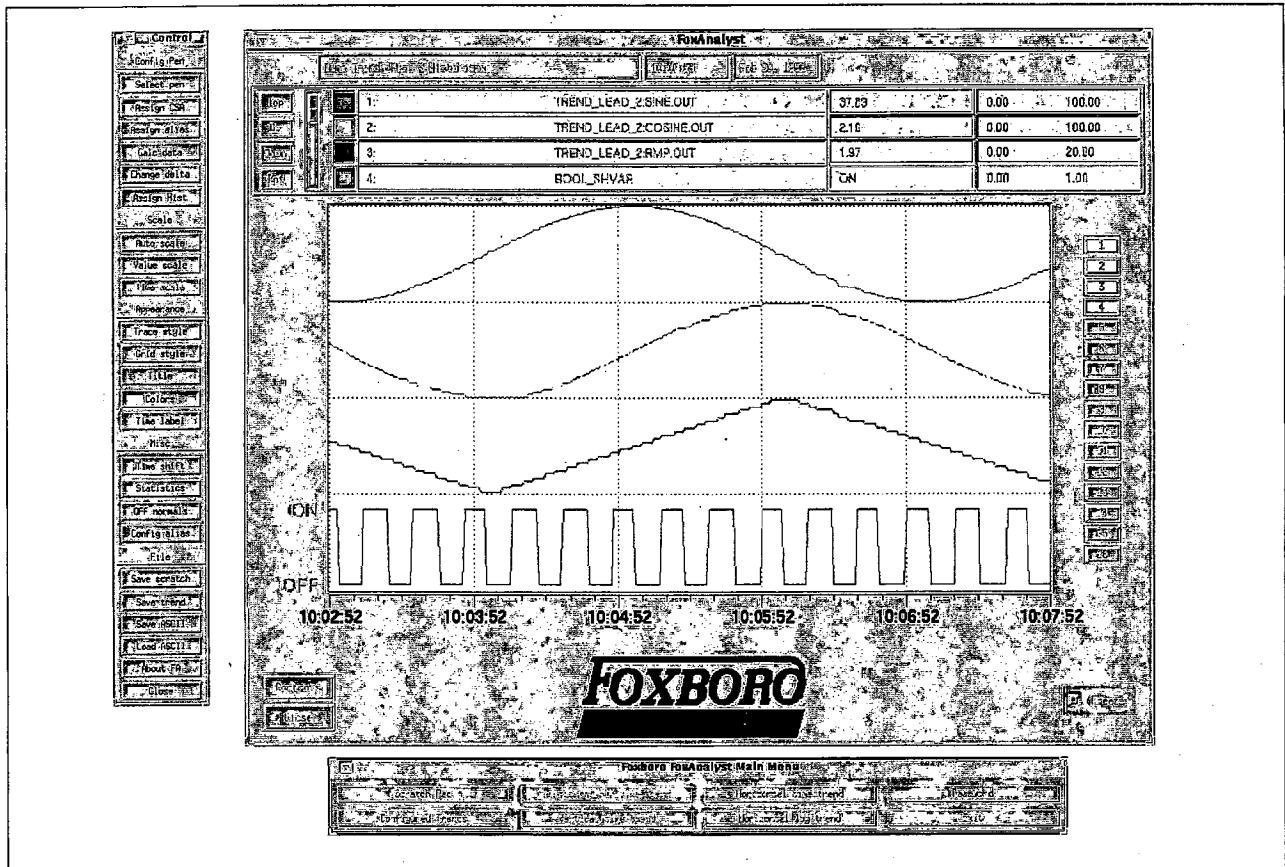


**I/A Series® Software****FoxAnalyst for UNIX®/Motif and Windows NT™***Revised to 21S-7A3B7*  
*Revis*

FoxAnalyst is an advanced trend chart application for data review and comparison, designed to serve plant operators in the control room as well as process engineers and supervisors.

Businesses today are focused on quality. They need to track current performance closely, and they need a way to compare today's process data with yesterday's to help insure product consistency. With FoxAnalyst they can do both. An operator can freeze a live trend, zoom in on the data, press a button to access historical data for one or more variables, and then shift variables back and forth in time to compare current and past events. Data can be saved to a file for subsequent review or analysis.

FoxAnalyst gives you direct access to the I/A Series live database and Historian sample data.

Also, you now have the capability of applying mathematical operations to the data before it is displayed on a trend. You don't have to offload files and read them into a separate math application to get the results you need. However, with the file save feature, you still have the option of loading data to another application.



