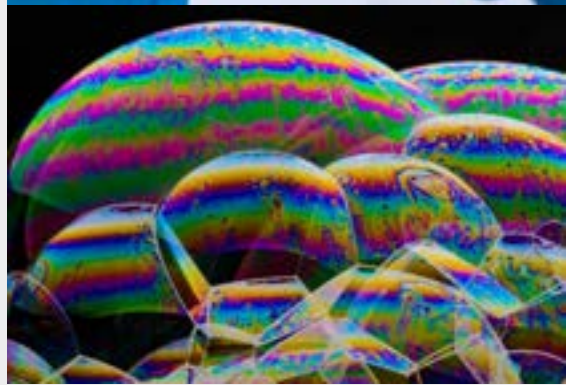


SPECTROMETERS



# MOS-200.

A Fast, Sensitive, User-Friendly  
Rapid Kinetics Spectrometer  
Compatible with all SFM models

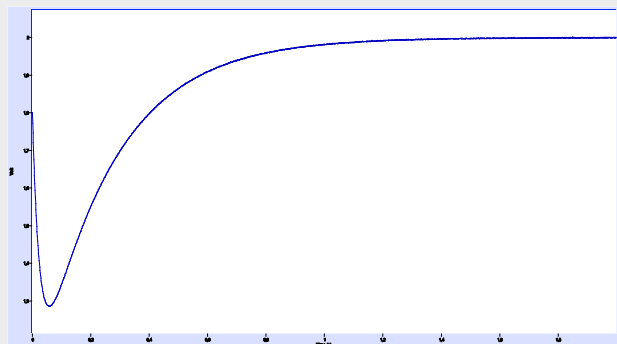


## Easy-to-use and optimized for kinetics

The MOS-200 is an efficient, single-grating manual monochromator spectrometer. The instrument has been specifically designed to provide the highest speed and sensitivity in rapid kinetics acquisitions. Coupled to one of our stopped-flow models the MOS-200 offers the most comprehensive and flexible stopped-flow spectrometer configurations available.

An Xe(Hg) or Xe high-intensity light source is used for sample illumination. Connection to the stopped-flow cuvette is achieved through a fiber optic cable, which guarantees maximum and uniform light efficiency from the grating to the observation cell. Excitation wavelength is selected manually. Cut-off or low pass band filters can be used to select emission wavelength in fluorescence mode.

**Bio-Kine can be considered the benchmark software for kinetics studies.** This powerful interface includes efficient tools which provide fast and accurate data collection, display and analysis.



Lysozyme refolding followed in fluorescence mode

## Fast and sensitive

Detection is made using a high-sensitivity photomultiplier tube (PMT) optimized for wavelengths from 160 to 850 nm. The same PMT can be used for both absorbance and fluorescence measurements: switching from one configuration to the other takes only 30 seconds.

The operator has the choice between single and multi time base acquisition modes with the **fastest sampling period of 1 measurement per 10  $\mu$ s**. Combined with the 250  $\mu$ s dead time of the stopped-flow, The MOS-200 is truly optimised for ultra-fast kinetics. The sampling rate is adjustable so complex reactions with different steps can be followed easily.



