

 **OM-170**

 **Software Manual for
Portable Datalogger**



**Operator's Manual
M1698/0893**

**Servicing USA and Canada: Call OMEGA Toll Free
OMEGA Engineering, Inc.**

One Omega Drive, Box 4047
Stamford, CT 06907-0047 U.S.A.
Headquarters: (203) 359-1660
Sales: 1-800-826-6342 / 1-800-TC-OMEGA
Customer Service: 1-800-622-2378 / 1-800-622-BEST
Engineering: 1-800-872-9436 / 1-800-USA-WHEN
FAX: (203) 359-7700 TELEX: 996404 EASYLINK: 62968934 CABLE OMEGA

**Servicing Europe: United Kingdom Sales and Distribution Center
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IMPORTANT NOTE

The OM-170 is supported by two manuals;

Manual number M1212 is hardware and operation oriented.

Manual number M1698 covers software.

You are now using M1698.

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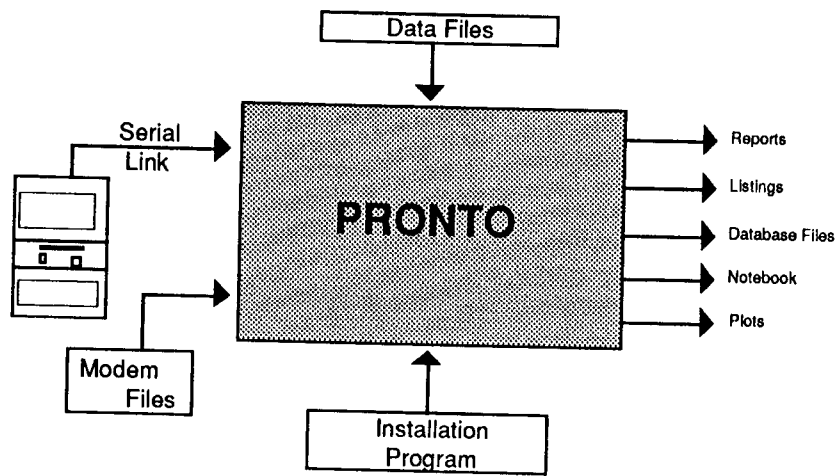
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Introduction

Release 3.50

This manual is Volume 2 in the Omega OM-170 documentation set. Volume 1 (containing information about the data logger itself) includes Sections 1 through 5. This volume begins with Section 6 and contains information about the Pronto applications software program.



Certain signs, conventions, and terminology are used throughout this manual. To clarify their usage, they will be explained here and in the glossary.

When the text refers to the data logger liquid crystal display, the terms screen and display will be used interchangeably throughout this manual.

Keystrokes on the data logger and/or computer will be indicated by enclosing the key name in <brackets>. For example, the plot key to display a graph from Pronto will be shown as <F3>. The return or enter key on the computer keyboard usually labeled with an arrow (↵) will be shown as <return>.

Section 6 describes preliminary setup information.

Section 7 provides a detailed description of the Pronto Pinstall program. First time users should read this section in its entirety before running the Pronto program.

Section 8 provides an overview of all functional groups within the Pronto program.

Section 9 contains a detailed description of all commands within the Data File function group. It can be used as a tutorial as files are played back or called up for analysis.

Section 10 provides a detailed description of the various tools available to you in the Analyze function group. A good working knowledge here will speed up your analysis capability with the Pronto program.

Section 11 explains the use of the SetUp function group available within Pronto.

Section 12 provides information on how to use the local area network capability of Pronto with one or more Omega OM-170 data loggers.

Appendix A is a trouble-shooting guide for the most frequent questions.

Appendix B explains the optional software necessary to run files recorded on Omega OM-170 model RR-400 and Pronto release 2 with Pronto release 3. It also describes the other companion available (RusLink, Import, and RusCon).

Appendix C describes how to use a DOS utility call RAM drive to speed up the Pronto playback process.

Appendix D lists all of the Pronto release 3.50 error messages.

Appendix E lists all of the Pronto release 3.50 help messages.

Appendix F describes how to import Pronto database files into Lotus 1-2-3.

Appendix G shows sample graphs which employ some of the Pronto analysis utilities.

Appendix H details Pronto specifications.

The information contained in this manual is provided primarily to guide you in getting Pronto up-and-running for both dual floppy drives and hard-disk computer systems. For best results, it is recommended that you follow the procedures in the order of their presentation.

The Pronto Program

The Pronto application software is a direct support tool to the Omega OM-170 data logger system. It is uniquely configured to match the data format of the Omega OM-170 and is not applicable to any other instrumentation. The purpose of this software is to provide you with a complete, comprehensive set of tools required to plot, annotate, analyze and print reports from the information collected in the Omega OM-170 data logger. Careful consideration has been given to the user interface such that all functions can be implemented quickly with the minimal number of key strokes and operations. After just a few sessions using this product you will find it to be extremely functional, informative and easy to master.

Pronto permits you to use an IBM or IBM-compatible personal computer to:

- Transfer and save remotely collected data from the data logger to computer memory.
- Create, name, and describe data files.
- Plot graphs from raw or processed data.
- Compare data from up to 12 graphs at the same time.
- Change graphics in format, size, and position.
- Analyze points and areas of the graph.
- Annotate the graphs with text/labels.
- Window in and amplify sections one or more graphs.
- Print out graphs or lists for reports.
- Create compatible files for output to data base and spreadsheet software (e.g., Lotus 1-2-3).
- Operate as a local area network.

To properly understand, access and utilize the above listed capabilities it is essential that you become familiar with the Pronto application software, and the system of screen menus it produces.

Screen Layout

The Pronto application software screens are laid out in a clear, easy to follow format, clearly indicating all available choices. The progression within any given choice is noted as the various tools are employed. Figure I-1 below shows a typical screen layout with all commands and indicators pointed out for clarity. The top line of all Pronto screens contain the main menu indicating the functions associated with each function key.

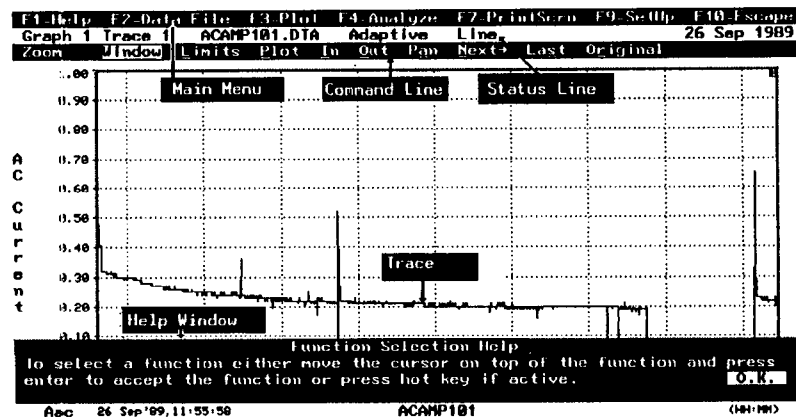


Figure I-1. Screen Layout

The second line of the display is the status line. On this line is listed the active graph and trace number, the filename, the mode of storage used in the recording of the data and the date that the file was originally stored in computer memory. The third line of the display is the command line. When various tools within Pronto are employed, this line will indicate all available command choices within the function. The extreme left side of the command line will indicate the function that is open. The example shown in Figure I-1 shows that the zoom function is active. The right side of some command lines provides an active field area for numeric data entry or text string entry. The field will open up here when applicable. On the bottom of the graph there is a 3 line window that displays help messages whenever the <F1> (help) key is pressed or displays error messages initiated by the program when incompatibility or wrong functionality or data transfer errors occur. Each of these activities will be described in depth throughout this manual.

Important Things To Know About Keystrokes

The function keys highlighted at the top of the screen are referred to as hot keys. In most cases within the program, these function keys are active at all times. There are places within the program where one or more function keys may not be active. The function keys are accessible using the spacebar, cursor keys, mouse or the function key itself. Pressing the first letter of the function is not allowed.

The underlined letters in all menu and sub-menu screens are also considered hot keys. Pressing an underlined letter will immediately implement the choice.

