

MIDAS Library System 800xA library for Electrical Integration based on the IEC 61850 standard

MIDAS is a System 800xA's Library for Electrical Integration based on the IEC 61850 standard for industrial companies. The library provides an enhanced substation control and monitoring environment for faster troubleshooting of the electrical system at the control room allowing plant team to solve problems safely away from the electrical hazard, thus increasing availability of the energy supply to the process.

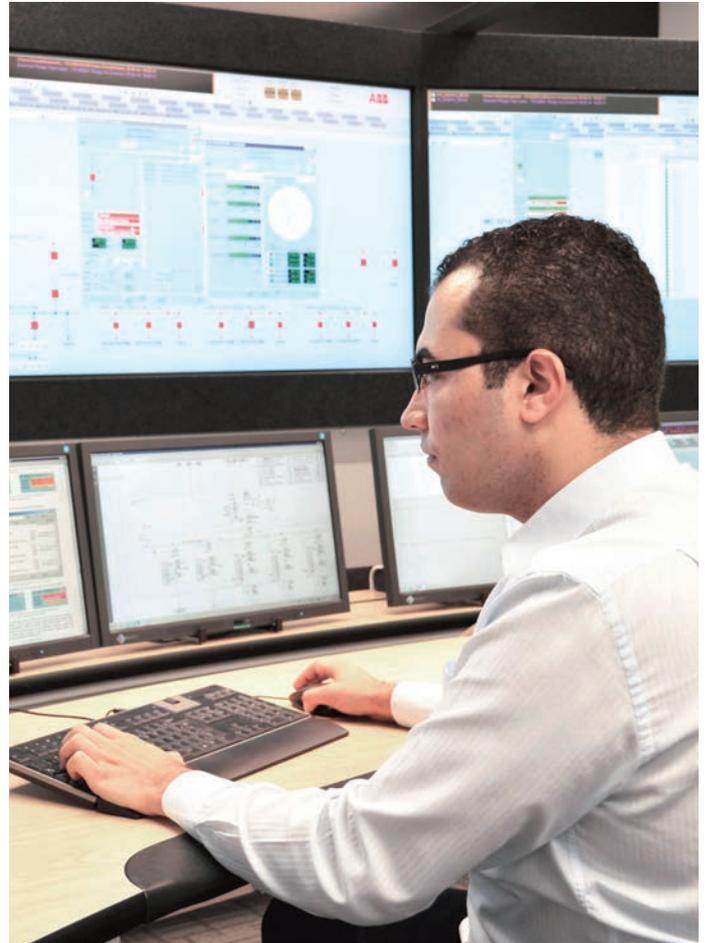
Industrial companies expect the substations to be always available and powered on avoiding undesired stoppages. For that, an industry needs solutions that recover the energy supply quickly and safely at minimum cost. The power automation delivered by MIDAS Library allows a full insight into the electrical system enabling operators and maintenance teams to take faster and more accurate decisions after an electrical fault.

Power Automation must focus on customer's main challenges – reduce capital investments and operational expenditures – to fulfill their needs. Providing an enhanced environment at the control room for faster troubleshooting and connecting substations from distant and harsh places saves not only maintenance time but also improves safety for staff. System 800xA's MIDAS Library based on the IEC 61850 standard was conceived as a solution for a more intuitive system with quick information access that improves the plant supervision at the control room.

System 800xA: The power of integration

"Only ABB can deliver the power of one fully integrated control system".

Process and Power automation together delivers an unified environment of the control system that improves productivity, increases safety, and reduces costs. The next generation of plant operators will no longer make decisions based only on voltages and temperatures but on dollars and cents. Integrating both power and process automation gives the operators a complete sight of the entire plant. With IEC 61850 standard and System 800xA, ABB has created a solution to handle all existing areas in a plant into a single common place. Industrial companies want to maximize their production by keeping the process running. Solving problems quickly and efficiently allows operators to reduce downtime.



Main integration benefits include:

Single system

- Promotes collaboration and operator effectiveness

Total plant visualization through a single operator workstation

- Process and power automation sharing the same environment

Less spare parts, training and upgrade costs

- Reduce costs in training due to one common system
- Optimize common spare parts from same architecture
- Upgrades to just one system: 800xA Extended Automation

Consistent strategy for asset management

- Information integration reduces costs through early problem detection of plant's assets

Enhanced visibility into power consumption

- Energy Management System for an optimized production with reduced costs

MIDAS Library

Electrical Integration with IEC 61850 for System 800xA

“Turning your substation into gold”

MIDAS Library focuses on both external and internal approaches.

