



Press Release

November 16, 2020

Record Specs

Versatile time-domain terahertz platform
for scientific and industrial applications

TOPTICA presents a new version of its successful time-domain terahertz (TD-THz) platform TeraFlash pro. The latest system generation, “TeraFlash pro / Dual”, not only improves the bandwidth and dynamic range further, but also enables simultaneous operation of up to two emitter-receiver pairs.

Owing to an enhanced laser concept, users take benefit of even better terahertz signals: The system achieves a peak dynamic range greater than 100 dB, and a bandwidth of more than 6 THz. The “dual” version enables simultaneous measurements in transmission and reflection, or terahertz spectroscopy with orthogonal polarizations. Alternatively, users may choose to connect just one antenna pair and take advantage of the additional femtosecond-laser output for optical-pump terahertz-probe experiments.

A new “wide-scan” option boosts the scan range from previously 200 ps to 1000 ps, which translates into a frequency resolution of 1.0 GHz. At the same time, the system offers maximum flexibility with respect to the chosen measurement setup: With just a software click, the system adapts to any terahertz path length between 15 cm and 110 cm. Thanks to an improved mechanical delay, the system now acquires 95 traces/s at a scan range of 20 ps, and 60 traces/s at 50 ps.

Researchers can thus utilize the same system for applications as diverse as near-field measurements, spectroscopy, imaging, or even in more complex configurations that include a cryostat in the beam path. For even longer path lengths or other specific requirements, TOPTICA can provide customized versions of the TeraFlash pro.

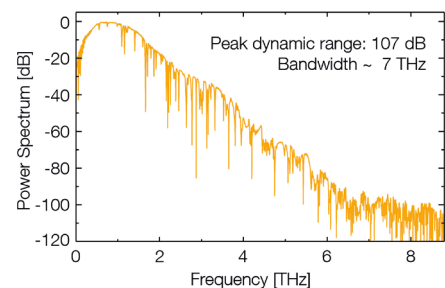
Due to its versatility, ease-of-use and its excellent signal quality, the TeraFlash pro lends itself to a wide range of scientific applications, including wide-band spectroscopy, metamaterial analysis, near-field studies and imaging of cultural-heritage objects. Outside of academic research, it is also an ideal tool for industrial terahertz applications, such as layer thickness gauging and quality control of semiconductors.

For any further information please consult our web page at:

www.toptica.com/record-specs



TeraFlash pro / Dual, with four optical output ports.



Pulse trace and spectrum obtained with the TeraFlash pro / Dual. The bandwidth spans 7 THz and the peak dynamic range is 107 dB, presumably the world record for commercial TD-THz systems.

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TOPTICA has been developing and manufacturing high-end laser systems for scientific and industrial applications for 20 years. Our portfolio includes diode lasers, ultrafast fiber lasers, terahertz systems and frequency combs. The systems are used for demanding applications in biophotonics, industrial metrology and quantum technology. TOPTICA is renowned for providing the widest wavelength coverage of diode lasers on the market, providing high-power lasers even at exotic wavelengths. Today, TOPTICA employs 340 people worldwide in six business units (TOPTICA Photonics AG, TOPTICA eagleyard, TOPTICA Projects GmbH, TOPTICA Photonics Inc. USA, TOPTICA Photonics K.K. Japan, and TOPTICA Photonics China) with a consolidated group turnover of € 76 million.