

LAS-UP™ Large, Ultra Precision

Ultimate Precision
for Large Lens Assemblies

INCLUDES:

- Green (520nm) and Red (660nm) laser-reflection based Optical Module
- 1250mm vertical linear focusing movement with multi-speed stepper motor and micron precision linear encoder
- Ø300mm manual air-bearing (ABS) with integrated x/y/tip/tilt stage and vacuum through center
- CalcuLens™ Assembly software for measuring alignment errors of single lens
- Measuring accuracy 0.2 μm centration and 0.5 arcsec tilt, depending on the lens specs and opto-mechanical design
- Maximum axial load capacity 1,000lb (454Kg)
- System weight 3,307lb (1,500Kg)
- System dimensions 36"x32"x118" (914x813x2,540mm)
- System Requirements:
 - Compressed air, pressure: 60PSI (0.004bars)
 - Dry air: 40 Dew point
 - Filter: $\pm 0.005\text{mm}$
 - Air flow: 4 ft³/min (0.113 m³/min)
 - Electrical rating: 120/240V 50/60Hz @ 1Amp

OPTIONS:

- Additional wavelengths: Blue (450nm), NIR (850nm/940nm), SWIR (1550nm), MWIR (4.05 μm), LWIR (9.50 μm)
- Larger rotary air bearing: Ø400 mm
- Extended rotary worktable for larger optics/housings: up to Ø600 mm
- Extended vertical travel: 1500 mm and 2000 mm
- Motorized rotary air bearing
- Custom lens and housing holding fixtures
- CalcuLens™ Inspection software for measuring in-stack (embedded) lens alignment values
- CalcuSurf2D™ real-time profiling/gauging software with 0.1 μm precision USB lever probe for aligning housings and lenses with rotary axis. Non-contact probes also available.
- LAS-DMI™ low-coherence SWIR Distance Measurement Interferometer for the measurement of lens center thickness and air gaps over a 200mm range at $\pm 1 \mu\text{m}$ accuracy ($\pm 0.1 \mu\text{m}$ accuracy and 600mm measurement range options also available)
- LAS-Vertex/ROC™ autofocus-based vertex height measurement at $\pm 2.5 \mu\text{m}$ accuracy for the measurement of air gaps during assembly, lens center thickness and air gaps of cemented or air spaced doublets/triplets (< 50mm stack height), and single lens ROC (0.05% accuracy)
- LAS-ATM™ Aspheric Tilt Measurement of aspheric surfaces
- LAS-IAM™ Image Analysis Measurement (on-axis MTF, EFL & beam deviation) in transmission
- LAS-SPM™ Surface Profiling of single lens/mirror surfaces at 20nm resolution and 200 nm accuracy



CalcuSurf 2D™ v2.0

Profiling software for LAS™ stations with USB integrated electronic contact probes



CalcuLens™ v2.8

Alignment Software for LAS™ Stations

Laser Alignment and Assembly Station™ (LAS™)

Options Matrix

	● Standard ○ Option	LAS-BT	LAS-P	LAS-UP	LAS-XUP
Light Source					
Blue Laser @ 450nm	○	○	○	○	○
Green Laser @ 520nm	●	●	●	●	●
Red Laser @ 660nm	○	●	●	●	●
NIR Laser @ 850nm/940nm	○	○	○	○	○
SWIR Laser @ 1.55µm	○	○	○	○	○
MWIR Laser @ 4.05µm	○	○	○	○	○
LWIR Laser @ 9.50µm	○	○	○	○	○
Detector					
Visible camera (1600 x 1200)	●	●	●	●	●
Large-Format Visible Camera (2500 x 2000)	○	○	○	○	●
Infrared camera (640 x 480)	○	○	○	○	○
Air-bearing, (vacuum through)					
Air-bearing Ø100mm (optional Ø150mm work table)	●				
Air-bearing Ø150mm (optional Ø200mm work table)			●		
Air-bearing Ø200mm (optional Ø300mm work table)			○		
Air-bearing Ø300mm (optional Ø400mm work table)				●	
Air-bearing Ø400mm (optional Ø600mm work table)				○	
Air-bearing Ø600mm (optional Ø800mm work table)					●
Air-bearing Ø800mm (optional Ø1000mm work table)					○
Tip/tilt/x/y stage	●	●	●	●	●
Rotary Encoder	●	●	●	●	●
Motorized Air-bearing	●	○	○	○	○
Maximum Axial Load Capacity		57Kg	226Kg	454Kg	907Kg
Measuring Head					
Single Objective for Spheric, Aspheric, Cylindric Surfaces	●	●	●	●	●
Range of Lens Radii					
± 0.5mm to Plano	●	●	●	●	●
Measurement Assessment					
Live Orbit Image on Monitor	●	●	●	●	●
Software Numerical Data Display	●	●	●	●	●
Angle Measurement (accuracy in arc seconds)	0.5	0.5	0.5	0.5	0.5
Centration Measurement (accuracy in microns)	0.2	0.2	0.2	0.2	0.2
Measurement Head Linear Processing					
Automatic PC Controlled (variable speed)	●	●	●	●	●
Linear Travel	●	●	●	●	
	(533mm)	(1000mm)	(1250mm)	(2000mm)	
	○	○	○	○	
	(633mm)	(1250mm)	(1500mm)	(3000mm)	
	○	○	○		
	(1500mm)	(2000mm)			
Measurement Modules					
CalcuLens™ Assembly (measure single lens)	●	●	●	●	●
CalcuLens™ Inspection (measure alignment in stack)	○	○	○	○	○
Low-Coherence Center Thickness & Air-Gap (±1µm accuracy)	○	○	○	○	○
Vertex Height Measurement (± 2.5µm accuracy)	○	○	○	○	○
Aspheric Tilt Measurement (± 2 arcsec accuracy)	○	○	○	○	○
Image Analysis Measurement (MTF, EFL, etc)	○	○	○	○	○
Structural Material					
Granite Base; Granite Column	●	●	●	●	●



LAS-BT



LAS-P



LAS-UP



LAS-XUP

Opto Alignment-USA

1034-A Van Buren Avenue
Indian Trail, NC 28079-5541

T: 704-893-0399

F: 704-893-0403

sales@optoalignment.com

www.optoalignment.com

SPIE Corporate Member

