Femtolock™ 2

High Precision Repetition Rate Stabilization

mks | Spectra-Physics®

Femtolock 2 is a sub-100 fs jitter synchronization unit for Element™ 2 and Synergy™ ultrafast Ti:Sapphire oscillators. It allows locking of the round-trip frequency of oscillator pulses to a given reference RF-source. The use of multiple harmonics of the resonator round-trip frequency in combination with a simple and passively stable femtosecond laser resonator (based on Dispersive Mirror technology) enables low jitter levels.*

Maximum Flexibility

Access to the loop filter settings allows the user to optimize the timing jitter and to adapt to different applications. Femtolock 2 enables synchronization of the laser's repetition rate by locking on the fundamental input RF-frequency, on one of its higher harmonics or to easily switch between the two.

Femtolock 2 can be custom designed to meet your specific requirements in terms of frequency and configuration.

Stability

The system is based on a combination of fast piezo translator(s) (PZT) and a wide range translation stage. This arrangement allows the Femtolock 2 to compensate for fast fluctuations (kHz), as well as for slow or medium long term drifts (e.g. temperature drifts).

The unique configuration ensures resonance-free synchronization up to high frequencies and guarantees a long term drift-free operation.

* Adapted from G.M.H. Knippels et al. "Two color facility based on a broadly tunable free-electron laser and a sub-picosecond-synchronized 10-fs Ti:Sapphire laser" Optics Letters, Vol. 23, No. 22, Nov. 15, 1998.

The Femtolock 2 Advantage

- Ultra low timing jitter
- Hands-free operation
- Maximum flexibility
- Long term stabilization

Applications

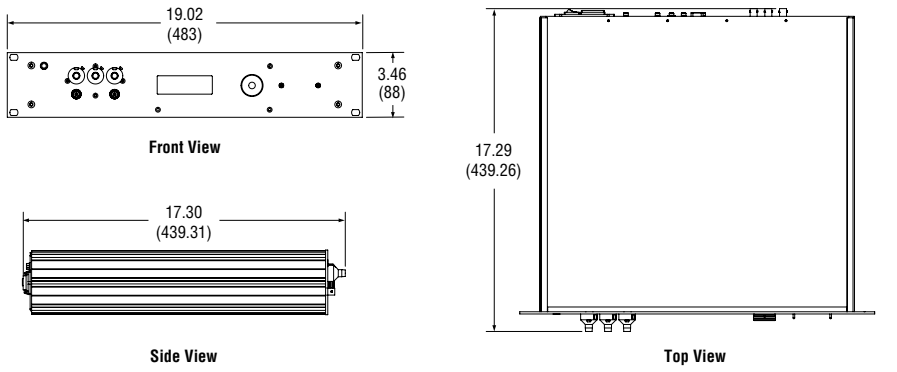
- Synchronization to clock signals
- ASOPS

Femtolock 2 Specifications[1]

	Femtolock 2
Output Characteristics	
Integrated Timing Jitter (1 Hz–1 MHz)[2]	<100 fs
RF Reference Input Requirements	
Frequency Range (nth harmonic of the repetition rate)[3]	350 MHz–1.5 GHz
Input Level @ 50 Ohm	7 dBm
Dimensions	
User Interface (W × D × H)	16.65 x 15.48 x 3.5 in (423 x 400 x 89 mm) (19” 2U standard)
Actuator (L × W × H)	1.97 x 0.98 x 1.97 in (50 x 25 x 50 mm)
Detector Head (L × W × H)	1.97 x 0.79 x 1.18 in (50 x 20 x 30 mm)

1. Due to our continuous improvement program, specifications are subject to change without notice.
2. The jitter cannot be smaller than reference source. Specification applies to Element 2 and Synergy oscillators.
3. For synchronization to RF frequencies >1.5 GHz, please contact Spectra-Physics.

Femtolock 2 Dimensions



Dimensions in inch (mm)

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