Features and Benefits

- **Advant Master extended with System 800xA for growth and non-stop performance**

  **Reducing time to decision and action**
  System 800xA Process Portal delivers the exact information, filters out noise to facilitate consistent, sound business decisions, and provides the right tools for the relevant user to take action as quickly as possible.

- **Optimizing plant asset availability and performance**
  System 800xA real-time Plant Asset Management features increase in process uptime while reducing costs through predictive and proactive maintenance.

- **Control, I/O and fieldbus for all plant needs**
  System 800xA offers a comprehensive controller suite of standards-based hardware and software as well as a complete line of industrial I/O for all plant needs.

  System 800xA integration of all major international standard fieldbuses offers lower lifecycle costs through cost savings in design, implementation and operation of field equipment.

- **Maximum return on investment**
  For Master DCS and Advant OCS with Master software systems, ABB offers evolution strategies to ensure maximum return on investment while enhancing equipment availability and performance.

  ABB’s systems are designed to be backward compatible, protecting existing investments in Advant Master and ensuring cost-effective strategies for extension and growth.

  This enables Advant Master controllers, network, I/O and field wiring to be retained when upgrading to newer user interfaces.

Being competitive in today’s business environment requires continuous productivity improvements. ABB has combined Advant Master (Master DCS and Advant OCS with Master software systems) with IndustrialIT Extended Automation System 800xA productivity enhancement software. This provides Advant Master users with the technology and solutions needed to achieve sustainable competitive advantages by enabling plants to perform smarter and better at lower costs.

System 800xA extends the scope of traditional control systems to include all automation functions in a single operations and engineering solution. The result is significant improvement in process control as well as production management, smart instrumentation, smart drives and motor control, information management, asset optimization and documentation.

The Advant Master systems provide the flexibility to implement System 800xA functionality in an incremental fashion. Others promote ‘rip-and-replace’ migration strategies, while ABB delivers genuine system evolution, allowing Advant Master users to build on their strong DCS foundation. New functionality can be added at a pace that’s tailored to user needs.
Advant Master is the ideal platform for implementing the full benefits of System 800xA

Since ABB introduced Master in 1983, production facilities around the world have enjoyed improvements in productivity, capacity and profitability. Advant Master systems are key contributors in a variety of industries for optimization of processes and the realization of competitive advantages.

However, increased competition, higher productivity demands and lack of replacement parts may be pushing the Master DCS system to the limit. New business opportunities might call for new production lines or plant extensions. Success may require a new set of user interfaces as well as control and fieldbus functionality.

Utilizing Advant Master investments together with System 800xA productivity enhancements, key challenges – from ensuring low-cost maintenance and non-stop performance to accommodating growth strategies – are comprehensively met.

In the following pages, the opportunities available to Advant Master users are described in detail. Both the human system interface and control levels are addressed, ranging from the ability to supervise, detect and take preemptive action before problems occur, to the ability to reuse existing controllers, I/Os, field devices and other infrastructure elements.
ABB’s pledge of evolution through enhancement ensures that future advances in system technologies will extend the lifecycle and the return-on-investment of installed Advant Master systems. The backward compatibility offers Advant Master users step-by-step evolution, meeting individual budget and functionality requirements.
System 800xA offers the industry's most intuitive system interface. Its flexibility, ease of use and consistent method for accessing enterprise-wide data, is second to none. These benefits allow Advant Master users to grow (for example, increase productivity or extend production lines), while ensuring maximum uptime and low maintenance costs.

System 800xA Process Portal makes information easy to retrieve, access, view and act upon. It provides a single interface by making all mission-critical data available from a single window application, relevant to the user's information requirements. This provides users with a much broader overview of the facility and more accurate access to information, enabling better, faster and more informed decision-making, thus increasing efficiency and reducing costs.

Information from ABB applications, as well as other automation systems or business systems, can be seamlessly integrated into the 800xA system. Since all data is easily retrievable from any Process Portal workstation, there is no need to search multiple system interfaces for information in other systems or platforms.
Specifically, Process Portal offers an overview of a wide range of plant functions such as process and discrete logic control, asset optimization, information management, batch management, engineering and safety. All these functions can be accessed from the same user interface.

