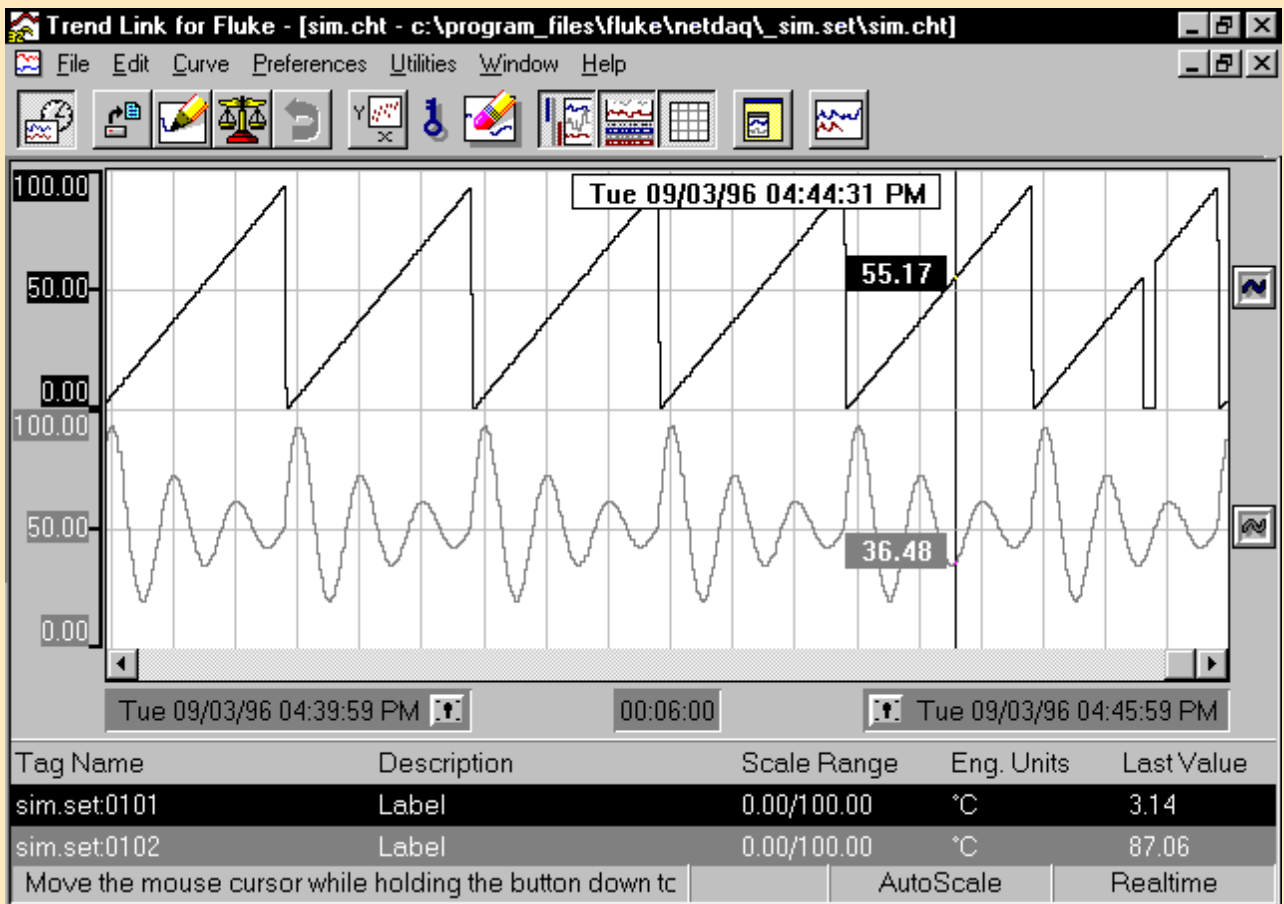


Data Acquisition Software and Hardware Demonstration Guide

For:

NetDAQ® Logger, Hydra Logger, and Trend Link for Fluke V3.1



Introduction

This demonstration guide contains exercises designed to quickly familiarize you with the features and functions of Fluke's software and hardware for data acquisition and analysis. NetDAQ Logger, Hydra Logger, and Trend Link for Fluke demonstrations are covered in this guide.

NetDAQ[®] and NetDAQ[®] Logger

NetDAQ Networked Data Acquisition Units transmit data over general or dedicated (isolated) networks. Each NetDAQ has 20 channels which may be programmed individually to perform virtually any signal conditioning function the user requires. Two models of NetDAQ offer the user a choice of higher speed scanning to 1000 Readings/sec., 0.01% basic Vdc accuracy, and up to 300 Volts channel to channel isolation.

