

ATHS-XX-R



DEVICE

Amplified Terahertz Source Generator

OVERVIEW

The Optilab AHS-XX-R series is a set of fully integrated optical heterodyne signal sources packaged in a 3u rack mount configuration. Based on Tunable Wavelength Laser (TWL) systems, the AHS-XX-R series produce optical heterodyne signals up to 6 Terahertz. An optical heterodyne is a signal produced by the frequency beat of two amplified 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 AHS-XX-R 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.

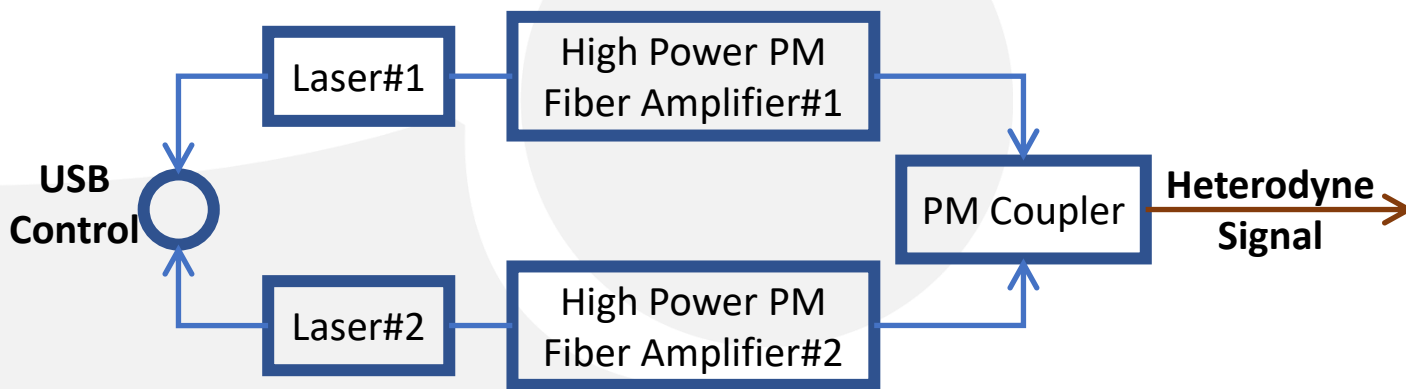
FEATURES

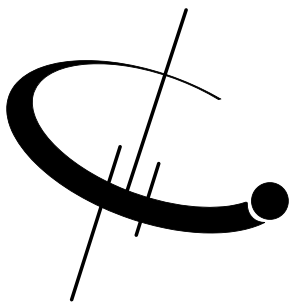
- Large Signal Tuning Ranges up to 6 THz
- User-Friendly USB Interface
- Excellent Stability
- High CNR: 55 dB
- 30 dBm PM Output

USE IN

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

FUNCTIONAL DIAGRAM





ATHS-XX-R

SPECIFICATIONS

Heterodyne Signal Frequencies

ATHS-5-R: 50 MHz to 4 THz

ATHS-10-R: 0.4 THz to 6 THz

Frequency Accuracy

± 50 MHz

Fine Tune Frequency Resolution

10 MHz

Frequency Stability

Short term: ± 2 MHz, 24-hr: ± 30 MHz

Optical Output Power

1 W (30 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

OPTICAL

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

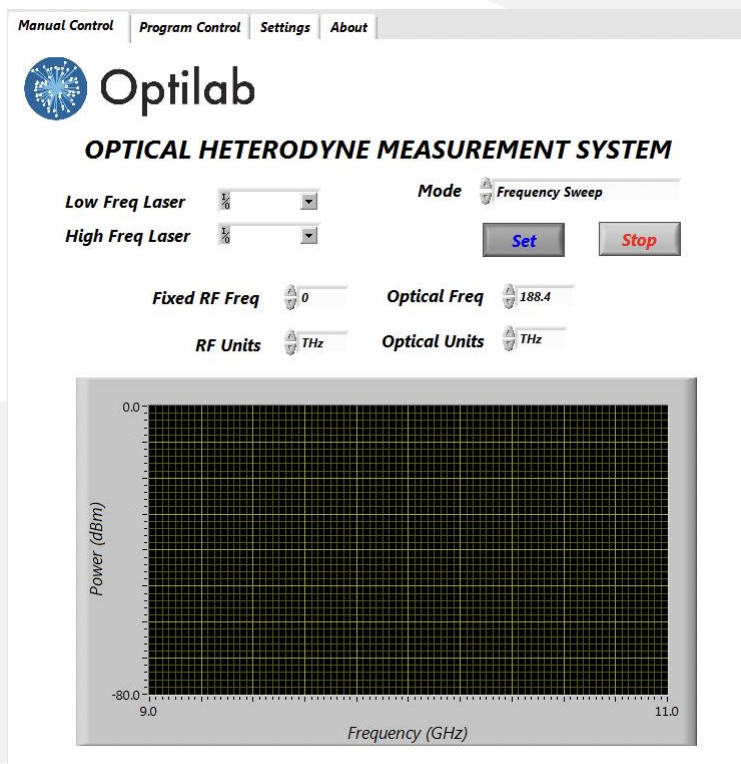
RS-232 via USB 2.0, LabVIEW Software Interface

