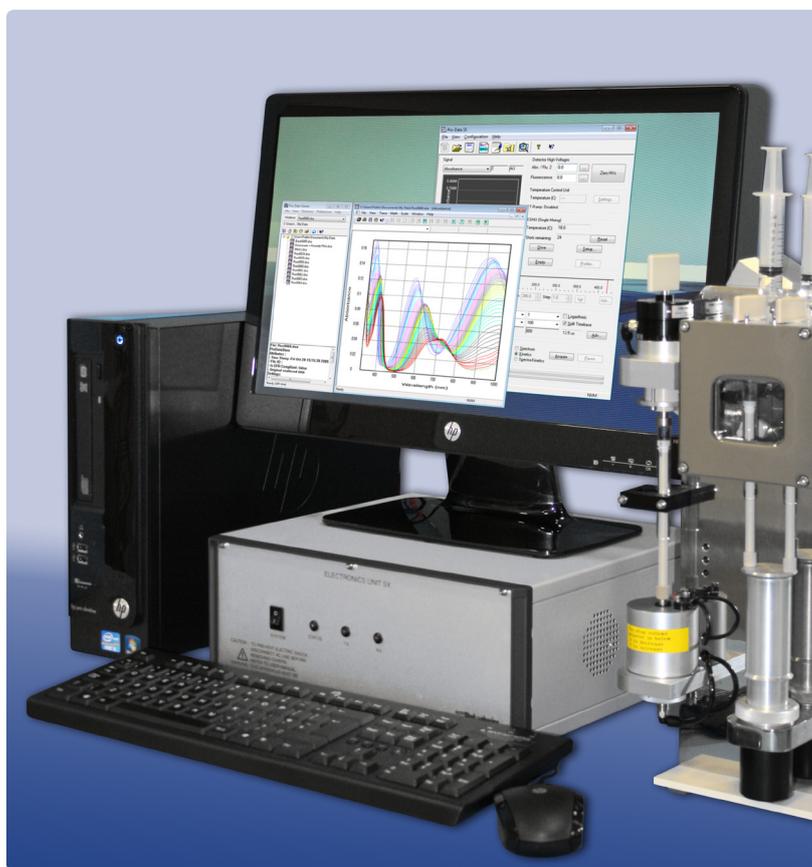


## SX SERIES - UPGRADE INFORMATION

# SX Pro-Data Windows™ Software and Electronics Upgrade

### KEY BENEFITS

- ▶ New modular Electronics Unit with versatile USB interface
- ▶ Compatibility with the latest PC hardware running Windows™ 7
- ▶ Suite of user-friendly Windows™ software for instrument control and the acquisition, display and analysis of data
- ▶ Includes Pro-K IV software for global analysis of wavelength dependent kinetic data
- ▶ Increased oversampling capability over logarithmic and linear time scales for higher data quality
- ▶ Dual-channel detection as standard
- ▶ Full refurbishment of the sample handling unit
- ▶ Comprehensive 12-month warranty on the upgrade
- ▶ Full compatibility with future SX developments



The SX Pro-Data upgrade is a comprehensive electronics and Windows™ software upgrade for modernising older stopped-flow instruments running on the RISCOS Acorn system. Upgraded instruments benefit from the greatly improved operation and performance of the latest SX20 model, at a fraction of the cost of a new instrument.

The hardware upgrade is based on the new Pro-Data Electronics Unit that replaces the current instrument control electronics. The Electronics Unit is interfaced via a USB connection to a latest generation Windows™ PC. The user-friendly Pro-Data software suite is provided for instrument control and data manipulation.



Figure 1. The new Electronics Unit alongside a selection of plug-in modules.



Figure 2. The USB communication module provides full compatibility with the latest PC hardware running Windows™ 7.

## PRO-DATA HARDWARE UPGRADE

The key feature of the hardware upgrade is the new Electronics Unit. This fully modular electronics rack, contains a number of plug-in modules that provide the communication, control and data acquisition elements of the instrument. The existing power and control electronics of the sample handling unit, monochromators and detectors are upgraded to interface with the new Electronics Unit and the old photometric units are replaced. Communication between the Electronics Unit and a PC running Windows™ 7 is provided by a versatile USB interface. The Electronics Unit provides dual-channel detection as standard which offers a more cost effective upgrade route to dual fluorescence or fluorescence polarisation operation.

