

MarOpto



MarOpto FI 1040 Z Full Featured Fizeau Interferometer for Flat or Spherical Surfaces

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EXACTLY

MarOpto FI 1040 Z



MarOpto FI 1040 Z is shown with an optional vertical workstation.

Non-Contact and Transmitted Wavefront Measurement

The MarOpto FI 1040 Z is a full-featured interferometer that can provide non-contact measurement of flat or spherical surfaces and transmitted wavefront of optical components and assemblies. The MarOpto FI 1040 Z is ideal for measuring optical components such as flats, prisms, lenses, or precision metal parts such as bearings, sealing surfaces, contact lens molds, or

polished ceramics. Measurements can be made using simple basic visual fringe inspection, IntelliPhase static spatial carrier analysis, or phase-modulated interferogram analysis. The MarOpto FI 1040 Z provides flexibility to handle today's industrial applications at an unprecedented value.

Main Features and Benefits

- 6x zoom for measuring parts as small as 1.5mm diameter
- 3 modes of interferogram analysis – Phase shifting, IntelliPhase – static spatial carrier analysis, or fringe tracing (automated or manual)
- Small size and form factor design allows easy integration into OEM systems
- Compact, rugged design
- Transmission spheres from F/0.7 to F/6.0

MarOpto FI 1040 Z

Specifications

System

Test Beam	38 mm (1.5")
Zoom	6x, manual (0.5x to 3x)
Focus	± 1.5 m, manual
Intensity	Rotary Dial
Alignment	Simple two spot alignment
Alignment view	± 1.5 degrees
Part viewing	Live video on computer screen

Performance¹

Repeatability 3-flat ²	$\lambda/300$ PV
RMS repeatability ³	$\leq 1 \text{ \AA}$
Calibrated accuracy	$\lambda/100$
Height resolution	$\lambda/8000$
Spatial resolution	640 x 480 / 1k x 1k
Digitization	8 bits / 10 bits
Acquisition time	300 ms
Averaging modes	Intensity and Phase

Laser Beam

Source	Helium-Neon, 632.8 nm (other wavelengths on request)
Polarization	Linear
Coherence	$\geq 100 \text{ m}$
Laser class	2

Electrical & Mechanical

Power	110/240 Volts, 50/60 Hz, 155 Watts
Dimensions	335 mm x 195 mm x 160 mm 13.2" x 7.7" x 6.3"
Weight	7.25 kg (16 lb)

Environment Requirements⁴

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

- 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 configurations
- Static or phase shifting
- Radius of curvature

Accessories

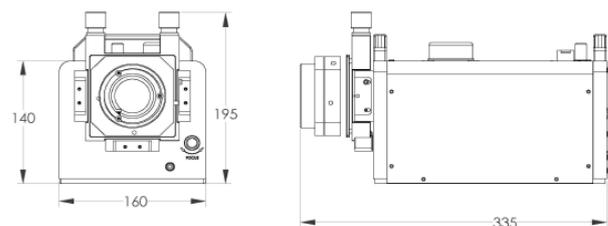
- Reference optics
- Printer

Computer workstations

- State-of-the-art computer workstation with IntelliWave software pre-installed
- All hardware interfaces pre-installed for complete MarOpto FI 1040 Z interferometer data acquisition

IntelliWave software

- Five polynomial sets to choose from
- 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
- Interfaces: IDL™, LabVIEW™, Excel™
- IntelliPhase – static spatial carrier analysis



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