



Dual fiber output single frequency laser at 780 nm

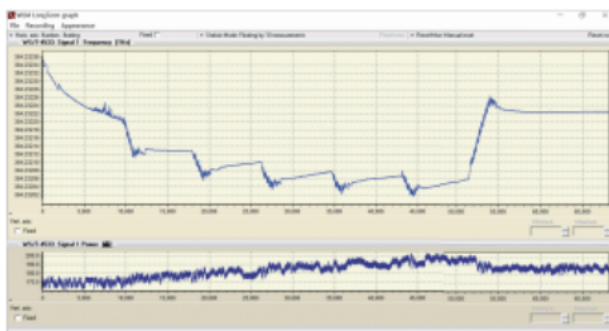


The product description

Erbium group develops the dual-channels single frequency fiber laser with the maximum output power up to 1W/2W for Gravimeter gradiometer based on Rb cold atom. The frequency difference between the two channels can be locked by beat frequency/ phase locking technique. The output ports of 1560/780 nm laser can be ordered, which provides high performance light source for gravimeter, quantum optics and so on. The seed laser, amplifier and frequency doubling module of dual-channel 1560 nm laser are integrated in a small air-cooling case. The whole machine has compact structure, stable and reliable performance, and can pass vibration and high-low temperature tests.

Product features

- Narrow linewidth < 20 kHz
(as low as 2 kHz)
- Optional low intensity noise (RIN < -130 dBc/Hz @ 100 kHz)
- High power (2W)
- Excellent beam quality ($M^2 < 1.1$)
- Power stability (P-P < 1% @ 25°C, < 2% @ 15-35°C)
- Environmental stability (15-35°C, 0.5 Grms (0-200 Hz))
- Rb atom
- Magic light lattice
- Optical tweezer
- High and low temperature impact performance
- Frequency stability under high and low temperature impact
- High low temperature storage



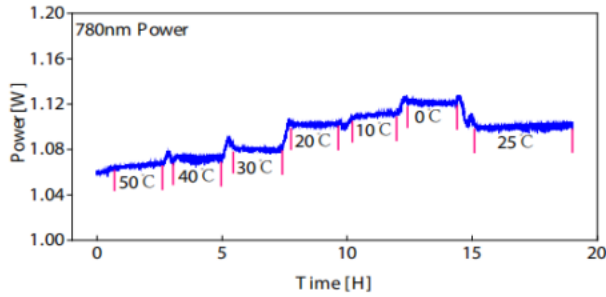
Center frequency drift of 0°C -50°C is about 340 MHz, and the center of 25°C for 2 hours is about 40 MHz



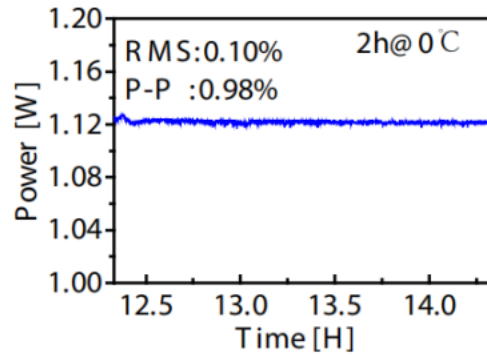
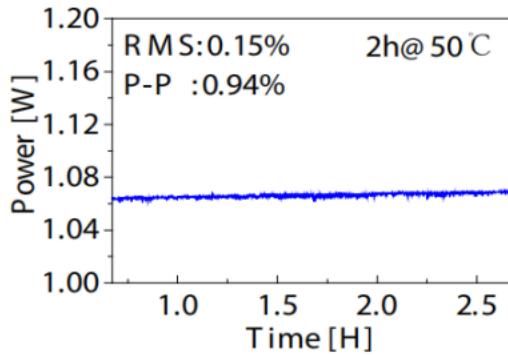
The experiment of high and low temperature impact frequency drift storage at -30°C -70°C showed that the laser normal operation after high and low temperature shock.



■ **RMS power stability under high and low temperature impact**

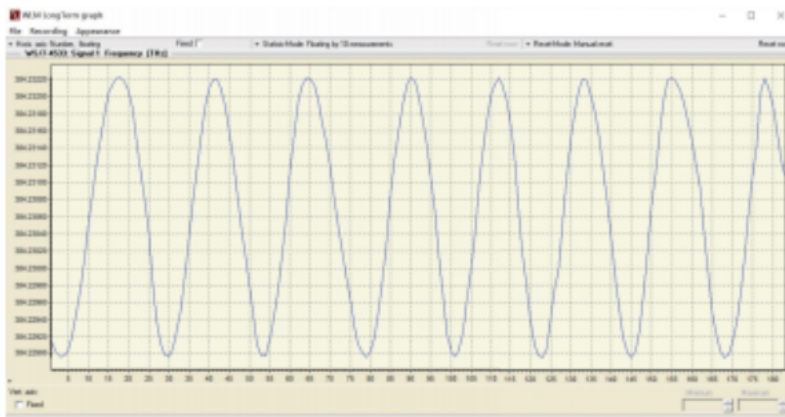


When the ambient temperature changes from 0°C -50°C at interval of 10 °C . Although the laser power will jump during the temperature change process the power will remain stable at each temperature.



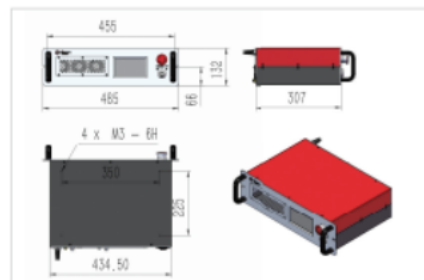
The stability of the first channel at each temperature point in the high-low temperature test was measured. The power stability of the 2-hour RMS at the limiting temperature of 0°C and 50°C was better than 0.2%

The power stability of the second channel is also better than 0.2% (single temperature point, RMS)



The seed has a reserved frequency sweep interface, and the 780nm laser frequency sweep range is about 3.2GHz.

Selecting a reasonable frequency locking point and controlling an appropriate frequency difference and frequency shift between the two channels, a dual channels 780 nm laser produced by PreciLasers can provide all the lasers required for the experiment of rubidium atomic gravimeter. The product has good environmental adaptability and is an excellent choice for laser source of transportable atomic gravimeter.



EFA-SSHG-780-2 size