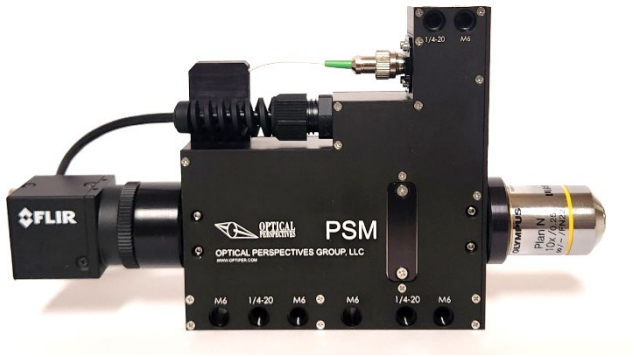
OPTICAL PERSPECTIVES

Maximizing optical system performance

POINT SOURCE MICROSCOPE (PSM)

Center and Align with One Tool

The Point Source Microscope makes optical system alignment easy and deterministic, letting you perfectly align each component's center-of-curvature and on-axis focused beam to the exact specifications. With both bright field imaging and autostigmatic microscopy, the PSM lets you align all optically important features quickly. Ergonomic features such as a bright laser diode setting make alignment simple, even in full room light.



The PSM lets you align the actual optical features, rather than relying on mechanical datums, so you can relax mechanical tolerances on your optics and mounts to reduce system costs. Use the PSM for everything from simple optics to complex systems such as Offner relays, atmospheric error correction systems and off-axis telescopes.

Rapidly Inspect Lens Quality

The PSM serves as an excellent incoming quality inspection tool, enabling fast verification of image shape, with λ/8 sensitivity, so you can easily resolve out-of-specification optics without the expense or complication of using an interferometer. Further, the PSM can measure radius of curvature for production control, verify whether a lens meets specifications, or verify that a lens is correctly oriented. The PSM can even be mounted on a CMM for precise, non-contact x-y-z location.

Align Aspheres

The PSM is invaluable for aligning aspheric optics, including off-axis aspheres. The PSM locates point images and shows the image shape as a star test. This unique system reduces alignment error to near zero by keeping the image in the correct location while adjusting the asphere to minimize aberrations.

A Complete, Portable System

The PSM comes complete with laptop and PSM Align software for use anywhere in your shop or test setup. Its built-in autocollimation mode lets you use the PSM as an alignment telescope or to quickly measure wedge. An optional centering bench makes system alignment intuitive, and a range of objectives and mounting hardware make it easy to tailor the PSM to applications throughout your shop.

- **Align all optically important features to exact specifications**
- **Align complex optical systems using a CMM or simple fixturing**
- **Reduce alignment time from weeks to hours**
- **Reduce mechanical design complexity and cost**

Optical Perspectives Group, LLC, 7011 E. Calle Tolosa, Tucson, AZ 85750, USA, www.optiper.com, +1 520-529-2950, info@opticalperspectives.com

Specifications

System Type	Portable, high-resolution video microscope
Probe	Non-contact, 3D distance measuring probe for x-y-z, 5-axis stage or CMM
Objectives	10X Olympus standard; 4X or 20X optional
Optional Objective Mounts	Nikon M25; rms, Mitutoyo, C-mount, Thorlabs SM1 and Right Angle Adapter optional
Working Distance	> 10.6 mm with 10x Olympus objective
Lateral Sensitivity	Over +/- 0.5 mm FOV, 0.1µm sensitivity with 10X objective
Axial Sensitivity	±2 µm with 10x objective
Angular Sensitivity	± 1.4° range, ±1 arc second sensitivity when used as an autocollimator (no objective)
Video Camera	FLIR BFS-U3-16SM, 1440 x 1080 pixels, 1/2.9" format, with 3.46 um pixels, 16 bit monochrome USB3.1. Other cameras optional
Light Sources	Internal: full field 635 nm LED and laser diode point source, software controlled Bright setting of laser diode for ambient lighting initial alignment External: FC/APC connector for user supplied external fiber source
Options	Optical Centering Station 5-axis stage with tip/tilt, custom fixturing
Computer	Customer supplied computer requires 16 Gb RAM, 500 Gb storage and a 1920x1080 display or more
Interfaces	All USB3
Software	PSMAlign™ Python based software for real-time alignment Control, AI4Wave wavefront sensing software is an option at an extra cost
Weight	600 grams including10X objective and camera
Dimensions	199 x 107 x 30 mm deep with objective and camera

Applications

- Radius measurement
- Optical centering
- Use as an autocollimator
- Aspheric mirror alignment
- Monitor optical assembly

Axicon Grating Centering Station

Find out more ways the Point Source Microscope can speed assembly and alignment; visit www.optiper.com

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