One Vision
MicroSCADA X

Improved operational efficiency with intuitive navigation, available everywhere and anytime.

- Automate, control and optimize your operations
- Productivity, efficiency and control for your assets
- User friendliness as standard
- Seamless integration
MicroSCADA X is an investment for today and tomorrow. Start, for instance, with monitoring or gateway functionality and integrate control, redundancy, reporting or other additional functionalities in response to your needs later on. With MicroSCADA X your investment is secured with every step you take.
**Unified**

A user centric product designed from the core for a modern and adaptive experience. MicroSCADA X allows you to take full control of your operations and systems with intuitive navigation and data handling within a single user interface.

**Available**

The browser based user interface provides seamless access from the control room to mobile devices. This system availability enables faster and more accurate utilization of system data as well as faster reaction to situations in the network.

**Simplified**

With MicroSCADA X, we aimed to deliver a product solution that gives you full control and simplifies interaction with your power networks.

**Secure**

From its initial conceptual design until its final deployment, MicroSCADA X supports the latest international cyber security standards to keep your networks, primary equipment, periodic operations and people safe and secure.
Automate, control and optimize your operations
MicroSCADA X

Complete functionality
MicroSCADA X is designed for complete functionality for realtime monitoring and control of primary and secondary equipment in transmission band distribution substations. It allows you to easily and safely interact with protection and control IEDs (intelligent electronic device), as well as with the process via the operator’s workplace. This way, it effectively promotes taking the right actions and achieving the maximized availability of your power system.

Secure operations and high availability
Right and reliable information is the basis for correct and safe operations. MicroSCADA X maximizes information availability by supporting redundant system servers and communication at any substation in every situation.

Personnel safety
MicroSCADA X increases personal safety in many ways and levels. The breakers and disconnectors are operated from a separate control room in the substation, which minimizes the risk for personnel injuries. It further prohibits operation of objects, for instance, in maintenance situations, thus ensuring personnel safety. Notification of the on-going maintenance work can be attached to the process views and a control dialog to inform operators accordingly. MicroSCADA X also permits the definition of authorization levels for different user categories to prevent unauthorized actions.

The intuitive and consistent operator workplace enhances the visual comfort for the operator. This makes it easy to master the overall harmony of and to display various information on the interface, and get familiar with the system quickly.

Apparatus safety
MicroSCADA X prevents simultaneous operation of primary equipment. It reserves the device and verifies whether the selected object can be operated before executing the command. Additionally, stationwide Interlocking schemes, which are complementary to the bay level Interlocking, prevent dangerous operations that might otherwise damage primary equipment. Only authorized users can override interlocking and other locked operations. Common safety procedures require that any mechanical or electrical equipment can be locked out and tagged out before being worked on.

MicroSCADA X’s dynamic busbar coloring function provides the operator with a quick access to information about the powered, unpowered and earthed parts of the busbar. Also alarming objects are visualized. The busbar coloring combined with object control simulation of MicroSCADA X ensure the safe and correct operation of your primary equipment.

A large number of cyber security features that protect systems from abuse or vandalism are built into the MicroSCADA X portfolio. Features include, for example:
- User authentication
- Flexible user authorization
- Session expiration
- Communication encryption
- Event logging

• Reporting

MicroSCADA X - based systems can also be equipped with industry-standard malware and intrusion protection solutions, like virus protection and application whitelisting. Cyber security is considered during the whole lifecycle of products starting from the requirements and development phases and throughout the operation phase. New cyber security features are designed to meet and exceed requirements from standards such as IEC 62351, IEEE 1686 and NERC-CIP.
Productivity, efficiency and control for your assets
MicroSCADA X automation solution

1. Always correct actions
The MicroSCADA X substation automation system efficiently utilizes and refines data from the process, enabling you to access important information. Advanced categorization and prioritization of data ensures that your operators receive the right amount of relevant information in all situations. For instance, different colors for the various types of entries in the event and alarm lists draw the operator’s attention, enabling right and timely corrective actions. This reduces outage time, power losses, and helps avoid possible penalties due to undelivered energy. The event list also permits verifying that actions taken have been successfully performed.

