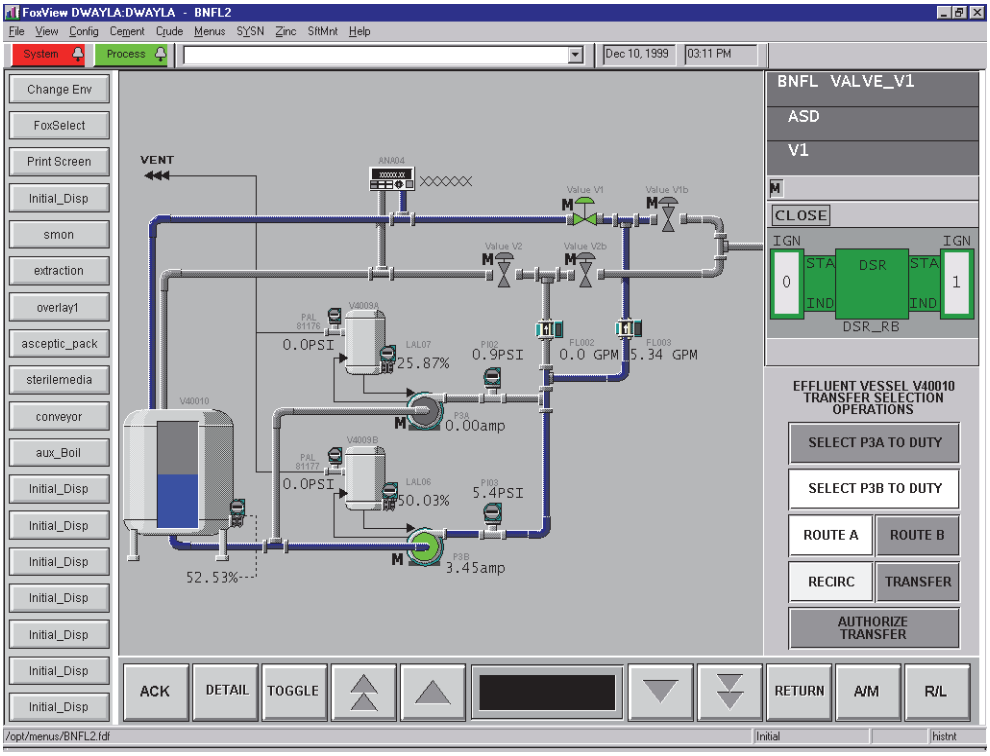
Foxboro Evo™ Process Automation System

Product Specifications

Foxboro by Schneider Electric

PSS 31S-2B8

FoxView™ Software



FoxView™ software ("FoxView") is a window into the process, providing the operator a user-friendly interface to the process. On either Windows® based Foxboro Evo™ or I/A Series® workstations, or UNIX® based I/A Series workstations, you can interact with any or all of the real-time plant data, operator settings, process menus, and historical process data available in the system.

FoxView SOFTWARE FEATURES

- Same look and feel on Windows based Foxboro Evo or I/A Series workstations, or UNIX based I/A Series workstations
- Displays that are 100% portable between Windows and UNIX workstations
- Graphical display of real-time information from sensor, actuators and control functions
- Entry into user-configurable operating environments specific to each user type – e.g., Process Engineer, Process Operator, Maintenance Technician, and Production Management
- Execution of embedded real-time and historical trending
- Access to process alarms via the Alarm Manager
- The FoxSelect™ browser to view compounds and blocks in the control database and to access block detail displays

- The ability to launch:
  - Foxboro Evo or I/A Series configuration tools
  - Foxboro Evo or I/A Series application programs
  - User applications and scripts.
- Flexibility in customizing environments to conform to your site requirements
- Screen print utility
- Customizable window properties
- Multiple FoxView windows
- Remote FoxView windows.

The multi-window capability of the UNIX and Windows operating systems allows you to monitor the information on a process control display, while accessing other applications through other windows.