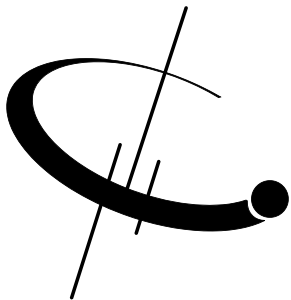
Dimensions

3U Rackmount: 19" (D) x 14" (L) x 5.25" (H)

MECHANICAL

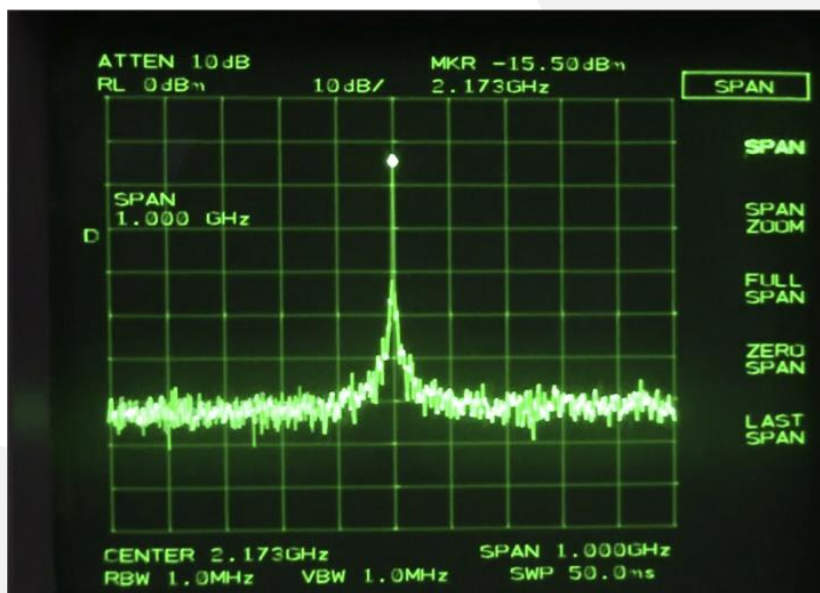
SOFTWARE GUI





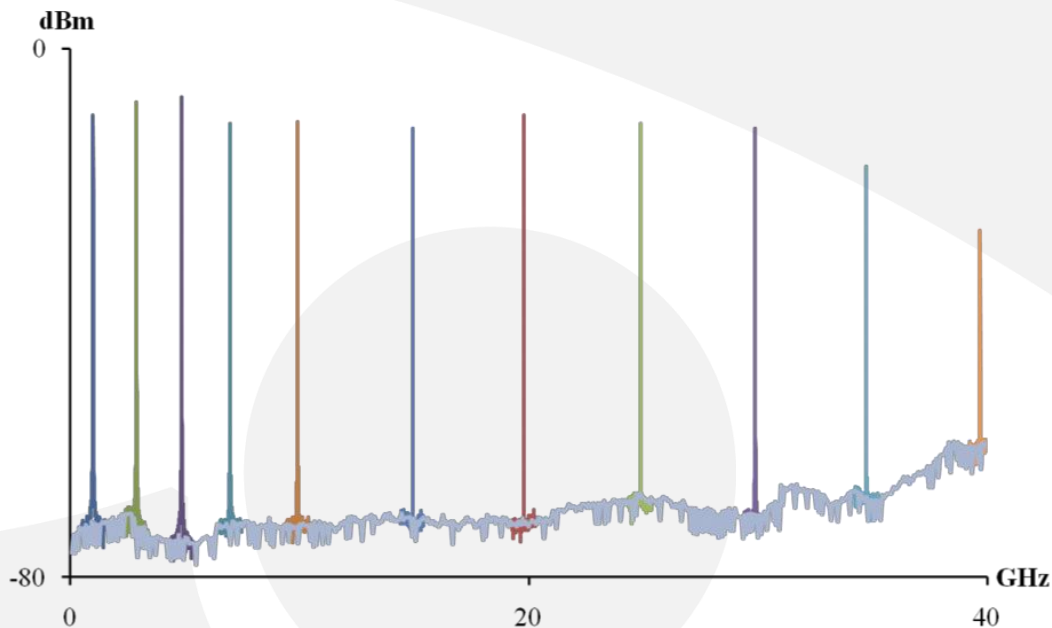
ATHS-XX-R

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.