FoxAnalyst provides three trend templates to get you up and running quickly. The trends are totally reconfigurable: you can change anything from the duration of the trend to the color of the command buttons.

You can set up the application to give operating personnel maximum flexibility, letting them make almost any type of modification on the fly. Or, if your organization has different requirements, use the built-in password to limit permanent trend modification to the engineering department.

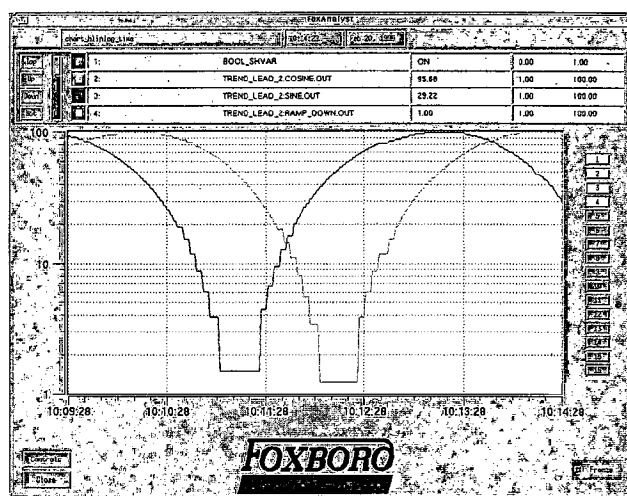
FoxAnalyst runs on both Windows NT and UNIX platforms. A customer who knows one version can use the other without further training.

## MAJOR FEATURES

A trend can include from one to 16 process variables, or pens.

Data can be shown in several formats:

- Horizontal linear trend
- Vertical linear trend
- Logarithmic linear trend



Logarithmic Linear Trend

The "Scratch Pad" feature lets anyone change the process variables on-line without having to enter a password. The modified trend can be saved and retrieved from the Scratch Pad menu.

Operators or engineers can enter aliases (alternative names for process variables) and assign them to pens without leaving the trend display.

Trend data can be saved to ASCII files for downloading to a spreadsheet or for reloading to another trend.

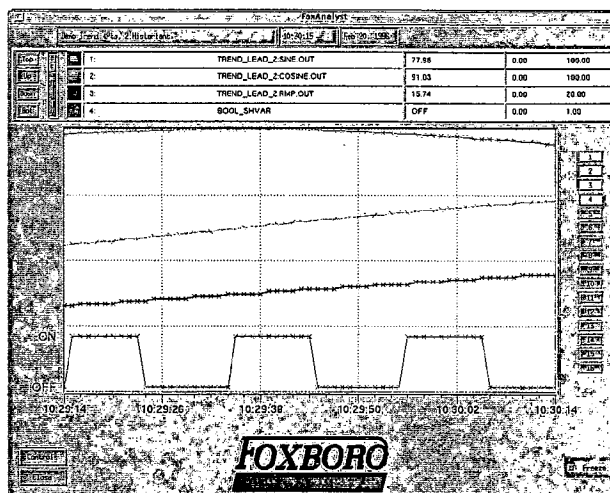
## Configurable Options

A trend chart can display real-time values or historian sample data. The real-time trend can show raw values or the results of arithmetic operations.

You can select a time base from one minute to 16 hours.

Data can be scaled automatically to fill the chart area.

Each pen can be shown in a separate band on the trend.



Banded Trend

All pens can be displayed or some can be made temporarily invisible. In either case, data is collected and buffered for all configured pens.

Values can be shown as solid or dotted lines, or unconnected dots or other symbols.

When a process value goes bad or out of service, the pen trace automatically becomes a dashed line. In addition, you can configure the line color to change to red when limits are exceeded.

A statistics dialog shows the sum, mean and standard deviation for selected pens.



FoxAnalyst Main Menu

**OPERATION**

At the FoxAnalyst Main Menu, you can select a menu of Configured Trends. When you pick a trend, any previously opened trend is automatically closed.

