flashSENS

Laser Flash Photolysis

Superb delta OD Performance

with unique intelli-ΔOD™ dynamic range and offset adjustment facility

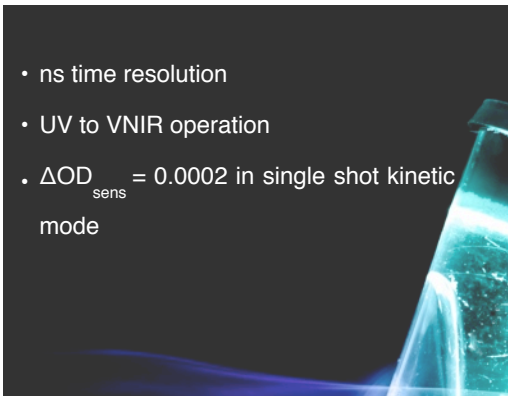
The flashSENS is a versatile benchtop laser flash photolysis spectrometer system that for the first time provides all the needed components: probe lamp, sample chamber, analyzing monochromator / spectrograph, high speed shutters and trigger controller, detectors and data acquisition system, and measurement software at a very economic system price.

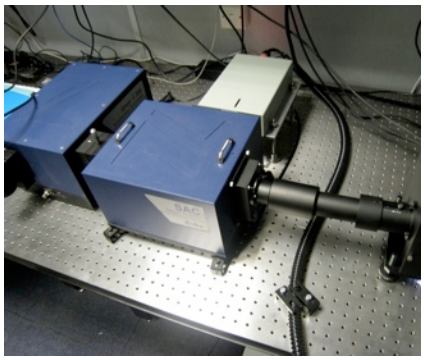
The system has a spectral range from 200nm to 870nm with excellent signal-to-noise and ΔOD sensitivity better than ΔOD=0.002. Laser excitation is provided by a pulsed Nd:YAG with operating wavelengths of 1024, 532, 355 or 266nm. The probe source is an ultra-stable Xenon lamp. The system software is designed to provide manual or automatic measurement of either single kinetic events or families of events as time-resolved absorption or emission spectra. The system can self-optimise for best dynamic range and offset adjustments using the unique intelli-ΔOD™ facility.

The system is fully programmable and is easy to integrate with user supplied lasers. Uniquely, the flashSENS operates with method files allowing the user to prepare an experiment sequence, save the method and then recall at any time. Sample chamber options can provide conventional cross-beam pump-probe configuration or diffuse reflectance option. The compact system can be used on a standard laboratory bench and all connections can be made using USB2.0 interface.

Latest generations now include the famous iSTAR intensified CCD system from Andor Technology. These high speed time-gated detector systems enable the flashSENS to provide time-gated spectral measurements – in a flash !! Time resolutions from 2 ns with Intelligate gating options.

With starting prices of less than £55,000 including a compact Nd:YAG laser this is already demonstrating itself as a new price / performance benchmark for such a system.





Impact your research without devastating your budget

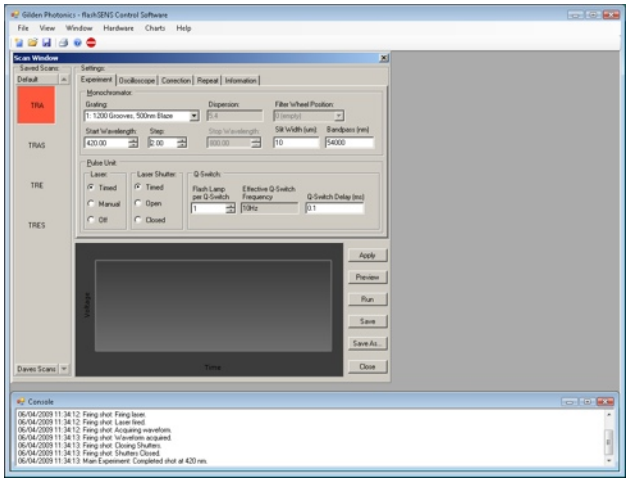
Turning Precision Measurements Into High Quality Information

