Hydra Logger

Users Manual

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Chapter 1
Overview

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Introduction 1-1.

Hydra Logger is a software package for configuring and controlling the Fluke Hydra-series 2620A Data Acquisition Unit, 2625A Data Logger, and 2635A Data Bucket™ data acquisition tools. Hydra Logger runs on 16-bit and 32-bit Microsoft Windows operating systems. The host computer and the Hydra instrument can be interconnected either directly via a serial port (Figure 1-1) or via a modem (Figure 1-2).

Hydra Logger operates one or two instruments, simultaneously or individually, in any mix of 2620A, 2625A, and 2635A models.

You can order Hydra Logger with or without the Trend Link for Fluke trending software package. Trend Link for Fluke is also available as a separate option. (See "Options and Accessories" later in this chapter.)

Host Computer Requirements 1-2.

The host computer must meet the following minimum requirements:

- **System** IBM PC (host computer) compatible with an Intel 386 microprocessor or greater.
- **Hard Disk Drive** Hard disk drive with at least 4 MB of free space.
- **Floppy Disk Drive** 1.44 MB (3 ½-inch) floppy disk drive.
- **Monitor** Any monitor supported by Windows (a color monitor is preferred).
- **Operating System** Microsoft Windows version 3.1 or later, Windows 95, or Windows NT.

Although optional, a mouse or other type of pointing device facilitates operation.

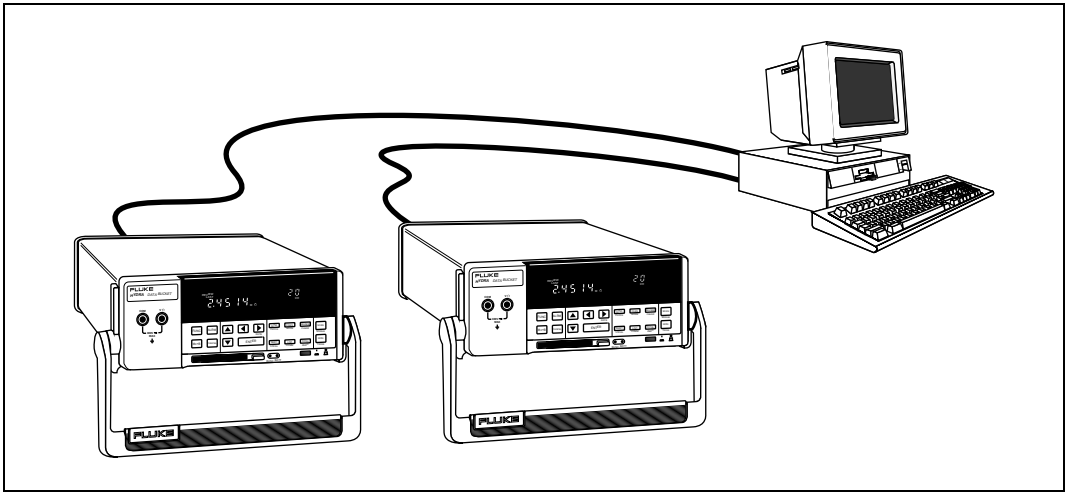

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Figure 1-1. Direct Connection Data Acquisition System

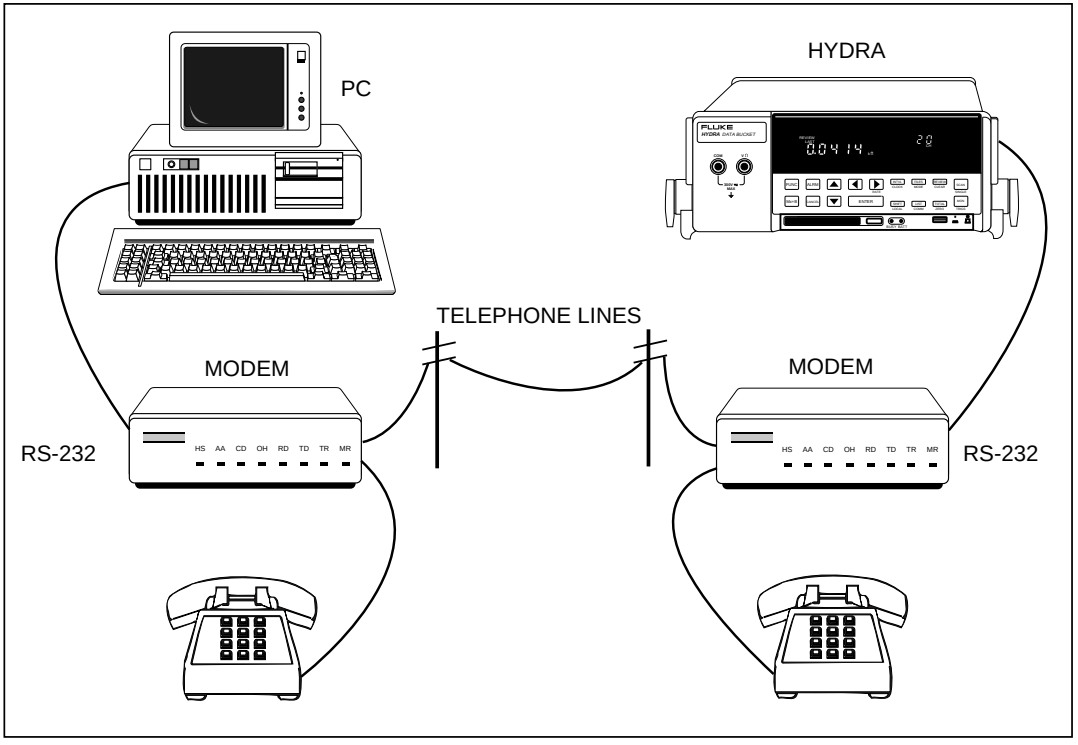

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Figure 1-2. Modem Connection Data Acquisition System

Hydra Requirements 1-3.

Hydra Logger is compatible with the following Hydra instruments:

- **2620A Data Acquisition Unit** running software version 5.5 or higher.
- **2625A Data Logger** running software version 5.5 or higher.
- **2635A Data Bucket** running any software version.

To determine the software version of the instrument, press the front panel left and right arrow keys simultaneously. The software version (larger number) appears in the front panel display. Press CANCEL to clear the display. If the software version of the 2620A or 2625A is lower than 5.5, contact a Fluke Service Center for a software upgrade.

Specifications 1-4.

You can find specifications for the Hydra instruments in one of the following manuals:

- *Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual* (Part Number 885988)
- *Hydra 2635A Data Bucket Users Manual* (Part Number 931894)

Using Hydra Logger Software 1-5.

The Hydra Logger software package provides an operating environment for the Hydra instruments. It builds an instrument and configuration database, transfers the configuration to the instrument, acquires data from the instrument, and manages the acquired data. When started, Hydra Logger opens to the Main Window (Figure 1-3), which is the central screen for instrument configuration and operation.

Hydra Logger comes in two configurations: 2635A-901 does not include the Trend Link for Fluke trending utility; 2635A-902 includes the Trend Link for Fluke utility. The Hydra Logger portion is identical for either package. You can add the Trend Link for Fluke utility later by purchasing option 2600A-904. (See “Options and Accessories.”)

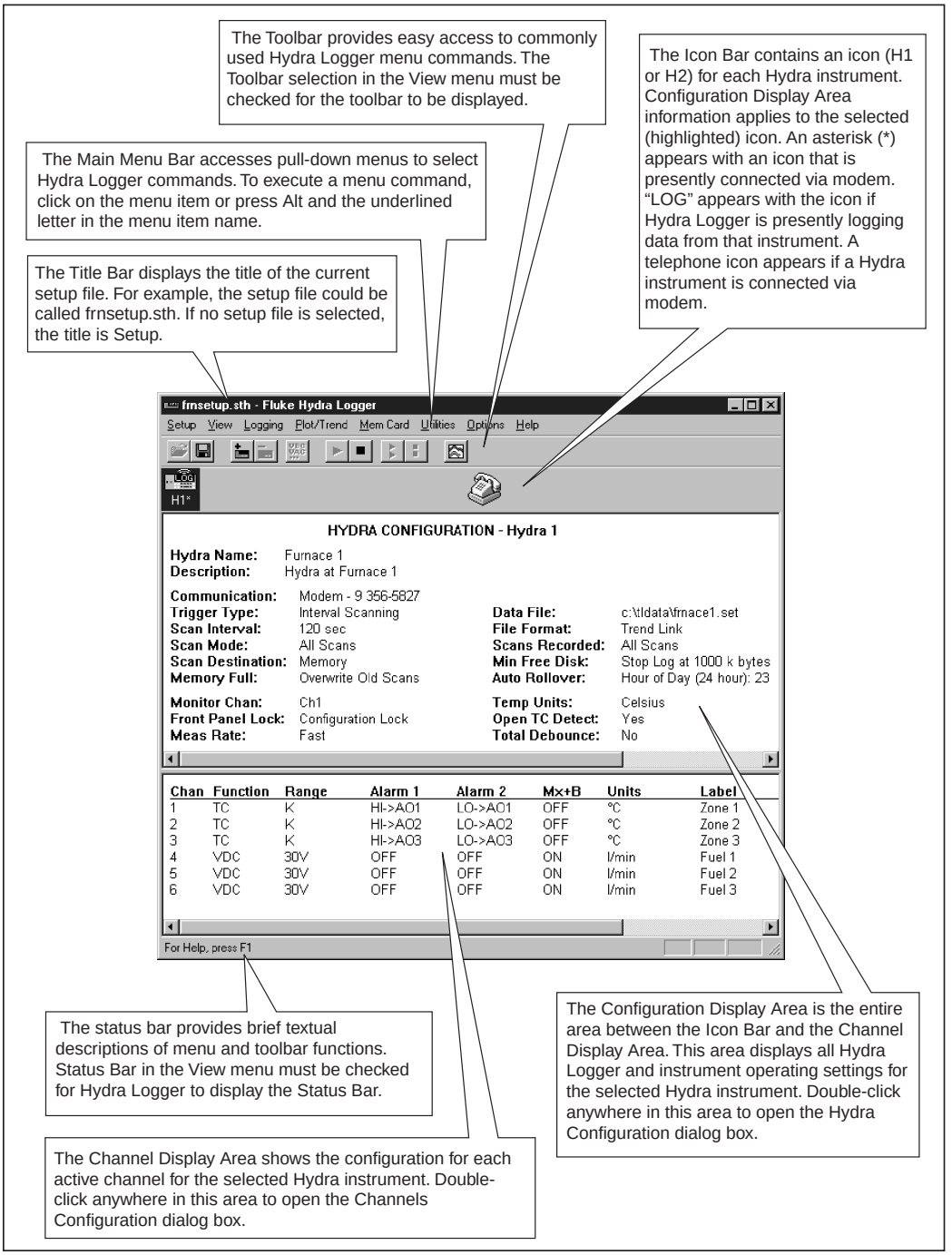

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Figure 1-3. Typical Main Window

The major features of Hydra Logger include:

- **Direct Connection of Multiple Instruments.** Supports one or two Hydras in simultaneous operation via two host computer COM ports.
- **Modem Connection.** Connects one remote Hydra to the host computer with modems.
- **Ease of Use.** Provides fast and easy configuration and operation using menus and windows.
- **Online Help.** Extensive online help provides instantaneous answers to any setup or operating question.
- **Multiple Data Files.** Logs scan records to separate data files for each Hydra.
- **Data Bucket Memory Card File Management.** Supports management of files on 2635A Data Bucket memory cards, including data file conversion, file delete, configuration file transfer, memory card status and formatting.
- **Data Logger Scan Memory Upload.** Supports upload and conversion of 2625A Data Logger and 2635A Data Bucket scan memory data.
- **Links Windows Applications.** Supports Dynamic Data Exchange (DDE) for linking Hydra Logger measurement data with other Windows applications such as spreadsheets.
- **Quick Plot.** Displays a plot with up to eight measurement channels from either Hydra, including a tabular listing of readings below the plot.
- **Trend Link Plot (optional).** Views and analyzes real-time and historical trend data using the optional Trend Link for Fluke package. Compares data from multiple sources, performs simple Statistical Process Control (SPC) calculations on selected portions of the data, annotates data, highlights curve limits, zooms in on data of interest, and exports data to a spreadsheet or other analysis application such as MathCAD.

Table 1-1 shows a summary of Hydra Logger setup parameters.

Setup Files *1-6.*

Setup files contain the data for a complete Hydra Logger configuration for the Hydra instruments on the Icon Bar. The configuration is saved as a setup file, for example, `setup12.sth`. Instrument configurations are loaded from `setup12.sth` when you open it in subsequent operations. You can also direct Hydra Logger to open a specific setup file on startup. The Hydra Logger main window displays instrument settings, and Hydra Logger lets you print the main window information to a text file for documentation purposes.

Table 1-1. Summary of Setup Parameters

Setup Parameter	Description
Instrument Setup	Measurement Rate (Slow, Fast)
	Temperature Units (Celsius, Fahrenheit)
	Scan Trigger (Interval, External, Monitor Alarm)
	Scan Interval (0 to 38439 seconds)
	Scan Destination (instrument memory, printer, memory card)
	Monitor Channel (displayed on instrument front panel)
	Front Panel Lock (Review, Monitor, Configuration, Disable)
	Open Thermocouple Detect (Enable/Disable)
	Totalizer Debounce (Enable/Disable)
	Instrument Name (59 characters)
	Instrument Description (79 characters)
Analog Channels Setup	Function (AC Volts, Resistance, etc.)
	Range (for selected function)
	Two- or Four-Wire Connections (Ohms and RTDs functions)
	RTD R0 (DIN 385)
	Current Resistance Shunt Value (dc amperes function)
	Mx+B Scaling (M, B)
	Alarms (one or two, high, or low, and alarm value)
	Digital I/O (associate with each Alarm)
	Units Label (identify measurement units)
	Channel Label (identify channel)
Data Retrieval	Data File Recording (enable/disable)
	Data File Name (e.g., `testdata.csv`)
	Data File Comment String (69 characters maximum)
	Data File Record Conditions (append or overwrite)
	File Format (ASCII, Trend Link)
	File Rollover (file size, time interval, time of day)
	Batch Name (27 characters)
	Batch Definition (entire session, DIO, interval)
Communication Setup	Type (direct, modem)
	Com (port, baud rate, parity)
	Modem (phone number, TAPI line)
Quick Plot Setup	8 Channels (any configured channel)
	Time Span (hours, minutes, or seconds)
	Scale Maximum and Minimum

Data Files 1-7.

Data files contain the measurement data acquired by the instruments and retrieved by Hydra Logger. The instrument completes an individual measurement scan and then stores the data temporarily in the instrument internal memory. Hydra Logger checks the instrument internal memory; when scan data is present, the data is retrieved by the host computer over the serial interface and recorded into a data file. There are two data file recording formats: ASCII and Trend Link.

- **ASCII**: The ASCII (CSV) data file format stores the data in ASCII characters and is directly compatible with analysis applications like Excel and Lotus 1,2,3.
- **Trend Link**: You must use the Trend Link data file format to use the real-time trending capability offered by the Trend Link plotting package.

Memory Card Files 1-8.

The 2635A Data Bucket can record scans in a file on a PCMCIA memory card. Hydra Logger allows you to convert these files to ASCII or Trend Link format data files.

Logging and Scanning 1-9.

Data being scanned by the Hydra instrument can be retrieved and logged to a data file and/or a plot by the Hydra Logger software. The Hydra Logger commands used to start and stop logging also control instrument scanning. Hydra Logger provides additional commands (in the Utilities menu) to control instrument scanning independently, without data retrieval and logging.

When controlling a Hydra model 2625A or 2635A, Hydra Logger continuously retrieves one or more scans (as available) from the instrument's internal scan memory. Scans are deleted from instrument memory as they are retrieved. The 2625A stores up to 2047 scans and the 2635A stores up to 100 scans. Since the 2620A does not have scan memory, Hydra Logger continuously retrieves the most recent scan (as available) from that instrument.

Starting and Stopping Logging 1-10.

Hydra Logger allows you to start or stop logging for one instrument or both instruments with a single command. By default, Hydra Logger retrieves and logs actual measurements (scans) from the instruments. To test your Hydra Logger setup without an instrument, select Logging | Simulate Logging on Start; Hydra Logger will then log simulated data.

Triggering and Scanning 1-11.

Hydra Logger enables and disables instrument scanning when you execute the respective Start Hydra and Stop Hydra commands from the Toolbar in the Main Window or from the Logging menu.

Once scanning is enabled, the Hydra instrument takes a scan whenever it detects an enabled trigger event. The three trigger types are Interval Trigger, External Trigger, and Monitor Alarm Trigger. The trigger types and their combinations are as follows:

- **Interval.** The instrument sets an internal timer to the specified Scan Interval and performs a scan every time the timer expires.
- **External.** When its External Trigger Input goes low, the instrument performs a scan and sets an internal timer to the specified Scan Interval. As long as the trigger input remains low, the instrument performs a scan every time the timer expires.
- **Monitor Alarm.** The instrument performs a scan after every monitor measurement that is in alarm.
- **Interval + External.** While interval triggering is occurring, an external source connected to the instrument's External Trigger Input can trigger an additional single scan. If a scan is in progress when the external trigger occurs, the request is ignored.
- **Interval + Monitor Alarm.** While interval triggering is occurring, an additional single scan occurs after every monitor measurement that is in alarm. If a scan is in progress when the monitor alarm condition is detected, no additional scan occurs.

Starting and Stopping Scanning 1-12.

The Utilities | Start Hydra Scanning command starts scanning and monitoring in the selected Hydra instrument. It does not start data retrieval by Hydra Logger.

The Utilities | Stop Hydra Scanning command stops scanning and monitoring in the selected Hydra instrument.

Channel Monitoring 1-13.

Hydra Logger allows you to select a channel to be monitored on the Hydra front panel display during scanning.

Mx+B Scaling *1-14.*

Mx+B scaling multiplies a measurement by a multiplier M and then offsets it by an offset B. For example, Mx+B scaling of 100x+50 applied to an instrument measurement of 1.15 would result in a reading of 100(1.15)+50=165. Mx+B scaling is typically used to calibrate a sensor or transducer to provide for display and recording in engineering units.

Alarms *1-15.*

Two alarms, Alarm 1 and Alarm 2, can be set for any configured channel. A channel is in alarm when a measurement falls below a low alarm value or rises above a high alarm value. The instrument reports alarm status with each scan, and alarms can be used to set a Digital I/O line to a logic low. An alarm on the monitor channel can be used to trigger scans. The Digital I/O status can also be shown on the Quick Plot. If Mx+B scaling is applied to the channel, alarms are based on the scaled values.

Digital I/O *1-16.*

The status of the Hydra Digital I/O lines is reported as part of the scan record and expressed as the decimal equivalent of the eight binary bits. For example, 11111111 (DIO7 to DIO0) is reported as decimal 255; 00001111 is reported as decimal 15; and so forth. The Digital I/O status can also be shown on the Quick Plot. The digital I/O connections are made at the Hydra rear-panel DIGITAL I/O connector.

Totalizer Channel *1-17.*

The status of the Hydra Totalizer is reported as part of the scan record and has a maximum count of 65,535. The Totalizer status can also be shown on a Quick Plot. The instrument continuously samples the totalizer input independently from instrument scanning and other activities. If the Totalizer overflows (maximum count is reached), the Hydra display briefly shows OL (overload) and then begins counting from zero again. The connections for the totalizer channel line are at the Hydra rear panel DIGITAL I/O connector, terminals Σ and GND.

Using the Menus 1-18.

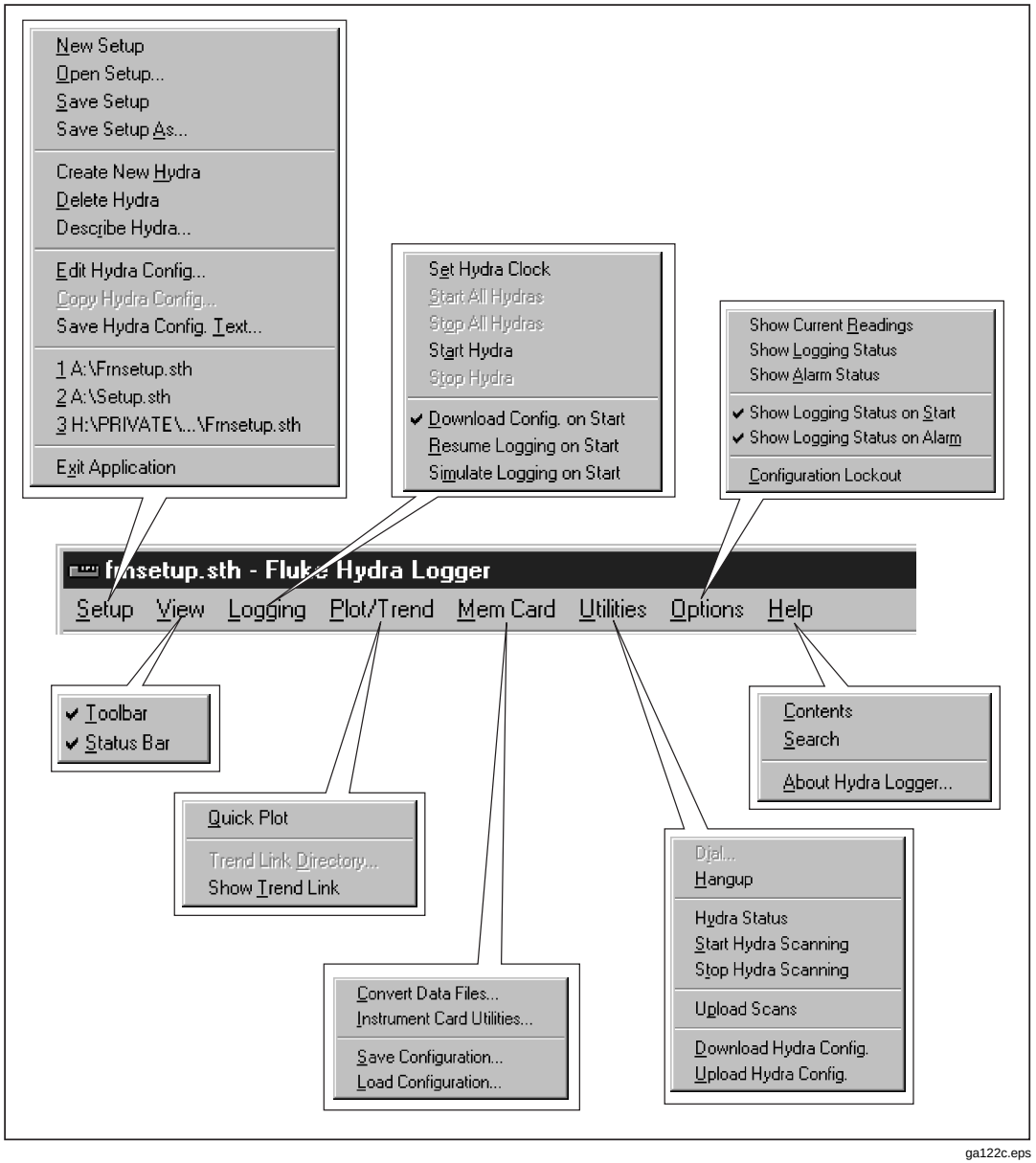

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Figure 1-4. Menu Selections

Setup Menu *1-19.*

The Setup menu provides commands for configuring Hydra Logger and Hydra instruments and for managing setup files. The following functions are available:

- **New Setup.** Creates a new setup with default settings.
- **Open Setup** Loads the overall setup from a selected setup file.
- **Save Setup.** Saves the current overall setup into the opened setup file.
- **Save Setup As.** Saves the current overall Hydra Logger setup to a selected file.
- **Create New Hydra.** Adds a new Hydra icon with a default configuration.
- **Delete Hydra.** Deletes the selected Hydra icon and its configuration.
- **Describe Hydra.** Enters a name and description for the selected Hydra.
- **Edit Hydra Config.** Opens the Hydra Configuration dialog box, allowing changes to the configuration parameters of the selected Hydra.
- **Copy Hydra Config.** Copies the configuration of one Hydra to the other.
- **Save Hydra Config. Text.** Opens a dialog box for saving the Hydra configuration to a text file for documentation purposes.
- **Recent File.** This area of the Setup menu contains a list of the most recently opened Setup files. You can open one of these files by selecting its name directly from this list.
- **Exit Application.** Exits Hydra Logger and the associated Trend Link Plot if it is active.

View Menu *1-20.*

Click on a selection to activate (check mark on) or deactivate (check mark off.)

- **Toolbar.** Shows or hides the Toolbar, which provides shortcuts to commonly used menu selections.
- **Status Bar.** Shows or hides the status bar, which provides brief descriptions of menu selections and toolbar buttons.

Logging Menu 1-21.

The Logging menu contains selections for starting and stopping logging activity, and for specifying how to start logging. During logging, the Hydra instrument records scan data to its internal scan memory, and Hydra Logger continuously retrieves that data. (With the 2620A, which has no internal scan memory, Hydra Logger continuously retrieves the most recent scan.)

The following commands are available under the Logging menu:

- **Set Hydra Clock.** Sets Hydra instrument to the date and time of the host computer.
- **Start All Hydras.** Initiates data retrieval from all Hydra instruments not already in data retrieval mode.
- **Stop All Hydras.** Stops data retrieval from all Hydra instruments in data retrieval mode.
- **Start Hydra.** Initiates data retrieval from the selected Hydra instrument.
- **Stop Hydra.** Stops data retrieval from the selected Hydra instrument.
- **Download Config. on Start.** Downloads the Hydra configuration to each Hydra when logging or scanning is started.
- **Resume Logging on Start.** The Hydra configuration is uploaded from each Hydra when logging or scanning is started.
- **Simulate Logging on Start.** Data associated with each Hydra comes from a simulated source when the Start Hydra or Start All Hydras command is selected.

Plot/Trend Menu 1-22.

The Plot/Trend menu creates and shows Trend Link and Quick Plots. The following selections are available:

- **Quick Plot.** Starts up a graphical indication of scanning data for up to 8 channels from either Hydra.
- **Trend Link Directory.** Enters the path to the directory where the Trend Link application is stored.
- **Show Trend Link.** Opens the Trend Link window with the chart for the selected Hydra.

Mem Card Menu *1-23.*

The Mem Card menu provides housekeeping tools for files stored on a memory card in the Hydra instrument or in the host computer. The following functions are available:

- **Convert Data Files.** Converts a memory card data file to ASCII (CSV) or Trend Link format and saves the converted file on the host computer.
- **Instrument Card Utilities.** Views a list of the files stored on the memory card in the instrument, deletes files from the card in the instrument, or formats a memory card in the instrument.
- **Save Configuration.** Saves the configuration of the selected Hydra to a memory card file in the instrument or to any storage device on the host computer.
- **Load Configuration.** Loads a Hydra configuration from a memory card file into Logger for the selected Hydra. You can load a configuration from a memory card in the instrument or from any storage device in the host computer.

Utilities Menu *1-24.*

The Utilities menu allows you to control modem connections and Hydra instrument scanning, upload data from the instrument scan memory, and download or upload the Hydra configuration.

The following functions are available:

- **Dial.** Initiates modem connection with the Hydra instrument by dialing the phone number shown in the Dial dialog box.
- **Hangup.** Closes a modem connection. You must use this command (or exit the Hydra Logger application) to explicitly hang up; Hydra Logger operations requiring modem connection do not hang up automatically upon completion.
- **Hydra Status.** Displays the scanning status of the selected Hydra instrument.
- **Start Hydra Scanning.** Starts scanning and monitoring in the selected Hydra instrument (but not data retrieval by Hydra Logger.)
- **Stop Hydra Scanning.** Stops scanning and monitoring in the Hydra instrument selected on the Hydra Icon Bar.

- **Upload Scans.** Transfers scan records stored in the instrument scan memory and stores them as an ASCII or Trend Link file in the host computer.
- **Download Hydra Config.** Downloads the configuration settings for the selected Hydra from Hydra Logger to the Hydra instrument.
- **Upload Hydra Config.** Uploads the configuration settings from the selected Hydra instrument to Hydra Logger.

Options Menu *1-25.*

The Options menu allows you to monitor measurements and status during logging. Options also contains a lockout selection that prevents undesired access to configuration commands in the Setup menu. The following functions are available:

- **Show Current Readings.** Displays a table of readings from all 21 channels, the digital and alarm outputs, and the totalizer count for the selected Hydra.
- **Show Logging Status.** Displays the logging status of each Hydra.
- **Show Alarm Status.** Displays the alarm status of each Hydra.
- **Show Logging Status on Start.** The Logging Status window appears automatically when the Start Hydra or Start All Hydras command is performed.
- **Show Alarm Status on Alarm.** The Alarm Status window appears automatically when a channel transitions into the alarm state.
- **Configuration Lockout** Disables the following Setup menu items and toolbar functions: New Setup, Open Setup, Create New Hydra, Delete Hydra, Describe Hydra, Edit Hydra Config, and Copy Hydra Config.

Help Menu *1-26.*

For more information on the Help system, select one of the following topics:

- **Contents.** Displays a list of items in the help system.
- **Search.** Searches for a help item.
- **About Hydra Logger.** Shows the current version number and copyright information about Hydra Logger.

Using Toolbar Buttons *1-27.*

The Toolbar (shown below) appears below the Menu bar. It offers shortcuts to common menu selections, as described in Table 1-2.

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Table 1-2. Toolbar Buttons

Button	Menu Equivalent and Description
	Setup | Open Setup... Loads the overall Hydra Logger setup from a selected setup file.
	Setup | Save Setup Saves the current overall Hydra Logger setup into the setup file last loaded from or saved to.
	Setup | Create New Hydra Adds a new Hydra icon to the Hydra Icon Bar. The default configuration is used.
	Setup | Delete Hydra Deletes the selected Hydra from the Hydra Icon Bar.
	Setup | Edit Hydra Config... Opens the Hydra Configuration dialog box, allowing changes to the configuration parameters of the selected Hydra.
	Logging | Start Hydra Initiates data retrieval from the selected Hydra instrument.
	Logging | Stop Hydra Stops data retrieval from the selected Hydra instrument.
	Logging | Start All Hydras Initiates data retrieval from all Hydra instruments not already in data retrieval mode.
	Logging | Stop All Hydras Stops data retrieval from all Hydra instruments in data retrieval mode.
	Plot/Trend | Show Trend Link Starts up or makes visible the optional Trend Link application.

Options and Accessories 1-28.

Table 1-3 summarizes the available Models, Options, and Accessories, including measurement transducers, software, connector sets, cables, and components. See the corresponding Hydra instrument Users Manual for additional options and accessories.