The versatility of the Pronto program includes several means of completing a function; therefore, whatever style you find most expeditious is available to you. There are three ways of implementing instructions within Pronto: using the keyboard cursor keys found on the numeric keypad or separate cursor keypad or the <spacebar> to point to the desired function then using the <return> key to invoke the function.

Secondly, a more direct response is available by pressing the underlined letter of the particular function, example **P** for **P**lot. This has the same effect as pointing to it with the cursor and pressing <return>; thus fewer key strokes are required to move around the instruction set.

Thirdly, and the most expeditious way of moving through the Pronto program is using the mouse capability. Mouse movement allows the highlighted function to be changed. The left mouse key, which is equivalent to the enter key, implements the function, the right mouse key, which is equivalent to the escape key, exits the mode or completes the selection.

If at any time you are unsure of function implementation or description, the <F1> (help) key provides some fundamental information about the function you are working with.

Technical Assistance

Should you have the need to call for technical or application support on the Pronto program, please have the following information ready for our staff.

1. The version number of the Pronto software, this can be obtained from the second screen on the program or from the disk label itself.
2. The make and model of your computer.
3. The graphics interface card in the computer.
4. The DOS version operating in your computer.
5. The amount of RAM memory in the computer.
6. The name and functionality of any programs running in the background generally loaded by your AUTOEXEC.BAT file.
7. The version number of your Omega OM-170 data logger, which can be obtained by turning the data logger on and reading the information off the first screen that appears.

Having this information ready will help us to better service your needs.

Graph Types

The Pronto application software in conjunction with the Omega OM-170 is capable of displaying any one of four or any combination of different graph formats to better serve your analysis of the data. These graph formats are line plot, max/min plot, average plot and cumulative plot. Each of these plot types may have different capabilities depending on the record mode chosen to collect the data. A brief description of each plot type follows.

Line plot

The line plot is a conventional plot of data points with respect to time. Data amplitude is presented on the vertical Y-axis, time is presented on the horizontal X-axis. All recording formats present data in the same way with the line plot option.

Max/Min plot

The max/min plot presents an envelope in which all data was contained throughout the recording. This plot has applicability to the adaptive storage mode and the enhance storage mode only. This plot mode will show a series of windows of data, capturing the maximum and minimum data excursions within each block of time. The time block will be variable in the Adaptive mode depending on signal dynamics and overall recording length. The time block for the Enhanced Plot will be fixed by the sample rate chosen in the data logger setup.

Average plot

The average plot presents an average of all data points over a period of time. This plot is applicable to the Adaptive storage mode, the Enhanced storage mode and the Alarm storage mode. It has no applicability to the Point storage mode or the Manual storage mode. All samples taken are averaged and presented over the time block.

Cumulative plot

The cumulative plot is an integration of all data points across the recording, providing a running total of information with respect to time. This plot is applicable to all storage modes, but may not be combined with any other plot type. When the cumulative plot is chosen, all other plots that may have been active will be automatically deactivated. i.e., line, average or max/min.

Any of the other 3 plot types (line, maximum, or average) may be selected for use together.

When recordings are accomplished using the adaptive plot mode, it is sometimes beneficial to show the max/min and line graphs together to obtain a full data analysis of the trending and of anomalies.

NOTES

Section 6

Preliminary Preparation & SetUp

The 5 ¼" the Pronto disk set consists of two disks: the Pronto Applications Program disk and the Pronto Installation disk. Each disk contains all necessary files for proper operation on IBM or IBM-compatible computers. For 3 ½" floppy users all files are contained on one disk.

The following list details the Pronto disk set file directory by name and purpose as found on the 5 ¼" disks.

FILENAME		PURPOSE
Program Disk		
PRONTO	EXE	Application program
Installation Disk		
OMEGA	PIC	Title screen
PRONTO	CNF	Pronto configuration file
PRONTO	HLP	Help screens for Pronto
MODPARAM	DAT	Graph and module label information
PDRIVER	EXE	Printer driver in use
README	1ST	Manual addendum
README	BAT	Batch program to run README.1st
ACAMP101	DTA	Sample file using point store method
TEMP101	DTA	Sample file using adaptive store method

Installation Disk Continued

PINSTALL	EXE	Configuration program
PDRIVER*	LST	Printer list file for Pronto
HELP		Help for pinstall
HELP	BAT	Batch program for help
EPSON_9	DRV	Epson printer driver
SP-80	DRV	Gulton Superplot 80 driver
HP_LAZER	DRV	HP Laser Jet/Laser series II driver
HP_PAINT	DRV	HP Paintjet b/w printer driver
IBMPROII	DRV	IBM ProPrinter II driver
HP_Color	DRV	HP Paintjet color printer driver
HP_Quiet	DRV	HP Quietjet printer driver
RR2-528	DRV	Omega Thermal P/P
TH_2100	DRV	Toshiba 2100 driver
STAR_9	DRV	Star printer driver
OKI_192	DRV	Okidata 192 driver
OKI_193	DRV	Okidata 193 driver

* On Pinstall versions 3.25 and earlier this was called PRINTER.LST.

Make a Back-up Copy of the Pronto Master Disk Directory Set

All data stored on disks are subject to inadvertent loss from various uncontrollable and unpredictable causes. The best protection against such loss is to make a back-up copy of your Pronto master program disk and installation disk right away! The back-up copies will be used to create a Pronto working disk to operate a two-drive system. You will also use these disks to permanently install Pronto onto a hard-disk system. The procedure which follows describes how to make an exact duplicate of your Pronto master disk set using the DOS Diskcopy command.

How to make back-up copies of the Pronto 5 ¼" master disk set

1. After booting up your computer; insert the Pronto applications disk in drive A and log on to drive A.

2. At the A prompt (A>), type: **diskcopy A: B:** and press <return>.
3. Drive A will be the source drive. Insert a blank disk in drive B. This will be the target drive. Close the drive door and press any key. The disk in drive B will automatically be formatted and the files on your Pronto master program disk will be copied to it.
4. When DOS asks if you want to make any more copies, type **y** to repeat the process for the Pronto master Installation disk.
5. Remove the Pronto master application program disk from drive A and store it in a safe place.
6. Remove the disk from drive B and affix a label entitled:
Pronto back-up applications program disk.
7. Insert the installation master disk in drive A and insert a blank disk in drive B. Close the drive doors. Press any key.
8. After DOS again asks if you want to copy another disk, type **n**. When DOS displays the A> again, the duplication of your Pronto program and installation disks are complete.
9. Remove the Pronto master installation program disk from drive A and store it in a safe place.
10. Remove the disk from drive B: and affix a label entitled:
Pronto back-up installation program disk.

How to make copies of the Pronto 3 ½" master disk

1. Start your computer.
2. Insert the Pronto 3 ½" master disk into the appropriate drive and log onto that drive.
Note: For example purposes drive B will be used here. Substitute your 3 ½" drive designation in place of B.
3. At the DOS prompt type: **diskcopy B:B:** and press <return>.
4. Follow the computer instructions for inserting the source and target disks as required. The Pronto master disk is the source disk. The new

blank disk is the target disk. It is not necessary to format the target disk in advance.

5. When DOS asks if you want to make any more copies, type **n** to end the copy process.
6. Store the Pronto master disk in a safe place.
7. Remove the disk from drive B and affix a label entitled:
Pronto back-up disk.

Making a working copy of Pronto for a two drive system

There are two tasks which must be performed as part of the two-drive system installation procedure. Perform these tasks in the following order:

- Make a Pronto working disk
- Make a data disk from a blank disk

Both of these tasks are covered here.

It is worth noting that, in a two-drive system, you can choose either to operate entirely from your Pronto working disk, or place your data on a separate data disk. A separate data disk is necessary if 360K, 5 1/4" floppy disks are used because the program will fill almost all the available memory on the working disk.

1. Insert your Pronto back-up disk in drive A.
2. Place a blank formatted disk in drive B.
3. Type copy A: *.* B: and press <return>.
4. When DOS displays the A> again, the first step in creating a working copy of Pronto has been accomplished.
5. Remove the Pronto back-up disk from drive A and store it in a safe place.
10. Remove the disk from drive B: and affix a label entitled:
Pronto working disk.