FoxView WINDOW

The FoxView window contains the following optional features:

- A user-configurable Menu Bar for accessing displays, configurators, and other applications as specified by the environment
- A user-configurable Display Bar of 18 named display buttons or eight “thumbnail” sized mini-display buttons for directly accessing process displays, or launching applications
- An Alarm Bar with system and process buttons, indicating system and process health
- A Message Bar with a drop-down list of the most recent 25 messages; and display of the current date and time
- A Status Bar, indicating the current display name, current operating environment, Operator Action Journal logging name, printer logging name, and Historian name.

USER ENVIRONMENTS

A collection of programs, utilities, and displays related to user tasks is provided for each of the following: process operator, process engineer, and software engineer. These environments, including menu bars, menu content, and display bar content, can be modified to conform to your site requirements, or simply used as templates for creating your own environments. You can easily switch from one configured environment to another. To secure environments against unauthorized use, environment passwords can be configured and menu entries disabled based on the environment.

ON-LINE HELP

FoxView Help is available from the menu bar. Help provides information on:

- Environments
- The FoxView window
- Process displays
- FoxSelect browser
- Detail displays
- Trends
- Faceplates
- Overlays.

PROCESS DISPLAYS

Process displays (see cover graphic) are the main vehicle for operator interaction with the process. These displays allow the operator to manipulate process control variables as well as perform tasks such as changing set points, editing recipes, actuating devices, responding to alarms, and printing reports.

Process displays are user-created displays. User-built displays include:

- Displays specific to your operation, built with FoxDraw™ software (“FoxDraw”)
- Group displays built with FoxDraw
- Scratchpad group and trend displays.

You can choose from two types of display format:

- Base display opens to occupy the entire FoxView window
- Overlay display opens as a window within the current FoxView display window (see Figure 1).

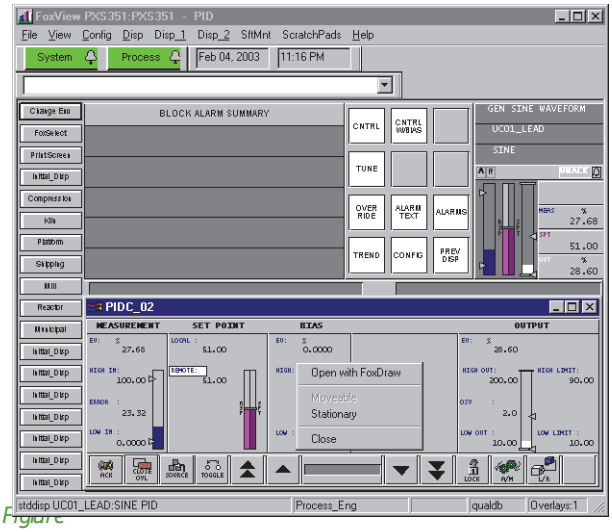


Figure 1. Overlay Display with Shortcut Menu in Base Display (Typical)

Overlay displays typically contain critical, detailed information related to the current base display. While base displays are always sized to fit within the entire FoxView window frame, overlays fill a fraction of the window frame. Available sizes are full screen, half screen, quarter screen, and eighth screen, as well as custom sizes. Overlays can be configured to open in a specific location, or they can be configured to be moveable. Moveable overlays have their own window frame and title, while fixed position overlays have no frame or title.

You can freely move moveable overlays around the screen and iconify them. When a base display is closed, all overlays are also closed.

Control Core Services software or I/A Series software is delivered with some displays. These include:

- Station displays
- Compound displays
- Block detail displays.

Station Displays

The Station display provides global data on control processor system functions, such as continuous block processing load, total CP load, basic processing cycles and overruns, number of bytes of dynamic free memory, and number of peer-to-peer connections.

Compound Detail Displays

Compound detail displays are automatically generated based on the control database. They provide information such as:

- Period associated with execution time
- Compound phasing
- Block alarm level inhibit
- Highest block alarm level within compound
- Operational state of sequential control blocks within compound
- Initialization state
- Names of the device groups to which block alarm messages are sent.