Table 1-3. Models, Options, and Accessories

Model	Description
2620A-100	I/O Connector Set Universal Input Module Digital I/O and Alarm Output Connectors
2620A-101	Precision 10Ω Current Shunts (12 ea)
2620A	Hydra Data Acquisition Unit
2625A	Hydra Data Logger
2635A	Hydra Data Bucket
2635A-901	Hydra Logger
2635A-902	Hydra Logger with Trending
26XXA-600	Hydra Portable Battery Pack
2600A-904	Trend Link for Fluke
80i-1010	Clamp-On DC/AC Current Probe
80i-410	Clamp-On DC/AC Current Probe
C40	Hydra Soft Carrying Case
PV350	Pressure/Vacuum Transducer Module
RS40	DB-9 to DB-25 Hydra-to-host-computer null modem RS-232 cable (2m length)
RS41	DB-9 to DB-25 Hydra-to-modem modem RS-232 cable (2m length)
RS42	DB-9 to DB-25 Hydra-to-printer null modem RS-232 cable (2m length)
RS43	DB-9 to DB-9 Hydra-to-host-computer null modem RS-232 cable (2m length)

Hydra Logger Replacement Parts 1-29.

Replacement parts are shown in Table 1-4. To order replacement parts in the USA, call 1-800-526-4731 or contact the nearest Fluke Service Center. Other Hydra Logger models, options, and accessories are listed in Table 1-2.

Table 1-4. Hydra Logger Replacement Parts

Number	Description
106457	*Hydra Logger Users Manual*
944322	*Trend Link for Fluke Reference Manual*

Maintenance 1-30.

Maintenance procedures in this manual are limited to a listing of replacement parts. Refer to the following Hydra manuals for Hydra maintenance information:

- *Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual* (Part Number 885988)
- *Hydra 2635A Data Bucket Users Manual* (Part Number 931894)

A Hydra Service Manual (Part Number 889589) is available for purchase. This Service Manual covers three Hydra instruments: 2620A Data Acquisition Unit, 2625A Data Logger, and 2635A Data Bucket.

Contacting Fluke 1-31.

To locate an authorized service center, visit us on the World Wide Web at www.fluke.com, or call Fluke using the phone numbers listed below:

1-800-44-FLUKE (1-800-443-5853) in U.S.A. and Canada

+31 402-678-200 in Europe

+1-425-356-5500 in other countries

How to Use This Manual 1-31.

This manual has five chapters and five appendixes as described below. Locate and refer to the chapter or appendix of interest.

Chapter 1 - Overview Provides an overview of Hydra Logger.

Chapter 2 - Preparing for Operation Provides step-by-step procedures for installing Hydra Logger, configuring the Hydras for operation, and testing and configuring the data acquisition system.

Chapter 3 - Configuring Hydra Logger Provides procedures for configuring the instruments using Hydra Logger.

Chapter 4 - Using Hydra Logger Provides procedures for operating the instruments using Hydra Logger.

Chapter 5 - Using Trend Link for Fluke Provides common operations for the Trend Link for Fluke software package. Detailed reference information is provided in the *Trend Link for Fluke Reference Manual* (PN 944322).

Appendixes Ancillary information including: ASCII File Format (A), Error Messages (B), Dynamic Data Exchange (DDE) (C), Exception Condition Handling (D), and Adjusting for Daylight Savings Time (E).

Chapter 2
Preparing for Operation

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Introduction 2-1.

Chapter 2 describes how to install the Hydra Logger and Trend Link for Fluke software, and how to set up the host computer and Hydras for operation. Perform the chapter topics in the following sequence:

- Installing Software (Hydra Logger and optionally, Trend Link for Fluke)
- Connecting the Host Computer and Hydras (direct or modem)
- Creating a Hydra Logger Setup File
- Connecting Hydra Analog and Digital Lines

Installing Software 2-2.

Use the following procedure to install Hydra Logger. If your configuration includes the optional Trend Link for Fluke, use the same procedure for installation. The setup program automatically determines whether to install the 32-bit (for Windows 95 and Windows NT) or 16-bit version of the software.

1. Insert Disk 1 and run the setup application (`setup.exe`).
2. After clicking Next to display the second dialog box, select the language of the User Interface. Use Browse if you want to change the destination directory. Click Next.
3. Select or type a name if you want to change the Program Folder name. Click Next.
4. Check the installation parameters. If they are correct, click Next to begin file transfer. If you want to change the parameters, click Back to go to the appropriate screen and make the change. Then click Next until the file transfer begins.

Refer to Appendix E if you are using Hydra Logger to log scans during the transition into or out of Daylight Savings Time (DST).

Connecting the Hydras to the Host Computer 2-3.

The default method for connecting a Hydra instrument to the host computer is via a direct RS-232 connection.

Hydra Logger can control two Hydra instruments, each on a separate COM port. Hydra Logger provides modem support to control a Hydra instrument at some distance from the host computer. Modem support is provided for one instrument at a time and requires Windows 95, Windows NT 4.0, or newer operating system.

Making a Direct Connection 2-4.

Direct connection is the default method for connecting a Hydra instrument to the host computer. A direct connection involves three steps: connecting the Hydra and

the host computer, setting the Hydra instrument communication parameters, and configuring Hydra Logger for direct connection.

Connecting the Hydra via RS-232 *2-5.*

Connect the host computer and Hydras as shown in Figure 2-1. Use the indicated Fluke null-modem cables (see “Options and Accessories” in Chapter 1) or equivalent. For wiring diagrams of null-modem cables (reversed transmit and receive lines), see the *Users Manual* for the 2620A Data Acquisition Unit/2625A Data Logger or the 2635A Data Bucket. The maximum length of a standard RS-232 cable connection is 15 meters (50 feet), although you can use longer cable lengths if the load capacitance measured at a connection point is less than 2500 pF.

If the COM1 and COM2 ports are not available on your host computer, analyze the hardware configuration for alternatives. If COM3 and COM4 are installed on your host computer, use caution because they often share interrupts with COM1 and COM2 and they may not be suitable for connecting the Hydras. Ensure that the host computer meets the minimum requirements. (See "Host Computer Requirements" in Chapter 1.)

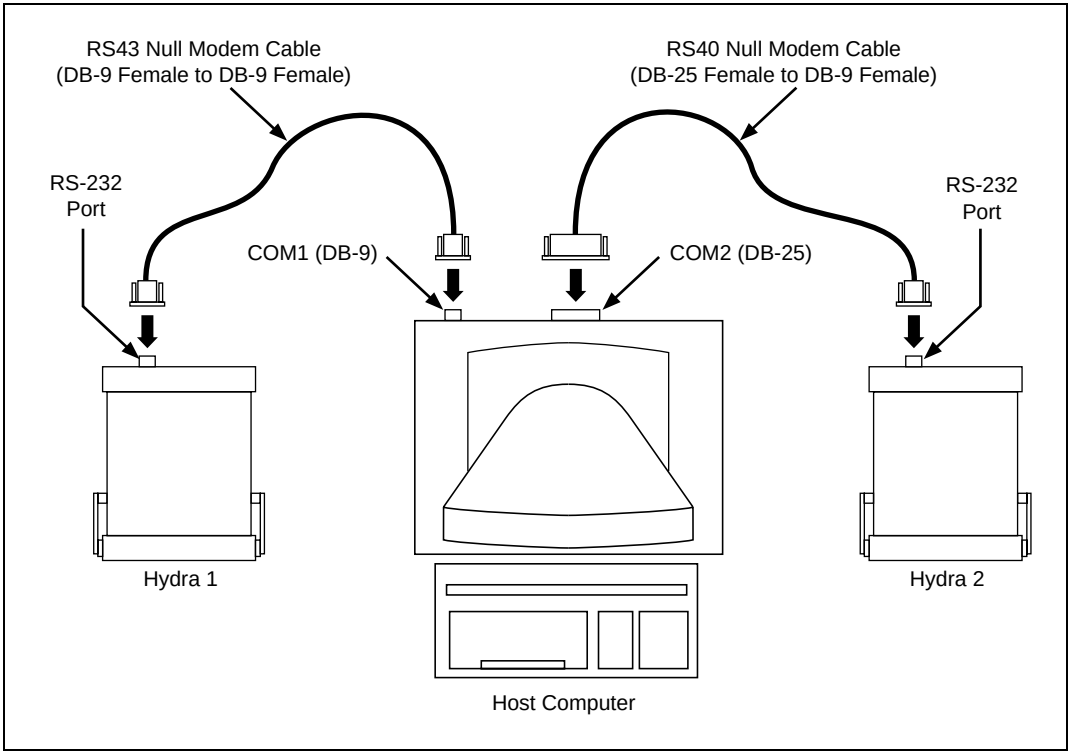

Figure 2-1. Typical Host Computer/Hydra Connections

Setting Hydra Instrument Communication Parameters 2-6.

Power on the Hydra instrument and perform the procedure in Figure 2-2. This procedure sets the RS-232 communication parameters in the Hydra instrument to support the RS-232 serial data communications link. This procedure assumes the selection of the default parameters. Perform this procedure for each Hydra.

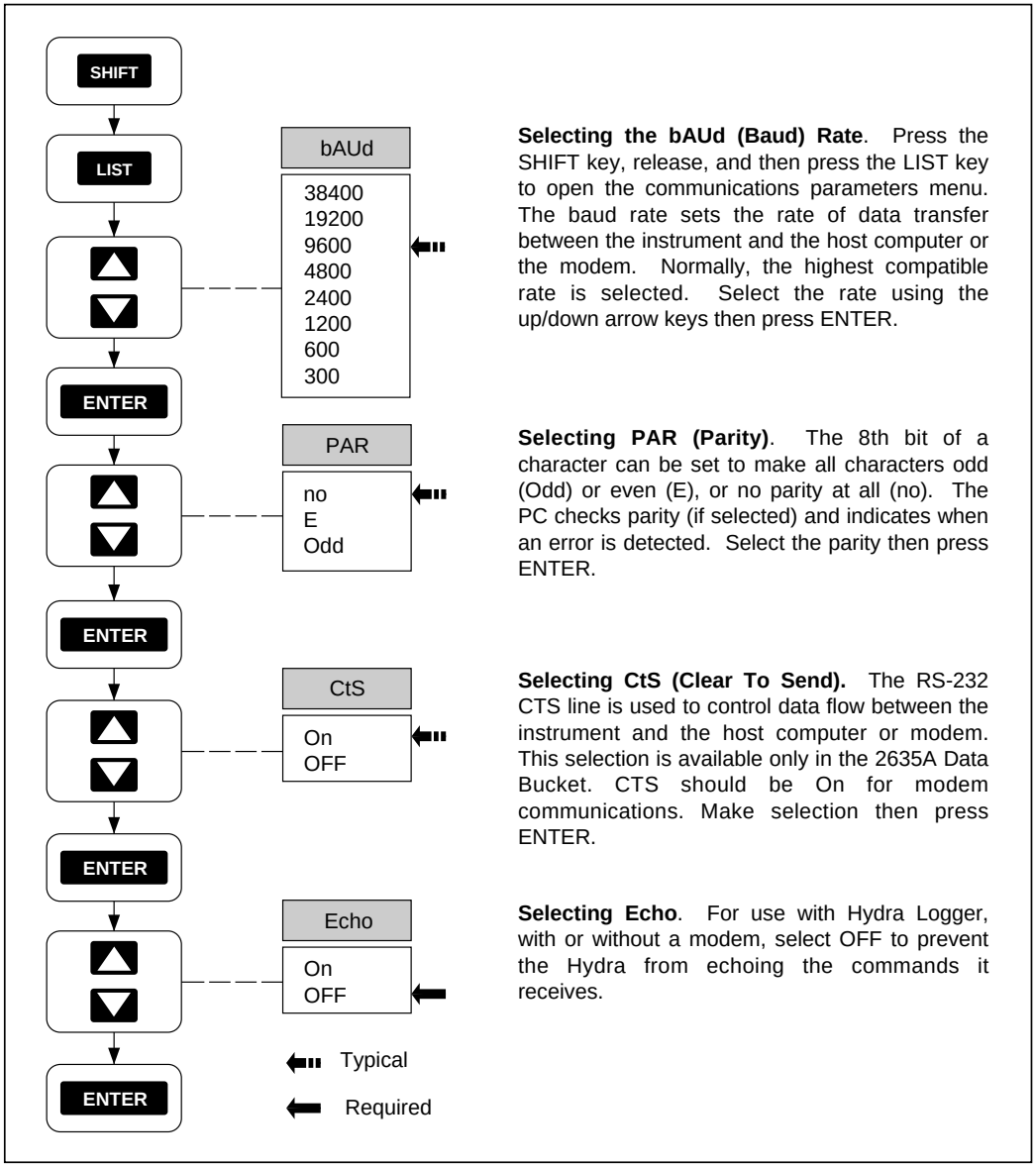

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Figure 2-2. Setting Hydra Communication Parameters

Configuring Hydra Logger For Direct Connection *2-7.*

Use the following procedure to configure Hydra Logger for direct connection:

1. Start the Hydra Logger application. Select the Hydra you want to connect by highlighting the associated icon in the Hydra Icon Bar.
2. Select Setup | Edit Hydra Config... .
3. In the Communication box, select Direct and press the Modify button.
4. Select the RS-232 port to which the Hydra is attached (COM1 or COM2).
5. Set the Baud Rate and Parity to match what is selected in the Hydra instrument.
6. Press the Verify Connection button. If the computer successfully communicates with the Hydra, a Connection Successful message is displayed. If the computer cannot communicate with the Hydra, an error message is displayed. If this should occur, click OK in the message box and read the "Troubleshooting" paragraph below or look up your error message in the online help.

Troubleshooting a Direct Connection *2-8.*

When Verify Connection fails, the resultant message box indicates the problem area. Refer to Table 2-1 or to the online help to resolve your communications problem.

Table 2-1. Direct Connection Troubleshooting

Error Message	Comment	Action
Hydra n: Unable to initialize communications port.	The host computer COM port you selected for the Hydra does not exist.	Check your host computer for its COM port configuration or select a different COM port.
The host computer COM port is not responding.	The host computer COM port is being used by other hardware or application, or by another Hydra.	Check what other applications are running or what hardware is active, and clear the COM port for use with Hydra Logger.
Hydra n: RS-232 Communications Error.	The selections for Baud Rate and Parity in Hydra Logger do not match the selections made in the Hydra instrument.	Check the baud rate and parity selections to resolve the conflict between the Hydra and Hydra Logger software.
The RS-232 parameters for the Hydra and for the Logger software do not match.	The host computer may be running a conflicting application that uses the same COM port.	If using COM3 or COM4, you may have an interrupt conflict with COM1 or COM2. Stop other applications and try to verify communications again to confirm this problem.
	There is a hardware conflict for the COM port (internal modem, serial mouse, etc.).	Resolve the hardware conflict to make the COM port fully available for Hydra operations.
Hydra n: Time-out waiting for Hydra.	The Hydra is unpowered, failed self-test, or the RS-232 cable is disconnected, or the wrong type of cable has been used.	Power the Hydra, look for any self-test errors, and try another connection cable. Be sure the cable is in a null-modem configuration. See the corresponding Hydra users manuals for cable information.
The host computer is unable to make contact with the Hydra.	The host computer RS-232 parameters and Hydra RS-232 parameters do not match.	Check the baud rate and parity selections to resolve the conflict between the Hydra and Hydra Logger software.
	Other applications are running and trying to use the COM port at the same time.	Temporarily use a different COM port to confirm the problem.
	The Hydra is connected to the wrong COM port.	Verify COM port connection at host computer. Connection to COM3 or COM4 may have interrupt conflicts.
Hydra n: Unsupported model or version of Hydra. The Hydra you are using is not supported by Hydra Logger.	The instrument is not a 2620A Data Acquisition Unit or 2625A Data Logger running software version 5.5 or higher, or is not a 2635A Data Bucket running any software version.	Connect the correct model Hydra. To check the instrument software version, press the front panel left and right arrow keys simultaneously. The software version appears as the larger number in the front panel display. Press CANCEL to clear the display. If the software version is lower than 5.5, contact a Fluke Service Center for a software upgrade.

Making a Modem Connection 2-9.

Modem operations allow an RS-232 connection between a remote instrument and the host computer via modems and telephone lines.

Hydra Logger uses the Microsoft Telephony Application Programming Interface (TAPI) to provide modem support on Windows 95, Windows NT 4.0, or newer operating systems. Hydra Logger does not provide modem support on older operating systems.

Windows 95 and Windows NT make it easy to install a modem in the host computer. The Hydra instrument, however, does not control modems. You must set up an external modem for the remote Hydra using your host computer, and then reconnect the modem to the Hydra instrument.

The modem for the remote Hydra will only answer calls; it will never originate calls. You must configure the remote modem to auto-answer (preferably on one ring) and to suppress result codes. You may need to program the baud rate and the type of flow control. Some modems have dip switches to control some of these features. However, you will probably need to send the modem some commands via the host computer RS-232 interface in order to configure it and then save your configuration in the modem's non-volatile memory.

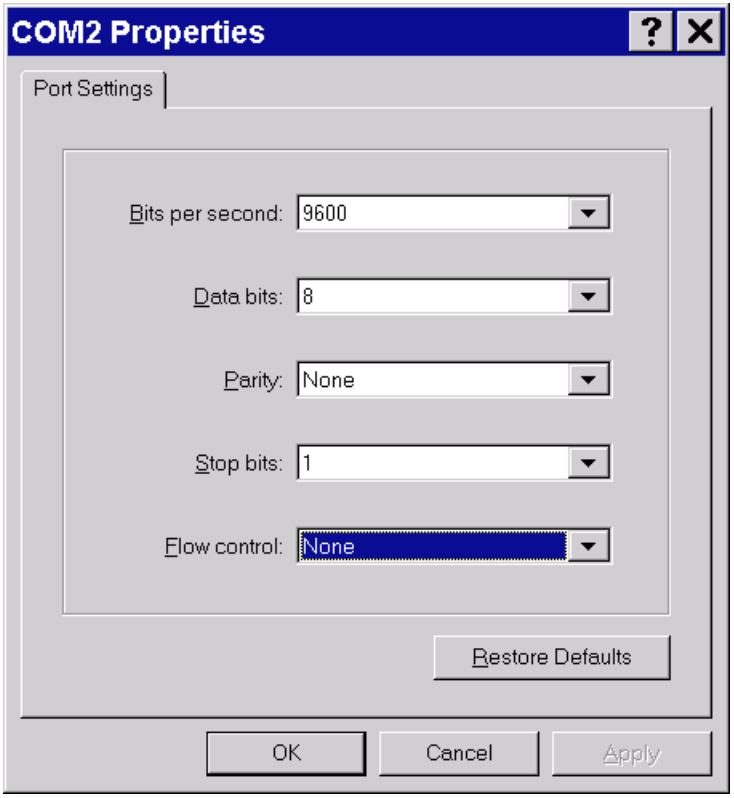
While most modern modems respond to AT (Hayes) commands, each modem has its own set of commands. You must read the manual for your modem to determine which commands and switches need to be set. The modems for the Hydra and the host computer do not have to be identical, although the use of identical modems may improve performance. You do not need to set the baud rate for the transmission between the modems; the modems will negotiate which rate to use. If the modem on your host computer is already working, you do not need to set the baud rate of the RS-232 (serial) port on your host computer. If you want to verify the baud rate, look at Control Panel | Ports | Settings.

Configuring the Remote Modem *2-10.*

The example below uses the HyperTerminal accessory that comes with Windows 95 or Windows NT 4.0. A MultiTech ZDX modem operating at 9600 baud is used for this procedure. You may need to choose different AT commands with other modems.

1. Connect the modem to one of your RS-232 (serial) ports and power it on. A telephone connection is not necessary.
2. Start Programs | Accessories | Hyperterminal.
3. If you have not previously created a connection to this serial port, enter a connection name (e.g., modem on COM2) in the Connection Description dialog box and click OK. (Access this dialog box by selecting File | New Connection.)

4. In the Connect To dialog box, select Connect Using and highlight the COM port being used. In this example, COM2 is being used. Click OK; the COM2 Properties dialog box (below) now appears.



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5. The selections shown above are assumed in this example. (You can click Restore Defaults to get these settings.) Click OK.
6. The HyperTerminal window now opens, allowing you to send configuration commands to the modem.
7. Verify communications by typing: at <enter>. The modem responds with "OK" if communications are working properly.

Note

The AT commands shown in the next few steps are examples only. Your modem will require different commands.

8. Auto Answer: set the modem to answer on the first ring by typing:

   at s0=1 <enter>

   Response: OK

9. Flow Control:

   For the 2620A and 2625A, disable flow control by typing:

   at &e3 <enter>

   Response: OK

   For the 2635A, enable CTS/RTS hardware flow control by typing:

   at &e4 <enter>

   Response: OK

10. Baud Rate: set the baud rate by typing:

    at &sb9600

    Response: OK

    Note

    Some modems do not let you set the baud rate, but will let you fix the rate to the rate currently being used. This is the serial port rate (not the transmission rate.)

11. Result Codes: disable responses that could be misinterpreted by the Hydra by typing:

    at q1 <enter>

    (Note that "OK" and other responses will not appear from this point on.)

12. Finally, save the configuration by typing:

    at &w0 <enter>

Connecting the Local and Remote Modems *2-11.*

Connect the local (host computer) and remote (Hydra) modems as shown in Figures 2-3 and 2-4, respectively. If your host computer has an internal modem and it is already connected to telephone service, your host computer needs no additional connections to communicate with the Hydra instrument.

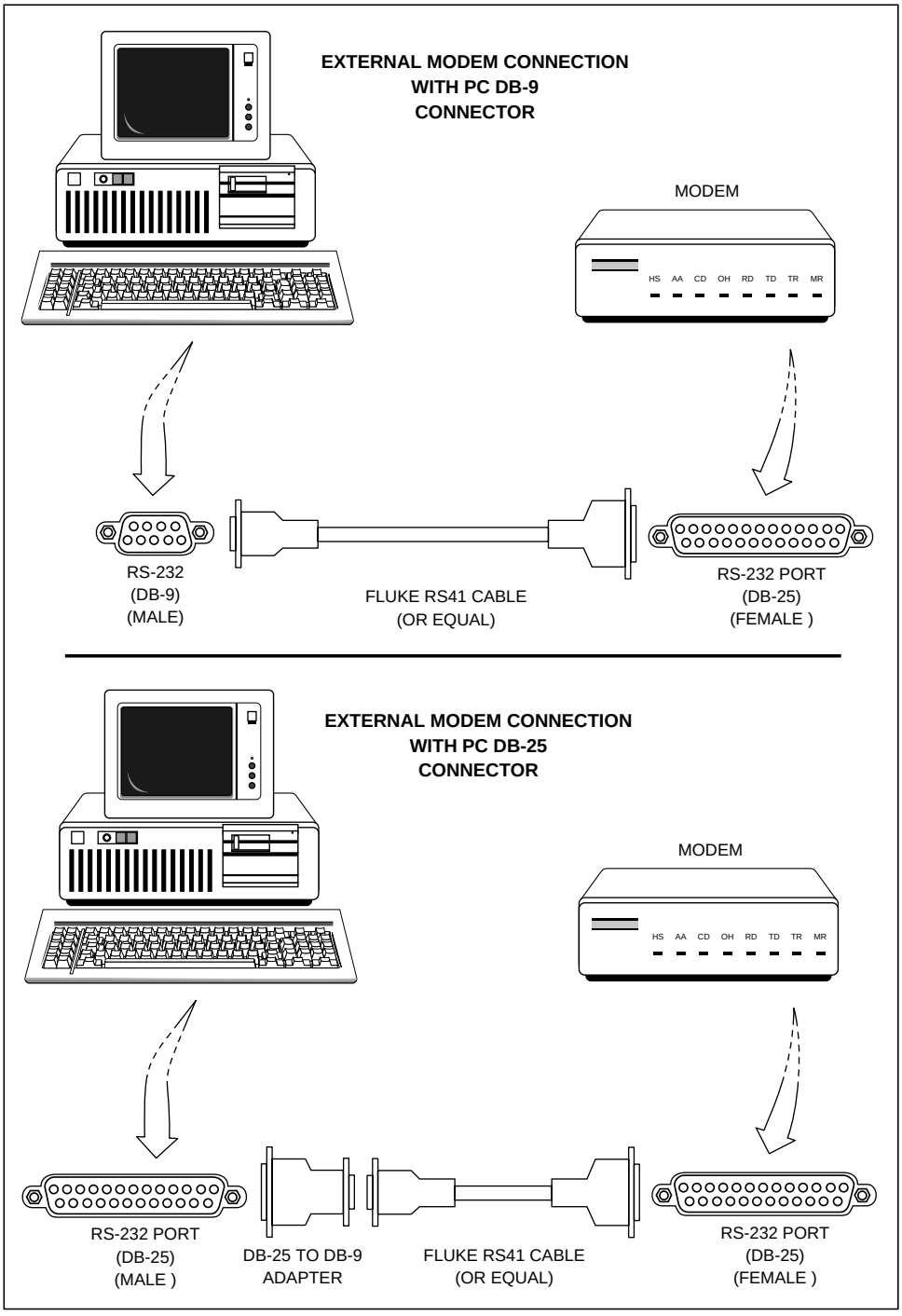

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Figure 2-3. External Modem Connection for Host Computer

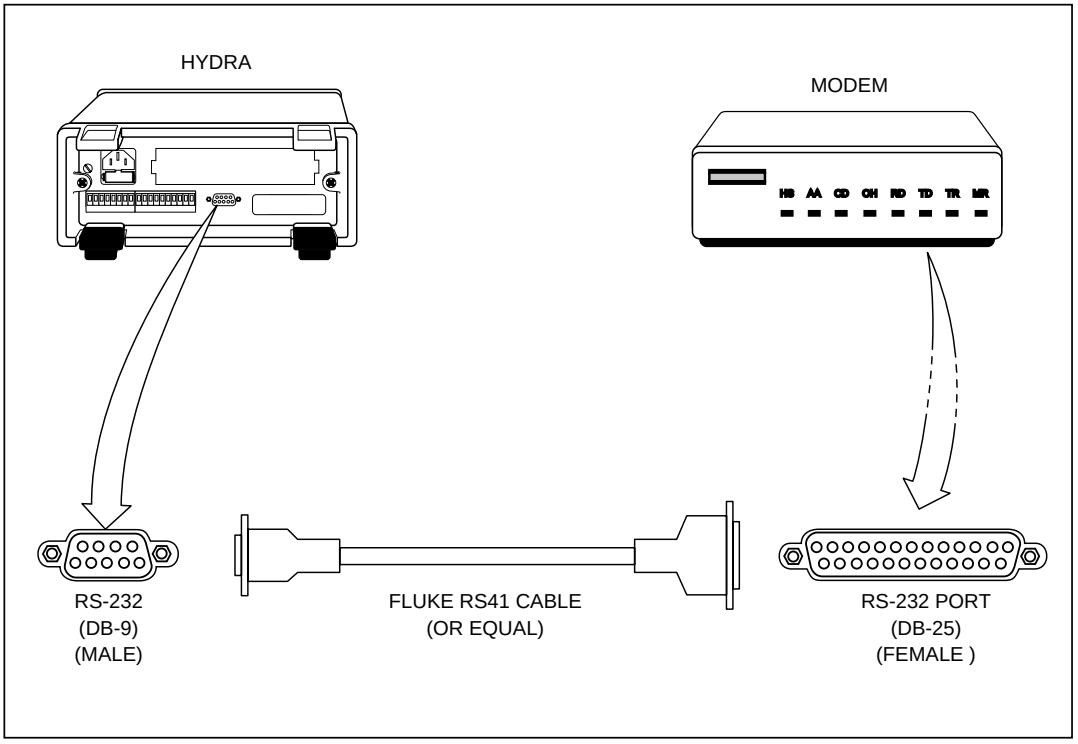

Figure 2-4. Modem Connection for Hydra Instrument

Configuring the Hydra Instrument for Modem Operation 2-12.

Refer to “Setting Hydra Instrument Communication Parameters” and Figure 2-2 earlier in this chapter to set the Hydra communication parameters. (The Hydra instrument behaves the same whether it is connected via modem or directly.) This procedure applies to the 2635A, but can be easily adapted for the 2620A and 2625A. The following differences apply for the 2620A/2625A:

- Higher baud rates (19200 and 38400) are not available.
- The CtS (Clear to Send) selection is not available.

Configuring Hydra Logger for Modem Operation 2-13.

Use the following procedure to configure and test modem communications from Hydra Logger:

1. Start Hydra Logger and select the desired Hydra instrument on the Hydra Icon Bar.
2. Open the Hydra Configuration dialog box (select Setup | Edit Hydra Config.) In the Communication box, select Modem and press the Modify button.

3. Enter the phone number of the Hydra instrument. Refer to "Communication: Modem" in Chapter 3 for more information.

Press the Verify Connection button, then the Dial button. If Hydra Logger successfully communicates with the Hydra, a Connection Successful message is displayed. If Hydra Logger cannot communicate with the Hydra, an error message is displayed.

Troubleshooting a Modem Connection *2-14.*

If the host computer (local modem) cannot communicate with the Hydra (remote modem), make the following general checks:

- Verify correct cabling to each modem (host computer to local modem and Hydra to remote modem.)
- Verify that the host computer and Hydra baud rate and parity settings match.
- Verify that the remote (Hydra) modem configuration has not been lost or corrupted.

If an error message is returned, refer to Appendix B of this manual or the online help for more information.

Note

Press OK when you are ready to continue dialing. *This message appears when special characters ($, W, w, @, ?) are embedded in the phone number and are not handled by the selected TAPI device. This allows for a pause to occur when dialing.*

Creating a Hydra Logger Setup File *2-15.*

After verifying communications, save the communication parameters and Hydra configuration in a setup file by selecting Setup | Save Setup As. In the Save Setup As dialog box, enter the desired setup file name, for example, `setup.sth`. Click OK to save the file.

When you start Hydra Logger in subsequent operations, the setup file that was previously in use opens automatically. If desired, select Setup | Open Setup to open some other setup file.

A setup file saves the instrument configurations for the instruments on the Hydra Icon Bar, including communication parameters, channel configurations, scanning configuration, and so forth.

Connecting Hydra Analog and Digital Lines 2-16.

Connect the measurement inputs, ALARM OUTPUTS, and DIGITAL I/O lines as described in the following Hydra users manuals:

Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual (PN 885988).

Hydra 2635A Data Bucket Users Manual (PN 931894).

Chapter 3
Configuring Hydra Logger

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Hydra Configuration Procedures 3-1.

Chapter 3 describes how to configure the Hydra Logger software.

