Symphony Plus
S+ Operations
All information, in one place, presented for swift and prompt action…
It’s time to sit down and take total control.
Operator effectiveness is fundamental to a plant’s performance. However, with fewer plant operators, a generational shift in the operator workforce, and increasing complexity of plant operations, it is becoming ever more challenging. Symphony Plus, with its intuitive, easy-to-use human machine interface (HMI), leads operators to greater awareness, faster response and better decisions.

S+ Operations is designed for high performance in every aspect involved: human machine interface, integrated operations, seamless life cycle management, information management, alarm management, security, process optimization, with flexible, scalable fault tolerant design.

**Defined for high performance**
S+ Operations provides operators with distraction-free state-of-the-art process information and access.

**Integrated operations**
S+ Operations seamlessly integrates all plant devices and systems.

**Seamless life cycle management**
S+ Operations allows for seamless and incremental integration of new products, technology and functionality without the time and expense of re-engineering and retraining.

**Information management**
S+ Operations transforms data into meaningful information and presents it in intuitive user specific desktop displays for real-time business decisions.

**Alarm management**
S+ Operations’ superior integrated alarm management system includes the industry’s leading EEMUA191 – compliant alarm management analysis system.

**Security**
S+ Operations provides users with a secure and reliable operations environment with its built-in security features.

**Process optimization**
S+ Operations combined with OPTIMAX® performance package improves over all plant productivity.

**Flexible, scalable, fault tolerant design**
S+ Operations unique system architecture easily adapts to any power and water application.

*State-of-the-art graphics and information rich control faceplates*
S+ Operations
Improving operator competence

Defined for high performance
S+ Operations provides operators with elaborate well arranged process overview displays. Direct access navigation leads to information rich control faceplates, superior trending capabilities according to VDI/VDE 3699 Part 4, EEMUA191 based alarms, and various reports.

State-of-the-art-graphics with intuitive control faceplates provide for well-arranged and detailed displays of any control point in the plant. Favorite places, history lists, short cuts, and hot buttons facilitate quick and easy navigation through the power and water facility. Workplace layouts are adjusted and optimized based on the user’s needs. These workplaces are optimized to individual preference and access rights. Windows® management functions, such as safe areas, pinning and stacking, prioritize the presentation of important material.

Direct and seamless cross-navigation between operation displays and engineering documentation provides users with the ability to easily troubleshoot any control loop or process area.

S+ Operations reports are easily adaptable to specific requirements of a plant, including freely customized reports using Microsoft® Excel. S+ Operations gives even the most complex installation and process the operational simplicity needed for the efficient administration of the plant. This is the way that every modern industrial process deserves to be controlled – with a speed, simplicity and proficiency that defies the multi-layered complexity of the events taking place and the equipment controlling them. There is no better way to boost operational excellence.

S+ Operations provides operators with distraction-free state-of-the-art process information and access.

Defined for high performance
– State-of-the-art graphics
– Intuitive, information rich control faceplates
– Operational simplicity
– Distraction free display
– Strong reporting functionality
– Easy configuration
– Superior trending capabilities according to VDI/VDE 3699 Part 4
– EEMUA191 alarm and events
S+ Operations
Protecting the investment

Integration
S+ Operations provides a broad view of the plant by integrating data from all plant areas and systems, including turbine control, electrical balance of plant, and remote SCADA systems. Through its open architecture, S+ Operations flawlessly consolidates and rationalizes plant data to improve operator response to changing conditions, resulting in increased plant safety and uptime.

Through integration of traditionally isolated plant devices and systems, S+ Operations extends the reach of the automation system to all plant areas. The result is a simplified view of the plant.

Traditionally disparate plant systems and device data are easily accessed. The resident information is used by control strategies and higher level applications to produce tighter, more reliable process control solutions.

The open architecture design reduces life cycle costs by simplifying the task of integrating plant systems and devices. Additionally, the useful life is extended as the open architecture allows the easy integration of new off-the-shelf applications and products.

S+ Operations seamlessly integrates all plant devices and systems.

Integration
- Total plant automation
- Perfect integration of heterogeneous systems
- Open architecture

Seamless life cycle management
ABB’s goal is to help its customers improve operational performance, and at the same time, get as much value out of their existing investment as possible.

S+ operations provides for easy and seamless upgrades to the latest software. Installation of S+ Operations workstation upgrades can be performed on-line and in parallel operation with the existing HMIs. Additionally, the existing console database and graphics can be directly reused in S+ Operations. This allows for the continued use of the existing knowledge-base without retraining, and avoids production loss during the upgrade process.

