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ABB Ability™ System 800xA
Engineering Overview

Real-time information integration for better and faster access

Working within a common engineering environment, 800xA Engineering supports a consistent information flow, from design through installation and commissioning, to operation and maintenance. It lays the foundation for continuous improvements in lifecycle and operation dimensions of information flow, resulting in efficient engineering and enhanced productivity.

Aspect Objects

System 800xA and its Aspect Object™ technology provide a unified environment for operations and control that help our customers increase their operator effectiveness and production performance.

The integration architecture relates all plant data (the Aspects) to specific plant assets (or Objects). The platform's client-server architecture streamlines controller communications, centralizes configuration and back-up tasks, and provides system-wide management of data for trend, history and audit trail purposes. System 800xA also provides freedom of choice regarding server and workstation computer hardware, even leveraging virtualization technology to streamline and simplify computer systems maintenance.

In contrast to conventional relational databases, System 800xA has a service-based architecture. This means that a piece of equipment uploaded to it, irrespective of which system it comes from, will be represented as an Aspect Object and be able to use all the services the system can provide.

System 800xA gives control engineers a unique opportunity to manage the access for each user. Access can be granted based on parameters such as who and where the user is, what the user wants to do and on which Aspect Object.

Standardization

System 800xA offers an incredibly capable platform with a higher than average degree of freedom on how to deploy and engineer. While this is one of its differentiators, which is appreciated by our channels and end users, it can drive up cost, complexity and risk if not leveraged properly. In addition, engineering is among the largest cost drivers in a DCS project: optimizing it directly impacts competitiveness of the integrating unit. With the release of ABB Ability System 800xA 6.1 and the xStream Engineering related functionality, we have a golden opportunity to define the recommended path to engineer an 800xA system in the most efficient way, with several advantages to the channel integrating the system.

Engineering benefits:
- **Optimized project execution cost by improved engineering efficiency**
- **Higher quality of delivered systems**
- **Improved user experience**
- **Lower support needs**
- **Online training, resulting in reduced training cost and ramp-up time of new engineers**
- **Future product developments focused on improving the main engineering workflow.**
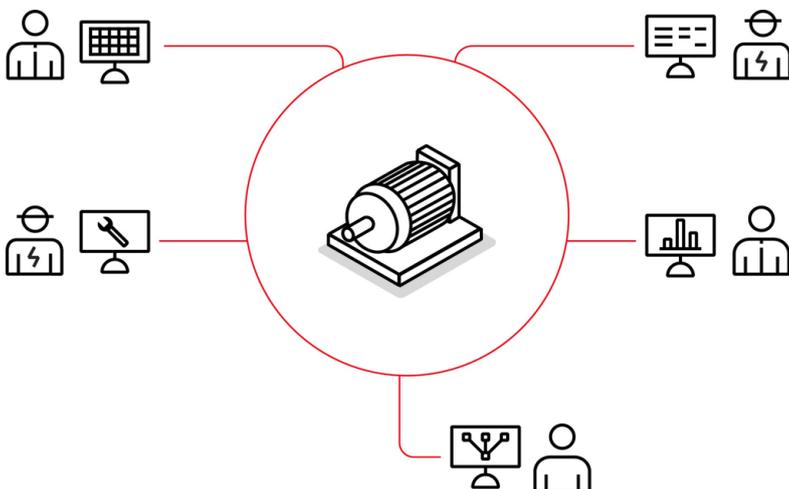
xStream Engineering

xStream Engineering reduces the project time by de-coupling automation tasks from each other. Application engineering can now be done in parallel with the installation and configuration of the hardware, using the newly released "signals" concept.

ABB's xStream Engineering methodology is so named for the enabling of project teams to perform multiple ("x") tasks simultaneously in parallel work streams. Representative of this concept is the System 800xA's Ethernet I/O Wizard, which can be used in the field to configure and functionally check Select I/O prior to—and independent of—delivery of the application.
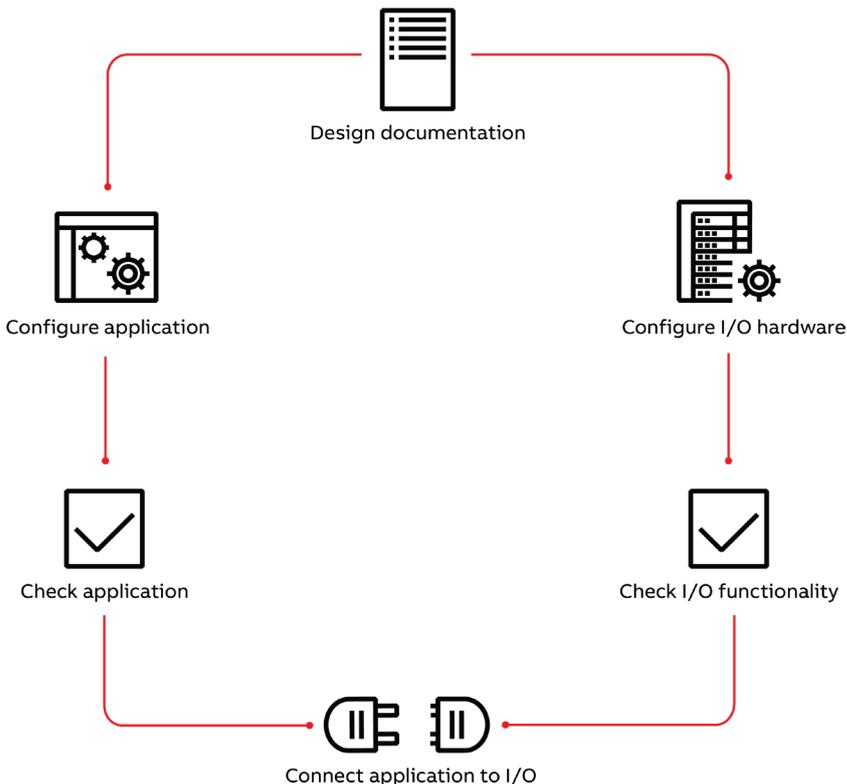
An xStream Engineering example: Configure, Check, Connect
To illustrate how this works, think of two simple work streams. One is the field work that can be done while the application work is being done in another location. In the field, the I/O cabinets can be delivered early in the project and later, just before commissioning occurs:

