CLASS 5

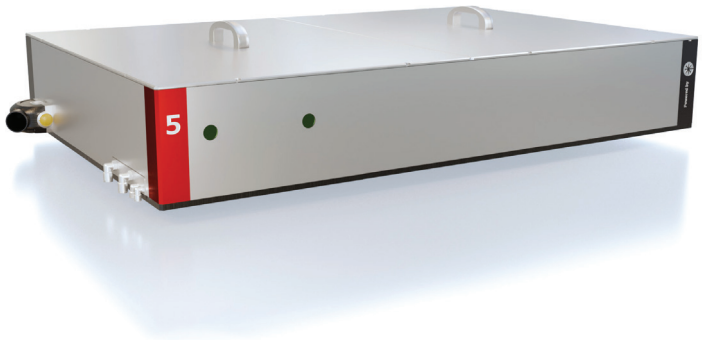
White Dwarf 3p

WD-1300S/ WD-1300 / WD-1300-pro

High Repetition Rate One-Box Three-Photon Imaging Laser

The WD-1300 is an ultrafast 1300 nm laser designed specifically for three-photon (3P) imaging. It has been meticulously engineered to provide a streamlined and dependable all-in-one 3P excitation source. Operating with up to 5 MHz, the WD-1300 delivers more than 5 W of power with sub 50 fs pulse duration. This makes it the ideal laser system for fast imaging of functional probes such as GFP and GCaMP families.

Furthermore, the White Dwarf offers dispersion precompensation bundled into a single unit, simplifying integration and eliminating the need for intricate setups. Additionally, users can access the 1035 nm fundamental output, enabling advanced two-photon photostimulation and imaging applications, all from a single excitation source.



Applications

- Three-Photon Imaging
- Multiphoton Imaging
- Two-Photon Imaging
- Optogenetics
- Photostimulation

Features

- > 5 W average power (after the compressor)
- < 50 fs pulse width
- 1 - 5 MHz repetition rate
- Optional dispersion compensation for optimum pulse width at the sample
- Switchable or parallel 1035 nm output access for two-photon photostimulation and imaging
- Integrated one-box design
- Active thermal management incl. water-cooled breadboard for highest stability and reliability

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Product specifications

Output 1	WD-1300S	WD-1300	WD-1300-pro
Wavelength (nm)	1300	1300	1300
Average power (W)	> 1	> 3	> 5
Pulse duration (fs)	< 50	< 50	< 50
Repetition rate (MHz)[2]	1	up to 5	up to 5
Pulse energy (µJ @ 1 MHz)	> 1	> 3	> 5
M^2	< 1.1	< 1.3	< 1.3
Beam diameter ($1/e^2$) mm	< 2	< 2.5	< 2.5
Divergence (mrad)	< 0.5	< 1	< 1
Beam circularity (%)	> 85	> 85	> 85
Pointing stability (µrad/C°)	< 20	< 20	< 20
Polarization	S	S	S
Power stability RMS	< 1%	< 1%	< 1%
Pulse to pulse stability RMS	< 2%	< 2%	< 2%
Output 2 (switchable)[4]			
Wavelength	1030	1035	1035
Average power	10	40	60
Pulse duration	< 350	< 350	< 350
Repetition rate (MHz)	up to 20	Up to 50	Up to 50
Pulse energy (µJ @ 1 MHz)	10	40	60
M^2	< 1.2	< 1.2	< 1.2
Beam diameter ($1/e^2$)	1	< 2.7	< 2.7
Divergence (mrad)	< 1.6	< 1	< 1
Beam circularity (%)	> 85	> 85	> 85
Pointing stability (µrad/C°)	< 20	< 20	< 20
Polarization and Extinction ratio	S	S	S
Power stability RMS	< 0.5 %	< 1 %	< 1 %
Options			
GDD precompensation[3]	up to -12,000 fs^2		
Mechanical and Electrical Specifications			
Laser Head Dimensions (LxWxH)	95 x 65 x 25.5 cm^3		
Cooling	actively cooled breadboard, water-air chiller		
Laser Power Supply Dimensions (LxWxH)	35 x 19 x 83 cm^3		
Power Requirements	100/240 VAC (50/60 Hz)		
Power Consumption (average)	< 100 W	< 300 W	< 500 W

Notes:

1. Specifications subject to change.
2. Factory set, must be specified when ordered and will be optimized prior to shipment.
3. Extended dispersion precompensation on request.
4. Outputs 1 and 2 available simultaneously on request.

