

### PiStar-180 Spectrometer

Measurement of **steady-state CD** spectra is one of the most demanding of spectroscopic techniques. **Stopped-flow CD** presents still greater demands on sensitivity and increasingly researchers are discovering that CD spectrometers which have been adapted to enable stopped-flow measurements are not suitable for this task.

**PiStar-180** is the first spectrometer system purpose-designed for steady-state and kinetic CD applications. **PiStar-180** provides far-UV detection capability for acquisition of CD spectra, and millisecond dead-time kinetics.

The following are just a few of the innovative design features which will make your CD research easier when using **PiStar-180**.

- Quick release couplings enable rapid reconfiguration between a versatile steady-state sample housing and a microvolume stopped-flow sample handling-unit.
- Sophisticated acquisition system incorporating automatic gain control and digital oversampling, ensuring signal quality is optimised and never distorted.
- Electronics and software enabling complete control of the **PiStar-180**, from lamp ignition to data analysis from the workstation.
- Simultaneous absorption and fluorescence measurements in addition to CD on up to five channels.
- Multi-wavelength data acquisition.
- New interchangeable kinetics cell for ultra-fast stopped-flow.
- Extensive range of upgrade options.



*PiStar-180 configured for stopped-flow kinetic measurements*

**PiStar-180** provides comprehensive kinetic and steady-state detection using a variety of probes, including circular dichroism, absorbance and fluorescence. Upgrade options include double-mixing, photodiode array, and fluorescence polarisation. It takes less than 1 minute to switch between the kinetic and equilibrium configurations.

More details, including expansion options, can be found overleaf.

Further information, which includes comprehensive performance data, is available on request.

We welcome the opportunity to demonstrate the superior performance of the PiStar-180. Please call us to discuss your specific requirements and to arrange for an evaluation using your samples.



*PiStar-180 configured for equilibrium measurements*

## PiStar-180 Spectrometer- Key Features

- Stopped-flow and steady-state circular dichroism, fluorescence and absorbance as standard.
- True simultaneous multi channel acquisition on up to five channels simultaneously.
- Wavelength range 180-900 nm using magnesium fluoride optics.
- Programmable light source - high intensity arc light source and double grating monochromator.
- Intelligent data acquisition featuring; automatic gain control (yielding 23 bit data resolution), linear and logarithmic over sampled time bases and statistical adaptive sampling.
- Modular sample handling units with quick release fittings.
- Interchangeable cell provides extended experimental flexibility. Standard 20 $\mu$ l cell offers 2mm and 10mm pathlengths for CD, absorbance and fluorescence.
- Millisecond dead-time enabling measurement of rate constants of up to 1500s<sup>-1</sup> using the standard cell.
- High performance stopped-flow sample handling unit with low volume cell coupled to a rigid and fully anaerobic microvolume flow circuit.
- A minimum volume requirement of 40 $\mu$ l from each syringe saves valuable sample.
- Comprehensive software for system control, data acquisition and management.
- Global analysis of multi-wavelength data sets using Pro-K.

**PiStar-180 options** are available for both new and existing systems, allowing expansion as research interests evolve.

### SQ.2 Sequential Mixing

Upgrades the stopped-flow to allow both single and sequential mixing.

### SK.2E Emission Scanning

Automated acquisition of single or multi wavelength fluorescence kinetic data sets. Excitation and emission scanning with both the kinetic and steady-state cell housing providing the functionality of a steady-state fluorimeter.

### PDA.2 Photodiode Array

Enables acquisition of time resolved absorption spectra from a single stopped-flow drive. No optical alignment or calibration is required, and configuration to and from photomultiplier detection takes a few seconds.

### UV.2 Deuterium Light Source

Powerful deuterium light source providing output down to 200nm. For use with **PDA.2**.

### FP.2 Fluorescence Polarisation/Anisotropy

For the measurement of fluorescence polarisation/anisotropy/total emission kinetics and steady-state excitation scanning of fluorescence polarisation spectra.

### TF.2 Total Fluorescence

A dedicated amplified fluorescence detector with filters.

### MC.2 Multichannel Data Acquisition

Allows simultaneous fluorescence and CD data to be collected when used with **TF.2**.

### IC.2/IC.5 Rapid Kinetics Cells

A choice of 2 $\mu$ l or 5 $\mu$ l cell in interchangeable cartridge featuring sub-0.5ms deadtimes allowing measurement of rates up to 4000s<sup>-1</sup>.

### PC.2 Peltier Temperature Controller

For the rapid and precise control of temperature in the steady-state sample housing.

### TT.2 Titration System

2-syringe system based on the Hamilton Microlab 500C series dispensers. Option **STM.2** is needed to ensure efficient mixing.

### STM.2 Stirrer/Temperature Control

Control module providing efficient mixing of samples in cuvettes and up to five independent temperature probes.

### ORD.2 Optical Rotatory Dispersion.

For ORD measurement in steady-state and stopped-flow modes.

### AN.2 Anaerobic Accessory

For use when working with oxygen sensitive samples.

### GF.2 In-line Gas Filter

Removes contaminants from nitrogen gas supply.

### PC Pro-K global analysis software

For off-line global analysis of multi-wavelength data running on a Windows PC.

### Pro-KII advanced global analysis software

For 2<sup>nd</sup> order global analysis of concentration dependent multi-wavelength data. Also supports mixed data types e.g. CD, fluorescence and absorption.

For more information about the **PiStar-180** or any other products please contact us or visit our website at [www.photophysics.com](http://www.photophysics.com)

Applied Photophysics Limited

203-205 Kingston Road, Leatherhead, KT22 7PB, United Kingdom.  
Tel: +44 (0) 1372 386537 or USA 1-800 543 4130 · Fax: +44 (0) 1372 386477  
E-mail: [sales@photophysics.com](mailto:sales@photophysics.com) · Web: [www.photophysics.com](http://www.photophysics.com)

Applied Photophysics was established in 1971 by the Royal Institution of Great Britain  
Applied Photophysics Ltd reserves the right to change specifications without notice