

IMPULSE™ >20-Watts Average-Power Ultrashort-Pulse Laser



- **Direct diode-pumped Yb-fiber oscillator/amplifier design**
- **All-diode pumped, all-solid state construction**
- **Robust, one-box design**
- **>20 Watts Average Power @ 2 MHz repetition rate**
- **Repetition rate variable from 200 kHz to 25 MHz**
- **High beam quality**
- **Low noise, cw-pumped**
- **High stability and longevity**
- **Computer control**
- **Applications:**
 - **Micromachining**
 - **Photopolymerization**
 - **Direct-write waveguides**
 - **High S/N pump/probe**
 - **OPA/NOPA pumping**

IMPULSE™ is an all-diode & direct-diode-pumped (A&DDP) Yb-doped fiber oscillator/amplifier system capable of producing variable pulse energies up to 10 microjoules at repetition rates between 500 KHz and 2 MHz. The repetition rate is further adjustable up to 25 MHz at a constant 20 watt average power output (i.e. reduced pulse energy above 2 MHz.) This average power is more than an order-of-magnitude higher than has traditionally been available in a one-box ultrashort pulse laser design.

IMPULSE™ is based on a revolutionary new concept in mode-locked oscillator/amplifier technology. The use of a Yb-doped fiber-oscillator/fiber-amplifier design combines the low noise performance associated with solid state operation with the high mode quality of fiber lasers.

IMPULSE™ is a source of femtosecond to picosecond pulses possessing the ease-of-operation, stability and reliability you would expect from a fiber source. Applications include multi-photon photopolymerization and waveguide writing, harmonic generation, and OPA/NOPA wavelength conversion for high S/N, and rapid data acquisition in pump/probe experiments.

IMPULSE™ - when “good enough” is not good enough.

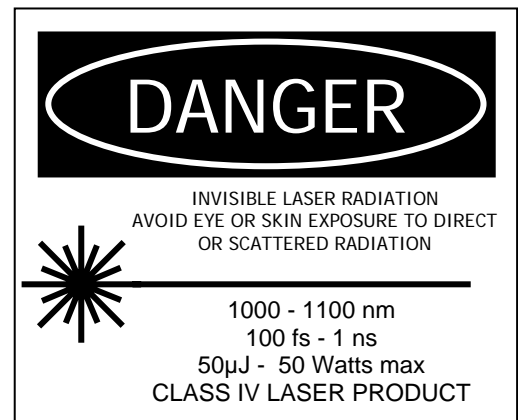
*Repetition rate variable from single-shot to 500 KHz available as an option.

Performance Parameters¹:

- Repetition rate: User adjustable via computer from 200 kHz to 25 MHz² (in increments of the oscillator repetition rate divided by a whole integer)
- Pulse energy: User variable via computer between 100 nJ and 10 μ J (e.g. > 0.8 μ J @ 25 MHz, > 10 μ J @ < 2 MHz)
- Average power output: User adjustable via computer up to 20 Watts
- Pulse width: User adjustable via computer between < 250 fs and > 8 ps
- Transverse mode: TEM₀₀, M² < 1.2 - 1.5 depending on pulse energy
- Variation in pulse energy: < 1% rms
- Center Wavelength: 1.03 microns
- Electrical: 110 VAC, 20 Amps
- Dimensions: Laser Head: 40.38" x 28.13" x 10.34"
 Control Cabinet: 32" x 22" x 49"

¹Preliminary Specifications. Subject to change without notice. Contact Clark-MXR at sales@cmxr.com for further details.

²Optional pulse picker available to adjust repetition rate in the range of 200 kHz to single shot.



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Due to space limitations, only basic information and specification parameters are listed on this sheet.
For more details, please contact sales@cmxr.com.

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