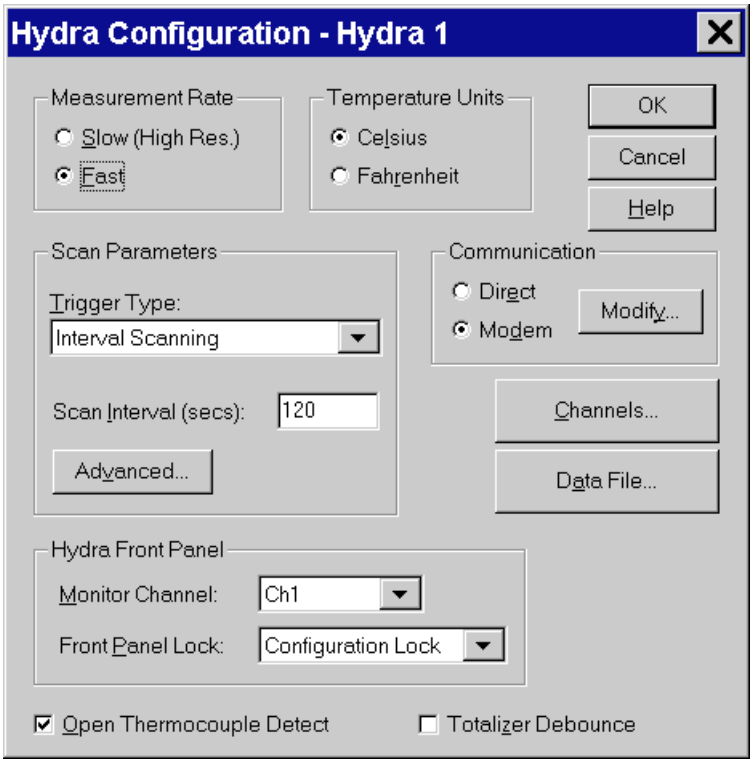
- "Editing Hydra Configuration Data" explains how to edit the Hydra configurations, e.g., scan interval, channel functions, alarms, Mx+B scaling, etc.
- "Copying Configuration Data Between Hydras" explains how to copy a Hydra configuration to the other Hydra.
- "Downloading Configuration Data to a Hydra" explains how to send the Hydra Logger configuration to the Hydra instrument.
- "Uploading Configuration Data from a Hydra" explains how to obtain the Hydra instrument configuration from the Hydra instrument.
- "Printing Configuration Data" explains how to print Hydra configuration data.

Editing Hydra Configuration Data 3-2.

Perform the following procedure to edit a Hydra configuration, which is saved in a setup file. This procedure assumes Hydra Logger has been started and the Main Window is displayed. The parameter descriptions in this procedure are brief. For detailed information, press <F1> or any Help button for Online Help assistance.

1. Select Setup | Open Setup to display the Open Setup dialog box.
2. Choose a setup file, e.g., `setup.sth`, from the File Name list as the destination for the Hydra configuration data. Click OK to return to the Main Window.

   (Hint: If only the `setup.sth` file name is shown, choose it, click OK, and then immediately use Setup | Save Setup As to make a copy, e.g., `setup01.sth`. This procedure assumes `setup.sth` has the correct communication parameters, as discussed in Chapter 2.)
3. Click on the desired Hydra icon, e.g., H1. Click the Hydra Configuration button on the Toolbar (or double-click anywhere in the Hydra Configuration area of the Main Window) to open the Hydra Configuration dialog box (below).



ga008s.bmp

Measurement Rate *3-3.*

Set the rate of measurement scanning speed.

- **Slow.** Higher resolution, slower scanning.
- **Fast.** Lower resolution (1 digit less), faster scanning.

Temperature Units *3-4.*

The instrument can record temperature measurements in either of the following:

- **Celsius.** Readings in °C.
- **Fahrenheit.** Readings in °F.

Scan Parameters: Trigger Type *3-5.*

Select individually or in combinations. The individual selections are as follows:

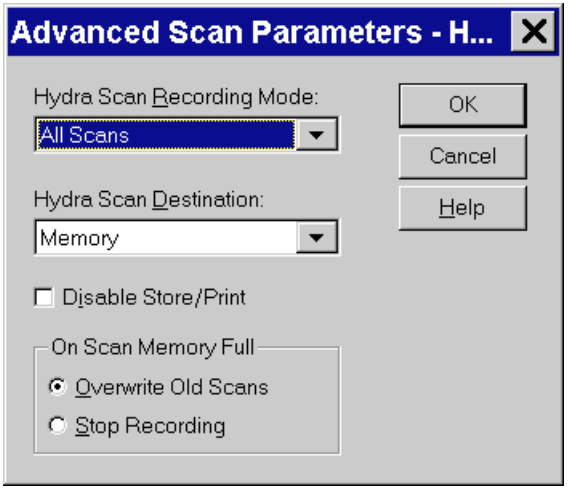
- **Interval Scanning.** An internal timer triggers scans at a specified interval. The interval can be one second to 38439 seconds (9 hours, 99 minutes, and 99 seconds).
- **External.** If the external trigger line on the Hydra rear panel is set low and external triggering is enabled, the instrument scans continuously until the trigger line returns to high.
- **Monitor Alarm.** The instrument takes a scan after each monitor reading that is in alarm.

Scan Parameters: Scan Interval *3-6.*

Set the period in seconds between the start of measurement scans. The maximum scan interval is 38439 seconds (9 hours, 99 minutes, 99 seconds). If the scan interval is set to zero, continuous scanning occurs.

Scan Parameters: Advanced *3-7.*

Select how scans are saved by the Hydra instrument.



ga009s.bmp

Hydra Scan Recording Mode *3-8.*

Establish the types of scans stored in the internal Hydra scan memory on a 2625A or 2635A, in the memory card file on a 2635A, or printed by any model (including the 2620A.).

Note

For the 2620A, Hydra Logger retrieves all scans, regardless of the setting of Hydra Scan Recording Mode. Hydra Scan Recording Mode does filter scans being printed by the 2620A instrument. To filter scans logged to a data file by Hydra Logger for a 2620A, check Write to File When Alarms Active Only in the Data File Configuration dialog box.

- **All Scans.** All scans are stored in Hydra scan memory or a memory card file.
- **Alarms Only.** Only scans that occur when one or more channels are in alarm are stored in Hydra scan memory or memory card file.
- **Alarm Transitions Only.** Only scans that occur when a channel transitions into or out of alarm are stored in Hydra scan memory or memory card file.

Hydra Scan Destination *3-9.*

Select where you want the instrument to record scan data. Individual or combined selections can be made.

- **Memory.** Save scans in Hydra internal memory. The 2625A can store up to 2047 scans. The 2635A can store up to 100 scans.
- **Print**. The instrument formats and outputs scan data for printing via the instrument RS-232 interface
- **Card File**. Save scans on a memory card (2635A only).

Disable Store/Print *3-10.*

If checked, no scans are saved or printed by the instrument. You can use this selection when downloading a configuration to a Hydra that is being used as a standalone instrument whose triggering and scanning will be controlled from the instrument front panel or via the Utilities | Start Hydra Scanning and Stop Hydra Scanning commands. If Hydra scanning is being controlled by Hydra Logger (via the Logging menu or the Toolbar), this selection is ignored. For standalone operation, use Disable Store/Print as follows for each type of instrument:

- With the 2620A, use this selection to disable data printing.
- With the 2625A, use this selection to disable data printing and recording to the internal memory.

- With the 2635A, use this selection to disable data printing and recording to the memory card. Disable Store/Print does not affect internal memory recording in the 2635A: the Hydra Scan Destination setting controls data recording to memory.

On Scan Memory Full *3-11.*

Select an action to take when scan memory in the instrument is full.

- **Overwrite Old Scans.** The instrument continuously overwrites the oldest scan in the Hydra with the newest scan when scan memory is full (2625A and 2635A).
- **Stop Recording.** Tells the Hydra to stop recording new scans in its internal scan memory when that scan memory is full. (The Hydra instrument continues taking measurements, but does not save the data in memory.)

Hydra Front Panel: Monitor Channel *3-12.*

Select a channel to be displayed on the front panel of the Hydra instrument during logging. If you select a monitor channel, you must configure a channel function for it. If you want to use monitor-alarm triggering, you must designate a monitor channel.

Hydra Front Panel: Front Panel Lock *3-13.*

Enable or disable the instrument front panel lockout mode. Select from the following modes.

- **Review Lock**. The front panel is locked into review. Only the up/down and left/right arrow keys on the instrument are enabled to review the minimum, maximum, and last values of any channel.
- **Monitor Lock.** Only the up/down arrow keys on the Hydra instrument are enabled to change and view the monitor channel. An initial monitor channel must be selected.
- **Configuration Lock.** All keys on the instrument that could change the configuration are disabled (2635A Data Bucket only).
- **Disable Locks.** All keys on Hydra instrument are enabled.

Open Thermocouple Detect *3-14.*

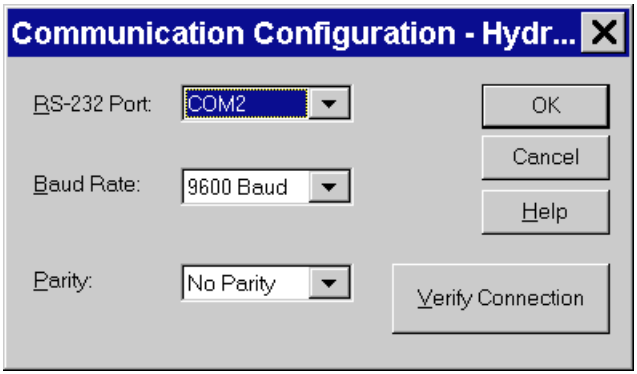
If checked, the instrument's Open Thermocouple Detection circuitry is enabled. Open thermocouple readings appear as Open TC. If unchecked and an open thermocouple occurs, the output is undetermined (no detection occurs).

Totalizer Debounce 3-15.

Enable the totalizer debounce on the instrument totalizer input, adding a delay of 1.75 ms to each transition. Use this selection to reject contact bounce when using a switch or relay input to the totalizer.

Communication: Direct 3-16.

This is the default method of connecting a Hydra instrument to the host computer. Select Direct in the Communication box, then click the Modify button to open the Communications Configuration dialog box (below). Configure selections in this box to match those made at the instrument front panel. Click OK after making the selections.



ga018s.bmp

RS-232 Port 3-17.

Select COM1, COM2, COM3, or COM4

Baud Rate 3-18.

Select one of the following rates: 300, 600, 1200, 2400, 4800, 9600, 19.2k (2635A only), or 38.4k (2635A only).

Parity 3-19.

Select Even, Odd, or No Parity.

Verify Connection 3-20.

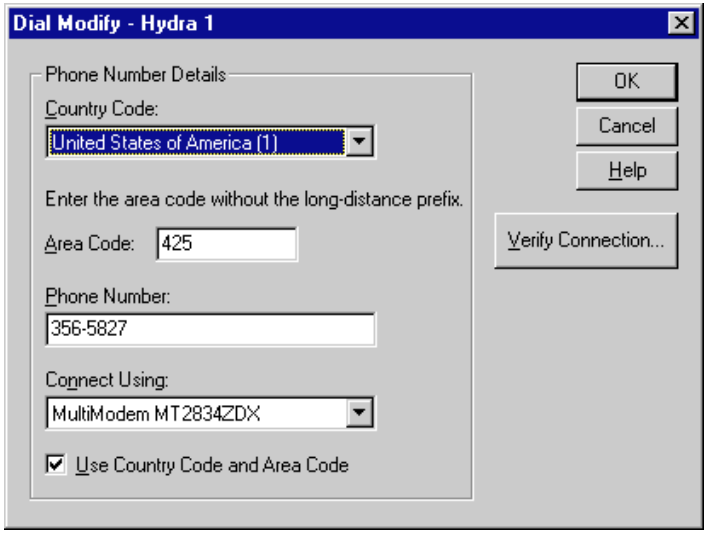
Click to verify communications.

Communication: Modem 3-21.

Access the Dial Modify dialog box (below) by selecting Modem and pressing the Modify button in the Communication box of the Hydra Configuration dialog box. Selections available in this dialog box are discussed in the following paragraphs.

Note

You may want to start by configuring the outgoing Dialing Properties for your host computer: select Control Panel | Modems.



ga100s.bmp

Use Country Code and Area Code 3-22.

Check this box if the Hydra instrument is in a different area code or different country from the host computer.

Country Code 3-23.

If the Hydra instrument is in a different country from the host computer, select the Hydra's country code. The Country Code will default to the code of the host computer.

Area Code 3-24.

If the Hydra instrument is in a different area code from the host computer, enter the area code. Do not enter '1' or any other long-distance prefix. Use Control Panel | Modems | Dialing Properties to set dialing properties for the host computer.

Phone Number *3-25.*

Enter the phone number of the Hydra instrument. This can simply be a local extension number or a complete phone number. If you have checked Use Country Code and Area Code, you should not enter the area code and dialing prefixes in this field.

Connect Using *3-26.*

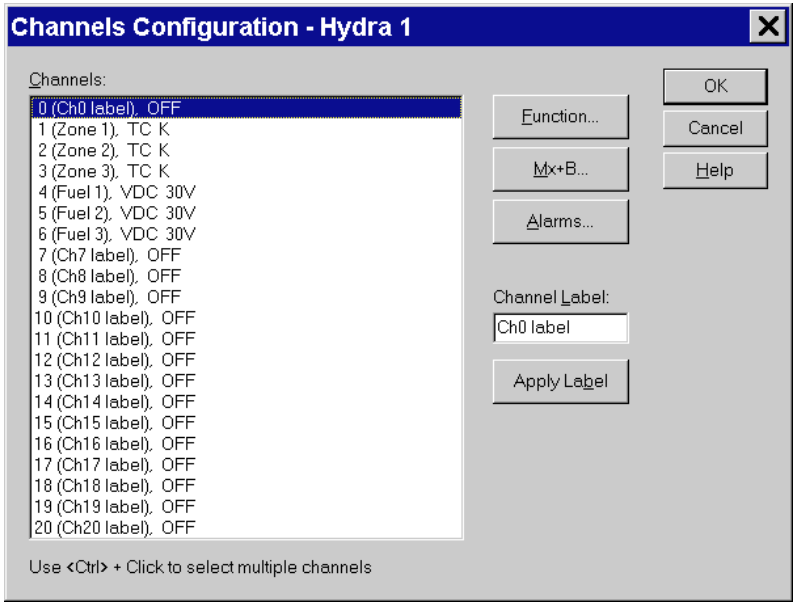
Select the host computer modem. Select Control Panel | Modems to add a modem if no modems are listed.

Verify Connection *3-27.*

After entering the Phone Number Details of the Hydra instrument, click Verify Connection to make a connection using those parameters. Click Dial in the Dial dialog box to initiate the phone call. Logger will report success or failure and hang up the connection.

Channels ***3-28.***

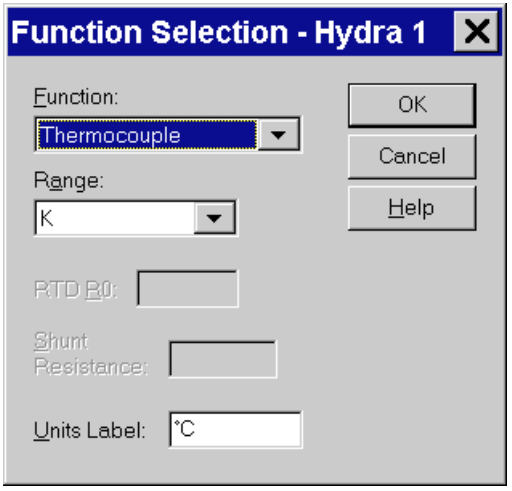
Click the Channels button to open the Channels Configuration dialog box (below). Configure the channels, as required. To configure multiple channels with the same configuration, select each using <Ctrl> and mouse clicks.



ga010s.bmp

Function *3-29.*

Click the Function button to select the function of each Hydra channel using the Function Selection dialog box (below). Make the desired function and range selections, and related attributes, then click OK to return to the Channels Configuration dialog box.



ga011s.bmp

- **Function.** Select from the following choices:

  OFF No channel function.

  VDC Volts dc.

  VAC Volts ac.

  OHMS-2W Ohms, 2-wire connection.

  OHMS-4W Ohms, 4-wire connection (channels 1 to 10 only).

  THERMOCOUPLE Thermocouple (not allowed on channel 0).

  RTD-2W RTD, 2-wire connection.

  RTD-4W RTD, 4-wire connection (channels 1 to 10 only).

  FREQ Frequency.

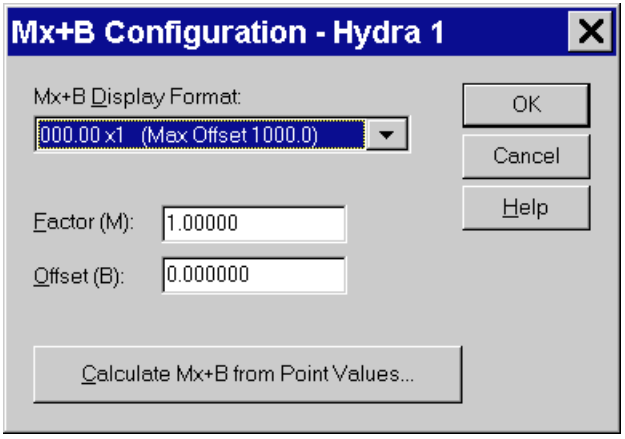
  CURRENT Current dc.

- **Range.** Select from various ranges (fixed or auto), depending on the Function.
- **RTD R0.** When RTD-2W or RTD-4W is selected, enter RTD resistance at 0 °C. The default is 100 °C.

- **Shunt Resistance.** When CURRENT is selected, enter resistance of the current shunt resistor. The default is 10 Ohms.
- **Units Label.** Enter a custom units label (up to 9 characters) for measurement (often used with Mx+B).

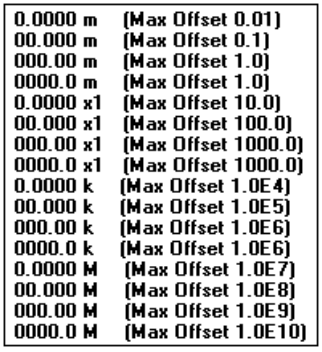
Mx+B *3-30.*

Click the Mx+B button to configure the selected channel(s) for Mx+B scaling using the Mx+B Configuration dialog box (below). Make the desired scaling selections, then click OK to return to the Channels Configuration dialog box.



ga012s.bmp

- **Mx+B Display Format.** Select desired format/offset range (below).

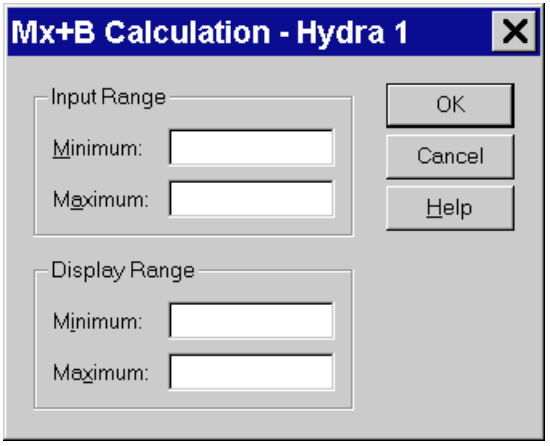


ga013s.bmp

- **Factor (M).** Enter a multiplier factor from -9.9999E+9 to +9.9999E+9.
- **Offset (B).** Enter an offset value from -9.9999E+9 to +9.9999E+9.
- Calculate Mx+B from Point Values**:** Opens the Mx+B Calculation dialog box (below). Enter the following values, then click OK.

  Input Range: **Minimum** Enter actual input range minimum.
  Maximum Enter actual input range maximum.

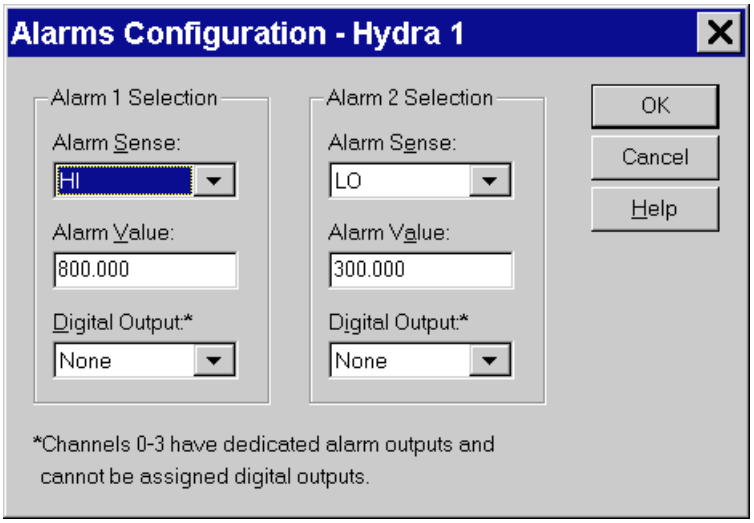
  Display Range: **Minimum** Enter display (scaled) range minimum.
  Maximum Enter display (scaled) range maximum.



ga014s.bmp

Alarms *3-31.*

Click the Alarms button to configure the two available alarm settings for the selected channel(s) using the Alarms Configuration dialog box (below). Then click OK.



ga015s.bmp

- **Alarm Sense.** Set the alarm to OFF for no alarms, LO for an alarm to occur below a certain limit, or HI for an alarm to occur above a certain limit.
- **Alarm Value.** Enter a numeric value at which the alarm is to be activated. If Mx+B is applied, enter the scaled value.
- **Digital Output.** Associate the alarm with the rear panel DIGITAL I/O connector for instrument channels 4 through 20. At the end of each scan, if the instrument detects an alarm condition on any channel associated with a digital output, it sets the digital output line low. If no channels associated with a digital output line are in alarm, the instrument sets the digital output line high.

Channel Label *3-32.*

Enter the Channel Label for each of the channels configured above by selecting the desired channel(s), entering the label, and selecting the Apply Label button. Click OK to return to the Hydra Configuration dialog box.

Data File ***3-33.***

Click the Data File button to open the Data File Configuration dialog box (below). Each Hydra has a separate data file. Click OK after making your selections.

Enable Data File Recording *3-34.*

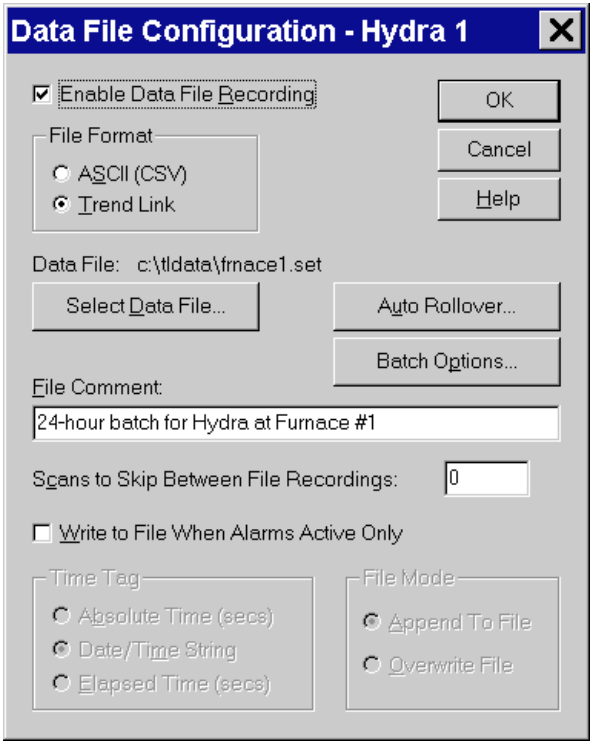
When checked, data file recording is enabled. When unchecked, all other boxes in the dialog are disabled, but the information contained in them is retained.

File Format *3-35.*

- **ASCII (CSV).** Save in ASCII characters as comma separated variables. ASCII format files can be directly imported into spreadsheets and other analysis packages.
- **Trend Link.** If Trend Link format is selected, the Time Tag and File Mode controls are deactivated. Trend Link format should be selected if you want to use the Trend Link analysis package to view or analyze the data.

Select Data File *3-35.*

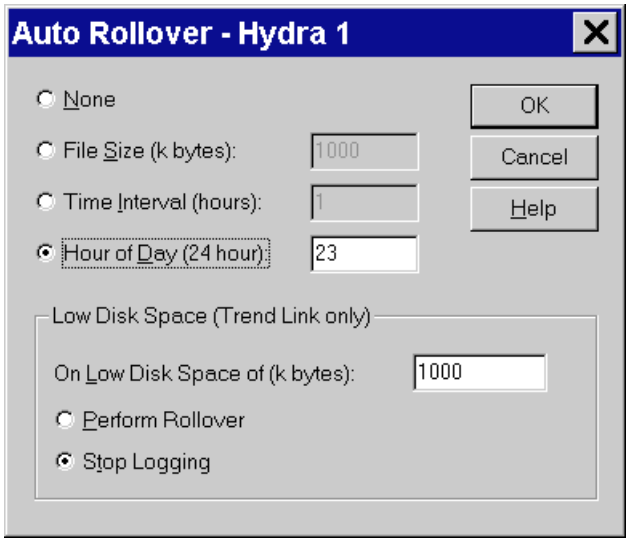
This selection opens the standard Windows dialog box in which you select or enter the filename for the data file. You should select the File Format in the Data File Configuration dialog box before selecting or entering the name.



ga016s.bmp

Auto Rollover *3-36.*

Click to open Auto Rollover dialog box (below). Select the event that will automatically stop logging to the current data file.



ga017s.bmp

- **None.** No auto rollover.
- **File Size (k bytes).** Enter file size in kbytes for auto rollover. Causes the data file to be rolled over when it reaches a user-entered maximum size. The file size entered should be from 200 to 100,000 (200K to 100M).
- **Time Interval (hours).** Enter time interval for auto rollover. The time interval should be entered as a whole number of hours (no fractional part allowed). The interval entered must be from 1 to 99 hours. Causes the data file to be rolled over at a time interval since the start of data logging or since the last rollover event.
- **Hour of Day (24 hour).** Enter clock time for auto rollover. The time should be entered as an integral hour on the 24 hour clock (0 is midnight, 12 is noon, etc.) The value entered should be from 0 to 23. Causes the data file to be rolled over at a specific time of day on the 24 hour clock.
- **Low Disk Space (Trend Link only).** Set the conditions for either an automatic rollover or a termination of logging on a Trend Link file when the data disk space begins to fill up. These automated events protect accumulated data and help prevent the loss of data when the disk becomes too full; they do not stop instrument scanning.

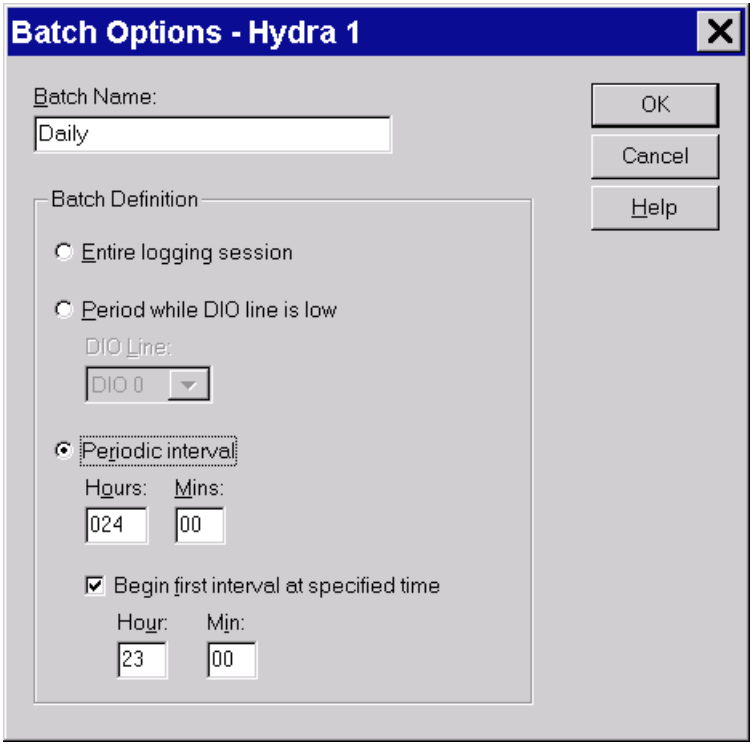
On Low Disk Space of (k bytes). Enter the minimum free disk space in kbytes at which auto rollover or stop logging should occur.

Perform Rollover. Make this selection if you want a rollover on the Trend Link file to occur when the Low Disk Space amount is reached.

Stop Logging. Make this selection to stop logging when the Low Disk Space amount is reached.

Batch Options *3-37.*

When logging to a Trend Link data file, use the Batch Options dialog box (below) to direct Hydra Logger to mark batches of data. The batches can later be compared to each other or to an ideal batch using Trend Link for Fluke.



ga101s.bmp

Enter an optional batch name and select the conditions for marking the start and end of batches. If you do not specify a batch name, the data file name will be used. Trend Link appends a batch number to the batch name:

Daily:1

Daily:2

or

MyData.set:1

MyData.set:2

Select one of the following start/stop conditions:

- **Entire logging session**. A batch is started when logging is started, and stopped when logging is stopped. This is the default and occurs whenever another batch definition has not been selected. Select "Entire logging session" to disable another batch definition.
- **Period while DIO line is low**. You can use a DIO input to start and stop batches. The batch starts when the DIO line goes low (or on start logging if the DIO line is already low), and stops when the DIO line goes high (or on Stop Logging if the DIO line remains low).
- **Periodic interval**. You can indicate an interval for the start of new batches. Hydra Logger will start a batch on Start Logging and, every time the interval expires, it will stop the current batch and start a new one. You can specify a time of day for the first batch to start as an alternative to starting on Start Logging.

File Comment *3-38.*

Enter a file comment, which appears in the header of the data file.

Scans to Skip Between File Recordings *3-39.*

Enter the number of scans to skip between file recordings (maximum 65534). For example, a selection of 1 means that every other scan is recorded. If you select 0, all scans are recorded in the data file.

Write to File When Alarms Active Only *3-40.*

When checked, data is written to the data file only when an alarm occurs.

Time Tag *3-41.*

Set the format of the time stamp that is recorded at the beginning of each line of data in the data file. These selections are available for ASCII files only. The following three types of time stamps can be recorded:

- **Absolute Time (secs).** Seconds since Jan. 1, 1970.
- **Date/Time String.** String showing month, day, year, hour, minute, second.
- **Elapsed Time (secs).** Seconds since first scan of this logging period.

File Mode *3-42.*

This selection is available with ASCII (CSV) File Format only. The following choices are available:

- **Append To File.** Append data in an existing file, if any.
- **Over-Write File.** Overwrite data in an existing file, if any.

Describing Hydra *3-43.*

To assign a Hydra name other than Hydra 1 or Hydra 2 or to apply a description of a Hydra, select Setup | Describe Hydra. Edit the Hydra Name and/or Description.

