MarSurf

MarSurf FI 1100 Z
Intellium™ Z100
FULL FEATURED 4“ (100 mm) FIZEAU INTERFEROMETER

Mahr

EXACTLY

MarSurf FI 1100 Z

High Accuracy Measurement Capability with Unsurpassed Flexibility & Versatility

The MarSurf FI 1100 Z interferometer provides non-contact measurement of flat or spherical surfaces along with transmitted wavefront measurements of optical components and assemblies. Measurements may be made using basic visual fringe inspection, static fringe analysis, or phase-modulated interferogram analysis. The MarSurf FI 1100 Z may be integrated with the world-renowned IntelliWave™ acquisition and analysis software to provide the end user with superior measurement and analysis capability. The MarSurf FI 1100 Z provides the versatility and flexibility to handle today's advanced applications with an unrivaled cost – performance benefit.

Main Features & Benefits

- Total USB connectivity option (laptop or desktop) with 1k x 1k true spatial resolution
- Excellent versatility, stability and repeatability
- 1x to 6x zoom, focus and attenuation controls
- Vibration-insensitivity may be accomplished via Mahr's IntelliPhase™ static spatial carrier acquisition and analysis software
- Compact, lightweight and rugged design
- Compatible with all industry standard 4" (100mm) reference optics and accessories
- High accuracy measurements at an affordable price
- Configurations include horizontal, vertical look up and vertical look down
- Optional workstations for flat and short to long radius of curvature measurements

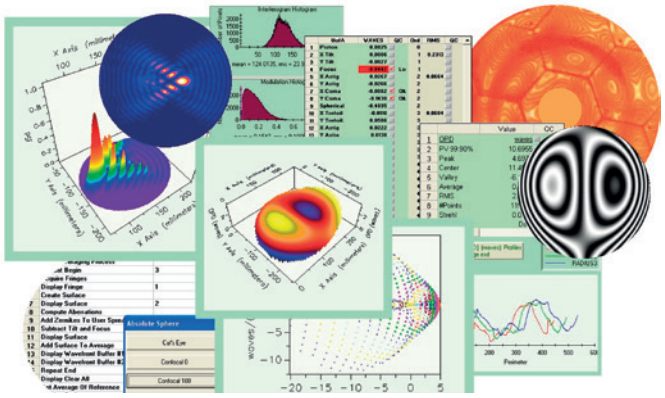
MarSurf FI 1100 Z

Applications

- Measurement of flat, concave or convex surfaces
- Prism, corner cube, wedge angle & homogeneity measurements
- Measurement of machined, ceramic, and wafer/disk surfaces
- Wavefront analysis of optical systems & components
- Integration into OEM systems

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 MATLAB™, IDL™, MS Excel ™, and LabVIEW™
- IntelliPhase™ – static spatial carrier analysis



Reference Optics

	TS					TF
F/#	0.75	1.5	3.3	7	11	–
Diameter (mm)	130					126
Height (mm)	93	88	70	92.5	97	30
Weight (kg)	3	2.9	2.1	2	2	0.7
Radius of TS	47	120	299	665	1050	–
Accuracy	≤λ/10					≤λ/20

4" Transmission Flats

Reference Spheres

MarSurf FI 1100 Z

Specifications

Technology	**Static IntelliPhase™ & PZT Phase-Shift**
System	
Test Beam	102 mm (4.0")
Zoom	1X to 6X
Focus	± 2.0 m
Attenuation	Adjustable
Alignment	Simple two spot alignment
Alignment View	± 1.5 degrees
Part Viewing	Live video on computer screen
Performance[1]	
Repeatability 3-Flat[2]	λ/300 PV
RMS Repeatability[3]	≤ 1 Å
Calibrated Accuracy	λ/100
Height Resolution	λ/8000
Spatial Resolution	1k x 1k
Digitization	10 bits (standard – other options available)
Acquisition Time	300 ms
Averaging Modes	Intensity and Phase
Laser	
Wavelength	632.8 nm SLM HeNe or 1064 nm LD
Polarization	Circular
Coherence	≥ 100 m
Electrical & Mechanical	
Power	110/240 Volts, 50/60 Hz, < 25 Watts
Dimensions	338 mm x 190 mm x 254 mm 13.5" x 7.5" x 10"
Weight	14 kg (31 lb)
Environment Requirements[4]	
Temperature	15 to 30 °C (59 to 86 °F)
Rate of Temp. Change	< 1.0 °C per 15 min
Humidity	Relative 5 % to 95 %, non-condensing
Vibration Isolation	Required for frequencies from 1 Hz to 120 Hz
Computer	High Performance – Current Technology

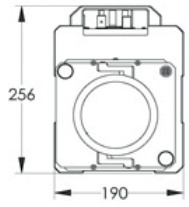
1) Vibration free environment with temp. change < 1 °C/15 min. between 20-23 °C, no thermals
2) 3 sigma repeatability of 3-Flat Test with 32 averages per set
3) 3 sigma of the rms for 128 data sets, each an average of 32 measurements
4) These parameters state conditions which the system can operate; they do not represent the environmental stability required to meet performance.

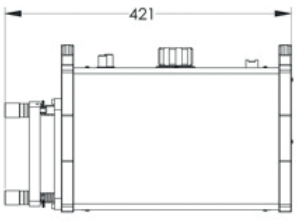
Configurations
- Vertical and horizontal, operates in ANY orientation
- Static or Phase-Shifting
- Short and long radius of curvature options

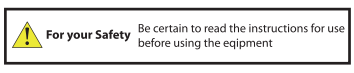
Accessories
- Full set of reference optics
- 102 mm (4") to 33 mm (1.3") beam reducer
- 102 mm (4") to 150 mm (6"), 200mm (6") and 300 mm (12") beam expanders
- Desktop isolation table – 457 mm L x 508 mm W x 117 mm H
- Isolation table – 2400mm L x 1200 mm W x 300 mm T x 700 mm legs
- Compatible with all 4" industry standard reference optics

Computer Workstations
- High performance computer with IntelliWave™ software pre-installed
- All hardware interfaces pre-installed for complete MarSurf FI 1100 Z interferometer data acquisition

IntelliWave™ Software
- Multiple fringe unwrapping algorithms
- Multiple aberration polynomial sets for analysis
- Diffraction and geometric analysis
- Derivatives and Integrals
- Complex masking including unlimited mask groups
- Fiducials and image transformations
- Measurements: Wavefront, Wedge, Angle, Prisms,
- 3-Flat Test, Two Sphere Test, Homogeneity
- Interface: MATLAB™, IDL™, LabVIEW™, Excel™
- IntelliPhase™ – static spatial carrier analysis







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