2. Disturbance analysis
Easy access to event list and disturbance information allows you to analyze different types of faults. Advanced event logging and analysis, including filtering, will help you find exactly the information you need, for instance, to optimize the selectivity scheme of your protection equipment. With accurate time synchronization and time-tagging of events in protection and control IEDs, MicroSCADA X creates a strong basis for accurate disturbance analysis. You can utilize trends for analyzing the process behavior and taking corrective measures in primary equipment.

3. Manual and automatic control
With MicroSCADA X you can control different types of objects, such as breakers, disconnectors and tap changers. You can also easily create additional control functions, for example to create shortcuts for activating or deactivating functions, such as auto-recloser.

4. Optimized maintenance
An automatic control of objects based on user-defined sequences helps avoid human mistakes. For instance, a line can be connected or disconnected from the busbar using an automatic sequence. These sequences can be used also for load shedding and automatic busbar transfer, which reduces outage time significantly.

5. Power monitoring
MicroSCADA X helps optimize your power quality through, for instance, monitoring and presenting of harmonic distortions, voltage drops and peaks measured by the protection and control IEDs. As a result, your power system fulfills the requirements set for power quality.

All the important process information can be stored with MicroSCADA X and the data will be refined into meaningful information. This gives a clear view of the situation in the primary process and allows for optimized utilization of the power and primary equipment.
User-friendliness as standard
Easy to handle and expand

With thousands of systems delivered, MicroSCADA X has made user-friendliness a standard for substation automation.

From overview to detailed information
Versatile measurement reports enable the effective monitoring of primary equipment load. In addition to that, an alarm list presents the cause, time, object and status information for alarms. With efficient setting and filtering tools, you can customize the alarm and event lists and reports in order to make them meet your specified needs. The hierarchical summary alarms give a good overview of the situation in the process, reducing the information flow to the essential in all situations.

MicroSCADA X features several application views that you can easily access from the navigation pane, for instance single line diagrams, process displays, system supervision, lists, reports and engineering tools. You can also access object specific details by mouse-clicking any object icon, after which a dialog will appear with information and control possibilities. Functions, such as zooming, panning and decluttering enable smooth adjusting of the amount of information needed in different situations.

Flexible adaptations
MicroSCADA X based substation automation systems can be easily customized for your specific needs. MicroSCADA X also serves you with tools for translating your application and the system can be operated in several languages simultaneously. Furthermore, you can efficiently execute modifications, add communication and automatic functions—while the system is in operation.

Extensive supervision
MicroSCADA X performs self-supervision to provide instant information about disturbances in system components. It also enables overall system supervision to detect failures in the secondary equipment, such as servers, switches or IEDs, which reduces the need for scheduled maintenance.

MicroSCADA X is a future-proof investment. Its modular design allows you to acquire the functionality you need.

Easy upgrading
MicroSCADA X features complete backwards compatibility with earlier versions. Therefore any existing system can be easily upgraded to the latest version of MicroSCADA X. This is possible due to the clear separation of MicroSCADA X software from your system specific application data. When an upgrade is done, all the system specific data and the application can be fully reused without reengineering. This means that your existing application will run as it is in the new product version. The reuse of the data minimizes the need for tests, which significantly shortens the engineering and commissioning time.

Reap the benefits from new technologies
MicroSCADA X runs on standard and industry grade servers, both physical and virtual. This allows you to benefit from the latest technology and related equipment. Additionally, MicroSCADA X supports remote access and mobile technologies to ensure easy control of your substations anywhere and anytime.

