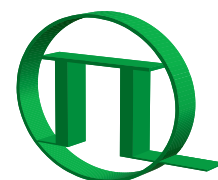


VisUV

NEW



PICOQUANT

Versatile Picosecond Laser Module

- Center emission wavelength 266, 355, 532, and 1064 nm
- Pulse width typ. 70 ps (FWHM)
- Average output power between 2 mW and 1000 mW (depending on wavelength)
- Repetition rates from single shot up to 80 MHz, external or internal triggering
- Collimated output



Applications

- Time-resolved fluorescence spectroscopy/microscopy (FLIM, FRET, FCS)
- Stimulated Emission Depletion Microscopy (STED)
- Biochemical analytics
- Diffuse Optical Tomography (DOT)
- Quantum optics
- LIDAR, Ranging
- 3D polymerization

The VisUV laser is a versatile and flexible platform based on a Master Oscillator Fiber Amplifier (MOFA) concept with frequency conversion. The master oscillator generates infrared picosecond pulses at 1064 nm with variable repetition rates up to 80 MHz using the proven gain-switching techniques from PicoQuant. The output of this seed laser is directly connected to a multi-stage fiber amplifier, which boosts the output from the seed laser by several dB while maintaining the other characteristics of the seed laser beam like the emission wavelength, polarization and the pulse width.

Flexible wavelength configuration

The high pulse energies of the amplified 1064 nm infrared laser permit efficient wavelength conversions using second, third, and fourth harmonic generation (SHG, THG, FHG). In that way it is possible to generate picosecond pulses at 1064, 532, 355, and 266 nm with average optical power values of more than 1000, 750, 10 and 2 mW respectively.

While any wavelength is available individually, 266, 355 and 532 nm can also be offered in combination of two or three wavelengths. Each wavelength is emitted from a separate beam output equipped with an individual shutter.

Flexible repetition rate

The VisUV can be operated at 12 different internally selectable repetition rates between 31.25 kHz and 80 MHz and can also be triggered externally by TTL or NIM signals at any repetition rate between single shot and 80 MHz.

Excellent beam quality

The VisUV features nearly perfectly circular and gaussian shaped beam profiles (TEM_{00}) which can be specified as a value of $M^2 < 1.1$ and $M^2 < 1.2$ at 532 nm and 355 nm, respectively.

Compact stand alone device

The VisUV is a stand alone device with a special design optimized for maximum heat dissipation. It includes all driving functions of the established PDL series laser driver such as choice of repetition rate and trigger source. An optional remote control for the VisUV allows to set the trigger source, the repetition rate, and the general output power of the laser.

Specifications

VisUV versions with 2 or 3 output wavelengths

Optical output	266 ± 1 nm	355 ± 1 nm	532 ± 2 nm
Center wavelength*	266 ± 1 nm	355 ± 1 nm	532 ± 2 nm
Maximum average output power	> 2 mW	> 5 mW	> 250 mW
Pulse width (FWHM)	< 70 ps	< 70 ps	< 70 ps
Spectral width	<< 1 nm	<< 1 nm	<< 1 nm
Output	collimated beam**	collimated beam	collimated beam
Divergence	< 2 mrad	< 0.5 mrad	< 0.5 mrad
Beam diameter	1.0 mm ± 0.2 mm	1.5 mm ± 0.2 mm	2.1 mm ± 0.2 mm
Beam quality	$M^2 < 1.1$ (vertical), $M^2 < 1.5$ (horizontal)	$M^2 < 1.2$ (typ. ~ 1.1), TEM_{00}	$M^2 < 1.1$ (typ. ~ 1.02), TEM_{00}
Max time delay between outputs	< 1 ns	< 1 ns	< 1 ns
PER	> 25 dB	> 25 dB	> 25 dB
Power stability (12 hours, $\Delta T_{ambient} < 0.5$ K)	< 3 % rms	< 3 % rms	< 3 % rms

VisUV versions with single output wavelength

Optical output	VisUV-266	VisUV-355	VisUV-532
Center wavelength*	266 ± 1 nm	355 ± 1 nm	532 ± 2 nm
Maximum average output power	> 2 mW	> 10 mW	> 300 mW
Pulse width (FWHM)	< 70 ps	< 70 ps	< 70 ps
Spectral width	<< 1 nm	<< 1 nm	<< 1 nm
Output	collimated beam**	collimated beam	collimated beam
Divergence	< 2 mrad	< 0.5 mrad	< 0.5 mrad
Beam diameter	1.0 mm ± 0.2 mm	1.5 mm ± 0.2 mm	2.1 mm ± 0.2 mm
Beam quality	$M^2 < 1.1$ (vertical), $M^2 < 1.5$ (horizontal)	$M^2 < 1.2$ (typ. ~ 1.1), TEM_{00}	$M^2 < 1.1$ (typ. ~ 1.02), TEM_{00}
Max time delay between outputs	none (one beam only)	none (one beam only)	none (one beam only)
PER	> 25 dB	> 25 dB	> 25 dB
Power stability (12 hours, $\Delta T_{ambient} < 0.5$ K)	< 3 % rms	< 3 % rms	< 3 % rms

Optical output	VisUV-532-HP	VisUV-1064 (preliminary)
Center wavelength*	532 ± 2 nm	1064 ± 2 nm
Maximum average output power	> 750 mW	> 1000 mW
Pulse width (FWHM)	< 1 ns	< 80 ps
Spectral width	<< 1 nm	<< 1 nm
Output	collimated beam	collimated beam
Divergence	< 0.5 mrad	< 1 mrad
Beam diameter	2.1 mm ± 0.2 mm	1.1 mm ± 0.1 mm
Beam quality	$M^2 < 1.1$ (typ. ~ 1.02), TEM_{00}	$M^2 < 1.3$ TEM_{00}
Max time delay between outputs	none (one beam only)	none (one beam only)
PER	> 25 dB	> 18 dB
Power stability (12 hours, $\Delta T_{ambient} < 0.5$ K)	< 3 % rms	< 3 % rms

* 266, 355 and 532 nm are available simultaneously, single or any combination of two. 1064 nm is available only in single beam version.
** limited collimation range

General Specifications (valid for all devices)

Repetition rates

Internal

Rangeuser selectable:
80, 40, 20, 10, 5 or 2.5 MHz (80 MHz base frequency)
1000, 500, 250, 125, 62.5 or 31.25 kHz (1 MHz base frequency)

External via NIM input

Range< 10 Hz to 80 MHz
Trigger levelfixed trigger level at -400 mV
ConnectorNIM-CAMAC

External via TTL input

Range< 10 Hz to 80 MHz
Amplitude- 5 V to + 5 V (maximum limits)
Trigger leveladjustable between -1 V and +1 V
ConnectorBNC

Synchronization output

Amplitude< -800 mV into 50 Ohms (NIM)
ConnectorSMA

Delays

Trigger in (NIM) to sync outtyp. 9 ± 1 ns
Trigger in (NIM) to optical outtyp. 80 ns
Sync out to optical outtyp. 70 ns

Dimensions

Size (l × w × h)352 × 336 × 82.5 mm
Weightca. 9 kg

Operation

Temperature range10 °C - 35 °C
Maximum power consumption115 W



VISIBLE AND INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION
CLASS IV LASER PRODUCT
Complies with IEC 60825-1:2007 / 21 CFR 1040.10 and 1040.11
except for deviations pursuant to Laser Notice No. 50, dated 24-Jun-07
MAXIMUM OUTPUT < 10 W / WAVELENGTH = 250 nm - 1100 nm
SEE MANUAL

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