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.
**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

**Applications**
- Cooling, BEC and manipulating atoms
- High-resolution spectroscopy
- Tasks requiring UV-blue ultra-narrow linewidth source

**Doubler Specifications**
Conversion efficiency for 1 W CW single-frequency input:
- 700-950 nm: > 25%
- 550-700 nm: > 20%
- 400-550 nm: > 15%

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
Fourth harmonic generation
Spectrally high-selective short wavelength technologies
Optical metrology

**Applications**
- Cooling, BEC and manipulating atoms
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- Fourth harmonic generation
- Spectrally high-selective short wavelength technologies
- Optical metrology

**Dimensions:**
- 50 cm (19.7 in.)
- 30 cm (11.8 in.)
- 14 cm (5.5 in.)
- 6.5 cm (2.6 in.)
- 32 cm (12.6 in.)
- 24 cm (9.4 in.)

**Typical input/output curves**

**Contacts**

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Information and specifications contained herein are deemed to be reliable and accurate as of the publication date. Tekhnoscan reserves the right to change these specifications at any time without notice.

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**Warning**
- Laser Radiation: Avoid looking or being exposed to direct or scattered radiation. Use protective eye wear.
- Laser Cooling: Use caution when handling laser components.
- Laser Power: Use caution when handling laser power sources.
- Power Source: Use caution when handling power sources.
- InnoPhotonics：“®

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**Figures:**
- Resonant cavity
- 825 nm ➔ 412.5 nm
- 532 nm ➔ 266 nm
- 32 cm (12.6 in.)
- 9.2 cm (3.6 in.)
- 9.1 cm (3.6 in.)
- 50 cm (19.7 in.)
- 14 cm (5.5 in.)
- 6.5 cm (2.6 in.)
- 30 cm (11.8 in.)
- 24 cm (9.4 in.)
- 32 cm (12.6 in.)