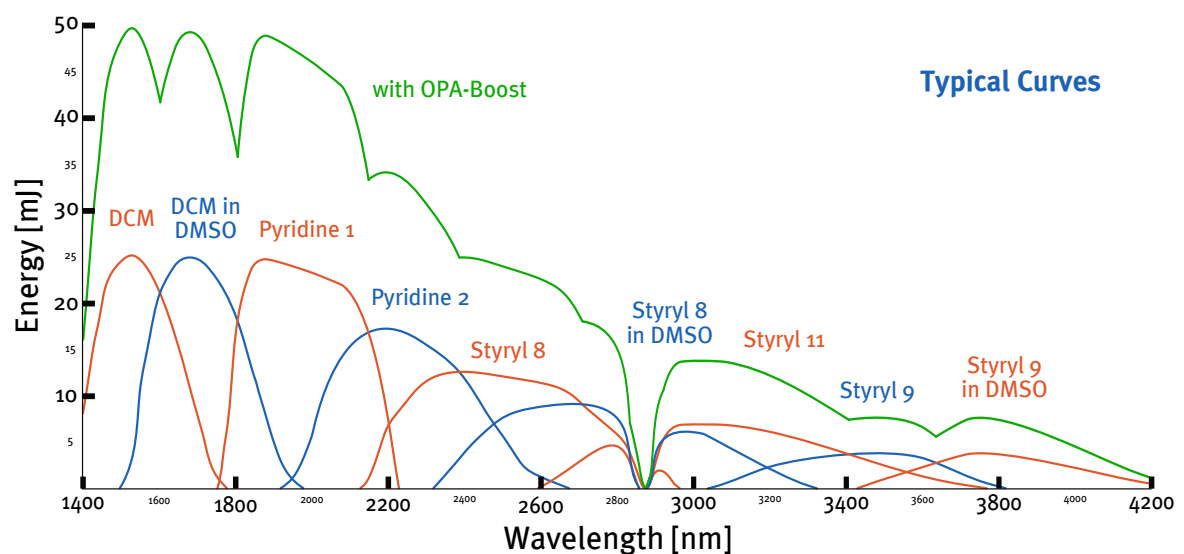


Optical Parametrical Amplifier Near-Infrared

A frequency doubled, injection seeded Nd:YAG laser is used to pump a PrecisionScan dye laser, operated in the red spectral range. The dye laser output beam and a fraction of the residual 1064 nm pulse from the Nd:YAG are mixed in a temperature stabilised LiNbO₃ crystal for difference frequency generation. The generated IR beam passes a second LiNbO₃ crystal, pumped by the remaining residual 1064 nm pulse, and used as an optical parametrical amplifier. The OPA amplifies the initial IR beam, and generates signal and idler beam.

- Narrow linewidth in the IR (0.1-0.03 cm⁻¹, when YAG is seeded)
- Optional OPA-Boost via 2nd DFA-3800-T crystal: boosting combined energy of signal and idler pulses up to 80 mJ (signal: 47 mJ @ 2 μm, idler: 33 mJ @ 2.27 μm)
- OPA-Boost option can be used to generate two IR-wavelengths with Piezo Wavelength Control (PWC)
- Perfect phase-matching and synchronization by FCU-WOCC mechanics providing full wavelength tuneability

Tuning Range



Typical tuning curves for mixing with approximately 550 mJ at 532 nm; gap characteristics shown for DFA-3800-T at 2870 nm.

Energy Output

Pump Laser	Dye Laser	Output Energy	Output Energy with OPA-Boost
550 mJ 532 nm	PrecisionScan G-18	20 mJ	40 mJ
550 mJ 532 nm	PrecisionScan D-18	18 mJ	36 mJ
430 mJ 532 nm	PrecisionScan G-18	16 mJ	32 mJ
430 mJ 532 nm	PrecisionScan D-18	14 mJ	28 mJ

IR energy output at 2 μm (max. at Pyridine 1). See tuning curves for output energies at other wavelengths. Values for injection seeded pump laser.

