



OPTICAL FREQUENCY DISCRIMINATOR

Compact and simple tool for
laboratory experiments &
Industrial developments

1 to 2 channels



Optical Frequency Discriminator



CHALLENGES

For many applications, the laser **linewidth** and/or the **frequency stability** is THE limiting factor to reach much better measurements...

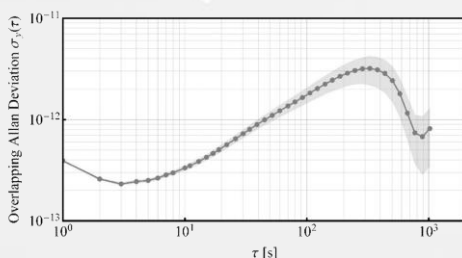
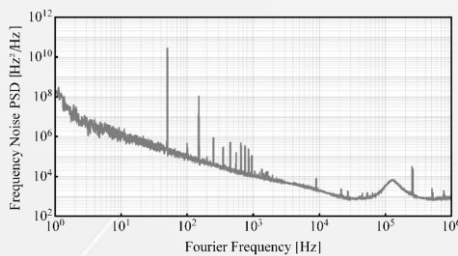
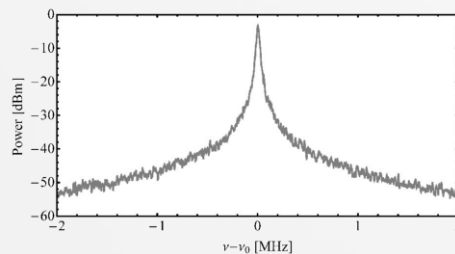
This is due to the laser's sensitivity to environmental factors like:

- Mechanical vibrations
- Acoustic noise
- Thermal fluctuations
- Pressure variations



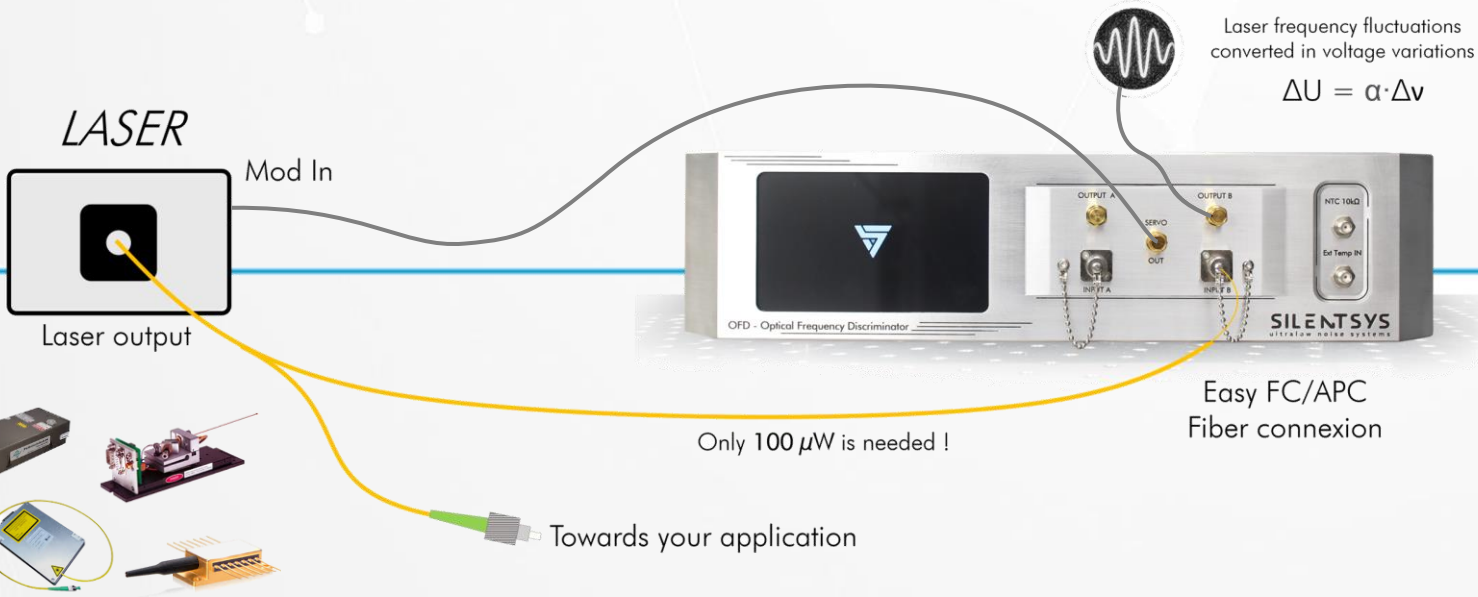
APPLICATIONS & BENEFITS

- **Optical Clocks**
 - ↳ Narrower atomic transition
- **Quantum Computing**
 - ↳ Easier atom manipulation
- **Quantum Cryptography**
 - ↳ Higher data transmission
- **Distributed Acoustic Sensing**
 - ↳ Longer sensing range
- **Spectroscopy and holography**
 - ↳ Better resolution



In order to reach **higher performances**, an **ACTIVE STABILIZATION** of the laser frequency is **INEVITABLE**.