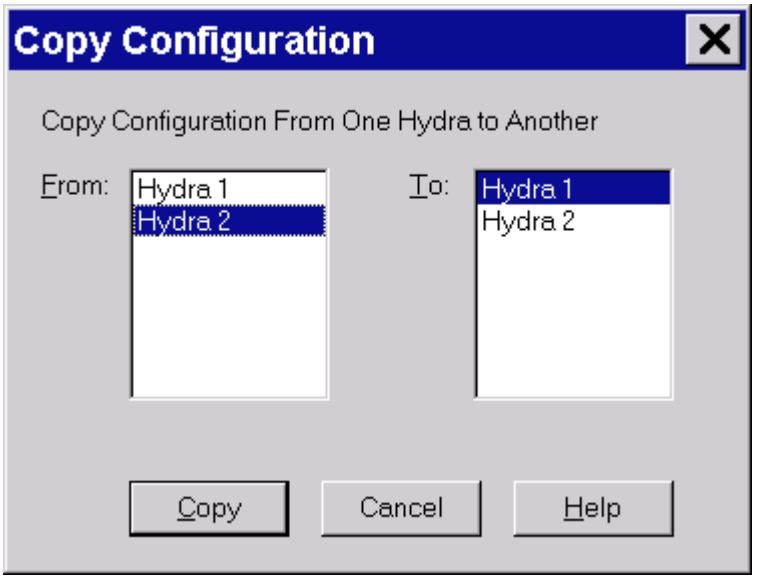
Saving the Configuration *3-44.*

Select Setup | Save Setup to save the configuration data in a setup file on the host computer. Hydra Logger does not automatically send the configuration data to the instrument. Hydra Logger sends the configuration to the Hydra either at the start of logging (discussed in "Logging Operations", Chapter 4) or when downloading (discussed in "Downloading Configuration Data to a Hydra", Chapter 3).

To configure another Hydra, select it on the Icon Bar and repeat any needed steps in “Editing Hydra Configuration Data.”

Copying Configuration Data Between Hydras *3-45.*

To copy a complete Hydra configuration from one Hydra to another Hydra, select Setup | Copy Hydra Config. If the command is dimmed, there is only one Hydra on the Icon Bar. In the Copy Configuration dialog box (below), make the desired From: and To: Hydra selections. Click Copy. All configuration parameters are copied except the data file configuration, communication configuration, and Hydra name.



ga102s.bmp

Downloading Configuration Data to a Hydra *3-46.*

The downloading feature sends configuration data from the host computer to a Hydra, configuring all the Hydra channels, alarms, Mx+B scaling, scan interval, etc. Note that downloading configuration data does not enable monitoring or scanning. Use the Start commands in the Logging or Utilities menu or the instrument front panel buttons to enable external, monitor alarm, or interval triggering, and to enable monitoring. If Logging | Download Config. On Start is checked, Hydra Logger will automatically download the configuration before starting logging.

Perform the following procedure to explicitly download configuration data to a Hydra.

1. Select the desired Hydra icon in the Main Window Icon Bar. If the displayed Hydra configuration is the configuration you want to download, proceed to Step 3; otherwise, continue to Step 2.
2. Create the configuration you want to download using the procedures in "Entering Hydra Configuration Data" above, or copy a configuration from another Hydra using "Copying Configuration Data Between Hydras" above.
3. Select Utilities | Download Hydra Config.

Uploading Configuration Data from a Hydra 3-47.

The uploading feature retrieves configuration data from a Hydra, including all the channels, alarms, Mx+B scaling, scan interval, etc. Note that Units and Labels are lost during an upload. Channels that were configured for Current will now be set for VDC. In addition, the trigger type and monitor channel are not uploaded.

Perform the following procedure to upload configuration data from a Hydra.

1. Select the desired Hydra on the Icon Bar.
2. Select Utilities | Upload Hydra Config.
3. Update channel labels and unit labels for the new uploaded configuration.
4. For any channel which is measuring Current, change the Function to Current. Note that the Mx+B parameters for a Current channel must be changed to 1.0 and 0.0 respectively.
5. To save this configuration, select Setup | Save Setup.
6. To copy this configuration to another Hydra, refer to "Copying Configuration Data Between Hydras."

Printing Configuration Data 3-48.

You can save the Hydra configuration data in the Main Window display as a text file, e.g., `hydra1.txt`. Like any text file, it can be opened in a word processing application or any text editor and then printed.

Perform the following procedure to print a configuration data record.

1. Click the desired Hydra icon in the Main Window.
2. Select Setup | Save Hydra Config. Text, opening the Save Hydra Configuration Text dialog box.
3. Enter a text file name in the File Name box, e.g., `hydra1.txt`. Change the Directories, Drives, and Save File As Type as desired. Click OK.
4. Open the text file in any text editor or word processing application.
5. To use the Notepad Accessory, select Programs | Accessories | Notepad. Then select File | Open. In the File Name box, enter the path and name of the text file saved in step 3 above, for example, `c:\Program Files\Fluke\hydra\hydra1.txt`. Click OK.
6. To print the file from Notepad, select File | Print. See Figure 3-1 for a printout of the Hydra settings used in this chapter.

```
HYDRA CONFIGURATION - Hydra 1

Hydra Name:         Furnace 1
Description:        Hydra at Furnace 1
Trigger Type:       Interval Scanning
Scan Interval:      120 sec
Memory Full:        Overwrite Old Scans
Scan Mode:          All Scans
Scan Destination:   Memory
Communication:      Modem - 9 356-5827
Data File:          c:\tldata\frnace1.set
Scans Recorded:     All Scans
File Mode:          NA
File Format:        Trend Link
Auto Rollover:      Hour of Day (24 hour): 23
Min Free Disk:      Stop Log at 1000 k bytes
Monitor Chan:       Ch1
Front Panel Lock:   Configuration Lock
Meas Rate:          Fast
Temp Units:         Celsius
Open TC Detect:     Yes
Total Debounce:     No

Chan  Function   Range        Alarm 1      Alarm 2      Mx+B   Units        Label
1     TC         K            HI->AO1      LO->AO1      OFF    °C           Zone 1
2     TC         K            HI->AO2      LO->AO2      OFF    °C           Zone 2
3     TC         K            HI->AO3      LO->AO3      OFF    °C           Zone 3
4     VDC        30V          OFF          OFF          ON     l/min        Fuel 1
5     VDC        30V          OFF          OFF          ON     l/min        Fuel 2
6     VDC        30V          OFF          OFF          ON     l/min        Fuel 3
```

Figure 3-1. Typical Hydra Configuration Text Printout

Chapter 4
Using Hydra Logger

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Introduction 4-1.

Chapter 4 describes how to use the Hydra Logger software.

- "Starting and Exiting Hydra Logger" explains how to start and exit the Hydra Logger application.
- "Logging Operations" explains how to start and stop the Hydras, using DDE, and how to monitor and optimize performance.
- "Processing the Data" explains how to view, print, and process Hydra data files in other applications.
- "Quick Plot" explains how to view the measurement trends during Hydra scanning, save and print the plot, and create a Quick Plot from a data file.
- "Memory Card File Management" explains how to convert, transfer, and perform various functions on Data Bucket memory card files.
- "Logging Memory Upload" explains how to upload scan data from a Hydra scan memory.

These procedures assume you have a working knowledge of Hydra operation as described in the following Hydra manuals:

- *Hydra 2620A Data Acquisition Unit/2625A Data Logger Users Manual* (PN 885988).
- *Hydra 2635A Data Bucket Users Manual* (PN 931894).

Online help also describes Hydra operating characteristics and Hydra Logger features. To access online Help, press the <F1> key at any time, or click any Help button. Chapters 3 and 4 provide a summary of all Hydra Logger features. Refer to Chapter 5 of this manual, "Using Trend Link for Fluke" for information concerning use of the trend plotting and analysis package. This chapter assumes that you have completed "Creating a Hydra Logger Setup File" as described in Chapter 2 of this manual, and that communications between the host computer and Hydras are operational.

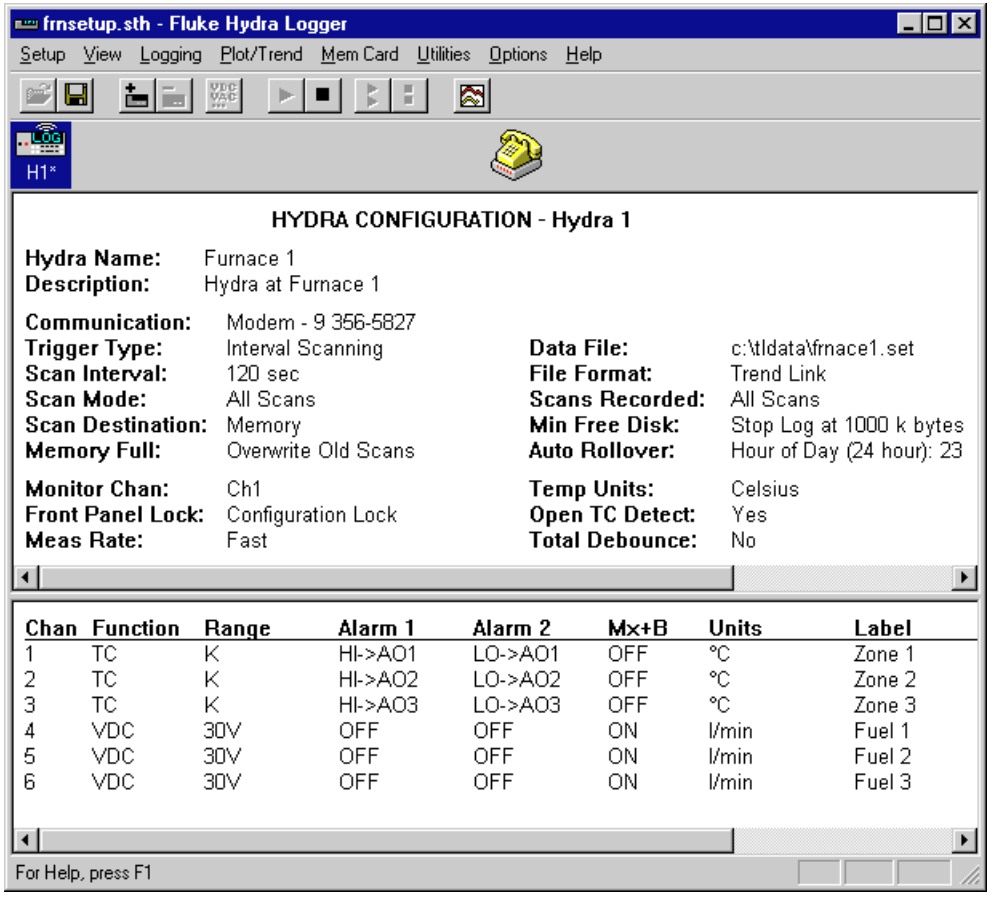
Starting and Exiting Hydra Logger 4-2.

You can start and exit Hydra Logger using icons and menu selections. Choose from the following discussions to suit your requirements:

- "Starting Hydra Logger" starts the application.
- "Starting Hydra Logger with a Setup File" starts the application and loads a selected setup file.
- "Starting Hydra Logger with a Setup File and Starting Logging" starts the application, loads a selected setup file, and starts logging operations.
- "Exiting Hydra Logger" exits the application.

Starting Hydra Logger 4-3.

Start Hydra Logger by selecting Programs | Fluke Hydra Logger | Hydra Logger or by clicking on a Hydra Logger shortcut from the Desktop. (Use Windows Explorer to create a shortcut to `hlog32.exe`.) Figure 4-1 shows a typical Main Window. Hydra Logger opens the setup file that was most recently saved. If none exists, Logger displays a default Hydra configuration.



ga108s.bmp

Figure 4-1. Typical Main Window

Starting Hydra Logger with a Setup File 4-4.

Hydra Logger normally opens the most recently saved setup file on startup. Perform one of the following procedures if you want Hydra Logger to start with a selected setup file. On Windows 95, three methods are available:

- In the Windows Explorer, double-click on the name of the desired setup file. You must start Hydra Logger itself once after installation before you can start it via a setup file.
- Double-click on a shortcut to a setup file which you have previously placed on the Desktop.
- Double-click on a shortcut to Hydra Logger which you have previously placed on the Desktop. When you create the shortcut, modify the command line in its properties to name the desired setup file. (See "Resuming Logging After a Power Loss" in Appendix D for information on changing the command line.)

On Windows 3.1, two methods are available:

- Double-click on a setup file name in the File Manager. Before this will work, you must start Hydra Logger itself once after installation (from Program Manager or File Manager) and associate the .sth file extension with the Hydra Logger executable file.
- Modify the command line of Hydra Logger so that it will always open a particular setup file when started from Program Manager. To modify the command line, highlight the Hydra Logger icon in Program Manager, select File | Properties, and add the setup file name to the command line.

Note that Hydra Logger will read and write existing setup files with the .stp extension. New setup files always have the .sth extension.

Starting Hydra Logger with a Setup File and Starting Logging 4-5.

Perform one of the following procedures if you want Hydra Logger to start with a specific setup file and also start logging operations immediately. Generally, this feature is used to automatically resume data retrieval after a loss of power to the host computer. For more information and configuration requirements when using this feature, refer to Appendix D, "Loss of Power."

- On Windows 95, double-click on a shortcut to Hydra Logger which you have previously placed on the Desktop. When you create the shortcut, modify the command line in its properties to name the desired setup file, and also add the /g switch to the command line.
- On Windows 3.1, use Program Manager to modify the command line of Hydra Logger: highlight the Hydra Logger icon in Program Manager, select File | Properties, and add the setup file name to the command line. Add the /g switch after the name of the setup file.

Exiting Hydra Logger 4-6.

To exit Hydra Logger, select Setup | Exit Application, or double-click the Control-Menu box (upper-left corner). If you have changed the Hydra configuration and have not saved the changes to a setup file, Hydra Logger prompts you with a "Save the changes?" message.

Click Yes to save the changes and exit the application, click No to discard the changes and exit the application, or click Cancel to return to the application. If Hydra Logger is retrieving data from a Hydra instrument, you will be asked if you want to leave the instrument(s) scanning.

Logging Operations 4-7.

Logging operations consist of setting the Hydra clock, starting and stopping the Hydras (together or individually), and monitoring the retrieval and display of the measurement data. The information in this section assumes one or both Hydras are configured and ready for use.

Logging commands are in the Logging menu of the Main Window.

Starting and Stopping the Hydras 4-8.

Starting a Hydra begins the data retrieval, while stopping the Hydra ends data retrieval. Scan records are transferred from the Hydras to the host computer over the RS-232 interface.

Perform the following procedure to start and stop the Hydras.

1. Select Logging | Set Hydra Clock. This action sets the Hydra instrument to the date and time of the host computer. Since Hydra Logger supports versions of Hydra instruments that only accept times with one minute resolution, there may be up to a one minute delay while the program waits for an even minute in the computer.

   This is important for time tag data correlation in plotting and data processing. It is important to perform this operation for each Hydra before starting data retrieval, so that data from different Hydra instruments can be correlated in time to each other in the data files and Trend Link Plot.

2. Check one of the following starting modes from the Logging menu:

   - **Download Config. on Start.** Hydra configurations are sent from the host computer to the Hydras when the Hydras are started. (Default.)
   - **Resume Logging on Start.** Hydra configurations are retrieved from the Hydras when the Hydras are started, resuming operations. Any scans that have accumulated in the instrument’s memory get uploaded.
   - **Simulate Logging on Start.** There is no Hydra activity. Instead, the software generates pseudo data for training and testing.

3. Click the Start Hydra button (or select Logging | Start Hydra). If you are starting all Hydras at once, click the Start All Hydras button (or select Logging | Start All Hydras). If you checked Download Config. on Start above, Hydra Logger displays the “Downloading Hydra Configuration...” message. If there are communication problems, an error message is reported. (See Appendix B "Error Messages.")

4. The “Starting Hydra Logging” message verifies the start of scanning; the Hydra icon also changes to read “LOG”. To stop scanning, proceed to step 5.

   If a Hydra holds measurement data in its scan memory when it is started and you have checked “Download Config. On Start”, a warning message (“X scan(s) in Hydra memory will be lost! Continue?”) is displayed. If you select Yes to continue, the measurement data is cleared and logging is started. To retrieve this data, select No and return to step 2. Check the Resume Logging on Start option and repeat steps 3 and 4.

5. To stop the Hydra, click the Stop Hydra button (or select Logging | Stop Hydra). If stopping all Hydras at once, click the Stop All Hydras button (or select Logging | Stop All Hydras). Look for the “Stopping Hydra Logging...” message.

   If the Hydra has measurement data remaining in scan memory, the “Reading Remaining Hydra Scans...” message appears. If you click the Abort button to terminate, and you subsequently use the Download Config. on Start mode, the warning message in step 4 will appear.

Monitoring Performance *4-9.*

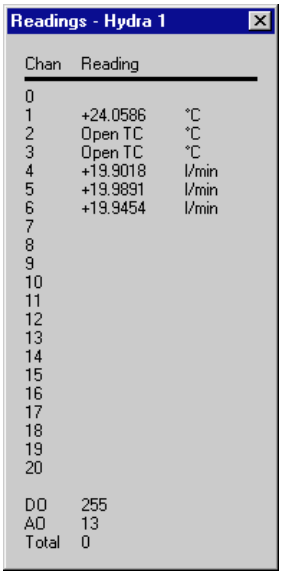
The Options menu from the Main Window provides performance monitoring options during logging. The options place a dialog window in the application to indicate logging and communications operation. Select the options that best support your logging operations. Use the Show Current Readings, Show Logging Status, and Show Alarm Status boxes to observe the performance of the logging session.

- The Show Current Readings status box displays the channel measurements, the DIGITAL I/O status, Alarm status, and Totalizer count for the selected Hydra.
- The Show Logging Status box displays the status of the communications link. Excessive Communication Errors indicate marginal communications between the computer and a Hydra. Also note that, if the number of scans in scan memory is continually increasing, it may be necessary to increase the scan interval (under Edit Hydra Config.) so the computer can keep up with the Hydra instrument. (This status box can be automatically opened when the Start Hydra or Start All Hydras command is completed by selecting Options | Show Logging Status on Start.)

Show Current Readings

Displays the channel measurements and the Digital I/O status (decimal 0 to 255 for lines 7 to 0), the Alarm status (decimal 0 to 15 for lines 3 to 0), and the Totalizer count for the selected Hydra.

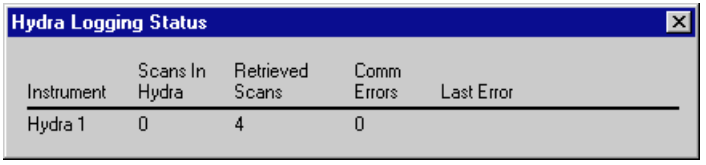
An example of Show Current Readings is shown below.



ga109s.bmp

Show Logging Status

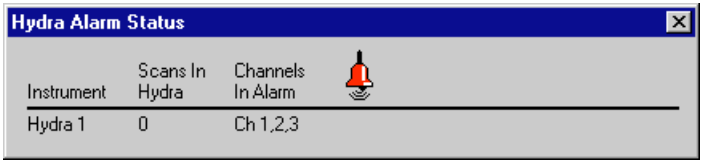
The Hydra Logging Status box summarizes the communications link (below). Excessive Communication Errors indicate marginal communications between the host computer and the Hydra instrument. If the Scans In Hydra count increases over time, scans are being collected in the Hydra faster than they can be retrieved (rare situation). In this situation, stop logging and set the scan interval to a larger value.



ga110s.bmp

Show Alarm Status

The Hydra Alarm Status box (below) displays the alarm status. During a logging run, an Alarm Bell appears red when a channel is currently in alarm (alarm channels listed in black type), and gray when a channel was in alarm (alarm channels listed in gray type).



ga111s.bmp

Show Logging Status on Start

If Options | Show Logging Status on Start is checked, Hydra Logger will automatically open the Hydra Logging Status box when logging starts.

Show Logging Status on Alarm

If Options | Show Logging Status on Alarm is checked, Hydra Logger will automatically open the Hydra Alarm Status box when a channel transitions into alarm.

Configuration Lockout

This selection disables configuration-related commands in the Main Window Setup menu, including New Setup, Open Setup, Create New Hydra, Delete Hydra, Describe Hydra, Edit Hydra Config, and Copy Hydra Config.

Optimizing Performance *4-10.*

The rate at which measurement data is transferred from the instruments to the host computer is optimized by the following:

- Minimize the Quick Plot. When using the Quick Plot feature, minimize the plot window to an icon and bring the plot up only when viewing the data.
- Do not use Real Time Trend Link plotting. When using the Trend Link for Fluke package, use historical plotting after the end of the data retrieval session. During data retrieval, either minimize Trend Link or do not run it at all.
- Disable your "Screen Saver" feature. Screen savers may slow system throughput. Disable them when possible.

- Disable Recording to Data Files. If you do not want to save data, be sure recording is disabled.
- Save Only Alarm Data. Saving data only when a channel is in alarm (models 2625A and 2635A only) increases system throughput as non-alarm data is not transferred.
- Avoid Unnecessarily Short Scan Intervals. Short scan intervals increase the amount of measurement data for transfer over the communications link. To speed system throughput, choose the longest possible interval which will satisfy your requirements.

Simulated Logging *4-11.*

Enable simulated logging by selecting Logging | Simulate Logging on Start. Data associated with each Hydra then comes from a simulated source when the Start Hydra or Start All Hydras command is selected. With simulated logging enabled, the Hydra icons display “SIM” instead of “LOG”, and Hydra Logger generates simulated scan data for all logging and viewing operations for all configured instruments.

Using Dynamic Data Exchange (DDE) *4-12.*

Dynamic Data Exchange (DDE) links Hydra Logger to other applications running under Windows. To use DDE, open the DDE client application and perform any setup necessary to access external data via DDE. Refer to Appendix C for information on DDE.

Logging Scan Data from a 2620A Data Acquisition Unit *4-13.*

The 2625A Data Logger and the 2635A Data Bucket both have internal non-volatile scan memory from which Hydra Logger retrieves scans while logging. The internal scan memory acts as a buffer, queuing up scans until the host computer software is able to retrieve them.

The 2620A Data Acquisition Unit does not have a non-volatile scan queue. It reports its latest scan when queried, but if the host computer is delayed in retrieving the latest scan, it may be overwritten by a new one. Hydra Logger presents the same user interface for the 2620A as for the other two instruments, and creates the same types of data files, but the following limitations to 2620A support must be recognized:

1. The 2620A stores only one scan. If the PC is busy long enough for a new scan to overwrite the previous one before it can be collected, the scan will be lost. For example, if the 2620A is scanning at a 1 second interval and you tell Hydra Logger to upload the configuration of a second instrument, a number of scans will be overwritten in the 2620A while the upload takes place.
2. The "Instrument Scan Queue Overflow" window that appears whenever the scan queue overflows will not appear when 2620A scans are overwritten because there is no way to detect this condition in that instrument.
3. Setting "Hydra Scan Recording Mode" to "Alarms Only" or "Alarm Transitions Only" will not affect the type of scans retrieved by Hydra Logger from a 2620A. "All Scans" will always be retrieved. (The Hydra Scan Recording Mode setting does filter scans being printed by a 2620A.)
4. The setting for "On Scan Memory Full" does not have any effect for the 2620A.
5. Hydra Logger does not communicate via IEEE-488 to the 2620A/05.

Scanning Operations 4-14.

Any command that controls logging by Hydra Logger also controls scanning by the Hydra instrument; instrument scanning provides the data being logged. Hydra Logger also allows you to control instrument scanning without logging the resulting data. Related commands are accessed through the Utilities menu.

Start Hydra Scanning 4-15.

The Utilities | Start Hydra Scanning selection starts scanning and monitoring in the selected Hydra instrument. It does not start data retrieval by Hydra Logger.

- If Logging | Download Config. on Start is checked, Start Hydra Scanning downloads the configuration to the Hydra instrument before beginning scanning.
- If Logging | Resume Logging on Start is checked, Start Hydra Scanning uploads the Hydra instrument configuration before beginning scanning.

Start Hydra Scanning places the Hydra instrument in Remote state: scanning cannot be interrupted from the instrument front panel unless you first use the front panel buttons to place the instrument in local mode.

Stop Hydra Scanning 4-16.

The Utilities | Stop Hydra Scanning selection stops scanning and monitoring in the Hydra instrument selected on the Hydra Icon Bar.

Continuing Scanning on Exit 4-17.

If you attempt to exit Hydra Logger while logging and scanning are in progress, the following message appears: “Hydra Logger will stop retrieving data. Would you like instrument scanning to continue?” By selecting YES, you can leave the Hydra instrument scanning when you exit Hydra Logger. For the 2625A and 2635A, recent scan data can then be retrieved (logged) the next time you start Hydra Logger.

Processing the Data 4-18.

Data files created during logging may be saved in ASCII comma-separated variable (CSV) format. Virtually all word processing, spreadsheet, and data management applications open, display, and print ASCII text files.

Refer to Figure 4-2 for an example of ASCII data file formatting. To process your data files, refer to one of the following topics:

- “Viewing and Printing Data Files” explains how to view and print your ASCII data files using the Windows Notepad Accessory.
- “Data Files and Other Applications” explains how to view and print your ASCII data files using other Windows applications (especially spreadsheets.)
- Appendix A describes ASCII file format.

Data files may also be saved in Trend Link format if the optional Trend Link for Fluke package is installed. Trend Link is available as part of the 2635A-902 version of Hydra Logger or as a stand-alone option package. Refer to the *Trend Link for Fluke Reference Manual* for Trend Link file format information.

Viewing and Printing Data Files 4-19.

You can view and print ASCII data files in their original CSV format with the Windows Notepad Accessory or any word-processing application that opens text files. The procedure below assumes the use of the Notepad Accessory. The data is printed in strings, without formatting. Add your own formatting as desired.

1. Select Programs | Accessories | Notepad.
2. Select File | Open. In the File Name box, enter the path and name of the data file, for example:

   `c:\Program Files\Fluke\hydra\temptest.csv`

   Click OK.
3. Observe the text file appears in the format shown in Figure 4-2.
4. To print the file, select File | Print. After printing or viewing, select File | Exit.

Data Files and Other Applications 4-20.

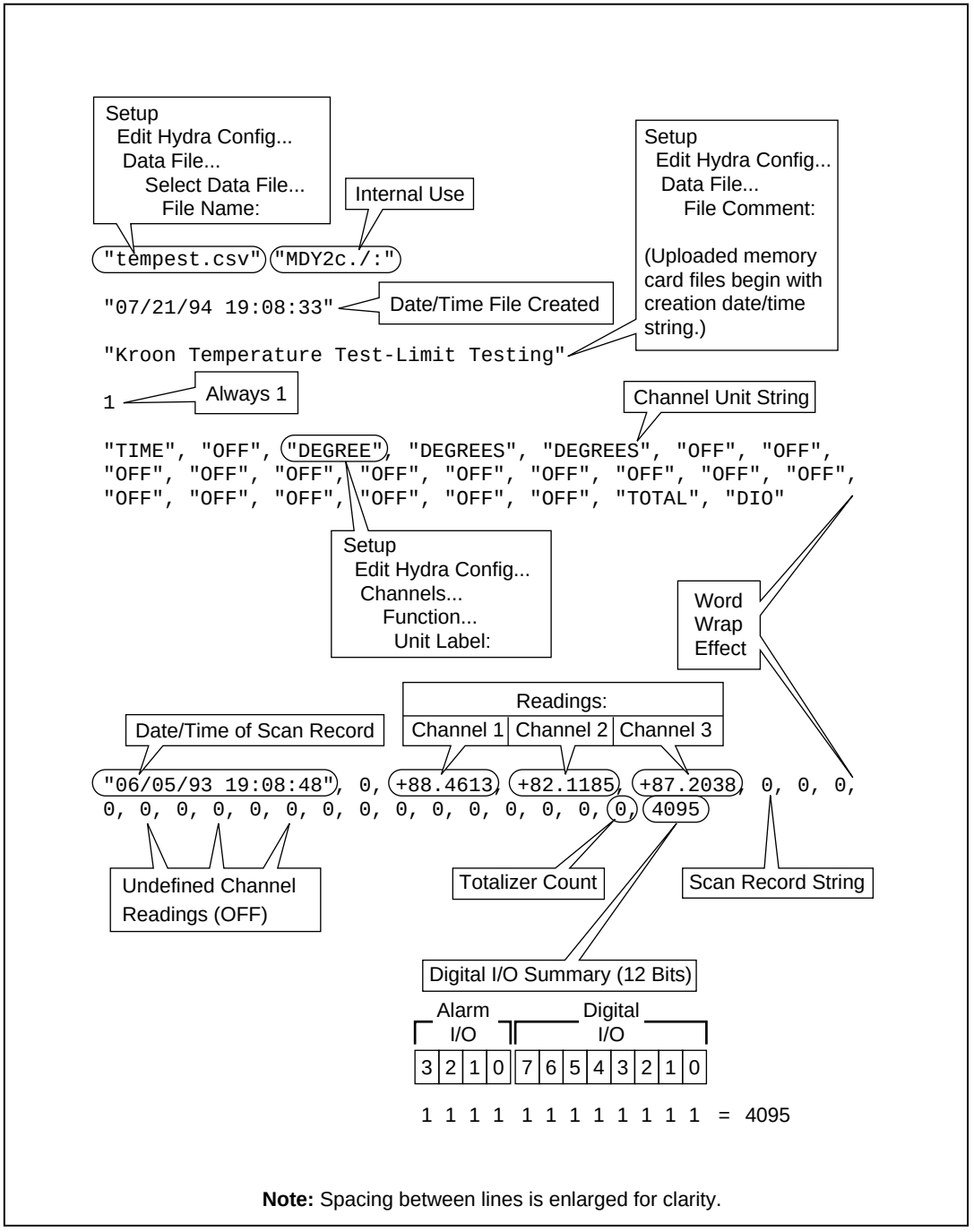
You can enhance viewing and printing of Hydra Logger ASCII data files by processing the data in spreadsheet programs, which present the data in columns. Spreadsheets can also present the data in graphs and plots. Perform the following procedure to view and print a data file in spreadsheet format.

1. Open the spreadsheet application.
2. There are two general methods for opening files. Select one of the methods below that suits your spreadsheet application.
   a. Select File | Open. In the File Name box, type the complete path to the Hydra Logger data file you wish to display, for example,

      `c:\Program Files\Fluke\hydra\temptest.csv`.

   b. Select File | Import From. In the File Name box, type the complete path to the Hydra Logger data file you wish to display, for example,

      `c:\Program Files\Fluke\hydra\temptest.csv`.
3. Adjust the spreadsheet column width and other formatting variables to display the data in the desired format.
4. Print the data as desired. (Refer to your spreadsheet documentation.)



Note: Spacing between lines is enlarged for clarity.