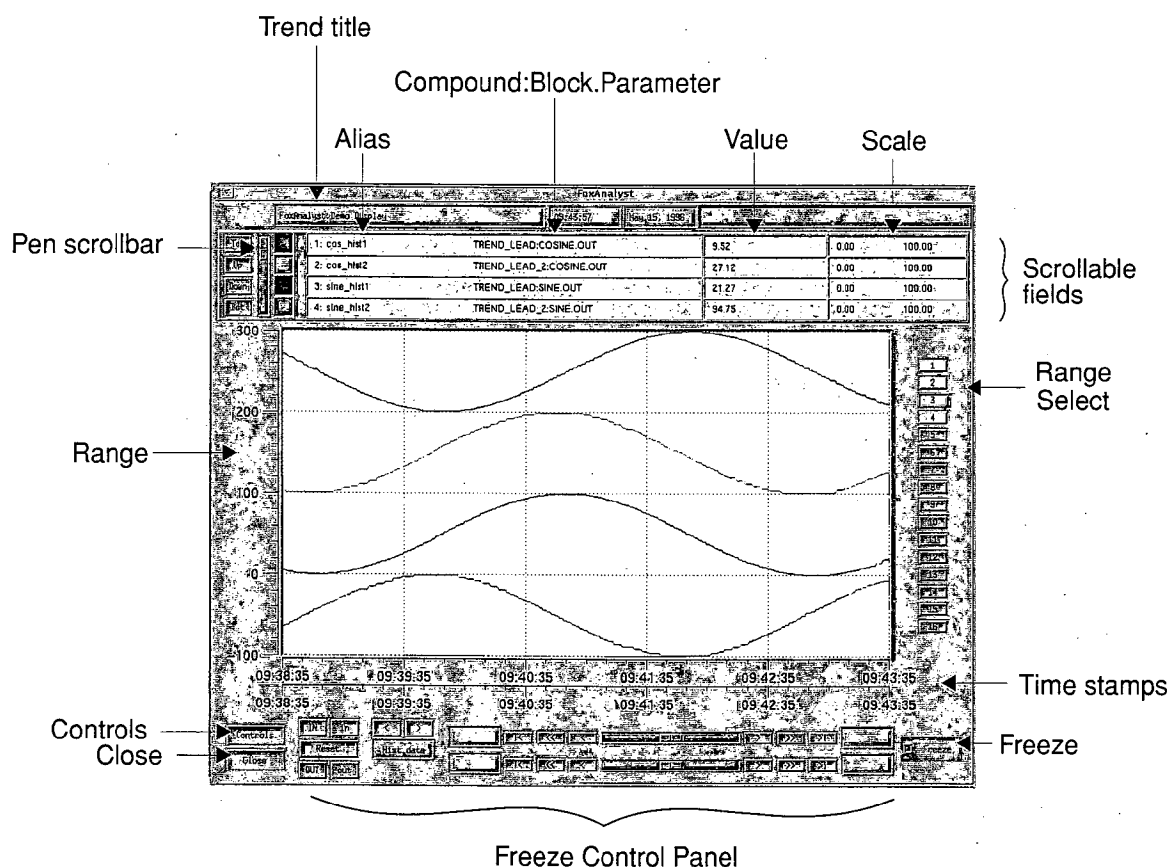
You can move the trend with the mouse, and scale it from full screen size to 1/4 screen.

The newest values are displayed at the right of the trend.

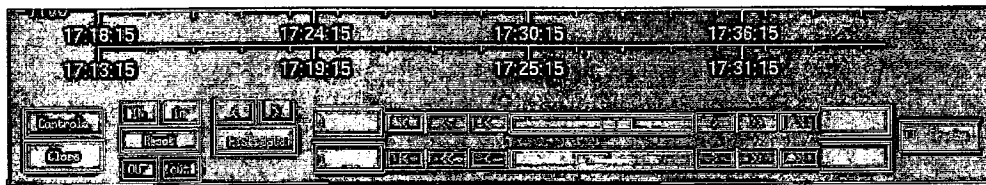
Numeric values are shown as a series of connected points. Boolean data is a straight line placed low on the trend for the 0 (Off or Open) state and higher for the 1 (On or Closed) state.

The digital values are displayed in scrollable fields above the trend.

Data and time stamps are updated once every three seconds by default. You can specify an update rate of from 1 to 60 seconds.



Horizontal Trend in Freeze Mode



Freeze Control Panel

### FREEZING THE SCREEN FOR DATA ANALYSIS

When you pause the trend, the Freeze control panel and a second set of time stamps are displayed below the trend.

The Readout Cursor (a full-height vertical hairline) lets you pick any point on the trend, and display the data values for that time.

### Zoom and Pan

The zoom control buttons let you zoom in to focus on details. You can choose a large or small zoom increment. Reset restores the trend to 100%.



### Historical Data

If one or more pens are associated with an Historian, you can automatically access historical data.



The left angle bracket (<) takes you back in time one chart width.

### Time Shifting

The two sliders and associated buttons and fields are used to compare the same or different process variables at different times.

During configuration, pens are assigned to either the upper slider or lower slider. In Freeze mode, the two sliders can be manipulated separately.