This disk will be needed again when the Pronto Pinstall program is discussed later in this manual.

Making a data disk

You will need a separate data disk to store the raw or processed data you generate in the course of operating the Pronto program using a two-drive system. The data disk must be formatted before you can use it. Select a double-sided, double-density blank disk and proceed with the formatting as follows:

1. With the DOS disk in drive A, insert a blank double-sided, double density disk into drive B. Close the drive doors.
2. At the A> type: format b: and press <return> .
Other instructions may be required depending on your version of DOS. Consult your DOS manual for details. (e.g., FORMAT B:/F:360 to format a 5 1/4" low density disk DOS 5.0)
3. Follow the DOS instructions displayed on the screen. When DOS asks if you want to format another disk, type **n** unless you wish to format more than one data disk at this time; then type **y**. When DOS displays the A> again, the formatting of your blank disk is complete.
4. Remove the disk from drive B, and affix a label entitled:
Pronto Data Disk.
5. This will be the disk you use to save your raw or processed data.

Note: It is possible for one Pronto data file, from a long recording, to completely fill a low density disk.

Copying the Pronto disk set onto a hard disk system

The Pronto application program may be copied onto your hard-disk drive using the following method.

Note: If you are using Pronto release 3.5 or later omit this step and proceed to Section 7 and follow the instructions on running the graphics version of Pinstall. If you are using an earlier release, proceed with steps one through four on the next page.

1. Boot up the system and make sure you are at the root directory. If not, type: **CD** and press <return>.
2. You should create a subdirectory for the Pronto program files to be placed in. At the C> type: **md\directoryname** and press <return>. The directory name can be anything appropriate such as Pronto or Logger, for example.
3. Insert the Pronto back-up disk in drive A. Now copy all the files from the Pronto back-up disk into this new subdirectory by typing: **copy a:.* c:\directoryname** and press <return>.
4. Next insert the Pronto Installation Back-up disk in drive A. Now copy all the files from this disk into the new subdirectory by typing: **copy a:.* c:\directoryname** and press <return>.

Section 7

Pronto Installation

This section will explain the utilities available to customize Pronto to a specific computer. When using Pronto for the first time or if computer hardware such as graphics adaptor or printer is upgraded, it is advisable to run the install program to insure that the setup matches your computer requirements. The install program (PINSTALL.EXE) can be found on the installation disk supplied with the Omega OM-170.

Two pinstall program types have been released. One is text oriented; the other is graphics oriented. The type you have will depend upon the version of Pronto being used. Release 3.50 or later will employ the graphics oriented Pinstall program. Earlier releases will employ the text version.

The Pinstall program performs the following functions:

- Selection of graphics display
- Selection of default drive/directories
- Selection of printer type
- Definition of sensor labels

Running the Text Oriented Install program

1. Insert the disk containing the installation program into your floppy drive. Follow the instructions below for the Pinstall release 3.50 or earlier. If you have a release higher than 3.50 turn now to running the graphics version of Pinstall beginning on page 7-15.
2. Change to the Drive/Directory containing the install program. It is important that the drive containing the install program be the current

drive and not the drive containing Pronto if they are different (as will be the case when using a dual floppy disk system with the 5 1/4" disk set).

Example 1:

Pronto is in drive A and Pinstall is in drive B. The active drive should be B in order to run the installation program properly.

Note: The Pronto working disk that you created in Section 6 should be used here if a dual floppy drive system to be employed.

Example 2:

Pronto and Pinstall are on C:\Pronto, then C:\Pronto should be the active drive/directory.

3. To begin the install program type **Pinstall** and press <return>.
4. The installation title screen will appear as shown below in Figure 7-1.

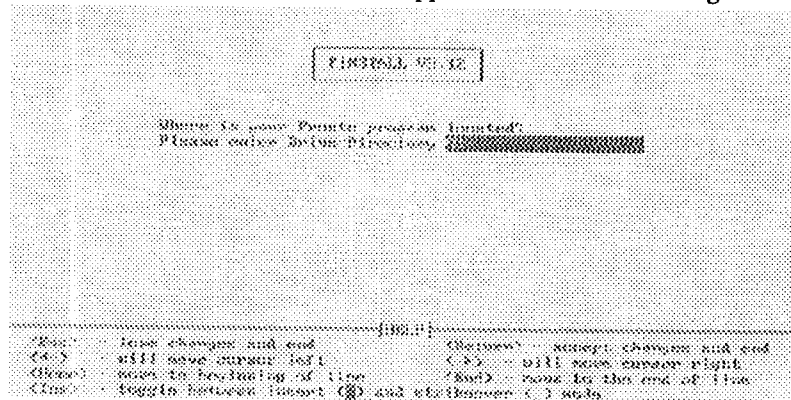


Figure 7-1. Installation Title Screen

5. The cursor will be flashing on the drive letter. Type in the valid drive/directory containing Pronto if different than the one shown. This will tell the install program where to find the files it must check or modify in the installation process.

Example: C:\Pronto or A:

If Pinstall cannot find the required files, the following error messages will appear at the bottom of the screen when the <return> key is pressed. See Figure 7-2.

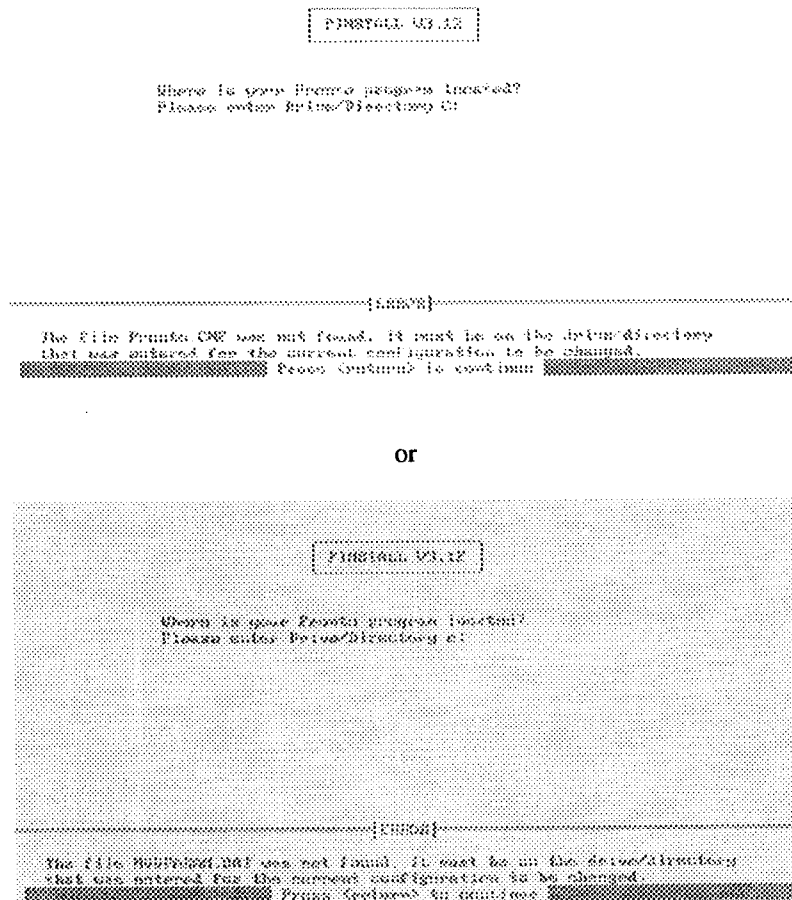


Figure 7-2. Installation Error Messages

These error messages indicate that the drive/directory name entered at the prompt was not where the required files are located. Pressing the <return> key after the error message is displayed will bring up the screen in Figure 7-3, allowing a yes/no decision on exiting the program. Choosing NO will allow the drive/directory choice to be entered again. Pressing <F10> or <Esc> or choosing Yes will exit the install program. If necessary, recopy the missing files from your Pronto program disk to the drive/directory containing Pronto.

```

      MODPARAM.V3.12

Where is your Pronto program located?
Please enter Drive/Directory G:

Do you wish to exit this program? (y,n)

```

Figure 7-3. Installation Decision Window

6. When the install program locates these two files (MODPARAM.DAT and PRONTO.CNF), the main installation menu will appear as shown in Figure 7-4. Use the <spacebar> or up/down <↑> <↓> cursor keys to point to the desired function and the <return> key to accept that function for configuration.

```

      MAIN MENU
      =====
      Select Device/Driver/Interface
      Select Printer Type
      Define Module Labels
      Help
      Exit This Program

      =====
      Press <Spacebar> or cursor keys <↑> <↓> to index choice.
      Press <Return> to accept choice. <Esc> to go back.