Block Detail Displays

The block detail displays (Figure 2), supplied by Foxboro for each control block type, contain a faceplate, buttons to open parameter detail overlays, a block alarm summary, and a set of buttons to manipulate the parameters.

The block detail displays allow you to:

- Take corrective action on alarms
- Manipulate process variables
- Tune loops
- Monitor via real-time and historical trends
- View alarm text and alarm states.

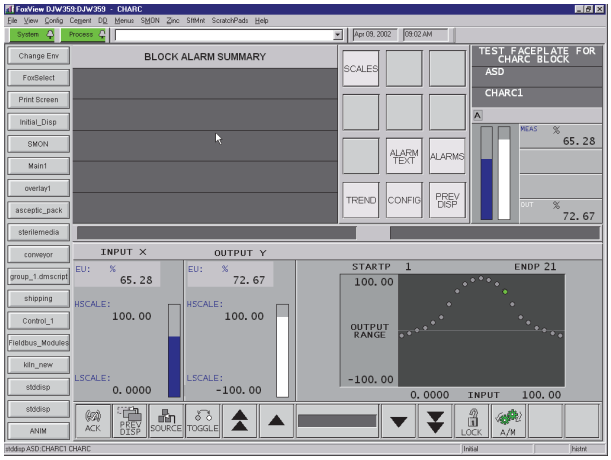


Figure 2. Example of Block Detail Display

Scratchpad Group Displays

Each environment may be configured to include a set of up to 20 customizable scratchpad group displays (see Figure 3). These displays may be temporary, or may be made permanently available on the workstation. Scratchpad displays are built and saved on-line, at run time, through dialog boxes within FoxView. Scratchpad group displays may contain block faceplates or trends. The scratchpad display access may be configured to allow modification by the system operator based on current needs of plant operation.

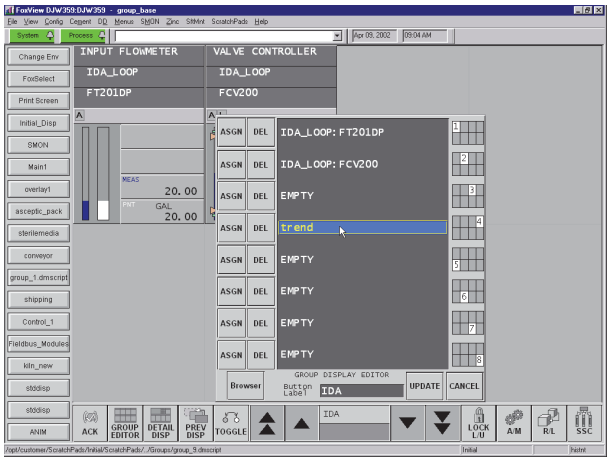


Figure 3. Scratchpad Group Display

You can group control block faceplates into custom layouts to meet changing operational needs. Information for up to eight block faceplates and/or trends in a four-over-four layout, such as shown in Figure 4, can be configured along with operator buttons for acknowledging an alarm, invoking a block detail display, toggling a boolean value, or toggling auto/manual state.

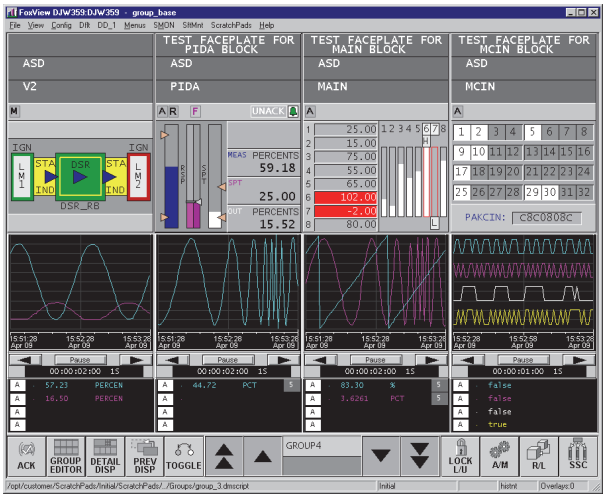


Figure 4. Group Display

User-Built Displays

Displays depicting views of your specific plant operations, as shown in Figure 5, can be created using FoxDraw, a graphical editor/configurator for building and configuring displays.

