
Contacts:**Joseph Henrich**Coherent, Inc.
(408) 764-4219joseph.henrich@coherent.com**David Kuntz**Technical Marketing Services
(310) 377-5393davidkuntz@cox.net

For Immediate Release:

Latest One-Box Femtosecond Amplifier Delivers Record Pulse Energy

Santa Clara, CA., February 10, 2020 – Coherent will introduce the Astrella HE at Photonics West 2020 (San Francisco, CA) – a one-box femtosecond amplifier that delivers up to 9 millijoules at a repetition rate of 1 kHz. This is the highest pulse energy commercially available from a water-cooled, single-stage, kHz regenerative amplifier. The use of closed-loop water cooling simplifies the installation of this titanium:sapphire amplifier and also lowers the capital and operating costs. The new Astrella HE has the same footprint and compact one-box format and user friendly operating software as existing Astrella amplifier products. It is available with a choice of 35 fs or 100 fs pulse widths.

Like other Astrella amplifiers, the new Astrella HE integrates a titanium:sapphire oscillator and a single-stage regenerative amplifier together with a pulsed green (527 nm) laser to pump the amplifier stage – all in a single box measuring only 1247 mm x 755 mm x 262 mm. A major challenge in power/energy scaling of titanium:sapphire laser amplifiers is heat management, specifically cooling the gain crystal. By clever design optimization, Astrella HE delivers higher pulse energy than any other kilohertz regenerative amplifier as well as excellent beam quality: $M^2 \leq 1.25$. In addition to state-of-the-art performance, Astrella also provides industrial 24/7 reliability and stability because it is designed from the ground-up under the Coherent HALT/HASS program (Highly Accelerated Life Testing and Highly Accelerated Stress Screening).

The Astrella HE can be used to pump multiple tunable optical parametric amplifiers (OPAs) either to simultaneously run multiple experiments, or single experiments that need multiple independently tunable wavelengths. Astrella HE decreases dramatically the entry barrier to applications so far addressed by complex and more expensive multi-box ultrafast amplifiers. Applications like EUV generation approaching the water window or laser plasma acceleration can now be addressed by a compact UF amplifier, resulting in a cost-effective, compact, and reliable set-up. In turn, this will enable applications of EUV coherent radiation or energetic electrons to industrial diagnostics, biology, material science, and microelectronics.

###

Founded in 1966, Coherent, Inc. is one of the world's leading providers of lasers and laser-based technology for scientific, commercial and industrial customers. Our common stock is listed on the Nasdaq Global Select Market and is part of the Russell 2000 and Standard & Poor's MidCap 700 Index. For more information about Coherent, visit the company's website at www.coherent.com for product and financial updates.