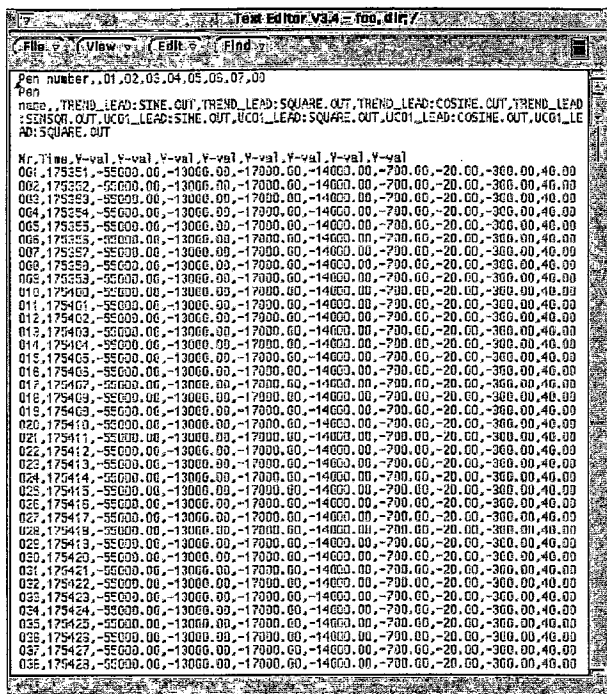
You can drag the upper slider left or right to view older or newer data from the upper pens, or use the Slow, Fast or Jump scroll buttons. Drag the lower slider or use the lower scroll buttons to manipulate data from the lower pens.

As you move the sliders, the time stamps change.

You can enter an Oldest and Newest Time in the data entry fields, and then jump the trend either way to the time stamp you entered.

## Saving the Data as an ASCII File

In Freeze mode, you can save the values on screen to an ASCII file in Comma Separated Value (CSV) format.



Trend Data File in ASCII format

The selected pen numbers and the assigned Compound:Block.Parameter names are included in the file header. Each line in the file shows the sample number, the time, and the values for each pen.

## TREND CONFIGURATION

Trends can be configured by an operator and saved to the Scratch Pad without a password requirement. With the password, a supervisor can make more extensive modifications and save the trend to the Configured Trends menu.

### Linear Trend Defaults

You can set up a time trend with minimal configuration, using the template defaults:

- Four pens, one each in purple, green, black and blue against a white background
- Solid trend lines
- Dotted X and Y axis grid lines
- 5-minute time base
- 24-hour time stamp

- Min-Max scale of 0-100
- Values trended together instead of in separate bands
- Deadband of 0.5
- Digital (Boolean) state changes indicated in the pen value field as Off or On and shown as a line step change of six points on a scale of 0-100.

Or you can completely reconfigure the trend to meet your needs.

Configuration can be separated into two types of tasks:

1. Specifying the data and its format
2. Defining the trend appearance

### Specifying The Data

When you specify the data, you select pens, assign data points or aliases and select a scale (auto or manual).

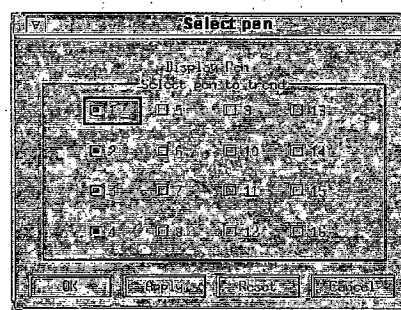
In addition, you can:

- Apply mathematical operations to the data
- Assign pens to a Freeze mode time slider
- Modify the time base and the deadband
- Assign a Historian to one or more pens
- Specify off normal limits

A few configuration dialogs are illustrated.

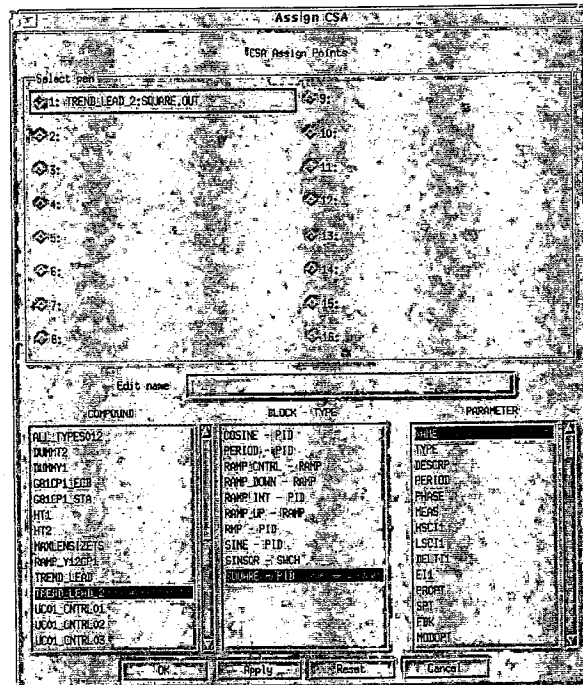
### Selecting a Pen

To display a pen, just select it.