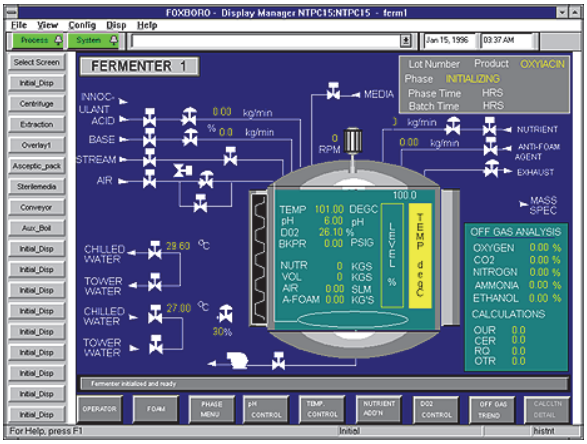


Figure 5. Example of User-Built Display

Shortcut Menus

Any display object can be configured to dynamically update to show process information. Display objects can also be configured with actions when picked with the cursor. Actions include data entry, execute commands, launch applications, or open displays. Based on your individual needs, you can also create customized shortcut menus that are easily accessible via a simple right click of a mouse (see Figure 6). Menus can be globally specified based on FoxView environments, and can be customized down to the display object level. FoxView Access Levels are supported for security.

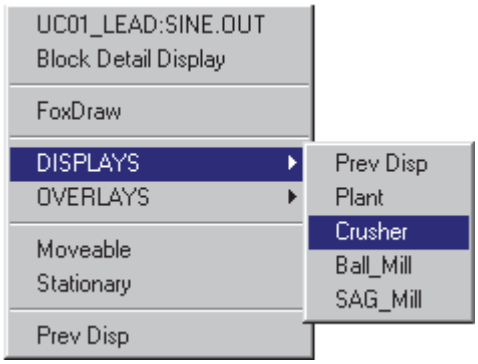


Figure 6. Shortcut Menu

REAL-TIME TRENDING

FoxView trend areas, illustrated in Figure 7, show continuously updating values from the control station and historical database.

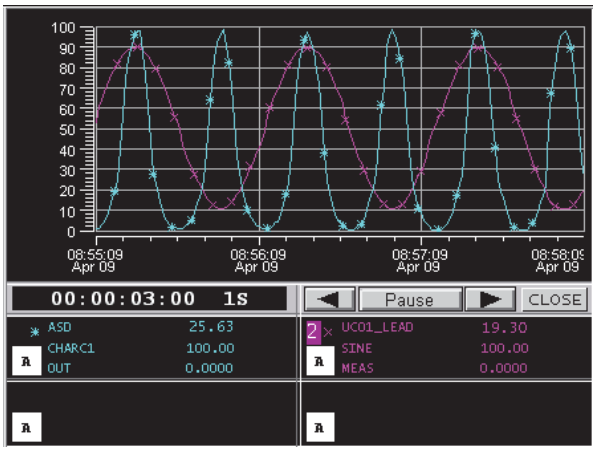


Figure 7. Example of Trend Area

Trend data is displayed as a series of connected points and is scaled according to the high and low limits configured for each trend line. Trend data scrolls to the left as new data is displayed on the right. Scrolling and updating of real-time trends start immediately after the display opens.

FoxView trend areas can have any of the following fields:

- Up to four trend lines per graph representing control variables
- Time duration of trend graph in hours, minutes, and seconds
- Configurable update rate
- Status conditions shown with different line styles
- Time stamp along X-axis on even tick divisions
- Pause button that freezes trend scrolling, enables forward/backward paging through historical data, and provides numerical readout for requested time
- Y-scale display.