Data acquisition window in Biokine software

## Included with MOS-200

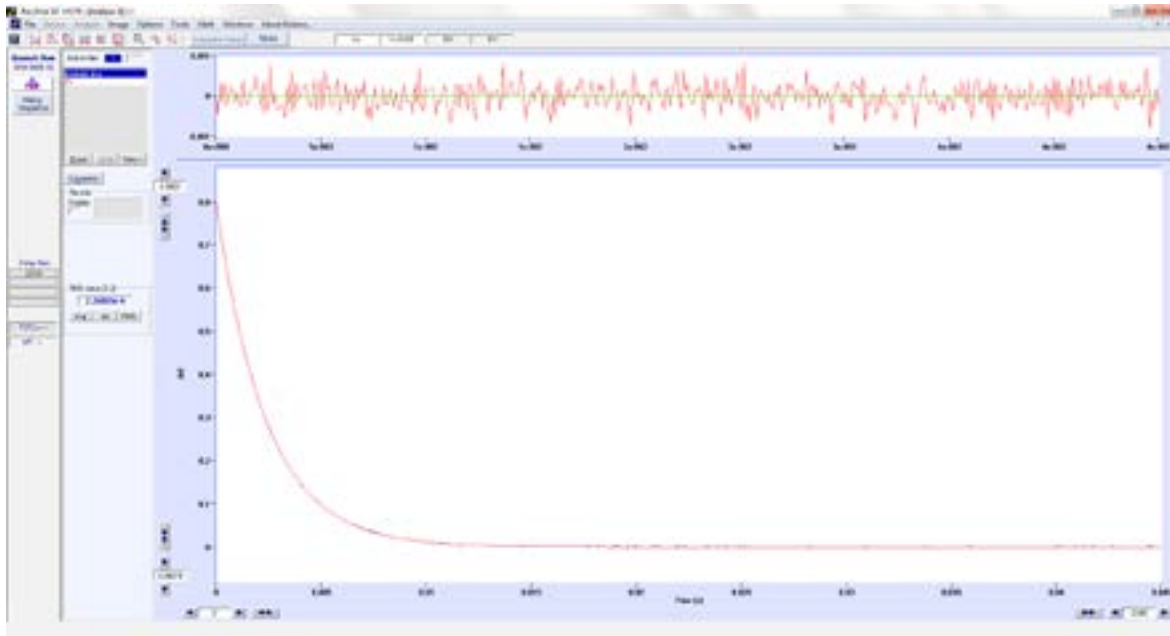
Optical rail

- Manual monochromator
- Photomultiplier tube and control unit
- Photomultiplier control unit (PMS-250)
- Acquisition board and communication cable
- 320 nm cut-off filter
- Single light source + power supply (ALX-300)

- 1.5 meter fiber optics (other dimensions available on request)
- Fiber optics adaptor for stopped-flow head
- Trigger cable
- Bio-Kine and SFit software
- Connector block (PCIe / PMS-250 / Trigger)

## User-friendly

Bio-Kine includes analysis functions so data can be fitted using predefined or user-defined equations. Operations including smoothing, linear or Log sampling, and baseline subtractions come as standard. RMS noise analysis is available, and residual analysis helps you estimate the quality of the fit. Data is saved as text files for easy transfer to other software packages.



Stopped-flow data, on top fit residuals to demonstrate fit quality

## Endless upgrade possibilities

### Additional detection channel

For simultaneous absorbance/fluorescence and double fluorescence measurements. This includes a second photomultiplier tube and control unit.

### T-format anisotropy kit:

This includes a set of Glan-Taylor polarizers and an additional detection channel. Polarizers are installed in a PMT holder for easy removal in absorbance mode. Triple simultaneous measurements (absorbance/T-format anisotropy, fluorescence) is available with optional 049-10.

### Motorization of monochromator

For full software control of excitation wavelength and PMT voltage. The option allows kinetics in wavelength tracking mode (multi wavelength measurements). Automatic reconstruction of 3D data for global fitting analysis is also available.

### MOS-200/M and MOS-500

The MOS-200 can be upgraded to higher-end spectrometer models to access detection techniques such as Circular Dichroism, Linear dichroism and Fluorescence Anisotropy using our patented EMFA method (Excitation Modulated Fluorescence Anisotropy).

## SPECIFICATIONS

### Light source

Number of lamps	1
Type	Ultra-quiet 150W XeHg or 150W Xe (tungsten lamp optional)
Wavelength range	220 nm to 700 nm XeHg 200 to 800 nm Xe
Stability	More than 0,0005 AU
Nature of spectrum	Sharp lines for XeHg continuous spectrum for Xe

### Manual monochromator

Grating	1200 grooves/nm
Focal length	100 mm
Aperture	F/#3.5
Wavelength range	Zero order and 200-800 nm
Linear dispersion	8 nm/mm
Accuracy	±0.5 nm

### Fiber optic

Material	Quartz
Wavelength range	200-800 nm
Length	1.5 m
Dimensions	1mm x 3mm (monochromator side) 1.9 mm diameter (stopped-flow side)

### Detector

Photomultiplier tube	11 stage, optimized for UV and Visible
Operating voltage	0 to 1200 V
Low pass filters	Manual

### Data acquisition

Acquisition board type	High speed PCIe
Sampling rate	10 $\mu$ s to 1000s / point
Number of time bases	3
Noise level in fluorescence	S/N > 1000 at 1 ms integration time (using FC-15 and 1 $\mu$ M NATA)
Noise level in absorbance	5x10 <sup>-5</sup> AU rms at 1 ms integration time
System requirements	Windows PC running 7, 8, 10 (32 or 64 bits) large PCIe slot

Specifications are subject to change