StruxureWare™ Building Operation

WorkStation

WorkStation for StruxureWare™ Building Operation is a fully featured environment for operating and administering all aspects of the software. WorkStation is the window through which users can monitor their energy usage and continuously improve their building’s efficiency.

Make the most of your energy™
StruxureWare Building Operation
WorkStation Features

WorkStation is the interface where users and engineers access their StruxureWare Building Operation servers. You can view and manage graphics, alarms, scheduling, trend logs, and reports. Engineers can configure and maintain all aspects of the StruxureWare Building Operation software.

User accounts
StruxureWare Building Operation requires each user to have an account. Access can be through an account maintained by StruxureWare Building Operation or through the same Windows account used to log onto the PC. This ensures that individual IT policies for password formatting, aging, and uniqueness are followed.

Language and regional settings
The software automatically uses the regional settings (units, time, and date formats) and preferred language. Unit conversion exceptions can be configured to override automatic conversions due to localization.

Customized view
StruxureWare Building Operation has the flexibility to be fully customized to the viewing preference of individual users. The main interface, called the workspace, is a panel-based interface where users can select, position, and re-size a wide variety of components, such as alarms, graphics, and editors. A default Workspace is assigned to each user account, but users can easily modify, save, and create multiple versions to choose from. The Workspace can also be modified on the fly to address real-time issues.

Efficient alarm management
Alarms need to be assessed and responded to quickly. Through WorkStation, StruxureWare Building Operation can present a large number of alarms in a simple and efficient way to assure no alarm is overlooked. Alarms can be color coded, grouped, and filtered for maximum efficiency.

WorkStation can even assign alarms to a user or a group of users by a dispatch center or manager. Using a filter, users can view only the alarms assigned to them and decide whether or not to accept the assignment.
Robust alarm tracking
Acknowledgement and response alarms can be acknowledged with varying degrees of detail, depending on the importance of the alarm. Users can be required to enter notes or choose from a standard list to explain how the issue was resolved. WorkStation can present the user with instructions or a specific view of their system that shows details of the affected equipment. The alarm log records the user’s actions.

Advanced activity log
It is important to log more than basic activity. The software logs every action with a timestamp, the user who performed the action, and the values that were changed.

Easy to read trend logs and charts
The software can trend data in many ways, including a periodic method (every day, hour, minute) and a change-of-value (COV) method that only records when a defined threshold has been passed. These trend logs can be shown in trend lists and charts to visualize patterns for diagnostic and optimization purposes. Multiple series can be presented in a single chart, so that data points can be easily compared.

Intuitive schedules
Energy efficiency is achieved when equipment is running only when necessary. Schedules manage that process through a graphical interface that is easy-to-use. Change times with a few simple clicks of the mouse. The powerful Schedule Editor can set up recurring events (every Monday, every third Tuesday, every January 1st) or an unlimited number of exceptions with priority levels. Schedules go beyond the basic “on” and “off” control by enabling direct control of analog values. For example, users can set schedule events to percentages to control lighting levels without writing a program.

IT friendly and secure
WorkStation communicates using networking standards, such as DHCP, HTTP, and HTTPS. This makes installation easy, management simple, and transactions secure.
Stunning graphics capability
In StruxureWare Building Operation, the graphics can be customized to provide the user interface required to effectively run each facility. Graphics are stored locally in the Automation Server or Enterprise Server and are available to authorized users from wherever they log on.

Graphics are created and edited using the StruxureWare Building Operation Graphics Editor: a powerful tool that helps users visualize everything from the field control level to the enterprise level. The Graphics Editor provide a variety of easy-to-use tools to build whatever graphics are required, from a simple line drawing to a photorealistic image. The Graphics Editor can import a wide variety of formats, including .jpg and CAD drawings. JavaScript can also be used to further customize the behavior of each graphic. Animation can highlight changes in the system or make navigation easier. For example, you can create a floor plan view with color-coded temperatures for each zone.

Scalable vector graphics
StruxureWare Building Operation uses scalable vector graphic (SVG) technology so that users can zoom in to see details without losing clarity. Graphics are built once, but can be used on any display regardless of size or resolution. Vector graphic file sizes are small so they can be stored and served directly from the Automation Server.

Super dynamic live updates
A standard live update simply shows the displayed values as conditions change in the field. With StruxureWare Building Operation’s super dynamic live updates, all aspects of graphical elements can change when values change.

