

# Symbion LX and LRX

## Analytical Instrument Software Suites

Modern software for spectroscopic analysis, connectivity, compliance, and control

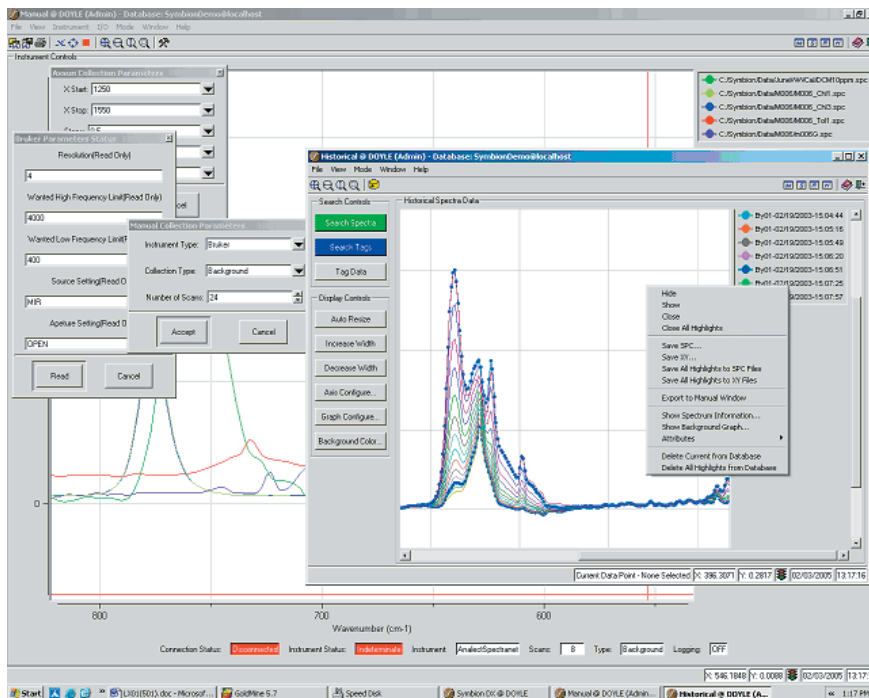


Symbion LX provides the capability to control one or more spectrometers or other analytical instruments while also serving as a full capability Spectroscopic Data Station. In addition to providing complete control functions for specified instruments, it can acquire current data from most spectrometers and accepts stored data from a data base or as files in formats such as XY, .spc, .asf, and .#### (Bruker). The program's extensive visualization and mathematical capabilities allow the extraction of the maximum information available in any desired format. Symbion LRX includes the capabilities of LX but adds all of the safeguards required to achieve regulatory compliance.

Symbion-LX and LRX embody a new approach to analytical instrument operation and data management. By taking advantage of recent advances in data processing technology and software methodology, they provide logical straightforward operation combined with the power to conquer virtually any task. Their secure yet open architecture provides ready communication with diverse instruments, I/O devices, software packages, and enterprise-wide data systems. And, their standardized Oracle® database structure provides multiple links between data, analysis methods, predictions, and user information, establishing the basis for secure retrieval and regulatory compliance.

### LX and LRX Capabilities

- Comprehensive processing of data from Mid-IR, Near-IR, UV-Visible, and Raman spectrometers as well as other analytical instruments and auxiliary sensors.
- Choice of file or data base storage.
- Extensive 2D and 3D visualization capabilities.
- Complete vector and scalar math capabilities.
- Creation of trend plots.
- Execution of chemometric predictions from Symbion QT and most third party MVA packages.
- Extensive method development capabilities.
- Automated input of spectra and reference data tables to QT chemometrics.
- Communication with other data systems via OPC, TCP/IP, Modbus, COM, DDE, etc.
- Provision for compliance with 21 CFR Part 11 (LRX).



The Symbion-LX user interface showing multiple spectral displays and command windows.

## Intuitive User Interface

Symbion's user interface is designed to be simple yet comprehensive, with a minimum number of steps for the execution of any operation. For example, click on the information block for a displayed trace and you'll see a menu of operations that can be performed on that trace. Highlight a series of traces and you can automatically perform the same operations on all of them.

