Industrial^{IT} Extended Automation System 800xA

Extended automation solutions for continuous productivity improvements

REDUCING TIME TO DECISION AND ACTION

OPTIMIZING PLANT ASSET AVAILABILITY AND PERFORMANCE

INVESTMENT ENHANCEMENT THROUGH EVOLUTION

INTEGRATING INFORMATION FOR IMPROVED VISIBILITY

PROVEN SOLUTIONS BASED ON KNOWLEDGE AND EXPERIENCE

ENGINEERING FOR MAXIMUM PERFORMANCE

IMPROVING BATCH CONSISTENCY, QUALITY AND CYCLE TIME

Industrial^{IT} enabled™

ABB

Reaching new levels of
Industrial^{IT} Extended

System 800xA delivers extended productivity gains by:

- *Reducing the time to decision and action*
- *Engineering for maximum performance*
- *Integrating information for improved visibility*
- *Improving batch consistency, quality, and cycle time*
- *Optimizing plant asset availability and performance*
- *Delivering Control and I/O to meet entire plant needs*
- *Extending installed system capabilities through seamless evolution*

You're under more pressure than ever before to run your operation profitably – to achieve greater results with fewer resources. In the past, optimizing process control defined excellent performance. However, with changing market demands requiring faster turnarounds, greater customization, smaller lot sizes, and lower overall cost, production gains through process control improvements are not enough to guarantee success. In today's fast paced global economy, competitive advantages result when a company can tap into its assets' unused productivity to meet changing demands. With the Industrial IT Extended Automation System 800xA, ABB provides you with the technology and solutions needed to achieve a sustainable competitive advantage by enabling your plant to perform *smarter* and *better* at substantial cost savings.

Have **you** achieved **operational excellence?**

Operational excellence results when continuous improvement strategies, in conjunction with real-time feedback and analysis tools, maximize production asset availability, optimize quality, and ensure predictable and appropriate plant performance. You face daily operational issues: How quickly do you react not only to process upsets, but changes in demand or product mix? Is the right information available to the right people in a usable format, or must they search several different systems to gather the data? Are you over-spending on preventive maintenance? Are you constantly reacting to equipment failures rather than proactively identifying poor performers? Does your end product consistently meet quality standards? At ABB, our tools provide more than a one-time improvement in performance, but continue to meet the challenges you're faced with on a daily basis. With System 800xA, the result is on-going improvement in your overall productivity and profitability, ultimately leading you to operational excellence.

ABB

productivity with
Automation System 800xA

Setting the gold standard of automation

Industrial IT System 800xA *extends* the reach of traditional automation systems — beyond control of the process — to achieve the productivity gains necessary to succeed in today's business markets. For the first time, this scope is accessible from a single user interface that is configured to present information and provide interaction in a context appropriate to all user disciplines. Extended Automation objects created within the engineering environment provide a foundation for the efficient development, deployment, reuse, and continuous improvement of production applications with predictability unattainable from other automation solutions.
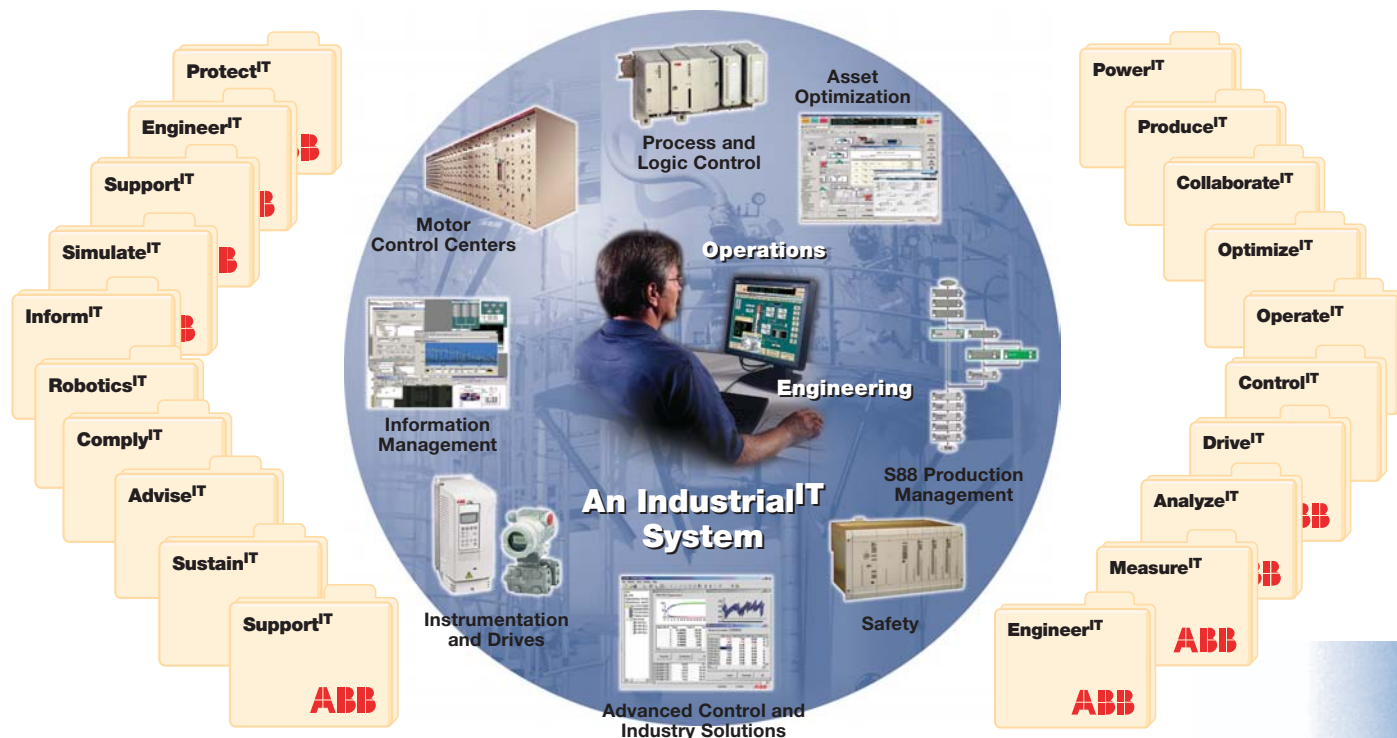
Protecting your investments

System 800xA is the latest installment on ABB's 20+ year commitment to our DCS users. Our pledge of *Evolution through Enhancement* ensures that future advances in systems technologies will enhance rather than compromise your current investments. With System 800xA, you have the ability to extend the automation reach of your present system to enjoy new levels of productivity. The 800xA system provides the flexibility to implement the functions you require today and the agility to add others as needs evolve. Where others promote "rip and replace" migration strategies, we deliver true system evolution, allowing you to build on your strong DCS foundation.