```

Figure 7-4. The Install Main Menu

Installation defaults

Pronto as originally supplied has the following installation defaults:

Graphics Display :	Auto Detect	
Drive/Directories:	<u>Drive</u>	<u>Directory</u>
OM-170 Files (DTA)	Current	Current
Transfer Files (TMP)	Current	Current
Modem Files (MDM)	Current	Current
Database Files (PRN)	Current	Current
Printer Type:	Epson MX, FX (9pin)	

If these defaults are compatible with the computer in use, no further installation will be necessary. However, caution should be taken concerning the Drive/Directory selections when a dual floppy disk system is used. There is no room on the program disk to store data files so the choice of current is not a valid one. The install program should be run to change the settings in this case. Suggested operation would be to run the Pronto program from drive A and store files on drive B. Therefore DTA, TMP, MDM and PRN files should be stored on Drive B.

Selecting a graphics display

This option allows the user to select the type of graphics adaptor installed in the computer and the monitor associated with it. In most cases, the default choice of **Auto Detect** will allow Pronto to determine for itself which graphics adaptor is in use, thus eliminating the need for any decision making here. The exception is with VGA high resolution. Auto detect will select VGA with EGA resolution because there is no way to detect which type of monitor is in use. To achieve the high resolution mode, the install program must be run and the choice for VGA (Full) should be manually selected.

To select the graphics display option, proceed as follows:

1. From the main menu, choose **Select Graphics Display** by using the <spacebar> or the cursor keys, then press <return>.
2. The screen in Figure 7-5 will appear.

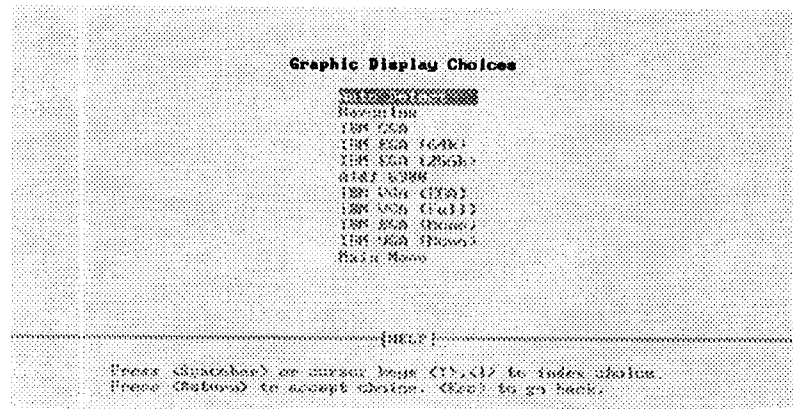


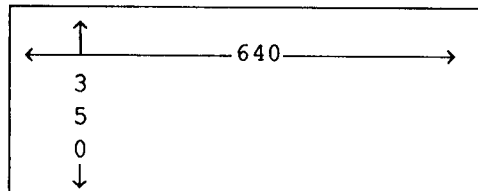
Figure 7-5. Graphic Display Choices

3. Use the <spacebar> or the cursor keys to highlight the desired display, then press <return>. Refer to Table 7-1 for a description of the options. If the highlighted option is correct, exit the display sub-menu and return to the main menu by pressing <return>, or highlight **Main Menu** option and press <return>. Pressing either the <F10> or <Esc> key will also exit the Graphics Display menu, but without altering the present choice.
4. When any of the graphics display options are selected, the main menu will automatically appear and the new choice will become the default.

About screen resolutions

The graphic adaptors listed in Table 7-1 indicate their respective screen resolution in pixels. First, the horizontal resolution is given followed by the vertical resolution. The higher the resolution, the better the graphics representation of the plots will be in Pronto.

Example: EGA 640X350



Auto Detect	Allows Pronto to search and detect for the graphics adaptor in use upon start up. This is the default setting.
Hercules	High resolution monochrome display 720X348. Pronto screens appear in green, amber or white depending on monitor type in use.
IBM CGA	Low resolution Color adaptor 640X200. Although this is a color adaptor, the Pronto screens will be white on black because it is a graphics program. This choice also supports Lap Top Computers.
IBM EGA(64k)	High resolution color adaptor 640X350. Pronto screens will be white on black. Pronto supports as if it is IBM CGA.
IBM EGA(256K)	High resolution color adaptor 640X350. Pronto screens will be in color, each trace will be in a different color.
AT&T 6300	High resolution color adaptor 640X400. Pronto supports as if it is IBM CGA. This choice is in US version only.
IBM VGA (EGA)	High resolution color supported by Pronto as if it is IBM EGA (256K) to allow larger text size of 25 lines per screen. Screens will be in color, traces will be in different colors.
IBM VGA(Full)	Highest resolution color adaptor 640X480. Pronto screens will be in color, each trace will be in a different color. Text will be smaller in size (43 lines per screen).
IBM EGA Mono	High resolution monochrome 640X350 display.
IBM VGA Mono	High resolution monochrome 640X480 display.
OLIVETTI	Low resolution monochrome 640X200 display. This choice is in European version only.

Table 7-1. Graphic Screen Options

Selecting Drive/Directories

The Pronto program works with and/or creates four different types of files. They are identified by the extensions .DTA, .TMP, .MDM, and .PRN. Each of the file types can be stored on different Drive/Directories as best suits the computer setup. It is particularly important to customize these settings when floppy disk systems are used because of space limitations.

A brief description of each file type will be presented before the explanation of Drive/Directory Menu Operation.

File type description

.DTA These are the permanent record files created by Pronto when saving files during the playback process from the data logger. They should be stored on a disk other than the program disk when using a floppy disk system. They can be stored with the Pronto program or on a sub-directory where the program will look for it's data when using a hard disk system.

.TMP These are temporary files created when the data logger transfers data to the Pronto program. They contain the raw data from the Omega OM-170. After the files are named and saved as .DTA files, they are no longer needed and are erased automatically. It is most efficient to store these files in a RAM drive to speed up the transfer and storage process. They can be stored on a disk other than the program disk when using a floppy disk system. They can be stored with the Pronto program or on a sub-directory where the program will look for it's data when using a hard disk system. When the Pronto program is terminated or the computer is turned off, these files are erased. See Appendix C for more information on RAM drives.

.MDM These files result from data logger transfer to computer via modem using the COM-504 modem controller and RusLink software or from compacted data transfer. They are transferred and stored in their compacted, form to shorten the transfer time. Once Pronto has imported, named, and stored them as .DTA files, you may erase them from memory. They can be stored where .DTA files are stored or in a seperate subdirectory.

.PRN These are files created by the Pronto database utility. They are ASCII files containing the data dictated by the operator in the setup and analyze functions within Pronto. They would usually be stored on the drive/directory where the application program using them is set to look for it's data. These files are compatible with Lotus 1-2-3, dBase, and other programs capable of importing ASCII data files.

Changing drive/directory selections

To select paths for each of these file types, proceed as follows.

1. Highlight **Select Drive/Directories** from the main menu using the <spacebar> or cursor keys then press <return>. The drive/directory menu shown in Figure 7-6 will appear.