NetDAQ Logger is a configuration and data management program for the NetDAQ system. This program supports up to 20 units (400 channels), utilizes DDE, and is available with or without Trend Link trending and data analysis capabilities.

Hydra and Hydra Logger

Hydra is Fluke's portable series of data acquisition products. Three models of Hydras offer the user 21 individually programmable channels of signal conditioning, a unique Universal Input Module for quick easy connections, PCMCIA memory

storage, and precision rarely seen in portable data acquisition equipment. Hydra is easy to configure from the front panel while in the field, or from computer via simple RS232 connection.

Hydra Logger is a configuration and data management program for the Hydra Series of products. This program contains modem support for remote data communications, utilizes DDE, and is available with or without Trend Link for Fluke trending and data analysis capabilities.

Trend Link for Fluke V3.1.1 Demonstration Software

Trend Link is a comprehensive trend plotting and analysis package that plots data graphically in real time. Trend Link allows you to quickly scroll through real time and historical data, view data from all channels simultaneously, compare real time data to an historical template in batch mode, and superimpose selected channels for closer analysis. Any portion of a trend may be examined more closely by utilizing Trend Link's Zoom function.

Within the confines of this demonstration guide we are able to give you only a brief introduction to some of Trend Link's basic functions. Upon finishing the structured sections in this guide we would invite you to spend some time exploring this unique software package.

Demonstration programs are fully functional and do not inhibit program features in any way. This allows you to explore a full-featured package to ensure it fully meets your application needs.

These programs do however operate for 60 min. and then close down, requiring a restart of the program to continue.

Obtaining Demonstration Software

If you do not already have the software you wish to review or would like to have software sent to a colleague you may obtain it from the following sources:

Contact your local Fluke office and ask that demonstration software be sent to you for evaluation. In the United States and Canada you can call 800-44-FLUKE for assistance in obtaining software. For Europe call (31 40) 2 675 200 and from other countries call 1-425-446-5500.

Demonstration software and hardware may also be obtained from your local Fluke representative.

World Wide Web: You may download the demonstration software of your choice by connecting to: <http://www.fluke.com>. Once connected, select the product information area and then select Data Acquisition Products. There you can review product specifications, application notes, and download demonstration software.

Obtaining Demonstration Hardware

Hydra or NetDAQ hardware may be made available through your local Fluke representative. Depending on your needs and current availability, our representatives can often accommodate you within a short time with the product you would like to review.

Overview

This guide covers the installation of NetDAQ Logger, Hydra Logger, and Trend Link software as well as hardware setup and configuration of NetDAQ and Hydra.

To use this guide, follow the instructions for only the hardware and software you are working with, either NetDAQ or Hydra.

This guide will step you through setting up connections on the Universal Input Module and show you how to verify communication settings of your NetDAQ or Hydra unit. ***(If you are evaluating software only you may skip the hardware section and start at the section for software installation for the package you are using.)*** Note that all demonstration software packages include Trend Link for Fluke so regardless of the package you are using you will need to follow the instructions for the installation of this software.

The last section of this guide will step you through a brief introduction of Trend Link features and invite you to further explore Trend Link's extensive features.

Requirements:

NetDAQ Requirements:

The following equipment is required to perform the exercises in this guide when using the actual NetDAQ demonstration instrument (2640A or 2645A) supplied to you by your Fluke representative:

- NetDAQ Networked Data Acquisition Unit (2640A or 2645A)
- NetDAQ Logger demo cd
- Available Ethernet port on your computer
- Ethernet cable supplied with NetDAQ
- Type "T" thermocouple (provided with the NetDAQ demo unit)

Hydra Requirements:

The following equipment is required to perform the exercises in this guide when using a Hydra Series instrument:

- Model 2620A, 2625A or 2635A Data Logger
- RS43 serial communication cable
- Type "T" thermocouple (provided with the Hydra demo unit)
- You are using COM2 (communication port 2) on your PC to communicate with the Hydra (If you are using COM1, you need to change all mentions of COM2 to COM1.)

Computer Requirements:

- Operating system: Microsoft Windows
- 4 Mb RAM
- 5 Mb free disk space

Software only operation

To use this guide without hardware, begin on Step 4 (Hydra) or Step 5 (NetDAQ).

