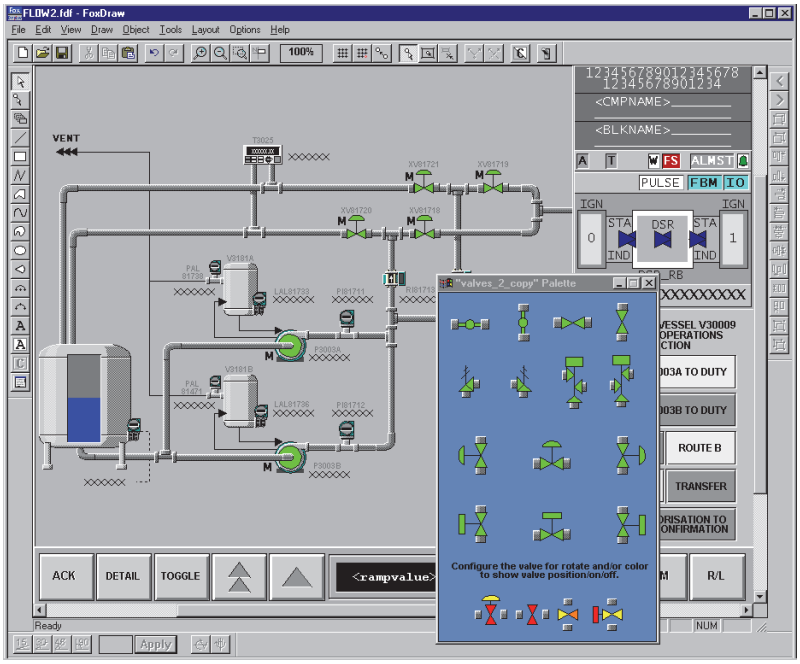
Foxboro Evo™ Process Automation System

Product Specifications

Foxboro by Schneider Electric

PSS 31S-2B3

FoxDraw™ Display Builder and Configurator



The FoxDraw™ state-of-the-art display builder and configurator ("FoxDraw") allows you to create and maintain dynamically updating process displays. Displays can represent the plant, a process area, or a detailed portion of the process.

OVERVIEW

FoxDraw is a user friendly graphical configurator used to build Foxboro Evo™ and I/A Series® process graphics to be displayed via FoxView™ software ("FoxView").

FoxDraw provides numerous time and effort saving features to make building, configuring, and maintaining your displays easy. Included with FoxDraw is a large library of graphical components ready to be included and configured in your own displays. These objects range from simple arrows and ISA control symbols to 3D images of process control components such as tanks and turbines. These objects are grouped into a number of palettes for quick access. You can also build your own palettes.

Whether you build your own objects or use the set provided, the aliased object feature allows for a high degree of reusability and configurability of display objects. Using aliases in place of tag names or graphical attributes allows you to create flexible and highly reusable library objects for later use.

FoxDraw includes tools used for bulk and scripted display generation and editing. These features allow you to create a large number of displays quickly and easily. Other tools allow you to convert AutoCAD files and existing Display Manager display files for use in FoxDraw and FoxView.

Display objects in FoxDraw can be configured to dynamically reflect data values from the field in a number of ways. These include fill level, edge color, font, location, visibility, and many others. Further, objects can be configured to respond to operator selection to initiate a number of actions, such as opening or closing a display, changing a value, or initiating a user-defined script.

All these features are presented in a simple, easy-to-use graphical interface that conforms to Microsoft® Windows® user-interface conventions. This same interface and set of features is available on both Windows and UNIX® workstations.

FEATURES

- Build personalized displays using over 1200 prebuilt objects.
- Generate X/Y plots of any two Foxboro Evo or I/A Series control variables.
- Ease of drawing, configuration, and maintenance.
- Trend areas to help monitor changing data values.
- Powerful bulk configuration and editing tools.

FoxDraw WINDOW

The FoxDraw window provides a familiar environment for creating, editing, and configuring Foxboro Evo or I/A Series graphics. It consists of a menu bar, tool bars, a status bar, and a work area.

Menu Bar

The menu bar provides access to all functions: file operations, editing, object creation, and configuration.

Tool Bars

Dockable toolbars give you immediate, point-and-click access to the most frequently used functions, such as open/save file, cut, undo, draw rectangle, and align objects.

Status Bar

A status bar, located along the bottom of the work area, displays messages, edit modes, or mouse pointer coordinates associated with the current action.

Work Area

You can change the overall view of the FoxDraw work area with various menu or toolbar functions. Zooming in on one or more objects is quick and easy as is panning the overall work area. For example, you can view objects moved out of the work area during the zooming process.