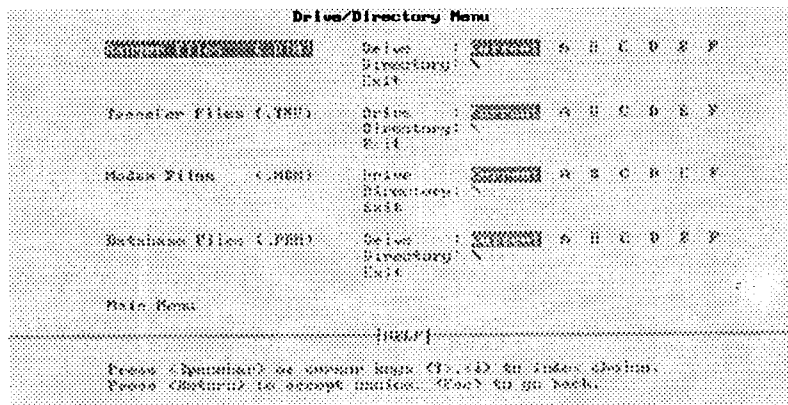


Figure 7-6. Drive/Directory Menu

2. Highlight the desired file type for drive path selection with the <spacebar> or cursor keys and press <return> to activate the choice.
3. Highlight **Drive** and press <return>.
4. Use the <spacebar> to highlight the drive choice and press <return>.
5. If a directory or sub-directory is required, highlight **Directory** using the <spacebar> or cursor keys and press <return>. An 18 character field will appear for entry of the directory name.
6. Type in the directory to be used.

Example: Pronto or Pronto\data

7. After the drive and directory are entered, highlight **Exit** and press <return> to complete the selection.

Pressing the <F10> or <Esc> key will also exit the Drive/Directory selection, but without altering the present choice.

8. This process should be completed for each file extension type.
9. After all file types are set to drive/directory paths, highlight **Main Menu** and press <return> to exit the Drive/Directory menu.

Selecting a printer driver

Pronto supports a variety of printers. The install program allows a specific printer driver to be added to the Pronto configuration file (Pronto.CNF) for use with the program. The default choice is Epson MX, (9pin). To change this default to a different printer, proceed as follows:

1. Highlight **Select Printer Type** from the main menu using the <spacebar> or cursor keys then press <return>.
2. The Printer Choice Menu shown in Figure 7-7 will appear with **Select Printer** highlighted and the current active printer driver highlighted.
3. If the choice is correct, highlight **Main Menu** with the <spacebar> and press <return> to exit without change. The <F10> or <Esc> key will also perform this same task

Printer Choice Menu		
<pre> ~~~~~ Select Printer ~~~~~ 1. Epson MX-79 (9 pin) 17 2. Epson Super-88 18 3. Epson Super-88 19 4. Epson Super-88 20 5. HP PaintJet (color) 21 6. HP PaintJet (b/w) 22 7. HP LaserJet II 23 8. Okidata 102 24 9. Okidata 103 25 10. OKI-4240 26 11. OKI-4240 27 12. Toshiba 20-2100 28 13. Toshiba 20-2100 29 14. Toshiba 20-2100 30 15. Toshiba 20-2100 31 ~~~~~ [ESC] ~~~~~ Press <spacebar> or cursor keys <1>,<4> to index choice. Press <Return> to accept choice. <Esc> to go back. ~~~~~ </pre>		

Figure 7-7. The Printer Choice Menu

4. If **Select Printer** is not highlighted, highlight it using the <spacebar> or cursor keys and press <return>.
5. The cursor will highlight the Default printer driver, move to the new choice using the <spacebar> and press <return> to make it the new default printer driver for Pronto. The words **Transferring Driver** will flash in the upper right hand side of the screen while the new printer driver is being loaded.
6. The main menu will automatically appear after the selection is made.

Define module labels

Pronto provides the ability to customize the label associated with the vertical axis of each module type to allow exact association with the parameter being measured. For example module type 330 has a label of Temperature as it's default. It could be changed to identify the exact application measurement, such as Inlet Temp, if it is continually used in the same way day after day. A 15 character field is provided for this purpose. In the same way, the label for integral units can also be added or modified. It should be noted that these changes will be a global change for all uses of the module type.

To change a module label, proceed as follows:

1. Highlight **Define Module Labels** from the main menu and press <return>. The menu shown in Figure 7-8 will appear.

Module Parameters		
Enter Pod Number		
331-	1	1.0 51.0°C 100
332-	1	1.0 1400°C 100
333-	1	1.0 400°C 100
334-	1	1.0 1501°C 100
335-	2	1.0 3003°C 100
336-	2	1.0 14123°C 100
337-	2	1.0 12001°C 100
338-	2	1.0 22001°C 100
339-	2	1.0 15000°C 100
340-	2	1.0 15000°C 100
341-	2	1.0 15000°C 100
342-	2	1.0 15000°C 100
343-	2	1.0 15000°C 100
344-	2	1.0 15000°C 100
345-	2	1.0 15000°C 100
346-	2	1.0 15000°C 100
347-	2	1.0 15000°C 100
348-	2	1.0 15000°C 100
349-	2	1.0 15000°C 100
350-	2	1.0 15000°C 100
351-	2	1.0 15000°C 100
352-	2	1.0 15000°C 100
353-	2	1.0 15000°C 100
354-	2	1.0 15000°C 100
355-	2	1.0 15000°C 100
356-	2	1.0 15000°C 100
357-	2	1.0 15000°C 100
358-	2	1.0 15000°C 100
359-	2	1.0 15000°C 100
360-	2	1.0 15000°C 100
361-	2	1.0 15000°C 100
362-	2	1.0 15000°C 100
363-	2	1.0 15000°C 100
364-	2	1.0 15000°C 100
365-	2	1.0 15000°C 100
366-	2	1.0 15000°C 100
367-	2	1.0 15000°C 100
368-	2	1.0 15000°C 100
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377-	2	1.0 15000°C 100
378-	2	1.0 15000°C 100
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392-	2	1.0 15000°C 100
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402-	2	1.0 15000°C 100
403-	2	1.0 15000°C 100
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406-	2	1.0 15000°C 100
407-	2	1.0 15000°C 100
408-	2	1.0 15000°C 100
409-	2	1.0 15000°C 100
410-	2	1.0 15000°C 100
411-	2	1.0 15000°C 100
412-	2	1.0 15000°C 100
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414-	2	1.0 15000°C 100
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418-	2	1.0 15000°C 100
419-	2	1.0 15000°C 100
420-	2	1.0 15000°C 100
421-	2	1.0 15000°C 100
422-	2	1.0 15000°C 100
423-	2	1.0 15000°C 100
424-	2	1.0 15000°C 100
425-	2	1.0 15000°C 100
426-	2	1.0 15000°C 100
427-	2	1.0 15000°C 100
428-	2	1.0 15000°C 100
429-	2	1.0 15000°C 100
430-	2	1.0 15000°C 100
431-	2	1.0 15000°C 100
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451-	2	1.0 15000°C 100
452-	2	1.0 15000°C 100
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466-	2	1.0 15000°C 100
467-	2	1.0 15000°C 100
468-	2	1.0 15000°C 100
469-	2	1.0 15000°C 100
470-	2	1.0 15000°C 100
471-	2	1.0 15000°C 100
472-	2	1.0 15000°C 100
473-	2	1.0 15000°C 100
474-	2	1.0 15000°C 100
475-	2	1.0 15000°C 100
476-	2	1.0 15000°C 100
477-	2	1.0 15000°C 100
478-	2	1.0 15000°C 100
479-	2	1.0 15000°C 100
480-	2	1.0 15000°C 100
481-	2	1.0 15000°C 100
482-	2	1.0 15000°C 100
483-	2	1.0 15000°C 100
484-	2	1.0 15000°C 100
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486-	2	1.0 15000°C 100
487-	2	1.0 15000°C 100
488-	2	1.0 15000°C 100
489-	2	1.0 15000°C 100
490-	2	1.0 15000°C 100
491-	2	1.0 15000°C 100
492-	2	1.0 15000°C 100
493-	2	1.0 15000°C 100
494-	2	1.0 15000°C 100
495-	2	1.0 15000°C 100
496-	2	1.0 15000°C 100
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499-	2	1.0 15000°C 100
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501-	2	1.0 15000°C 100
502-	2	1.0 15000°C 100
503-	2	1.0 15000°C 100
504-	2	1.0 15000°C 100
505-	2	1.0 15000°C 100
506-	2	1.0 15000°C 100
507-	2	1.0 15000°C 100
508-	2	1.0 15000°C 100
509-	2	1.0 15000°C 100
510-	2	1.0 15000°C 100
511-	2	1.0 15000°C 100
512-	2	1.0 15000°C 100
513-	2	1.0 15000°C 100
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541-	2	1.0 15000°C 100
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567-	2	1.0 15000°C 100
568-	2	1.0 15000°C 100
569-	2	1.0 15000°C 100
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579-	2	1.0 15000°C 100
580-	2	1.0 15000°C 100
581-	2	1.0 15000°C 100
582-	2	1.0 15000°C 100
583-	2	1.0 15000°C 100
584-	2	1.0 15000°C 100
585-	2	1.0 15000°C 100
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616-	2	1.0 15000°C 100
617-	2	1.0 15000°C 100
618-	2	1.0 15000°C 100
619-	2	1.0 15000°C 100
620-	2	1.0 15000°C 100
621-	2	1.0 15000°C 100
622-	2	1.0 15000°C 100
623-	2	1.0 15000°C 100
624-	2	1.0 15000°C 100
625-	2	1.0 15000°C 100
626-	2	1.0 15000°C 100
627-	2	1.0 15000°C 100
628-	2	1.0 15000°C 100
629-	2	1.0 15000°C 100
630-	2	1.0 15000°C 100
631-	2	1.0 15000°C 100
632-	2	