For examples, some of the applications available with Process Portal include: AutoCAD drawings, live video, control logic diagrams, Maintenance Management System, production planning systems, pdf files and supplier web sites.

In modern plant facilities, users are often mobile, working outside the control room. With Process Portal, alarms and event information can be sent directly to the people who need it via mobile devices such as cell phones, wireless phones, pagers and email accounts. Taking shift schedules into account, it includes fail-over procedures if notified users do not respond in time.

With Process Portal, up to four monitors can be controlled from one PC, making all information visible at the same time. Multiple monitors also allow applications to be moved from one monitor to another, or displayed simultaneously on several monitors, depending on the user’s needs. For example, an operator can use one monitor for the main process interface while using other monitors for frequently used displays, such as faceplates, alarm and events or asset performance monitoring.

Read more about Process Portal in the Process Portal Overview 3BSE034823.
Management of enterprise-wide information

Protecting the reliability of historical data is crucial to benchmarking and delivering consistent product. System 800xA Information Management provides fast and accurate access to the performance history of all plant operations, enabling users to identify the root cause of inconsistency in production.

The data is also protected by user access restriction and offline backup storage, ensuring that electronic record-keeping requirements are uncompromised and decisions are based on reliable information.

Read more about Information Management in the Information Management overview 3BUS092079.

Detect performance dangers

When degrading plant asset performance, such as under-performing process loops or field device problems, goes undetected, overall plant productivity can be adversely affected. With System 800xA Asset Optimization monitoring and reporting features, plant resident information can be collected, aggregated, analyzed and compared to historical data to provide advanced warning of degrading device, equipment process performance and their impending failure.

The condition of process assets can be continuously monitored. Maintenance alarms alert personnel in case of problems. Root cause problem indication with suggested action to overcome the problem is also available.
System 800xA asset monitors features vary in complexity from simply identifying status changes in an intelligent device to identifying abnormal conditions using advanced process equipment condition monitoring applications. They also assist in the diagnosis of the problem, and offers repair recommendations, keeping the plant performing on its optimal level.

The ability to supervise a plant and gather information from multiple sources and then transform it into information useful to plant operators, maintenance technicians, process engineers or product managers, is one of the strengths of the 800xA system. This is a giant step forward compared to production facilities traditionally maintained by many different systems, each with different needs.

One important advantage of System 800xA maintenance management is its CMMS (Computerized Maintenance Management System) integration, which gives users transparent access to both process control and maintenance system environments.

For example, when an equipment maintenance condition is detected, work orders can be electronically submitted to the CMMS and then automatically entered on to an action list, initiating repair, replacement or calibration activity.

Read more about Asset Optimization in the Asset Optimization overview 3BUS092078.
Extend Advant Master at the controller and I/O levels

Today, automation systems need to integrate all systems, controller and I/Os into one extended system that interconnects at all levels, giving users the flexibility to add functionality as they grow. It must also utilize existing infrastructure and ensure that the system performs without downtime at the lowest possible cost.

Advantages like these allow Advant Master users to succeed with key challenges such as growth, ensuring maximum uptime and low maintenance costs.

System 800xA provides fieldbus connectivity for all major international standard fieldbuses, including HART, Fieldbus Foundation and PROFIBUS. Furthermore, System 800xA fieldbus management provides the tools to engineer device integration from topology on down to field elements, including device parameterization, application planning, commissioning and detailed diagnostics. In addition fieldbus integration enables maximum asset optimization through improved maintenance effectiveness, process availability and improved productivity.
Maintenance effectiveness is achieved with online access to device status and diagnostics, which can be used to identify poor performance before failure occurs. This will reduce the number of man-hours used to visit the field or dismount instruments.

