



# Opto-Alignment Technology

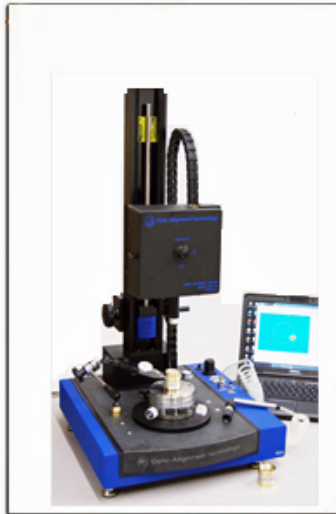
Solutions for Optical Systems Manufacturing

1034-A Van Buren Avenue | Indian Trail, NC 28079-5541 | (704) 893-0399 Tel | (704) 893-0403 Fax | www.OptoAlignment.com

## Laser Alignment and Assembly Station™ (LAS)

(A Laser Reflection Based Metrology Instrument)

The Laser Alignment Station is capable to perform precision lens centration and tilt measurements on the following samples without changing objectives: Radius ranging from 2.0 mm to infinity (plano), Lens diameters from 1 mm to 800 mm+, including cylinder, aspheric and parabolic surfaces. LAS units come in three basic designs and the finished instruments are usually custom built on one of these base models to meet the customer's specific application. The user friendly software "CalcuLens Assembly" is standard to all LAS models with some variations. The LAS with "CalcuLens Inspection" is a very powerful metrology tool for quality assurance of completed, assembled lenses.



LAS-BT



LAS-UP



LAS-LS

### Compact, Bench-top Precision

**LAS-BT** Bench-top base model includes: 633 nm laser-reflection based Optical Module. 380mm Vertical linear focusing movement with multi-speed stepper motor and encoder. 100 mm Ø motorized air-bearing (ABS), vacuum through center. "Calculens Assembly" software for measuring alignment errors of top two surfaces'. Measuring resolution **1-3 micron TIR**, depending on the lens specs and optomechanical design. Mechanical indicator. Integrated vacuum wand with vacuum cup for lens handling. Net weight 98lb.

**Options:** Vertical focusing travel 508 mm. "Calculens 3D" software for center of curvature plotting and measuring separate tilt and decenter errors of top two surfaces. Rotary encoder for ABS. Custom brass chucks. Self centering three-jaw chuck. Electronic indicator with Ultra light Probe.

### Midsize, Ultra Precision

**LAS-UP** Free standing base model includes: 633 nm laser-reflection based Optical Module. 800 mm vertical linear focusing movement with multi-speed servo motor. 100 mm Ø motorized air-bearing, vacuum through center. "Calculens Assembly" software, measuring resolution 0.2 micron TIR depending on lens specs and optomechanical design. Load capacity 113 kg.

**Options:** MWIR or LWIR Optical Module. Vertical focusing travel 1000 mm. ABS diameter 150-300 Rotary encoder. "Calculens 3D" software. "Calculens Inspection" software for measuring in-stack (embedded) lens alignment values, TIR. Electronic indicator with ultra-light probe. Custom brass chucks. Self centering three-jaw chuck. Center thickness and airspace measurement.

### Large, Ultra Precision, for Lithography Optics Alignment

**LAS-LS** Custom designed for large lens-systems assembly like microlithography stepper lenses. Optical module wavelength options from Visible to LWIR. Up to 2000 mm vertical linear focusing travel. 400-800 mm Ø motorized or manual air-bearing, vacuum through center. Rotary encoder. "Calculens 3D" and "Calculens Inspection" software for measuring in-stack (embedded) lens alignment values, TIR. Measuring resolution 0.1 micron centration, depending on the lens specs and optomechanical design. Center thickness and airspace measurement.



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## Laser Alignment and Assembly Station™ (LAS)

Standard ■ Option □

	LAS-BT	LAS-UP	LAS-LS
<b>Light Source</b>			
Red Laser	■	■	■
Green Laser	□	□	□
MWIR Laser		□	□
LWIR Laser		□	□
<b>Air-bearing, (vacuum through)</b>			
Air-bearing Ø 100 mm	■	■	
Air-bearing Ø 150 mm		□	
Air-bearing Ø 200 mm		□	
Air-bearing Ø 300 mm		□	
Air-bearing Ø 400 mm			□
Air-bearing Ø 600 mm			□
Air-bearing Ø 700 mm +			□
<b>Tip-tilt module</b>	■	■	■
<b>Rotary Encoder</b>	■	■	■
<b>Air-bearing motorized</b>	□	□	□
<b>Measuring Head</b>			
Single Objective For Spheric, Aspheric, Cylindric surfaces	■	■	■
<b>Range of Lens Radii</b>			
+/- 2.0 mm to Plano	■	■	■
<b>Measurement Assessment</b>			
Live Orbit Image on Monitor	■	■	■
Software Numerical Data Display	■	■	■
Centration Measurement Resolution in micro meters	1.0	0.2	0.1
<b>Measurement Head Linear Positioning</b>			
Automatic PC Controlled (Variable Speed)	■	■	■
Linear Travel	(■ 380 mm) (□ 500 mm)	(■ 800 mm) (□ 1000 mm)	(> 1000 mm)
<b>Measurement Modules</b>			
Calculens™ Assembly (measure TIR)	■	■	■
Calculens™ 3D (measure pure tilt or centration)	□	□	□
Calculens™ Inspection (measure alignment in stack)		□	□
In-stack Center Thickness and Air-space	□	□	□
<b>Granite Base</b>	■	■	■
<b>Free Standing Unit</b>		■	■
<b>Bench-top Unit</b>	■		

Final alignment accuracy and lens performance also depends on optomechanical design, lens component specs, quality and assembly-room environment.

OAT reserves the right to correct any errors.