Pop-up Menu

A context-sensitive pop-up menu provides quick access to the most commonly accessed features.

REUSABLE SYMBOLS

Linked Library Objects

FoxDraw provides a rich set of library objects designed to be linked to a display, overlay, or another library object.

Linked library objects make it easy to update displays. When you modify a library object, all the displays that reference that object are updated automatically.

A typical library object could include basic objects created with FoxDraw drawing commands, grouped and saved with symbols, buttons, bitmaps, or markers from a palette. The objects can be static, connected to process variables, or used to initiate operator actions.

Symbol Palettes

FoxDraw includes over 1200 prebuilt objects such as pumps, tanks, pipes, motors, valves, and ISA symbols. Standard libraries include vast selections of simple and complex objects with which to build displays.

Palettes supplied with FoxDraw include:

- ISA symbols
- Three-dimensional drawings of tanks, valves, pipes, and utility equipment
- Process instrument symbols
- Data entry fields
- Buttons and switches
- Arrows
- Flow chart symbols
- Meters, dials, and gauges.

Faceplates

A faceplate is a dynamic representation of Foxboro Evo or I/A Series control block parameters. FoxDraw provides a faceplate for each type of Foxboro Evo or I/A Series control block. In addition, you can build your own faceplates using the standard FoxDraw drawing tools.

Trends

Trend areas represent changing data values from the real-time database and Historian database. Trends can either be configured to display a fixed set of control values, or left empty and configured at run time in FoxView.

Foxboro® supplied trends are available in several trend styles and sizes from one-eighth screen to full screen sizes.

X/Y Plots

FoxDraw allows you to configure an X/Y plot by selecting any two Foxboro Evo or I/A Series control variables and plotting them against each other. Up to four relations may be plotted on a single X/Y plot. The plots consist of a trace line that shows all current real-time data points. Data for this X/Y plot can also be read from a data file.

Symbol Palette Browser

With the palette browser, it is easy to find the needed object without opening and closing every palette. The browser lets you view each palette with a simple click of the arrow keys. See Figure 1 for symbol palette examples.

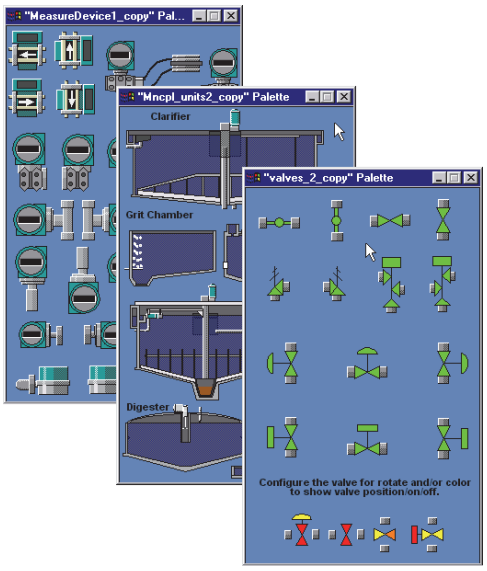


Figure 1. Foxboro Evo or I/A Series Symbol Palette Examples

User Created Palettes

In addition to the set of palettes provided with FoxDraw, you can create any number of your own palettes of frequently used symbols.

Scroll Region

The scroll region object lets you display any ASCII file in your display. This file might contain instructions or process information useful to the operator.

Comment Object

The comment object provides the ability to include comment information in the display for use by your display engineers. This might be specifications of the configurations in the display or process information. Comment objects may be hidden at any time in FoxDraw and are not displayed in FoxView.

EASE OF DRAWING

In addition to basic drawing tools for lines, rectangles, curves, sectors, and text, FoxDraw provides several other powerful objects to make your displays easier to maintain and use.

Point Tool

Using the point tool you can add, delete, or move points on lines, polylines, or curves.

OBJECT EDITING

Once you have created your objects, you can manipulate them with the editing tools.

FoxDraw provides advanced object manipulation and editing tools such as:

- Cut, copy, and paste across instances of FoxDraw
- Align, space, and scale
- Move and rotate
- Specify rotation points
- Snap to grid and snap gravity.

Text and Graphic Attributes

The physical characteristics of any object may be modified at any point. Attributes you can specify include:

- Fill color, style, direction, pattern
- Edge color, style, width
- Text color, font, style, direction.

See Figure 2 for an example of the graphic attributes screen.

