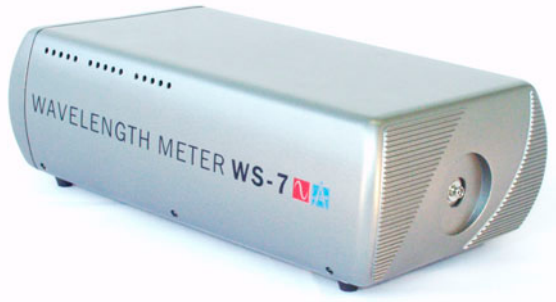
TOPTICA PHOTONICS

The world of diode lasers.

Application Note

WS/ Series



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There are many applications which cannot be performed by standard wavelength meters based on Michelson interferomenters, but the WS/-X models, due to the various options and supplementory software provided by the WS wavelength meter series. This document should act as a guideline for scientists and researchers looking for ways to control experiments, stabilize lasers or perform advanced recording of data streams.

- Simultaneous measurement of wavelength and linewidth
  - performed by WS/7 or WS/Ultimate together with the Resolver option. Wavelength is measured with an accuracy of ±100 MHz or approx. 30 MHz respectively. In addition, the Resolver option is capable of measuring linewidth in the range from 0.2 GHz to 20 GHz at a resolution of 0.1 to 0.5 GHz. Especially pulsed lasers with a pulse duration in the low ns regime show such linewidths.
- Recording of two wavelengths at the same time
  - By generating appropriate timing gates (with a separation of at least 400 ns), two pulsed wavelengths can be measured simultaneously (e.g. pump-and-probe-experiments), resulting in potential control of two lasers using only one wavelength meter.
- Remote measurement of wavelength
  - The supplementory software package performs a long-term recording of a wavelength (and also internal temperature) over several hours including storage of data to a file. Comprehensive tests could be executed at weekends without the attendance of any operator. All data are stored automatically into a .txt-file which could easily be converted into a format of your choice.
- Direct wavelength stabilization of a tunable laser onto a wavelength meter
  - Implemented into a closed feedback loop, all PCI types of the WS models can be used to stabilize a tunable laser at a chosen wavelength. With a measurement rate of up to 400 Hz, low frequency instability and drift can be compensated for effectively. The software function Deviation Signal Control faciliates such tasks. Simply type in your requested wavelength and adjust the sensitivity of the output signal (V/nm or V/pm).

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