January 2023

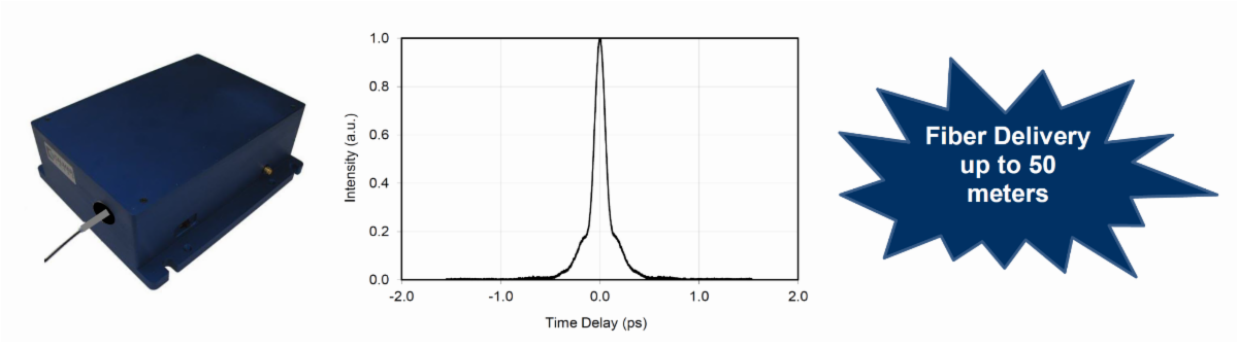
Greetings and Best Wishes for a Healthy and Successful 2023!

Finally, we will be back in San Francisco after three long years and look forward to seeing everyone “face-to-face”. We will have a full range of products to show so please stop by if you are in town, we’d love to catch up. You can find us in the Moscone Center at **Booth #8442 for BiOS** (January 28-29) and **Booth #3440 for Photonics West** (January 31 – February 2).

Over the past few years, we have been busy developing new capabilities to enable the tremendous growth in the use of ultrafast lasers for industrial applications. Ahead of the show, we would like to share some exciting updates for our **Mendocino** platform and **Carmel X-series.**

1550 nm Mendocino with Long Fiber Delivery up to 50 meters for Industrial Applications

Ultrafast lasers are finding new applications in test and measurement, optical metrology and thin film characterization. One specific area is their use to generate terahertz radiation (wavelengths in the range of 30 µm to 3 mm) for time-domain spectroscopy (THz-TDS), which enables imaging and thickness measurements of a wide range of materials, such as plastics, composites, textiles, etc. This non-destructive technique is increasingly used for process control in industrial environments, requiring fiber delivery of femtosecond laser pulses to a remote terahertz antenna and detector. Historically, this has been very challenging since short pulses degrade through dispersive and nonlinear effects in the delivery fiber, significantly compromising the efficiency of terahertz generation. **Calmar has developed a unique solution to this problem. We now offer a robust, 1550 nm Mendocino OEM module, optimized to provide < 110 fs pulses from up to 50 m of delivery fiber at powers levels of ~ 30 mW, which enables remote terahertz imaging and other applications in industrial environments.**



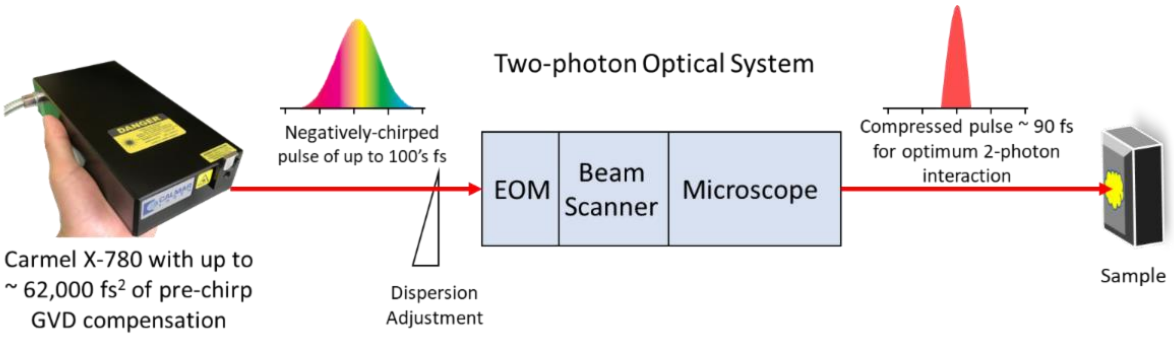
1550 nm Mendocino with long fiber delivery- sub 100 fs pulse with 15 m fiber delivery.

Carmel X-series Supports an Extended Operating Temperature Range and a Pre-chirped Output

The Carmel X-series is the industry leader in high-power compact femtosecond fiber lasers, offering the smallest footprint with the highest power and shortest pulse width. The X-780 system has become the

preferred platform for bio-imaging, 3D nanoprinting, cancer diagnostics/phototherapy, semiconductor metrology and other applications. One of the key reasons is that, unlike competitive sources, it is completely air-cooled and requires no external chiller. **Now, with an enhanced controller, we have extended its ambient operating temperature range from 17 to 38°C. This further enables the use of Carmel X-780 in harsh industrial environments and allows its integration into compact OEM packages with limited air flow**.

Another feature of the Carmel X-780, is that the output pulses can be tailored with up to 62,000 fs² of negative group velocity dispersion (GVD) to compensate for the positive GVD effects of downstream optical systems, such as the microscope components used in two-photon applications. **As a result, the shortest pulses can be obtained in the sample region, ensuring the highest two-photon effect at the lowest average laser power. And the pre-chirp is accomplished in the same compact Carmel laser head, contact us for more details.**



As always, we are interested to learn more about your unique application requirements and how we might be able to assist with a customized ultrafast fiber laser solution, please stop by to chat.

Regards,

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About Calmar Laser

Calmar Laser is a US-based, ISO 9001:2015 developer and manufacturer of innovative ultrafast fiber laser and fiber amplifier solutions for OEM, B2B industrial, medical and scientific applications. Since 1996, Calmar has served universities and research institutions with leading-edge ultrafast fiber laser platforms. Our compact, robust designs have also enabled long term partnerships with customers in the fields of advanced high-speed test and measurement, optical communications, biomedicine, component characterization, semiconductor metrology, ophthalmology, and micromachining. Today, Calmar continues the tradition of technology leadership with its unique range of ultrafast fiber laser platforms designed for simple, hands-off, reliable operation.
For more information about Calmar Laser, visit the Company's Web site at www.calmarlaser.com for product updates.