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k2™

STEADY-STATE
& TIME-RESOLVED
SPECTROFLUOROMETER



The K2 family of instruments offers a solid, well-proven approach to fluorescence and phosphorescence instrumentation even for the most demanding research applications.

K2 is a frequency domain fluorometer with picosecond resolution. Its optical design and automatic instrument control are state-of-the-art for steady-state and time-resolved fluorescence measurements.

Ready-to-Use & User-Friendly Software

K2 includes *Vinci – Multidimensional Fluorescence Spectroscopy*, a powerful software package that provides several ready-to-use routines for reliable, user-friendly acquisition of complex fluorescence data:

- Spectra (excitation, emission, synchronous, time-resolved and polarization)
- Measurements at fixed wavelengths (intensity and polarization)
- Slow and fast kinetics
- Time-resolved measurements (lifetimes and rotational correlation times)

Designed for Steady-State & Time-Resolved Applications

Steady-State Measurements

- Corrected excitation and emission spectra
- Polarization (anisotropy) measurements
- Slow and fast kinetics
- Synchronous luminescence spectra
- Intensity measurements at fixed wavelengths
- Dual-wavelength excitation (emission) ratiometric measurements

Time-Resolved Measurements

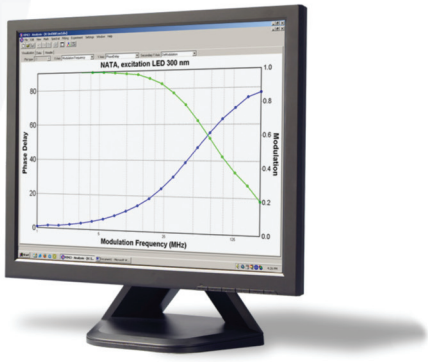
- Frequency responses of single- and multi-exponential decays
- Anisotropy decays
- Phase- and modulation-resolved kinetics
- Phase- and modulation-resolved spectra
- Time-resolved spectra
- FRET

Key Features

- Millisecond to picosecond lifetime measurement capabilities
- Complete lifetime scans in less than one minute on routine samples with proprietary FastScan™ technology
- A compact footprint and a short optical path-length for maximum sensitivity and efficient light coupling into the sample
- T-format and parallel beam design for fast and precise polarization measurements
- Full automation of instrument components (cuvette holder, polarizers, shutters, filterwheel, monochromators and stirrers)
- PC-controlled integration of temperature bath, titrator, stopped-flow apparatus and pressure pump
- Fast kinetic measurements with one millisecond resolution in photon counting mode
- 80 MHz pre-amplifier discriminators delivering linearity up to over eight million counts per second on each channel
- Flexible instrument configuration
- Upgradable with ozone free lamp, laser diodes, continuous- wave (CW) and TI:Sapphire lasers

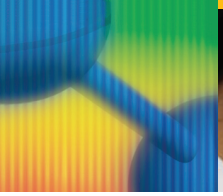
Vinci, the Complete Software Solution for Steady-State and Time-Resolved Applications

A powerful and flexible multidimensional fluorescence spectroscopy software with ready-to-use routines for data acquisition and analysis.



ISS™
Innovations in Fluorescence

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k2 Specifications

Software Specifications

Instrument Automation
K2 is the instrument of choice for steady-state and time-resolved research applications. All hardware components, including external devices, are automated and PC-controlled.

Adaptive Measurements
The operator has the option to choose between two Signal Quality Parameters: *Standard Deviation* and *Time*. Upon reaching either a pre-defined standard deviation or measurement time, the K2 automatically continues the routine to the next data point.

Instrument Diagnostic and Noise Detection
Vinci includes routines for analyzing the instrument's performance, allowing the user to monitor data acquisition and noise level during the entire measurement. If sample saturation occurs the signal level is adjusted accordingly.

User-friendly Acquisition
A sequence of measurements is acquired through a one-time setup of the experiment file, allowing for the automatic acquisition of multiple data sets.

Personalized Log-on
With its unique system memory design, Vinci allows user-specific access. In multi-user environments each user may perform measurements with a personalized instrument configuration.

Data Analysis

Decay Times
Decay time analysis is performed on multiple data sets using various models including multi-exponential, non-exponential and lifetime distributions.

Rotational Correlation Times
Anisotropy decay data analysis of up to three species using models for isotropic, anisotropic and hindered rotators.

Phase- and Modulation-Resolved Spectra
Vinci also includes routines for the separation of up to three components in phase- and modulation-resolved spectra.

Data Display & Export

- 2D and 3D display with user-defined colors and fonts
- 3D surface rotation and in/out zooming
- 3D display of user-defined functions
- Cursor identification of XY spectra coordinates
- Time-resolved spectra display as 3D and center of gravity plots
- Export to gif, png, jpeg, bitmap and metafile formats
- Data are generated and exported in ASCII format

Instrument Specifications

Light Source: 300 W xenon arc lamp with 45 mW/nm brightness at 275 nm.
Optional: Ozone free lamp, laser diodes, continuous-wave (CW) and Ti:Sapphire lasers

Monochromators: Highly efficient single concave holographic grating monochromators
- Continuously reproducible slits ranging from 0.4 nm to 32 nm bandpass
- Wavelength range: 200 nm to 1200*nm (*depending on selected grating)
- Stray light: 10^{-5} outside the band pass of the 632.8 nm HeNe laser line
- Wavelength accuracy: ±0.2 nm
- Wavelength reproducibility: ±0.25 nm
- Slew rate: 160 nm/s

Optional: Double-grating monochromator

Focusing & Collection Geometry: Parallel beam design for precise polarization measurements

Polarizers: UV grade Glan-Thompson with L/A=2.0

Detectors: Selected side-on photomultiplier tubes.
Optional: Cooled PMT, microchannel plate detector

Detection Modes: Fast analog and photon counting electronics

Light Modulator: Double-crystal Pockels cell

Frequency Response: 90 Hz – 10 GHz

Cross-Correlation Frequency: User-selected up to 10 KHz

Filter Bandwidth: 0.05 Hz at 40 Hz

Sensitivity: S/N ratio greater than 6000:1 on the Raman spectrum of water with photon counting and cooled PMT

Lifetime Measurements Range: 10^{-12} to 10^{-2} sec

OS Requirements: Windows XP, 2000

Power Requirements: Universal power input of 110-240 V, 50/60 Hz, 400 VAC

Dimensions: 885 mm (L) x 600 mm (W) x 330 mm (H)

Weight: 45 Kg

Information & specifications are subject to change without notice.

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CHAMPAIGN, ILLINOIS 61822, USA
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