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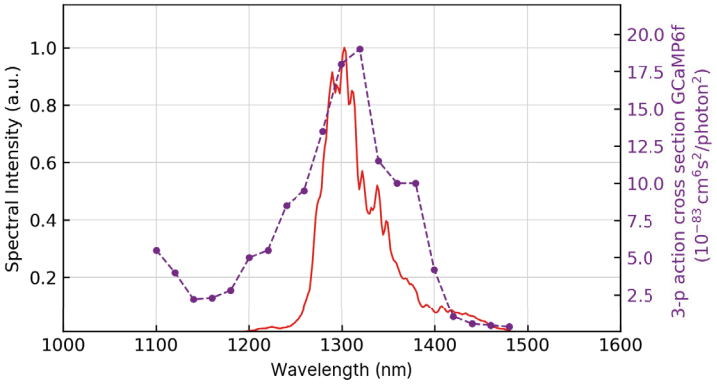
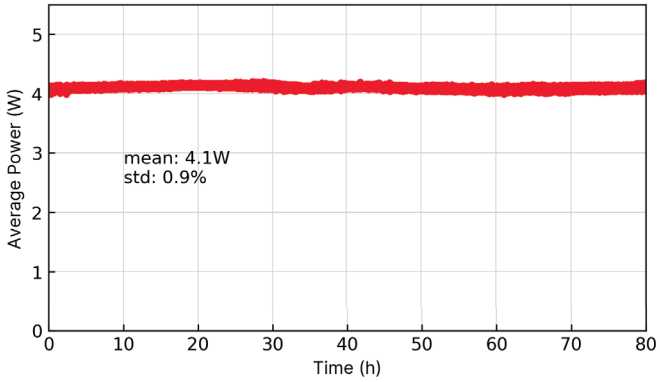
Performance Data

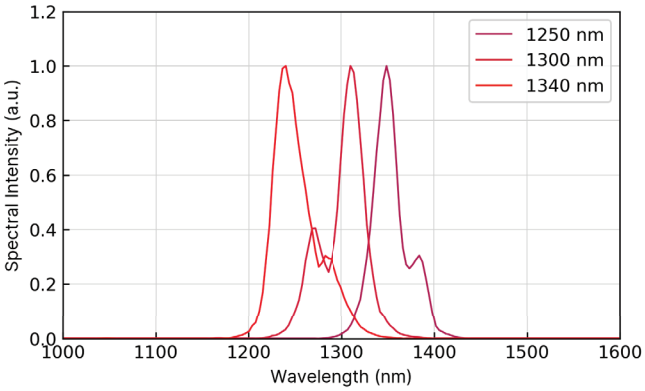
WD-1300 spectrum with 3-p action cross section