Hardware Setup

Universal Input Module

(complete this section for both NetDAQ and Hydra)

1

Configure (Hook-up) Universal Input Module

1. Connect the type T thermocouple (provided with your Demo unit) to Channel 1 and 2 of the Universal Input Module in parallel fashion as shown in the expanded view of Figure 1.
2. Close the Universal Input Module and insert it into the rear of your demo unit.

This concludes the setup of the Universal Input Module. Please proceed to the Hardware set-up section for the demo unit you are using, either NetDAQ or Hydra, in the following sections.

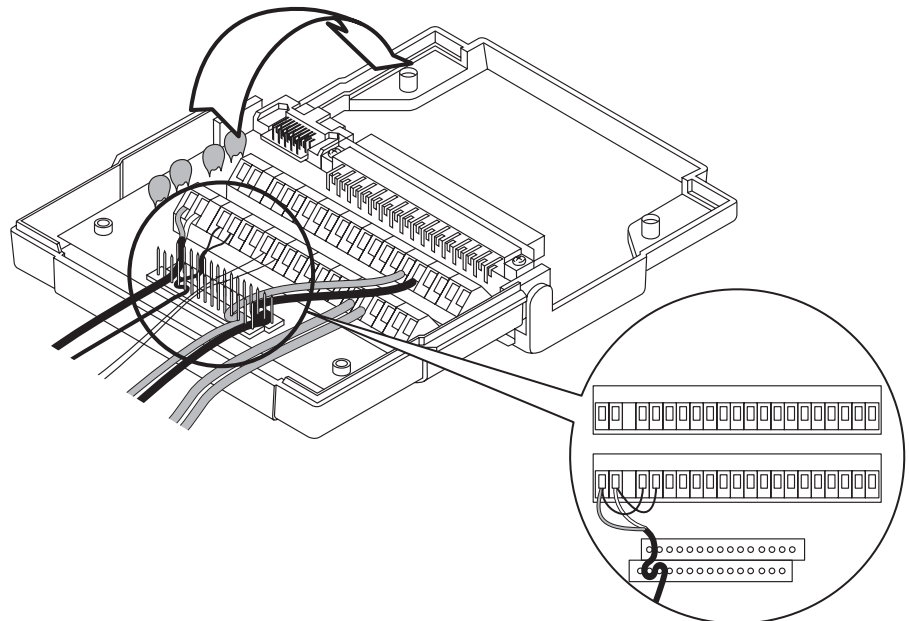


Figure 1.

NetDAQ Hardware Set-Up

2

Install the Supplied Crossover Ethernet Cable

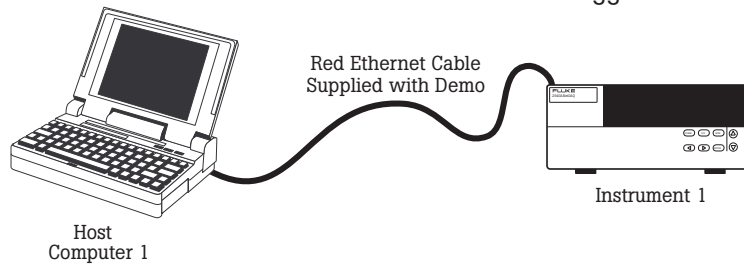
1. Plug the Ethernet cable into the host computer's Ethernet port and the Ethernet port on the NetDAQ. (Figure 2)

Reset NetDAQ to Default Communication Settings

2. Turn on power to the NetDAQ while pressing the **COMM** button on the front panel until the display reads "rESET" (about 4 seconds) (Figure 3).

This concludes the Hardware setup for the NetDAQ demo. Please proceed to the Software installation for NetDAQ Logger.

Figure 2.



Hydra Hardware Setup

3

Set Hydra's Communication Parameters

Set the Hydra's communication parameters to: 9600 baud, no parity, echo off. From the Hydra's front panel perform the following actions:

1. Press (shift) then **COMM** to view Hydra's communication parameters.
2. Press **▲▼** to select 9600 baud and press **ENTER**.

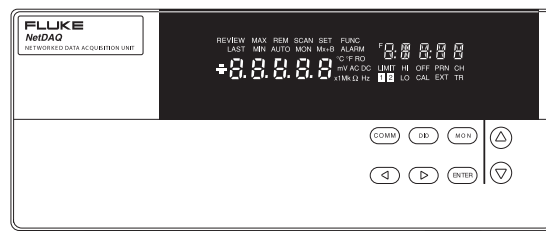
3. Press **▲▼** to select no parity and press **ENTER**.