## THE NEW ELECTRONICS UNIT OFFERS SIGNIFICANT BENEFITS

- ▶ Much improved speed and responsiveness of instrument control
- ▶ New high accuracy 16-bit A/D conversion for all channels with automatic gain control for maximum signal resolution, without the requirement for manual gain and offset adjustment
- ▶ High speed oversampling for optimal signal smoothing without resorting to analogue filters and potential signal distortion
- ▶ Simultaneous dual-channel data acquisition capability as standard
- ▶ Smaller, fully modular rack-mounted electronics for simpler servicing and upgrading
- ▶ Latest surface mount technology and digital signal processing for enhanced reliability and performance
- ▶ Firmware updates can be downloaded from the PC
- ▶ Vacant slots provide capacity for future expansion
- ▶ Full compatibility with future SX instrument developments
- ▶ Simpler, neater cabling

## FURTHER HARDWARE MODIFICATIONS

- ▶ **Sample handling unit (SHU)** - redundant control and power electronics are removed and replaced with an adaptor board connecting to the internal wiring. A replacement backplate is also fitted to accommodate the new, simpler external cabling.
- ▶ **Monochromator** - the control electronics housing is replaced with an upgrade housing containing an adaptor board connecting to the motor control wiring.
- ▶ **Detectors** - the existing photomultiplier detectors are fitted with new electronic mounts and the external cabling is simplified. Instruments dating from before 1996 will also benefit from amplified signal detection following the upgrade.
- ▶ **Accessories** - in each case, the relevant accessory detector electronics are upgraded to provide compatibility and an additional module is fitted to the Electronics Unit.

### PRO-DATA SOFTWARE UPGRADE

The upgrade includes the provision of a suite of user-friendly Windows™ software for instrument control and the acquisition, display and analysis of data. The software shares common design features with other current Applied Photophysics' instruments.

The Pro-Data SX software implements a comprehensive control panel for the manipulation of the instrument and data acquisition. The control panel is interactive, assisting the user by adapting to experimental mode and signal measurement. Wizards for more complex procedures further increase the ease of use, while a new setup template feature enables the rapid setup of common measurement parameters.

### PRO-DATA SX INTRODUCES THE FOLLOWING NEW FEATURES

- ▶ More flexible data acquisition modes
- ▶ Spectra-Kinetic, time-resolved multi-wavelength acquisition as standard
- ▶ Faster scanning capability
- ▶ Dual channel detection as standard
- ▶ Versatile oversampling and timescale options
- ▶ Logarithmic data acquisition over a wide range of time scales
- ▶ Integrated PDA detection mode replaces the old XScan software
- ▶ Faster PDA scanning, up to 1000 spectra per second
- ▶ Extensive instrument self-test and diagnostic tools
- ▶ Emulator mode provides offline familiarisation with the instrument
- ▶ Online help
- ▶ CD accessory upgrade provides quicker configuration and simpler operation
- ▶ Compatible with LKS laser flash photolysis systems

The Pro-Data Viewer software provides full data handling, display and analysis tools for steady state and kinetic data collected on the SX. As default, the program opens two windows; a data file browser and the main data display window. The Pro-Data Viewer is launched upon initiation of data acquisition or may be run independently for post-acquisition analysis.

### PRO-DATA VIEWER FEATURES THE FOLLOWING BENEFITS:

- ▶ Simpler Windows™ filing controls via the data file browser and its associated toolbar icons
- ▶ Simpler display of multivariate data sets
- ▶ Fully compatible with existing RISCOS data files
- ▶ May be installed on multiple PCs for remote data inspection and processing
- ▶ Dedicated curve fitting window with improved functionality and ease of use

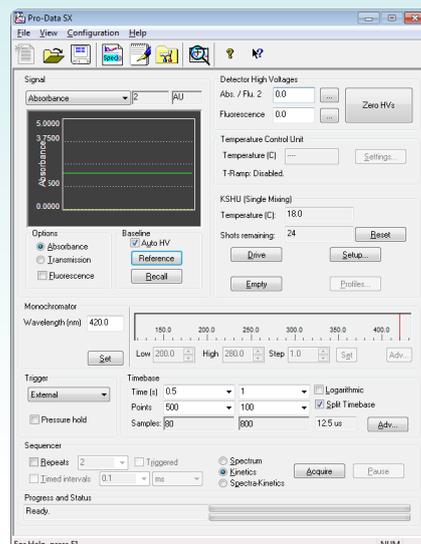


Figure 3. Pro-Data SX Control Panel.

