THS-B

DEVICE

Terahertz Source Generator, Benchtop

OVERVIEW

The Optilab THS-B series is a set of fully integrated optical heterodyne signal sources packaged in a benchtop configuration. Based on Tunable Wavelength Laser (TWL) systems, the THS-B series produce optical heterodyne signals up to 10 Terahertz. An optical heterodyne is a signal produced by the frequency beat of two optical sources. The beating makes the optical signals detectable by GHz and slower, square-law detectors such as PDs and finds varied uses in LIDAR, spectroscopy and other high phase-sensitivity applications. The THS-B series provides high accuracy and high stability optical heterodyne signals over large signal range. The integrated GUI software gives the user full control of the optical heterodyne signal.

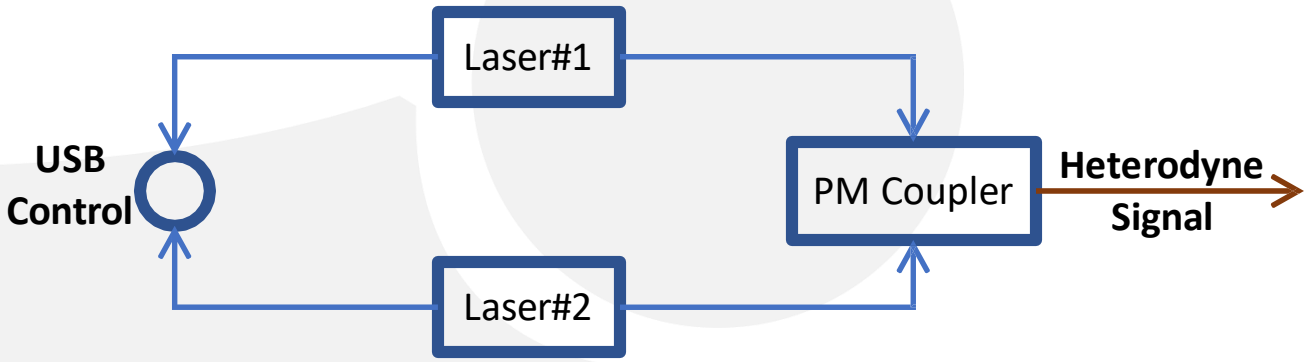
FEATURES

- Large Signal Tuning Ranges up to 10 THz
- User-Friendly USB Interface
- Excellent Stability
- High CNR: 55 dB
- 13 dBm PM Output

USE IN

- Terahertz Sourcing
- LIDAR Experimentation
- Spectroscopic Detection
- Topographical Imaging
- Frequency or Phase Modulator Detection
- FSK

FUNCTIONAL DIAGRAM



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SPECIFICATIONS

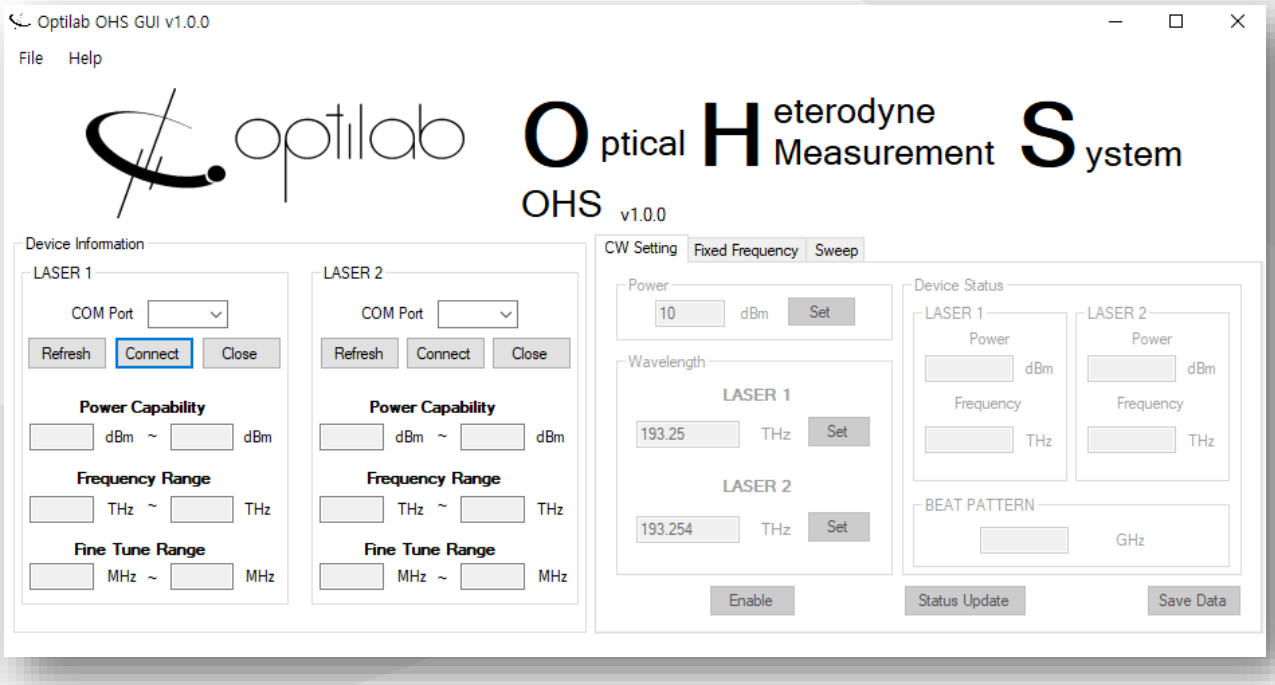
OPTICAL

Heterodyne Signal Frequencies	THS-5-B: 50 MHz to 4.75 THz THS-10-B: 0.4 THz to 9.95 THz
Frequency Accuracy	± 50 MHz
Fine Tune Frequency Resolution	10 MHz
Frequency Stability	Short term: ± 2 MHz, 24-hr: ± 30 MHz
Optical Output Power	20 mW (13 dBm) max.
Carrier to Noise Ratio (CNR)	55 dBc typ. @ -15 dBm
TWL Relative Intensity Noise (RIN)	-145 dB/Hz
Polarization Extinction Ratio	20 dB min.
Fiber Type	Panda 1550 PM Fiber

