

For current pricing,  
please see our website.

## CHAPTERS

## Coherent Sources

## Incoherent Sources

## Quantum Electronics

## Drivers/Mounts

## Accessories

## SECTIONS

## Laser Diodes

## Pigtailed Diodes

## Fiber-Coupled Laser Sources

## WDM Laser Sources

## HeNe Lasers

## Laser Diode Modules

## Tunable Lasers

## Femtosecond Lasers

## Optical Amplifiers

## Octavius-1G: 1 GHz, 6 fs Ti:Sapphire Oscillators

idestaQE  
quantum electronics

### Features

- Pulse Width <6 fs
- Robust Design with Compact Footprint
- Octave-Spanning Spectral Bandwidth
- Numeric Readout of Key Optic Positions
- Temperature and Environmentally Stabilized Housing

IdestaQE's Octavius-1G Ti:Sapphire laser offers the broadest spectrum commercially available today. The spectrum allows for carrier-offset frequency stabilization without external spectral broadening. The high repetition rate is useful for high-cycling pump-probe experiments like Asynchronous Optical Sampling (ASOPS) and frequency comb applications. High-speed laser scanning microscopy setups also benefit from the high repetition rate, as artifacts (Moiré effects) caused by a beat node between the scan frequency and the pulse repetition frequency are avoided.

### The Octavius Technology

The Octavius-1G laser cavity incorporates dispersive octave-spanning mirror pairs, which are necessary for high-precision group-delay control over an entire octave-wide bandwidth. During the fabrication process of these unique mirror pairs, more than 100 individual layers are deposited on each surface, thereby guaranteeing well-behaved, smooth pulse dispersion.

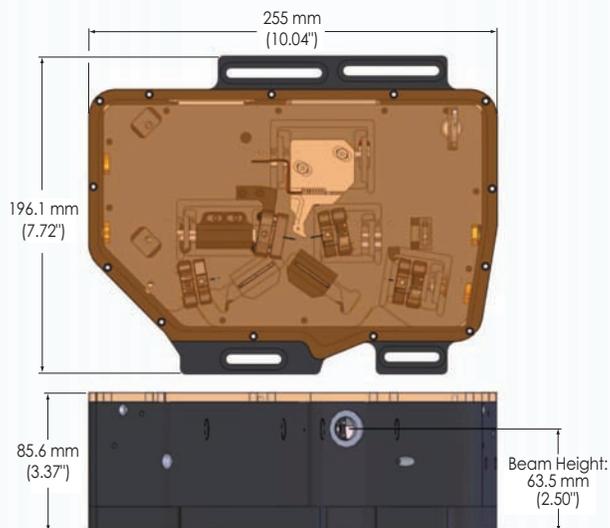
To create such short pulses, the spectral bandwidth must exceed that of the gain medium in the Ti:Sapphire laser. The high intensity of the short pulses induces self-phase modulation (SPM), which creates additional intracavity spectral broadening beyond that of the gain bandwidth of Ti:Sapphire. The uniquely engineered cavity of the Octavius-1G exploits the interplay between the strong SPM in the Ti:Sapphire crystal and the dispersion generated by the mirror pairs to generate stable, ultra-short pulses that cannot be produced using standard cavity designs. The spectral bandwidth of the Octavius enables a robust, long-term stable,  $f/2f$  carrier-envelope-offset frequency beat detection with more than 30 dB signal-to-noise ratio in a 100 kHz bandwidth.

### Pump Laser

The Octavius-1G Ti:Sapphire Oscillator can be purchased separately or with an integrated pump laser. The pump laser is based on state-of-the-art Optically Pumped Semiconductor Laser (OPSL) technology, which allows for high compactness. In the latter case, both the OPSL laser and the Ti:Sapphire oscillator are integrated on a rigid, water-cooled platform.

### Applications

- Frequency Metrology
- Pump/Probe Experiments
- Astro Combs
- Biological Probing and Imaging



OCTAVIUS-1G

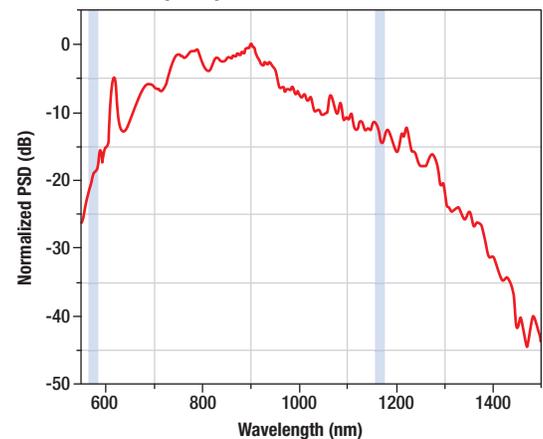


**INVISIBLE LASER RADIATION**  
AVOID EXPOSURE TO BEAM  
CLASS 3B LASER PRODUCT  
600 - 1200 nm <500mW  
IEC 60825-1 EDITION 1.2 2001-08

### Specifications

| ITEM #                       | OCTAVIUS-1G                    | OCTAVIUS-1G-HP      |
|------------------------------|--------------------------------|---------------------|
| Pulse Width                  | <6 fs                          |                     |
| Bandwidth @ -10 dB           | 300 nm                         |                     |
| Average Output Power         | 300 mW @ 5.5 W Pump            | 750 mW @ 7.5 W Pump |
| Divergence                   | <2 mrad                        |                     |
| Polarization                 | >90:1                          |                     |
| Power Stability Over 8 Hours | ±1%                            |                     |
| Dimensions                   | 10.0" x 7.7" (255 mm x 196 mm) |                     |

### Output Spectrum of the OCTAVIUS-1G



| ITEM #*        | \$   | £    | €    | RMB  | DESCRIPTION                                |
|----------------|------|------|------|------|--|
| OCTAVIUS-1G    | CALL | CALL | CALL | CALL | 1 GHz, 6 fs Ti:Sapphire Oscillator, 300 mW |
| OCTAVIUS-1G-HP | CALL | CALL | CALL | CALL | 1 GHz, 6 fs Ti:Sapphire Oscillator, 750 mW |

\*For more information and for local and updated pricing, please call IdestaQE, Inc. at +1-973-300-2525 or visit [www.idestaQE.com](http://www.idestaQE.com)