(Note: if you are using a 2635A Hydra Data Bucket, set CTS to off.)

4. Press **▲▼** to select echo off and press **ENTER**.
5. Connect the RS43 cable to the serial port on the back of Hydra and to COM2 of your computer.

This concludes the Hardware setup for the Hydra demo. Please proceed to the Software installation for Hydra Logger.

Figure 3.



Software Installation

Hydra Logger Installation

4

Hydra Logger software Installation

1. Insert the Data Acquisition Demo CD, select Hydra Logger.
2. Step through the installation prompts by clicking on Next, changing the language if desired.

This completes the installation of Hydra Logger. Proceed to the Trend link installation section.

NetDAQ Logger Installation

5

Install NetDAQ Logger

1. Insert the Data Acquisition Demo CD, select NetDAQ Logger.
2. Click Next to accept the default of Isolated Network (Figure 4).
3. Step through the installation prompts by clicking on Next, changing the language if desired.

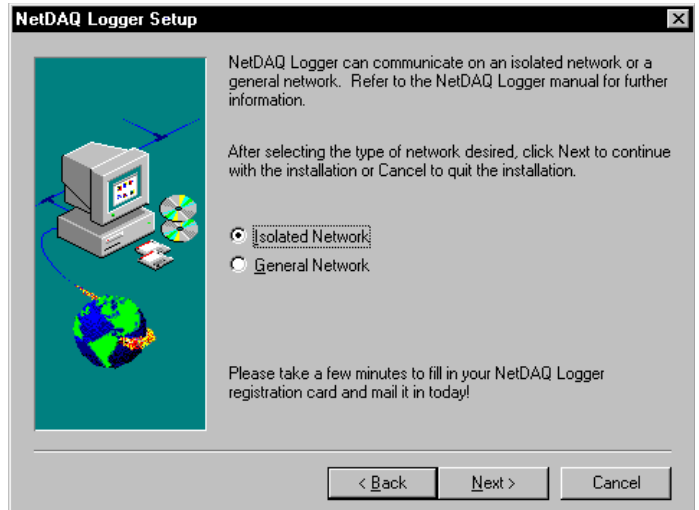


Figure 4.

Network address settings

4. From Windows desktop select Start, The Settings, Control Panel, then select Network Connections.
5. Right click on your LAN connection, select Properties, then select Internet Protocol (TCP/IP) and select Properties.
6. Enter an IP address of 198.178.246.101 and a Subnet Mask of 255.255.255.0, then press OK. (Figure 5)
7. Press OK.

This completes the NetDAQ Logger installation. Proceed to the Trend Link Installation section.

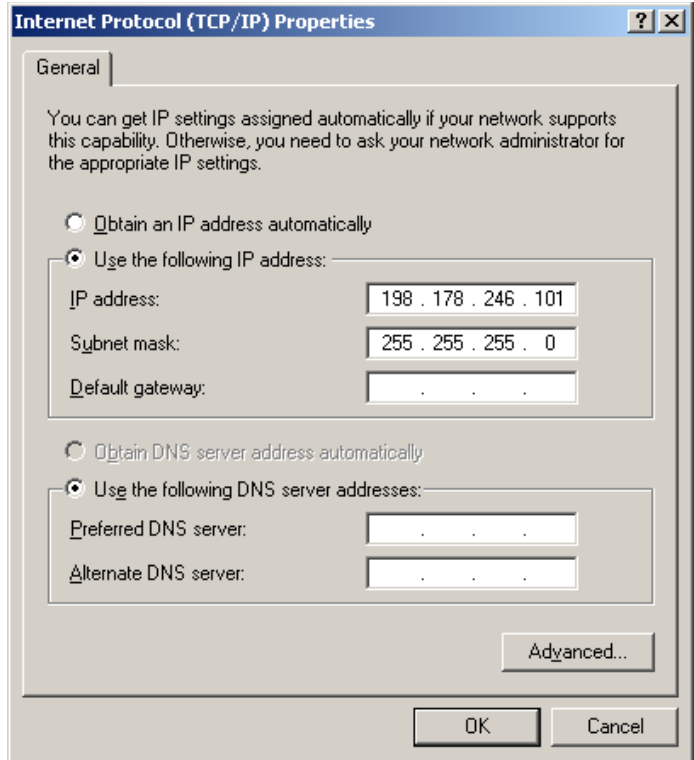


Figure 5.

