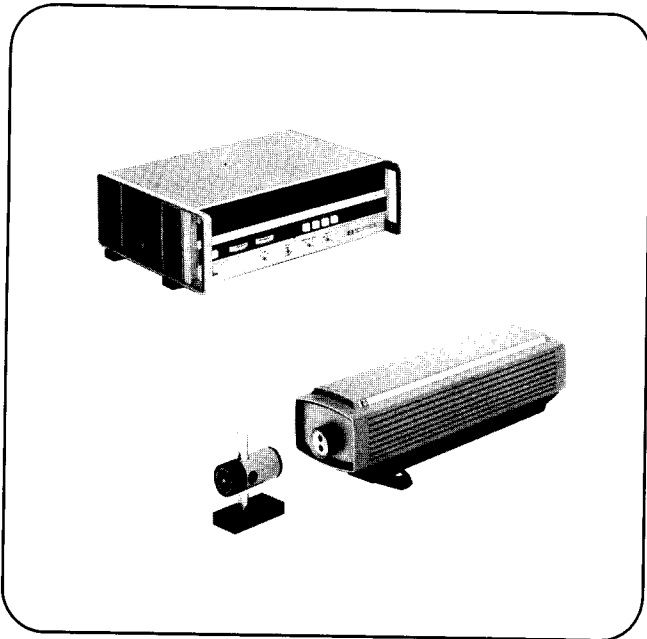


LASER INTERFEROMETER

Operational Simplicity with 1 μ in Resolution
Model 5525A



DIMENSIONAL METROLOGY



General Description

The Model 5525A Laser Interferometer is a highly precise linear distance measuring instrument. It measures and displays distance or velocity to a resolution of 1 microinch and .01 in/min respectively. The laser and interferometer optics are mounted on a rigid, 3-point mounted base, while the counting, computing and display electronics are contained in a separate unit. A retroreflector completes the 5525A system.

Features

Set-up and operation is simple. The 5525A is ready for use the instant it is switched on; tuning is automatic. A unique principle of optical heterodyning, using a specially designed Zeeman split laser, mixes two slightly different optical frequencies to give a frequency which can be counted using known counting techniques. This makes possible an a-c system which is vastly superior to d-c systems used in other laser interferometers, especially in adverse operating environments.

There are four modes of operation. NORMAL mode resolution is 10 microinches or 0.1 microns. The SMOOTH mode displays to the same resolution but eliminates jitter by smoothing vibration with digital low-pass filtering. In the third mode, X10, resolution is extended to 1 microinch or 0.01 microns. An internal time reference is included for velocity measurement up to 720 in/min or 300mm/s and is selected by the fourth mode button.

Other features include BCD output, programmability, simple circuit check buttons, English or metric readout, and manual and optional automatic compensation.

Applications

Equally suitable for shop and laboratory the 5525A offers significant benefits wherever there is a need for accurate, rapid measurement of distance or velocity. In the manufacture of integrated circuits the 5525A can be applied to mask-making, step and repeat cameras and other precision positioning opera-

tions. Machine-tool and metalworking industry applications include transducer and machine tool calibration, and parts inspection. In addition it can be built into machine tools or measuring machines as the distance transducer. A rear panel connector provides digital signals for closed-loop operation.

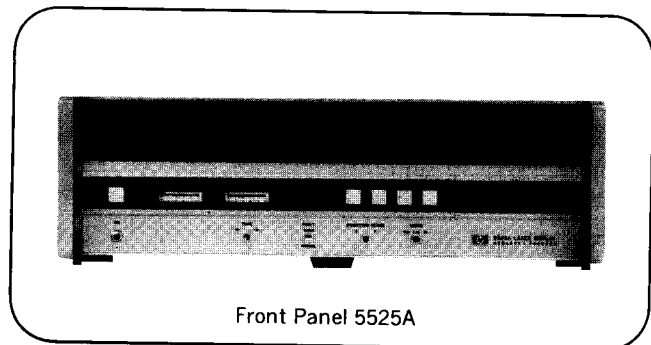
Options

Optional error-plotting provides a graph in real time of position error versus desired position, offering major time-savings in the calibration and evaluation of machines and positioning systems.

The Automatic Compensator eliminates the need for operator attention to the environment by correcting automatically for changes in air density and part temperature effects. Other options include a 90° Beam Bender and a Digital Recorder.

Specifications

- Accuracy:** 5 parts in 10^7 , ± 1 count
Resolution: (English or Metric units selected by front panel switch)
Normal and Smooth modes: 0.000, 01in (0.1 microns)
X10 mode: 0.000, 001in (0.01 microns)
Velocity: 0.000, 1in/sec: 0.01in/min (0.001mm/sec; 0.1mm/min)
Max. Operating Range:
Distance: 200 feet (60m)
Velocity: 720 in/min (300mm/s)
Outputs: BCD for printer, computer, etc. Incremental analog for plotter with optional Error Plotting board.
Power Requirements: 115 or 230 V $\pm 10\%$; 50 to 60 Hz.
Power Consumption: 150 watts
Overall Dimensions:
Display: 5.53 in. high x 16.75 in. wide x 13.25 in. deep (141 mm x 436 mm x 337 mm).
Interferometer Head: 5.00 in. high x 7.00 in. wide x 20.70 in. long (127 mm x 178 mm x 526 mm).
Weight:
Display: Net 24 lb (10.9 kg.), shipping 27 lb.
Interferometer Head and Retroreflector: Net 19.5 lb. (8.94 kg.), shipping 36.5 lb.



Front Panel 5525A

Price:		
5525A	Laser Interferometer	\$11,500
Opt. 010	Error Plotting Board	add 700
Opt. 011	Error Plotting System (includes 7035B X-Y Recorder)	add 1,685
Opt. 020	5055A Digital Recorder	add 1,200
Opt. 030	Automatic Compensator	*
Opt. 040	90° Beam Bender	add 595

*Contact nearest HP Sales Office; price to be announced.