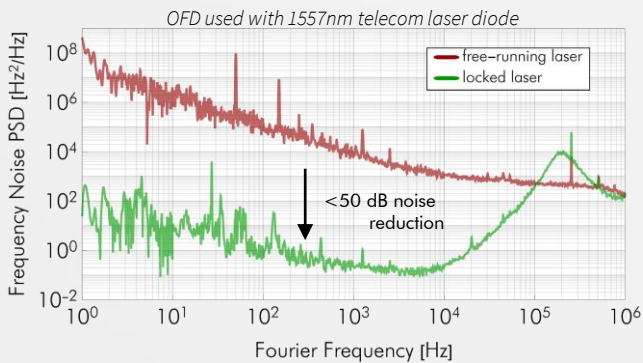
Optical Frequency Discriminator



The **OPTICAL FREQUENCY DISCRIMINATOR** is your best partner to narrow the linewidth of your laser to an extreme level, enabling a **new range of applications** !

The OFD system smartly delivers a voltage signal that is proportional to the frequency fluctuations of the input laser beam. This turn-key module is suitable for laser frequency noise characterization and/or for laser frequency stabilization to **drastically reduce its linewidth and frequency drift** in a compact and user-friendly package.

PERFORMANCES



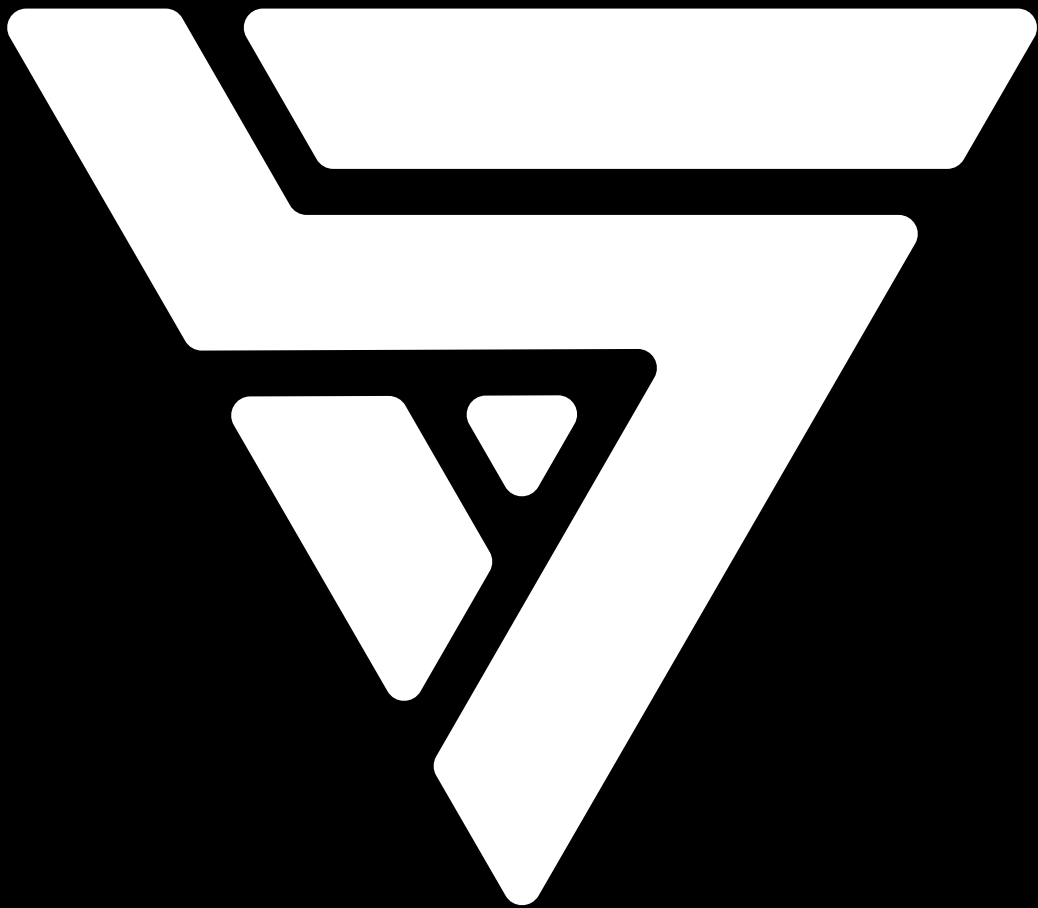
SPECIFICATIONS

- Laser type: single-frequency continuous wave
- Optical power in: ~200 μW before saturation
- Optical Input: typ. FC/APC connection
- Free Spectral Range (FSR): typ. 1 MHz to 1 GHz
- Frequency noise floor limit: typ. $< 0.1 \text{ Hz}^2/\text{Hz}$
- Typical laser linewidth achievable: **down to Hz-level**
- External control of the Optical module temperature

UV-VIS-NIR-MIR
1 to 2 channels

Made in France





Make your research better !