Trend Link

6

Trend Link Installation

1. Insert the Data Acquisition Demo CD and select Trend Link.
2. Step through the installation prompts by clicking on Next, changing language if desired.

This completes the Trend Link installation. At this point, if you are reviewing software only, skip the following section on communication setup (sections 7 and 8) and proceed to the configure unit section (section 9). If you are using hardware proceed to the Communication Setup section for the Hydra or NetDAQ.

Hydra Logger

7

Communication Setup

1. Start Hydra Logger. Click on "Edit Hydra Configuration." Select Communications.
2. Click in the Baud Rate list box.
Select 9600 Baud from the list.
3. Click in the Parity list box. Select No Parity from the list.
4. Click Verify, you should see the message, "Connection Successful."
5. Click OK if you have a properly connected unit.
6. Click on OK several times to return to the main screen.

This completes the communication setup for Hydra Logger. Proceed to the Configure Unit section.

NetDAQ Logger

8

Communication Setup

1. Start NetDAQ Logger.
2. Select Communication Configuration from the Setup menu. The communications configuration file dialog as shown in Figure 6 will appear.
3. If you are using a NetDAQ 2645A, go directly to #6 of this section. If you are using a NetDAQ 2640A continue. (The model number of the NetDAQ you are using is marked just above the Universal Input Connector on the back panel of the unit.)
4. Click on the Modify button in the Communications Configuration File dialog box.
5. Select 2640A NetDAQ and click OK.
6. Click Verify, you should see the message, "Connection Successful."

7. Click OK if you have a properly connected unit.
8. Click on Close to return to the main screen.

This completes the communication setup for the NetDAQ Logger. Proceed to Configure Unit section.

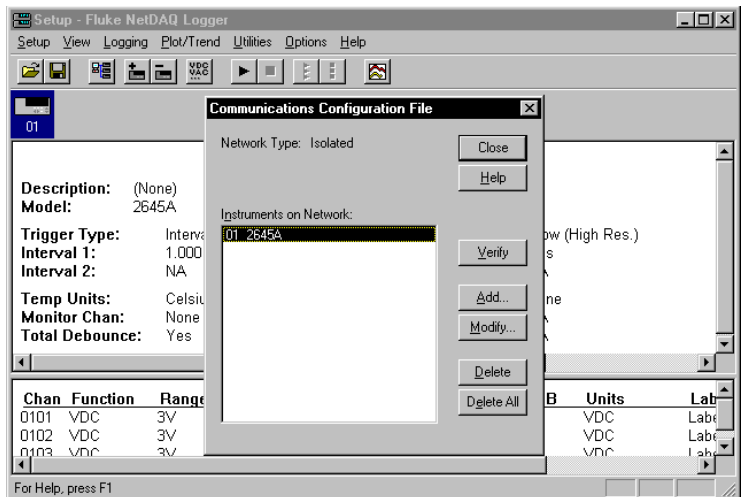


Figure 6.

Notice: The following steps are for both HYDRA and NetDAQ Logger software. The figures in the following sections reflect the NetDAQ Logger screen display. If you are using Hydra Logger the screen examples will look slightly different from those shown on your computer's screen, however the function selections for Hydra are the same and you should have no difficulty making the correct selection.

Configure Unit, Hydra and NetDAQ

9

Configure Unit for Scanning

1. Select the Instrument Configuration command from the Setup menu.
2. Click the Channels button on the Instrument Configuration dialog box as shown in Figure 7.
3. Select channel 0101 in the Analog Channel box (ch #1 for Hydra). This represents Instrument # 01; analog channel #01. (Figure 8)
4. Click the Function button.

5. Click on the down arrow of the Function list and select Thermocouple. (Figure 9)
6. Click on the down arrow of the Range list and select "T".
7. Click OK. Repeat steps 3-7 for channel 0102 (Hydra Channel #02) to set it to a type "T" thermocouple.
8. Click OK to accept your configurations and back up to the Instrument Configuration screen. (Figure 7)

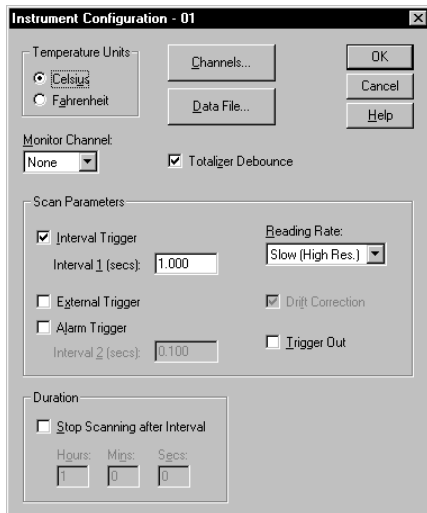


Figure 7.

