# 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, perfectly aligning each component's center-of-curvature and focus to the exact design specifications. With confocal bright field imaging and autostigmatic microscopy, the PSM enables you to align all optically important features quickly and precisely. Ergonomic features such as a bright laser diode setting simplify initial alignment, even in a fully lit room.

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 quality 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 process control, verify a lens meets specifications, or verify that a lens is correctly oriented. The PSM mounts 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 quality 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 Python-based PSM Align-4 software, ready to use as soon as it is installed on your computer. USB3 cables are the two interfaces to your computer. The PSM is completely powered via USB, so there is no need for an external power source.

- **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**

# Specifications

| System Type | Portable, high-resolution autocollimator, video inspection and autostigmatic microscope |
|---|---|
| Probe | Non-contact, 3D distance measuring probe for 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, 10x more with AI4Wave |
| Angular Sensitivity | ± 1.4° range, ±0.5 arcsecond sensitivity when used as an autocollimator (no objective) |
| Video Camera | FLIR BFS-U3-16SM, 1440 x 1080 pixels, 1/2.9" format, with 3.45 um pixels, 16 bit monochrome USB3.1. Other cameras optional |
| Light Sources | Internal: full field 635 nm LED and 640 nm 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 | Customer supplied. Requires Windows 10 or more, 1440x1080 screen resolution, 8 GB RAM, 256 GB hard drive, Intel i5 or better, or equivalent. |
| Interfaces | All USB3 to computer |
| Software | Python based PSM Align ™ software |
| Weight | 600 grams including 10X objective and camera |
| Dimensions | 223 x 107 x 31 mm deep with objective and camera |



# Applications

## Autocollimator
## Radius measurement
## Optical centering
## Aspheric mirror alignment
## Monitor optical assembly
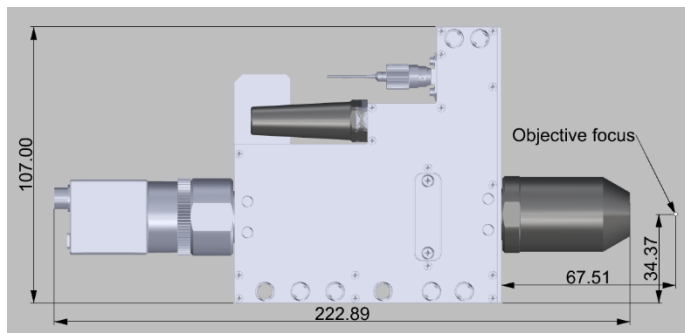


# Axicon Grating Centering Station

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

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