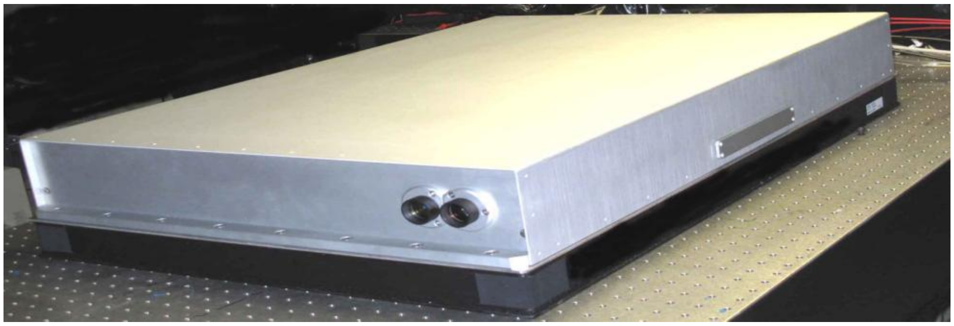
PASSAT

HELPP-UV

All Solid-State IR/Visible/UV turnkey Picosecond Lasers



The HELPP-UV is a family of low-cost turnkey picosecond lasers featuring high peak power, rugged design, and outputs at 266 nm and 355 nm (optional). The combination of short pulse length and high peak power makes HELPP lasers especially effective in manufacturing flat panel displays, solar cells, and other similar applications.

The main advantage of HELPP-UV is the controllable removal of thin layers of plastic, polymer and resin (photo-destruction and dry sublimation) with no residual heat transfer to surrounding areas.

Another important benefit is cutting thick sheets of metal, glass, and plastic with minimum material runoff due to the narrow area of laser processing (typical depth of hole $d[mm] \approx E\,[mJ]$) .In order to drill through ~ 3 *mm* stainless steel sheet the laser pulse energy $E \approx 3\ mJ$ and the bore diameter about *100 um*). The optimal UV beam diameter our picosecond pulses produce relatively high rate of cutting of thick sheets of material.

Laser Features

- Unmatched picosecond pulse energy
- 8 ps and shorter output pulse width
- Near TEM_{00} beam quality
- External computer control over the repetition rate and output energy via the built-in RS232 port
- Brand new patented design: compact size, low weight and consumption power

Applications

- Precise machining via micro- and nano-imaging
- Ablation lithography and photo-mask repair
- Drilling and cutting thick layers of different materials, especially armor, glass, ceramics (thickness up to 15 mm)
- Remote sensing
- Flat panel and liquid crystal display
- Solar cell manufacturing
- Ultrahigh density 3D storage technology
- Transparent material modification
- Thin-film deposition
- Non-coherent EUV laser sources
- High accuracy global positioning system
- Photo Ionization, LIBS
- Single and double photon Laser Induced Fluorescence (LIF), Time resolved spectroscopy, Raman spectroscopy
- Fragmentation and destruction of organic and bio-molecules

Specifications	*HELPP - UV*
Wavelengths	1064 nm,532 nm,266 nm,355 nm (optional) 213nm (optional)
Repetition Rate	400 Hz
Energy Output	8 mJ at 1064 nm 6 mJ at 532 nm 4 mJ at 355 nm 2.4 mJ at 266 nm 0.6 mJ at 213 nm
Pulse-to-pulse stability	5 %
Pulse counting	available via RS-232 port (up to $4 \cdot 10^9$ pulses)
Pulse width (at 1064 nm)	8 ps
Q-switch	Passive
Divergence	Diffraction limited
Beam profile	Gaussian
Output Beam pointing stability (std dev, 1 h)	0.3 Diffraction Limit
Linewidth	2.7 cm^{-1} (Fourier limited)
External control	Connector/pin for TTL trigger input or +4 +/-1V, into 1 kΩ
Electrical power	~ 100-240 VAC, 47-63 Hz, single phase
Power consumption	100 W
Warm Up time	< 5 minutes
Laser dimensions	850 x 300 x 120 mm^3
Weight	20 kg
Operating temperature and humidity	20-27° C; 10-80 %
Compliance	CDRH, CE

Content and Delivery

The delivered laser consists of the following:

- Laser Head and Power Module;
- Power Cable;
- CD with Manual and Control Application; and
- Test Record.

Warranty

1 year for all parts and labor excluding the laser pump diode. The pump diode is warranted for the lesser of 1 year or 10^9 pulses, whichever occurs first.

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