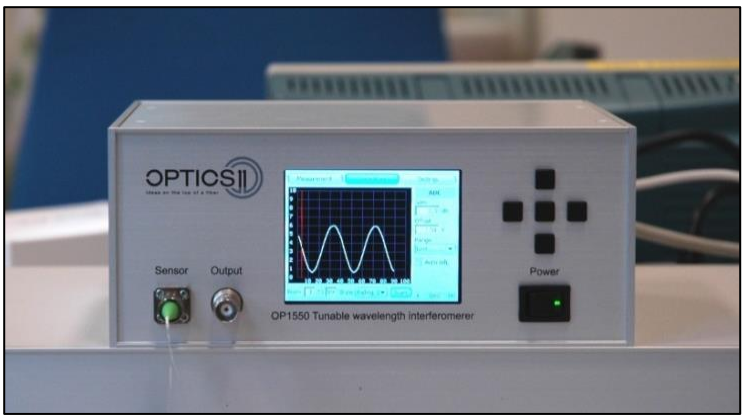
OPTICS11
ideas on the top of a fiber

OP1550 FiberLab

Versatile fiber interferometer lab tool

The Optics11 FiberLab system offers a unique combination of precision measurement tools, useful for test set-ups and lab environments: a single mode fiber interferometer, 5 additional high speed acquisition channels (up to 100kSps), and integrated signal generator. All these tools are available in a single, stand-alone operable box. The laser interferometer can be tuned quickly over 35 nm, and allows high frequency wavelength modulation. Typical applications are: measuring nanometer displacements of e.g. piezo systems, performing absorption spectroscopy experiments, measuring forces in the nanonewtons using a fiber-top probe.



- **Fabry-Perot fiber interferometer**
- **1528 - 1563 nm tunable laser source**
- **5 auxiliary ADC channels**
- **Signal generator (100kHz; TTL sync)**
- **Automatic gain tuning and quadrature finding**
- **Stand-alone operation with user-friendly interface**
- **Internal wavelength modulation up to 0.4 nm/100kHz**

The FiberLab couples the light of a tunable laser into a single mode fiber. Running stand-alone or with a computer via USB interface, the software automatically adjusts the wavelength, gain and offset to the point where sensitivity and dynamic range are maximized. The optimized analog interferometric signal is available through a BNC connector located on the front panel, while the digitized signal can be simultaneously acquired and monitored in real-time. At the back panel, 5 BNC connections are available to acquire voltage signals at high speed.
The noise on the interferometer signal is below 1 nm RMS over a bandwidth of DC – 20kHz. Measurement results show that the OP1550 is extremely stable over long time; drift of the interferometer equipped with a senor is typically below a few mV over 24 hours.
The OP1550 is a perfect solution for applications where a stable, tunable wavelength interferometer is needed. Moreover, features such as the integrated signal generator and optional auxiliary ADC channels make it a versatile measurement instrument for a broad range of applications.

OP1550	
Operation wavelength	1528-1563 nm
Laser power	6-25 mW
Readout bandwidth	20kHz/1MHz
Long term drift	±2.5 mV/24h
Displacement sensitivity	<1 nm rms (20kHz)
Readout electronic noise	<50µVrms
Wavelength modulation	0.4 nm/100kHz
DDS signal generator	0-10V, 100 kHz ; TTL sync
ADC channels	5 channels, 16 bit, 100 kSps

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