2. Enter the desired module key number and press <return> to activate the choice. The screen in Figure 7-9 will appear.

```

Module Parameters
Port 222

Module Name      1.0 3.00
Module Label     XXXXXXXXXX
Integral Label
Integral Units   0
Integral Timebase XXXXXX Minutes Hours Sampling Rate
Select New Module
Data Name

-----[HELP]-----

Press <spacebar> or cursor keys <↑>, <↓> to index choice.
Press <return> to accept choice. <Esc> to go back.

```

Figure 7-9. Individual Module Parameter Menu

3. Highlight the label to be modified with the <spacebar> or cursor keys and press <return>.
4. Type in the new information in the area provided and press <return>. The field size for Module Label, Value Label, and Integral Label is 15 characters. The field size for Integral units is 5 characters. An error tone will result if the field is filled and additional characters are entered. The module name field is a protection field and cannot be altered.
5. Repeat the process for each label to be modified.
6. To change the time base, highlight **Integral Timebase** with the <spacebar> or the cursor keys and press <return>.
7. Next, highlight **New Time Base** with the <spacebar> or cursor keys and press <return> to accept the new selection.

The default time base is **Seconds**; however, for some applications data is integrated better over other time units. For example, if you are measuring kilowatts and plan to integrate sections of the graph to see kilowatt/hours, then hours should be selected as the time base.

The choice for sample rate allows for integration of data collected using the primary sample rate as the basis for calculation.

8. To leave this screen and return to the main menu, highlight **Main Menu** by using the <spacebar> or cursor keys and press <return>.
9. To change labels on another module, highlight **Select New Module**, press <return> and begin the process again.

Note: If you are not sure of the POD number, you may page up or down using the <PgUp> or <PgDn> key before entering a POD number to see a short description of the available PODs. When you see the correct number, type it in to gain access to the fields described above. Math functions have been assigned POD numbers so that the labels can be customized as well. The numbers for math formulae begin at POD-433.

Help

The install program has a **Help** screen that will give you a quick overview of the program operation and the choices required in each of the main menu selections.

To view the help screen highlight help from the main menu using the <spacebar> or cursor keys then press <return>. The screen below in Figure 7-10 will appear automatically. Return to the main menu by simply pressing the <return> key.

```
This program will allow you to set up Pronto to work with the particular
graphics display card and printer you are using. You can also change the
default default filenames used for files or making sensor graph labels.

You will be asked to input your choice using the spacebar or the cursor
keys and then select it by pressing return. You may then be required to
make another choice in the same way or by typing it in from the keyboard.
You may also exit without changing anything.

Following is the list of choices that may be selected in the Main Menu.

1. Select video display - A list of display types will be presented. Select
the one that matches the display card frame will be used with.

2. Change default filenames - Change the locations used in Pronto to store
data files, transfer files, online files and database files.

3. Set printer configuration - Select the printer that will be used with
Pronto for print graphs or database information.

4. Set module parameters - The graph annotations used for each module type
may be checked or changed here.

***** Press <Return> to end *****
```

Figure 7-10. Install Help Screen

Exiting the Pinstall Program

After all configuration decisions and changes have been entered, the program can be exited from the main menu by highlighting **Exit This Program** and pressing <return>. The Pinstall program will then modify the Pronto .CNF file to update all changes in configuration that were made. When this action is completed the system prompt will return to the screen and the installation process is complete. If the Pinstall program is terminated any other way, the configuration changes will be cancelled and not be included in the Pronto .CNF file.

Running the Graphics Version of Pinstall

The installation program for Pronto beginning with release 3.50 offers the same type screen presentation as the Pronto program itself. It incorporates a series of menus and uses hot keys and mouse operation to execute instructions the same as the Pronto program.

After you have made the back up copies as described earlier, insert the working copy of the installation disk from the 5 ¼" disk set or the 3 ½" program disk into a floppy drive in your computer and log onto that drive.

From the DOS prompt, type **Pinstall** and press <return>. The first screen you will see is the Rustrak title screen as shown in Figure 7-11 below.



Figure 7-11. Install Title Screen

Display Choices

Pinstall is a graphics based program that automatically detects the graphics adaptor in use in the system. If the automatic detection fails, the display type can be specified on the command line using the following syntax at the DOS prompt.

Pinstall/[display type]

where /[display type] should be one of the following:

/CGA	CGA card, or EGA card with less than 256K memory
/EGA	EGA card with 256K memory
/VGA	VGA card
/HRC	Hercules Graphics Adaptor
/ATT	AT&T 6300/Olivetti Graphics Adaptor
/LCD	EGA card with LCD/Mono display

The title screen will be followed automatically within a few seconds by the sub-title screen shown in Figure 7-12.

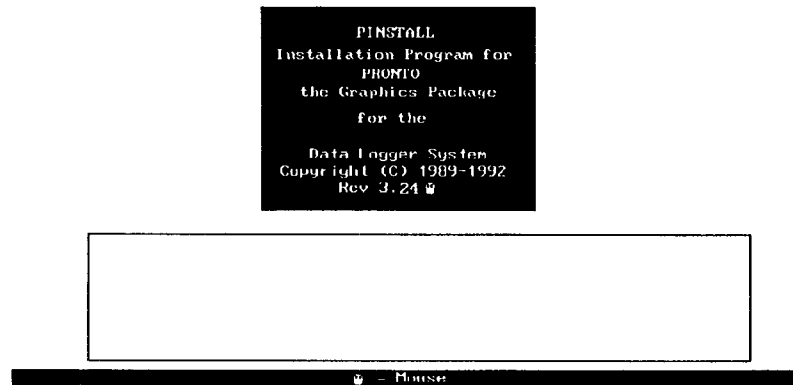


Figure 7-12. Install Sub-Title Screen

The release number will be displayed in the center of the screen. Additionally a mouse icon will be present next to the release number if a mouse driver has been detected. The presence of the mouse icon signifies that mouse selection of menu choices is allowed. You may press any key to advance to the main menu screen or wait a few seconds for it to come up automatically. Figure 7-13 shows the main menu.



Figure 7-13. The Install Main Menu

There are five choices in the main menu. The last two selections are **Help** which open a full screen help window. **Exit PINSTALL** returns you to the DOS prompt. The first three selections are more involved and will be described in order next.

Install New Pronto

This choice will be automatically highlighted when the main menu comes up. This is the choice you will make when installing Pronto for the first time. This is acceptable whether you are planning to use a hard drive or a floppy drive for the Pronto program installation. To initiate this choice press <return> or press <I>. The screen in Figure 7-14 will appear offering you a suggested choice of C:\PRONTO as the drive/directory where the Pronto program and all its' support files will be copied to.

Note: Program files may be too large to fit on a low density (360K) floppy disk. High density floppy disks are recommended if Pronto is to be run from a floppy drive.