The select and assign capability allows you to select, on any display, an updating value field, for example, a bar on a faceplate or a numerical readout, and to assign that variable to a Foxboro “s” (scratch) trend chart. The trend can be part of the same display or a different display, or it can be running on another instance of FoxView.

ON-LINE TREND CONFIGURATION

On-line trend configuration allows you to change the contents and general appearance of a time-based trend after it has been called into FoxView.

On-line trend configuration capabilities allow you to:

- Assign a process variable to a trend pen
- Delete a pen from a trend
- Change a trend’s duration and scan rate
- Configure trend presentation, such as merged/banded, off-normal regions, grids, markers, colors, time stamp format, and pen data type
- Select how a pen’s scale values can be configured in the trending display
- Save configuration changes.

SCRATCHPAD TREND DISPLAYS

Each environment may be configured to include a set of 20 customizable scratchpad trend displays. These trends may be temporary, or may be made permanently available on the workstation (see Figure 8). Scratchpad trend displays are built and saved on-line, at run time, through dialog boxes within FoxView. Individual trend objects may be full screen, half screen, quarter screen, and eighth screen size. Less than full-screen trends may be configured to open in any location. Like scratchpad group displays, these trends may be made modifiable by the system operator.

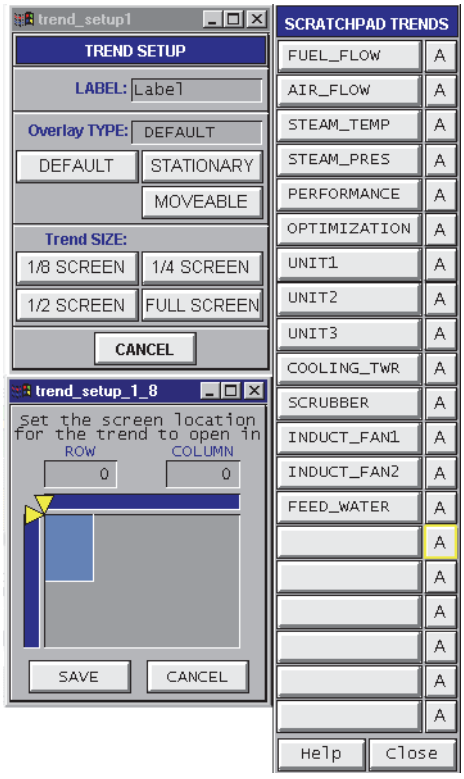


Figure 8. Creating Scratchpad Trend Displays

X/Y PLOTS

An X/Y plot shows the relation of two monitored process variables or system variables (see Figure 9). 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. X/Y data points from a data file can also be plotted.

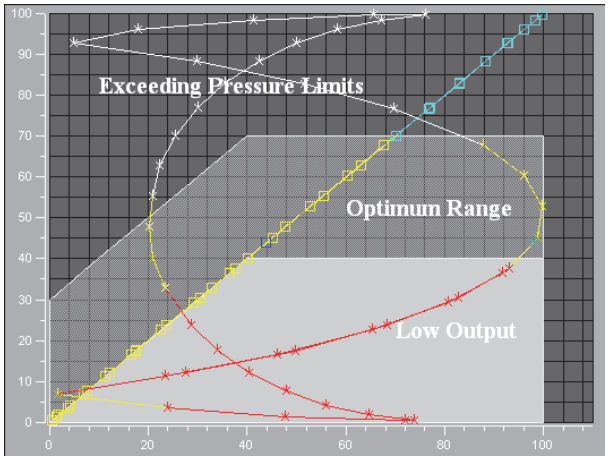


Figure 9. X/Y Plot Example

Linear and logarithmic scales are supported on both the X-axis and the Y-axis. X/Y plots can be configured to display gridline color and visibility. The plot lines appear in the configured colors. If configured, a cursor that represents the currently plotted data, may appear in the X/Y plot.