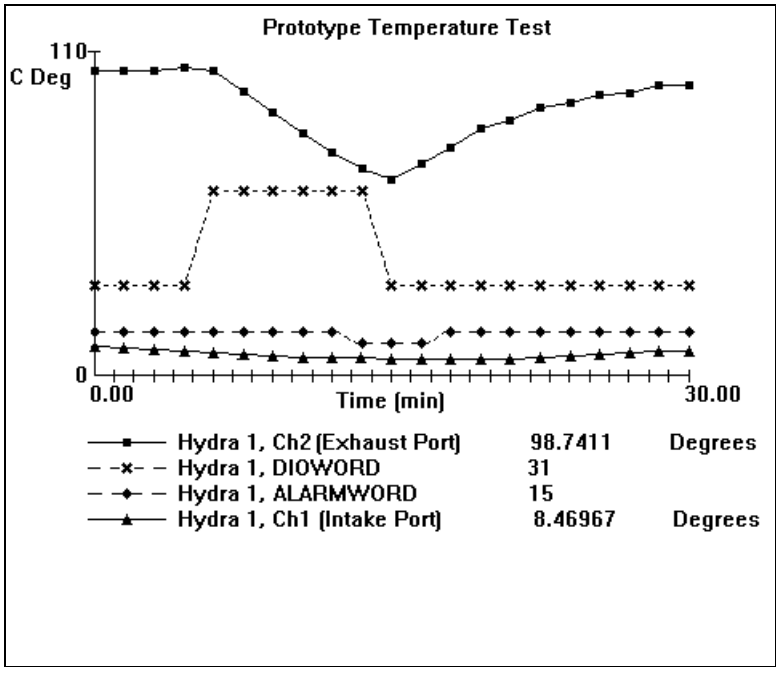
ga021c.eps

Figure 4-2. ASCII Data File Formatting

Using Quick Plot 4-21.

Quick Plot provides a graphical indication of the measurement trend during Hydra scanning. Only one Quick Plot window may be running at one time, displaying up to eight traces from any mix of Hydras and Hydra channels. Figure 4-3 presents an example. The plot image may be saved using Windows clipboard (`*.clp`) and Paint (`*.bmp`) accessories, and pasted into any application that accepts images in bitmap format. A plot similar to the Quick Plot may be created from a data file using other Windows applications, such as a spreadsheet or a plotting package like Trend Link for Fluke.

For customization of plot traces, line types include eight symbols, eight colors, and six line styles.



ga022s.bmp

Figure 4-3. Typical Quick Plot

Figure 4-3 illustrates the following features:

- The numeric display of readings is always from the most recent scan. The plot window Options... menu provides an option to show or hide the plot legend and readings.
- DIOWORD is the decimal equivalent of the status of the Hydra Digital I/O lines 7 to 0 (available at the Hydra rear panel DIGITAL I/O connector). If no

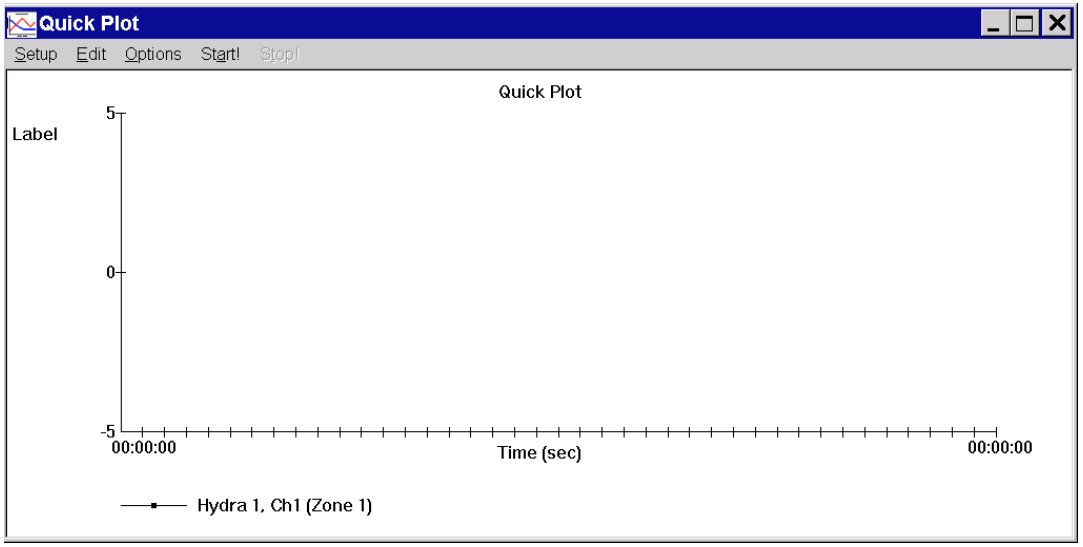
lines are set, the I/O lines are 11111111 (decimal 255). In this example, I/O lines 6 and 7 are grounded and I/O line 5 is connected to the contacts of a test toggle switch, toggling the I/O between 00111111 (63) and 00011111 (31).

- ALARMWORD is the decimal equivalent of the status of the Hydra dedicated Alarm lines (available at the Hydra rear panel ALARM OUTPUTS connector). When no alarms are set for channels 3 to 0 (the dedicated channels), the alarm lines are 1111 (decimal 15). In this example, Hydra 1, Channel 2, has a Low Alarm of 75° C. When Channel 2 reaches 75° C, the alarm lines change from 1111 (15) to 1011 (11). When the alarm clears, the lines return to 1111 (15).
- A channel in alarm displays measurements in red in the numerical display beneath the plot. Plots from Hydras with different scan intervals create traces with points closer together or farther apart on the plot.

Showing and Configuring the Quick Plot *4-22.*

Perform the procedure below to show and configure the Quick Plot. The Quick Plot can be started at any time, even during data retrieval.

1. Select Plot/Trend | Quick Plot, opening a Quick Plot window (below).



ga112s.bmp

2. Customize your plot as shown by example in Figure 4-4. The readings in the legend appear only when the plot has been started. All selections, except for the channel label and units label, are made from the Plot window menus.

Starting and Stopping the Quick Plot 4-23.

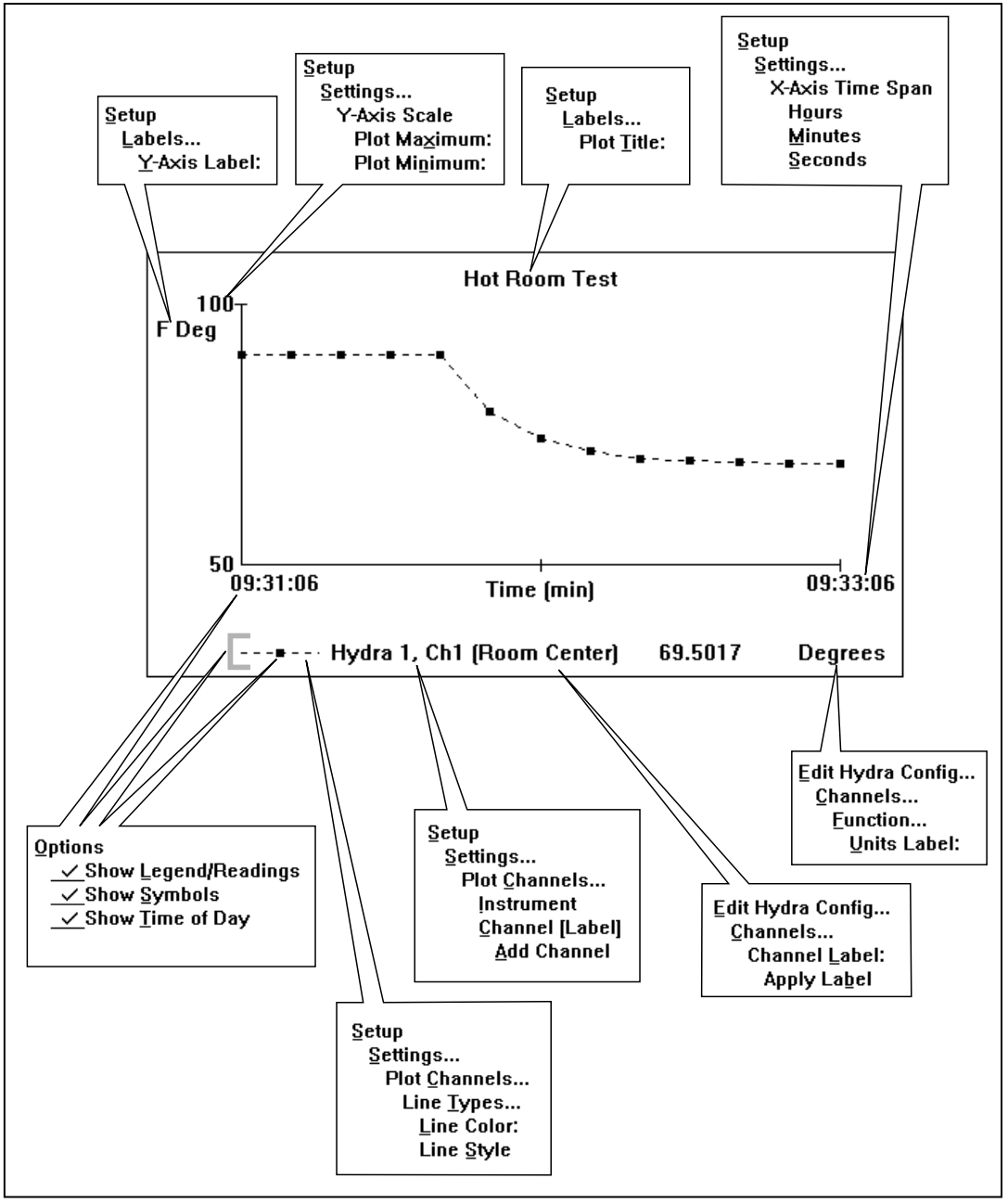
Perform the procedure below to start and stop the Quick Plot. The Quick Plot operates independently from the Start Hydra and Stop Hydra commands made in the Main Window. When you start the Quick Plot, which always clears previous traces on the plot, it continues to run until you command it to stop. You can minimize the Quick Plot to an icon by clicking the Minimize button in the top-right corner of the plot window. Alternatively, you can close the quick plot window and reopen it later. You can capture the plot image at any time and print it out (see "Printing Quick Plots" below).

1. Select Plot/Trend | Quick Plot from the Main Window.
2. At the top of the Quick Plot window, click Start! to start the plot. If you want a full-screen display, click on the Maximize button at the top-right corner of the plot window. You can turn the Show Symbols feature on and off at any time from the Options menu. Each symbol represents a data point, and data points are connected with the selected Line Type (see Figure 4-4).

   To save the plot image at any time, select Edit | Copy Image. This copies the plot into the Windows Clipboard (see "Printing Quick Plots" below). When the Edit menu is open, the plot pauses (no data is lost). Data does not appear on the plot unless the Hydras associated with the plot channels are started. The Hydras may be started before or after starting the plot.
3. To close the plot, double-click on the Control-menu box at the top-left corner of the plot window, or select Setup | Close Plot. Any plotting that is in progress continues.
4. To show a plot after it has been closed, select Plot/Trend | Quick Plot from the Main Window.
5. To stop the plot, show the plot (see step 4) and click the Stop! button.

   To save the plot image, select Edit | Copy Image. This saves the plot in the Windows Clipboard. Be sure to process the graphic as soon as possible because any other use of the Clipboard overwrites the graphic.

   If you click Start! again, the plot clears and begins anew.
6. To clear the plot from the screen, select Setup | Close Plot.



ga024f.eps

Figure 4-4. Configuring Quick Plot

Saving and Printing the Quick Plot *4-24.*

The plot image in the Clipboard may be pasted immediately into another application or saved and recalled for processing at a later time.

Perform the procedures below to save, recall, or print a Quick Plot image using Windows.

Saving the Quick Plot Image *4-25.*

1. While in the plot window, select Edit | Copy Image. The plot image is saved in the Windows Clipboard feature.
2. Open Clipboard Viewer from Programs | Accessories.
3. Select File | Save As. In the File Name box, select a path and name, e.g.,

   `c:\Program Files\Fluke\hydra\plot22.clp`.

   Click OK.

Recalling the Quick Plot Image *4-26.*

1. Open Clipboard Viewer from Programs | Accessories.
2. Select File | Open... . In the File Name: box, select a path and name, e.g.,

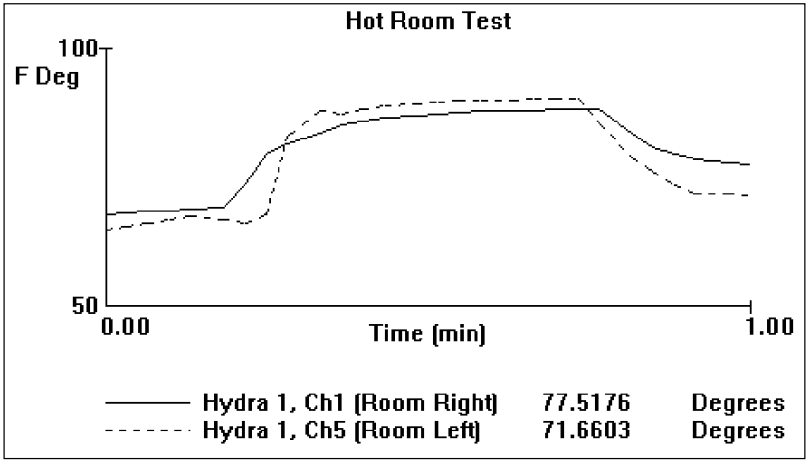
   `c:\Program Files\Fluke\hydra\plot22.clp`.

   Click OK.
3. The recalled image in Clipboard may now be pasted into applications and accessories that accept graphics in bitmap format.

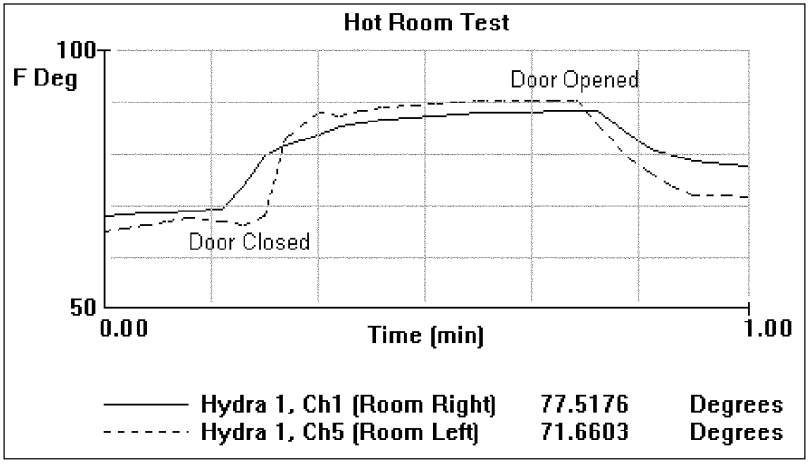
Printing the Quick Plot Image *4-27.*

1. Place the desired Quick Plot image in the Clipboard (see above).
2. Open Paint from Programs | Accessories.
3. Select Edit | Paste. If the Paint screen is too small for the paste, select the Image Attributes command from the Options menu to resize the screen, then repaste the image. (See your Windows documentation for instructions on using Paint.)

   Quick Plot images can be enhanced using the Paint tools, for example, to add text, grid lines, and comments. Figure 4-5 presents an example.



Original Quick Plot Image



Enhanced Quick Plot Image Using the Paint Accessory

ga131c.eps

Figure 4-5. Printing and Enhancing a Quick Plot Image

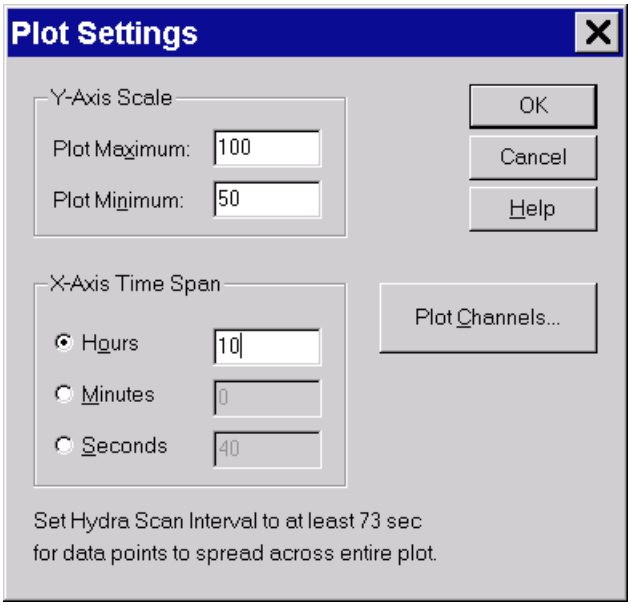
Select File | Print to print the image.

4. To save the image, select File | Save As. Select a path and name, e.g.,
   `c:\Program Files\Fluke\hydra\plot22.bmp`.
   Click OK.

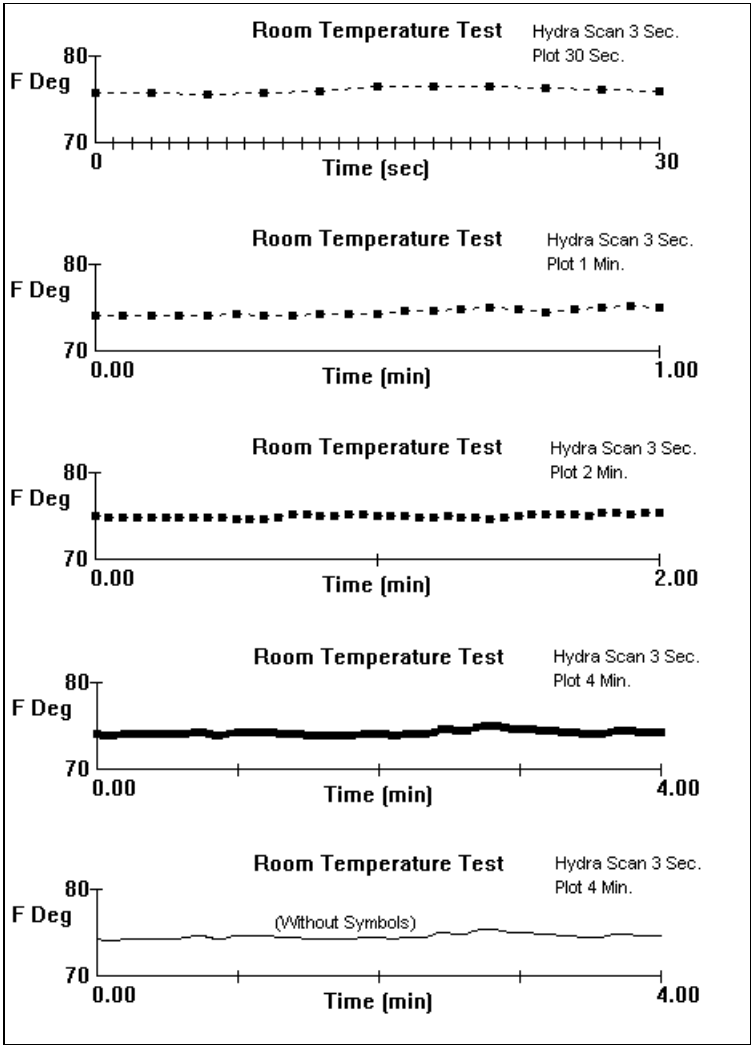
Getting the Right Quick Plot Look *4-28.*

A Quick Plot data point is connected to the next data point with the selected Line Type, and marked with a Symbol (if selected.) See Figure 4-4. There are eight different symbols, one for each of the eight plot traces.

When a Quick Plot time span is selected, the minimum Hydra Scan Interval for a full-scale plot is calculated and displayed. For example, a plot time span of 10 hours calculates a minimum recommended Hydra scan interval of 73 seconds (see below). Figures 4-6 and 4-7 show typical plot characteristics.

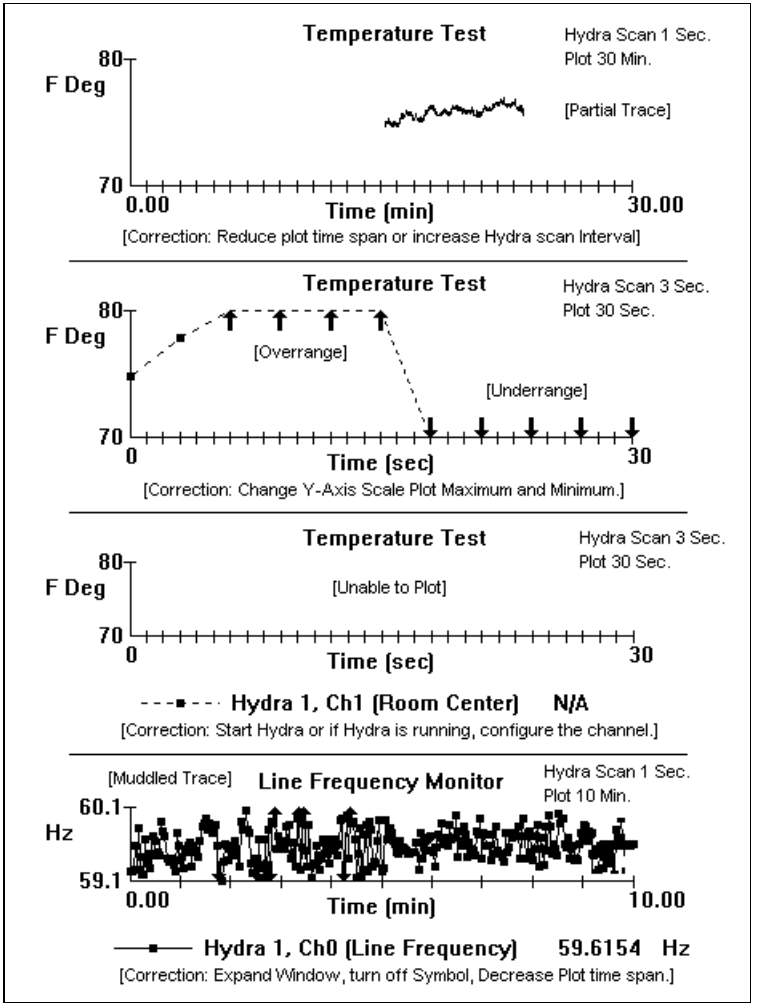


ga113s.bmp



ga028c.bmp

Figure 4-6. Quick Plot Characteristics



ga029f.bmp

Figure 4-7. Troubleshooting the Quick Plot

Creating Plots and Graphs from a Data File *4-29.*

You can create a plot or a graph from a data file by using most spreadsheet applications. Perform the following procedure to create a plot or graph from an ASCII file. (Adapt the procedure as necessary for your spreadsheet program.)

1. Open the spreadsheet application.
2. There are two general methods for opening files. Select one of the methods below that suits your spreadsheet application.

a. Select File | Open. In the File Name box, type the complete path to the Hydra Logger data file you wish to display, for example,

```
c:\Program Files\Fluke\hydra\temptest.csv
```

b. Select File | Import From. in the File Name box, type the complete path to the Hydra Logger data file you wish to display, for example,

```
c:\Program Files\Fluke\hydra\temptest.csv
```

3. Adjust the spreadsheet column width and other formatting variables to display the data in the desired format.
4. Highlight the cells you want to plot or graph. Include the far-left column containing Hydra time stamps to plot data versus time.
5. From the spreadsheet toolbar or menu, open the graph/plot utility.
6. Open a plot/graph window in the spreadsheet to display the plot/graph.
7. Select the desired plot or graph format, and enter titles, axis labels and other formatting features as desired.
8. Print the plot/graph from the spreadsheet or copy and paste it into word processing, Paint accessory, Clipboard accessory, or any application that accepts images in bitmap format.

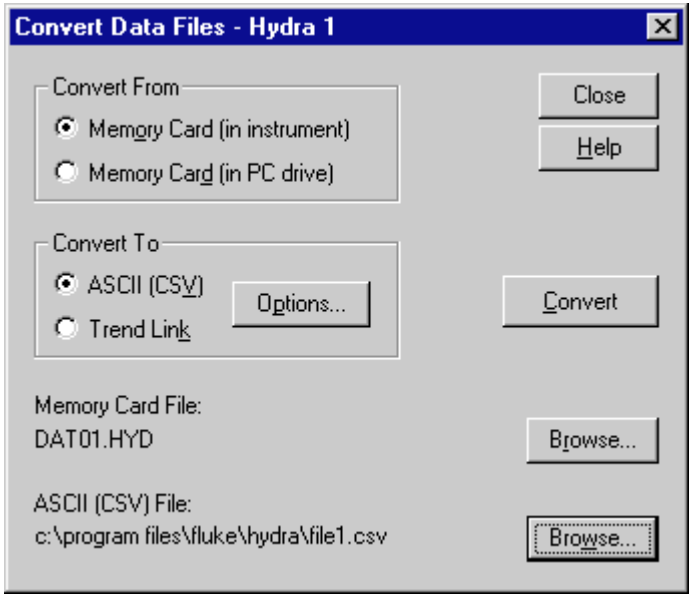
Memory Card File Management 4-30.

The 2635A Data Bucket supports the use of PCMCIA SRAM memory cards for storage of data files and configuration files. This section describes the functions in Hydra Logger that support management of the files on these memory cards.

The Memory Card Management functions are divided into four categories: Convert Data Files, Instrument Card Utilities, Save Configuration, and Load Configuration. Each one can be selected under the Mem Card menu.

Convert Data Files 4-31.

Memory card data files are created by the 2635A instrument in a binary format that is optimized for fast storage. To use the data on your host computer, you must convert the file to ASCII or Trend Link format. Select Mem Card | Convert Data Files to open the Convert Data Files dialog box.



ga120s.bmp

To copy and convert a memory card data file from the card to a host computer file select the following:

Convert From

Memory Card (in instrument). The memory card is in the Hydra instrument.

Memory Card (in host computer drive). The memory card is in a host computer drive.

Convert To

ASCII (CSV). This is a general purpose text format described in Chapter 3 and Appendix A.

Trend Link. This format can be used with the Trend Link application.

Convert

Click Convert to carry out the conversion process once a Memory Card File name and a host computer file name have been selected.

Memory Card File

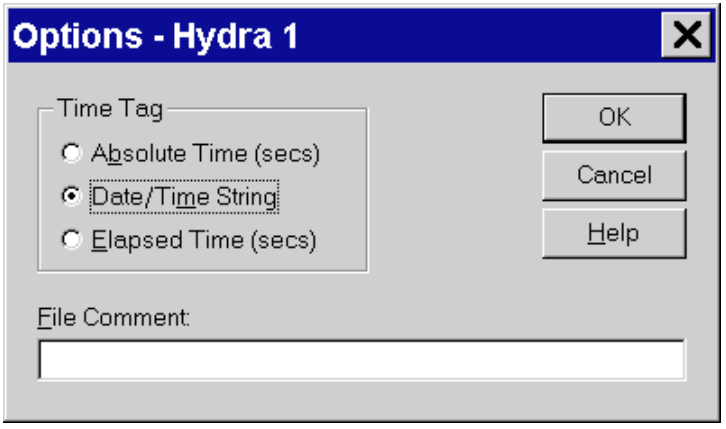
Use Browse to select the memory card file to be converted.

ASCII (CSV) File

Use Browse to select or enter a destination file name for the memory card data file conversion. Note that the title changes to Trend Link File: when a Trend Link file conversion is selected.

Options

This selection brings up the Options dialog box shown below.



ga114s.bmp

Time Tag (ASCII (CSV) files only) offers the following selections:

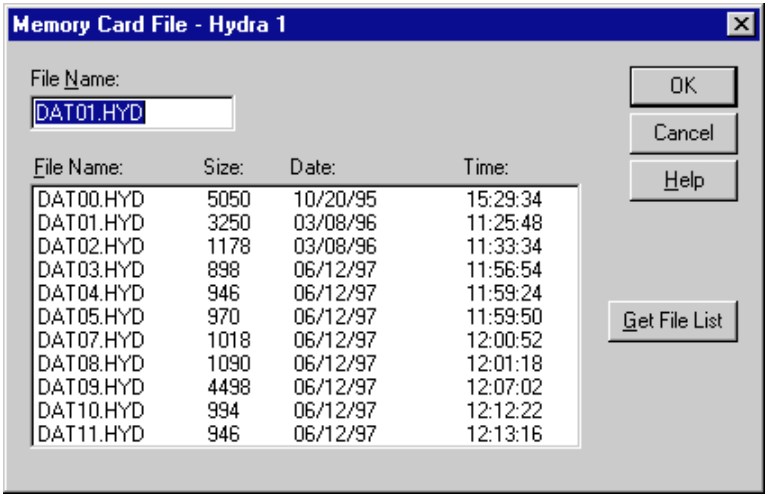
- **Absolute Time (secs**). Seconds since Jan. 1 1970.
- **Date/Time String.** A string showing month, day, year, hour, minute, second.
- **Elapsed Time (secs).** Seconds since time of first scan in the file.

File Comment allows you to enter a file comment, which appears in the data file header.

Browse

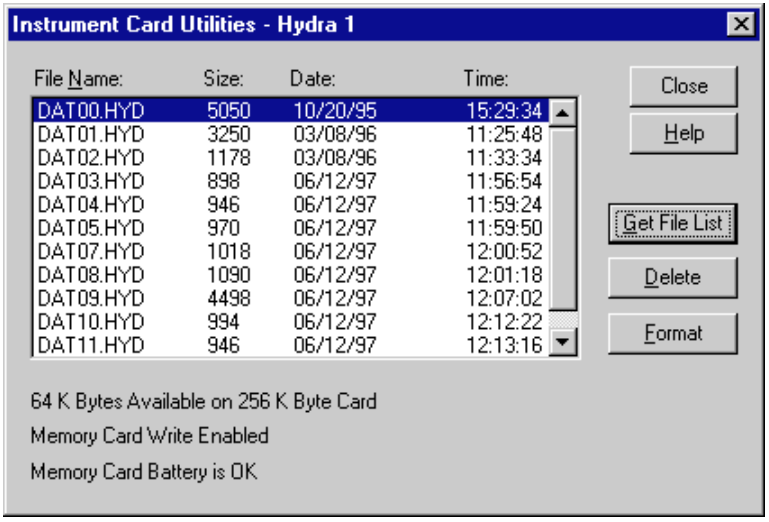
Opens either a Windows file selection dialog box (for selecting a file in the host computer) or the Memory Card File dialog box (below) for selecting a file on a memory card inside a Hydra instrument, depending on the Convert From selection.