Compounding value throughout the enterprise

System 800xA's unique operating environment allows you to incorporate 'best in class' products, applications and services from the world's largest automation supplier. Built on the Industrial IT Aspect Object™ technology platform and industry specific expertise, ABB's automation portfolio provides the seamless link between process and business management to deliver knowledge-based solutions.

Protect^IT
Engineer^IT
Support^IT
Simulate^IT
Inform^IT
Robotics^IT
Comply^IT
Advise^IT
Sustain^IT
Support^IT

Power^IT
Produce^IT
Collaborate^IT
Optimize^IT
Operate^IT
Control^IT
Drive^IT
Analyze^IT
Measure^IT
Engineer^IT

Asset Optimization
Process and Logic Control
Motor Control Centers
Operations
Information Management
Engineering
S88 Production Management
An Industrial^IT System
Instrumentation and Drives
Safety
Advanced Control and Industry Solutions

ABB

3

Personalizing your View
Operation for

Knowledge is the most precious commodity in business today. Are your operators performing non-routine work processes consistently? Does your maintenance department know what equipment performance is degrading, and why? Do your engineers know what process loops are underperforming, and why? Do your managers know where production losses are occurring, and why? With data originating from a variety of devices and systems, the plant is teeming with information. The challenge, however, is having the information available in the proper context at the right time, in the right form, and to the right people.

Informed Decisions through Personalized Workplaces

The growing deployment of peripheral applications related to productivity improvement vastly increases the amount of data available to improve productivity in the plant, utility, or mill. Yet, without the proper context, plant personnel can be exposed to information overload.

Unique to the 800xA system is its ability to gather information from multiple plant sources and transform it into relevant information for a diverse set of users such as maintenance technicians, process engineers, production managers, or plant operators. For example, operators require an environment to allow them to run a plant in a safe way and produce products in required quantity and quality.

Operations managers require an environment to let them know what is the return on investment, risk, uptime, and production and maintenance costs at any given time. Engineers need an environment that will allow them to implement a specification change into their running plant in shortest time with lowest cost at the lowest risk. Maintenance and service personnel need information to ensure maximum availability of plants and applications.

Engineering

Management

With System 800xA, all plant information is aggregated in one system interface with multiple views.

No other system interface provides the level of personalization to user job functions.

Maintenance

Operations

– Integrate your
Increased Productivity

Fully integrated system improves plant productivity

Removing the barriers of traditional distributed control systems, the 800xA system supports the platform, application, and professional service needs of total plant management and control.

System 800xA dramatically improves plant-wide productivity through the following powerful, integrated core functions:

Operations
Process Portal, the industry's most intuitive system interface, provides a consistent method for accessing enterprise-wide data and for interacting with multiple applications from any connected workstation in the plant or office.

Engineering
Integrated engineering environment efficiently supports the complete lifecycle of the automation project, from planning, through configuration and library management, to commissioning and operation to minimize system ownership costs.

Information Management
Powerful information management software collects, stores, retrieves and presents historical, process and business data to enhance the usefulness of data from all operations.

Batch Management
Production management and optimization tools provide the agility, speed, and control needed to respond to increasing production demands by modeling, executing, and tracking information associated with material and control flow across the plant.

Extended functionality doesn't necessarily mean "large." The 800xA system provides you the flexibility to start small by implementing the functions you require today, and the ability to add others as your needs dictate.

Asset Optimization
Asset optimization software exploits the wealth of plant resident information to assess and report equipment conditions in real-time to reduce costly corrective and preventive maintenance and optimize maintenance and calibration work flows.

Control and I/O
Comprehensive suite of standards-based hardware and software meets the needs of total plant control. Controllers are complimented with a full line of industrial I/O interfaces to meet all plant environments.

Fieldbus (Field Device integration)
System 800xA integration of all fieldbus standards lowers lifecycle costs through significant cost savings in the design, implementation, and operation of field equipment.

ABB   5

The 800xA Extended Automation System delivers the exact information – filtering out the noise – to facilitate consistent, sound business decisions and provides the environment to optimize the associated response.

The enabling technology for this data access, storage, and management is ABB's patented Aspect Object framework. Aspect Objects relate all of your plant data, the Aspects, to specific plant assets, the Objects. The headache of locating information spread between different people, locations, computers, and applications is over. Aspect Object navigation presents the entire production facility in a consistent, easy to view fashion. This allows a single window environment to include smart field devices, asset optimization functions, information management, batch management, safety systems, and MES (Manufacturing Execution Systems) applications.


Process Portal enables streamlined routine work processes and optimal reaction to upset conditions.

In other systems, data is presented without user context. This means that every user must evaluate and understand the same sea of data, and then root out the decision criteria before taking action. With 800xA Process Portal, each user's login defines the type and class of information required for timely and informed decision-making. Thus, System 800xA delivers much more than an operator console; Process Portal provides an intelligent and focused presentation, enabling rapid response.