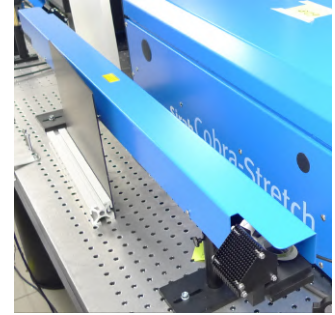
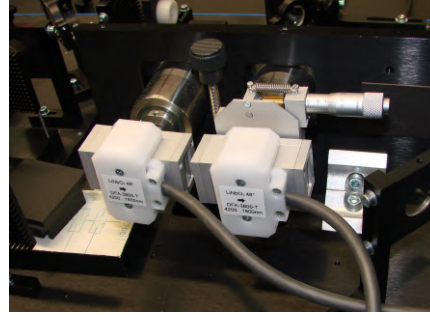
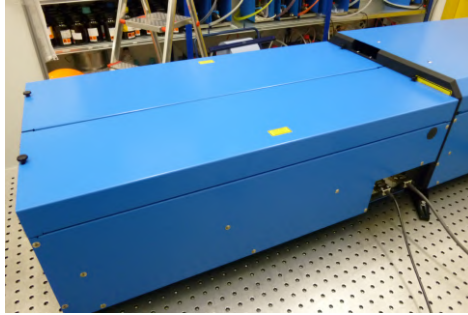
General Characteristics

Maximum Pump Energy	550 mJ @ 532 nm, 10 Hz repetition rate recommended
Seeder for Nd:YAG Laser	imperative
Dye Laser Amplifier	enhanced beam profile cell recommended
Crystal Tuning Mode	look-up table
IR Beam Polarization	vertical, > 98 %
IR Beam Diameter	5-9 mm (typical), depending on laser configuration
IR Beam Divergence	< 0.5 mrad
IR Bandwidth	< 1.1 x dye laser bandwidth

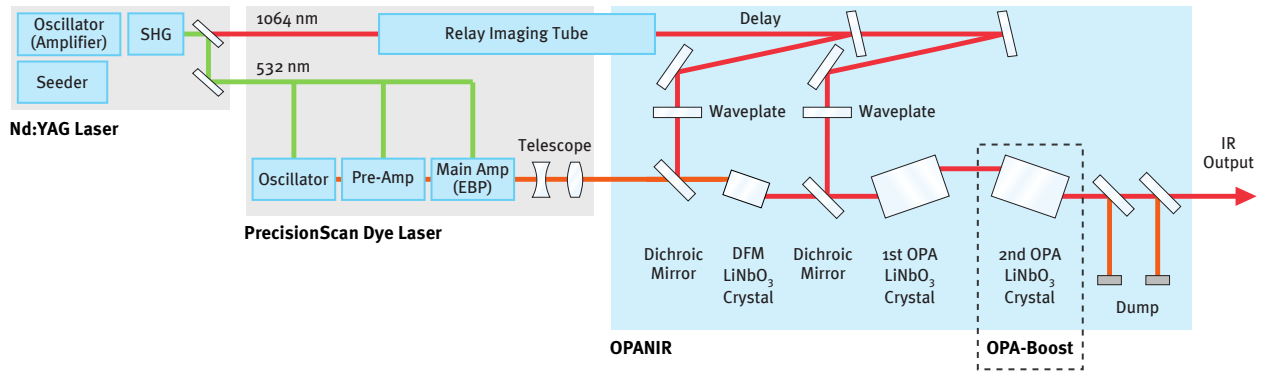
OPANIR

OPA-Boost

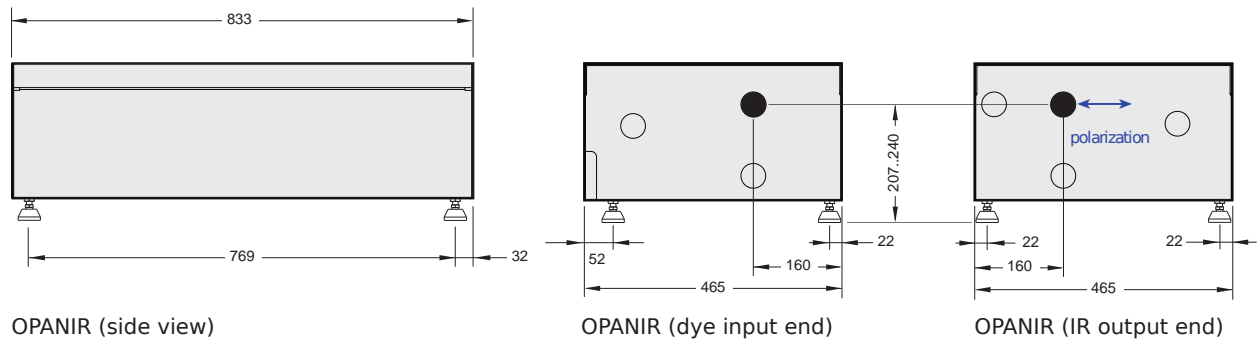
Relay Imaging Tube



Optical Layout



Dimensions



All Dimensions in mm
Specifications are subject to change without notice



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