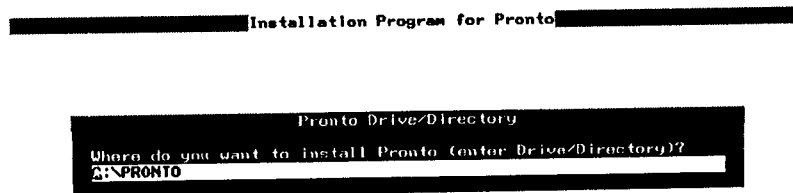


Figure 7-14. Drive/Directory Selection

Press <return> to accept this choice or type in your desired drive/directory and press <return>. It is not necessary for the directory to have been created before loading Pinstall, the installation program will offer you the option to create it as shown in Figure 7-15. The Pinstall program will only create a directory one level down (e.g., C:\Pronto not C:\Ranger\Pronto).

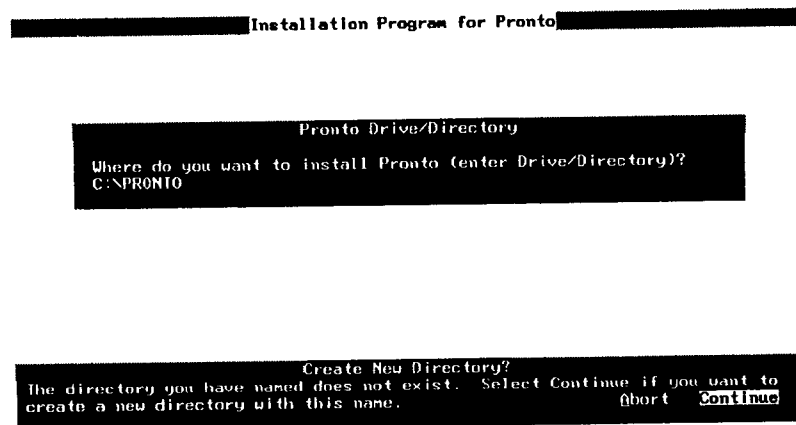


Figure 7-15. Create New Directory

Highlight **Abort** and press <return> or press <A> to cancel the request and go back to the drive/directory selection screen. Highlight **Continue** and press <return> or press <C> to create the new directory.

Next you will be prompted to remove the installation disk and replace it with the Pronto program disk as shown in Figure 7-16 (if the 5 1/4" disk set is used).

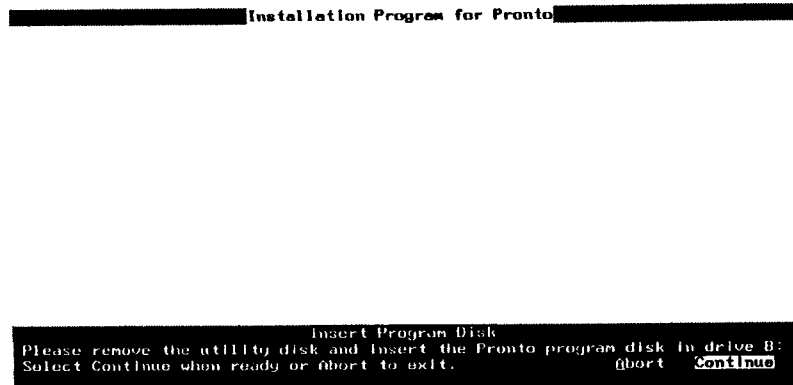


Figure 7-16. Disk Selection Prompt

Highlight **Abort** and press <return> or press <A> to cancel the request and go back to the main menu or highlight **Continue** and press <return> or press <C> once the program disk is inserted to begin copying the files to the drive/directory selected. The screen in Figure 7-17 will appear. It will display the progress for the file copying process by first indicating the file name and then showing the word "copied" upon completion. The next file will then be presented. In all six files will be copied. These are: PRONTO.EXE, PRONTO.CNF, PRONTO.HLP, RUSTRAK.PIC, MODPARAM.DAT, and PDRIVER.EXE.

```

      Install Pronto
PRONTO.EXE      Copied
PRONTO.CNF      Copied
PRONTO.HLP      Copied

```

Figure 7-17. File Copying Screen

Note: The graphic version of Pinstall only copies the files needed for operation on the computer you are using thus conserving memory. It does not copy all the graphic card drivers and printer drivers. Only one graphic driver and one printer driver is needed, the one that matches your system as will be explained later in this section.

Next you will be offered the choice to change the current settings as shown in Figure 7-18.

```

      Current Settings
Graphics Card      Auto Detect
Printer           Epson MX,FX (9 pin)

      Main Menu
Graphics Card
Printer
Module Graph Labels
Help              (F1)
Exit              (F10)

```

Figure 7-18. Current Settings Selection

The default settings are:

Graphics Card

Auto Detect

Printer

Epson MX,FX, (9 pin)

They can be changed by selecting either graphics card or printer and choosing the new settings. These choices will be described in detail under Change Pronto Setup.

Change Pronto Setup

The default settings for graphics card, printer driver, and module labels can be changed as required with this menu choice. When installing Pronto for the first time, the screen in Figure 7-18 will come up automatically after all the files are copied to the directory. When selecting **Change Pronto Setup** from the main menu by highlighting it and pressing <return> or by pressing <C> you will first be asked to specify the drive/directory where the Pronto files are located before the screen will come up.

The default settings will be displayed in the top box. The bottom box will offer the choices of Graphics Card, Printer, Module Graph Labels, Help, and Quit. Press <H> or <F1> to review the help screen. Press <Q> or <F10> to quit and return to the Pinstall main menu.(if you need help or do not wish to change the settings).

Selecting The Graphics Card

The default setting for graphics card is Auto Detect. This setting lets the Pronto program determine which graphics card is installed in your computer. It will work satisfactorily in most systems. In the event that Pinstall is not able to detect the right card or you want to choose a monochrome version of a color card for laptop or notebook computer compatibility, highlight **Graphics Card** and press <return> or press <G>. The screen in Figure 7-19 will appear offering all available choices. Refer to Table 7-1 earlier in this section for more details on the specific choices offered here.

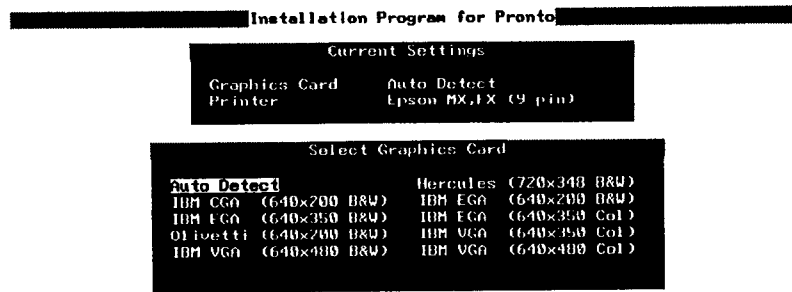


Figure 7-19. Graphics Card Selection

Once in this screen, highlight the desired graphics card with the <spacebar> or mouse and press <return> or the right mouse button to make the selection. The Pronto.CNF file will be updated with your selection and the main menu will return to the screen. The top window will now display the new default setting for the graphics card just selected.

Printer Selection

The default setting for printer driver is Epson MX,FX (9 pin) as shown in the top window of the menu. To change the printer driver, highlight **Printer** and press <return> or press <P> from within the Change Pronto Setup menu. The screen in Figure 7-20 will appear listing all available printer drivers supported by Pronto.

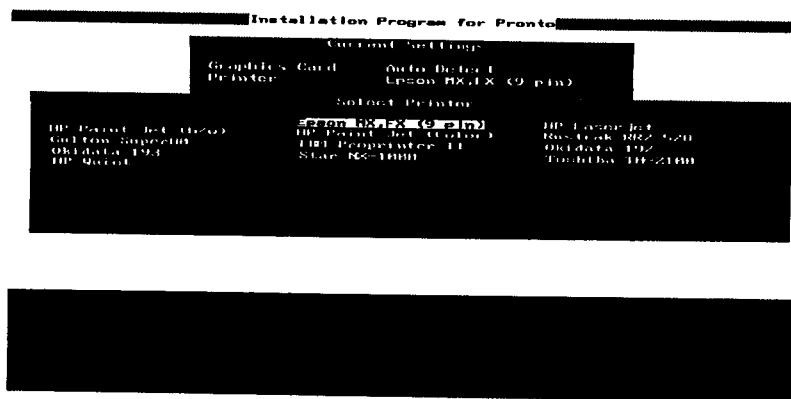


Figure 7-20. Printer Driver Selection

The present active printer driver will be highlighted. To change this to match your printer, use the <spacebar>, backspace <←>, or cursor keys to highlight the correct choice. Press <return> to transfer the printer driver. The PDRIVER.EXE file will be updated with your selection and the main menu will return to the screen. The top window will now display the new default setting for the printer driver just installed.

