

LAF4



Laser Auto Focus & Tracking with 45 degree laser line



Integration
Support

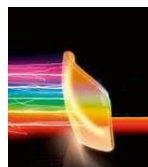
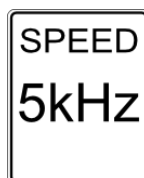
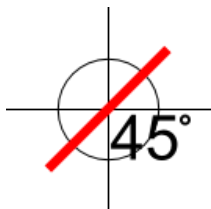


Motor
Controller



User
Interface

- Sensor and processing laser share optical path
- -8.5 to 8.5V analogue distance and measure quality
- software user interface for configuration
- Projects 45 degrees tilted laser line to optimize the performance on patterned surfaces
- 5kHz sampling rate
- For LWD lenses from 2x – 100x VIS, NIR, NUV & DUV



The LAF4P was developed based on the market demand for a Focus tracking system technology enabling real time focus tracking during the laser processing. It based on the LAF4 technology and features special optical design and image processing to minimize the influence of broad band noise coming from the laser process (e.g. plasma). MSG has incorporated the latest CMOS technology together with latest generation of FPGA and micro-controller which results in a System bandwidth up to **5kHz**. In combination with the **optional available stepper motor controller LAF3-C2** it features an autonomous closed loop system. The systems comes with a software interface for testing and configuration.

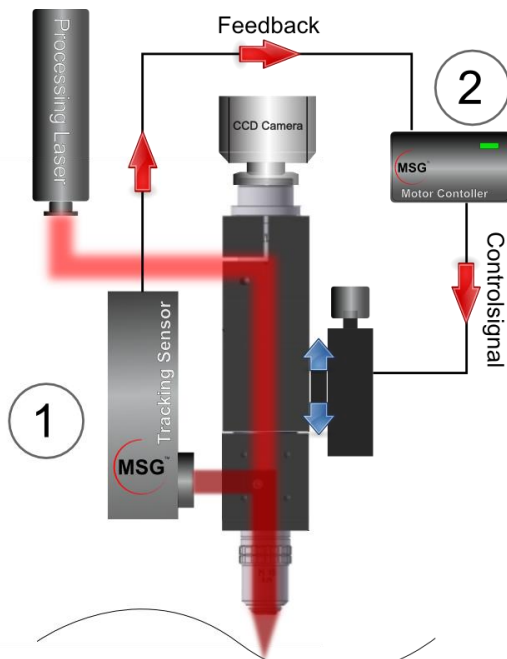
LAF4 Performance Data

Referenced to APO Plan Infinite Microscope Objectives (example)					
Magnification	5x	10x	20x	50x	100x
DOF	14µm	3.5µm	1.6µm	0.9µm	0.6µm
Sample rate Laser	5kHz max.				
Working Range Laser	±12000µm	±4000µm	±1500µm	±500µm	±150µm
Accuracy*	0.5 of Lens DOF				
Light Source	Safety Class III R Wavelength 660nm				
Operation Temperature	+ 5°C to + 50°C				
Beam Shape	45 ° tilted laser line				
Weight Sensor + cable			400gr	140gr	
Weight Interface			400gr		
Recommended BS	50/50				
Laser AF Cycle time			0.1s		Auto Tracking
Image AF Cycle time			0.4s		Auto Tracking
Power	In	+12V DC			
Distance Output	Analog	-8.5 to 8.5V & via RS232			
Signal Quality Output	Analog	-8.5 to 8.5V & via RS232			
Communication	Digital	RS232			
Laser ON/OFF	In	TTL	& via RS232		

*All data refer to measurement on plain glass for laser

Table 1

Working Principle



User Interface

The screenshot shows the Metrology LAF UI 1.9 software interface. The interface includes a top menu bar with options like Port, Baud, Parity, Connect, Disconnect, Terminal, and Quit. The main area displays a table of lens parameters, motor settings, movement/operation controls, measurement/diagnostic data, and positions. The table shows parameters like magnification, type, vco, center, deadzone, loggan, respol, jump, surf, cog, and step. The motor settings section includes maxspeed, acc time, library, timeout, and steps per mm. The movement/operation section has buttons for movement and operation, and checkboxes for peak mode, respos, jump, and alternate. The measurement/diagnostic section shows step, lag, span, and samples. The positions section shows ref1, ref2, abs1, and abs2. The interface also features horizontal and vertical scanline graphs.