MECHANICAL

Power Supply Requirements	100 – 240 VAC
Optical Connectors	PM Narrow Key FC/APC Standard, additional types available upon request
Operational Temperature	0°C to +40°C
Storage Temperature	-40°C to +70°C
Control Mode	CW Mode/Scan Mode
Communication Interface	RS-232 via USB 2.0, LabVIEW Software Interface
Dimensions	250 mm x 300 mm x 100 mm

SOFTWARE GUI



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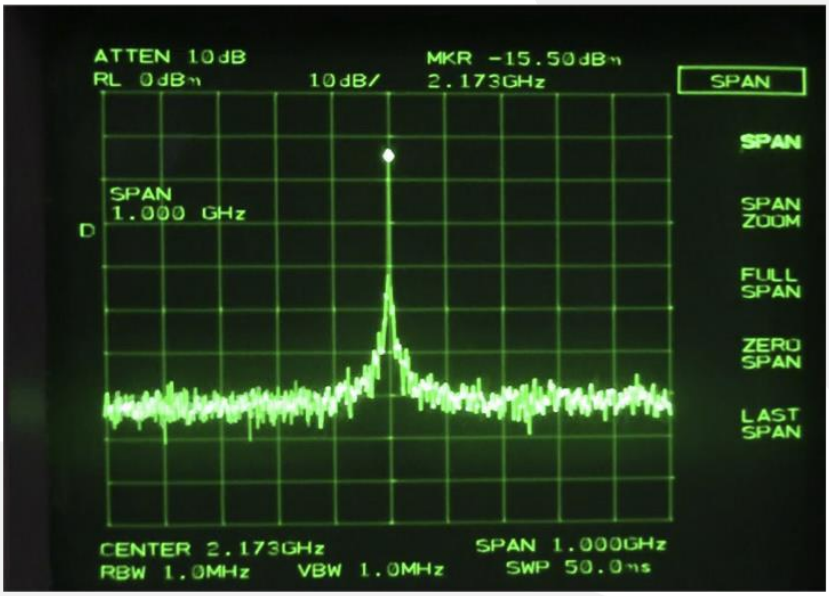
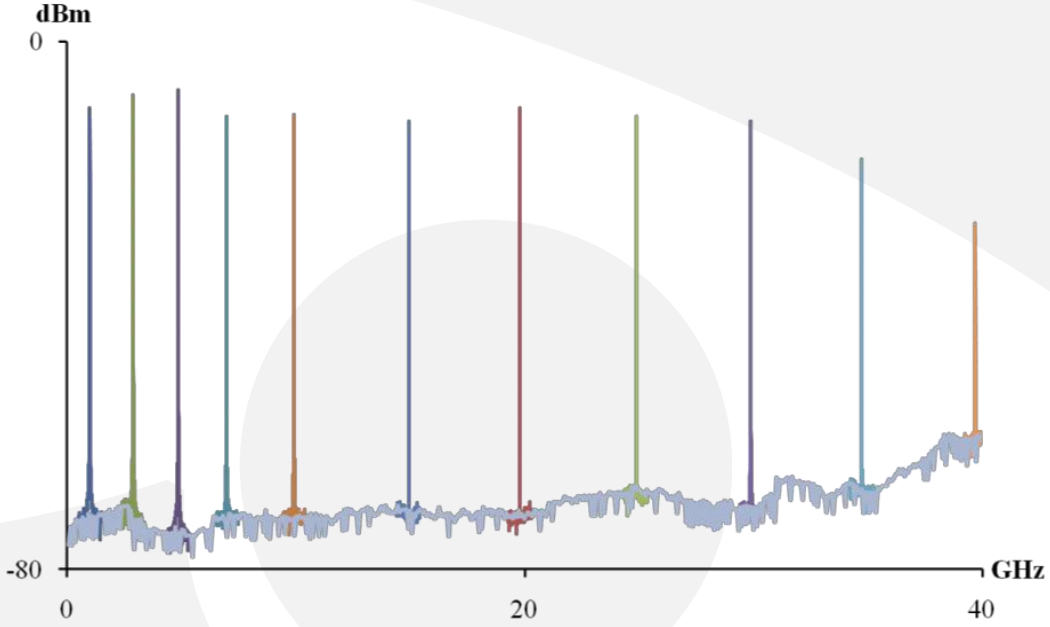
TYPICAL
HETERODYNE SIGNAL



Sample Heterodyne signal measured via Photodiode and RF Spectrum Analyzer. High CNR observed. Characteristic Shape demonstrated.

HETEROYNE SIGNAL
THROUGH
PHOTORECEIVER



Sample heterodyne signals measured via photoreceiver and RF spectrum analyzer. High CNR observed. Characteristic shape demonstrated. Frequency response of Photoreceiver measured through compilation of heterodyne signals.