- **Configure:** On a particular cluster of Select I/O, the Select I/O Module base is populated with the Signal Conditioning Modules (SCMs) that match each channel's I/O type. The technician then connects his mobile device (laptop or tablet with System 800xA configuration tools) to the Ethernet I/O Field Communications Interface (FCI). The Select I/O is automatically scanned and that information combined with data from the I/O signal list as well as information contained in any HART devices that are present. A test configuration is automatically created based on the I/O type detected to help in doing functional loop checks.

- **Check:** With the I/O configured and a test configuration running, smart and non-smart field equipment can be functionally checked in the field even as application engineering continues along a separate path and in a different location. Using System 800xA's Extended Automation features such as Documentation Manager, field testing and verification documentation is created and stored.

- **Connect:** Once functionality is checked, the established I/O structure can be imported into the master production system that contains the application code. Since they both have been configured using the same unique signal names, the software and hardware are digitally marshalled automatically—no mapping required. The full system—hardware and software— is now ready for final commissioning.

Design documentation

Configure application

Configure I/O hardware

Check application

Check I/O functionality

Connect application to I/O
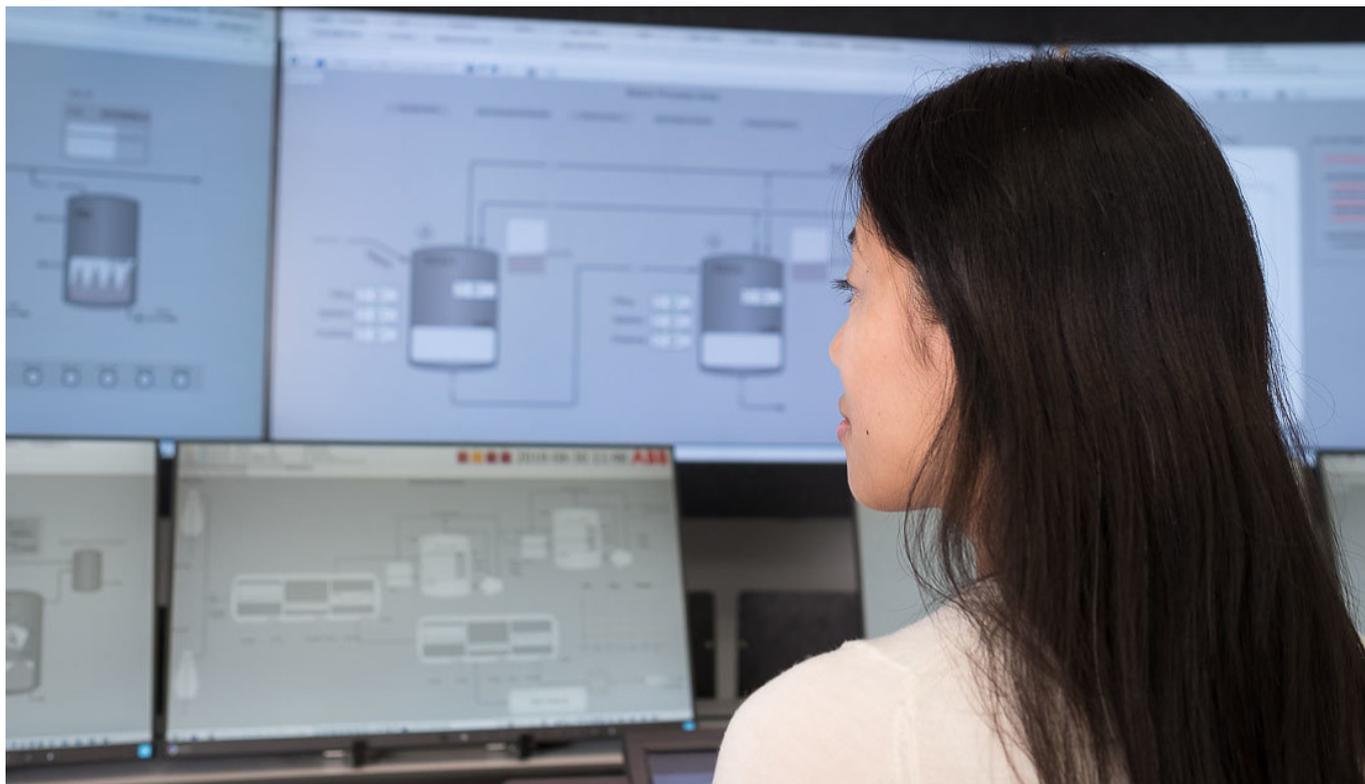
Engineering with Signals

Application engineering can be done in parallel with the installation and configuration of the hardware using signals. A common signal list is provided for application engineering (in office). Signals is a concept that decouples the hardware and the application engineering. A Signal is a name-based connection between a variable somewhere in an application and an I/O channel somewhere in the hardware structure.