The AC 800M controller and S800 I/O seamlessly integrate distributed and traditionally insulated plant devices and systems into the 800xA system environment. This capability extends the reach of the automation system to all plant areas, giving users entire plant control from a single interface, making it possible to supervise more efficiently.

Specifically, System 800xA gives users a simplified, software representation of the plant, from simple on/off type switches and valves to smart field devices, dedicated control subsystems, variable-speed drives, intelligent INSUM switchgear and PC-based supervisory systems.

Redundancy is available in all critical areas of the Control and I/O subsystem, ensuring highest possible availability. These include control networks, fieldbuses, internal buses, power supplies, CPUs and I/O. If a fault occurs in a primary circuit, bumpless transfer to the back-up ensures uninterrupted operation.

Advant Master users can utilize the latest S800 I/O offerings, which include a complete range of modules with redundancy at all levels. It can utilize virtually any signal type and range, from basic analog and digital inputs and outputs, to pulse counters and intrinsic safety I/O.

Read more about Control, I/O and fieldbus in the Control & I/O Overview 3BSE034989 and Fieldbus Overview 3BDD013081.
Smooth the path to better business

The System 800xA functionality can be integrated with Advant Master systems to provide users with the possibilities of increasing productivity, meeting growth demands and ensuring low-cost maintenance.

**Extend Advant Master with Process Portal**

The Process Portal workstation can coexist with existing MasterView 800 and AdvaCommand for UNIX and NT workstations to immediately gain the added benefits of the System 800 functionality. It’s also possible to replace a MasterView or AdvaCommand workstation with a Process Portal workstation in a smooth and cost-effective manner. Process Portal is easily integrated with existing Advant Master controllers. This means that existing Advant Master controllers, including controller application, I/O and field wiring, can be retained in a replacement scenario. To achieve a smooth transition with regards both to production output and operators training, consider parallel installations of existing Advant Master and Process Portal workstations.

**Secure access to support and spare parts**

Replacing MasterView 800 with Process Portal offers secure and cost-effective access to support and spare parts. In the extension, it means lower maintenance costs and minimum risk of production shutdowns.

**Familiar look and feel**

When Process Portal replaces an AdvaCommand workstation, the user will be comfortable in the new environment thanks to an Advant look and feel. Faceplates, system status, system alarm and alarm & event lists work and look similar to those in Advant. Process Portal also offers ‘hot key’ ability for mapping keystrokes or keystroke combinations. A hot key will perform an action available to a selected object such as alarm acknowledgement, or a general action such as calling up a process graphic or other information.

**Step-by-step controller evolution**

The backward compatibility available to Advant Master users applies not just to the operator level, but to the controller level as well. For example, Advant Controller 400 or AC 800M can replace MasterPiece 200/1, while retaining the S100 I/O and fieldwiring.
For example, when Process Portal replaces a MasterView 800 workstation, the existing MasterPiece 200/1 including I/O and field wiring can remain intact. The choice is open to replace the MasterPiece 200/1 with Advant Controller 400 or AC 800M later on. Advant Controller 400 also has connectivity towards S400 I/O. S100 I/O connectivity towards AC 800M is enabled with a communication interface in the AC 800M controller, which connects to the S100 I/O Bus Extender.

Peer-to-peer communication between AC 800M and Advant Master controllers is available. This is very useful when for example a System 800xA system is installed in a plant’s new production line and an Advant Master system is already in place in the plant.

Existing S400 I/O installations can be upgraded to S800 I/O, retaining the complete field wiring. The whole replacement process only takes a couple of minutes. The benefit is a more capable, adaptable and maintenance-friendly I/O system that will provide reliable service far into the future. This enables the I/O system to be used at the highest possible output and a better financial return.

A yeast producer needed to replace an outdated non ABB system to ensure production availability. An Advant Master system controlled and supervised another part of the plant.

They chose an IndustrialIT system which provides flexibility to accommodate future expansions and growth and also provide needed peer-to-peer communication with the Advant Master system.

The next evolution step is to upgrade the AdvantCommand workstations to Process Portal, resulting in a common user interface for the complete plant.