- **File Name.** Enter a memory card file name here. File names can also be selected from the file list by clicking the left mouse button once. Double clicking on a file name in the file list selects the file name and closes the dialog box.
- **Get File List.** Updates the file list. For example, use Get File List if a new memory card is inserted into the instrument while the Memory Card File dialog box is still open.



ga121s.bmp

Instrument Card Utilities *4-32.*



ga119s.bmp

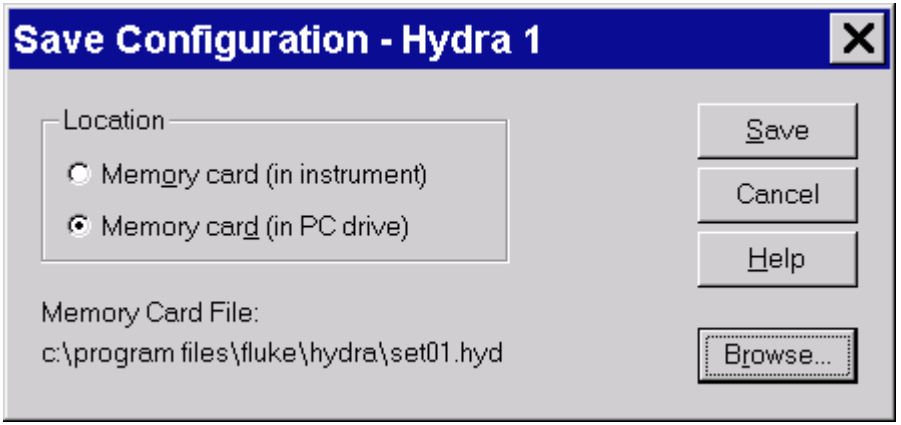
- **Get File List.** Displays an updated list of Hydra files on the memory card in the Hydra instrument. For example, use Get File List if a new memory card is inserted into the instrument while the Instrument Card Utilities dialog box is still open.
- **Delete.** Deletes one or more files selected from the memory card in the Hydra instrument after obtaining confirmation (“Delete These X File(s)?”).

- **Format.** Formats the memory card in the Hydra instrument after obtaining confirmation ("Formatting will erase your memory card. Are you sure that you want to do this?").

To perform equivalent operations on a memory card in a host computer drive, use system utilities such as Windows Explorer.

Save Configuration *4-33.*

This selection saves a single Hydra configuration from Hydra Logger to a memory card file. Select Mem Card | Save Configuration to open the Save Configuration dialog box.



ga115s.bmp

- **Location.**

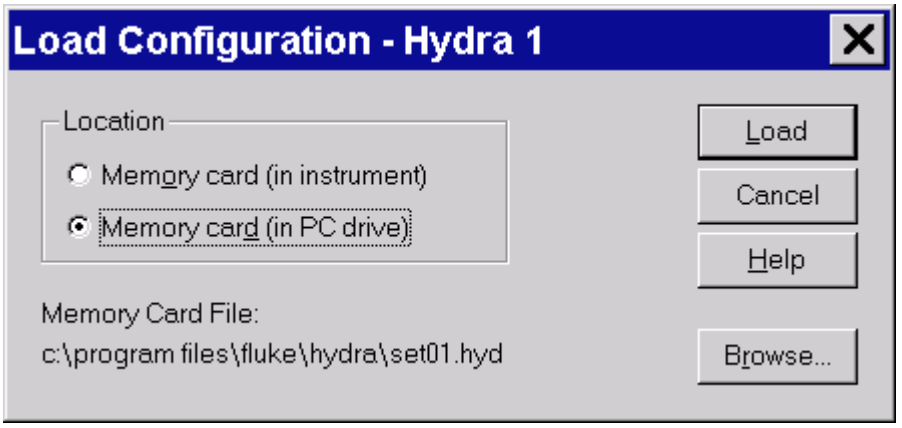
  Memory Card (in instrument). The memory card is in the Hydra instrument.

  Memory Card (in host computer drive). The memory card is in a host computer drive.

- **Memory Card File.** Displays the memory card file name where the configuration is to be saved.
- **Browse.** Opens either a Windows file selection dialog box (for selecting a file in the host computer) or the Memory Card File dialog box for selecting a file on a memory card inside a Hydra instrument, depending on the location selected.
- **Save.** Saves the Hydra Logger configuration of the selected Hydra to a file on the memory card.

Load Configuration *4-34.*

This selection loads a configuration from a memory card file into the current Hydra Logger configuration. The configuration will be applied to the Hydra instrument selected on the Icon Bar.



ga116s.bmp

- **Location.**

  Memory Card (in instrument). The memory card is in a Hydra instrument.

  Memory Card (in host computer drive). The memory card is in a host computer drive.

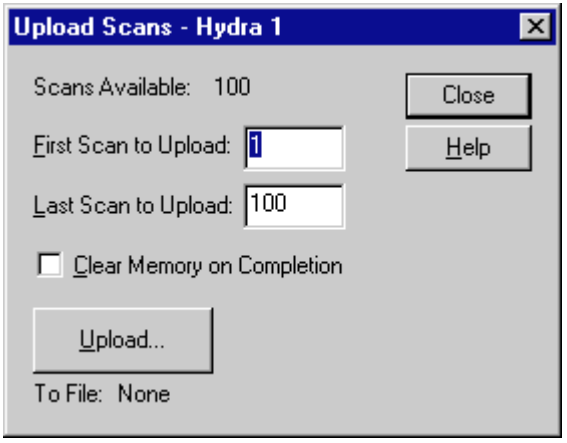
- **Browse.** Opens either a Windows file selection dialog box (for selecting a file in the host computer) or the Memory Card File dialog box for selecting a file on a memory card inside a Hydra instrument, depending on the location selected.
- **Load.** Loads the selected `setxx.hyd` file configuration from the memory card into Hydra Logger for the selected Hydra and displays a warning message ("This operation will modify the Hydra Logger configuration now. Do you want to continue?").
- **Memory Card File.** Displays the memory card file name to load.

Logging Memory Upload 4-35.

The 2625A Data Logger instrument stores up to 2047 scans of measurement data in its internal scan memory, and the 2635A Data Bucket stores up to 100 scans of measurement data. This data may be transferred to the host computer and recorded in a data file.

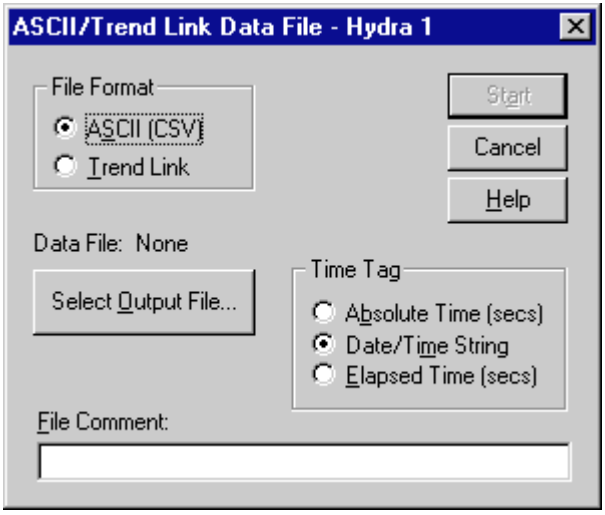
Perform the following procedure to upload measurement data from a Hydra instrument's internal memory.

1. Select the desired instrument on the Hydra Icon Bar.
2. Select Utilities | Upload Scans, opening the Upload Scans dialog box (below is typical).



ga117s.bmp

3. Enter the first scan to upload in the First Scan to Upload box and the last scan to upload in the Last Scan to Upload box.
4. To clear the uploaded scans from the instrument after the upload, check the Clear Memory on Completion box.
5. Click the Upload button to open the ASCII/Trend Link Data File dialog box (below).



ga118s.bmp

- **File Format.** Selects the type of file in which to store the data:
  ASCII (CSV). Selects comma-separated variable ASCII character format.
  Trend Link. Trend Link can be selected only when Trend Link is installed.
- **Data File.** Displays the selected name of the conversion output file.
- **Select Output File.** Selects the name for the conversion output file.
- **File Comment.** Allows you to enter a file comment, which is to appear in the data file header.
- **Time Tag.** (ASCII (CSV) files only)
  Absolute Time (secs). Shows seconds since Jan. 1, 1970.
  Date/Time String. Shows a string with month, day, year, hour, minute, and second.
  Elapsed Time (secs). Shows seconds since first scan of this logger period.

6. Once you have selected a file name, click the Start button to upload the memory into the selected data file.

Chapter 5
Using Trend Link for Fluke

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Introduction 5-1.

Trend Link for Fluke graphs real time and historical data in the Microsoft Windows environment. This chapter supports Trend Link operation with a series of procedures to use in conjunction with Hydra Logger. Refer to the *Trend Link for Fluke Reference Manual* for complete information. Make sure that you have installed Trend Link as described in Chapter 2, "Installing Software."

Displaying a Trend Link Chart During Logging 5-2.

Perform the following procedure to display a Trend Link chart in real time during logging. This procedure assumes you have configured the network and instruments for operation and have selected Trend Link as the data file format.

1. In Hydra Logger, select the desired instrument on the Icon Bar. Verify that Trend Link shows in the File Format field in the Main Window as shown below.

   If the file format is ASCII, you will not be able to display a Trend Link chart in real time.

2. Select Logging | Start Hydra (or click the Start Hydra button on the Toolbar) to begin logging data from the instrument to the Trend Link data file.

3. To display the Trend Link chart, select Plot/Trend | Show Trend Link.

   Note

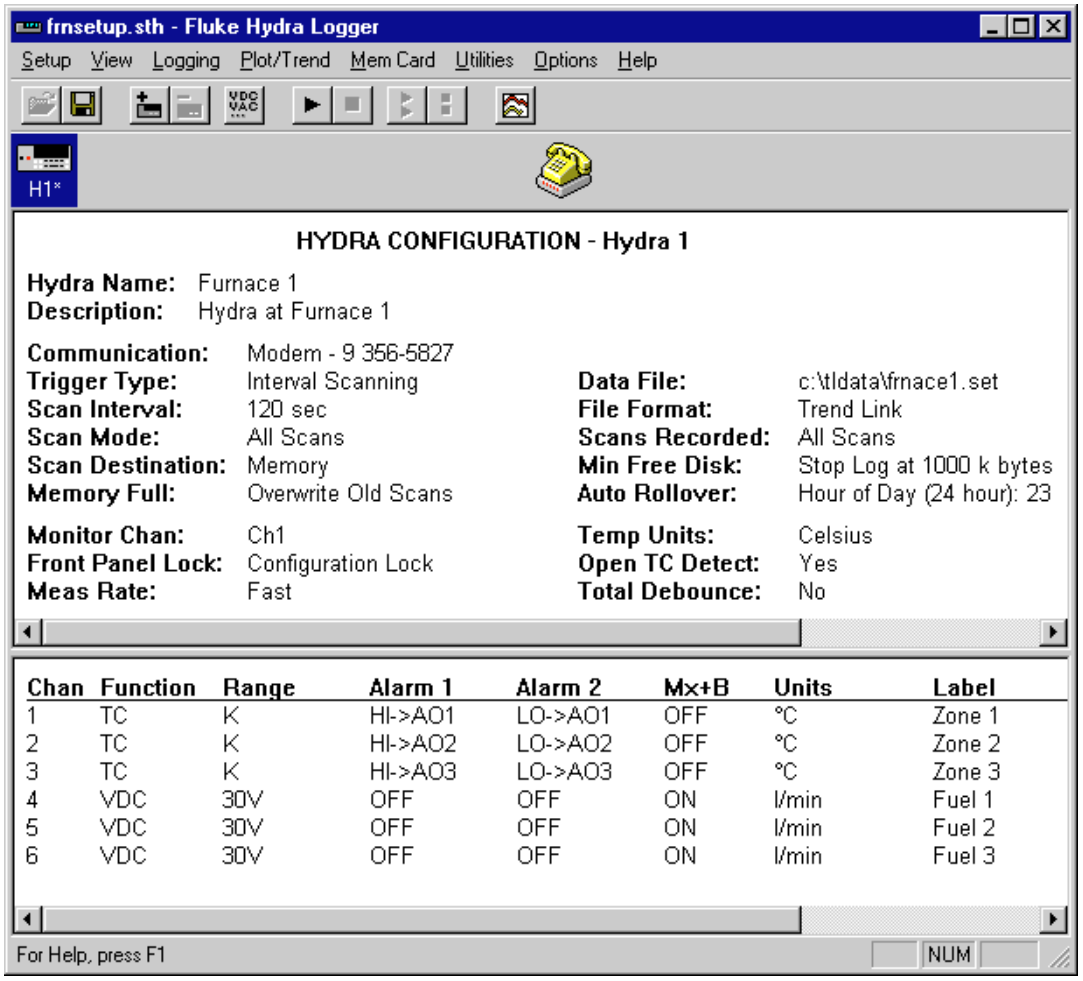
   If this is the first use of the Trend Link data file, allow a few seconds for Trend Link to create the folder and files used for the chart.

4. To change the look of the chart, see "Getting the Right Look for your Trend Link Chart" later in this chapter.

5. Click the Stop Hydra button on the Toolbar when you wish to terminate logging data.

6. To save changes to the chart, select File | Save in Trend Link. By saving the chart, you can play it back at a later time with the same settings.

7. Exit Trend Link by selecting File | Exit.

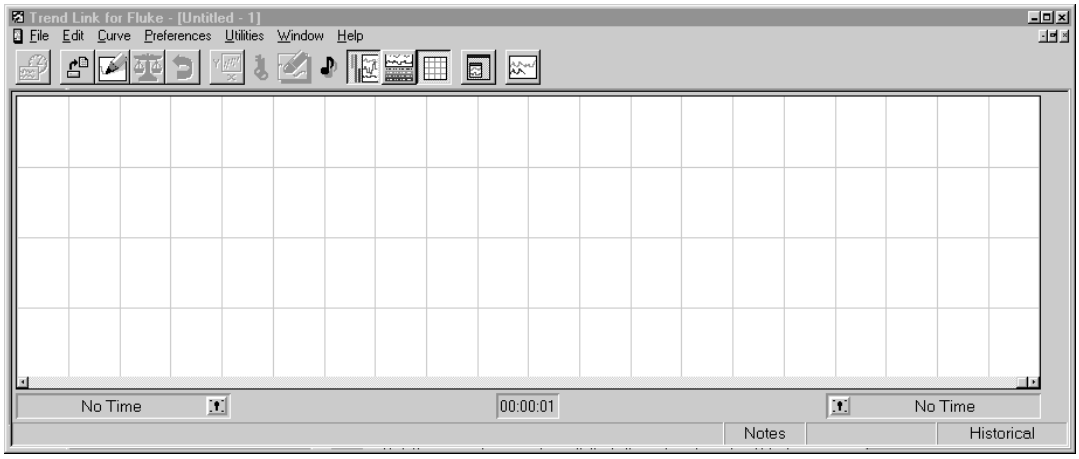


ga103s.bmp

Playing Back a Trend Link File in Trend Link 5-3.

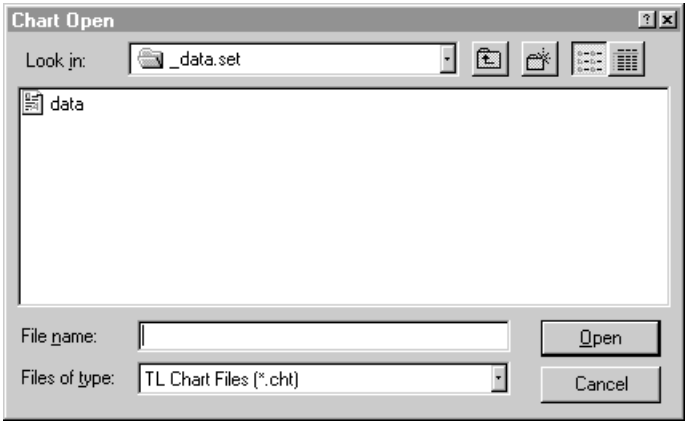
Perform the following procedure to play back a Hydra Trend Link data file using Trend Link.

1. Start Trend Link from Start | Programs, or select Plot/Trend | Show Trend Link in Hydra Logger. The figure below shows a typical Trend Link opening screen.



ds122s.bmp

2. In Trend Link, select File | Open to display the Chart Open dialog box.



ds123s.bmp

3. Select the chart file to play back. For example, select

   `c:\Program Files\Fluke\hydra\_data.set\data.cht`

   Click OK.

4. Observe that the selected chart opens. Use the scroll bar at the bottom of the chart to display the measurement area of interest.

5. Select Edit | Add Curve to view data from additional channels in the Trend Link file.

6. After viewing the chart or performing other chart operations, select File | Exit to exit Trend Link, saving the changes as required.

Playing Back an ASCII (CSV) File in Trend Link 5-4.

To play back a Hydra Logger ASCII (CSV) data file in Trend Link, refer to "Importing Trend Link Data Files" in this chapter. Specify Fluke Format (`*.csv`) for the Import File Type. Do NOT import the same ASCII (CSV) file more than once into the same Data Set; this causes a timestamp conflict.

Importing Trend Link Data Files 5-5.

You can import Standard Format (`*.csv`), Iconics Format (`*.prn`), and Fluke Format `*.csv` data files using the Trend Link Import *.CSV File utility. For example purposes, the procedure below shows how to import a Fluke Format ASCII (CSV) data file. You can adapt this procedure to standard `*.csv` and Iconics Format `*.prn` as required.

Create a New Trend Link Data Set Directory 5-6.

In the Windows Explorer utility, create a new folder for a Trend Link Data Set in `c:\Program Files\Fluke\hydra` as follows:

1. Highlight the following folder:

   `c:\Program Files\Fluke\hydra`

2. Select File | New | Folder.

3. Name the new folder using the Hydra Logger convention for Trend Link Data Set folders. Start with an underscore, followed by up to seven characters and the extension `*.set`.

4. Click OK. Observe that Windows Explorer shows the new folder under

   `c:\Program Files\Fluke\hydra`.

Alternatively, use the Configurator program supplied with Trend Link to create a new Data Set. See Configurator program information in the *Trend Link for Fluke Reference Manual*.

Add the New Folder to the Trend Link infolink ini File 5-7.

1. While still in Windows Explorer, select and open the following file in the Windows Notepad accessory:

   `\Program Files\Fluke\tl\infolink.ini`

2. Locate the portion of the file with the heading:

   `[TL Data Set Paths]`.

3. Add a line under this heading with the name and path for the new Data Set. The format is:

   `Data Set name = Data Set path`.

4. For example, adding the Data Set name `data.set` to the Data Set path `c:\Program Files\Fluke\hydra\_data.set` results in the entry shown below.

   [TL Data Set Paths]
   `data.set=c:\Program Files\Fluke\hydra\_data.set`

5. Save the changes and exit Notepad.

Import the Hydra ASCII (CSV) File into Trend Link *5-8.*

Start Trend Link from the Programs list. Select Utilities | Import CSV Data to display the Import *.CSV File dialog box. Make the following selections:

- **Target Data Set.** Double-click the Data Set you entered earlier in the Data Sets box to enter the name in the Target Data Set box. For example, double-click `data.set`.
- **Import File Type.** Select **Fluke Format** (`*.csv`)
- **Filename.** Enter the complete path to the Hydra ASCII (CSV) file you want to play back in Trend Link. For example, enter:

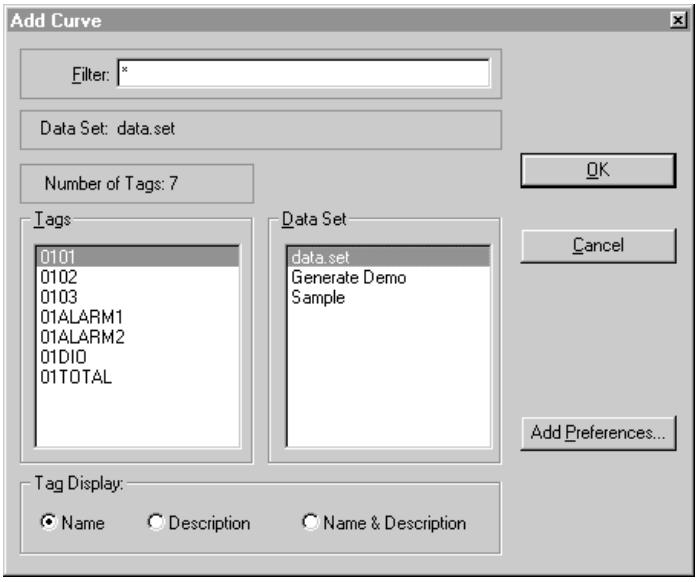
  `c:\Program Files\Fluke\hydra\testdata.csv`.

- **Field Delimiter.** Verify Custom and comma (,) selections.

Click OK when you have made all selections. Allow several seconds for importing the Hydra ASCII (CSV) file into the Trend Link Data Set directory you created.

Display the Trend Link Chart for the Imported File *5-9.*

Select Edit | Add Curve to open the Add Curve dialog box. Double-click the name of your Data Set in the Data Set box. Click the desired Tag name (curve) from the Tags box and then click OK to display the curve. The following example displays Tag 0101 from the Data Set `data.set`. Repeat this step for each curve that you want to examine in Trend Link.



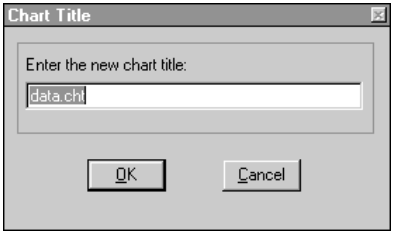
ds126s.bmp

Examine the chart and perform any standard Trend Link procedures. (See "Getting the Right Look for Your Trend Link Chart.")

Title the Trend Link Chart *5-10.*

To open the Chart Title dialog box, select Preferences | Chart Title. Enter the desired title and click OK.

Observe that the entered text appears at the top of the chart in the Title Bar.



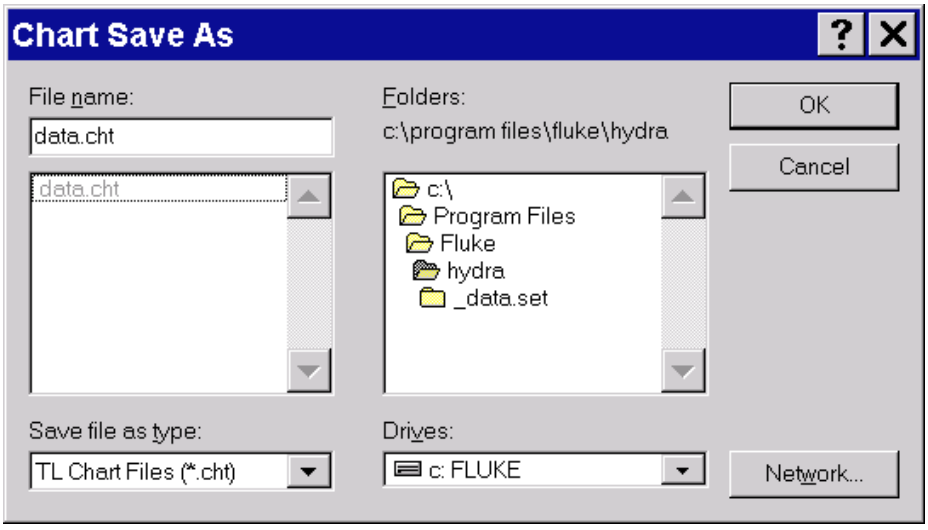
ds139s.bmp

Save the Trend Link Chart *5-11.*

To save the Trend Link chart, select File | Save As. Enter the path to your Data Set directory for the `*.cht` chart. For example, enter:

```
c:\Program Files\Fluke\hydra\_data.set\data.cht
```

Click OK.



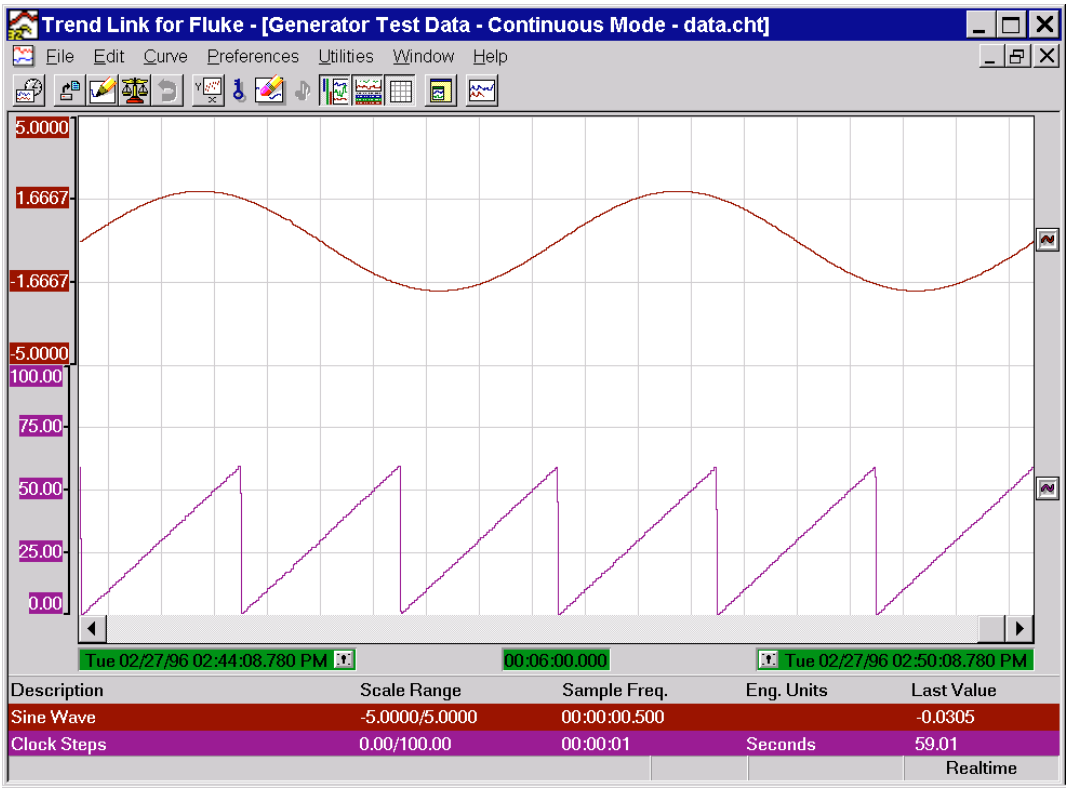
ga104s.bmp

Exporting Trend Link Data Files *5-12.*

Trend Link can export data files into one of three Export File Type formats: Standard Comma Separated Values (`*.csv`), MathCad Array Format (`*.prn`) and Column Heading Format (`*.csv`). Note that the Trend Link `*.csv` formats are *not* the same as the Hydra Logger ASCII (CSV) data file format.

Perform the following procedure to export a data file from Trend Link. This procedure assumes the Hydra Logger data file for export is already in Trend Link format. If this is not the case, see "Playing Back an ASCII (CSV) File in Trend Link" for conversion procedures.

1. Start Trend Link from Start | Programs.
2. Select File | Open and select the desired Trend Link chart. Click OK.
3. Adjust the Trend Link chart to display the desired data you wish to export. Trend Link only exports the data displayed on the chart! The example below shows 6 minutes of the chart `data.cht` being exported. (See "Getting The Right Look For Your Trend Link Chart" to adjust the display to show the desired data.)



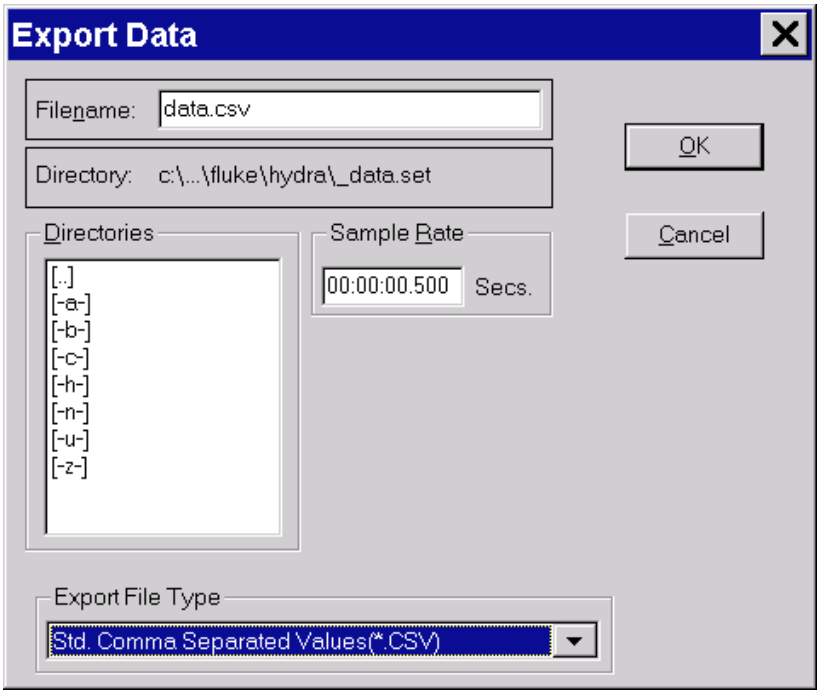
ga105s.bmp

4. Select Utilities | Export CSV Data to open the Export Data dialog box. Select the Export File Type, Sample Rate time resolution of the exported data file in the format Hours:Minutes:Seconds, and the name of the exported file. The example below shows the `data.set` file exported in Column Heading Format as file

   `c:\Program Files\Fluke\hydra\_data.set\data.csv`

   with a sampling interval of 0.5 second.

   Click OK.



ga106s.bmp

Deleting Old Trend Link Files *5-13.*

Hydra Logger creates a *.set file and a directory for every new Trend Link data file. The directory name is identical to the Trend Link data file name, except for an underscore "_" character prefix. The actual data resides in this directory.

To delete a Trend Link data file, use Windows Explorer or File Manager to delete the directory and its contents. Also, delete the *.set file. Perform the following steps:

1. Double-click the `c:\Program Files\Fluke\tl\infolink.ini` file to display the contents using the Notepad accessory. Delete the line under the heading `[TL Data Set Paths]` that relates to the directory you deleted above.
2. Save the changes to `infolink.ini` and exit Notepad.
3. Repeat Steps 2 and 3 for each Trend Link Data Set being deleted.

Alternatively, use the Trend Link Configurator to delete Trend Link files. See “Editing Data Sets” in the *Trend Link for Fluke Reference Manual*.

Getting the Right Look for Your Trend Link Chart 5-14.

When you display a Trend Link chart, you can modify the chart appearance to suit your application. Use the Control Bar or various menu selections, as described below.

Using the Trend Link Control Bar 5-15.

The Control Bar in the Trend Link window allows you to quickly modify the chart display. The Control Bar is shown below and described in Table 5-1.

ds131s.eps

See the *Trend Link for Fluke Reference Manual* for more information on menu items and other Trend Link capabilities.

Table 5-1. Control Bar

Button	Description
	**Historical Mode:** Click to freeze the chart during the Real Time Mode, allowing you to use the scroll bar at the bottom of the chart to back up to any portion on the recorded chart. If you are collecting measurement data using the Real Time Mode, you do not lose data while you are in Historical Mode. **Real Time Mode:** Click again to view measurement data retrieval in real time.
	**Open an Existing Chart** Click the Open Chart button to display the Chart Open dialog box. Double-click on the desired existing file to open an existing chart. A prompt asking to save the current chart appears.
	**Adding a Curve** Click to open the Add Curve dialog box. Double-click the desired `*.set` line in the Data Set box to display the available Tags. Double-click the desired tag in the Tags box to add the curve.
	**Setting Autoscaling** To clear a Fixed Range and return to autoscaling, click the Autoscale button. Notice that the fixed range you entered in Setting a Fixed Range clears.
	**Undo and Redo** Click the Undo/Redo button to undo any time scale change.
	**XY Curve Plot** This feature gives you a chart which plots one curve against another. Click the XY Curve Plot button, which displays an X symbol. Position the X symbol over a Curve icon and click. The X symbol changes to a Y symbol. Position the Y symbol over another Curve icon and click again. This displays the XY Curve Plot window, which displays a plot of the Y curve against the X curve. Click OK to return to the chart.

