HELIOS

Femtosecond Transient Absorption Spectrometer

Probe Spectral Range: 320-2400 nm | Fully Automated Hands Free Design | Microscope extension

HELIOS is the next generation, automated femtosecond Transient Absorption Spectrometer in the HELIOS family. Among its numerous advantages, HELIOS features a 100-fold boost in sensitivity, allowing the study of more delicate samples. This, together with our patent-pending automated beam alignment system, delivers a new level of performance and user-friendliness. In addition to being virtually hands-off, HELIOS allows for user customization with its easily removable side panels and improved optical layout.

FEATURES

- Enhanced sensitivity – compatible with nJ pump energy levels
- Enhanced beam pointing – drift of <10 µm over the whole delay range
- Unprecedented degree of automation:
  - Automated optical delay line alignment (Smart Delay Line™)
  - Fully Automated pump beam alignment
  - Automated switching between UV, VIS, NIR, and SWIR spectral ranges
- Large sample area – 225 mm x 250 mm
- Parabolic reflectors for continuum management ensure uniform focusing of all wavelengths
- 2-unit design with the optical bench isolated from the electronics and detectors
- 8 ns built-in time window (extendible to milliseconds with Eos add-on)
- Support for large pump beam diameters. Up to 9 mm in diameter without sacrificing the contrast
- Optional computer controlled filter wheel for varying pump energy, etc.
- Magnetically stirred sample holder. Easily interchangeable with optional XY rastering sample holder
- Probe Reference. HELIOS has an option for a second probe (reference) channel

SPECIFICATIONS

Time window
Time window can be extended beyond 8 ns with the EOS add-on.

Temporal resolution
Depends on the pulse duration of the laser, typically ~150 fs.

Detectors
ADC resolution	16 bit
Spectral acquisition rate	up to 5000 spectra/s

Improved sensitivity for reflection mode and scattering samples.

Customizable
Customization includes integration of cryostats, additional choppers, and magnets.

Probe spectral range
with Ti:Sapphire lasers:	with Yb lasers:
270-390 nm 320-650 nm	320-750 nm 480-950 nm
420-780 nm 760-840 nm	800-1600 nm 1600-2400 nm
820-1600 nm 1600-2400 nm	

Dimensions
Optical bench:	Electronics rack:
W457 x L915 x H250 mm	W534 x L610 x H686 mm

Delay line
W280 x L915 x H250 mm

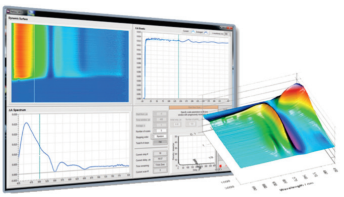
Microscope Extension
Spatial Resolution
< 3 µm
Spectral range
450-700 nm

SOFTWARE

Unmatched Degree of Experiment Automation

The HELIOS data acquisition software has built-in support for the automated alignment of all critical optical elements for largely hands-off operation. The software is also very user-friendly and versatile:

- Automated alignment of the optical delay line.
- Automated alignment of the pump beam.
- Computer controlled switching between UV, VIS, NIR and SWIR modes.
- Supports computer controlled translating sample holder.
- Support pump beam shutter.
- Supports motorized filter wheel for automated pump intensity control.
- Saves every individual kinetic scan, so if experiment is aborted (due to laser fluctuations, power outages, etc.), all previous scans are not lost.
- Threshold adjusted automatic continuum spike rejection- advanced setting which collects data points again if the continuum is not stable.
- Automatic anisotropy calculation when appropriate optics are used and a reference channel is included.
- Support for multiple choppers to facilitate customized experiments.
- API (Application Programming Interface) for HELIOS is provided for further experiment customization and integration with external applications.



Surface Xplorer Data Analysis Software

The SURFACE XPLORER software is designed to save you a lot of time analyzing your transient absorption/emission data. These data sets come in a form of a 3D surface and are usually quite large. When processed with third-party software they require a great deal of manual copying and pasting in order to display particular spectra/kinetics, perform non-linear fitting or simply remove bad data points. This can be very time consuming!

sales@ultrafastsystems.com
+1 941 360 2161