

SA 2000 Analytical Appliance*

... The fast track to process analytical deployment



The SA 2000 Analytical Appliance provides a secure, streamlined approach to process analytical deployment by providing a locked-down hardware and software environment combined with a set of rigorously tested algorithms each of which is dedicated to a specific application. Each algorithm controls a specified analytical instrument and sample system and provides outputs in the form of process variable predictions. The Symbion Appliance thus inherently provides compliance under 21 CFR Part 11 while eliminating the need for validating complex instrument operating software and other third party packages.

Robust Data Processing Hardware

The hardware portion of the Symbion Appliance is a ruggedized yet standard off-the-shelf single-board industrial computer, containing a solid-state hard-drive, and is ready for immediate deployment in a process environment. The interaction with the appliance is via a choice of a thin client or a client/server – allowing the user, with appropriate permissions, to select from the dedicated set of algorithms each of which is designed for a specific PAT-related application such as drying, blending, or reaction monitoring.

Concentric Levels of Confinement

The Symbion Appliance employs the concept of Concentric Levels of Confinement. The individual method to be deployed operates under a secure application layer which employs an embedded version of the Symbion RX Process Analytical Software package. This in turn operates under the secure Windows Embedded operating system. Finally, the software is resident in a highly reliable industrial hardware package employing no moving parts. The application layer, operating system, and hardware are prevalidated as a unit. Individual methods can only be uploaded from a Symbion database – which provides the audit trail required by 21 CFR Part 11.

Secure Hardware Interaction

Communication between the Appliance and analytical instruments is via a set of instrument-specific drivers which do not require instrument vendor software on the appliance. Communication with control systems, historians, and other data systems is provided by an internal OPC client/server. The client/server also provides communication with the components of a sample conditioning system the operation of which may be integral to a given analytical method.

Choice of Prediction Engines

The individual analytical methods deployed by the Symbion Appliance can employ chemometric predictions developed by using any of the common commercial chemometrics

packages. These are executed in-line either by means of a predictor provided by the chemometric vendor or by Symbion's standardized run-time prediction engine.

Off-line Development and Monitoring

Methods to be executed by the SA 2000 are developed using an extended version of the Symbion RX Process Analytical Software Suite resident on a separate personal computer. This program can also be used to remotely monitor the operation of any number of Symbion Appliances.

Features:

- Rigorously tested industrial hardware
- Embedded operating system
- Embedded Symbion-RX software
- Locked-down algorithms for individual analytical methods
- Compatible with most spectrometers and other analytical instruments
- Compliant with 21 CFR Part 11
- Pre-validated design based on concentric levels of confinement

* Patent Pending

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