

# ASOPS

## Asynchronous Optical Sampling System



In time-resolved measurements an ultrafast pulse triggers a reaction and a second pulse takes a snapshot of the induced change. By shifting the arrival time of the probe pulse with respect to the pump pulse the stimulated process can be followed in time. The asynchronous optical sampling technique allows high-speed scanning over some nanoseconds of time delay without a mechanical delay line. The ultrafast lasers delivering the pump and probe pulses are locked together at a tunable repetition rate difference.

The lasers can be also locked to the same repetition rate value and by shifting the relative phase between the laser pulses, the system will allow measurements in a reduced time window of some 100 ps. Switching between the two modes of operation can be done at the touch of a button.

# MenloSystems

### KEY SPECIFICATIONS

- Wavelength TWIN: 1560 nm  
DUAL COLOR 780 nm or 1560 nm
- Time Measurement Window 4 ns or 10 ns
- Repetition Rate 250 MHz or 100 MHz

### APPLICATIONS

- Two-Color Pump-Probe Spectroscopy
- Time-Domain THz Spectroscopy
- Material Characterization

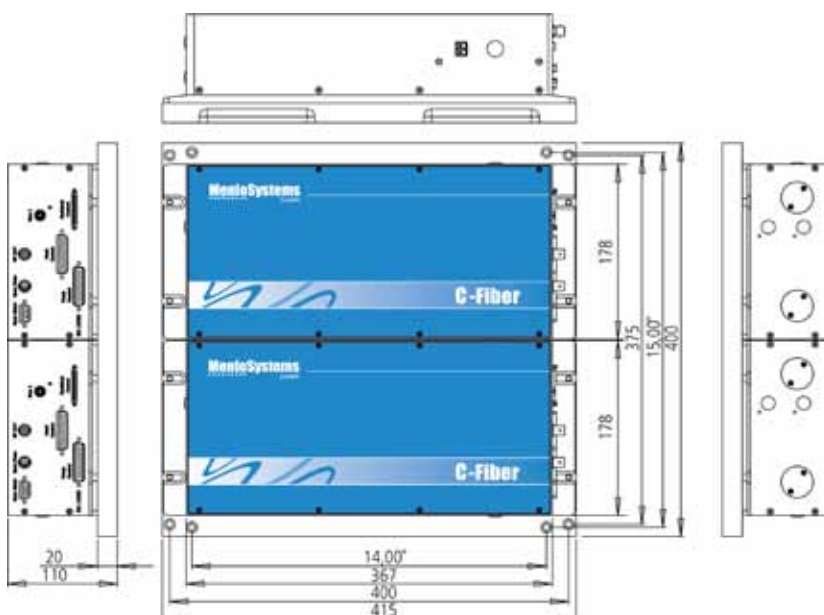
### FEATURES

- Faster Data Acquisition Times
- Increased Temporal Measurement Windows
- No Moving Mechanical Components (Improved Beam Pointing Stability, Increased Scanning Speed)

### OPTIONS

- **ASOPS Control Software**  
Full Control of the ASOPS Electronics via Graphical User Interface, XML-RPC Interface Enabling Remote Control, Includes PC and Counter

### ASOPS TWIN 250 LASER HEADS



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## Asynchronous Optical Sampling System

### SPECIFICATIONS

	ASOPS TWIN 250	ASOPS DUAL COLOR
Repetition Rate	250 MHz	100 MHz
Repetition Rate Offset Tuning Range	$\Delta f = -10 \text{ kHz} \dots +10 \text{ kHz}$ , in steps of $10^{-5} \text{ Hz}$	
Time Measurement Window	4 ns	10 ns
Scan Duration $1 / \Delta f$ *	0.1 ms @ 10 kHz offset, 1 s @ 1 Hz offset	
Data Point Increment **	160 fs @ 10 kHz, 0.016 fs @ 1 Hz	1 ps @ 10 kHz, 0.1 fs @ 1 Hz
RMS Timing Jitter [0.1 Hz - 500 kHz]	<150 fs	

### SPECIFICATIONS LASERHEADS

	ASOPS TWIN 250	ASOPS DUAL COLOR	ASOPS DUAL COLOR
Wavelength	1560 nm	1560 nm	780 nm
Average Output Power	>75 mW (from each laser)	>100 mW	>100 mW
Output Port	fiber-coupled FC/APC	free space	free space
Pulse Length	<150 fs after 6 m PM fiber	<90 fs	<120 fs
Piezo Tuning Range	>625 Hz	>100 Hz	
Piezo Bandwidth	>30 kHz		
Stepper Motor Tuning Range	>2 MHz	>330 kHz	
Trigger Signal	TTL level at offset frequency, <25 ns rise time		

\*Scales inversely with the repetition rate offset. \*\*Scales with the ratio of the repetition rate offset and the repetition rate squared ( $\Delta f/f^2$ ).

### REQUIREMENTS

Operating Voltage	110/115/230 VAC		
Frequency	50 to 60 Hz		
Cooling Requirements	no water cooling required		
Operating Temperature	$22 \pm 5 \text{ }^\circ\text{C}$		
Optical Unit Dimensions/Weight	415 x 400 x 110 mm <sup>3</sup> , 35 kg	500 x 535 x 110 mm <sup>3</sup> , 35 kg	
Control Electronics Dimensions/Weight	mounted in a 19" rack cabinet, 800 x 600 x 1800 mm <sup>3</sup> , 75 kg		

### ORDERING INFORMATION

Product Code	ASOPS TWIN 250	ASOPS Dual Color
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Please call for pricing. Specifications are subject to change without notice. Custom modifications are available, please inquire.



Invisible laser radiation  
avoid exposure to beam  
Class 4 laser