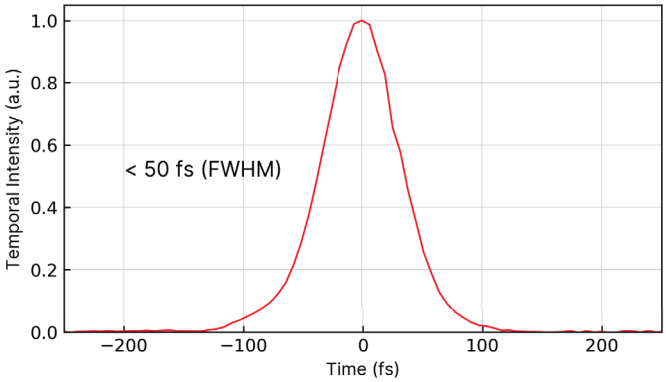
WD-1300 power stability



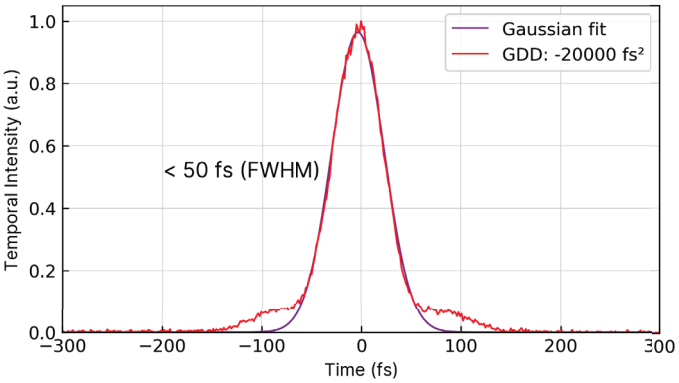
WD-1300 tunable option

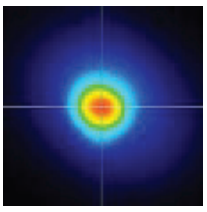


WD-1300 temporal shape



WD-1300 dispersion precompensation





Beam profile

$M^2x < 1.2$

$M^2y < 1.3$

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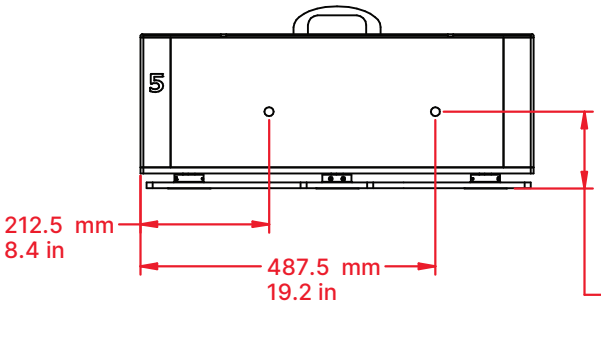
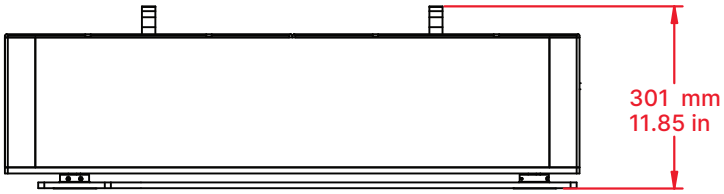
Mechanical Specifications

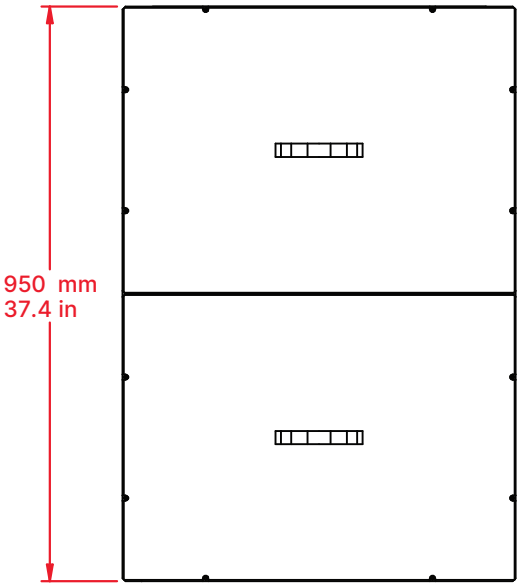
Front View



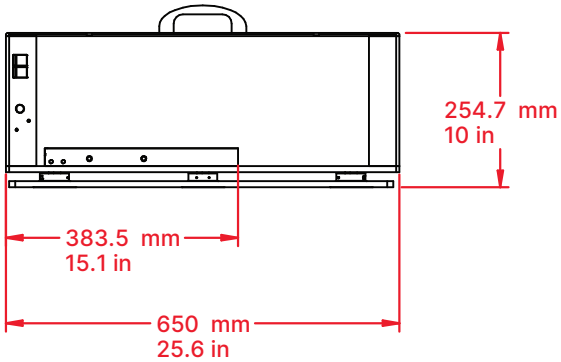
Side View



Top View



Rear View



Find more info

www.class5photonics.com

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