Interactive ready-to-use components
Users can take control directly from a graphic and change setpoints, enable/disable equipment, and modulate actuators - all with a simple point-and-click action. A library of components are available online to choose from. These graphics can be further customized to meet the unique needs of every installation.
Push-button engineering features help a project stay on time and on budget. StruxureWare Building Operation not only reduces project engineering but it also expands the possibilities for monitoring and control by delivering on-site customization tools.

**Online updates**
StruxureWare Building Operation’s ability to send online updates to a StruxureWare Building Operation server without interruption of other tasks assures that equipment operates smoothly even during an update.

**Backup and restore**
An iBMS system can have thousands of created and configured objects. Quick recovery from an unexpected event, such as an unintended delete or hardware failure, is vital. StruxureWare Building Operation has a built in Backup and Restore functionality that can backup, store, and restore from multiple copies of a server’s database. This functionality resides on a StruxureWare Building Operation server and can be accessed and configured through WorkStation.

**Import/Export**
Configurations and programs can easily be transferred from one StruxureWare Building Operation installation to another with the Import/Export feature. The import interface provides a preview of the objects so users can confirm the content.

**StruxureWare Building Operation server support**
Direct connection of WorkStation to both the Automation Servers and Enterprise Servers ensures optimized configuration and operation.

**Discovery Manager**
The Discovery Manager significantly reduces engineering time by detecting new devices on the network and automatically creating a corresponding device in StruxureWare Building Operation.
StruxureWare Building Operation
WorkStation
Engineering Features (continued)

Binding tool
Data is easily exchanged between points, programs, servers, and third-party systems via a simple binding mechanism. The Binding Tool in StruxureWare Building Operation is intuitive and is used to swiftly configure data exchange.

Mass change
A system often can have hundreds of objects with the same configuration. With StruxureWare Building Operation's mass change and create feature, these duplicates are created and managed with a single action.

Programming
Today's buildings demand more than basic control. They require applications that can be customized to meet specific building automation needs.

Unlike other software that requires factory involvement for non-standard or special applications, StruxureWare Building Operation software can be easily customized. You can turn operational sequences into reality in the field to save both time and money on any project.

Two programming options
Unique to the industry, the StruxureWare Building Operation servers have both Script and Function Block programming options. This flexibility ensures that the best programming method can be selected for the application.

Spreadsheet view
The Spreadsheet view allows creating and editing of multiple points in a tabular format rather than editing each point individually. The spreadsheet feature supports copy/paste of cell content to and from Microsoft Excel. In version 1.2, the Spreadsheet view can be used for configuration of values, alarms, trends, the Automation Server's I/O modules and points, as well as Modbus points.

Multi-program editing
StruxureWare Building Operation has a robust programming environment that enables multiple program editing at the same time. Simple cut and paste functionality ensures multiple programs will work together to control a larger system.

Optimized program execution
You can assign each program to a specific task and cycle time that is appropriate for the program's application. This ensures programs for critical applications run without any impact from other tasks. The sequencing of program execution is handled automatically by the server.

Dynamic programming
There is no downtime while programming because the program runs even while it is being edited. When the program is saved, the code is replaced and the new sequence begins. The execution of other programs is not impacted during the updating process.

Reduced set-up time
Inputs, outputs, and other objects in the system are connected through bindings, by the use of the binding tool. This binding reduces set-up time and increases system stability. No bindings are in the code itself. Each program becomes easy to copy throughout the system, which saves time and ensures consistency.
Easy to use Script Editor

Script programs read like a book with easy to learn commands, such as:

- Turn on the Fan
- Close the Valve
- If temperature > Setpoint then goto CoolingOn

Understandable program status

Because Script programs are composed of basic, everyday language statements, it is easy to follow the logic and quickly understand what the program is doing. Description line names can be added to state the action performed in that section of the program. As a result, users can view diagnostic details of the running program to see how long the condition has been in effect.

Efficient library management

To save time and eliminate the need to write a program more than once, StruxureWare Building Operation can easily import and export programs to/from an external library. The Script Editor in StruxureWare Building Operation is an evolution of the Plain English (PE) programming language used by both Infinity and Andover Continuum systems so libraries of PE code can be imported into Script Editor. During the import process, PE code is automatically converted to the updated Script format.

Support for Plain English controllers

Script Editor supports Plain English (PE) controllers, so you don’t need to learn and program two different sets of formatting rules. Instead, the PE format is applied behind the scenes during the deployment of the controllers that require PE format.

BACnet support in Script programming

BACnet support provides direct control using specific BACnet services, such as ReadProperty and WriteProperty. Advanced applications can even command BACnet priorities.
Function block programs
Graphical programming provides a level of readability not seen in other types of programming languages. The visualization of the graphical elements, the blocks, and their connections makes it easy to quickly understand and follow program logic. The readability is further enhanced by the use of the hierarchical function blocks, which allow complex functions to be stored inside one block and thereby create a high-level view of the program.

