FD-SF-07

Resonant Frequency Doubler for CW single-frequency lasers

1 **SUPERIOR LOCKING**

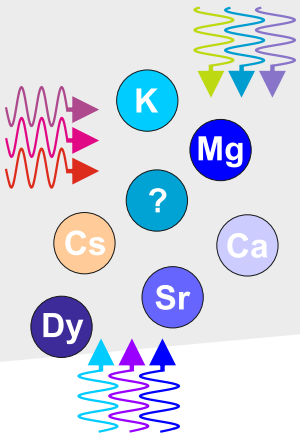
2 **ULTRA-STABLE**

3 **MOST EFFECTIVE CONVERSION**

4 **AUTO-RELOCK FUNCTION**

Tekhnoscan presents resonant frequency doubler, model FreDoubl, with Smart Auto-Relock function for CW single-frequency lasers (solid-state, fiber, dye, etc.) that opens a new possibilities for more efficient laser wavelength conversion in the visible and near IR ranges into the blue and UV domains. Optimised resonator of FreDouble in combination with high-quality mirrors ensures relatively high level of output second-harmonic power.

The Smart Auto-Relock function allows FreDoubl to smoothly track considerable changes in the frequency of the input radiation, thus the range of smooth second-harmonic frequency scanning may cover dozens of GHz, being only limited by the spectral acceptance of the non-linear crystal. The FreDoubl is notable for its low acoustic noise and sensitivity to vibrations, as well as for the simplicity of tuning and ease of use. Super-stable and compact ring cavity combined with ultra-fast two-stage system that locks the cavity to the frequency of the input radiation by the Hansch-Couillaud method are a guarantee for high stability of the output power of the second harmonics even for lasers without a frequency stabilisation.



TekhnoScan LASER SYSTEMS

Photonics of High Technologies®

Features

- Ultra-fast system of locking the cavity to the frequency of input radiation
- Ultra-stable performance even under conditions of considerable external vibro-acoustic perturbations
- Superior doubling efficiency up to 40% at the input radiation power 1 W
- Power-enhancement factor up to 130
- Possibility of efficient operation with lasers without frequency stabilisation

Applications

- Cooling, BEC and manipulating atoms
- High-resolution spectroscopy
- Tasks requiring UV-blue ultra-narrow linewidth source
- Fourth harmonic generation
- Spectrally high-selective short wavelength technologies
  Optical metrology

Doubler Specifications

Conversion efficiency for 1 W CW single-frequency input:

700-950 nm: **> 25%**

550-700 nm: **> 20%**

400-550 nm: **> 15%**

Contacts

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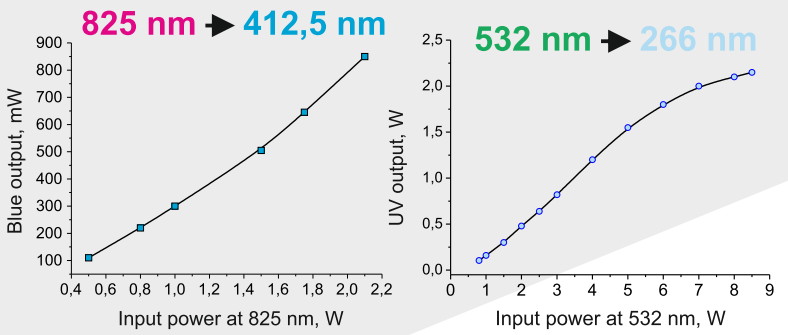
Typical input/output curves →



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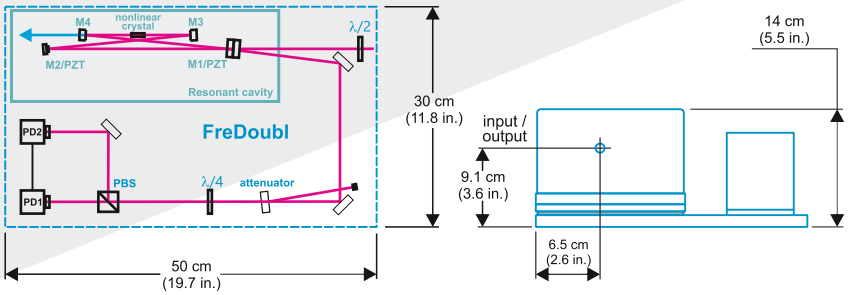

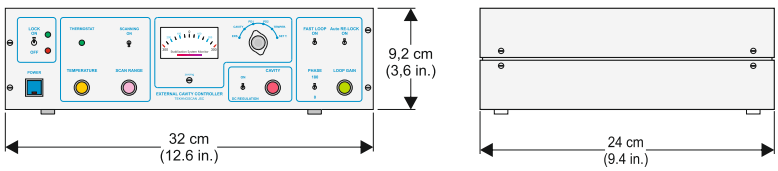

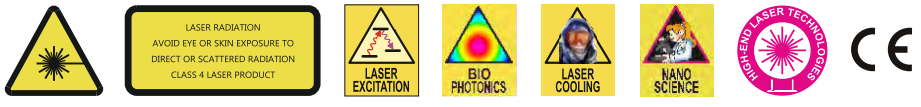

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