Table 5-1. Control Bar (cont.)

Button	Description
	**Locking a Time** You can press the left mouse button while over the key and hold it down, you can drag the key in the Control Bar over one of the locks in the two time displays. By releasing the button while over one of the locks, you place the key in that lock. A shortcut to accomplish the same task is by double-clicking the mouse while over one of the locks. This causes the key to automatically go into the lock. To unlock a time, simply click over the lock and drag the key off the lock and release it.
	**Erasing a Curve** To erase a curve, click this button, hold the mouse button down, drag the Eraser icon on top of the Curve icon, and release the mouse button.
	**Adding Notes** To enable the Note icon on the Control Bar, select Preferences | Note System. Click the Historic Mode button to freeze the chart. Drag the Note icon to any point on the curve (it must touch part of the curve) and release. In the Note dialog box, add your text, then click OK. Click Yes in the Add Note message box. Double-click the Note icon on the curve to review your text. Click OK.
	**Curve Band Bars** When this button is down, Trend Link displays the band bars for all curves on the chart. When the button is up, the band bars are off. The band bars appear to the left of the curve window as thin colored bars. They may optionally be displayed with scale values.
	**Curve Status Window** Click on and off to toggle display of the Curve Status Window at the bottom of the chart. The Curve Status Window, which is color-coded to the curve traces and the Curve Symbol icons, displays information about each curve.
	**Grid Lines On/Off** Click to turn the chart background grid lines on and off.
	**Stay on Top Mode** Click to display the Trend Link window on top of all other windows.
	**Batch Mode** Click in to enter Batch Mode. Click out to enter Continuous Mode.
	**Measurement Cursor** Click and hold the left mouse button anywhere in the chart display area to display the measurement cursor. You can then select any data point on the chart for time and measurement value display.

Using the Trend Link Menus 5-16.

The Trend Link menus (below) allow you to modify the chart display appearance and functionality. This section does not discuss menu functions repeated on the Control Bar. (See "Using the Trend Link Control Bar.") This section only summarizes the menu functions. Refer to the *Trend Link for Fluke Reference Manual* for complete menu information.

ds245s.bmp

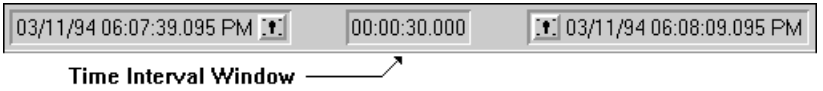
This section describes the following common menu procedures:

- Adjusting the Curve Time Scale (X-axis)
- Adjusting the Curve Amplitude Scale (Y-axis)
- Configuring the Curve Status Display
- Curve Preferences
- Background Preferences
- Real Time Frequency Update
- Adding or Changing the Chart Title
- Using the Note System
- Printing a Chart

Adjusting the Curve Time Scale (X-axis) 5-17.

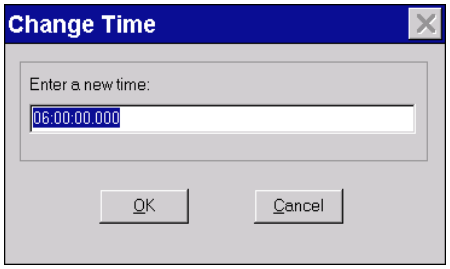
Perform the following procedure to adjust the curve time scale (X-axis).

1. Double-click the Time Interval Window at the bottom of the chart (see below) to open the Change Time dialog box.



ds242c.bmp

2. In the Change Time dialog box, enter the time for the curve display, that is, the time from the left edge to the right edge of the curve. The format is 00:00:00.000 (hours:minutes:seconds.fraction). For example, 00:00:30.000 represents 30 seconds. Click OK. You can only enter a time that is equal to or less than the overall recorded chart time. For example, if you have been collecting data for 6 hours, you can enter a number up to 6 hours. (For this operation, be sure to position the bottom scroll bar to the far-right.)



ds132s.bmp

To change the default value so that *all* created charts will have a selected preset value in the Time Interval Window:

1. Use the Notepad accessory to modify the file:

   `\Program Files\Fluke\hydra\tldef.cht`

2. Find `[Section: Curve Window],` and add the line:

   `Curve Window Interval Time=nnnnnnn`

   where `nnnnnnn` is the time in milliseconds.

3. For example, for 1 hour, enter 3600000.

4. Save the changes and close Notepad.

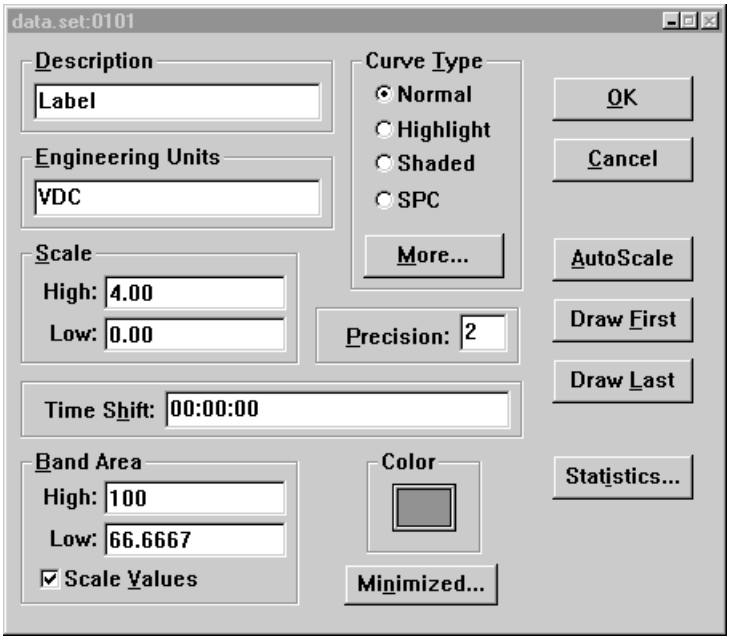
To zoom in on a portion of the curve, double-click in the chart at each point that you want to expand. The chart will display the portion you selected.

Adjusting the Curve Amplitude Scale (Y-axis) *5-18.*

Perform the following procedure to adjust the curve amplitude to a fixed scale (Y-axis).

1. Uncheck Preferences | Dynamic Autoscale.
2. Double-click the Curve icon at the right side of the chart to open the curve preference dialog box (below).
3. Enter the desired fixed scale in the Scale High and Low text boxes.
4. Click OK.

   For more information on the curve preference dialog box, see "Curve Preferences."

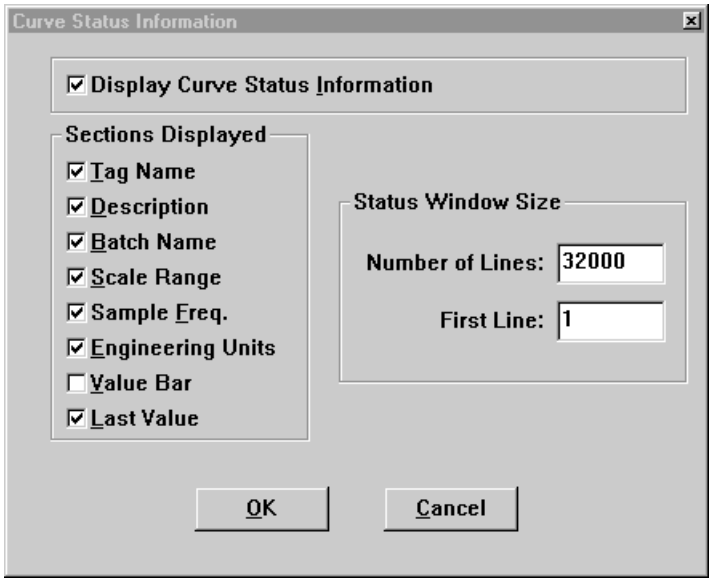


ds133s.bmp

Configuring the Curve Status Display *5-19.*

Perform the following procedure to select the elements of the Curve Status display. The Curve Status display is the window at the bottom of the chart containing the parameter information of the curves. Toggle Curve Status on and off with the Curve Status Window button on the Control Bar. (See "Using the Trend Link Control Bar.")

1. Select Edit | Curve Status Info to open the Curve Status Information dialog box (below).



ds134s.bmp

2. Select the desired features of the Curve Status display by checking or unchecking each of the Sections Displayed listings. Click OK.

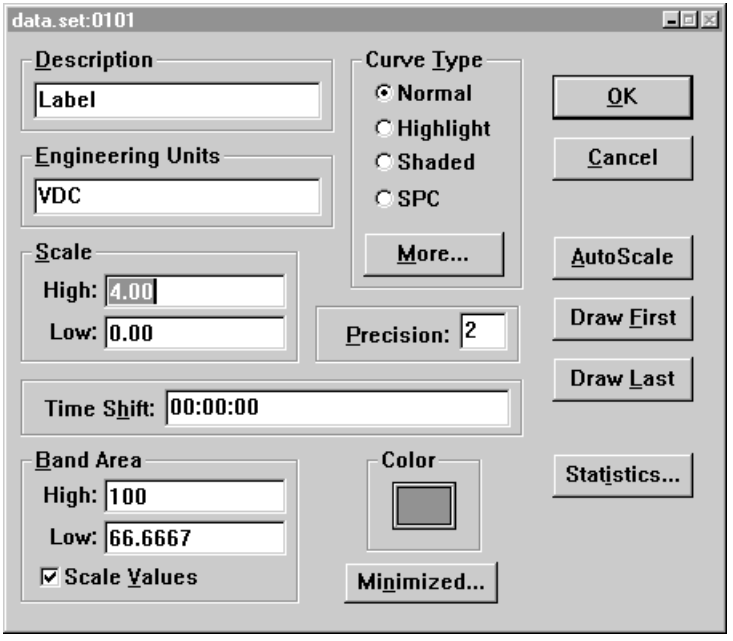
Curve Preferences *5-20.*

Perform the following procedure to select the curve preferences. You can customize various attributes of each curve on the chart. For example, you can change the color, add a fixed range, and position one curve on top of another.

1. Select Curve | Curve Information to open the Curve Information dialog box.

ds135s.bmp

2. Click on the desired curve listed in the Tags box. The curve will then appear in the Tagname box. Click OK to open the Curve Parameters box (below). (You can also open this dialog box directly by double-clicking the Curve icon.)



ds136s.bmp

3. The tag name of the selected curve appears in the dialog box caption. Each dialog box entry has the following characteristics:

Description. This entry will be initialized with the string entered in Hydra Logger for the channel label. (See "Channel Label" in Chapter 3.)

Engineering Units. This entry will be initialized with the string entered in Hydra Logger for the units label. Enter the Engineering Units characters in Hydra Logger as a units label. (See "Function" in Chapter 3.)

Scale. The High and Low entries set the curve's vertical scale. (Trend Link ignores the Scale entries if you have checked Preferences | Dynamic AutoScale.)

Band Area. The High and Low entries define the portion of the curve window used for the display of the curve. Band values of 100 and 0 represent the whole curve window, while values of 50 and 0 represent the bottom half of the curve window. If you check Scale Values, the band bars displayed on the left side of the curve window will include a display of scale values. Otherwise, a band without numbers will appear.

Curve Type. Select the type of curve: Normal, Highlight, Shaded, or SPC (Statistical Processing Control). If you enabled the Hydra Logger channel alarm values, the default curve type is "highlighted" and Trend Link sets limit values according to the alarm values.

Precision. Refers to the number of digits appearing to the right of the decimal point (Curve Status window and Band Bars.) For example, a Precision entry of 1 would show values of 70.0 and 80.0 (maximum entry is 7, showing values of 70.0000000 and 80.0000000.)

Color. Click here to select the color of the curve trace.

More Button. Click to open the Curve Options dialog box for the Curve Type selected.

Minimized Button. Click to select display options when the dialog is minimized. A minimized dialog becomes a floating window displaying various types of information about the curve (tag name, last data value, etc.)

AutoScale Button. Click to autoscale the scale values based on the current data in view in the curve window.

Draw First Button. This causes the curve to be drawn on the top over all other curves.

Draw Last Button. This causes the curve to be drawn on the bottom under all other curves.

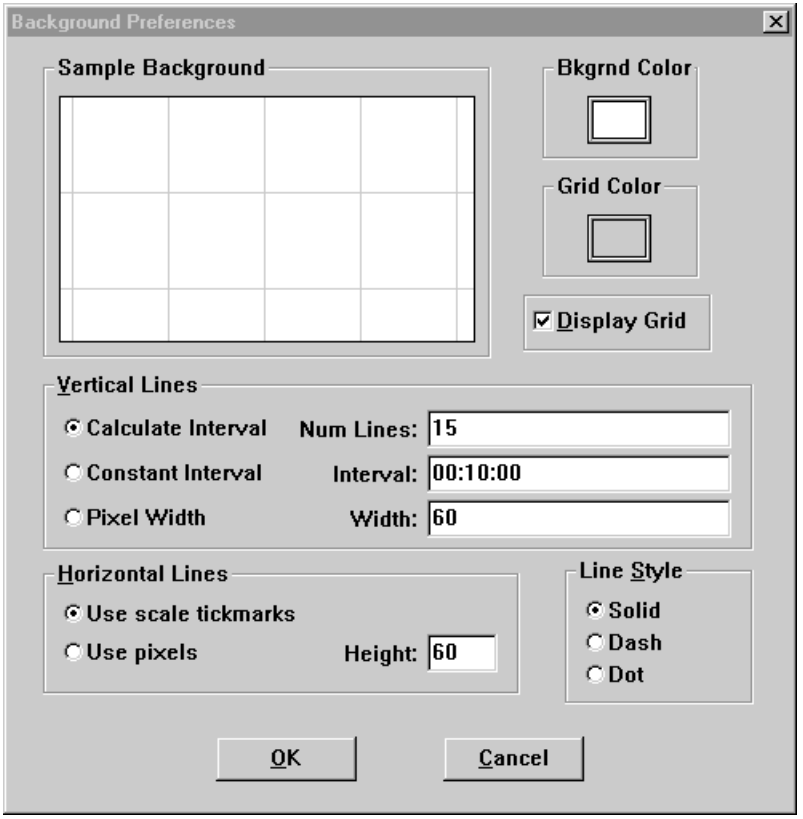
Statistics Button. Opens the display for the statistics of the curve, including Histogram, Box Plot, Sum, Mean, and Standard Deviation values.

4. After making your selections in the dialog box, click OK or minimize the dialog.

Background Preferences *5-21.*

Perform the following procedure to select the background preferences. Background preferences select the curve background color and grid appearance.

1. Select the Preferences | Background to open the Background Preferences dialog box (below).



ds137s.bmp

2. The dialog box entries are as follows:
   - **Bkgrnd Color.** Choose the background color.
   - **Grid Color.** Choose the grid color.
   - **Display Grid.** This is the same as selecting Grid Lines On/Off on the Control Bar.
   - **Calculate Interval.** Select this option to enter the number of vertical grid lines to display. Trend Link calculates the time interval represented by each grid line so that the desired number of grid lines appear on the display.

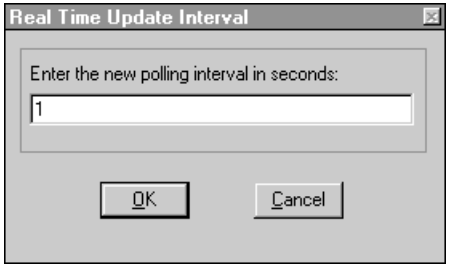
- **Constant Interval.** Select this option to enter the exact time interval that a vertical grid line should represent.
- **Pixel Width.** Select this option to enter the distance between vertical grid lines in pixels.
- **Use scale tickmarks.** If you select this option, horizontal grid lines draw to match the tickmark labels on the band bars.
- **Use Pixels.** If you select this option, you can enter the distance between horizontal grid lines in pixels.

3. After making your selections in the Background Preferences dialog box, click OK.

Real Time Frequency Update *5-22.*

Perform the following procedure to modify the frequency update period for the real time display. The default (and minimum time) is 1 second.

1. Select Preferences | Real Time Freq to open the Real Time Update Interval dialog box.



ds138s.bmp

2. Enter the desired number of seconds for the real time interval. You cannot enter fractions of seconds.
3. Click OK.

Adding or Changing the Chart Title *5-23.*

Perform the following procedure to add or change the title of the chart at the very top of the chart window. (By convention, the title is the name of the Trend Link file with the `*.cht` extension, for example, `data.cht`. However, you can use this procedure to enter any custom title.)

1. Select Preferences | Chart Title to open the Chart Title dialog box.
2. Enter the chart title name in the text box. For example, enter:

   `station one`
3. Click OK.
4. Observe that the entered text appears at the top of the chart in the Title Bar.

Using the Note System *5-24.*

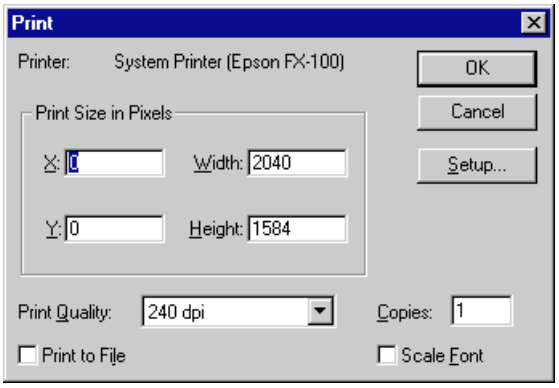
Perform the following procedure to add a text note to a curve. You can add notes to an historical curve to comment on a particular event (voltage spike, gap in the data, etc.).

1. Select Preferences | Note System to enable the Note icon on the Control Bar.
2. To add a note to a point on an historical curve, drag the Note icon to a point on the curve and release. When you release the note, a text box for the note opens and displays the time and date where the note will be positioned on the curve.
3. Enter the desired text (up to 1024 characters) in the text box, then click OK.
4. When the message “Add note permanently to curve?” appears, click Yes.
5. As a test, double-click the Note icon you just created to view the note text. Click OK.

Printing a Chart *5-25.*

Perform the following procedure to print a Trend Link chart. Trend Link prints only the displayed portion of the chart.

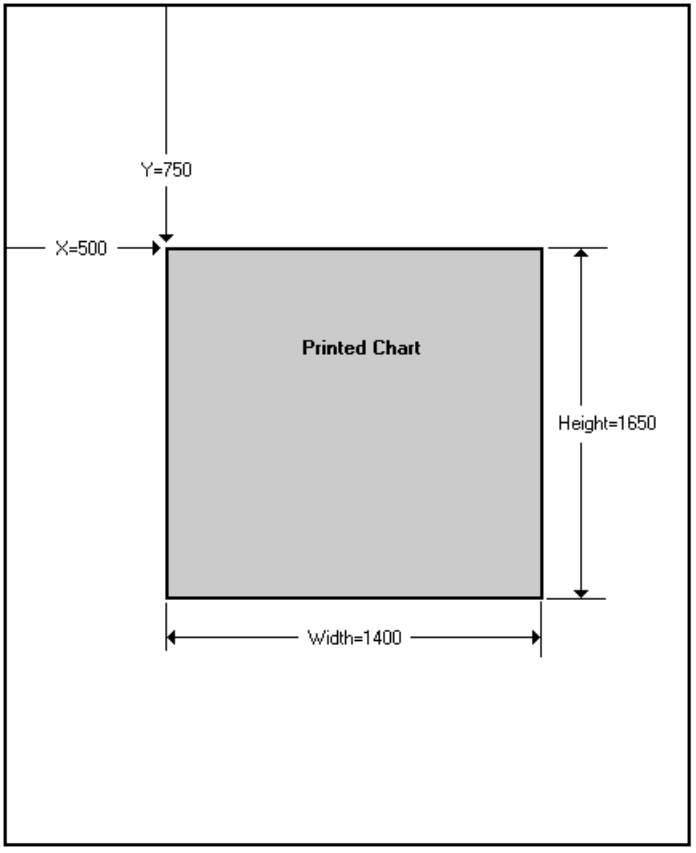
1. Bring into view the portion of the chart you wish to print.
2. Select File | Print to open the Print Options dialog box (below).



ds140s.bmp

You can position and size the printed chart by entering X and Y Offsets and Width and Height settings. The X and Y Offsets specify the position of the upper-left corner of the printed page, and the Width and Height determine the size of the printed chart. If you enter impossible values, Trend Link prints a default (full-page) chart.

For example, X=500, Y=750, and Width=1400, Height=1650 results in the following printed chart:



ds141f.bmp

Figure 5-1. Printed Chart

Click OK to print the chart.

Appendixes

Appendix	Title	Page
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Appendix A
ASCII File Format

ASCII File Format

The ASCII format is compatible with data analysis and management tools, which can be running simultaneously on the host computer or other computers on the same network. Data files are opened in SHARED mode with write blocked. This enables reads (but no writes) of the data file while scan data is being recorded. Between scans, the file is closed, allowing full access to the file (including delete if allowed by the security level enabled on the host computer.) If the file disappears between one scan and the next, a new file (including header and with the previous file name) is created before new scan data is recorded.

The comma-separated ASCII file format is as follows (<EOL> means "end of line", a <CR><LF> sequence):

- File name string (< 15 characters) followed by a colon (:)
- Special format (internally used) string (8 characters) <EOL>
- Date and time file was created <EOL>
- Memory Card Tag (21 characters), File Comment (< 70 characters) <EOL>
  The Memory Card Tag appears only for data files uploaded from a memory card. The tag is the date and time the memory card data file was created, e.g.,
  ```
  ; 10/25/95 16:48:13
  ```
- Number of Hydras (always 1) <EOL>
- Channel Units string (24 comma-separated strings) <EOL>
- Scan Record 1 <EOL>
- Scan Record n <EOL>

Each scan record consists of the Hydra time stamp (the user's choice of absolute time, date/time string, or elapsed time) and a comma-separated list of channel readings (including the DIOAlarm word, and totalizer). The strings are surrounded by quotes to allow direct importation into spreadsheet programs and other data analysis and presentation packages.

In this format, each recorded scan consumes about 300 bytes. A 1-megabyte file can store about 3330 scans.

Appendix B
Error Messages

4-Wire measurements not allowed on channels 0,11-20.

Four-wire measurements are not allowed on channel 0 and channels 11 through 20. Four-wire measurements require the use of a pair of channels, e.g., channels 1 and 11 or 2 and 12. Choose channel 1 through 10 for a 4-wire measurement.

A modem connection is currently in progress.

You have attempted to make a remote connection when there is already a remote connection established. Hydra Logger allows only one remote connection at a time.

A Telephony resource is temporarily unavailable. This could mean a short wait is necessary or that a non-TAPI application is using the line.

Check for other applications that could be using the modem.

Attempt to start Trend Link failed.

Couldn't start Trend Link. If the path to the Trend Link directory has changed, use the Plot/Trend | Trend Link Directory control to change the path to the Trend Link program.

Bad date from operating system.

This message can be displayed when attempting to set the Hydra clock to the host computer time with a date that is outside the range handled by the Logger program. Check the current Windows Date/Time setting.

Batch information in data set has been corrupted.

This will occur when Logger starts logging into an existing Trend Link data file for which the batch information has been corrupted. The best workaround is to start logging in a new Trend Link data file.

Before performing Start Hydra Scanning, you must select Download Config. or Resume Logging on Start from the Logging menu.

You have attempted to start an instrument scanning without data retrieval when Simulated Logging has been selected. From the Logging menu select Download Config. or Resume Logging in order to determine the desired configuration for the instrument.

Cannot access specified drive X for Trend Link data.

Check drive selection. If this is a network drive, check the state of the network server.

Cannot add (tag) to the Trend Link data set.

An attempt to add a tag (channel) to a Trend Link data set failed. Check file and directory permissions and amount of remaining disk space.

Cannot create Trend Link data set directory.

Check that the directory permission is not set to Read-Only, check the path for your data file to make sure the directory path allows access, and verify you have sufficient disk space for the new directory.

Cannot create Trend Link data set dummy file (file name).

Trend Link is unable to create the Data Set *.set file for your Trend Link data file.

Verify that the Data Set directory permission is not set to Read-Only, check the path for your data file to make sure the directory path allows access, and verify you have sufficient disk space for the new files.

Cannot write to Hydra Logger INI file.

An attempt to write to this file has failed. This file contains setup information for the Hydra Logger program and is stored in the Hydra installation directory. Check file and directory write permissions. For 32-bit operating systems, this file is named `Hydra32.ini`. For 16-bit operating systems, this file is named `Hydra.ini`.

Cannot write to Trend Link infolink.ini.

The Trend Link infolink.ini file must be modified to add a new data set.

The Trend Link infolink.ini file is either missing, corrupted, is from a previous version of Trend Link, or is write-protected. Trend Link will look for the infolink.ini file in one of three places. The default location is in the `c:\Program Files\Fluke\tl` directory. Check your Trend Link installation or reinstall Trend Link using the procedures in the *Hydra Logger Users Manual.*

Changes made in lower level dialog boxes will be lost. Are you sure you want to cancel?

This will occur in a dialog box if you cancel after having made changes in lower level dialogs. For example, if you okay changes in the Auto Rollover dialog and then cancel the Data File Configuration dialog, the message will appear.

Channels 0-3 have dedicated alarm outputs and cannot be assigned digital outputs.

You have attempted to assign a Digital Output for a channel 0-3.

Alarms occurring on channels 0 through 3 are always associated with the rear panel ALARM OUTPUTS (channel 0 to ALARM OUTPUT 0, channel 1 to ALARM OUTPUT 1, etc.) and cannot be assigned digital outputs.

Configuration information relating to Telephony services appears to be corrupt.

This could be the first time you have used the Telephony services. Use the Control Panel to configure the Telephony services.

Configuration will be lost. Delete anyway?

You are deleting an icon from the Icon Bar, which will delete configuration data pertaining to this instrument from the current Hydra Logger setup. Click Yes to proceed or No to cancel the operation.

Currently logging instruments will be stopped.

You tried to exit Hydra Logger while instruments are still logging. If you wish to exit and stop all logging, click OK. To keep the application open until logging has stopped, click Cancel.

Disconnected: Bad address
Disconnected: Bad reason
Disconnected: Congestion
Disconnected: Forwarded
Disconnected: Incompatible
Disconnected: Line is busy
Disconnected: Local phone picked up
Disconnected: No answer

Unable to make a remote connection. Check that both the remote modem and the instrument are properly connected with the appropriate communications parameters.

Disconnected: No dial tone

Unable to make a remote connection. Check that both the remote modem and the instrument are properly connected with the appropriate communications parameters. Make sure that the outgoing phone does not have voice-mail waiting; some voice-mail systems alter the dial tone.

Disconnected: Unavailable

Disconnected: Unknown reason

Disconnected: Unreachable

Unable to make a remote connection. Check that both the remote modem and the instrument are properly connected with the appropriate communications parameters.

Download Configuration does not set External and Monitor Alarm triggering in the instrument. Use the Start Hydra commands in the Logging or Utilities menus, or the instrument front panel, to enable triggering.

Due to the structure of the Hydra instrument command set, External and Monitor Alarm triggering get enabled immediately when those trigger types are set. To prevent unintended scans, Hydra Logger does not configure External and Monitor Alarm triggering until you issue a Start command.

Entered values do not generate valid Mx+B values.

The entered values generate M and B values that are outside the valid range for single precision floating point.

Error on requested line. Unable to use line.

When attempting to connect to a remote instrument, a connection could not be made. Check your local modem connection. Check that both the remote modem and the instrument are properly connected with the appropriate communications parameters.

Error registering window class.

The application was unable to register the window class. This error can occur if not enough memory is available. Exit some applications, or exit and restart Windows, then try again.

File conversion failed.

The memory card file is illegal or corrupted, or Hydra Logger cannot open or write to the destination file, or there is insufficient disk space on the host computer for a needed temp file.

File does not exist.

A memory card operation was attempted on a file that was not found on the memory card.

File Size must be between 200 and 100000.

The file size to trigger a data file rollover must be between 200 and 100000 K (100M) Bytes.

Formatting has failed.

Memory card formatting failed. Check write protection.

Hour of Day must be between 0 and 23.

The time to trigger a data file rollover must be in hours between 0 (midnight) and 23 (1 hour before midnight).

Hydra Logger supports only one modem connection at a time.

You have attempted to make a remote connection when there is already a remote connection established. Hydra Logger allows for only one remote connection at a time.

Hydra Logger will stop retrieving data. Would you like instrument scanning to continue?

You tried to exit Hydra Logger or hang up a remote connection while instruments are still logging.

If you wish to exit or hang up and leave the instruments scanning without scan retrieval, click YES.

If you wish to exit or hang up and stop instrument scanning as well as scan retrieval, click NO.

To continue instrument scan retrieval, click CANCEL.

Hydra X: Already has this file name.

Another Hydra has already been associated with this filename. Multiple Hydras cannot log data to the same file.

Hydra X: Another Hydra is already connected via modem. Only one modem connection is supported at a time.

You have attempted to make a remote connection when there is already a remote connection established. Hydra Logger allows for only one remote connection at a time.

Hydra X: Calibration corrupted.

The Hydra's calibration constants have been corrupted. The Hydra instrument needs to be recalibrated. See the Hydra manual's maintenance section for information on servicing the instrument.

Hydra X: Cannot change configuration while logging.

This message appears if you attempt to copy a Hydra configuration from one Hydra to a Hydra that is currently logging. Use Stop Hydra to stop logging on the Hydra you are copying to before attempting to change its configuration.

Hydra X: Cannot write to Trend Link data set.

An attempt to write to a Trend Link Data Set failed. Check file and directory write permissions.

Hydra X: Channel labels and units may be inconsistent with uploaded channel definitions. Also, Trigger Type and Monitor Chan settings are unaffected by this command.

Channel labels and custom units are maintained only in Hydra Logger, not in the Hydra instrument. The channel labels and custom units in Logger's current setup are retained when you upload the configuration from an instrument.

Due to the structure of the Hydra instrument command set, channel monitoring and External and Monitor Alarm triggering get enabled immediately when those features are configured. To prevent unintended measurements, Hydra Logger sets and unsets those features as part of the Start and Stop commands (in the Logging and Utilities menus), not as part of the Upload/Download Configuration commands.

Hydra X: Communication interruption.

Communication with the Hydra instrument has been interrupted. Check the Logging Status window for the current communication status. If the total number of errors for the Hydra continually increase, communication is still being interrupted.

To prevent this error message from reoccurring, click on the Disable this warning check box. The error message is not displayed again until you exit and restart Hydra Logger.

