

KestrelSpecTM ST-6

Real-Time Imaging Spectroscopy Software



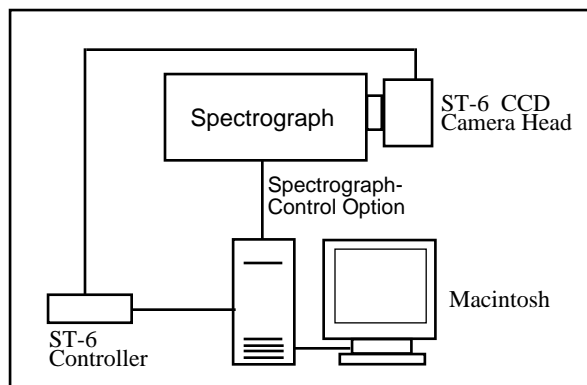
KestrelSpec ST-6 software is designed for data acquisition and analysis in CCD imaging spectroscopy applications with the **KestrelTM Macintosh ST-6I and ST-6V CCD Cameras** from Santa Barbara Instrument Group, and your Macintosh[®] computer.

□ Data Acquisition

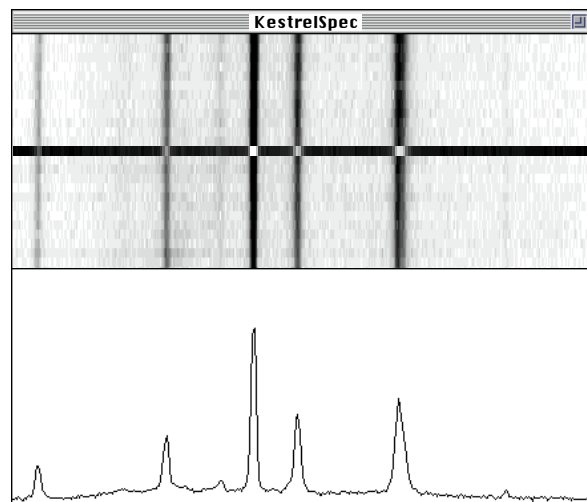
- Select arbitrary areas from the CCD for spectral curves.
- Up to 30000 curve memories in RAM for spectral plotting.
- Select CCD pixel-grouping (binning) modes.
- Adjustable anti-blooming. Fully adjustable temperature control, readout.
- Maximum scanning rate up to 1.5 frames/s, depending on CCD binning mode and number of image stripes.
- 16 bit-per-pixel images. 32 bit-per-pixel spectral curves.
- Programmable exposure sequence with adjustable delay intervals. Sum multiple image exposures into curve(s). Trigger pulse in and/or out on first exposure, or on every exposure.
- Real-time-, dark-background- and flat-field- image buffers. Automatic background subtraction, flat-field correction.
- Auto-flip image horizontal (for reverse spectral dispersion).
- Conversion of data to log or absorbance scales.
- Auto-save images, curves to disk or RAM disk.
- Auto-scan λ , auto-calibrate spectra in nm, Raman cm^{-1} shift with fully integrated spectrograph control (optional extra).
- *KestrelScriptTM* AppleEvent scripting for sophisticated process control. Real-time controllable from National Instruments' LabView[®] and other software using *DoScript* events.

□ Data Display and Analysis

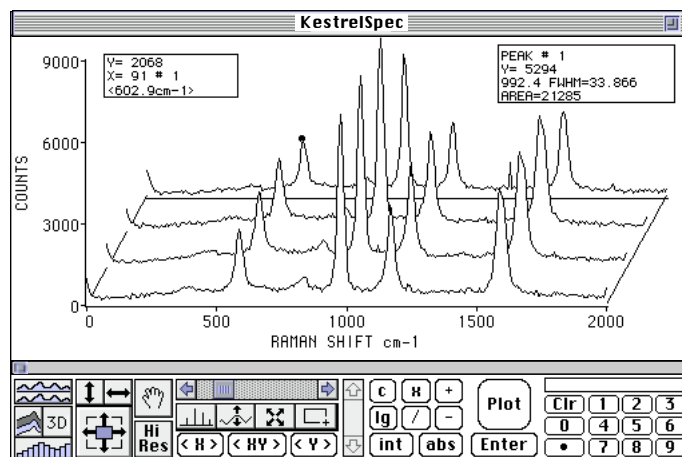
- Image display : 256 grays positive/negative, 23-level pseudocolor with quantitative color-coded legend.
- 2-D and 3-D overlays, vertically stacked curve plots. Drag plot handles to control 3D perspective, size.
- Channel profile $Y(t)$ plot (Z axis slice).
- Line, bar and scatter plot styles with color fill.
- Graphic spectrum directory with "mini-curve" plots.
- Spectral calibration using curve fits, or use "one-point" *KestrelCalTM* for grating spectrographs.
- Click on spectrum to select points for n th-order polynomial regression curve (enables baseline flattening).
- "Laser-beam profiler" display with XY profile graphs.
- "Renormalize X Axis" accurately linearizes spectra.
- Real-time peak finder determines centroid, width.
- Real-time XY cursor pixel readout for curves, images.