ABB’s software management program, Automation Sentinel, is one of the key factors to get the most value out of installed ABB control system investments. It protects past, present, and future automation investments. This innovative software management program helps users keep their automation software current and provides them with an incremental and cost-effective evolution path to the latest S+ Operations software.

S+ Operations allows for seamless and incremental integration of new products, technology and functionality without the time and expense of re-engineering and retraining.

Seamless life cycle management
- Manage life cycle costs
- Upgrade according to own timetable
- Preserve process graphics and operator knowledge

System architecture overview

![System architecture overview diagram](image-url)
Information management

Information is a key asset of today's business. To achieve a sustainable competitive advantage, utilities must be able to quickly adapt to change. Reduced time for decisions and actions is critical for improving quality and productivity. The timely collection, transformation, and distribution of reliable information is a significant issue.

The barrier to increased productivity is aggregating data from a myriad of different sources, transforming it into meaningful information.

Easy and flexible data access is essential for all operational and business decisions. All users, including operators, managers, engineers and maintenance supervisors, have unique requirements and viewing preferences for information. S+ Operations integrated information management provides support at every organizational level to improve efficiency and profitability.

S+ Operations removes barriers and transforms data into meaningful information, presenting it to all users in easy to understand user specific formats.

In order to enable each user to work as efficiently as possible, S+ Operations has been designed to provide maximum flexibility and easy utilization.

S+ Operations provides the possibility to view real-time data and historical information simultaneously in one display. The practical advantages are seen when looking at trend curve values: users step through information over time without having to move from a real-time system to a separate historian.

Additionally, data is accessed from multiple history servers and other systems and combined on comprehensive displays - aggregating analog as well as digital trend data.

Sustain profitable growth by transforming data into actionable business decisions
S+ Operations is based on ABB’s know-how in power plants and has been designed to simplify plant management procedures by presenting all important information from anywhere in the enterprise on cross-site and cross-plant information platforms.

It provides the ability to collect and securely store business and process data from all plant sources. This data is then analyzed and transformed into useful information and presented to the users to improve efficiency and profitability.

S+ Operations includes ready-made templates for:
- Instantaneous value reports
- Sequence of events (SOE) reports
- Alarm messages, status messages, operator interventions
- Filtering by priority, plant area, etc
- Operation reports (shift, daily, monthly, yearly reports)
- Status reports (plant snapshots)
- Trip reports
- Maintenance reports

S+ Operations transforms data into meaningful information and presents it in intuitive user specific desktop displays for real-time business decisions.

Information management
- Seamless view of real-time and history data
- History data from all plant sources
- Sophisticated presentation module
- Perfectly integrated into operators’ station
- Direct and quick access of history information and real-time data
- Real-time database with millisecond resolution
- Clearly arranged event history display with integrated trend data graphics
- Data display via full clients and web clients
- Discrete tag ticker for KPIs

Desktop displays give managers concise, enterprise-wide information in familiar Office formats without having to leave their desks. A discrete tag ticker, continuously showing key performance indicators (KPIs), can be supplemented with a trend display when more information is required. While operator displays provide information in the control system environment, these displays are able to seamlessly present both real-time and historical trend data as well as alarms and events.

Sophisticated reporting functions draw on all current and historical process information that is retrievable from S+ Operations and other sources of information (eg, from other information systems). Reports are easily configurable to the specific needs of a plant, including freely customized reports.
S+ Operations
High-quality alarm system

Alarm management
A high-quality alarm system is an essential tool for operators to run a plant safely and efficiently. But in many plants, modern devices and systems generate all types of alarms too easily, which unfortunately leads to a flood of alarms, and overwhelms the operators’ cognitive capabilities.

Alarm rates which are constantly too high distract operators, decrease vigilance, lower awareness and overload the operator’s short-term memory.

S+ Operations’ advanced alarm management system provides all the necessary instruments for efficient and stringent alarm management. The EEMUA191-compliant alarm analysis tools help users to categorize occurring alarms, while the integrated alarm management system keeps operators focused and undistracted, allowing them to act with confidence. Clear and instantly available alarm-related information extends the possibilities to respond swiftly and correctly, which helps avoid costly downtime.

S+ Operations improves the operators’ capability to detect and respond to abnormal situations. For example, S+ Operations supports the implementation of high performance alarm management strategies with features such as alarm grouping, filtering and inhibiting.

S+ Operations alarm management functions lead to alarm statistical analysis and advanced alarm reports. System management of alarms includes priorities and groups, in which groups are organized and viewed in hierarchical structures. S+ Operations supports remote alarming through standardized server and client communication.

S+ Operations’ superior integrated alarm management system includes the industry’s leading EEMUA191-compliant alarm management analysis system.