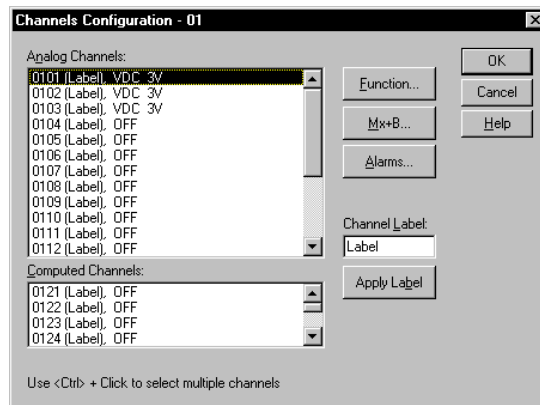


Figure 8.

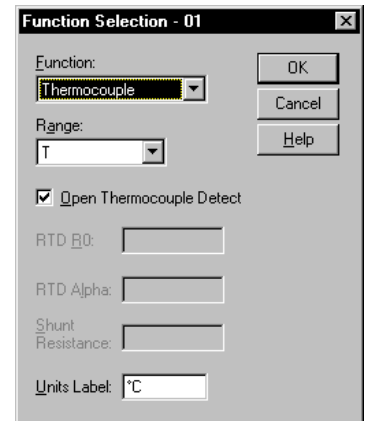


Figure 9.

10

Select a Data File

1. Click on the Data File button on the Instrument Configuration window. This will move you to the Data File Configuration screen as shown in figure 10.
2. Enable data file recording with the Trend Link file format.
3. Click on Select Data File.
4. Enter sim.set in the File Name window.
5. Click OK on each window until you have returned to the main window.

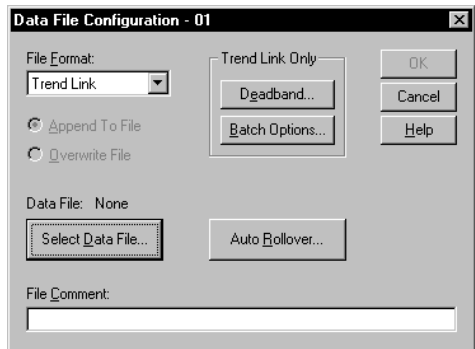


Figure 10.

11

Save a Setup File

1. Select "Save Setup As" from the Setup menu.
2. Enter setup06.stp in the File Name Box as shown in figure 11.
3. Click Save.

(TO SIMULATE HARDWARE: Select "Logging" from the main menu then select "Simulate Logging on start")

12

Start Instrument Logging Session and Open Trend Link

1. Click on the Start Instrument button on the tool bar. A Logging Status window appears showing the number of scans received.
2. Select Show Trend Link from the Plot/Trend menu (or click on the Chart button).
3. Maximize the Trend Link window.

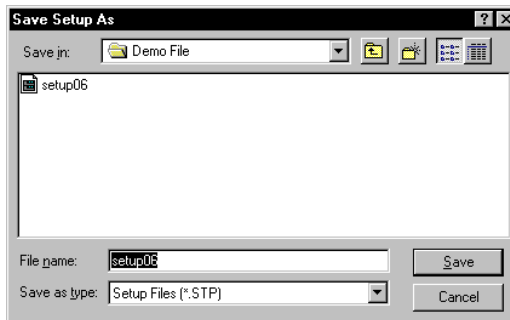


Figure 11.

13

Review Trend Plot Values

1. Allow a few moments for the traces to move into view and then Click and hold the mouse button with the mouse pointer over the trace in the window (a vertical cursor line will appear in the window).
2. Move the mouse right or left while holding the mouse button to view the value where the cursor intersects the trace. The time each measurement was recorded is displayed at the top of the cursor. (Figure 12)

