THM
TECHNISCHE HOCHSCHULE MITTELHESSEN

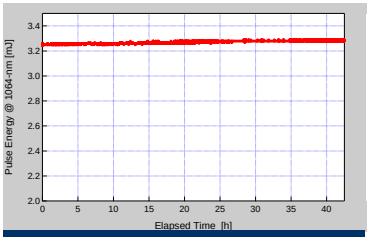
OTS
Kompetenzzentrum für
Optische Technologien und Systeme

HIGH Q LASER
THINK ULTRAFAST!™

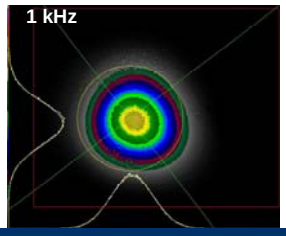
INNOLAS
LASER

Pico-REGEN High-Energy

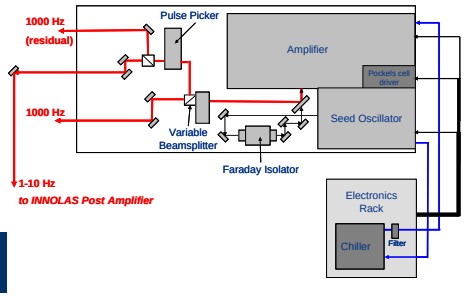
All-in-one picosecond regenerative amplifier system



Pulse Energy:	3.3 mJ
Repetition Rate:	1 kHz
Long-Term Stability:	0.34% RMS



Beam Circularity:	91.8%
M^2:	<1.3

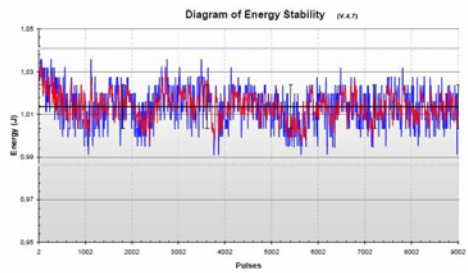


Wavelength: 1047/1053/1064 nm
Output power: 3W @ 1 kHz
Repetition rate: single shot – 1 kHz
(up to 50 kHz optional)

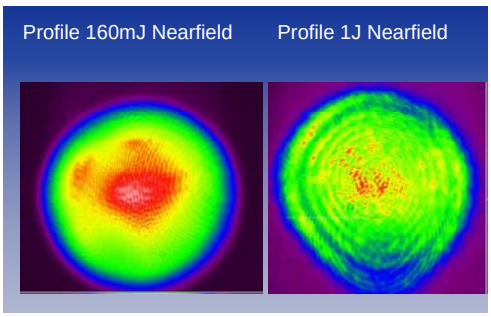
Pulse energy: 3 mJ @ 1 kHz
Pulse width: 8 ps
Optional: SHG/THG/FHG modules long pulse version for higher energies with InnoLas SpitLight

InnoLas SpitLight Pico

Lamp- or diode-pumped post amplifier



Repetition Rate:	10 Hz
Pulse Energy:	1000 mJ
Energy Stability:	0.9% RMS



Pulse energy: up to 1J (lamp pumped)
up to 100 mJ (diode pumped)
Repetition rate: single shot – 10 Hz (lamp pumped)
single shot -100 Hz (diode pumped)
Optional: SHG/THG/FHG modules

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Advantages and customer benefits:

- Modular setup: Seeder, regenerative amplifier and pump diodes are separate modules in one housing
- Flexibility: a big range of achievable laser parameters (repetition rate, pulse energy, pulse duration, wavelength) allows the use of one system for many applications (see below)

Applications for high energy picosecond pulses:

Satellite Laser Ranging (SLR):

- Picosecond pulses for high resolution are well established in the community
- Different applications in satellite geodesy require a different set of laser parameters: high energy is necessary to reach the high earth orbiting satellites (or even the moon); low earth orbiting satellites can be measured with reduced energy, allowing higher repetition and therefore higher data rates for improved accuracy in orbit determination.
- High Q Laser - in collaboration with Innolas - offers a wide range of laser systems to cover the varying needs of the SLR community

Material processing / Nonlinear optics:

- Flexibility between highest pulse energy (e.g. for the investigation of ablation processes or nonlinear effects) and higher repetition rate (leading to higher process speed)
- High frequency conversion efficiencies allow the use of multiple wavelengths
- A broad field of different experiments can be covered by one laser system

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