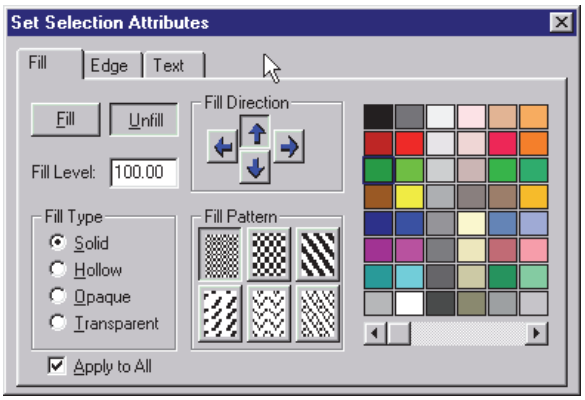


Figure 2. Graphic Attributes Example

EASE OF CONFIGURATION

Any object can be configured to reflect the value of a control variable and/or respond to an operation press by executing user-configured commands.

Physical display attributes of an object that can be associated with a process variable include:

- Fill level, color, style and pattern
- Edge color, style and width
- Text color, font, style, contents and direction
- Physical location of the object on the screen
- Visibility
- Size or orientation
- Blinking.

These configurations can be modified based on a continuously changing value, a discrete value, individual bit states, thresholds and file contents.

Each object can be configured to initiate some action when selected by the operator. These actions include:

- Opening or closing a display or overlay
- Setting a control value
- Initiating a user-defined script.

See Figure 3 for a sample configuration dialog box display.

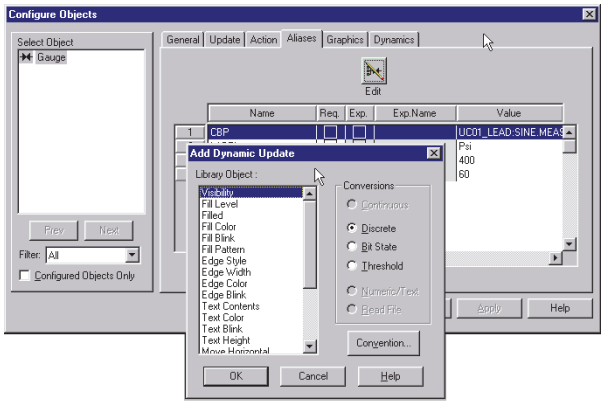


Figure 3. Configuration Dialog Box Display

Conventions

As an alternative to applying dynamic configurations to an object individually, you can apply a convention, which is a group of one or more dynamics. Using conventions decreases configuration time.

You can apply Foxboro-supplied conventions to objects. You can also configure your own conventions.

Display conventions offer the following benefits:

- You can quickly apply a group of dynamics to an object.
- Once a convention is configured, it can be applied to many different objects, which saves configuration time.
- You avoid errors and debug time when applying a convention that is already built and debugged.
- If you change a convention's configuration, each object to which the convention is applied automatically receives the change. This greatly improves display maintainability.

DESIGNING WITH ALIASES

When configuring library objects, aliases may be used in place of actual tag names. These aliases may then be resolved later when the library object is used either in another library object or on a display, making the library object much more reusable. Multiple instances can be created which reference different parameters by simply resolving the alias in each case to the parameter set associated with that instance.

Graphical attributes of a library object can also be given aliases. These attributes include, for example, line color, line style, fill color, fill pattern and visibility. Aliases can also be assigned to display commands or portions of a command, and included in display scripts as well as access levels and ranges.

EASE OF MAINTENANCE

FoxDraw allows you to include history information for each set of edits or version of your display files. Additional tools are also provided to assist you in creating and maintaining your displays.

Display Editor (DEdit)

The Display Edit tool is used to modify or report on groups of FoxDraw display file types. In addition to bulk editing of static and configuration information, DEdit will also generate reports such as the:

- Connection Report - all control objects used
- Complexity Report - all objects and configurations

- Where Used Report - all control objects in a group of displays
- Dump Report- allows modification of a display using an ASCII editor
- Exception Report - non-existent control objects.

Display Converter (DConvert)

DConvert provides an easy-to-use graphical interface used to convert files from one type to another. For example:

- Foxboro Display Format to ASCII. This is used to port displays from one platform to another.
- AutoCAD to Foxboro Display Format.
- Display Manager file to Foxboro Display Format.

Batch Mode Display Builder (GEdit)

GEdit is a tool that allows you to create displays automatically in a batch mode by creating a script file that describes the layout and configuration of your displays.

FoxView

The displays you build with FoxDraw are used by FoxView, and become the Foxboro Evo or I/A Series interface to your process.

Refer to the FoxView Product Specification Sheet (PSS 31S-2B8) for more information.

SYSTEM REQUIREMENTS

FoxDraw is designed to run on Windows based and UNIX based I/A Series workstations. FoxDraw will also run on non-I/A Series Windows NT® 4.0, Windows 98®, Windows XP®, or Windows 7® workstations.

Foxboro®

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