## Transparent Instrument Control

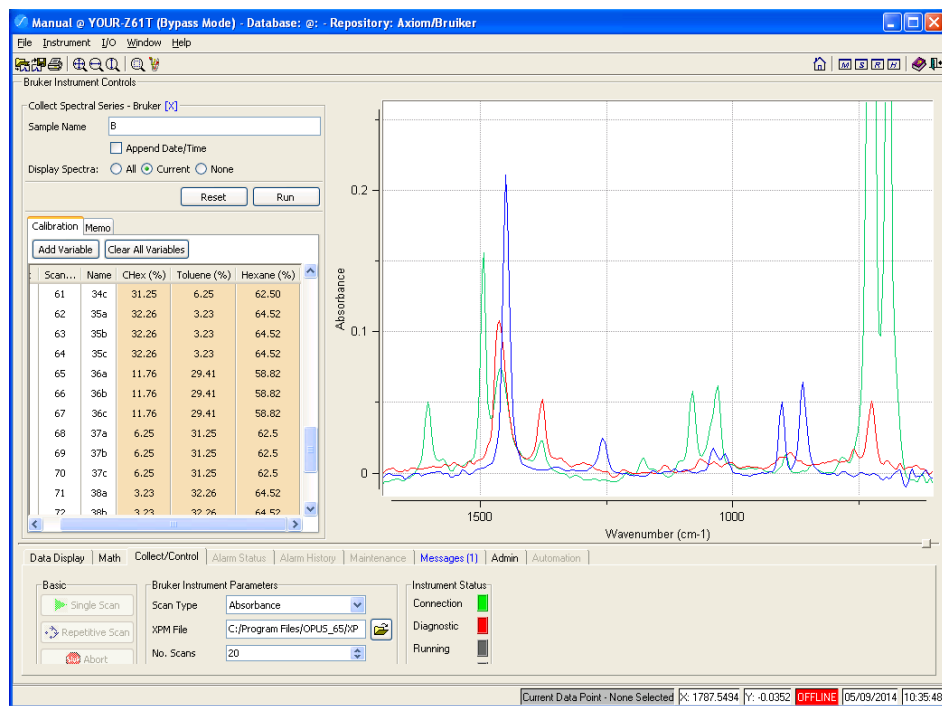
To specify a particular instrument to be run, simply click on the appropriate name in the "instrument" pull-down. Symbion will immediately load the driver for that instrument and make available the appropriate instrument-specific menus for setting the operating parameters.

## Experiment Design and Execution (EDX)

The EDX module provides for the intelligent organization of data acquisition procedures and data storage. In particular, it enables the user to configure data collection so that reference values and all pertinent metadata are recorded within a specified data structure along with the acquired spectra. When used in conjunction with Symbion QT Chemometrics, EDX enables QT to automatically build its input data tables with no need for operator involvement – eliminating the need error-prone manual data entry.

## Building Automation Methods

The TDE Automation Methods Builder provides a simplified "workflow-oriented" platform for developing automation methods without the need for specialized programming skills. The method developer simply follows a step by step approach to configure and sequence functions such as data collection, multivariate analysis, production of trend charts, archiving, and communication with a DCS.



Symbion LX Experiment Design and Execution (EDX) data collection window.

The methods developed are fully documented and ready for on-line deployment using Symbion DX/RX or RTM.

## The Power of a SQL Database

Symbion stores all data, analysis methods, process results, and user information in an Oracle® relational database structure which provides multiple links between various categories of information. Thus, you no longer have to remember where you stored a given item. All information is instantly available by using Symbion's multidimensional search capability. You can search by any combination of attributes and retrieve exactly the information needed.

## Networking and Data Sharing

Symbion's well thought out database structure is fundamental to interfacing Symbion to a wide variety of other programs and data systems. For example, enterprise data historians

such as Aspen Tech, Pi Systems, and Oracle can drill directly into Symbion's database to obtain exactly the information needed for a given situation. In addition, Symbion itself can provide the networking capability needed to coordinate data from a large number of instruments and systems.

## Multivariate Analysis, As You Like It:

Symbion LX and LRX provide the option of performing multivariate analysis by employing the Symbion QT chemometric program or any of a wide variety of third party programs.

When used to gather data for calibrations to be built in QT, the EDX module (above) provides a streamlined capability for automated data input. The user simply enters the Batch, Sample, Expected Value, and Units in the appropriate Symbion window during data collection. When the desired data are gathered into QT, the requisite information automatically populates the data table, taking only a few seconds for even hundreds of spectra, and substantially reducing the operator's clerical workload and potential for error.

In addition to seamless integration with QT, Symbion LX and LRX are designed to easily interface to a wide variety of other programs and command libraries. In particular, they can interface to most of the popular chemometrics routines, making it possible for you to use the routine of your choice and to run previously developed calibrations. Interfaces to the MATLAB PLS Toolbox, the Chemometrics Toolbox, and GRAMS PLSplus/IQ are included standard. Other interfaces - such as Pirouette, The Unscrambler, and CPSA - are available as options.