Optimal reaction requires real-time knowledge that an upset has occurred, or will occur. Process Portal provides notification through its audible and visual alarm and event presentation. Remote personnel are notified of critical events via mobile telephones, e-mail accounts, and pagers by 800xA's SMS (Short Messaging Service) and e-mail messaging service. Using GSM (Global System for Mobile communications) mobile phone technology, 800xA allows remote acknowledgement of notification and confirmation of receipt.
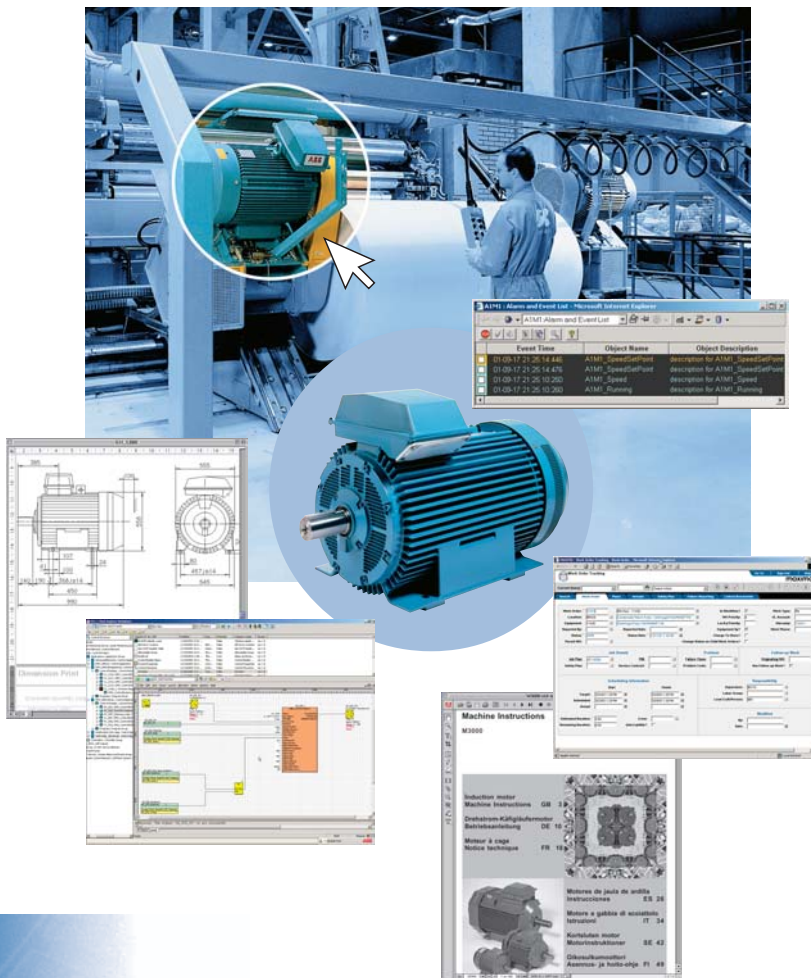
decision and action
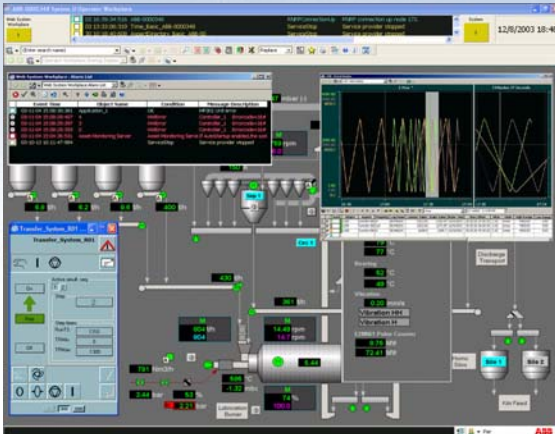
Comprehensive operator functionality for reliable control

System 800xA provides a complete set of operator functions that include realistic process graphics with standard faceplates, superior trending capabilities, intelligent alarm and event handling, production reporting and remote messaging. Complete functionality simplifies and streamlines operator interaction for more reliable control.
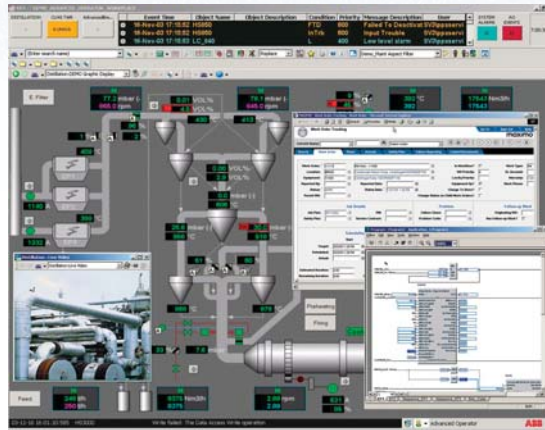
Integrated data for informed decision-making

Information from ABB applications, other automation systems or even business systems is readily integrated into the 800xA system on common displays. This single window provides users a much broader view of the facility and better information from which to make quicker, more informed decisions.
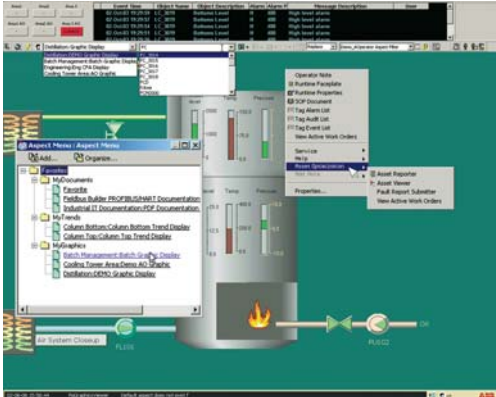
Intuitive and flexible context-sensitive navigation for fast information access

Quick access with familiar web browser tools to displays and information is provided. Favorite places, history lists, short cuts and hot buttons provide navigation through a process production facility quickly and accurately. Use of the right mouse button provides access to additional details such as photos, operator instructions and maintenance information.
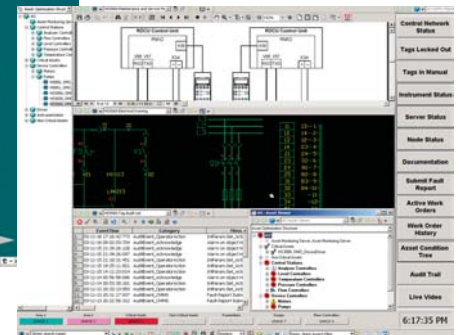
Operations

Maintenance

Personalized workplaces for focused information access

Workplace layouts are adjusted and optimized to users' preferences and needs with individualized menus, toolbar contents and display locations. Windows management functions such as safe areas, pinning and stacking priorities minimize operation errors by prioritizing the presentation of important material.

ABB

7

Engineering for **maximum**

System 800xA provides a visual environment for easy design and deployment of automation strategies, process visualization displays, information management, asset optimization, and field device integration. The flexible, distributed engineering environment allows project data to be accessed, created and modified simultaneously by different users.

