

World's Most Versatile 40mm Fizeau Interferometer

The Intellium[™] Z40 interferometer provides non-contact measurement of flat or spherical surfaces and transmitted wavefront measurement of optical components and assemblies. A wide range of operational features, data analysis capabilities, and accessories are available. Measurements can be made using simple basic visual fringe inspection, static fringe analysis, or phase-modulated interferogram analysis. The Intellium[™] Z40 uses IntelliWave the #1 independent interferometry software. The Intellium[™] Z40 provides flexibility to handle most of today's industrial applications at significantly reduced cost compared to other instruments.

Imagine the possibilities. Measure plastic or glass optical components such as flats, prisms, lenses, precision metal parts, bearings, sealing surfaces, polished ceramics, and contact lens molds. Thinking of other possibilities? Call us now to see if we have the solution for your measurements needs.

Thinking about quality and support? The Intellium[™] Z40 is built rock solid. There are no motors inside to break down. You can even feel safe about moving it because the Intellium[™] Z40 is so small you can even carry it on a plane. 'No technician necessary' for installation.

Main Hardware Features

- ➤ World's smallest 1.5" Fizeau interferometer.
- ➤ 1x to 6x zoom and focus (standard features).
- Constant intensity with zoom.
- ➢ Fast two spot alignment with remote.
- Static or phase-shifted acquisition and analysis.
- Rugged design. No internal motors to break down.
- Choose from a variety of configurations including vertical/horizontal configurations, radius of curvature measurements, and a 90 degree Newton Ring system.
- Many accessories to choose from including reference spheres/flats, beam expanders/reducers, attenuators, optical meters, video printers, and isolation tables.
- > Upgrade to other configurations as needed.
- Low purchase and operating cost compared to other instruments.

IntelliWave Software Features

- Phase-shifted or static acquisition and analysis
- > Peak-to-Valley, RMS measurements, Strehl Ratio
- Zernike and Seidel analysis
- Diffraction analysis (PSF, MTF, Encircled Energy)
- Geometric analysis (Geometric Spot Diagrams, Encircled Energy)
- Automation for factory floor applications
- > Power filtering and averaging features for noisy data
- ▶ Interface with MATLABTM, IDLTM, MS ExcelTM, and LabVIEWTM





Intellium [™] Z40 SPECIFICATIONS								
Performance								
Accuracy ¹	λ/100 PV							
Instrument Precision ²	λ/1000							
PV Repeatability ³	λ/300							
RMS Repeatability ³	λ/2000							
Spatial Resolution	640 x 480							
Height Resolution	λ/120							
Acquisition Time	300 ms							
Digitization	8 bits							
Averaging Modes	Intensity and Phase							
Laser Beam								
Source	Helium-Neon, 632.8 nm, 1 mw							
Test Beam Diameter	1.5" (38 mm)							
Polarization	Circular							
Coherence	>100 meters							
Controls								
Power	On/Off Switch							
Zoom (6X)	Potary dial (constant intensity)							
Intensity	Rotary dial							
Alignment Mode	Flectronic Switch (remote no motors)							
	Electionic Switch (Teniote, no motors)							
Ontical								
Zoom Range	6.1							
Alignment	Simple two spot alignment							
Alignment View	± 1.8 degrees							
Warm up time	< 30 min							
Video								
Camera	RS170, 796 x 494 pixels							
Display	Computer monitor or video monitor							
Electrical	110/240 Volts, 50/60 Hz, 50 watts							
Power								
Machaniaal								
Dimonsions	4 5 [°] x 5 0 [°] x 11 5 [°]							
Weight	$\begin{array}{c} 4.5 X \; 5.0 X \; 11.5 \\ 10 \; 1b \; (4 \; 5 \; K \; \alpha) \end{array}$							
weight	10 10 (4.3 Kg)							
Computer (optional)	DELLPC							
Computer (optional)								

Measurements assume reasonable vibration suppression (isolation table, etc.). 1) Absolute system accuracy using 3-Flat Test.

Precision is the residual RMS error of the difference of two consecutive

measurements, each with 20 averages. Results achieved using 100 measurements.

3) Repeatability is for 100 measurements of the same part with 20 averages per set.

Z40 INTERFEROMETER



Configurations

- Vertical and horizontal configurations
- ➢ Static or Phase-Shifting
- Radius of Curvature
- ➢ 90 Newton Ring Checker

Accessories

- Reference optics (see lower left)
- Video printer
- Desk top isolation tables 500x600mm or 430x530 mm

Computer Workstations

- State-of-the-art computer workstation with IntelliWave software pre-installed.
- All hardware interfaces pre-installed for complete IntelliumTM Z40 interferometer data acquisition.

Reference Optics											
	TS									TF	
F/#	0.6	0.7	1.0	1.5	2.0	3.0	4.0	6.0	6.5	-	
Diameter (mm)	40									40	
Accuracy	$\lambda/10$								λ/15	λ/20	