Alarm management
- Advanced alarm management analysis
- EEMUA191-compliant analysis
- Alarm grouping, filtering, inhibiting
- Alarm statistical analysis and reports
- Remote alarming

1 Advanced alarm management  |  2 EEMUA 191 based alarm analysis

1 1

Integrated alarm management
S+ Operations
The key to excellence

Security
Implementing and maintaining a secure and reliable controls environment with minimal effort and time is a challenging mission faced by all plant operators and personnel today. ABB actively participates on several major control system security standards committees including FERC, NERC, ISA, IEC, and ISO. These committees provide security guidance in the form of system documentation and guidelines for every phase of the product and project development process. With this in mind, Symphony Plus has been designed with inherent security features in all core functional areas, including S+ Operations to protect the integrity and reliability of system operations.

Based on IEC62351-8 security standard, S+ Operations defines rights and roles for a user or user groups with very fine granularity. Sophisticated authorization and access control provide a tight guard against unwanted activities.

The log-over function enables a fast and temporary switch between users in a running workplace, and the built-in configuration change management allows easy comparison and nearly risk-free deployment of different configurations. The system also maintains an audit trail with changes made to process settings as well as configuration changes.

S+ Operations provides comprehensive diagnostic displays to present the health of the process and control system. In addition, system hardening is easily deployed to protect servers, workstations and supported network equipment.

Total and selective back-up and restores are possible through the system administration features. System nodes are replaced easily by deploying all original software and configuration data to the new replacement node.

ABB evaluates security updates from third party software such as: Microsoft, McAfee and Adobe with respect to relevance to and compatibility with Symphony Plus. All relevant updates are validated within seven days.

ABB fully understands the importance of cyber security and its responsibility in advancing the security of Industrial Automation and control systems. As our customers invest in new ABB technologies, they can rely on system solutions where reliability and security have the highest priority.

S+ Operations provides users with a secure and reliable operations environment with its built-in security features.

Security
- User authentication
- Role based access control
- Event logging/audit trails
- Backup/restore
- Hardened hosts
- Host firewall configuration
- Antivirus
- Network zones
- Security patch validation
S+ Operations
Optimize and improve plant productivity

Performance monitoring
Optimizing assets requires information that is accurate, timely and actionable. Having this information leads to better decisions: whether to buy or sell power or fuel, to start or stop a unit, to replace equipment, or to perform preventive maintenance.

To assist with the above, optimization tools, such as performance measurement and others, are only one click away in S+ Operations. Providing instant access to complete, active and historical data, S+ Operations is the perfect basis for ABB’s OPTIMAX Performance package.

Optimax performance package is designed for performance monitoring of power and water plants. Comparing actual performance to expected performance at the current load, ambient conditions and operation mode, Optimax Performance is used to monitor short-term and long-term equipment degradation. Performance summary displays and detailed plant component displays show how current operating conditions affect the plant heat rate and, therefore, plant fuel costs.

Asset performance alarms alert operators to degrading performance; while S+ Operations integration with maintenance management systems (CMMS), such as SAP PM, allow for easy communication with and navigation to asset specific maintenance activities. Together, these features reduce the plant’s maintenance costs by moving toward condition based maintenance and streamlining operation and maintenance work interactions.

Plant optimization
ABB provides a suite of plant optimization solutions that enable power and water plants to run at maximum efficiency while balancing the trade-off between revenues, life cycle costs and emissions. ABB’s Optimax optimization suite consists of decision support tools that continuously assess plant conditions and provide root cause analysis in case of deviations. Optimax advanced process control (APC) solutions reduce emissions by optimizing combustion, shortening boiler startup times and improving coordinated boiler-turbine control and unit frequency response.
Optimax applications that enable power and water plants to run at maximum efficiency while balancing the trade-off between revenues, life cycle costs and emissions.
Simple and flexible system architecture

**Flexible, scalable, fault tolerant design**

S+ Operations’ unique system architecture provides flexible and scalable configurations for small, medium and large power or water applications.

S+ Operations provides server-less as well as server-based solutions. Switching between these configurations is swift and simple. This flexibility makes adapting to evolving needs an easy step. All existing data remains untouched, the switchover to the extended system is easy and nearly seamless. The expenses to become accustomed to the “new” system are minimal: operator panels and well-established workflows remain the same.

For server-based applications, the architecture can be expanded over multiple levels in hierarchical structure. Multi redundancy and store-and-forward functions prevent data loss, while preserving full functionality and performance. Based on S+ Operations’ flexible and scalable framework, redundancy for all client applications is built into the system. The principle behind this is known as multi-master. Simply stated, each server, at any level in the architecture, can be mirrored on as many redundant servers as considered necessary.

S+ Operations is a Windows-based, web-enabled human machine system interface providing outstanding information integration and user navigation within a standard Windows environment. S+ Operations integrates perfectly with Symphony Plus controllers, but can also be used with other ABB control families as well as third party standard interfaces.

