

FEMTOLOCK™ 2

Precision repetition rate stabilization

| < 100 fs jitter

| long term stabilization

| < 100 fs jitter

Applications

Synchronization to clock signals

Synchronization to other lasers

ASOPS



FEMTOLOCK™ 2 is a sub-100 fs-jitter synchronization unit for FEMTOSOURCE™ and INTEGRAL™ ultrafast Ti:Sapphire oscillators. It allows to lock the round-trip frequency of the oscillator pulses either to a given reference RF-source or to another laser. 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 the lowest jitter levels ever demonstrated in a commercial system.*

* 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.

FEMTOLOCK™ 2

Precision repetition rate stabilization

Extraordinary Features

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

Options

- Remote control
- > 1.5 GHz input RF frequency
- Simultaneous lock on both fundamental and harmonic of the input RF-frequency

Maximum Flexibility

Access to the loop filter settings allows the user to optimize the timing jitter and to adapt to different applications. The unit offers the possibility to synchronize 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. Optionally, a dual piezo configuration provides precise synchronization by simultaneously locking on both fundamental and harmonic of the input RF-frequency.

The 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.

FEMTOLOCK™ 2

Integrated timing jitter (1 Hz - 1 MHz)

RF reference input

Frequency range (nth harmonic of the rep. rate)

Input level @ 50 Ohm

FEMTOLOCK™

User Interface (w | d | h)

Actuator (l | w | h)

Detector head (l | w | h)

1) The jitter can not be smaller than reference source. Figure applies to FEMTOSOURCE™ rainbow™, fusion™ and synergy™, as well as INTEGRAL™ element™ oscillators
2) Synchronization with higher input frequencies available upon request.

SPECIFICATIONS

< 100 fs¹⁾

Requirements

350 MHz - 1.5 GHz²⁾

7 dBm

Dimensions

423 | 400 | 89 mm (19" 2U standard)

50 | 25 | 50 mm

50 | 20 | 30 mm

All specifications are subject to change without notice

脉动科技有限公司

中国代理商

北京总部 地址：海淀区中关村东路89号 恒兴大厦9C，100190 电话：010-62565117 010-84413925 传真：010-62565117-11 邮箱：info@pulsepower.cn 官网：www.pulsepower.cn

上海办事处 021-32070812 西安办事处 029-87307077 深圳办事处 0755-27528760

FEMTOLASERS Produktions GmbH
Fernkorngasse 10 | 1100 Wien | Austria
P: +43 1 503 7002 0
F: +43 1 503 7002 99
info@femtolasers.com

FEMTOLASERS, Inc.
1 Mifflin Pl. | Suite 400
Cambridge | MA 02138 | USA
P: +1 978 456 9920
F: +1 978 456 9922
info@femtolasers.com



www.femtolasers.com

FEMTOLASERS' laser products are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by Center of Devices and Radiological Health on all systems ordered for shipment after October 1, 2003.