Using signals instead of connecting variables directly to I/O channels is a way of making applications and controllers independent of each other when it comes to engineering large projects.

Signals can be created for applications, top level diagrams, top level single control modules, and programs. The applications are downloaded to the controllers and system testing can be performed using simulation for controller and I/O.

Ethernet I/O Wizard

Ethernet I/O Wizard is a software component of the enhanced S800 engineering tool set. This supports engineering and commissioning of the I/O Stations. The standard 800xA tool set includes Control Builder M Professional, 800xA Base, 800xA Device Management, a PROFINET Connect Client, and Ethernet I/O Wizard.

In case System 800xA features such as Device and Configuration Management are not required; a Compact Control Builder based tool set is used. All IO configurations are finalized and downloaded to the IO by Control Builder.

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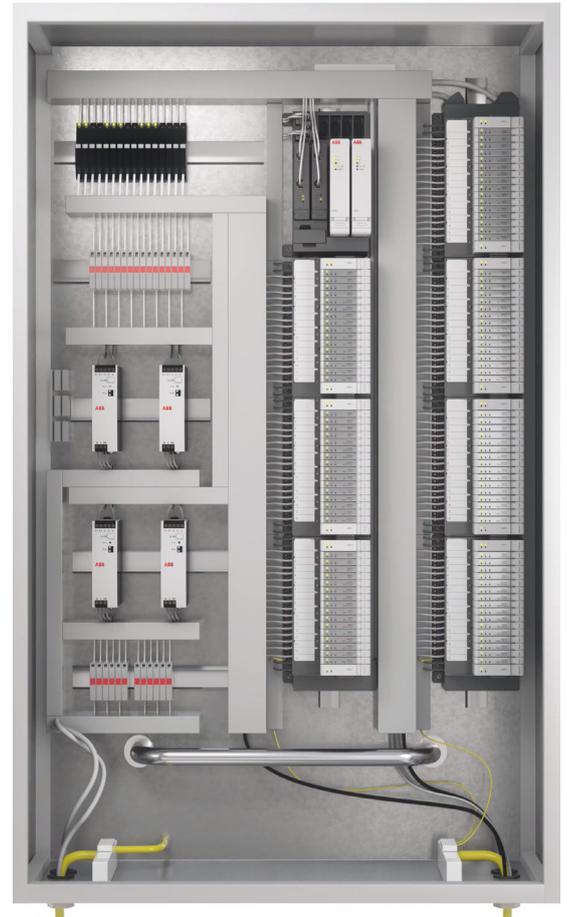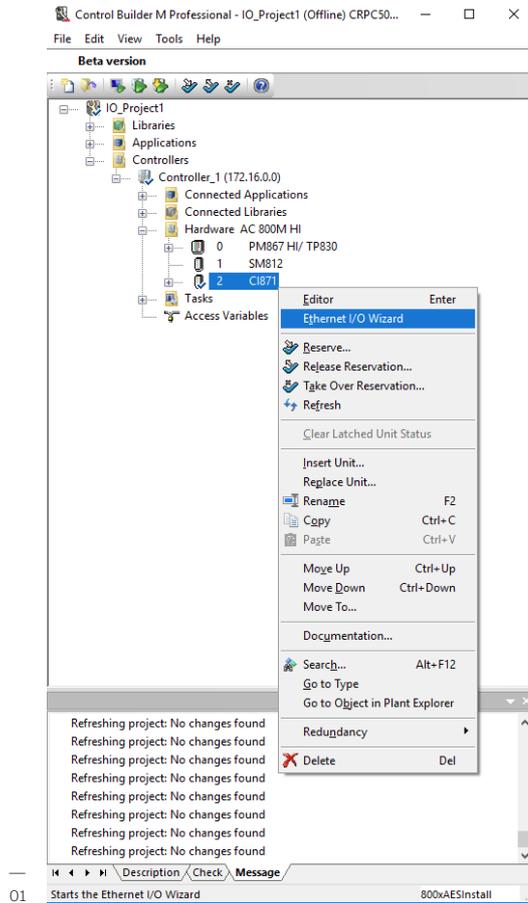
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01 Control builder M

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02 Select I/O
standardized cabinet

Prerequisite

Ethernet I/O Wizard and the Control Builder M or Compact Control Builder are installed in the system. Ethernet I/O Wizard reads the launch path from the control builder. Control Builder M or Compact Control Builder Project is created, CI-871PROFINETHwLib is connected to the project and to an AC 800M Controller, CI871 Module inserted under AC 800M Hardware. Ethernet I/O Wizard also reads the NLS settings and currently logged-in user information from the Control Builder.

Ethernet I/O Wizard allows only one instance per node. If one instance of Ethernet I/O Wizard is already running and the user tries to launch it again, the launch will fail and a message will be displayed that an instance is already running.

On a Terminal Server configuration it is possible to run several instances of Control Builder M for different users. However it is only possible to run one instance of Ethernet I/O Wizard at a time, even on a Terminal Server.

A warning message is displayed if the Control Builder configuration that is being read has a Safety Controller (Hi Integrity) as part of the hardware topology.

Ethernet I/O Field Kit

The Field Kit is designed to pre-commission Ethernet I/O stations without a need for controller hardware. Field Kit is a single node 800xA installation variant that can connect directly to the Ethernet I/O stations. HART field devices as well as Ethernet I/O stations can be configured and checked. Multiple Field Kits can be used and connected to a few I/O stations each. Once an I/O station is checked "ok" the I/O configuration can be exported into one file, which can be transferred to the integration responsible for the project.