Select Pen Dialog

You can deselect a pen and make it invisible on the trend without stopping data collection. As long as a pen is assigned to a process variable, data is collected for that variable and held in the trend buffer. When you reselect the pen, the collected values are plotted on the graph.



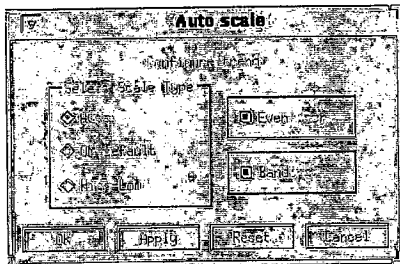
Assign CSA Dialog

### Assigning a Compound:Block.Parameter

Use the Assign CSA dialog to associate a Compound:Block.Parameter name with the pen. Alternatively, you can simply assign a preconfigured alias.

### Auto Scale

This dialog lets you specify the scaling method as well as other aspects of the trend.



Auto Scale Dialog

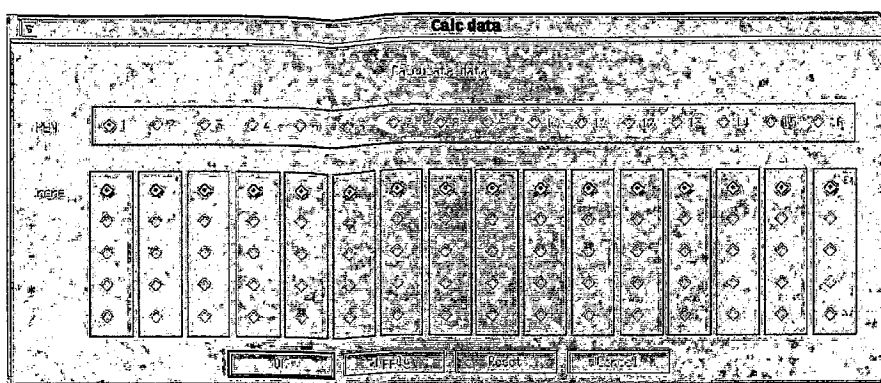
With AutoScale, the scale automatically adjusts up or down as actual values are collected. The Min is 10% below the lowest collected value and the Max is 10% above the highest collected value.

With OM (Object Manager) Default, Min and Max are read from the block configuration.

With Min-Max, values are entered manually with the Value Scale dialog.

The Even Increments option is used with AutoScale to round off the scale markers.

The Banding option lets you show each pen in a dedicated band.



Calc Data Dialog

### *Applying Calculations*

The Calc Data dialog lets you manipulate a variable by defining a relationship between it and another variable.

For example, suppose Pen 1 is configured for a process measurement, and Pen 4 is the setpoint. On the trend, you want to see the deviation from setpoint.

You first select Pen 1. Then in the Pen 4 column, select subtraction. FoxAnalyst will automatically subtract the setpoint from the measurement, and Pen 1 will trend the deviation.

You may still want to see the measurement on the trend, so you can configure another pen for that variable.

You can perform more than one operation on a variable. The configured operations for any pen are visible when that pen is selected.

### **REQUIREMENTS AND PERFORMANCE**

FoxAnalyst requires 10 Mb of disk space on the host workstation. Each saved trend requires 96K.

Each instance of the application requires 6 Mb of RAM. We recommend running FoxAnalyst on a machine with 32 Mb of RAM.

Multiple instances can be run on I/A Series Model 51B/C AWs and WPs, to enable remote access from other Model 51 stations on the Nodebus.

MIS network access to other X Window System servers, including PCs with X server software, X Terminals and X Workstations, is also supported.

Multiple instances of the FoxAnalyst should not be run on networked operator workstations that are used for critical control, since remote users could adversely affect the station's performance.

CPU load depends on the scan rate and whether or not the trend pens are visible. If all 16 pens are configured and shown on screen, the CPU load is less than 30% on a Model 51B or equivalent.

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