

Bitte beachten: Die angegebenen Spezifikationen beschreiben den ursprünglichen Neuzustand.

SHG/FHG CUSTOMIZED DLC DFB-TA-SHG Pro

Frequency Doubled High Power Laser TA-SHG pro, with 19" DLC pro control rack including mode hop free DFB Seed Laser.

Specifications

- Design wavelength: 390 nm
- Output power: 1000 mW
- Coarse tuning: 1 nm
- Linewidth (5 μ s): < 1 MHz
- Frequency stability: < 200 MHz/K
- Mode hop-free tuning: 20 GHz
- Beam quality: M^2 < 1.1 and 1.3 respectively
- Beam divergence (full angle): < 1mrad
- Ellipticity: < 10 %
- Beam pointing: < 1 μ rad RMS
- Beam diameter: 1.5 +/- 0.5 mm
- Relative intensity noise (RIN): < 4 % rms
- Polarization extinction ratio (PER): > 100:1
- Linewidth (5 μ s): < 1 MHz
- Power consumption: < 100 W (typical)

General description

A grating-stabilized DFB diode laser is optically isolated, amplified in a tapered semiconductor chip, beam shaped, optically isolated again, and coupled into a resonant second harmonic generation (SHG) stage. A selected non-linear crystal generates cw laser light at half the wavelength of the fundamental laser.

Features

- High quality digital Pound-Drever-Hall stabilization of SHG resonator length with automatic relocking to the correct resonator mode. Lock bandwidth 30 kHz w/ fast PZT, bandwidth extension with DBR current lock.
- Full digital control via touchscreen, PC GUI or command language (TCP/IP, USB), and analog remote control and monitoring

- PowerLock: Output power stabilization (TA, SHG, opt. FiberMon stage output can be selected)
- Beam shaping of SHG output with nearly diffraction limited beam profile.
- Probe beam output at fundamental wavelength for lock to an external reference to enable ultrahigh long term wavelength stability.
- TA beam output at fundamental wavelength available through flip mirror.

Content of Delivery

Laser head based on pro technology:

- Manufactured from a solid metal block for best amplitude stability (long & short term), head dimensions: 485x410x90mm³.
- Alignment-free, mode hop free DFB master laser
- Two connectors for fast frequency modulation of master laser (one DC coupled, one AC coupled, electric bandwidth > 100 MHz, protective circuit for laser diode).
- 2 high quality optical isolators to protect the master laser and the tapered amplifier.
- Tapered amplifier TA pro with selected TA chip, optimized heat management and unique collimation and beam shaping optics for best beam profile.
- Proprietary beam steering mirror holders based on flexure design for best acoustic and thermal stability. Beam steering can be adjusted from the top without opening the SHG head.
- Air sealed frequency doubling resonator SHG pro (manufactured from a solid block with entrance/ exit windows) with temperature controlled, AR coated crystal. Crystal and resonator mirrors can be adjusted without opening the air sealed resonator. Res. leak rate < 10e-3 mbar l/s
- Beam shaping optics for frequency converted output.

DLC pro electronics includes

- Lowest noise and drift, high resolution current, temperature and piezo drivers
- Up to 5 A driving current for amplifier chip, up to 10 A are available with surcharge SUR TA NLO / HP (includes integrated water plate)
- Flexible control by integrated CPU & FPGAs for intelligent features: scanning, signal display, locking*, relock*, FFT, power stabilization etc.
- Some features (*) are optionally available with the article DLC PRO LOCK
- 7" capacitive touch display together with four rotary knobs for comfortable and efficient front panel control
- Graphical PC user interface as well as command based (USB+TCP/IP) interface for remote control
- Set of required connector cables Operation requirements
- Laboratory-like environmental conditions,

- Technically trained operating person,
- Tap water cooling or DLC NLO CHILLER option for highest power of systems with SHG wavelength > 550 nm (DLC NLO CHILLER option recommended for best performance).

Warranty

Special warranty on laser diode and amplifier chip in NLO systems: 3000 h or 1 year (whatever comes first)

Special warranty on NLO crystals: 3000 h or 1 year (whatever comes first)

DLC SHG AUTOALIGN

Automatic alignment optimization option for free-space DLC SHG systems (DLC DL-/TA-SHG pro)

- The option consists of motorized ultrastable mirror mounts and intelligent control from DLC pro
- Optimization starts with one click
- Enables automatic optimization of coupling of fundamental laser beam into tapered amplifier for DLC TA-SHG pro systems
- Enables automatic optimization of coupling of fundamental laser beam into SHG resonator