The external approach is about driving customer’s operations to the next level. Power automation cannot only enable “opening-closing” switches, but it must create a full-information environment at the control room, providing control effectiveness for the entire electrical system, thus assuring faster troubleshooting. Moreover, remote maintenance guarantees safety for plant teams, allowing them to solve problems away from electrical hazard:

- Enhanced substation control and monitoring environment: graphical status, interlocks, measurements and phasor diagrams
- User-friendly environment: Same look and feel for both Process and Power Automation with System 800xA’s Minerals Library

The internal approach focuses on less risk during software development due to its bay-typical philosophy. MIDAS Library allows you to deliver a project faster than conventional method:

- Flexible configuration to several switchgear types (e.g. incomer, feeder, bus coupler, etc.)
- Efficient configuration: Bay-typical philosophy, reducing engineering efforts for software development for ABB or 3rd party IEDs

ABB System 800xA’s MIDAS Library

Your challenges

- Reduce capital investment and operational expenditures
- Increase availability of the energy supply to the process
- Safety for staff
- Achieve high-standard system for energy efficiency support

Our solution

Provide faster troubleshooting remotely and safely away from electrical hazard with an enhanced substation control and monitoring environment

Benefits

Improve safety for people

- Remove maintenance team from electrical danger

Faster troubleshooting & maintenance

- More information on automation level allows a quicker analysis and problem solving

Information in the right place at the right time

- Information readily available where you need it

Reduced number of different technologies

- Control, supervision, protection and measurement with just one standard: IEC 61850

Connect substations

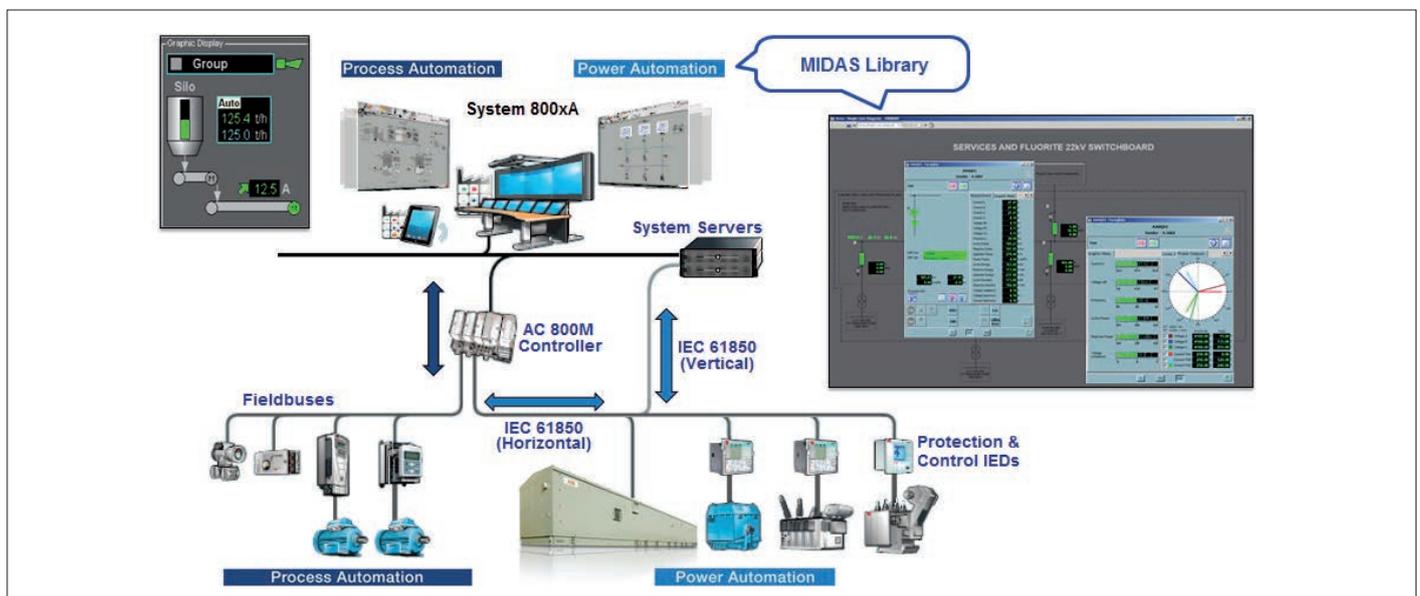
- Substations in different locations integrated under the same system

Reduce wiring & cabling

- IEC 61850 allows IEDs to use digital infrastructure instead of wired approaches

Faster commissioning

- Typical philosophy for IED programming optimizes test procedures and reduces errors



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Faster troubleshooting with a more intuitive system

Functionalities

Optimized Systems

Unified Process and Power Automation Systems

- Process and Power Automation in the same plant control system sharing same database, engineering tools and operator stations
- Better standardization for new employees – single system to learn
- Reduced costs in training due to common system knowledge
- Optimize spare parts from same architecture
- Collaborative environment reduces downtime

More Intuitive Systems

- Displaying more, and relevant, data in well-designed interfaces facilitates the plant supervision, operation and maintenance
- Enable operators to take faster and more accurate decisions
- Faster troubleshooting for maintenance team

Direct MV motor control with IEC 61850 (no gateways) from Process Automation

- Process controllers can send GOOSE commands directly to MV motor IED: No need of hard-wired or serial buses between Process and Power Automation systems

Ethernet / Digital protocols (including GOOSE)