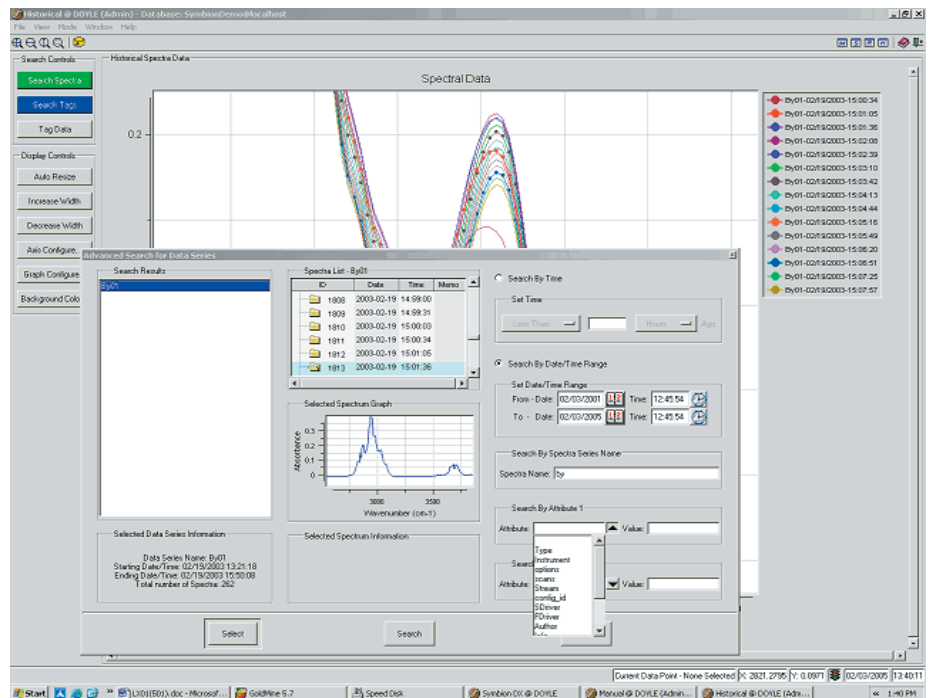
## Moving on to the Process Arena

The capabilities of Symbion-LX/LRX are a subset of the full Symbion DX/RX set. This makes it possible, for example, to develop methods in the laboratory using Symbion LX/LRX and later apply them in on-line process applications using Symbion DX/RX. Symbion LX/LRX can also be used to analyze historical data obtained with Symbion DX and RX.

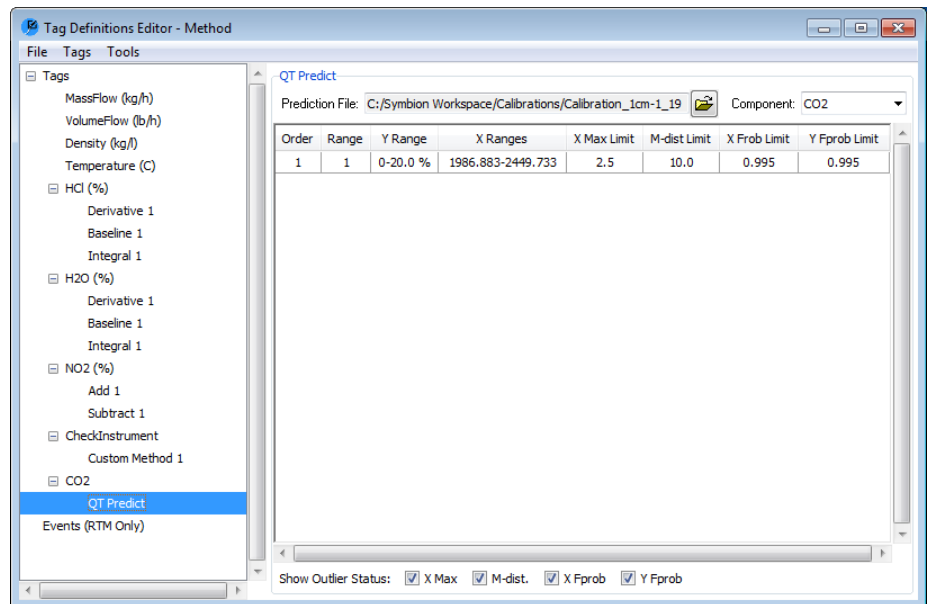
## Assuring Regulatory Compliance

Symbion LRX has been developed in accordance with the recognized requirements for software validation for use in the pharmaceutical industry. In addition, it provides all of the tools needed to assure compliance with 21 CFR, Part 11. An individual method developed within Symbion LRX can be locked down so as to simplify the validation proceed when it forms part of a critical manufacturing path.

For further information about Symbion's Products, or to request a 30 day free trial, please do not hesitate to e-mail us at [info@gosymbion.com](mailto:info@gosymbion.com) or call (949)757-9300



Database search window showing search criteria and preview display.



The TDE Automation Methods Builder main window showing the definition of nine "Tags" (i.e. trend plots) with their input parameters. The specification for the highlighted input (QT Predict) is displayed at right.

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