Depending on the X/Y plot's configuration, the X/Y plot display may include buttons allowing you to:

- Write the X/Y pairs to a file
- Plot data points from X/Y Plot Data File
- Clear the plot area
- Pause plotting.

PROFILES PLOTS

Profile Plots display data accessed from a data array of floating point, long integer, integer or byte data. The plot displays the data points along the X-axis and the associated value of the data point on the Y-axis (see Figure 10). Styles available are either line plots or bar plots.

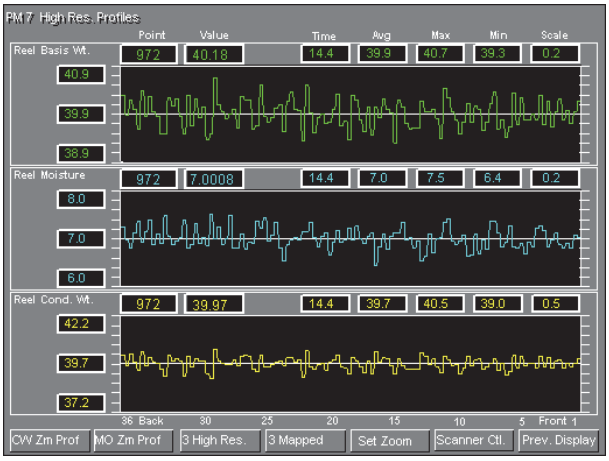


Figure 10. Multiline Profile Plot

Profile plot features include:

- Up to four lines or bar lines per plot area
- A median reference line for each plotted line
- User configurable line color, reference line color, and off-normal limits color.

Profile plot options include:

- High and low scale values
- High and low alarm limit values
- Start and end offset of the data array.

ACCESSING FOXBORO EVO OR I/A SERIES OPERATION WINDOWS THROUGH FoxView

FoxSelect

FoxSelect, as shown in Figure 11, is a graphical browser of control station databases. FoxSelect presents a hierarchical view of the control database — the grouping of control block algorithms within compounds. It allows you to turn compounds on and off as well as access the detail display for a selected control station or block to perform control actions, such as ramping or toggling between auto and manual. FoxSelect indicates the compound on/off status. Block entries include the block status, block name, block auto/manual state, alarm priority number if an alarm exists, and block type.

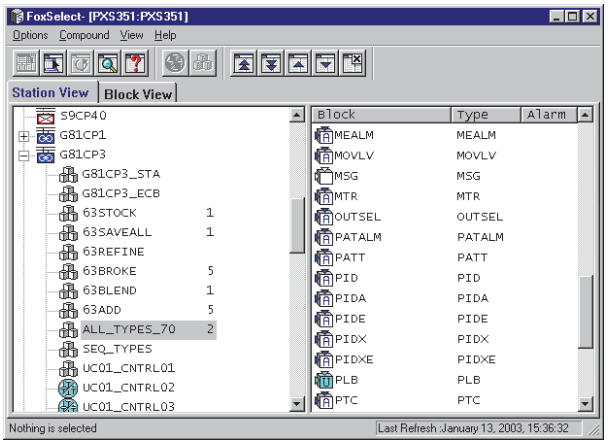


Figure 11. FoxSelect

Process Summary Reports

You can generate a screen report or printed report listing compounds or blocks that are in an exception condition through Process Summary Reports (PSR). The exception conditions available are:

- Compounds or blocks off scan
- Compounds or blocks in alarm
- Compounds or blocks with alarms inhibited
- Blocks not on control
- Blocks in manual
- Blocks with bad I/O.

Figure 12 shows a sample view of the blocks-in-alarm report for a selected station. This reports list all the blocks in alarm along with the associated compound, description, alarm priority, and so forth.