800xA helps you engineer for maximum performance with:

- *A fully integrated engineering environment for development and reuse of intellectual assets*
- *A single source of truth for all data within the automation system*
- *A comprehensive set of libraries to streamline the engineering workflow*

Total asset lifecycle engineering

Opportunities to drive operational performance improvement begin early in the project life-cycle where key asset information is being created in core design systems. By using ABB's Aspect Exchange Services™ for INtools® for example, not only can automation system structure, functionality and graphics be created directly from INtools design, but operational changes such as ranges, units, and settings, can be continually reflected back to INtools. Engineering savings of 40% and operational savings of 20% are achievable from reduced as-built cycles and by automatically maintaining design synchronization.
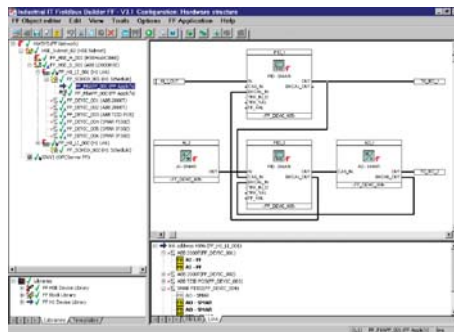
Graphical function design

800xA Engineering graphical function design features enable your engineers to be "engineers" instead of "programmers." The graphical design of automation strategies facilitates easier engineering of your applications. Because design is function oriented, you can develop strategies without knowing controller and I/O physical allocations. Additionally, System 800xA's on-line monitoring and tuning features support you during commissioning and continuous improvement.

Process visualization

Interactive process operation graphics can easily be customized through the use of the comprehensive library of pre-defined elements and symbols. In addition, bitmaps, photos, and third party graphical elements can be supported.
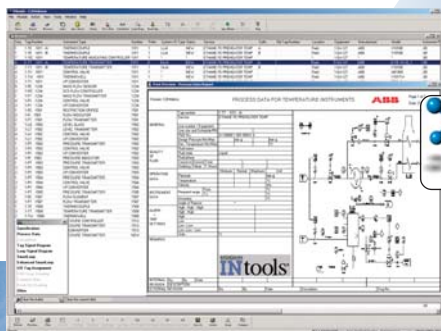
Fieldbus management

Fieldbus management for HART, FOUNDATION Fieldbus, and PROFIBUS provides the tools to engineer device integration from topology on down to the field elements, including device parameterization, application planning, commissioning, and detailed diagnostics.
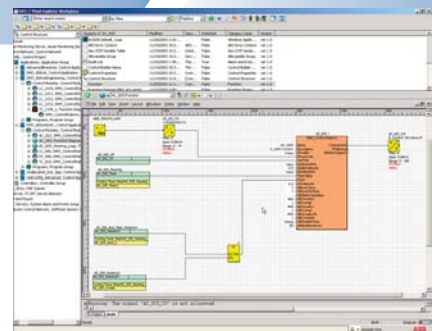
Planning

Design

Configuration

Aspect Exchange Services

for INtools
Lifetime Design Synchronization

ABB

performance

Bulk data management

The ability to efficiently manage large amounts of data is crucial to the engineering of any automation system. Using Microsoft Excel® and Excel add-ins, 800xA Engineering bulk data management features allow for the automatic importation and assignment of external data such as signal lists, tag names, or documents. In addition, you can export system data at any time to support data validation and modification.

Reusable solutions

Companies ensure maximum consistency, reliability, and availability of plant asset production by using "Best Practices" solutions. System 800xA allows standard solutions to be quickly reproduced and deployed.

Most focus their reuse solutions at the process control strategy and implementation levels. With System 800xA, your solution standards incorporate extended automation entities such as faceplates, graphic elements, trends, document links, CMMS data views, field device diagnostics, and asset monitors. Standards are defined at any level across the entire plant, loop, machine, line, unit, and area.

As needs change, your standards will change. System 800xA allows you to improve them. And with automatic update of all deployed instances, you can immediately improve the performance of your plant.

Change management

Needed to meet regulatory compliance, 800xA Engineering change management features record and track system configuration changes to project libraries, instantiated solutions, and runtime and off-line data. 800xA audit trail and electronic signatures are key features that specifically fulfill FDA 21 CFR part 11 requirements.

Integrated documentation and diagnostics

System 800xA's integrated engineering environment provides the ability to associate documentation with related equipment and applications. Using dynamic documents, you can quickly navigate to the displays required for action. Documents based on Microsoft Excel, Word®, or AutoCAD® can be enhanced with live process values for easier diagnostics.

Installation

Commissioning

System Enhancement & Support

Reusable solutions

ABB

Information is a key asset of all businesses.

To achieve a sustainable competitive advantage, manufacturing and process businesses must be able to adapt quickly to change. Reduced time to decision and action is critical for improving quality and productivity. This makes the timely collection, manipulation and distribution of reliable information a significant issue. In today's business environment, electronic data needs to be presented as information to operations, engineering and management in the context most meaningful to them.

Information Management functions are inherent to System 800xA. Historical, process and business data is collected from disparate sources and stored securely. The data is transformed into meaningful information, which is presented in a manner that is easy to understand. This provides important support at every level to improve efficiency and profitability.
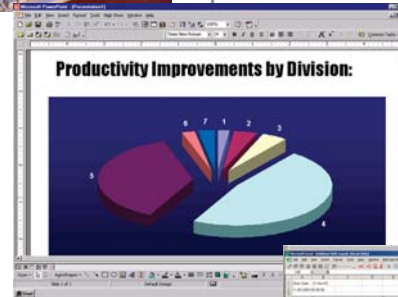
From the control room to the plant floor, users have access to data in a flexible variety of formats that enable agile responses by key decision makers.

Intuitive Presentation

Desktop displays give managers concise, enterprise-wide information in familiar office formats without them having to leave their desks. A discrete tag ticker continuously showing key performance indicators (KPI) can be supplemented with a trend display when more information is required. Operator displays provide information in the control system environment. These are able to seamlessly present both real-time and historic trend data as well as alarm & events.

for **improved visibility**

Automated actions

Versatile scheduling options, which provide automatic triggers for key actions, support all plant personnel with both standard procedures and exception handling. Examples include support for root cause analysis with event triggered pre and post event logging, improving quality and asset availability by using calculations and event triggering to provide predictive alarms, as well as time scheduled reports.

Flexible report generation and distribution

A wide variety of reporting requirements are supported in familiar, simple to use formats. Not only can these fulfill plant and regulatory agency documentation requirements, but they also act as powerful tools for decision making and planning for improved performance.