MicroSCADA X is available pre-installed and tested at the ABB factory on solid state industry-grade computer. This MicroSCADA X SYS600C does not contain any moving or otherwise vulnerable parts. It features high scalability and modern architecture, and is easy to adapt and expand. You can enjoy its ease of use as a communication gateway, as a control system HMI, or as a communication server in both industrial and electrical utility applications. Robust and compact, it is also an ideal solution for harsh and demanding environments in different types of industries.
Seamless integration
Designed to communicate and connect

MicroSCADA X ensures the optimized control and reliable operation of your switchyard through seamless integration and connectivity between different devices and systems. It supports an extensive range of standard and de-facto standard communication protocols and interfaces.

Open to Integration with tools and systems

The MicroSCADA X substation automation system allows you to directly access parameter setting and efficiently handle disturbance information. In addition, in hierarchical systems where MicroSCADA X is used both at the substation level and for network control, it provides a mirroring function. This function enables easy signal mapping, without the need for conventional gateway functionality. Furthermore, MicroSCADA X’s standard and de-facto standard interfaces enable smooth connection to your other systems and tools. It also features OPC as well as OPC UA server and client interfaces to enable easy integration with market and application specific systems and devices.

IEC 61850-compliant

MicroSCADA X is compliant with the IEC 61850 standard for substation automation including Edition 2. The compliance is also verified by a 3rd party accredited test center. The compliance means that it can operate together with other IEC 61850-compliant IEDs, tools and systems, which simplifies system engineering. With IEC 61850 support, MicroSCADA X creates seamless communication and connectivity opportunities for its users.

MicroSCADA X supports redundant communication on the station bus according to the IEC 62439 standard. The redundancy improves fault tolerance and communication system reliability. It also features a unique capability of zero seconds’ recovery time in case of communication failure. This means that there will be no interruption in communication if one link fails as the other link instantaneously takes over the communication. As a result, there is no data lost when communication failures are detected.

World-class knowledge
Helping you improve your power system performance

More than 20 years’ experience in global substation automation in transmission and distribution applications allows ABB to serve you with world class knowledge. With our comprehensive selection of services we can help you improve your power system performance under diverse operational and disturbance situations. As a result, you can reap the full benefits from your investment.

Local and remote support

More than 1,000 experienced MicroSCADA X engineers in more than 50 countries are prepared to serve and support you in your local language with local know-how.

Additionally, ABB provides fast and efficient troubleshooting service, for instance, through remote connection to the system.

Your MicroSCADA X substation automation system can be analyzed in detail, and the required programming and software updates can be made immediately and remotely anytime during the life cycle of your substation automation system.

Training

Our versatile standard course offering and fully customized training programs enable your engineers and operators to fully utilize the MicroSCADA X substation automation system. Our training courses include extensive hands-on sessions and well documented exercises. As a result, your personnel will be well prepared both for handling the system in daily operation, as well as for managing any type of disturbance situation.

Cyber security

To answer to requirements from IEC 62351, IEEE 1688, NERC-CIP and more

User authentication, authorization and session expiration based on roles

Central and local event logging and reporting

Communication encryption such as DNP 3.0 Secure authentication, VPN

Malware and intrusion protection

Product hardening, patch management and incident-handling processes

Central account management

Training

Solution libraries for efficient integration with protection and control IEDs

Master protocols: IEC 61850 Ed1 and Ed2, IEC 60870-5-101/103/104, DNP 3.0 TCP/serial, Modbus TCP/RTU, LON, SPA, RP 5701/1, ANSI X3.28, I35/P214, ADLP 180, IEC 61107, etc.

Slave protocols: IEC 60870-5-101/104, DNP 3.0 TCP/serial, Modbus TCP/RTU, RP 5701/1, ADLP 180, F4F, etc.

Ethernet redundancy according to IEC 62439/PRP

Open interfaces: OPC, OPC UA, ODBC; application programming interfaces for application and communication extensions

Data concentration and signal grouping and control IEDs

GPS time synchronisation