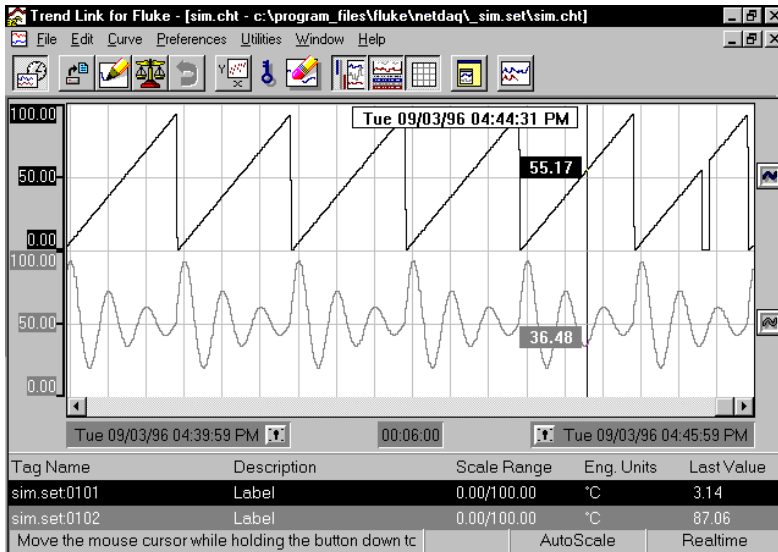


Figure 12.

14

Change Time Frame of Plot Window

1. Double-click on the small centered rectangular window toward the bottom of the window that has the time format in it displayed as: [hh:mm:ss].
2. Insert 2 min. (00:02:00) in the Change Time dialog box (Figure 13) then close the box by clicking OK. The total time frame you are looking at from the left to right edges of the chart is about 2 minutes.

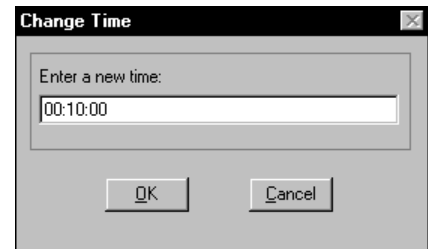


Figure 13.

15

Review Channel Trend Statistics

1. Double-click on one of the small chart icons to the right of the chart. A dialog box similar to that shown in Figure 14 will appear.
2. Click on statistics to review information regarding your selected trace (Figure 15).
3. Click OK to return to the curve information screen.
4. Click OK to return to the Trend Link main window.

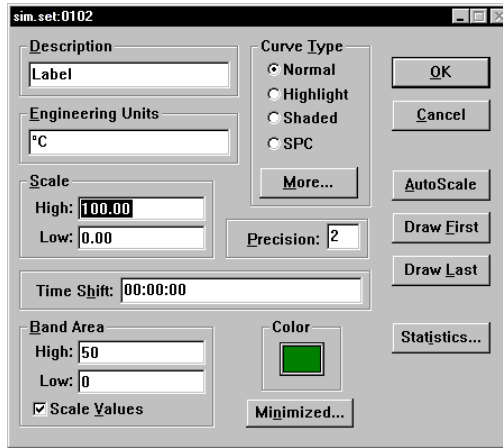


Figure 14.

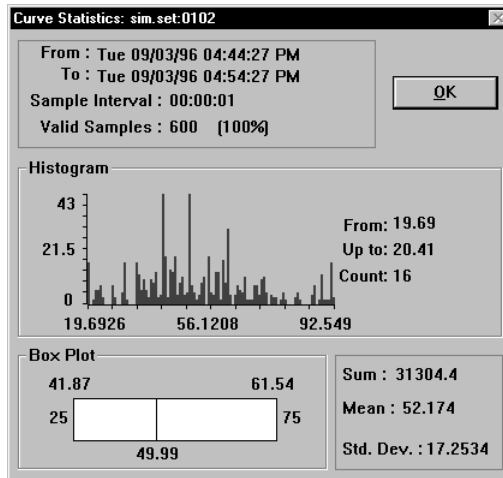


Figure 15.

16

Superimpose Two Traces

1. Click and hold a numeric scale (on the left side of the chart) and drag this scale over another numeric scale on the chart.
2. Release the mouse button.
3. Note the two traces are now overlaid on the chart and matched in time as shown in Figure 16.