Sophisticated data transformation

User defined data structures and calculations provide powerful, reusable algorithms and applications. These can be used to transform raw data into information, such as KPIs or material properties, as well as to offer sophisticated control support. The data structures can also be used to integrate external application data into the system.

Secure historical data storage and access

Fault tolerant and distributed data configurations provide dependable data availability. The information is also protected by user access restrictions and offline storage. Users can be confident that electronic record keeping requirements are being met and that their decisions are based upon reliable information.

Integrated administration and configuration

The embedded historian uses the inherent system configuration and administration. This allows single point change management and eliminates the risk of inconsistencies between multiple databases and the need to duplicate engineering effort.

ABB

11
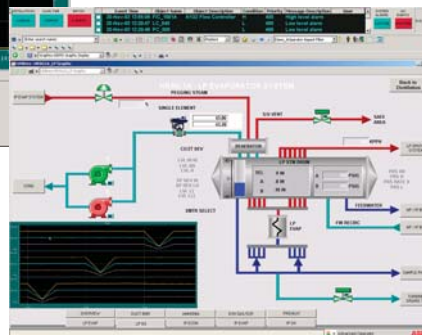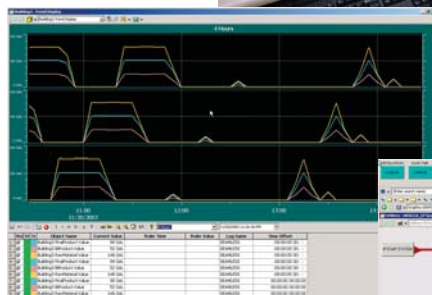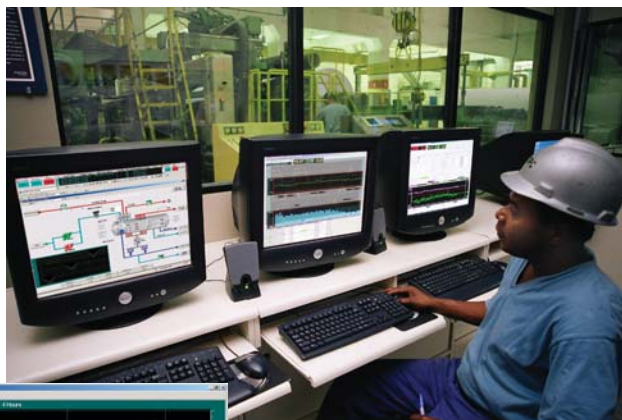
Improving **batch quality**

800xA Batch Management provides unsurpassed recipe management, batch and procedural control, regulatory compliance, safety, and security. It provides you the agility, speed, and control to respond to increasing production demands while reducing your life cycle costs and production downtime, allowing you to achieve and sustain a competitive advantage in the marketplace.

Industry based standards

ABB's standards-based production management capabilities are built to ISA S88, IEC 61512, IEC 6-1131-3, and ISA S95 standards. ABB's unparalleled batch automation expertise, coupled with these standards, delivers extended automation solutions providing the following benefits:

• Easy to use recipe management functions reduce time-to-market and enable shorter delivery lead times

• Increased product consistency results in better quality

• Integrated production management and control result in maximum equipment utilization and minimized operation costs

• Comprehensive automated audit trails streamlines regulatory compliance

FDA 21 CFR Part 11 validation utilities

ABB provides the tools you need to achieve compliance with FDA's 21 CFR Part 11, cGMP requirements, and GAMP guidelines. Facilitating the validation of your process automation system, System 800xA eliminates the need for maintaining paper records or other cumbersome, labor-intensive procedures. Additionally, strict access controls meet regulatory and validation requirements, resulting in quicker, smoother market entry. Security, audit trail, change management, electronic signature, automated reporting and archive and retrieve are integral to all system applications.
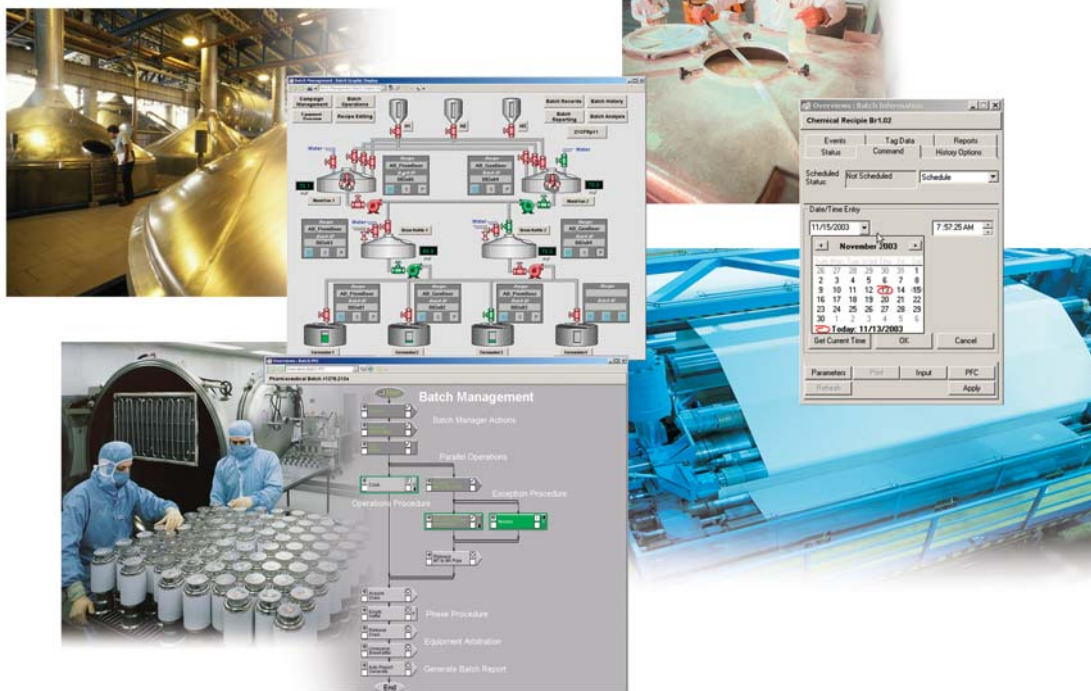
consistency,
and cycle time
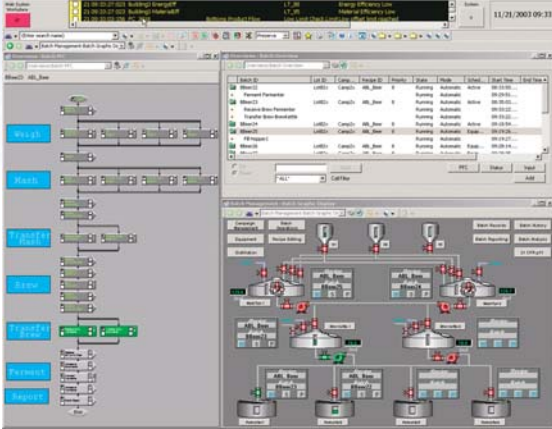
Unlike other systems, batch is not an afterthought in System 800xA. Batch management functions are fully and seamlessly integrated within a standard, open architecture for:

