

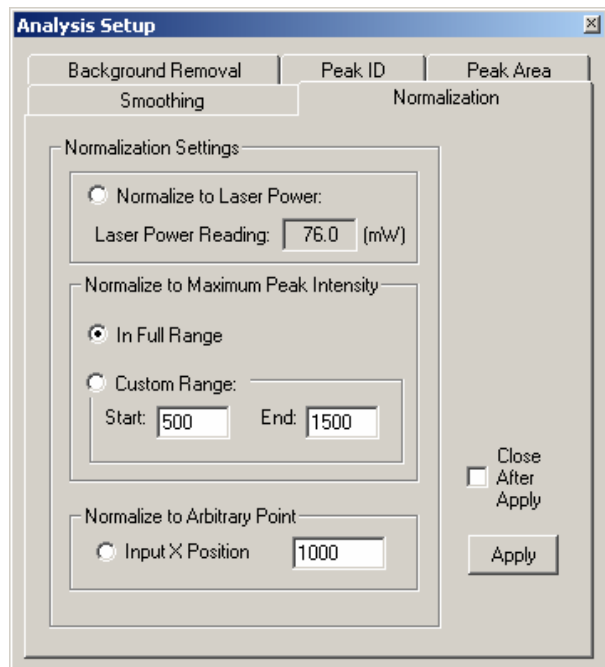
RamanSoft™ is Lambda Solutions' software package designed to enable efficient use of Raman spectroscopy data and to access the advanced features of the LSI Dimension Raman systems. RamanSoft™ provides unique features for system automation, data processing and data analysis, powered by proprietary and innovative algorithms for automatic background removal to ensure rapid acquisition of quality spectral data. The user-friendly interfaces give easy access to advanced features including automated spectral library searching, qualitative and/or quantitative spectral analysis, and real time process monitoring. The combination of RamanSoft™ and the powerful acquisition capacity of the Dimension Raman systems offers users a unique opportunity to harness and utilize LSI's state-of-the-art photonics technology.

Key Features

- Software control of laser power, CCD gain and digitization rate
- Auto system calibration with calibration kit (Optional)
- Auto system test with sealed cyclohexane standard
- Automatic & manual background removal, signal averaging, normalization, spectrum overlay
- Peak ID, peak area, SpectrumSearch™, SpectrumPredict™, Real Time Monitoring
- User-definable automation sequences for seamless data processing / data analysis

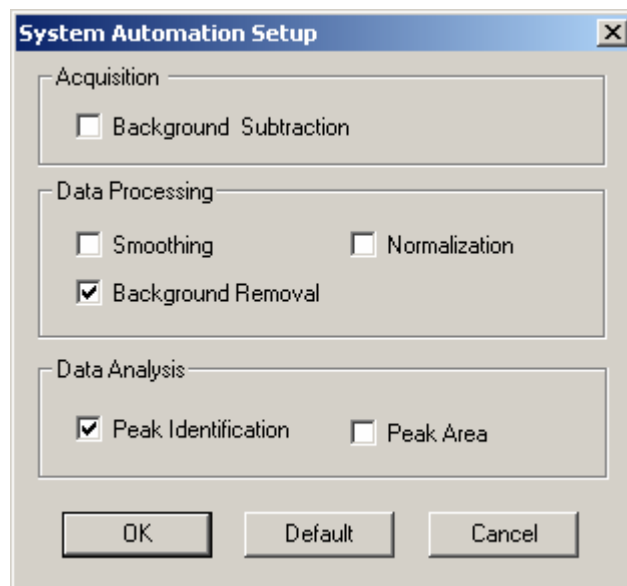
Data Processing

RamanSoft™ offers the data processing tools professional users need to obtain critical answers to their analytical questions. A series of drop-down windows allows the operator to configure Smoothing, Normalization, Background Removal, Peak Identification, and Peak Area algorithms.



System Automation

RamanSoft™ provides system automation. All data processing algorithms can be activated by selecting them under System Automation Setup. The "raw" data and the "processed" data automatically appear upon spectrum acquisition in the Acquisition and Analysis windows, respectively.