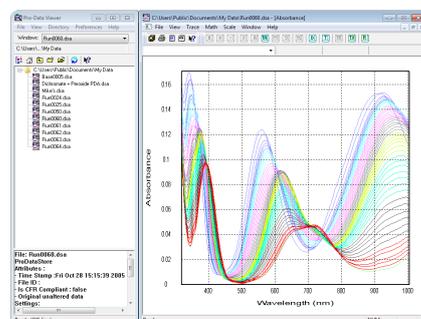


Figure 4. Pro-Data Viewer showing data in the wavelength domain.

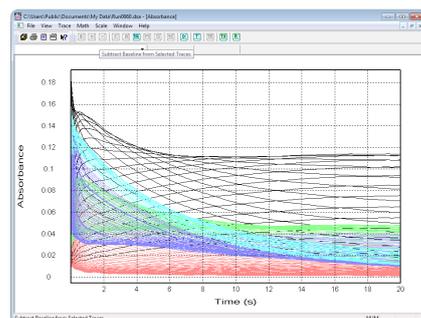


Figure 5. Pro-Data Viewer showing data in the time domain.

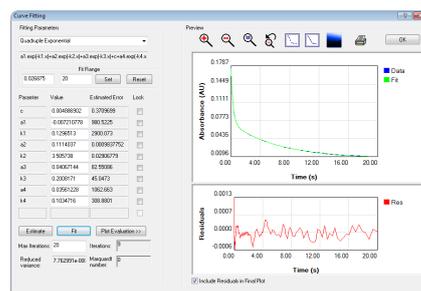


Figure 6. Pro-Data Viewer curve fitting dialogue.

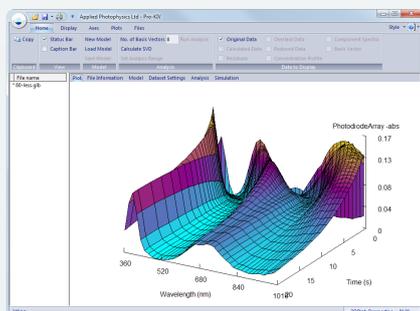


Figure 7. Pro-K IV displaying a 3D representation of transient kinetic data.



Figure 8. Service pack of consumables used during the refurbishment of the sample handling unit.

## ADDITIONAL SOFTWARE PROVIDED

- ▶ **Pro-Kineticist** - Pro-K is designed for global analysis of first order multivariate data sets and the Windows™ version offers much faster data processing compared to previous RISCOS versions. The new Pro-K IV version is supplied with the upgrade.
- ▶ **APL Data Converter** - to convert data files for import into third party software, handling single or batch files and fully compatible with old RISCOS data formats.

## PRO-DATA UPGRADE INSTALLATION AND SERVICE VISIT

The SX Pro-Data upgrade requires a two day visit from an Applied Photophysics engineer. During the visit, the following tasks will be completed as standard:

- ▶ The existing electronic hardware will be replaced with the new Pro-Data Electronics Unit, associated hardware and cabling as described above
- ▶ The Acorn RISCOS computer will be replaced and the new suite of Windows™ software installed
- ▶ The instrument optics will be aligned and recalibrated if necessary
- ▶ The stopped-flow consumable components of the SHU will be replaced according to the standard SX preventative maintenance service procedure
- ▶ One half day training session will be available to introduce users to the new software and instrument features
- ▶ A backup CD of data from the old hard drive can be provided upon request

The Pro-Data upgrade is compatible with all Applied Photophysics SF, DX and SX models of stopped-flow instruments supplied since 1990.

To further discuss the upgrade with our support team, please contact us at [support@photophysics.com](mailto:support@photophysics.com)

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Applied Photophysics was established in 1971 by  
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