- Connect substations from different and distant locations due to use of Ethernet / Digital protocols for communication between IEDs (IEC 61850)
- Remote access allows maintenance team to only go to the substation when needed
- Less cabling reduces capital expenditure

Remote Problem Solving

Alarm list based on sequence of events

- Easier understanding of cause/effect after an electrical fault with information available remotely

Interlocks & protections on faceplates

- Same information about interlocks and protection locally and remotely, in a synthesized manner, allowing faster troubleshooting

Access to disturbances record files

- No need to go to the substation to upload or view files, allowing faster and safer fault analysis

IED logic configuration & parameterization

- Shortcut to logic and parameterization software a right-click away, allowing fast access, saving time from maintenance team

Online documentation access

- Single line diagrams, logic diagrams, technical manuals a right-click away: Maintenance team gets to the faulty place with the right information in hands

Optimized Engineering

Standardized Engineering

- Engineering methodology for a faster project development
- Faster project development and commissioning reducing your project's risks and decreasing maintenance efforts for mid to big-sized projects



What is IEC 61850 standard?

The IEC 61850 is a global standard for the design of electrical substation automation and power distribution systems. It is a standard defined by the common work of both ANSI (North America) and IEC (Europe) together with the main vendors in the substation automation market such as ABB.

First released in 2004, IEC 61850 is acknowledged as the global communication standard in substation automation, representing a huge step forward in simplifying the integration of protection and control IEDs.

IEC 61850 defines data models to a number of protocols (e.g. MMS, GOOSE) that run over TCP/IP networks or sub-

station LANs via switched Ethernet using several intelligent electronic devices (IEDs) to perform the required functions (e.g. protection, local and remote control and monitoring).

IEC 61850 is based on three goals: interoperability, freedom of configuration and long-term stability:

- **Interoperability** is the ability for IEDs from different vendors to communicate with each other;
- **Freedom of configuration** is the ability of each vendor to use different methods and philosophies in the internal programming of the IEDs, as long as the data exchange between them obey the goal of interoperability;
- **Long-term stability** refers to the ability of communication protocols to remain updated in front of technological advances.

MIDAS Library

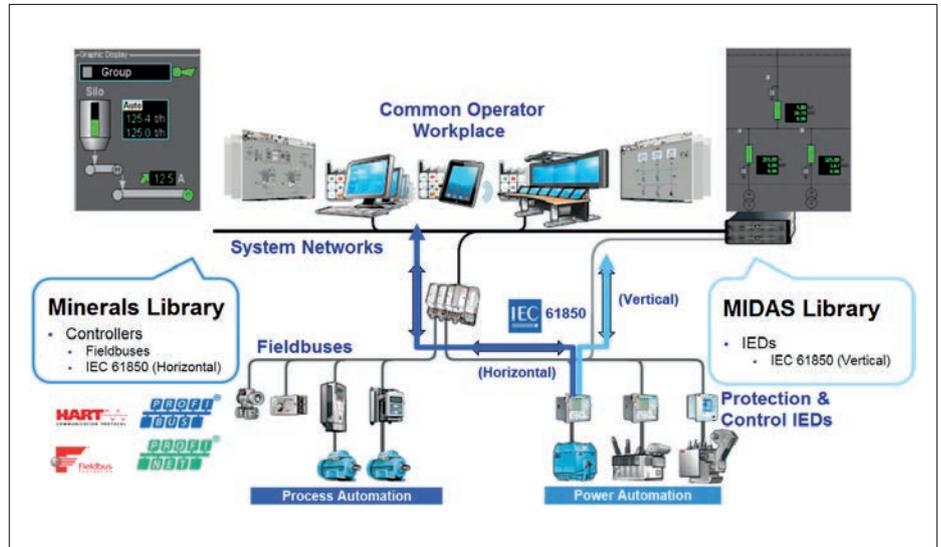
User-friendly environment with System 800xA's Minerals Library

High performance navigation

The integration of process and power automation must not only coexist on system level. Operators must feel like they are into a single platform. MIDAS Library was designed using Minerals Library's graphical objects, a powerful customer-proven graphics library that matches operator philosophy for a well-designed and ergonomic user interface. Sharing the same look and feel makes the control system easier to understand being more intuitive for operators to navigate speeding up their decision taking during abnormal situations for an efficient plant management.

Complete integration

System 800xA's Minerals Library is capable of working with IEC 61850 horizontal integration for direct motor control in power applications. Together with MIDAS Library on IEC



61850 vertical integration, both libraries deliver a complete solution of an integrated system promoting a fully collaborative environment for operator effectiveness.



ABB's System 800xA Minerals Library is a suite of object-oriented software control modules, which make it possible to design process control and power applications in an efficient and fully-parameterized manner. Successfully operating at more than 300 cement and minerals sites worldwide, the technology increases standardization, functionality and quality of process control software over the complete life cycle of a production facility. This minimizes downtime caused by abnormal situations and allows the facility's production process and assets to be efficiently operated and maintained.

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