

IMPACT[®]-4000 SERIES

High Energy, High Power TEA CO₂ Laser Systems



A range of standard ultrashort-pulse TEA CO₂ lasers for advanced applications in science and industry

- Based on multi-module combinations of the industrially-proven IMPACT-2000 Series
- Multi-module oscillators and oscillator-amplifier systems available.
- Ultrashort pulse durations (~100 ns)
- Line-tunable operation as a standard option
- Single-mode operation as a standard option
- Typical applications:
 - Plasma Diagnostics
 - Laser Photochemistry
 - Optical Damage Studies
 - Non-Destructive Testing
 - Laser Propulsion and Particle Acceleration
 - Large-Area Material Ablation & Surface Removal



LightMachinery Impact[®]-4000 Series Laser Systems

LightMachinery offers a wide range of standard laser systems based on combinations of industrially-proven **Impact-2000** laser modules.

In the simplest case, two or more **Impact-2000** modules can be combined within a single resonator cavity to offer higher pulse energies and/or higher pulse repetition rates than those offered by a single **Impact-2000** laser.

Impact-4000 Series lasers also include a range of standard master-oscillator / power-amplifier (MOPA) configurations.

In these systems, the beam parameters (divergence, linewidth, mode structure, range of wavelength tuning, etc.), are mainly defined by the Master Oscillator, and the final energy is defined by the number of Power Amplifier modules.

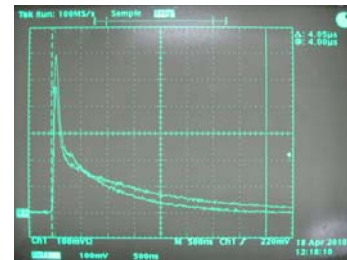
Standard options with **Impact-4000 Series** laser systems include:

- Wavelength tuning (manual or computerised)
- Single transverse-mode (TEM₀₀) operation
- Single longitudinal-mode (SLM) operation

Pulse Duration

For many scientific and some industrial processes, pulse duration and peak power are critical requirements.

Approximately 80% of the total energy of Impact-4000 Systems is contained within the first 200 ns of the pulse. The remaining energy is in the tail of the pulse stretching to a few microseconds



How to define your Impact-4000 Laser System:

IMPACT-4XXX⁽¹⁾-OY⁽²⁾-AZ⁽³⁾-TM⁽⁴⁾-LOM⁽⁵⁾-WL⁽⁶⁾

- (1) XXX = repetition rate. Choices at 10, 12, 15, 30, 150, 300 and 500 pps
- (2) Y = number of oscillator modules
- (3) Z = number of amplifier modules
- (4) TM = transverse mode. Choices are multimode (MM), TEM₀₀ (SM) or adjustable aperture (AA)
- (5) LOM = longitudinal mode. Choices are multi-longitudinal mode (MLM) or single-longitudinal mode (SLM)
- (6) WL = wavelength range. Choices are fixed line (FL) or line-tunable (LT)

Examples of Standard Performance:

IMPACT-4010-O2-A0-MM—MLM-FL

12 J at 10 pps, 2-module oscillator, no amplifier modules, multi-transverse and multi-longitudinal mode, fixed line (10.6 μm)

IMPACT-4012-O1-A4-SM-SLM-LT

3 J at 12 pps on the stronger lines in each band, 1-module oscillator, 4 amplifier modules, single transverse and single longitudinal mode, line tunable.

For details of other standard models and options in the IMPACT-4000 range, please contact LightMachinery.

www.lightmachinery.com

LightMachinery

For further technical and sales information, please visit our website or contact:

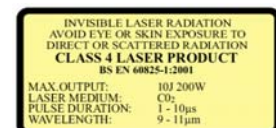
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