For remote access, S+ Operations delivers remote client options that include a pure thin client based on Internet Explorer.

With its ability to exchange information with heterogeneous systems, S+ Operations is an excellent choice as a common operator station. By selecting S+ Operations for the control room, operators have the ability to monitor and control all equipment in the plant for smooth day to day operations.

S+ Operations unique system architecture easily adapts to any power and water application.

**Flexible, scalable, fault tolerant design**

- Server-less architecture
- Server-based architecture
- Easy migration
- Perfect integration with heterogeneous systems
- Easy configuration and scalability
- Real-time database
- Multi-master architecture
- Hierarchical architecture
- Segregated or combined architecture
- Every desired level of redundancy possible
1  Server-less architecture  |  2  Segregated architecture  |  3  Composite (Multi-master) Architecture  |  4  Hierarchical (Multi-system) architecture
S+ Operations  
Simple, scalable, seamless and secure

S+ Operations is developed to be the most capable operations tool, designed to provide users with the most advanced, the most efficient and - at the same time - the most simple power and water operations system in the world.

Outstanding flexibility, scalability, and reliability are facilitated by S+ Operations unique system architecture. Integration of all plant assets is self-evident, evolution from the installed HMI is easy and seamless.

S+ Operations information management features provide detailed and clearly arranged displays of all plant data, including real-time information and historical data. Elaborate and intuitive trend displays and flexible reports present pertinent, easy to understand information to all levels of the organization.

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple and flexible system architecture/structure</td>
<td>Low investment, low maintenance costs</td>
</tr>
<tr>
<td>Large-scale networks possible</td>
<td>Expandable when needs evolve</td>
</tr>
<tr>
<td>Flexible single and multi-system facility</td>
<td>Adapts to any requirement - even the most demanding</td>
</tr>
<tr>
<td>Server-less and server-based installations possible</td>
<td>Adapts to any requirement</td>
</tr>
<tr>
<td>Miscellaneous data from multiple servers seamlessly integrated in one display</td>
<td>Saves time, efforts and thus human resources</td>
</tr>
<tr>
<td>Any requested redundancy possible</td>
<td>Provides the maximum system stability and reliability</td>
</tr>
<tr>
<td>Easy modification and expansion of configurations</td>
<td>Protects existing assets as the business evolves</td>
</tr>
</tbody>
</table>
Detailed and clearly arranged faceplates and displays simplify operator interaction for more reliable control. The advanced alarm management tool, including EMMUA191-compliant alarm management analysis system, leads to greater awareness, faster response and better decisions.

S+ Operations embedded security features ensure complete system integrity. Optimization tools, like performance measurement and others, are only one click away. OPTIMAX performance package is easily integrated for superior plant efficiency.

S+ Operations satisfies customers by combining excellent technical features with outstanding economical benefits. All in all, S+ Operations drives effective operations with complete plant information and sustains profitable growth by transforming data into actionable business decisions.

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active (real-time) data and history information fully integrated in the information management system</td>
<td>Provides quick, easy, and seamless access to all stored data within one single system</td>
</tr>
<tr>
<td>Short-time history data stored within every workstation</td>
<td>Enables a quick overview of the evolution of situations; gives the time and opportunity for correct decision-making</td>
</tr>
<tr>
<td>Dedicated history servers</td>
<td>Guarantees data consistency under all circumstances</td>
</tr>
<tr>
<td>Elaborate human machine interface</td>
<td>Delivers intuitive, clearly-arranged workplaces and direct access to all details</td>
</tr>
<tr>
<td>Utilizing web standards</td>
<td>Allows utilization of standard software and hardware</td>
</tr>
<tr>
<td>Perfect basis for ABB optimization tools</td>
<td>Facilitates proactive and predictive maintenance</td>
</tr>
</tbody>
</table>
Contact us

ABB Inc.
Power Generation
Wickliffe, Ohio, USA
Phone: +1 440 585 3087
E-Mail: powergeneration@us.abb.com

ABB AG
Power Generation
Mannheim, Germany
Phone: +49 621 381 3000
E-Mail: powergeneration@de.abb.com

ABB Pte. Ltd.
Power Generation
Singapore
Phone: +65 6776 5711
E-Mail: powergeneration@sg.abb.com

www.abb.com/powergeneration

© Copyright 2011 ABB
All rights reserved. Specifications subject to change without notice. Pictures, schematics, and other graphics contained herein are published for illustration purposes only and do not represent product configurations or functionality. User documentation accompanying the product is the exclusive source for functionality descriptions. Symphony is a registered or pending trademark of ABB S.p.A.