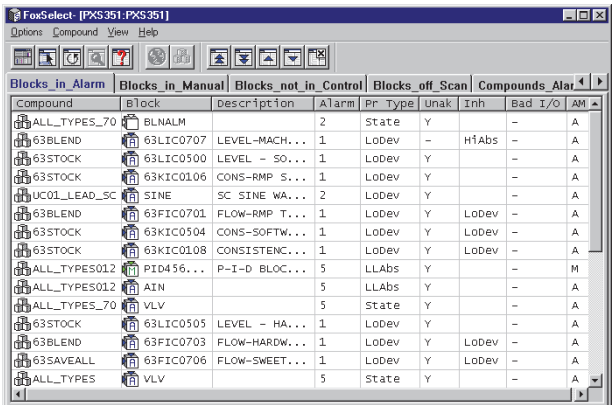


Figure 12. Sample View of Blocks-in-Alarm Report

Reports may be created for compounds and blocks in a variety of combinations and with a variety of filters. Selection of report criteria is done through an easy-to-use graphical configurator (see Figure 13).

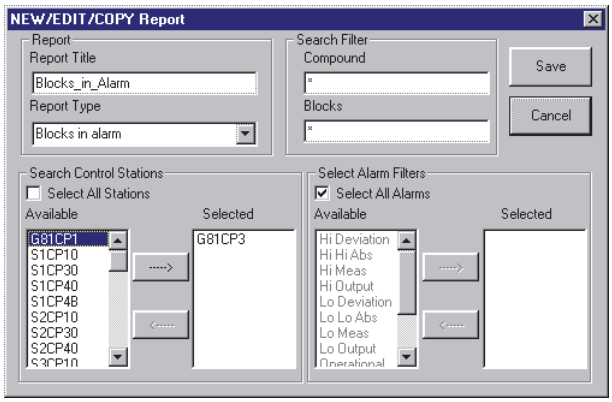


Figure 13. Configure New Report Dialog Box

Process Alarms

When you click the Process button in the system bar, the FoxAlert™ Alarm Manager opens and displays a list of current alarms, as shown in Figure 14.

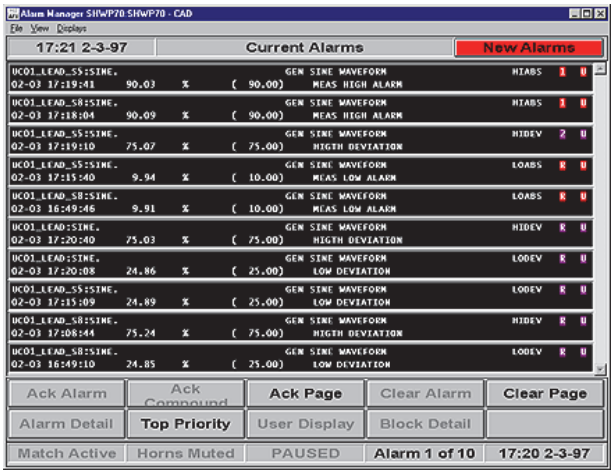


Figure 14. Example of Current Alarms Display

For more information, see PSS 31S-2B2, FoxAlert Alarm Manager.

System Management

System Management software, accessible from the System button on the alarm bar, lets you monitor system health via a hierarchy of color-coded station and peripheral displays. A blinking System button indicates unacknowledged equipment alarms.

ACCESS TO CONFIGURATORS

From the Config menu, FoxView provides access to various configuration software packages, depending on your operating environment. Some of the configurators you may have on your system are:

- FoxDraw for creating and configuring dynamic process displays
- Alarm/Display Manager Configurator for configuring additional Alarm Managers and Display Managers and customizing alarm displays
- Integrated Control Configurator for control database configuration
- FoxPanels™ Configurator for configuring annunciator hardware or creating/configuring soft alarm panels for announcing alarm conditions and providing access to displays and programs for operator response.

FoxDraw

FoxDraw is the graphical display editor/configurator used to create and maintain displays for viewing process control dynamics. For additional information, see PSS 31S-2B3, FoxDraw.

SPECIFICATIONS

Required Operating System and Hardware

FoxView is designed to run on Windows based Foxboro Evo or I/A Series workstations, and UNIX based I/A Series workstations.

Foxboro®

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