If you get this message during memory card operations, check the RS-232 parity selection. It must be "None" for correct memory card file transfers.

Hydra X: Communications are set to echo on and cannot be turned off from Hydra Logger when the instrument is saving scans to a memory card.

You have tried to establish communication with an instrument which has ECHO turned on and is probably logging to a memory card. It is not possible to turn ECHO off from Hydra Logger while the instrument is logging to the memory card. You will need to turn it off from the front panel of the instrument.

Hydra X: Date/time corrupted.

The Hydra instrument no longer contains a valid date and time. Press the <Shift> INTVL button on the front panel of the Hydra instrument to ensure that the date and time are correctly set. This message can also occur if the Hydra's internal clock has failed. In this case, see the Hydra manual's maintenance section for information on servicing the instrument.

Hydra X: Error returned from Trend Link function.

A tbase DLL function returned the indicated error. Refer to the Trend Link reference manual for more information.

Hydra X: Hang-up failed.

When attempting to disconnect a remote connection, a failure occurred. Check your remote location for problems.

Hydra X: Hydra Command Error.

The Hydra received a command it did not recognize, probably due to a communication error. Retry the operation.

Hydra X: Hydra Execution Error.

The Hydra could not execute a command, possibly due to a communication error. Retry the operation.

If this error is displayed when starting logging on a Model 2635A with memory card data recording enabled, check the memory card status. Scanning cannot be started with data going to the memory card if there is a memory card error (card not present, not formatted, file error, etc.) Check if the memory card is firmly seated in the socket.

If this error is displayed when attempting a memory card file conversion or other file operation on a card located in a Model 2635A instrument, check if the instrument is actively scanning its channels. Memory card data transfer cannot be started if scanning is active in the instrument. Use the instrument front panel SCAN button or select Utilities | Stop Hydra Scanning to turn scanning off.

The 2635A Data Bucket disallows many commands while it is recording scans to a memory card. Therefore, the following Hydra Logger operations result in an execution error: Resume Logging, Upload Scans, and Upload Configuration.

Hydra X: Hydra will be disconnected. Continue?

You have requested a remote connection to be disconnected.

If you wish to hang-up, click Yes. To keep the current connection, click No.

Hydra X: Instrument does not support memory card.

The instrument selected is a Model that does not support memory card operations.

Hydra X: Instrument scan queue overflow.

Hydra internal scan memory is full. This condition occurs when scans are being logged faster than Hydra Logger can retrieve them and the scan memory eventually fills up. This may be caused by frequent or prolonged communication interruptions that prevent Hydra Logger from collecting scans fast enough, or by the Hydras being configured for short scan intervals such that Hydra Logger cannot keep up even under ideal communication conditions.

This error can also occur if communication with the Remote Hydra was temporarily interrupted. When communication is restored, the application queries the Hydra instrument's scan memory. If the Hydra responds that its scan memory is full, this message is displayed.

When Hydra scan memory becomes full, the Hydra instrument either overwrites the oldest scans in memory or stops recording new scans. The oldest scans are overwritten if Overwrite Old Scans has been selected in the On Scan Memory Full box of the Advanced Scan Parameters dialog box.

Hydra X: N scan(s) in Hydra memory will be lost.

This warning occurs when a Hydra configuration is about to be downloaded to the Hydra, and scans remaining in Hydra memory will be cleared as a result. Scans may have been left in Hydra memory if some loss of communication has occurred, or if you aborted Hydra Logger's attempt to retrieve remaining scans when you stopped logging.

If you have selected Logging | Download Config. on Start and selected Start Hydra , or have selected Utilities | Download Hydra Config. , this warning can also be displayed.

To continue and erase the stored scans, select Continue. To cancel, press Cancel.

If you are attempting to start the Hydra logging but do not want to lose the scans currently in Hydra memory, select Logging | Resume Logging on Start and try starting the Hydra again. Since the configuration is uploaded to the host computer

instead of downloaded to the Hydra, the Hydra does not clear its scan memory. The Hydra always clears its scan memory on receiving configuration commands to ensure that scan data corresponds to the current configuration.

Hydra X: No channels defined.

None of the channels on Hydra *X* has been defined. You must define at least one channel for the Hydra before attempting to start logging with the Hydra. Select Setup | Edit Hydra Config... and press the Channels button to define the channels.

Hydra X: No parity must be selected for memory card communication.

Memory card file transfer requires No Parity to be selected in the communications setup for RS232. This setting must be selected for both Hydra Logger and the Hydra instrument (via the front panel.)

Hydra X: Not enough memory to perform operation.

Not enough memory is available in the host computer to perform the operation. Exit some other applications and try again.

Hydra X: RS-232 communications error.

This message appears when an error occurs over the RS-232 serial port. Occasional RS-232 errors occur more often for high baud rates, and during file operations or network accesses.

If this error occurs repeatedly, there may be a more serious problem. First, verify that the serial port settings in Hydra Logger match the settings in the Hydra instrument. If these are correct, the problem is probably due to a hardware conflict in the host computer, such as a serial mouse or an internal modem sharing the same interrupt request line as the serial port.

Hydra X: Selected Trend Link data set already contains data for instrument N.

The name you selected for your Trend Link data file is already being used by another instrument. Delete the Data Set or create a new Data Set.

Hydra X: Time earlier than existing Trend Link data.

This message indicates that the Trend Link Data Set you are trying to initialize or log to has a timestamp that is newer than the timestamp of the scans to be uploaded or logged.

This message can occur under the following conditions:

1. An attempt is being made to upload scans from instrument memory or from a memory card file that have previously been uploaded or are out of order with

the current timestamps in the Data Set. You can delete the Data Set, or create a new Data Set.

2. The Instrument clock is slightly faster than the host computer clock. If Hydra Logger runs for several days, when the instrument is stopped, the last recorded timestamp may be later than the host computer time. In this case, wait for the host computer time to "catch up" before setting the Hydra clocks or trying to initialize the Trend Link data file for collecting additional data. For example, if the host computer time is 1 minute behind the instrument time, wait at least 1 minute before setting the Hydra clocks. You can also create a new Trend Link Data Set.
3. The host computer clock is losing time. Reset the host computer clock to the correct time. If this problem continues, you may have to replace the battery that powers the internal clock in your host computer.
4. The host computer clock is set to a new time. You will not be able to log data to an existing Trend Link file after changing the host computer clock to a time earlier than the timestamps in the Trend Link file. To continue, let the host computer time catch up to the time recorded in the timestamps or create a new Trend Link file.

Hydra X: Time-out waiting for Hydra.

Hydra Logger was unable to communicate with the Hydra. This error occurs when the Hydra is turned off, configured for the wrong baud rate or parity, not connected to the host computer, or not a Hydra instrument.

Hydra X: Trend Link data set file not found.

Exit Trend Link, start logging again, and then restart Trend Link.

Hydra X: Unable to initialize communications port.

Hydra Logger is unable to initialize the host computer's serial COM port. This indicates that the COM port does not exist or is being used by another application.

Hydra X: Unable to Stop Hydra Scanning.

An error occurred when attempting to stop data retrieval. Use the Hydra Front Panel controls to stop scanning at the instrument.

Hydra X: Unable to write to data file.

Hydra Logger was unable to write Hydra scan data to the data file. This could indicate that the directory structure for the data file has been deleted, that the application no longer has write permission for the file, or that the disk is full. Also check the current Windows Date/Time setting.

Hydra X: Unsupported model or version of Hydra.

This error occurs if you are using any Hydra instrument other than a models 2620A/2625A (using software version 5.5 or later) or model 2635A. To determine the version of the software running on the instrument, press the right and left arrow keys on the Hydra instrument simultaneously. The version number is shown in the center of the display. Press the CANCEL key to exit.

This error message can occur as a result of a communication interruption while Logger is querying the instrument. In such cases, verify communications and repeat the operation.

Invalid Alarm Value.

You have entered an alarm value that is excessively large.

Select an alarm value that is less than +9.9999E+9.

Invalid factor (M) value.

The display range selected cannot accommodate the scale factor (M) value entered. Review the allowed combinations for display range and scale factor value.

Invalid Maximum value for Display Range.

The Display Range selected cannot accommodate the value entered. Review the allowed combinations for display range.

Invalid Maximum value for Input Range.

The value typed for the maximum value for computing M and B for a channel is invalid.

Invalid Memory Card File.

Memory card data files must be named datxx.hyd, where xx is 00 through 99. Memory card configuration files must be named setxx.hyd where xx is 00 through 99.

Invalid Minimum value for Display Range.

The Display Range selected cannot accommodate the value entered. Review the allowed combinations for display range.

Invalid Minimum value for Input Range.

The value typed for the minimum value for computing M and B for a channel is invalid.

Invalid Offset (B) value for Display Range.

The display range selected cannot accommodate the offset (B) value entered. Review the allowed combinations for display range and offset value.

Invalid path selected.

You have attempted to save a file with an invalid path name. Check the directory structure, including read/write permissions.

Invalid Phone Number or Area Code.

An invalid number was entered for the phone number or area code. Check that there are entries for these fields with valid characters.

Invalid Plot Maximum value.

The maximum value entered is an invalid number.

Invalid Plot Minimum value.

The minimum value entered is an invalid number.

Invalid RTD R0 entry.

You entered an out-of-range RTD R0 (ice point).

Enter an R0 value between 0 and 999.99 ohms. The default is 100 ohms. (The R0, or ice point, refers to the resistance of the RTD at zero degrees C.)

Invalid scan entries.

The first and last scan to upload must be greater than 0 and less than the max. number of scans in the memory. The first scan value must be less then or equal to the last scan value entered.

Invalid Scan Interval entry.

The scan interval must be less than or equal to 38439 seconds and greater than or equal to 0 seconds.

Invalid Scans to Skip value.

The scans to skip entry must be less than 65535 and greater than or equal to 0.

Invalid Time Span entry.

The time span entered for the Quick Plot x axis must be between 0 and 100.

Line busy, stopping call in progress.

When attempting to connect to a remote instrument, a busy signal was received and the attempt to connect was stopped.

Line idle, stopping call in progress.

Unable to make a remote connection. Check that both the remote modem and the instrument are properly connected with the appropriate communications parameters.

Line is already in use by a non-TAPI application or by another TAPI Service Provider.

You will need to wait to use the device.

Line name is empty.

You have attempted to configure a modem connection without specifying a modem device.

If there are no modem selections, use the Control Panel | Modems selection to add your modem to the list of available devices.

Line unavailable.

The modem device you have specified is not available. Use the Control Panel to modify this.

Line unnamed.

The modem device you have specified is not available. Use the Control Panel to modify this.

Load Configuration failed.

Loading the configuration file from the memory card failed. The configuration file may have been damaged, or there was a communications error, or there is insufficient disk space on the host computer for a needed temp file.

Low on memory.

There is not enough memory to complete the current operation. Either exit some applications, or exit and restart Windows.

Maximum number of Hydras reached.

The maximum number of Hydra instruments (2) has already been created. An unused Hydra may be reconfigured for use, or deleted by selecting it and selecting Setup | Delete Hydra.

Memory Card Battery is Low

The memory card battery is low - replace before attempting operations.

Memory card directory too big.

Directory read from the memory card is too big for the input buffer in the host computer. Some directory entries are not displayed in the list. This cannot happen if the file naming rules are followed.

Memory card file does not exist or has been corrupted.

The selected memory card file no longer exists on the card or the file has been corrupted and cannot be read.

Use the Mem Card | Instrument Card Utilities menu item to check for the existence of the file.

Memory card file system error - Check formatting.

When attempting to get the amount of free space on a memory card in the instrument, an error was returned. It may be necessary to reformat the card.

Memory card is not reliable due to battery.

The memory card battery is low or unreliable - replace before attempting operations.

Memory Card is Write Protected

Writing to the memory card is prevented because the card is write protected. Check the position of the write protect switch on the memory card.

Memory card not present.

You have selected an operation that requires a memory card in the instrument.

The memory card has not been detected and must be inserted to continue this operation.

Minimum and maximum values for input range must be farther apart.

The minimum and maximum value of the input range for M and B computation must be greater than 1.0E-6 apart in value.

Minimum free disk space must be between 0 and 100000.

The minimum free disk space remaining that triggers a data file rollover must be between 0 (totally full) and 100000 K (100M) Bytes.

Must enter a Phone Number for a modem connection.

You have attempted to save an instrument configuration specified as having a modem connection without entering a phone number. Enter a phone number through the Dial Modify dialog.

Must select a valid modem name for a modem connection.

A valid TAPI connection must be specified for the modem configuration.

Must select Function for Monitor Channel.

The monitor channel must not be OFF. Select a function for the monitor channel.

Must select Monitor Channel for Monitor Alarm trigger.

A monitor channel must be selected before enabling monitor alarm trigger mode.

Must select Monitor Channel for Monitor Lock.

A monitor channel must be selected before enabling monitor lock mode.

No destination file selected.

An operation was attempted that needs to have a destination file selected first (ASCII or Trend Link file.)

No match on modem selection.

The modem that has been selected no longer exists in the system selection. Either select a different modem or use the Control Panel | Modems selection to add the appropriate modem entry.

No Memory Card File selected.

An operation was attempted that needs to have a memory card file selected first.

No scans left in instrument memory.

There are no scans in the Hydra instrument scan memory.

No timers available. Close another application and try again.

Hydra Logger requires the use of a timer. This error occurs when all timers (a limited Windows resource) are being used by other applications. Exit some applications that are using timers and try again.

Not enough disk space for conversion.

There was not enough space on the default disk drive to create the temporary file used in memory card upload and conversion.

Not enough disk space to save the file.

A disk space available error was detected during a file save operation. Check how much space is available on the drive. This error could result from insufficient disk space on the host computer to create a needed temp file.

Not enough memory for number of channels selected.

Exit some applications or exit from and restart Windows.

One of the components of the Telephony device driver is missing. Use the Control Panel to set up the driver properly.

Access the Control Panel.

Out of memory. Canceling action.

You have attempted a remote operation that requires more memory space than currently available. Try to free up more memory and then repeat the operation.

Plot Maximum must be larger than Plot Minimum.

The plot maximum scale must always be greater than the plot minimum scale value.

Remote Party Disconnected

While connected to a remote instrument, the remote modem hung-up and was disconnected. Check that both the remote modem and the instrument are properly connected with the appropriate communications parameters. Once they are properly connected, you can use Utilities | Dial to re-dial the remote instrument; logging will continue.

Remote party rejected call.

Unable to make a remote connection. Check that both the remote modem and the instrument are properly connected with the appropriate communications parameters.

Save configuration failed.

Saving the configuration file to the memory card failed. There may have been a communications error, or the card was full, or there is insufficient disk space on the host computer for a needed temp file.

Setup file is invalid.

The selected setup file is either not a Hydra Logger setup file or its contents have been corrupted.

Shunt Resistance value must range from 10 to 250 Ohms.

You entered an out-of-range shunt resistance for dc current measurements.

Enter a shunt resistance value between 10 and 250 ohms. The default is 10 ohms.

Special Info, probably could not dial number.

Unable to make a remote connection. Check that both the remote modem and the instrument are properly connected with the appropriate communications parameters.

TC measurements not allowed on channel 0.

Channel 0 cannot be used for thermocouple measurements. Choose another channel for your thermocouple measurement.

The selected Hydra configuration has Print defined in the scan destination. If this configuration is downloaded, Hydra Logger may have problems communicating with this instrument.

If Print is enabled in the instrument, characters will be sent through the RS-232 connection causing Hydra Logger to no longer be able to communicate with the instrument.

If you wish to continue with the download, click OK. To discontinue the download, click CANCEL.

The selected line does not support DATAMODEM capabilities.

The modem you have specified is not the correct type to handle data transfers. Check your modem and use Control Panel to install a proper device.

The selected line does not support MAKECALL capabilities.

The modem you have specified is not the correct type to handle data transfers. Check your modem and use Control Panel to install a proper device.

The selected line does not support VOICE capabilities.

The modem you have specified is not the correct type to handle data transfers. Check your modem and use Control Panel to install a proper device.

The TAPI operation failed for unknown reasons.

Try repeating the operation.

There are no telephony devices installed.

Use the Control Panel | Modems selection to configure your modem and telephony devices.

There are two copies of the same Telephony driver installed. Use the Control Panel to remove one of the copies.

Access the Control Panel.

There is not enough free disk space for the Trend Link data set files.

Check the amount of disk space remaining and free some space for the data set files.

This channel is already in the list.

The channel selected is already on the Quick Plot channel selection list.

Time Interval must be between 1 and 99.

The time interval to trigger a data file rollover must be in hours between 1 hour and 99 hours.

Time Interval must range from 1 minute to 999 hours and 99 minutes.

This will occur in the Batch Options dialog box when you select Periodic Interval with an interval value outside the stated range.

Time of Day must be entered as 0 to 23 hours and 0 to 59 minutes.

This will occur in the Batch Options dialog when you select Periodic Interval and check "Begin first interval at specified time," and enter a time outside the stated range.

Trend Link data file paths must begin with a drive letter. Universal Naming Convention (UNC) path names are not supported at this time.

This will occur in the 32-bit version only when you have selected a UNC path name for a Trend Link data file name.

Trend Link file prefix must be 7 characters or less.

This will occur in the 16-bit version only. The Trend Link file name you enter is actually used to create a directory. The directory name is the name you enter, proceeded by an underline character. Because of this, you may enter only 7 characters for a Trend Link file name.

Unable to create configuration text file.

The application was not able to create the Hydra configuration text file. Make sure that the full path of the file is correct.

The FILES setting in `config.sys` file should be set to at least 30.

Unable to create Trend Link data set chart file.

Once the Data Set directory is created, a default chart file is created within the directory. This error indicated that this file creation failed. Check that the directory permission is not set to Read-Only, check the path for your data file to make sure the directory path allows access, and verify you have sufficient disk space for the new chart file.

Unable to delete memory card file.

Unable to delete the memory card file - check write permission.

Unable to get a time DLL function address for Trend Link.

Failure in an attempt to call a specific function within the time DLL.

Check if the `timecn32.dll` file has been corrupted or deleted. Reinstall Hydra Logger following the procedures in the Hydra Logger manual.

Unable to get a Trend Link DLL function address.

Failure in an attempt to call a specific function within the tbase DLL. Check if the DLL file has been corrupted or is an incompatible version.

Your Trend Link installation may be missing the required `tbase32.dll` file.

Check that your Trend Link installation is complete. You may also be trying to operate with portions of an older version of Trend Link. Reinstall Trend Link following the procedures in the *Hydra Logger Users Manual.*

Unable to initialize DDE.

An error occurred while trying to initiate DDE. Try exiting some other applications that are currently using DDE and try again.

Unable to load time DLL for Trend Link.

Logger is unable to load the time DLL into memory that is part of the Hydra Logger installation.

Check that you have sufficient memory space to load the DLL, and that timecn32.dll has not been corrupted. Reinstall Hydra Logger following the procedures in the *Hydra Logger Users Manual*.

Unable to load Trend Link DLL.

The tbase DLL is used by Logger to write Trend Link data set information. This DLL is a part of the Trend Link package that must be loaded by Windows before any Trend Link operations are performed.

Logger is unable to load the Trend Link tbase32.dll into memory.

Check that you have sufficient memory space to load tbase32.dll, that tbase32.dll has not been corrupted, or you are not trying to operate with portions of an older version of Trend Link. Reinstall Trend Link following the procedures in the *Hydra Logger Users Manual*.

Unable to obtain Country Codes.

When running TAPI, the Country Codes could not be loaded into memory. Check that you have sufficient memory space to load the Country Codes. If you cannot free up sufficient memory, enter the telephone number without using the system Country Codes.

Unable to open setup file.

The application was not able to open the setup file specified on the command line or with the Open Setup command.

Ensure that the full path of the setup file is correct, and that the file exists. If this error occurs when starting Hydra Logger with a setup file on the command line, be sure you have the correct command line format. See Command Line in the online help or “Resuming Logging After a Power Loss” in Appendix D.

Another possible cause of this error may be that another application has opened the file, denying write permissions to other applications.

The FILES setting in `config.sys` file should be set to at least 30.

Unable to read Trend Link default template chart file.

The `TLDEF.CHT` file is missing from the Hydra Logger directory. This file establishes the default Trend Link Chart file format. Reinstall Hydra Logger following the procedures in Chapter 2 of this manual.

Unable to translate Phone Number.

The phone number that was entered cannot be combined with the given Country Code and Area Code (if Use Country Code is selected) to create a valid phone number. Check the specified phone number for invalid characters.

Unable to write to configuration text file.

The application was not able to write to the Hydra configuration text file. This error can occur if the disk becomes full.

The FILES setting in `config.sys` file should be set to at least 30.

Unable to write to setup file.

The application was not able to write to the named setup file.

Ensure that the setup file exists and is located in the correct directory. If you use Save Setup under the Setup menu or the Save Setup toolbar button, the application attempts to write to the setup file using the directory structure it last used to access that file. If the directory structure has changed, the application cannot write to the setup file.

Check for sufficient disk space. If you are saving the setup to a floppy disk, this error can occur if there is insufficient hard disk space for a needed temp file.

The FILES setting in `config.sys` file should be set to at least 30.

WARNING: Download Configuration does not set the Monitor channel in the instrument. Use the Start Hydra commands in the Logging or Utilities menus, or the instrument front panel, to enable monitoring.

Due to the structure of the Hydra instrument command set, monitoring begins in the instrument immediately when the monitor channel is set. To prevent unintended measurements, Hydra Logger does not configure the monitor channel until you issue a Start command.

WARNING: Only X bytes of free disk space remain on Y: for Trend Link data.

This warning will be displayed when the amount of free disk space remaining on the “Y” drive is less than the user-entered value. See Automatic Data File Rollover for more information on setting the minimum free disk space and rolling over the Trend Link data file when this limit is reached.

Window creation failed.

The application was unable to create a new window. This error can occur if not enough memory is available. Exit some applications, or exit and restart Windows, then try again.

Appendix C
Dynamic Data Exchange (DDE)

DDE Server Description

Hydra Logger provides Hydra data to other Windows applications using Dynamic Data Exchange (DDE). Access to the Hydra Logger DDE server is through the following service, topic, and item names (not case sensitive). Refer to your application for entering this information.

Application or Service Name:

“Hlog32” ("Hlogger" for 16-bit)

Topics:

"System"	System topic
"HydraX"	Number of the Hydras from the Hydra Icon Bar (X can be 1 or 2)

Items (System Topics):

"Topics"	List of available topics (“System, Hydra1, or Hydra2”)
"SysItems"	List of available system items (“Topics, SysItems, Formats”)
"Formats"	List of available DDE formats (text only)

Items (Hydra Topics):

"cX"	Channel X reading (X can be 0 through 20)
"Hydra_Name"	The name of the selected Hydra instrument (set using Setup | Describe Hydra)
"RDateTime"	Seconds since 00:00:00 01/01/1970
"ELDateTime"	Date/time in Excel and Lotus 1-2-3 format
"DIO"	Hydra DIO, DIO 0-11 (includes DIGITAL I/O 0-7 and ALARM OUTPUTS 0-3)
"Totalizer"	Hydra Totalizer value
“AlarmState1” “AlarmState2”	32-bit words indicating which channels were in alarm for Alarms 1 and 2, respectively.

For example, to access the data from channel 10 of Hydra instrument number 1 within an Excel spreadsheet cell, use:

```
=HLog32|Hydra1!c10
```

to get the name of the Hydra instrument number 2:

```
=HLog32|Hydra2!Hydra_Name
```

Appendix D
Exception Condition Handling

Exception Condition Handling

This appendix describes how Hydra Logger handles exception conditions during operation.

Direct Communication Errors

If a communication error occurs (time-out, overrun, framing, or parity) during the reception of scan data, the request for data is repeated up to three times. If all three attempts fail, Hydra Logger then goes on to service the other Hydra before again asking the Hydra for data. The number of accumulated communication errors appears in the Logging Status window, along with a short description of the last communication error.

If the communications connection to a Hydra is interrupted during logging, Hydra Logger times out each time it attempts to communicate with the Hydra. These time-outs appear as communication errors in the Logging Status window display, and a window is displayed with a warning message, bringing the Hydra Logger application to the top.

After communications are restored, if the Hydra's scan memory has become full, a window with a warning message indicating possible data loss is displayed.

Hydra Logger attempts to retrieve scans that were stored in the Hydra's scan memory during the communication loss.

Modem Communication Errors

If a remote modem hangs up during data retrieval, the communication error message "Remote Party Disconnected" appears in the Logging Status window display. Hydra Logger continues to attempt to retrieve scans. If the problem at the remote Hydra can be fixed, select Utilities | Dial to re-dial; Hydra Logger will continue retrieving scans that were stored in the Hydra's scan memory during the communication loss.

Full-Disk

If the disk becomes full during data retrieval or if the directory structure is deleted so that attempts to write to the data file fail, subsequent scans are not recorded, but communication with the Hydra and data display continues. A window with a warning appears, bringing the Hydra Logger application to the top. When the problem is fixed, Hydra Logger resumes recording scans in the file.

Invalid Entries

Diagnostic messages are displayed if the user enters invalid values into the fields of a dialog box.

Loss of Power

Resuming Logging After a Power Loss

You can set up Hydra Logger to resume data retrieval automatically after power loss and restoration on the host computer. This works only on systems which do not require manual input, such as a password, during bootup. Perform the following steps:

1. Configure a Setup file to resume logging and, optionally, to append to the same data file. When Hydra Logger resumes logging, it collects any scans that may have accumulated in the instrument's internal scan memory (scans taken by a 2620A during the power outage will be lost since it has no internal scan memory). To configure the Setup file, perform the following steps:
    a. Start Hydra Logger and open or create the Setup file that you want Hydra Logger to use on power restoration.
    b. In the Logging menu, check Resume Logging on Start.
    c. For each Hydra whose data is being recorded to an ASCII file, open the Edit Hydra Config... dialog box and select Data File... to open the Data File Configuration dialog box. Select Append to File, and click OK twice to return to the main window. This is optional.
    d. Save the Setup file.
2. Add Hydra Logger to your Windows StartUp program group.

- On Windows 3.1x, in Program Manager, open the Fluke Hydra Logger and StartUp program groups. Copy the Hydra Logger icon from the Fluke Hydra Logger group to the StartUp group. (Your `autoexec.bat` file should include the WIN statement to start windows when power is returned.)
- On Windows 95, right-click on the Start button and select Explore. Open the Fluke Hydra Logger folder in Windows\Start Menu\Programs. Copy the Hydra Logger icon to the Startup folder having the same path.

3. Add the setup file name to the Hydra Logger command line.
   - On Windows 3.1x, in the StartUp group in Program Manager, highlight the Hydra Logger icon. Select Properties from the File menu. At the end of the Command Line, add the setup file name with the complete path, and the /g switch. For example:

     ```
     c:\hydra\hlogger.exe    c:\hydra\mysetup.sth /g
     ```

   - On Windows 95, in Windows Explorer, right click on the Hydra Logger icon in the Startup group and select Properties. On the Shortcut tab, add the setup file name and /g switch to the Target. For example:

     ```
     "c:\Program Files\Fluke\hydra\hlog32.exe"
      "c:\Program Files\Fluke\hydra\mysetup.sth" /g
     ```

4. Verify your work by starting logging in Hydra Logger and then cycling power on your computer. To minimize the risk of data loss in other applications, exit all other applications before turning off the power.

Resuming Trend Link Plotting After a Power Loss

You can set up Trend Link to resume real-time plotting automatically after power loss and restoration on the host computer. This works only on systems which do not require manual input, such as a password, during bootup. Perform the following steps:

1. Set up Hydra Logger to resume data retrieval. See Resuming Logging after a Power Loss.
2. Configure the Trend Link chart to the desired appearance. Be sure that real-time plotting is enabled. Save the chart.
3. Add Trend Link to your Windows StartUp program group.
   - On Windows 3.1x, in Program Manager, open the Trend Link for Fluke and StartUp program groups. Copy the Trend Link icon from the Trend Link for Fluke group to the StartUp group. Your `autoexec.bat` file should include the WIN statement to start windows when power is returned.

- On Windows 95, right-click on the Start button and select Explore. Open the Trend Link for Fluke folder in Windows\Start Menu\Programs. Copy the Trend Link icon to the Startup folder having the same path.

4. Add the chart name to the Trend Link for Fluke command line.

   - On Windows 3.1x, in the StartUp group in Program Manager, highlight the Trend Link icon. Select Properties from the File menu. At the end of the Command Line, add the chart name. For example:

     ```
     c:\tl\tl.exe      c:\hydra\_mydata.set\mydata.cht
     ```

   - On Windows 95, in Windows Explorer, right click on the Trend Link icon in the Startup group and select Properties. On the Shortcut tab, add the chart name to the Target. For example:

     ```
     "c:\Program Files\Fluke\tl\tl32.exe"

      "c:\Program Files\Fluke\hydra\_mydata.set\mydata.cht"
     ```

5. Verify your work by starting logging in Hydra Logger and plotting in Trend Link, and then cycling power on your computer. To minimize the risk of data loss in other applications, exit all other applications before turning off the power.

Appendix E
Adjusting for Daylight Savings Time

Daylight Savings Time Adjustments

The Hydra instrument marks every scan with a time stamp which includes the date. You can set the time and date in the Hydra instrument via the front panel or via Hydra Logger. If you are using Hydra Logger to log scans during the transition into or out of Daylight Savings Time (DST), you will notice an apparent one-hour gap in your data file and Trend Link chart.

The Hydra instrument does not automatically adjust its clock for the DST transitions. Therefore, at the time of the transition into DST, if your system settings indicate that you observe DST, Hydra Logger adds one hour to the time stamps for the remaining duration of that logging session. You will therefore see a gap of one hour in your data file, although no data has been lost.

During the transition out of DST, Hydra Logger does not modify the instrument's timestamps. Therefore, it will appear that you did not receive scans during the repeated hour, although no data has been lost.

You can avoid any apparent gaps by not scanning during the DST transitions, or by setting up your system not to adjust automatically for daylight savings time. On 16-bit systems, omit the Daylight Savings Time field in the TZ environment variable. This variable is set in the autoexec.bat file. For example, change the statement SET TZ = EST5DST to SET TZ = EST5. On 32-bit systems, in Control Panel | Date/Time | Time Zone, uncheck the selection for automatic DST clock adjustment.

If you are running Hydra Logger on a 32-bit system (Windows 95 or Windows NT), verify that your `autoexec.bat` file does not set the TZ environment variable. This variable was used in 16-bit systems to indicate your time zone and whether you observe Daylight Savings Time. If the TZ variable is present but does not explicitly state your DST transition times, a single set of default transition dates is used for all time zones. This could result in apparent data gaps at

unexpected times of the year. The 32-bit operating systems, however, provide detailed DST transition dates and times for each time zone. To make sure that Hydra Logger transitions into and out of DST according to the 32-bit system DST settings, comment out the TZ setting, if it exists, in the `autoexec.bat` file as in the following example: REM SET TZ = EST5DST.

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