The Field Kit contains a Loop check controller that allows to connect via PROFIINET to I/O and field devices. The test applications running in the context of the Loop Check Controller are activated as long as the Control Builder is online but for a maximum of 10 hours.

Device configuration for HART devices can be done with generic DTM driver packages for common parameters or specific device drivers have to be loaded to configure and test the field devices with specific procedures.

Control Builder
I/O Hardware
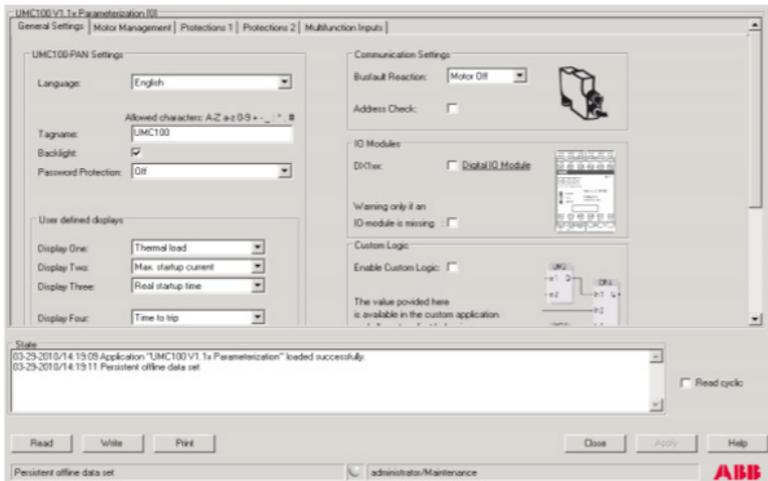
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Control builder

Intelligent Engineering
System 800xA Engineering provides a fully integrated engineering environment for development and reuse of system standards, such as incorporating control logic, operator displays, field devices, asset monitoring and maintenance support. Standard language support (IEC 61311) and extensive purpose-built libraries streamline engineering workflow and enhance productivity.

The new System 800xA xStream Engineering tools and workflow help address the need to reduce project time by de-coupling automation tasks from each other (i.e. separating the field installation and testing from the application programming).

Communications Options
The AC 800M controller family includes a selection of communications modules that make it possible to access a wide range of field devices and third-party systems.

The interfaces include:
Ethernet-based interfaces/protocols serial communications interfaces to ABB equipment communication interfaces to heritage systems.

Self-Diagnostics
Modules are equipped with self-diagnostics in the software. This reports faults to the system where alarms are raised and forwarded to operations and maintenance engineers. All modules are equipped with LEDs on the front, indicating functions and malfunctions in real time.

Hot Swappable Modules
A faulty I/O module for example, can be replaced live, i.e. without powering down the station and without the rest of the station being affected. A hardware key ensures that only modules of the right type can be inserted.

Supporting Features
System 800xA's Control and I/O provide the foundation for process, power and safety automation solutions.

Key features include:
• Wide selection of communications modules for ethernet-based fieldbus, serial and ABB equipment interfaces
• Multi-channel and single channel I/O options (including SIL-rated safety I/O)
• Additional specialty and cost-efficient I/O options
• Scalable controller family with available redundancy for high-availability applications
• Fault-tolerant hardware design with hot-swap, HART and safety options
• Built in self-diagnostics
• Integrated engineering tools

Control Builder
Software application

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01 Control Diagram
Editor

—
02 Sequential Function
Chart

Control Diagrams
Control Modules are available for scenarios where the plant design is driven by highly repetitive units. With Control Modules, user-defined types covering a unit Such as a reactor can be designed and efficiently parameterized and instantiated multiple times.

Control Diagram Editor is a graphical control application engineering tool. It combines the power of IEC 61131-3 languages with innovative and easyily operated user interaction design.

Control Builder also provides editors for object-oriented control solutions with Control Modules. It's also possible to combine Structured text, Function Block Diagram and SFC together with Control Modules within Control Diagrams.

Supported editors are:
• Control Module Diagram Editor
• Control Diagram Editor

IEC 61131-3 Programming
Control Builder is a powerful tool for creating control and safety solutions including reusable control libraries for the AC 800M controller. It is also used for the hardware configuration. Everything is done in a Windows-based environment, offering a wide range of control functionality for ABB's industrial controller AC 800M. It supports

all five programming languages according to IEC 61131-3.

Supported programming languages are:
• Instruction List
• Structured Text
• Function Block Diagram
• Sequential Function Chart
• Ladder Diagram

Functional Planner
Function Designer is a graphical control application engineering tool designed for process engineers. It is intended for engineers desiring a functional approach of the control logic in line with the process graphics and all other aspects of a certain process section. It does not require software programming expertise and is intuitive to engineers in the plant design as well as in the maintenance phase.

Function Designer Configuration Scope:
• Logic and control blocks as Functions, Function Blocks and Control Modules for AC 800M
• Sequences with Steps, Transitions and Actions
• I/O Signals representing configuration of devices and hardware channels
• Variables with automatic cross-referencing
• Automatically generated page connectors
• Graphical elements as text boxes and shapes

