

Fiber Noise Cancellation System FNCS-1000-1

Stable Laser Systems now offers a **fiber phase noise cancellation** system for the distribution of stabilized laser light to **remote locations**. This system has the advantage of merging existing laboratory solutions into a single box with a dramatically reduced footprint. Multiple noise cancellation systems can be implemented in parallel to supply many end users with stabilized light from a single stabilized laser. Whether stable light is needed down the hall or several kilometers away, this system ensures that your light will not acquire unwanted phase noise.*



PERFORMANCE CHARACTERISTICS

Operating voltage	100/115/230 VAC
Power consumption	25 W
Power frequency	50-60 Hz
Cooling requirements	Internal fan
Servo Loop Bandwidth	100 kHz
Phase Noise Floor	<10 mrad rms
Typical System Performance	$\sigma(\tau = 1 \text{ s}) \approx 5 \times 10^{-17}, \lambda = 1550 \text{ nm}$

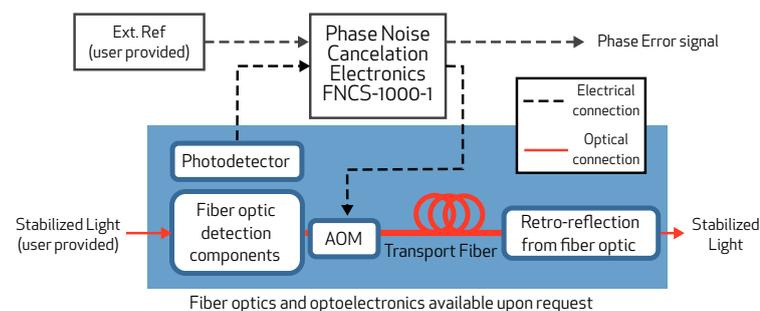
FEATURES

- All digital control and signal processing via dual DDS's, digital phase detector, digital loop filter, and an FPGA for supervisory and servo control
- Real-time phase error trace and servo performance metrics displayed on a 4.3" touchscreen
- 1 W AOM driver included
- External RF reference input
- NIST-inspired topology
- Extremely compact size, packaging options: 8" x 11" x 4" box or 1U-high, half-width rack mount enclosure
- Optional integration of fiber components
- Optional remote AOM to eliminate sensitivity to stray reflections (splices, dirty connectors, etc.)

Inputs	Wall plug power
	Photodetector (BNC)
	Optional external RF reference at 5, 10, or 100 MHz (BNC)
Outputs	1 W AOM drive
	User-selectable AOM drive frequency (up to 400 MHz)
	Phase error signal monitor

Additional inputs/outputs upon request
AOM drive power can be modified

SLS FIBER CANCELLATION SYSTEM



*Transfer stability depends on loop gain (transport fiber length) and open loop noise.

L.S. Ma, et. al., Opt. Lett. 19, pp. 1777-9 (1994), N.R. Newbury, et.al., Opt. Lett. 32, pp. 3056-8 (2007).