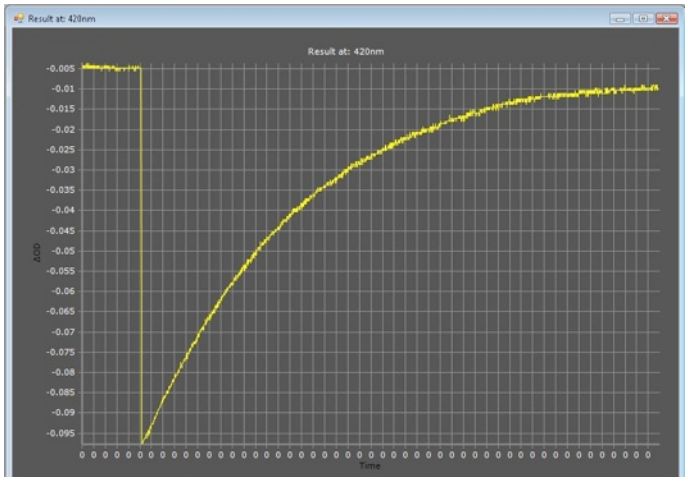
Applicable to solid, liquid and gaseous samples laser flash photolysis measurements are a unique method for studying the transient behavior of chemical and biological species, such as radicals, excited states, and other photo -excited intermediates, generated by an intense short pulse laser.

No laser flash photolysis system is complete without the ability to capture high quality data and translate it into meaningful information. To provide this, each flashSENS is supplied with a comprehensive software package to control the analysing monochromator, data acquisition using a high speed digital storage oscilloscope as well as the flashSENS shutter / laser controller. All devices are connected using USB2.0 interfaces and no special cards are needed for the PC.

The flashSENS software is a comprehensive package for taking an extensive range of time-resolved absorption or emission measurements and provides clear interfaces, direct-to-the-point operation, comprehensive features and facilities including export of data and graphical results in a wide range of formats. The software has been designed to give you maximum flexibility and control over your workflow with the minimum of unnecessary effort. Preparing your work for print and presentation is made easy too through the comprehensive exporting and display tools provided as standard.

intelli-ΔOD™ is a unique optimisation system for the flashSENS instrument that automatically determines best experimental conditions for signal offsets and also signal dynamic range. This system works with singe and multiple shot measurements including TRES and TRAS.





Sample: Anthracene in Cyclohexane (10^{-4}M)
Measurement Conditions: λ_{ex} = 355nm, λ_{em} = 420nm

MEASUREMENT MODES

Kinetic Mode	Spectral Mode
• Time-Resolved Absorption Transients • Time-Resolved Emission Transients • Single and Multiple Measurements	• Time-Resolved Absorption Spectra (TRAS) • Time-Resolved Emission Spectra (TRES) • Time-Gated Spectra (with the ICCD option)

intelli-ΔOD™ dynamic range and offset adjustment

flashSENS

Laser Flash Photolysis

flashSENS™ key specifications

PARAMETER	SPECIFICATION
Optical Configuration	Right angle geometry; optical accessories for other geometries including co axial and diffuse reflectance modes
Sensitivity	Minimum ΔOD = 0.0005 (single shot)
Probe Source	150 W continuous Xenon arc lamp ozone free 200 – 2600 nm spectral range XYZ bulb rear mirror and lamp focus adjustment User interchangeable xenon bulb
Laser	Compact Nd: UAG, 1064, 532, 355, 266 nm output for other laser choices please consult GPL
Monochromator	Cerny-Turner design, 300 mm focal length, Triple-grating turret as standard with two gratings Standard gratings: 1200 g/mm, 300 nm blaze and 1200 g/mm, 500 nm blaze Wavelength accuracy ± 0.2 nm, repeatability ±0.1 nm Bandpass 0.1 – 10 nm continuously variable in steps of 0.05 nm Continuously variable precision knife-edge slits from 10µ to 3 mm as standard Stray light performance: 1 : 10^5
Detector	High current photomultiplier 185 – 870 nm, red sensitive photomultiplier Optiional InGaAs, InAs, InSb emission detectors for NIR measurements, and nanosecond time – gate intensified CCD system
Data Acquisition	High speed digital storage Oscillocope, 2 GS/s
Software	Measurement setup, method files, single and multiple kinetic measurement for transient absorption and emission studies. Time-resolved absorption spectra and time-resolved emission spectra, Full control of the wavelength and gratings selection, Pump laser flashlamp & Q-swith, Pump and probe high speed shutters as well as Oscilloscope trigger, Timebase, Voltage ranges and offsets
Power Requirements	90 – 260 Vac, 50/60 Hz
Dimensions (D × W × H)	0.6m × 0.83m × 0.31m
Certification	CE marked
Computer	Desktop or laptop USB2.0 interface with Microsoft Windows® operating system

flashSENS™

FlashSENS Ordering Information		
Model	Description	Product name

Notes.