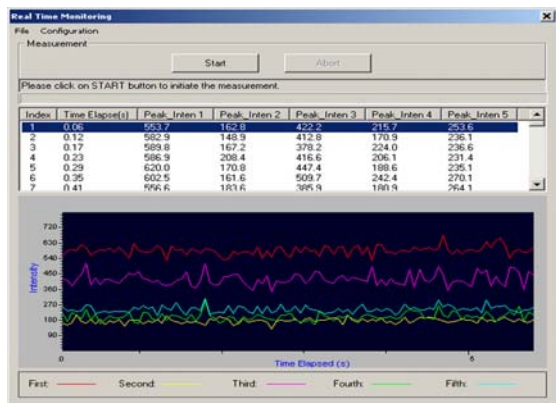
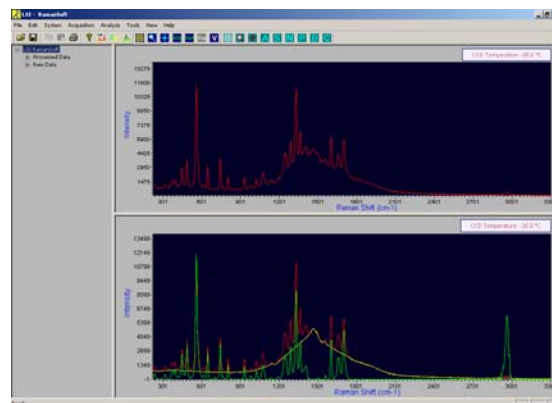
Ease-of-use

The user can access the data processing algorithms after spectrum acquisition simply by pressing convenient toolbar buttons. Your preset data processing parameters can be applied to the spectrum in the Analysis Window by pressing **S** for smoothing, **N** for Normalization, **B** for Background Removal, **PI** for Peak Identification, and **PA** for Peak Area calculation. Other important and convenient toolbar controls are **Acq** for Acquisition, **Cont** for Continuous Acquisition, some other features such as zoom and cursor functions, and access to system functionalities.



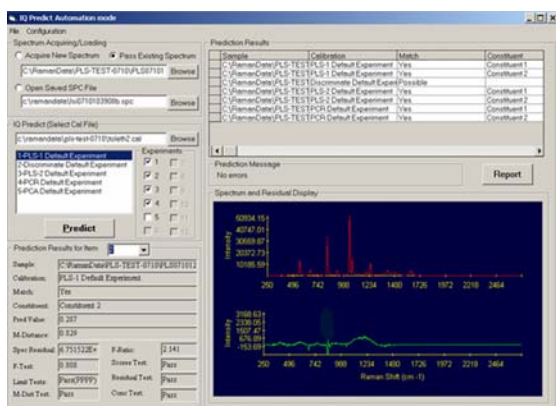
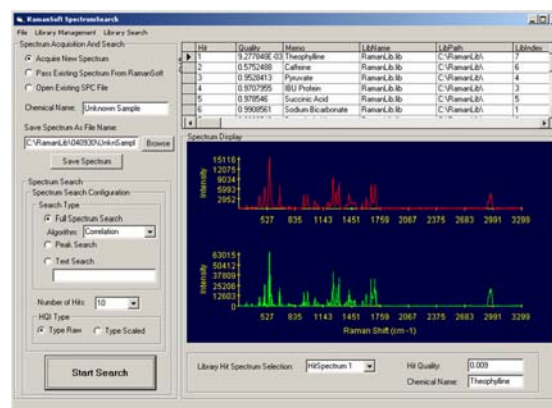
Data Analysis

To achieve the quality spectra required for molecular identification, LSI provides unique background removal algorithms. Users can now meet the most challenging and demanding needs for QA/QC and process monitoring in real time. The raw spectrum in the upper Acquisition Window is of caffeine in a brown bottle obtained with LSI's Vector Raman Probe in 1 second. The background-removed and efficiency-corrected spectrum (green) is automatically displayed in the lower Analysis Window. ▶



Dimension-P1™ and RamanSoft™ provide an easy-to-use tool to meet critical needs for real time process monitoring. The system tracks up to five user-defined peaks by either intensity or area. Shown on the left is an example of monitoring five peaks of aspirin with a time interval of 50 ms. The intensities are tabulated in the center panel and displayed in the lower panel as a function of time. ▶

Through a one-step acquisition/search interface, seamless integration of RamanSoft™ with GRAMS Spectral ID® delivers rapid spectrum acquisition and library searching by just pressing “**Start Search**”. Shown on the right, are the search results for theophylline in a plastic bag. Using the LSI Vector Raman Probe, theophylline is clearly distinguished from other methyl xanthine molecules. Upper trace: spectrum; lower trace: best matched library spectrum. ▶



One-step acquisition/prediction using Chemometric methods is achieved by just pressing “**Predict**” on the integrated RamanSoft™ /GRAMS IQ Predict™ interface. PLS quantification of 30% acetone, one second acquisition, in the presence of a large confounding toluene signal is demonstrated on the left. Upper trace: spectrum of 30% acetone test sample; lower trace: after subtraction by “**Predict**” spectrum. ▶

Lambda Solutions, Inc.
411 Waverley Oaks Road
Waltham, MA 02452, U.S.A.

Tel/Fax: 1-781-478-0170/0175
www.lambdasolutions.com
info@lambdasolutions.com