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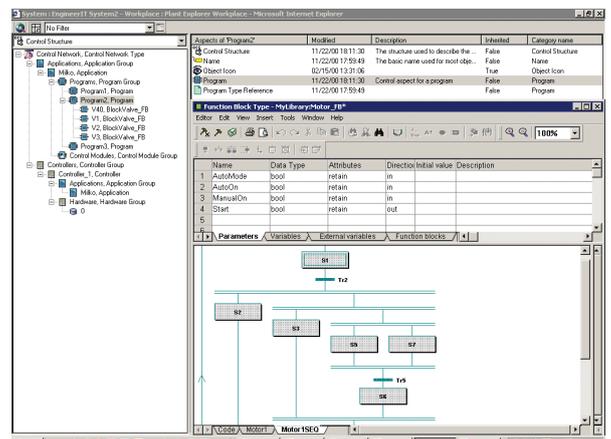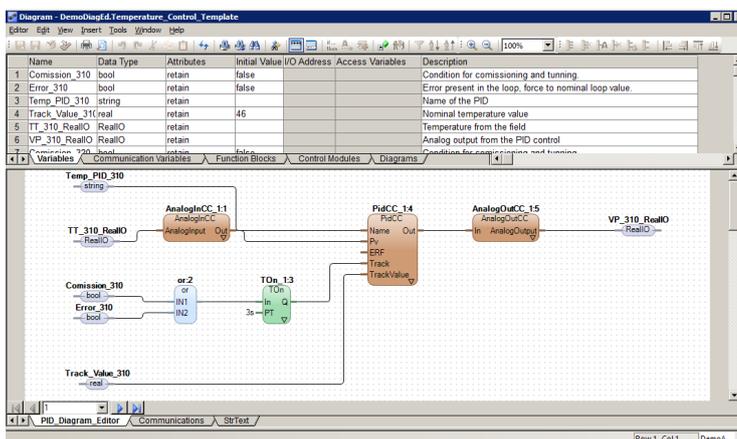
Soft Controller

Beside the availability to execute the control application in a virtual "Soft Controller" for test and debug, Control Builder offers a set of features for on-line testing, tuning and simulation:

- Status inspection: The status of I/O signals, variables, etc. can be inspected on line, no manual tagging is required
- Force: I/O signals can be selected and forced to a chosen state
- Overwrite: All variables can be overwritten on a single-cycle basis, after which the program takes over again
- Tasks: Single-scan executions can be selected in the Task Properties window

Safety functions

- Integrated safety concept up to SIL3/PLe 4 certified according IEC 81508 2ed
- Programmed with same engineering tool and process controllers, supporting Control Diagram (SIL3) , Structured Text (SIL3), FBD (SIL3) and SFC (SIL2)
- Engineering tool automatically limits user configuration choices to ensure integrity Safety functions protect and control download to the process and runtime environment
- Difference report shows all configuration and application changes before reconfiguration download
- Standard libraries for Burner Management according to EN 298
- Standard libraries suitable for ESD/PSD, F&G
- Load Evaluate Go can be used to test and verify

a program change in the controller before committing the change
- Override Control either from local work station or integrated with Multi System integration
- SIS and BPCS applications can be combined in same controller
- Online Upgrade can be used to upgrade running Safety Controller without needing to stop the process
- Interference-free protocols can be used BPCS application such as Modbus TCP, Profibus DP/ V1, Profinet, Masterbus 300, S100 I/O, Insum, IEC61850, MOD5, Ethernet IP/ DeviceNet
- 3 different CPUs from small to large: PM857, PM863 and PM867
- Safety I/O systems support for the new Select I/O system as well as Modulebus based S800 I/O

Libraries

An extensive library of functions available with Control Builder, containing everything from simple AND and OR gates to ready-for-use self-tuning – adaptive – PID controllers. Also included are unique elements for direct interfacing with variable speed drives and for easy handling of all the software-related redundancy features the AC 800M controller offers.

Basic functions can be combined into user-defined functions in order to adapt or aggregat such functions. User defined functions can be grouped into libraries for simplification.

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ABB Ability™
Field Information Manager
Device management made easy

ABB's Field Information Manager initiates a paradigm change for configuration and parametrization of Fieldbus devices. The tool is very easy to install and has innovative and intuitive navigation and an adaptive user interface. This makes configuration, commissioning, diagnostics and maintenance of HART instrumentation faster and easier than ever before:

- Works with FDI as well as legacy DDs - one tool for all device applications
- Quick to start - scans, identifies & enables access to device within 3 minutes
- Efficient & productive - equipped with high-performance and innovative graphical user interface
- Connects to ABB System 800xA & enables bulk device configuration & commissioning

- One tool for all needs - can be used in the Engineering station, in the Field, back of the panel or in maintenance workshop
- Flexible - can be quickly installed on Windows Tablets, PCs or computers
- Maintenance of HART devices supporting NE 107 classification
- Supports Configuration Management by exporting device configuration for documentation in PDF files

Connectivity supported by Field Information Manager:
- ABB Ability™ System 800xA
- HART modems
- ABB Ability™ through OPC UA

Graphics Builder

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01 Process Graphics
Editor

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02 Graphic displays
symbol editor

Process Graphics Editor
Graphics Editor is a fast and effective tool to
create graphic displays. Highlights include:
- State-of-the-art editor providing functions such
  as undo, drag-and-drop, find, replace, zoom,
  docking windows, toolbars, etc.
- Comprehensive graphic symbol library contain-
  ing device and factory symbols as well as
  charts, spreadsheets and trends
- Out-of-the-box predefined graphic elements
  delivered with function block and control
  module types
- Full-vector graphics that allow distortion-free
  scaling with maintained resolution
- Scalable and parameterizable graphic symbols
  that allow efficient adjustments such as orien-
  tation
- Intuitive and easy-to-use expression editor
- Display documentation tools for keeping a
  record of all engineered graphics
- Solution library that allows storage and retrieval
  of reusable solutions with drag-and-drop
- Migration tools for ABB and other vendors'
  displays

State-of-the-Art Editor
The Graphics Builder with its intuitive user inter-
face provides:
- Easy-to-use expression editor
- True vector graphics enables scaling while keep-
  ing the correct resolution
- Copy and paste for full graphics and parts of it
  with powerful find and replace especially for
  data references

- Copy of expressions or part of expressions to
  re-use graphic building blocks
- Extended support of Grouping, Zoom, Rotate,
  Alignment, Mirror, Undo
- Design and Live Mode (showing real data)
- Test Mode where input signals can be set with-
  out affecting the real process value

Libraries
Creating an accurate pictorial representation of
the process in graphics is easy using the exten-
sive symbol library. The components are also
used to provide user control access for different
actions, such as starting a pump sequence or
lowering the setpoint of a flow controller. Hyper-
links to other graphics and objects can be
defined within graphics.