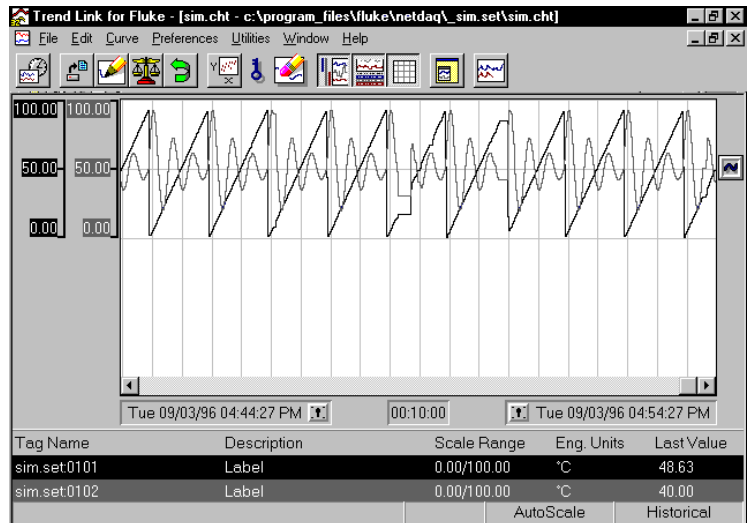


Figure 16.

17

Zoom in on the Data

1. Double-click the mouse to the left of a selected part of the data on your chart. A dashed line will appear.
2. Move your mouse to the right and double-click the mouse again. You will zoom in on the data between the two places you double clicked. You are now in historical mode (Figure 17).
3. Notice that the time in the time span box has changed and reflects a new chart edge-to-edge time frame.
4. Click on the undo icon. It's the green arrow located on the tool bar.
5. Notice that your time span changes back to your original time frame.

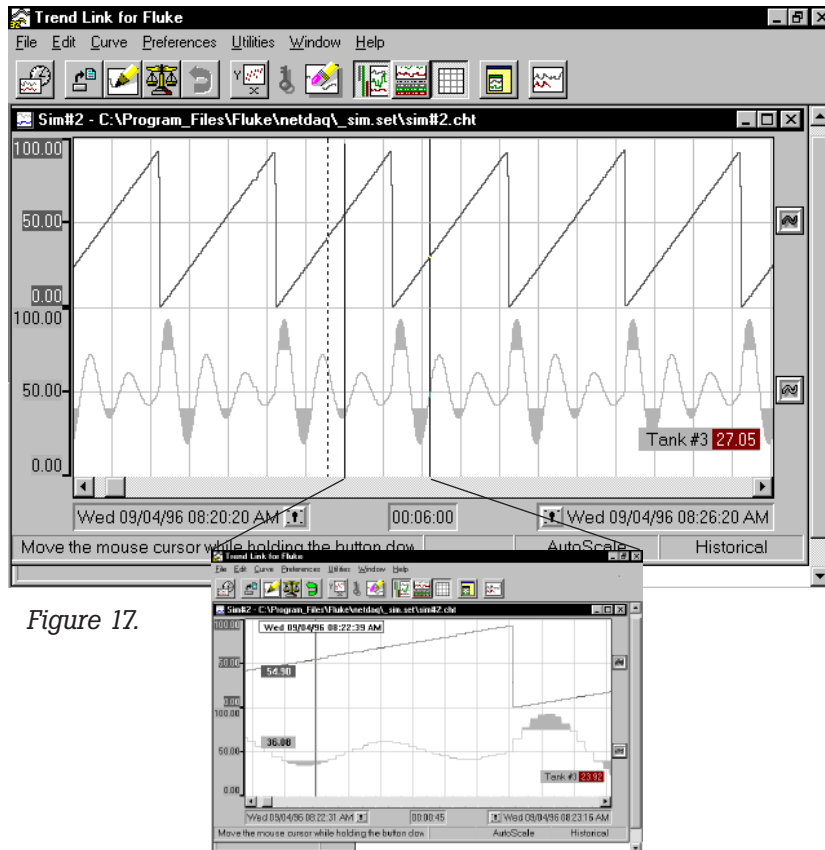


Figure 17.

18

Exit Trend Link and Hydra Logger or NetDAQ Logger Programs

1. Select Close from the File menu on Trend Link's main window.
2. Select NO in the "Save chart before proceeding?" dialog box. You will now switch to the main window of either Hydra Logger or NetDAQ Logger.
3. Stop the instrument from the Logging menu.
4. Select Exit Application from the Setup menu.
5. Select NO in the Save Changes dialog box.

Summary

This Demonstration Guide gave you a brief overview of NetDAQ Logger or Hydra Logger and Trend Link for Fluke as well as some hands on experience with hardware.

Now that you have finished the step-by-step portion of this demonstration guide you may wish to explore some of the many features within these programs. Feel free to roam through the program using the intuitive menu system and tool bar buttons available to you. There is extensive on line Help available from the main menu bar.

Thank you for your time and interest in our products.

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