



Innovative Ultrafast Laser Solutions

IMPULSE

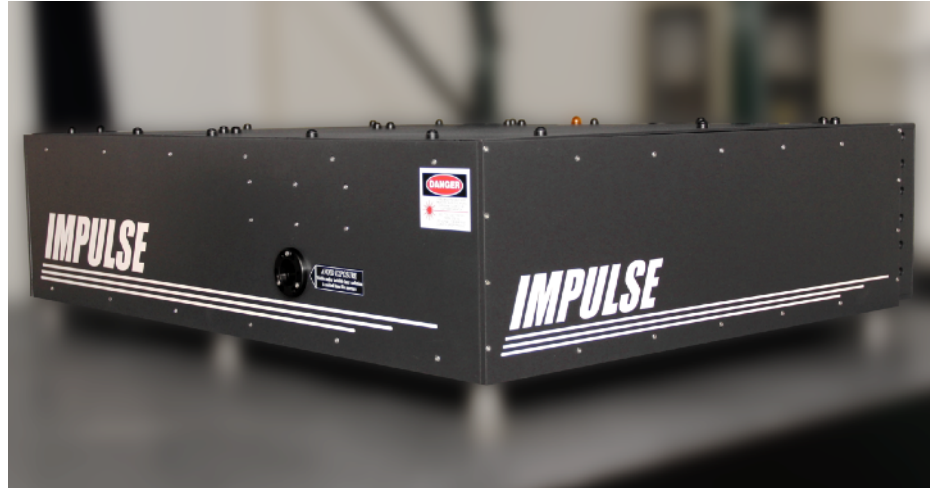
High-Average-Power Femtosecond Fiber Oscillator/Amplifier

ADVANTAGES

- Direct diode-pumped Yb-fiber oscillator/amplifier design
- All-diode-pumped, all-solid-state construction
- Robust, one-box design
- >20 watts average power
- User-adjustable repetition rate from single-shot to 25MHz
- High beam quality
- Low noise, cw-pumped
- High stability and longevity
- Fully computer controlled with remote operation/diagnostic capabilities

APPLICATIONS

- High harmonic generation
- Ultrafast electron spectroscopy & microscopy (4D-UEM/SUEM)
- Ultrafast Cathodoluminescence microscopy
- Photoemission spectroscopy (PEEM/ARPES)
- High signal to noise ratio pump/probe spectroscopy & microscopy
- NOPA/OPA pumping
- Synchrotron/FEL synchronization
- Micro-machining
- Photo-polymerization
- Direct-write waveguides
- Nanopatterning
- MHz femtosecond SERS



IMPULSE is an all-diode-pumped, direct-diode-pumped Yb-doped fiber oscillator/amplifier system capable of producing variable pulse energies of $>10\mu\text{J}$ with user-adjustable repetition rates between single-shot and 25MHz. With more than 20 watts average power output, IMPULSE offers more than an order-of-magnitude higher power 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 Yb-doped fiber-oscillator/fiber-amplifier design combines the low noise performance of a solid-state operation with high spatial mode quality of fiber lasers.

IMPULSE is a compact, robust, one-box source of femtosecond to picosecond pulses with the ease-of-operation, stability and reliability you expect from a fiber source. All major parameters are computer controlled, enabling easy interface to a workstation or experimental setup. IMPULSE is remotely accessible for control of all laser parameters and diagnostics.

Optional accessories/customizations include: Frequency conversion (NOPA/OPA and harmonic generators), synchronization electronics, pump/probe and nonlinear spectrometers and micro-machining workstations.

Specifications:

Average Power	>20 watts, user adjustable
Repetition Rate	single-shot to 25MHz ¹ , user adjustable
Pulse Energy	>10μJ
Pulse Duration	sub-250fs, user adjustable between <250fs and >8ps
Transverse Mode	TEM ₀₀
Beam Quality (M ²)	<1.2
Noise	<1% RMS
Central Wavelength	1030nm
Beam pointing stability	< 25 μrad/degC
Electrical	110V (40A) or 220VAC (20A)
Polarization	Linear, Horizontal
Cooling requirements	None
Laser Head Dimensions	32.5"L x 27.2"W x 9"H
Control Cabinet Dimensions	22.5"W x 25.5"D x 33.5"H
User Interface/Connectivity	Touchscreen, Ethernet

Notes:

- Other pulse energies are available
 - IMPULSE can be used to pump two NOPAs/OPAs simultaneously
 - Synchronization options are available for FEL and Synchrotron applications
 - Custom configurations available. Please contact us at sales@cmxr.com
 - Optional harmonic generation (2nd, 3rd & 4th) modules are available
 - 1-year system warranty with 5-year full replacement warranty on oscillator
- ¹Optional PulsePicker is available for repetition rates below 200kHz



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