

PRINCIPLE OF OPERATION OF OE WAVES LASER NOISE ANALYZER

- OEwaves implements a proprietary stabilized interferometer and a unique optical signal extraction technique without the need for complex modulation used in conventional homodyne detection. This architecture also includes a proprietary high speed signal processing algorithm to avoid complex optical information processing, which has limited offset frequency measurement range and high frequency instability that is typical of modulated optical phase homodyne and long delay self-heterodyne approaches. The approach provides OEwaves laser noise analyzer with a wide wavelength range, wide power range, and flexibility to offer any combination of phase/frequency and RIN measurement capabilities per user request.
- The measured absolute phase/frequency noise precisely describes the spectral purity of the laser under test. The system application integrates the measured phase noise to estimate the full width half maximum (FWHM) linewidth based on the conventional published methods for various time scales. As there's presently no industry standard, there's no fully agreeable method to determine the exact linewidth. However, since the absolute phase noise/frequency noise data is available, the application is upgradable with any integration method of customer's preference for calculating the linewidth as required.