The symbol library includes:
- Support of current Factory Symbol Library
- Display elements such as elevator, rolling fig-
  ures, conveyor, scrolling text display
- Trend displays with time and data value
- Pie charts symbol library

Solution Library
To save a graphic solution for reuse later in a new
solution, drag and drop into a personal solution
library. To re-use the solution, simply drag the el-
ement from the personal library and drop it in its
intended location. Process Graphics 2 allows the
creation of any number of personalized solution
libraries. A smart find-and-replace function
speeds up routine graphic building tasks even
further.

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02

Basic Functions

Configuration Management
Within an automation system, changes to configurations must be carefully controlled to ensure all modifications are traceable: who has changed what, when and where.

If a history of configuration changes is required, the Application Change Management can be added to the system. This will enable saving versions of changes to the Configuration History Server, such as updated graphic displays, changed templates, updated control logic, edited libraries and so forth.

Library and Recipes Versions
With the 800xA system, users are able to create their own libraries of user-defined blocks and elements. These libraries need to be maintained throughout the complete lifecycle of the installation. Configuration Management on Libraries is built into the system and supports features such as life-cycle (design, closed, released) and the capacity to have multiple versions online available in the system. Details of Recipe versioning can be found in the System 800xA Batch Management Overview. This also includes S88 Batch Recipe Editor.

Reservation – Multi User
Exclusive access to configuration ensures that it can be opened read only or in edit mode. The reservation function enables the edit mode and ensures that other users cannot simultaneously change the configuration.

Audit Trail and Electronic Signature
Audit trail events are generated for all changes made during the synchronization process. System 800xA provides complete audit trail and electronic signature support for those industries that require regulatory compliance. Details are described in the 800xA Batch Management Overview.

Distributed Engineering
In order to work in a globally distributed environment or to test and debug configuration changes, users can work in independent engineering systems. Such systems allow testing and debugging of configuration changes in a "sandbox" prior to the deployment of such changes in a running control system.

Language Settings
Language settings of the tool is based on the Language Setting of Control Builder M where it is launched. If the regional language setting is either Swedish or Chinese in Control Builder M, then the Ethernet I/O Wizard user interface changes to the respective language. For any other language setting, the default will be English. All messages and logs will be available in the language that is selected. Except specific error codes or log contents, messages will be limited to English.

Basic Functions

Bulk Data Management
The ability to efficiently manage large amounts of data is a crucial part of any automation system. The 800xA system meets these requirements through a tight integration with Microsoft® Excel. Via a series of Excel add-ins, the bulk data management features couple the full productivity benefits of Microsoft Excel with System 800xA.

The basic bulk data management functionality allows users to configure a worksheet to read and write aspect and object properties, supporting an iterative analysis and design process. In addition, the bulk data management features allow the import and assignment of external data such as signal lists, tag names or documents. System data can be exported at any time to simplify data validation and modification.

The track changes function provides the ability to compare two sets of data in order to identify changes. This function allows users to check for and introduce changes in a controlled manner.

Object-Oriented Reuse
Consistency, reliability, availability and lower costs are the main goals of all automation system users. The key to achieving these goals is the ability to reuse knowledge or "best practice solutions" across multiple projects or organizations. System 800xA provides a scalable, modular framework in which applications can be easily built from a comprehensive library of standard reusable components without having to be "re-engineered."

Most reuse solutions address only process control strategies and their implementation. With System 800xA, solution standards also incorporate extended automation entities such as faceplates, graphic elements, trends, document links, CMMS data views, field device diagnostics, and asset and performance monitors.

Unlike other reuse solutions, System 800xA is not limited to loop level standards. Standards can be defined at any level across the entire plant, loop, machine, line, unit and area.

During the deployment of the functions, each object is adapted to specific needs. Using bulk data-handling methods, items such as control parameters, tag names, trend rates, alarm limits, graphic elements, and I/O devices can be modified. Later, during commissioning or operation, these object instances can be easily modified, by applying the change to the base object. Through inheritance features, each function is automatically updated to reflect the change.