- *system configuration,*
- *operation,*
- *alarm/event management,*
- *security,*
- *real-time information exchange.*

Powerful and flexible recipe engineering

System 800xA employs a single, system-wide equipment model. Units, shared-use equipment modules, exclusive-use equipment modules, and non-automated resources are all configured within the same model. This makes adding or "cloning" a new process unit as simple as copy and paste. System 800xA is the only system that can use the new unit without having to modify existing control recipes.

Unique on-line recipe editing provides additional flexibility during batch execution. Without stopping the batch, you can modify sequence and equipment assignments as well as recipe parameters. All changes made to the control recipe are automatically saved in the batch production record.

Exception procedures

Anybody can run a batch to a pre-configured recipe under normal conditions. Only System 800xA provides exception procedures that extend beyond the procedure model of S88. They provide the ability to configure error handling logic within the recipe. This greatly simplifies logic configuration for handling production specific abnormal conditions.

Resource management and scheduling

Flexible equipment management supports network, multi-path and single path equipment configurations. 800xA Batch Management reserves and allocates equipment and other resources at run-time based on priority of each batch.

Scheduling control recipes is made easy based on master recipes and batch-specific formulation data. You can select equipment at either schedule time or dynamically at run-time. The schedule utility also supports multiple batch executions within a campaign.

ERP / MES integration

The industry standard XML interface enables integration of System 800xA to business systems such as ERP (Enterprise Resource Planning) and MES (Manufacturing Execution Systems). The interface follows the S95 guidelines, providing dispatching, resource management, and tracking functions.

ABB

13

System 800xA's real-time PAM (Plant Asset Management) features significantly increase process uptime while reducing maintenance costs through early detection of asset performance problems and optimized remediation work processes.

## Enabling predictive and proactive maintenance

With 800xA Asset Optimization, plant resident information, such as that from field instruments, motors, drives, process equipment, control systems, and IT assets, is collected, aggregated, analyzed, and compared to historical data to provide advanced notice of degrading performance and impending failure.

Condition monitoring

800xA's asset monitors use real-time plant information as inputs to detect health and performance conditions before failure occurs, assist in the diagnosis of the problem, and offer correction recommendations. These vary in complexity from simply identifying status changes in an intelligent device to identifying abnormal conditions using advanced process equipment condition monitoring applications. Pre-configured asset monitor types exist for assets of all levels ranging from HART, FOUNDATION Fieldbus, and PROFIBUS field devices to IT PC, network, and software.

Condition reporting and analysis

Continuous productivity improvement requires visualization of key plant information and asset performance metrics. Readily available plant information describes asset performance objectives, constraints, current behavior, and relationships with other plant assets. System 800xA uses this information to provide plant personnel with meaningful analysis and reporting tools that identify and analyze poor plant performers. Report screens provide immediate visualization of performance problems while analysis tools drill down to problem root causes, locations, and their impact on overall plant performance.

Real-time measurement and analysis of an asset's KPIs lead to continuous improvement opportunities.
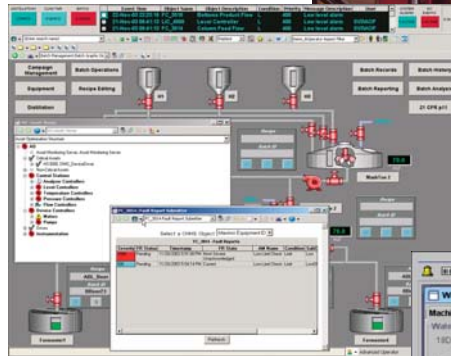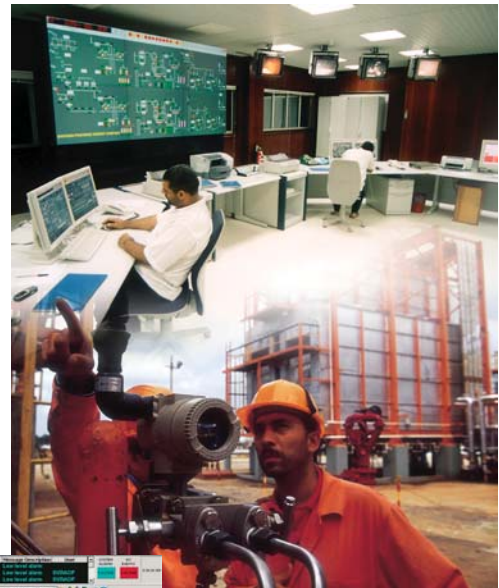
Asset Optimization reporting displays provide quick identification of critical plant performance conditions while analysis displays drill down to problem root causes
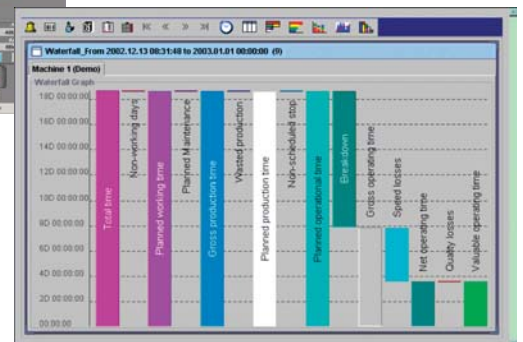
Asset
and **Performance**

Reducing time to repair

System 800xA's integrated environment for device calibration and maintenance management provides you with a versatile plant life-cycle management and workflow optimization tool that will help you get the most value out of your existing plant assets.

