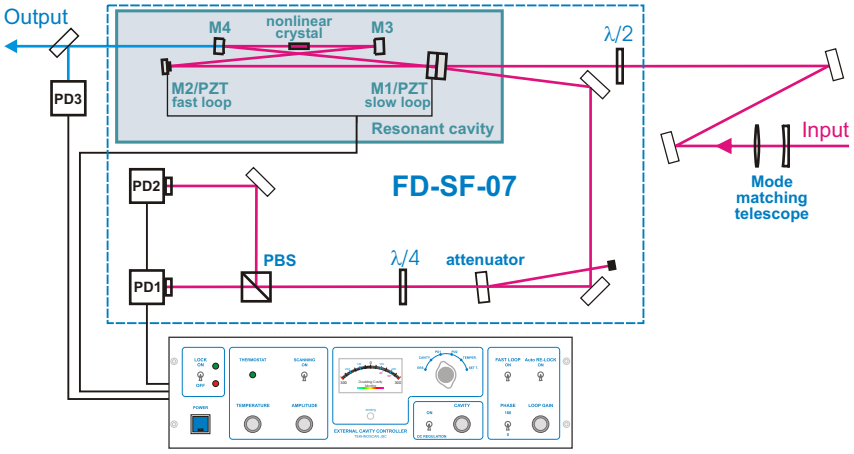
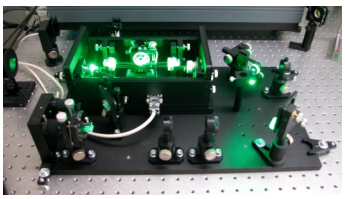
Resonant Frequency Doubler for CW single-frequency lasers, model "FD-SF-07"

Tekhnoscan presents **resonant frequency doubler**, **model FD-SF-07**, 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 FD-SF-07 in combination with **high-quality mirrors** ensures relatively high level of output second-harmonic power. Pumped with **1 W** fundamental radiation power the doubler outputs: **more than 250 mW** within the 700-950 nm range, **> 200 mW** within the 550-700 nm range, and **> 150 mW** within the 550-500 nm range.



The Smart Auto-Relock function allows FD-SF-07 doubler 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 FD-SF-07 doubler 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.

- *Improved doubling efficiency up to 40% at the input radiation power 1 W*
- *Power-enhancement factor up to 130*
- *Rigid and stable, easily aligned cavity with vibration isolation*



- *Fast two-stage system of locking the cavity to the frequency of input radiation*
- *Possibility of efficient operation with lasers without frequency stabilisation*
- *Solid ultra-stable performance even under conditions of considerable external acoustic perturbations and vibrations*
- *Thermo-stabilised non-linear crystal*

- *A separate control photo-detector included into the standard set of the electronic unit*
- *Convenient express-access to the alignment of the non-linear crystal through a special easily removable lid*

TekhnoScan LASER SYSTEMS

Advanced Realized Photonics Ideas

FD-SF-07

Resonant Frequency Doubler

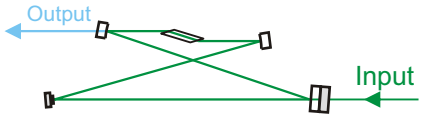
Specifications:

Conversion efficiency for 1 W CW single-frequency input:
700-950 nm: > 25%
550-700 nm: > 20%
500-550 nm: > 15%

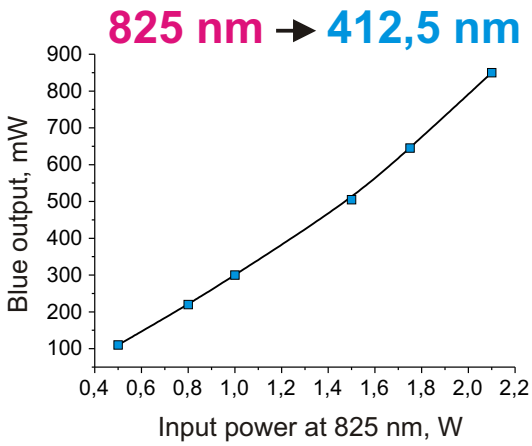
Nonlinear crystal types: LBO / BBO
Typical tuning range
for one optics set: 45-75 nm for fundamental input

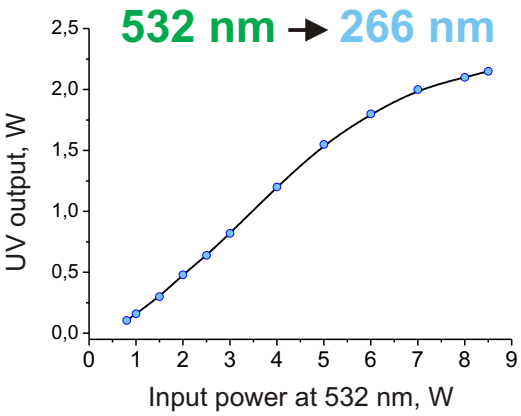
Features:
- unique function Smart Auto-Relock
- temperature stabilization of crystal
- input coupling optics
- output beam-shaping optics

Options:
1. Brewster-angle crystal design for definite wavelength (532 nm, etc.)

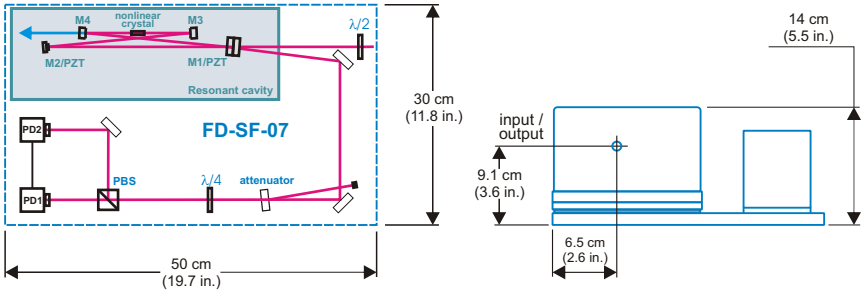


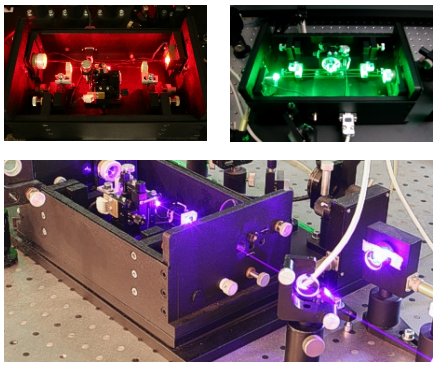
Typical input/output curves

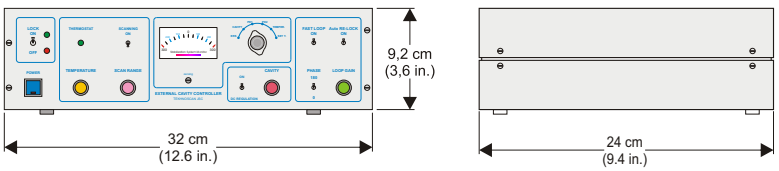




Dimensions:







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