



# OPTICAL PERSPECTIVES

## Maximizing optical system performance

### POINT SOURCE MICROSCOPE (PSM)

#### Center and Align with One Tool

The Point Source Microscope makes optical system alignment rapid and deterministic, letting you precisely align each component's center-of-curvature and focus to the exact design specifications. With confocal bright field imaging and autostigmatic microscopy, the PSM lets you align all optically important features quickly. Ergonomic features such as a bright laser diode mode make initial alignment simple, even in full room light.

The PSM lets you align the optically significant system conjugates, 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 spectrometers, anamorphic and catadioptric systems.

#### Rapidly Inspect Lens Quality

The PSM serves as an excellent incoming quality inspection tool, enabling fast verification of image shape, with  $\lambda/8$  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 center of curvature 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.

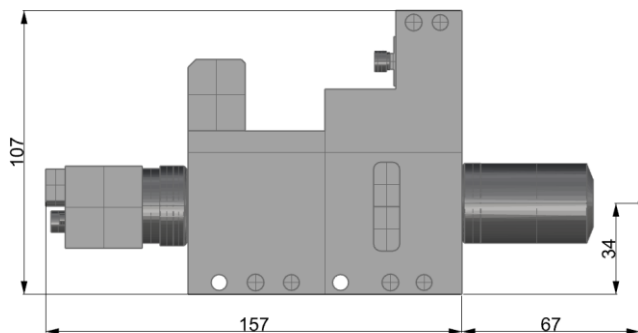
#### A Complete, Portable System

The PSM comes complete with a laptop computer and PSM Align software ready to use as soon as computer boots. All interfaces to the laptop are USB. The PSM is completely powered via USB from the laptop for use anywhere in your shop, test setup or in the field away from an AC source.

- Align all optically significant features to exact specifications
- Use as an autocollimator by simply removing the objective
- Align complex optical systems using simple fixtures or a CMM
- Reduce alignment time to improve productivity
- Relax mechanical tolerances and design complexity

# Specifications

System Type	Portable, high-resolution video microscope
Probe	Non-contact, 3D displacement measuring probe for Use on a x-y-z stage or CMM
Objectives	10X Nikon standard; 4X or 20X optional
Objective Mounts	Nikon M25 standard; rms, Mitutoyo, C-mount, Thorlabs SM1 and Right Angle Adapter, optional
Working Distance	> 17 mm with 10x 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, 8 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 Bench rail Custom fixturing
Computer	Dell laptop with USB3 interface, Windows 10 standard; desktop computer optional
Interfaces	All USB3
Software	PSMAlign™ software for real-time alignment and Control (LabVIEW™ license included)
Weight	600 grams including 10X objective and camera
Dimensions	189 x 107 x 31 mm deep with objective and camera



# Applications

- Radius measurement
- Optical centering
- Use as 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](http://www.optiper.com)

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