Field device management

System 800xA provides a complete device management solution for your field devices. Meriam Process Technologies' DMS (Device Management System) extends the field device management tools by providing an integrated calibration management solution for HART or conventional 4-20 mA devices. The DMS Software connectivity to System 800xA, in conjunction with Meriam's hand held MFC HART Communicator, and MFT HART Calibrator / Communicator results in an integrated hardware / software solution that is unmatched in the industry.

System 800xA can significantly reduce your device lifecycle management costs, through precise calibration, configuration, and secure electronic documentation.
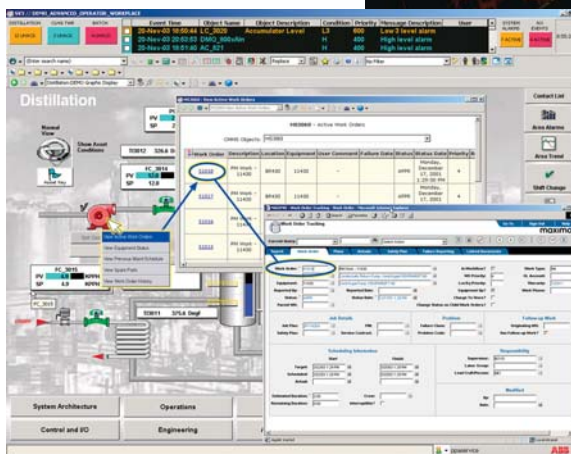
Maintenance management

System 800xA maintenance management features makes information within the CMMS (Computerized Maintenance Management System) transparently accessible to users in both the process control and maintenance system environments.

Seamless context-sensitive interaction is provided through standard System 800xA CMMS displays, such as active work orders, work order history preventive maintenance schedules, and available spare parts.

When an equipment maintenance condition is detected, work orders are automatically submitted to the CMMS. Work orders required for calibration procedures are submitted to the CMMS, and then automatically populated in the DMS Action List, thus initiating the calibration activity. With these features, System 800xA optimizes the work process and significantly reduces the latent time between problem identification and resolution.

ABB

15

Control and I/O to meet
entire plant needs

Continuous productivity improvements and increased profitability are the driving forces behind the selection of today's automation systems. Traditionally, production facilities maintained many controller subsystems; each meeting specific plant needs. However, to succeed in today's changing business environment, you need a controller possessing multi-functional capabilities, adaptability to changing requirements, openness, availability, programmability and maintainability.

Installed base compatibility

System 800xA builds upon the leading brands and technologies that have made ABB *Number One* in automation systems installed base. This includes control and I/O compatibility for most installed systems from ABB, Bailey, Hartmann & Braun, Taylor, and Alfa Laval Automation. The result: Maximum leverage from installed components as you evolve to new functionality!

Scalable, cost effective, fault tolerant design

ABB Control and I/O subsystems deliver powerful and versatile scalable solutions. Redundant controller, communications, I/O and power options provide the highest level of availability in the industry. Equally effective for small hybrid systems and large, integrated, automation applications, System 800xA's scalable, cost effective design contributes to higher return on assets by improving production control, maximizing process availability, and minimizing maintenance.

800xA supported controllers	
AC 800M Series	Safeguard 400 Series
Advant Master Series	SATT & SattLine Series
Advant MOD 300 Series	Symphony DCI Series
Freelance Series	Symphony Harmony Series
Melody Series	

With the largest installed base of traditional DCS in the world, ABB has designed the 800xA system to allow for implementation with its entire line of control and I/O products.

Diverse software functionality to meet all needs

Controllers feature an extensive software library of pre-defined and user-defined control elements. These functions provide the power to easily design complex control strategies to fit any control application including continuous, sequential, batch, and advanced control.

Open architecture reduces life-cycle costs

Designed from the ground up to leverage the power of industry standard fieldbuses and open communication protocols, ABB's open architecture design allows for the easy integration of a wide-variety of devices and systems. System 800xA provides for total plant data integration while reducing overall system support costs.

Flexible I/O options

ABB I/O, available for local and remote mounting, provides a wide-variety of input/output and signal conditioning capability, ranging from standard analog and digital to HART, FOUNDATION Fieldbus H1/HSE, and PROFIBUS PA/DP protocol devices. Intrinsically safe I/O and modular packaging options allow for it to be installed anywhere in the plant.
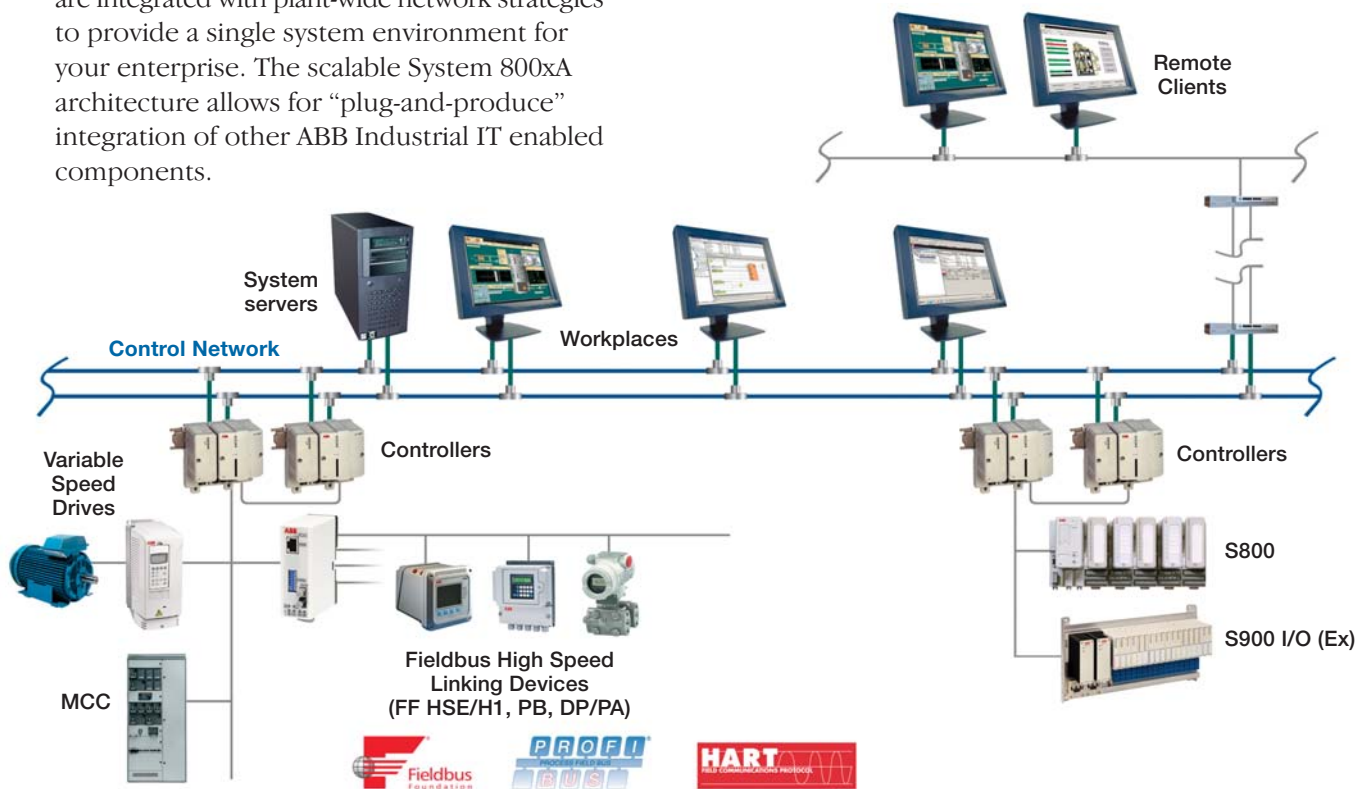
ABB