System 800xA's reuse capabilities result in maximum engineering performance. Individual benefits include:
• Reduced engineering time
• Improved quality
• Reduced maintenance
• Proven, consistent and flexible solutions
• Best-in-class enterprise-wide deployment
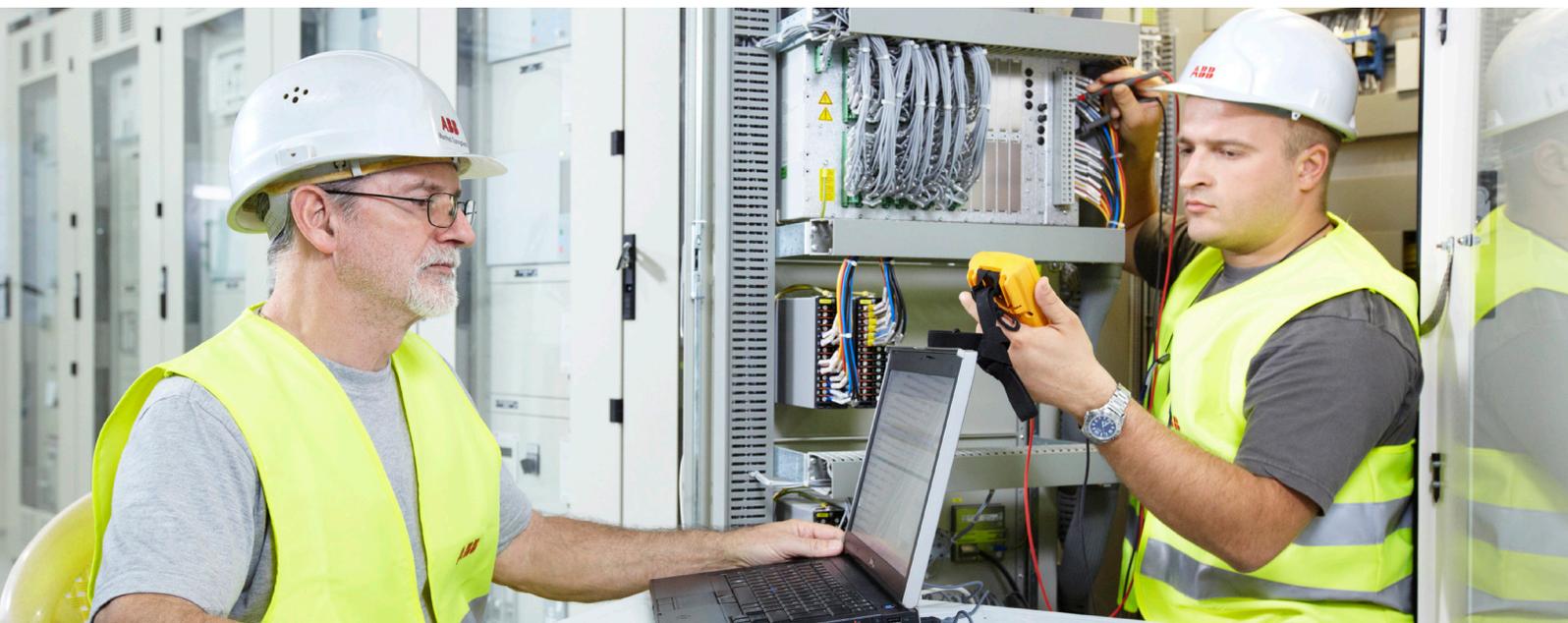
Change Management

Control Builder M

The Control Builder M is used to create control solutions. The solutions are created within control builder projects, and several levels of structuring are available inside one project. A project in Control Builder M can handle up to 1024 applications, where each application can handle 64 programs at the most. A maximum of 32 Control Builder PCs can be used together in multi-user environment and up to 32 AC 800M controllers can be created and handled within a project. You can create self-defined libraries containing data types, function block types etc., which can be used in any project. Besides function block types, your Control Builder M can also handle control modules, which are components for object-oriented (and graphical) programming.

AFW Documentation

The 800xA system comes with a number of examples that are designed to help you understand how to use various parts of the system and the standard libraries. All these examples are installed as (afw) files in the folder **Program Files/ ABB Industrial IT/Engineer IT / Control Builder M Professional 6.1/Examples.**

Difference Report

Difference report shows the difference between data downloaded to the controller and the data present in Control Builder. The tree view shows the parts of the application that have changed. By clicking an item in the tree, you can display the present controller code and the new code beside it. Differences are also indicated by colors (the color coding is explained on the status bar at the bottom of the report window).

Configuration Audit Trail

The Audit Trail function is controlled with the Audit Trail Configuration aspect that allows filtering of the audit event categories to suit the desired audit requirements in the system. The Audit Trail Configuration controls the audit settings for the entire system. Filtering is not possible on the object level.

There can only be one Audit Trail Configuration aspect in a system. It is placed in the Admin Structure. You must have the Security Configure permission to be able to configure the settings for the Audit Trail Configuration aspect.

Application Change Management

Within an automation system, changes to configurations must be carefully controlled to ensure **all modifications are traceable**: who has changed what, when and where.

If a history of configuration changes is required, the Application Change Management can be added to the system. That will enable saving versions of changes to the Configuration History Server, such as updated graphic displays, hanged templates, updated control logic, edited libraries and so forth.

Application changes with minimal risk

The enhanced online download capability (Load-Evaluate-Go) allows users to evaluate modified AC 800M control application versions without interfering with running application versions.

A modified version of an application can be downloaded to the controller and will be executed passively. The user can evaluate the differences in output variables and alarm conditions prior to toggling the active status between the two versions of the application.

Fingerprints and DCT for Installed Software

The System 800xA, Advanced System Fingerprints, identify system performance, network communication, controller loading and reliability issues. The report results in recommended solutions to improve the installation.

ABB Diagnostics Collection Tool (DCT) collects diagnostic information to use for analysis from a local or remote node in a distributed LAN system. The data is packaged into compressed cabinet (.cab) files that are attached to the reported problem.

The information is primarily used for support and troubleshooting purposes. Analysis of diagnostics data can be done directly in the system where the data is collected. Alternatively, the data can be sent to an ABB support organization for detailed analysis in the event of failure or strange behavior of a system. DCT has support for ABB Ability TM System 800xA products as well as for Microsoft® related functions.