Offline simulation and online testing
By using the built-in debugger in the editor, you can simulate the application using single step functionality or simulating patterns on inputs. The online testing is performed in WorkStation where the graphical layout is available and the runtime values can be seen as they are executed, with the possibility to trend log or plot values for troubleshooting and fine tuning.

Library management
With Function Block, code can be imported or exported to an external library, so that no code ever needs to be written twice. Because Function Block is an evolution of the TAC Menta programming language used by the TAC Vista system, libraries of Menta code can be imported into the Function Block Editor. During the import process, the Menta code is automatically converted to the updated Function Block format.
Graphics Editor
The Graphics Editor is accessed from WorkStation and enables users to create and edit the graphics in systems powered by StruxureWare Building Operation software. StruxureWare Building Operation Graphics Editor is common to both WorkStation and WebStation, so graphics are engineered once.

Great graphics - little effort
StruxureWare Building Operation was designed to help users without strong artistic or technical skills to create great graphics. If the user is more advanced, the possibilities are endless.

Reusable components and function snippets
Graphical elements can be grouped into reusable components with properties that are easy to edit. Furthermore, function snippets that cause the component to animate or display a certain color based on a value can also be saved and reused. Users can copy a gauge component and change its color, font, and border size without affecting the original functionality.

Layout and creation tools
There are a number of basic drawing tools available within the Graphics Editor. Equipment diagrams, floor plans, maps, navigational maps, and other types of graphics can be created to display dynamic data.

StruxureWare Building Operation’s unique Layers functionality facilitates easier editing of graphics with different categories of information. Layers can be controlled through scripting so that the right information is displayed to the right users at the right time.

Effects
Graphics can have visual effects, such as gradients, and semitransparent colors. Dynamic rotation, scaling, and movement can also be added based on point values to emphasize important events.

Importing
The Graphics Editor lets you take advantage of photos and graphics created by third-party applications. Bitmaps in various formats can be embedded and common vector-based formats can be converted to native StruxureWare Building Operation graphics using the Graphics Editor.
## Specifications

### Hardware requirements

- **Processor**
  - Minimum: 1.0 GHz
  - Recommended: 2.0 GHz or higher

- **Memory**
  - Minimum: 2 GB
  - Recommended: 4 GB or higher

- **Hard Disk**
  - Minimum: 20 GB

- **Display**
  - Minimum: 1,024x768 pixel resolution

- **Graphic card**
  - Graphic card is recommended.

- **Drive**
  - DVD Drive is required if your copy of StruxureWare Building Operation was delivered on disk.

- **Other Devices**
  - Microsoft mouse or compatible pointing device is required.

### Software requirements

- **Operating systems**
  - Microsoft Windows XP SP3 (32-bit)
  - Microsoft Windows 7 Pro (32-bit)
  - Microsoft Windows 7 Pro (64-bit)
  - Microsoft Windows Server 2008 R2 (64-bit)

- **Required additional software**
  - Microsoft .NET Framework 4 with Update KB2468871

- **Communication (to StruxureWare Building Operation Server)**
  - **HTTP**
    - Non-binary, port configurable, default 80
  - **HTTPS**
    - Encrypted supporting SSL 1.0,2.0,3.0 and TSL 1.0, port configurable default 443

### Graphics

- **Insert Formats**
  - BMP
  - JPG
  - GIF
  - Animated GIF

- **Import Formats**
  - DWF
  - DWG
  - DXF
  - OGC (TAC Vista)
  - SVG (Partial Support)

### Part numbers

- **SW-STATION-STD-0, StruxureWare Building Operation WorkStation Standard**
  - For 1 concurrent user per license
  - (No maintenance subscription included)
  - P/N: SXWSWWORK00001

- **SW-STATION-PRO-0, StruxureWare Building Operation WorkStation Professional**
  - Professional WorkStation version includes Editor licensing
  - (Includes WorkPlace Tech Editor, TGML Graphics editor, Function Block and Script Programming license)
  - For 1 concurrent user per license
  - (No maintenance subscription included)
  - P/N: SXWSWWORK00002

- **SW-EDITORS-0, StruxureWare Building Operation Editors**
  - WorkPlace Tech Editor, TGML Graphics editor, Function Block and Script Programming license only
  - For 1 concurrent user per license
  - (Used for adding to existing WorkStation Standard license, No maintenance subscription included)
  - P/N: SXWSWEDIT00001
Sample WorkStation Interfaces