

Optical Device Characterization

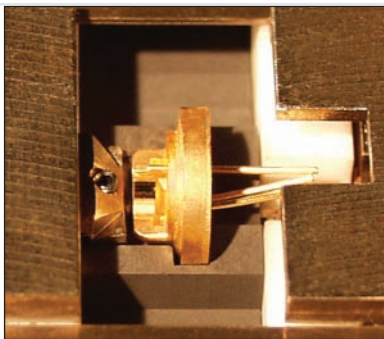
LAB 60

Flexible Photonics Test and Development Station

Palomar Technologies LAB 60 is a modular platform that provides basic automation and active alignment for the test and characterization of a wide range of photonic devices.

KEY FEATURES

- ▶ **Flexible platform** is easily reconfigured for a variety of tests, measurements, and devices
- ▶ **2 to 6 axes** of high-resolution, closed-loop motion for coordinated control and active alignment in X, Y, Z, Pitch, Roll, and Yaw
- ▶ **Machine vision** for accurate device set-up and alignment
- ▶ **Integrated computer control** of test instruments for complete device characterization
- ▶ **User-friendly** data analysis software tools for easy device characterization and measurement
- ▶ **Fully compatible** with our FAST™ Family of automation production platforms for a forward migration path



TYPICAL DEVICES

- ▶ Laser Diodes
- ▶ Receivers
- ▶ Transmitters
- ▶ Discrete Optics
- ▶ AWGs
- ▶ TOSA/ROSA
- ▶ Thin-film Filters
- ▶ VOAs
- ▶ Couplers
- ▶ Splitters
- ▶ Modulators
- ▶ VCSELs
- ▶ Waveguides
- ▶ Switches
- ▶ Collimators

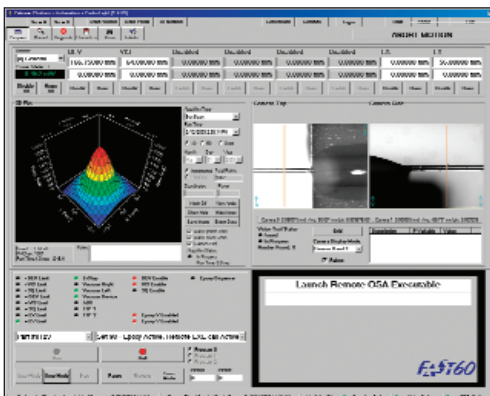
Characterize New Devices, Develop Production Processes — Clear migration path from the lab to the manufacturing floor.

WHY CHOOSE THE PALOMAR TECHNOLOGIES LAB 60?

- ▶ Fine resolution in a long travel motion system enables fine alignment and load/unload from a single, compact positioner
- ▶ Advanced alignment engine for critical nanometer scale positioning
- ▶ Production-grade construction and non-contact drive system ensure long-term, reliable operation in lab or manufacturing environments
- ▶ Open architecture PC bus-based control system is powerful, easy to use and interfaces to any test instruments and programming language
- ▶ Comprehensive product line facilitates migration from component solutions to full inline automation specifically optimized for photonics applications
- ▶ Advanced Process & Photonics Labs available to assist in new device process development
- ▶ Worldwide applications and service support.



▶ **'FAST' Characterization:** The LAB 60's scalable automated platform is ideal for the development of new devices and processes.



▶ **Flexible:** Palomar software integrates easily to third-party software such as LabVIEW for streamlined data collection.