Libraries

Process Control Device Library
The Process Control Device Library (PCDeviceLib)
includes control modules, faceplates and graphic
display elements for a range of device objects
typically required for projects in the Petrochemicals, Chemicals, Life Sciences, Pharmaceutical,
Consumer Industries, and Pulp and Paper Industries.

Process Control Equipment Library
The short name for this library is PCEquipmentLib
and it is a control builder library containing S88-
equipment modules. Implementation is done by
means of Control Builder Professional Control
Modules Type - no equivalent Function Block
exists. PCEquipmentLib can be used with or
without 800xA Batch Management. The Batch-
AdvTemplateLib defines a **SharedEquipment-
ModuleTemplate** Control Module Type.

Safety Library
Burner Management
The ABB Burner Management Library for 800xA
contains TÜV certified functions for burner management applications to be used together with
the AC 800M High Integrity.

The AC 800M High Integrity BMS safety system is
SIL 3-capable and fully integrated with a System
800xA process control system. This enables common, plant-wide operations, engineering and
information environments.

Emergency Shutdown
The Emergency Shutdown Libraries from ABB
offer a wide range of control modules for monitoring and controlling safety systems. A complete
range of high-level Control modules, Face-plates,
Graphic Elements, Alarm management and
operational templates and strategies are included
as part of the standard 800xA High Integrity
offering.

Fire & Gas
Fire & Gas libraries from ABB offer a wide range
of control modules for monitoring and controlling
safety systems. A complete range of high-level
Control modules, Face-plates, Graphic Elements,
Alarm management and operational templates
and strategies are included.

The SIL2-certified Fire & Gas Library and the
SIL3-certified Supervision Basic Library include
a range of function blocks typically used in F&G
applications. Easily identifiable safety-certified
function blocks provide engineers and operators
with a clear-cut visual separation between safety
critical and process control application code.

Industry Libraries
ProBase
Leveraging System 800xA's object-oriented
technology, the ProBase Library provides you
with the ultimate balance between flexibility and
standardization. This can reduce project-specific
library development time by 80% and the project
specific software requirements by 60%, thus
minimizing the cost of developing a batch
automation solution while maximizing plant
operability.

The ProBase Library objects are developed under
stringent quality assurance standards, tested and
encapsulated to ensure functional integrity. This
can greatly reduce project testing and compliance documentation.

ABB maintains the ProBase Library and minimizes
risk by ensuring future migration and upgrade
path. It enables modifications and enhancements
to be made as your plant requirements develop
over time, logically and consistently. In addition,
remote support and service is simplified, which
minimizes risks to plant production.

ProBase also defines a methodology of how to execute project within the System 800xA platform,
i.e. convert the system core functional areas to a
complete automation solution. By combining this
methodology with template objects for area process units Such as tanks, reactors and processing
lines, the engineering time in the project is significantly reduced.

ReUse
The OGP REUSE Solutions is a product suite of software products developed for the System 800xA and AC 800M controller family. It consists of automation solutions typically required by the oil, gas and petrochemical industries but is not limited only to these industries.

The product suite is structured in a Core product named REUSE Core Libraries and Add-Ons solutions. The REUSE Core Libraries contain the solutions required by all automation projects, while the Add-Ons are specialized solutions or features intended for a specific application or market segment. To provide integration with the relevant Core functionality, similar operator interface and associative operational experience, the Add-Ons are developed to a great extent by following the same design principals as for the REUSE Core Libraries.

From a user perspective, the Add-Ons extend the Core functionality and being well-integrated, it is often not obvious where the boundary between the Core and the Add-On is. For this reason OGP REUSE Solutions is used in sales and marketing as a product suite name to address the overall offering centered around the REUSE Core Libraries.

The REUSE Core Libraries riginate from the ABB's North Sea oil and gas enterprise with more than a decade of refinement through a number of customer projects and installations.

Security and Maintenance

Cyber Security

ABB provides support and service for control system security throughout the complete life cycle, from installation and deployment via operation to maintenance. This includes advanced user access control and protection of computers and networks, as well as functions for secure installation, backup and restore, and for keeping the system up to date with relevant security patches.

Access Control

Before double or re-authentication can be activated it must be configured by an overall system setting so that the activation can take affect. You must hold the System Engineer role and have Security Configure permission to do this.

Note that the Advanced Access Control feature requires a license. If no license is obtained, the value field will be disabled.

Privileges for engineers

For example, if an operation requires a permission not held by an operator, another user (e.g. an administrator) who holds the required permission can log on to perform that operation. The logover changes the permissions and user roles but keeps all open windows with their present content. The permitted actions in the open windows are controlled by the permissions of the logged-over user. It is also possible to configure an inactive user, that is a user with limited permission (read) that the system automatically will revert to after a certain amount of inactive time.

Security Definition Report

In the system you will find a Security Report aspect. You can use this aspect to get a printed report showing the security settings of the system and to compare a new security report with an old one, so that you can see changes in the security settings of the system.

Virtualization

Virtualization can be used to combine multiple 800xA features onto a single VMware ESXi host computer. The total number of physical computers required in an installation may then be reduced and furthermore, the management of the system may be facilitated. This also reduces the required space for computers, hardware acquisition costs for computers and cabinets, and operating costs (such as energy expenditures). Operator workplaces can also be virtualized. Virtualization can be used for engineering systems as well as for production systems.

Essentially the same configuration and dimensioning rules, as well as technical specification for an 800xA system, apply when the system is installed in a virtual environment. An engineering system is intended for engineering functions only, with no production or control operations. The same basic configuration rules apply to an engineering system as to systems intended for production. Engineering results produced in an engineering system are transferred to the production system, or to other engineering systems, such as an onsite engineering system, using the Export/Import function.