Add a spectrograph and a Macintosh to complete your Kestrel ST-6 CCD spectroscopy system. (Spectrograph-control option uses RS-232 or GPIB connection.)



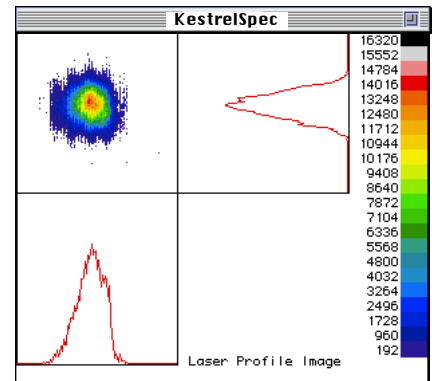
Benzene Raman spectrum by Kestrel ST-6I CCD. (Excitation: 2.0 mW 632.8 nm. E.T. 180 s. CCD temp. -35° C.)



KestrelSpec has versatile graphing and data-analysis options. Control Palette (bottom) yields quick access to numeric keypad, peak finder, zooming/panning, XY cursor and other tools.

❑ Other KestrelSpec ST-6 Features

- Use the mouse to zoom and pan the curve-plot displays, even while acquiring data live from the CCD.
- Run curve movies, live scans as animated 3D waterfall graphs.
- Export curve data as ASCII text or Igor™ text format. Import curves in standard ASCII spreadsheet format. Export images in 16-bit, binary integer or 8-bit PICT® formats. Import images from PICT, or binary integer-data files. "Swap-byte" setting for importing 16-bit images created by IBM-type (Intel CPU) PCs.
- Print plots and images in grayscale or color. Copy plots or images to the clipboard for pasting into other documents.

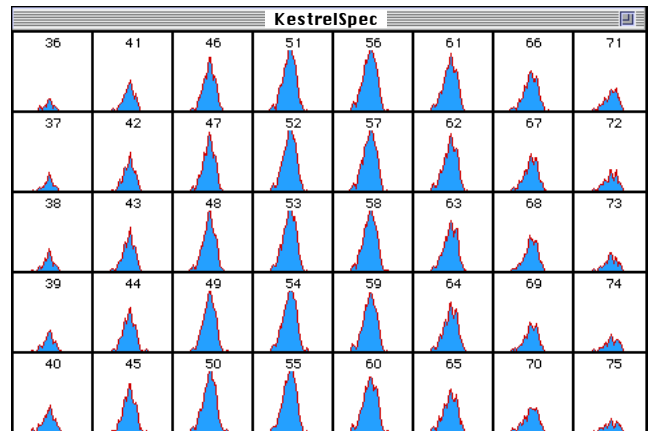


Above: "Laser-beam profiler" display.

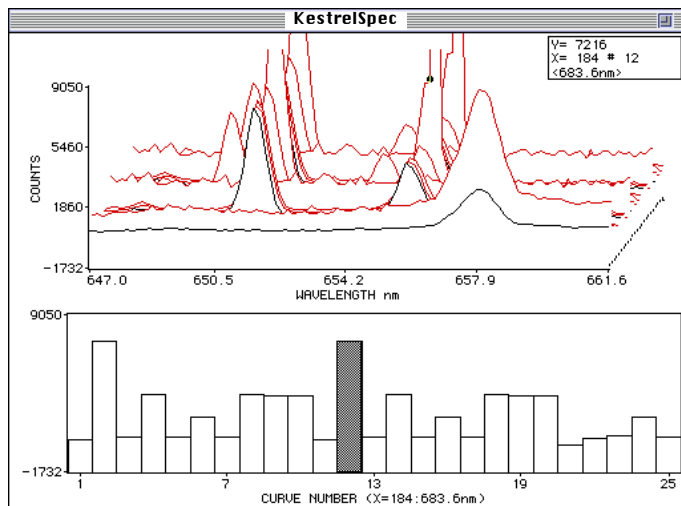
❑ Compatibility

- Recommended CPUs for real-time camera control include any Macintosh, including Power Mac and PowerBook. ST-6 CCD uses modem port, spectrograph uses printer port or National Instruments GPIB interface.
- Data rate selectable from 9600 to 56700 baud. Maximum data rate depends on Mac CPU. Up to 144 kB effective rate with selectable real-time data compression. Maximum live screen refresh rate is approximately 2 spectra per second.
- System 6.0.5 or later and minimum 2 MB RAM required. System 7.0 or later and 4 MB or more RAM recommended. System 7.0 or later required for AppleEvent scripting.
- Spectrograph-control option available for popular spectrographs. (Contact Rhea Corp. for an up-to-date list of supported spectrograph models.)
- Works with Kestrel Macintosh ST-6I or ST-6V CCD Camera from Santa Barbara Instrument Group. ST-6 version 3.07 ROM required to support all readout modes.

Below: Curve Catalog displays many "mini-plots" in one window to give quick overview of spectral curve memories. Cut and paste mini-plots or drag them to the curve trash. Double-clicking a mini plot expands it.



Below: Channel-profile graph (bars) shows a slice at constant wavelength along Z-axis (time) of 3D spectral curve plot.



For a KestrelSpec demo disk, or more information on Kestrel CCD spectroscopy systems contact:

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