ADVANCED SOFTWARE

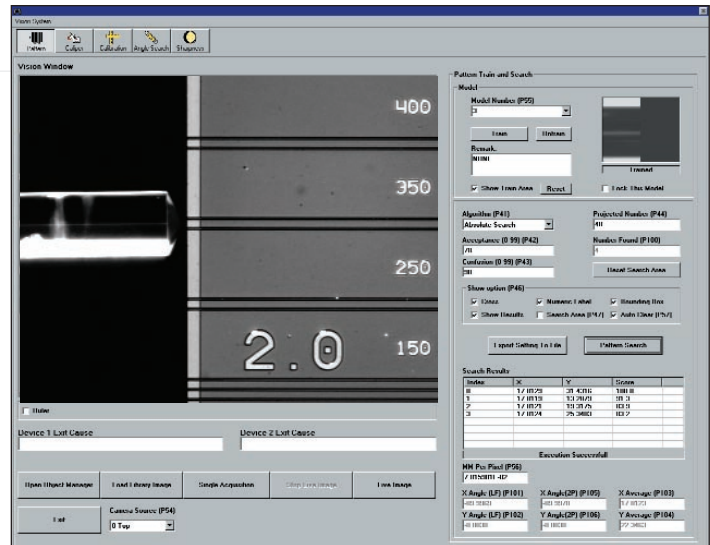
An easy to use yet powerful software toolkit provides all of the functionality needed to create a robust test station or to develop a complete manufacturing process.

- ▶ Advanced data logging/analysis tools to profile devices accurately
- ▶ Data is logged in a standard ODBC database for easy export to any analysis package
- ▶ Wide range of parametric power peaking algorithms and scan routines
- ▶ "Intelligent" part creation wizard allows users to create/program new devices with minimal effort.

POWERFUL MACHINE VISION

A flexible machine vision system is provided to aid in part viewing, measurement, capture, and to acquire first light.

- ▶ Zoom lens for micro- and macroscopic viewing modes from a single setup
- ▶ Comprehensive vision tools include calipers for part measurement/displacement; pattern recognition tool for part identification; and teach-mode for automatic analysis and communication to motion script
- ▶ Convenient manual adjustments for rapid reconfiguration of operational area.



▶ **Machine Vision:** Powerful vision tools accurately identify devices and compute offsets.



FORWARD MIGRATION PATH

The LAB 60 is fully compatible with the complete line of Palomar's automated photonic manufacturing machines including advanced FAST™ series align and attach stations.

- ▶ All LAB 60 components are production-ready, ensuring a seamless transition from the lab to the factory floor
- ▶ Common, modular, software interface means that all software developed is reusable in production machines

▶ **Migrate to Automation:** The LAB 60 is an ideal pre-production tool and brings precision automation to the lab.

MACHINE SPECIFICATIONS

EQUIPMENT SPECIFICATIONS	Alignment Stage	3- or 6-axis FAST 6
	Alignment Stage Travel	X=20mm, Y=5mm, Z=50mm (standard)
	Rotary Stage Travel	Pitch/Roll/Yaw up to 5 degrees
	Motion Controller	8-axis, 150MHz DSP, PCI bus
	Motion Software	ControlLight MMI and process development software
	Base	Steel weldment with casters and levelers
	Mounting	Air-isolated optical breadboard, 3' x 4', 1" spacing, 1/4-20
	Weight	Approx. 700 lbs.

VISION	Framegrabber	Cognex® 8100 series
	Cameras	CCD, 760 x 574 pixel
	Lens	Zoom and focus
	Positioning	Manual
	Lighting	Coaxial, back or other

INSTRUMENTATION	POWER METER	
	Wavelength	850-1650nm
	Power	-50 to +30dBm
	LASER SOURCE	
	Wavelength	1310, 1550, ASE broadband or tunable
	Power	Up to +13 dBm

FIXTURING	Fiber	V-groove clamp
	Array	Manual clamp for arrays up to 64 channels
	Device	Manual clamp or vacuum, TEC and electrical contactors optional

COMPUTER	PC	1.5 GHz, 512 MB RAM, passive backplane (or better)
	Operating System	Windows 2000®
	Monitor	17" flat panel

OPTIONS	Process Scripting
	Automated Setup Axes
	Automated Fixturing
	Industrial Machine Base
	Dedicated Vision Monitors
	230VAC Operation (115VAC standard)
	UPS