

fast.

Lightning fast laser locking module for super-narrow lines



FALC pro

For convenient PDH locking and phase locking

- Enables high coherence and ultra-small linewidth < 1 Hz
- Broad bandwidth noise suppression by 6 parameter PI³D² regulation
- Fast feedback loop with < 10 ns delay
- User friendly remote control

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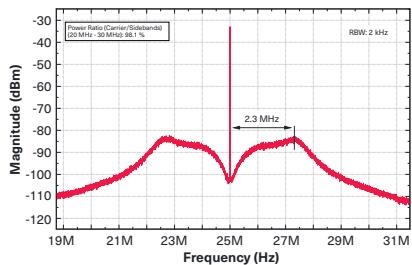


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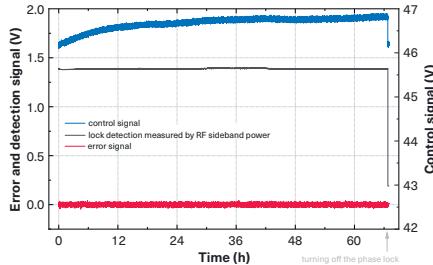
www.toptica.com/falcpro

FALC pro

Specifications	
Fast circuit branch	
PID regulator	Three integrator stages, two differential stages: P^3D^2
Bandwidth	Up to 50 MHz (-3 dB)
Signal delay	< 10 ns
Flexibility	> 100,000 different transfer functions
Slow circuit branch	
Regulator	Single integrator stage, independent of fast branch
Configuration for side-of-fringe locks and error signals generated by demodulation	
Layout	Two high-speed low noise inputs, connected to a differential amplifier
Input noise density	< 3.0 nV/ $\sqrt{\text{Hz}}$
Configuration for phase locks and Pound–Drever–Hall technique (PDH)	
Layout	Two RF inputs connected to an integrated low-noise mixer
Frequency range	5 MHz .. 200 MHz
General	
Operation	Using the interface of the DLC pro, complete remote control
Size	54.2 x 105 x 200 mm ³ (H x W x D) without mounting brackets



Power spectrum of beat signal of two DLC DL pro @780 nm phase-locked by to FALC pro



Stability of phase lock with FALC pro: two DLC DL pro lasers @780 nm