

- 80 MHz (70 -110 MHz options)
- Pulse duration and power options
- Stable, long term mode-lock
- Integrated PZT for active repetition rate stabilisation



## Overview

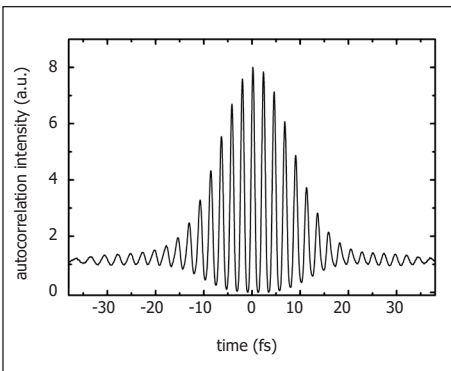
The **gecco** is a fully equipped, compact femtosecond laser in a sealed enclosure, offering an average power of  $>1\text{ W}$  and with a choice of  $<15\text{ fs}$  or  $<20\text{ fs}$  pulse durations. The **gecco** is offered with repetition rates of 80 MHz (70-110) with optional repetition rate locking to an external source.

Designed for simple installation and system integration, the **gecco** oscillator features a highly compact, vibration resistant laser head with an **opus 532** or **finesse pure** as the integrated pump source (model dependent), and a separate, fully featured control unit.

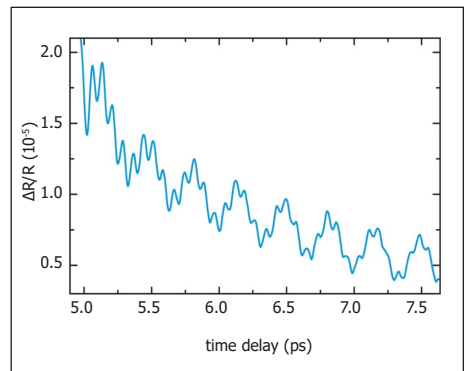
This highly stable laser boasts an industry leading lifetime, very low cost of ownership and comes with 2 year/unlimited hours warranty covering all operating specifications.

## Optional repetition rate and active feedback

If required, active repetition rate control can be implemented for locking to an external signal source. Coarse repetition rate control is enabled by motorised mirror movement, whereas high-speed and large-amplitude feedback is realised using 2 piezomechanic transducers. Regulation through the **TL-1000** repetition rate stabilisation unit achieves a timing jitter  $<100\text{ fs}$  (0.1 Hz to 100 kHz). Alternatively, the 2 piezos can be driven by customer supplied electronics.



Autocorrelation trace of **gecco** indicating emission of pulses with 15 fs duration.

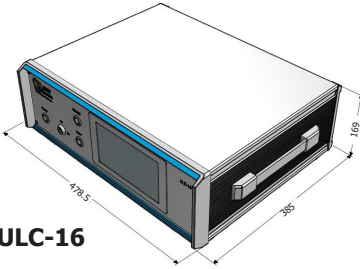
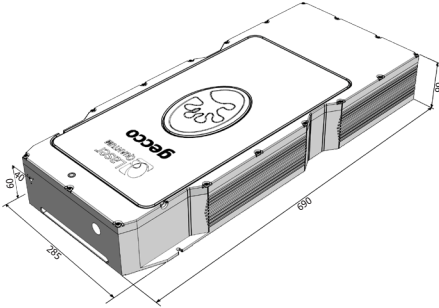


Application example: Pump-probe signature of coherent optical phonons in ZnO measured with the **gecco**.



The **gecco** can be used with the RemoteApp™ software that allows the pump laser to be controlled over the internet and connected to the Laser Quantum support team for monitoring laser performance, diagnosing opportunities for and carrying out laser optimisation.

## Dimensions (mm)



**ULC-16**

## Other information

- Weight (head only): ~30 kg
- Cooling system included
- 2 years/5000 hours (PSU 'on' time) full specification warranty



Drawings are for illustrative purposes only. Please contact Laser Quantum for complete engineer's drawings.

## Specifications\*

	gecco one	gecco ultra	gecco power
Average output power	>600 mW	>600 mW	>1000 mW
Center wavelength	800 nm ± 20 nm		
Pulse duration <sup>1</sup>	<20 fs	<15 fs	<20 fs
Spectral FWHM	>40 nm	>50 nm	>40 nm
Repetition rate <sup>2</sup>	80 MHz (70-110 MHz options)		
Pulse energy <sup>3</sup>	>7.5 nJ	>7.5 nJ	>12.5 nJ
Beam size <sup>3,5</sup>	0.8 mm ± 0.3 mm		
Divergence <sup>5</sup>	< 3 mrad		
M-squared	<1.2	<1.2	<1.3
Power stability (RMS within 24 hours)	<1 %		
RMS Noise <sup>4</sup>	<0.1 % ( <b>opus pump</b> ) <0.05 % ( <b>finesse pure pump</b> )		<0.05 % ( <b>finesse pure pump</b> )
Polarisation ratio	>100:1		
Polarisation direction	horizontal		
Operating temperature	21°C ± 5°C		
Weight (head only)	~30 kg		
Warm-up time	<20 min		

\* Laser Quantum operates a continuous improvement programme which can result in specifications being improved without notice.

<sup>1</sup> After appropriate extracavity dispersion compensation (not included).

<sup>2</sup> Choose repetition rate upon order. Repetition rate accuracy ± 100 kHz.

<sup>3</sup> FWHM beam diameter at laser exit.

<sup>4</sup> Noise bandwidth 1 Hz to 1 MHz.

<sup>5</sup> At 80 MHz repetition rate, different at other repetition rates.

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