Open, enterprise-wide
architecture

Embracing the principles of open, real-time networking, System 800xA provides a scalable solution that spans and integrates loop, unit, area, plant, and interplant controls. From providing a secure foundation with robust, but flexible, base level regulatory and sequence control to higher level management and advanced control functions that include production management, maintenance management, information management, and network management solutions, 800xA systems meet the application needs of a wide variety of industries.

System 800xA security and availability features are integrated with plant-wide network strategies to provide a single system environment for your enterprise. The scalable System 800xA architecture allows for "plug-and-produce" integration of other ABB Industrial IT enabled components.

Aspect Object technology

Real-time decisions to prevent or limit production upsets require a consistent infra-structure for data, operations, engineering, maintenance and management across the entire enterprise. The framework for the 800xA system architecture is built upon ABB's Industrial IT patented Aspect Object technology. Aspects are system assets and informational items associated with objects, such as controllers, I/O definitions, engineering drawings, process graphics, reports, trends, etc. that are assigned to each object in the system.

Remote Clients

System servers

Control Network

Workplaces

Variable Speed Drives

Controllers

Controllers

S800

S900 I/O (Ex)

MCC

Fieldbus High Speed Linking Devices
(FF HSE/H1, PB, DP/PA)

ABB

17

Field-proven **solutions**

Complementing the 800xA system and over 100 years of automation expertise are software, application, and service professionals worldwide that are focused on delivering productivity and profits to you. Industry focused segments consist of Utilities, Chemical and Petrochemical, Life Sciences, Pulp and Paper, Manufacturing, and other industries. Through our dedicated teams, ABB is committed to providing you with solutions that will improve your productivity.

From advanced control and process optimization applications to dynamic simulation and training, ABB delivers a foundation for advanced control techniques in real-time. Backed by industry specific experience and know-how, System 800xA advanced control applications ensure that your facility will operate more efficiently, profitably, and competitively.

ABB's application engineers have the expertise to solve every possible automation problem. Working side-by-side with control room operators, they have implemented advanced process control and optimization using applications and products from around the world.

Their practical experience is backed by ABB's research into control theory, information technology, mathematics and statistics. ABB delivers world-class technology from our own R&D and from our software partners, using best-in-class tools to improve an integrated application package, for a small-scale single-unit or a large-scale multi-unit facility.

Project Execution services

ABB Project Execution services support all phases of a complete turnkey, full service, system installation project, providing you with a single point of responsibility throughout the project's lifecycle. From project definition, through system design and engineering/manufacturing, to installation/construction, and commissioning/start-up, our industry specific experienced teams of project managers, technicians, engineers, and on-site service personnel will execute your project to successful completion.

Total lifecycle **support**

ABB provides a full range of complete lifecycle services for our products and systems. From spare parts and equipment repair, remote services and training, maintenance, and evolution support to complete asset management, ABB's application and process knowledge provides proficiency that translates into measurable production performance improvement.

ABB Performance Services

ABB Performance Services offer a wide-range of value-enhancing services dedicated to accelerating return on investment by reducing cost and increasing asset effectiveness. From short term consulting engagements to long-term value based outsourcing, ABB Performance Services are committed to client partner success.

Automation Performance Management

Automation Performance Management is an evolution of ABB Performance Services. Through established best practices regarding plant floor assets and performance criteria, ABB has evolved its automation approach by converting traditional capital expense into a usage and performance-based service agreement.

On-site services

ABB's service team is positioned globally, with thousands of service personnel, to provide a fast and efficient response to every service request. ABB is trained and certified in advanced repair and diagnostic techniques to minimize downtime and have equipment back on-line quickly. Global strength and experience allows ABB to develop and leverage best practices in process and system optimization to improve the performance of your ABB products and minimize associated cost.

SoftCare services

The SoftCare software management program continuously provides you with immediate access to the latest productivity enabling software. In keeping your software current, SoftCare positions you for the constantly changing industry and IT standards by providing constant enhancements, better integration, and more efficient support.

Evolution and enhancements

New generations of software and system components provide increased operating efficiency, lower cost and extended system life. ABB offers low-risk evolution and upgrade strategies for a broad range of products and systems to assure maximum return on investment while enhancing equipment availability and performance. Our customized upgrade planning, implementation and follow-up ensure long-term benefits and continued asset effectiveness.

ABB

19

For the latest information on ABB visit us on the World Wide Web at http://www.abb.com

ABB

Automation Technologies	Automation Technologies	Automation Technologies
Västerås, Sweden	Wickliffe, Ohio, USA	Mannheim, Germany
Phone : +46 (0) 21 34 20 00	Phone : +1 440 585 8500	Phone +49 (0)1805 26 67 76
Fax : +46 (0) 21 13 78 45	Fax : +1 440 585 8756	Fax: +49 (0) 1805 77 63 29
www.abb.com/controlsystems	www.abb.com/controlsystems	www.abb.de/controlsystems
e-mail : processautomation@se.abb.com	email: industrialitsolutions@us.abb.com	email: marketing.control-products@de.abb.com