Module Graph Labels

Module labels can be customized for any module on a global basis to match the needs of you everyday use. Settings changed here become the new defaults. To change the settings on a one time basis for a particular recording session, refer to the instructions in Sections 9 and 10 under the Format heading.

The Value label and the Integral label, units, and timebase can be changed on any of the input modules. To change these settings, highlight **Module Graph Labels** and press <return> or press <M> from within the Change Pronto Setup menu. The screen in Figure 7-21 will appear offering four command choices, By Cursor, By Number, Help, and Exit.

Selecting **Help** will open a help window at the bottom of the screen. Pressing <E> or highlighting **Exit** and pressing <return> will bring you back to the Change Setup main menu.

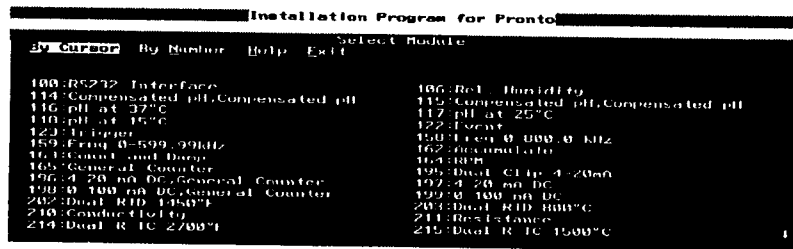


Figure 7-21. Module Selection

Module selections are By Cursor or By Number. To select modules **By Cursor** highlight this choice and press <return> or press <C>. The selection cursor will move into the module selection window. Use the <spacebar>, back space <←>, cursor keys or mouse to highlight the module type you want to change.

If you know the module number (197 for example for a 4 - 20 ma input) it is much faster to select modules by number. Highlight **By Number** and press <return> or press <N>. A field will appear in the top of the module selection window which will allow you to type in the 3 digit module number. See Figure 7-22.

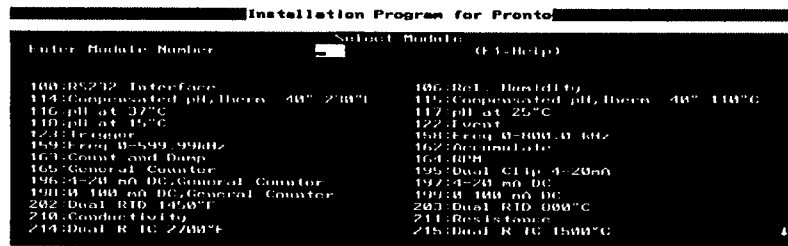


Figure 7-22. Selection of Module by Module Number
Type in the desired number (e.g., 197) and press <return>.

Whether you make your selection by cursor or by number, a screen similar to Figure 7-23a will open for single channel modules or for dual channel modules with the same function for both channels such as a dual thermocouple. Figure 7-23b will be typical of dual channel modules with different functions for each channel such as ac volts and amps.

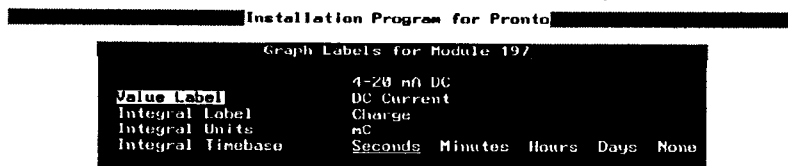


Figure 7-23a. Single Channel Module Labels

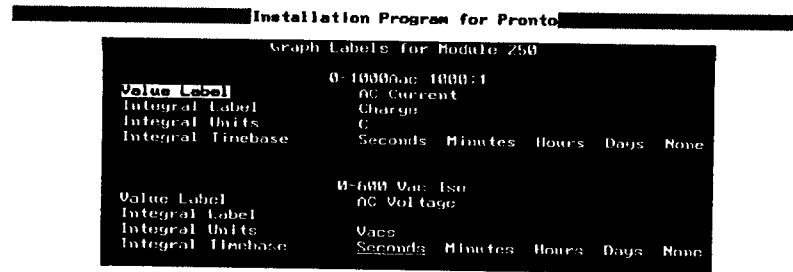


Figure 7-23b. Dual Channel Module Labels

Value Label

To change the label that will appear on the Y-axis of the graph, highlight **Value Label** and press <return>. The cursor will move into the 15 character field provided for this label. Type in the desired information and press <return> when finished.

Note: If you enter a character in the first position without pressing the <Ins> key, the entire field will be cleared except for the character just typed. If you press the escape key instead of <return> when you finish typing, the changes you just made will be ignored.

Integral Label

In the same way described for Value Label, the Integral Label can be changed. To change this label highlight **Integral Label** and press <return>. A 15 character field is provided for this label. The integral label will appear whenever a cumulative plot for the module is presented on screen or printed out.

Integral Units

The integral units are displayed with the cumulative plot and when the integral is requested of any trace using the examine command. To change the Integral Units, highlight **Integral Units** and press <return>. The cursor will move into the 5 character field provided for units. Type in the desired characters and press <return> when finished.

Integral Timebase

The integral timebase should be set to match the parameter being recorded (e.g., hours for kilowatts or days for flow etc.) To change the timebase, highlight **Integral Timebase** and press <return>. The cursor will move to the current active timebase as indicated by the underline. Select the new timebase by highlighting it and pressing <return> or by pressing the underlined letter such as <D> for **Days**. The choices are Seconds, Minutes, Hours, Days, and None. The time base will have a dramatic effect on the size of the number displayed when the integral is presented. A choice of **None** means that Pronto will use the sample rate of the recording for the timebase.

Update MODPARAM.DAT

The MODPARAM.DAT file contains all the labels and descriptions for the modules supported by the Rustrak Ranger II data logger and the Pronto program. If a new module is added to the data logger library and not the Pronto program, the graph will not contain the labels when plotted. The Pronto program may be upgraded to contain the information on new modules by using the **Update MODPARAM.DAT** command. This will copy only the new information to your Pronto directory and not alter any changes you have made to any of the module labels as described earlier. If you were to simply copy the MODPARAM.DAT file to your Pronto directory, all changes you have made to any module type will be lost and the factory default settings will be reinstalled on all module types.

To update Pronto's module library proceed as follows:

1. Insert the disk containing Pinstall and the new MODPARAM.DAT file into the appropriate floppy drive in your computer.
2. Log onto this drive then type **Pinstall** and press <return>.
3. When the main menu appears, highlight **Update MODPARAM.DAT** and press <return> or press <U>.
4. The program will search for the directory where Pronto is installed and display it. Offering you the option to type in the drive/directory if necessary as shown in Figure 7-24 Press <return> when the information is correct.

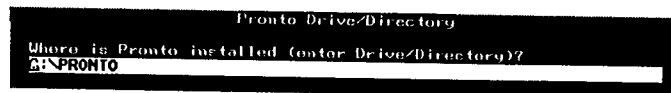


Figure 7-24. Pronto Directory Choice

5. Next the screen in Figure 7-25 will appear indicating that the MODPARAM.DAT file is being updated. When updating is complete, the main menu will reappear.



Figure 7-25. Updating MODPARAM.DAT

Exit PINSTALL

When all changes and updating are complete, select **Exit PINSTALL** from the main menu by highlighting it and pressing <return> or by pressing <E>. You will be returned to the DOS prompt. Log onto the Pronto drive/directory and remove the installation disk from the floppy drive and store it in a safe place. You may now proceed to the next section of this manual to begin using the Pronto program.

NOTES

Section 8

Using The Pronto Program

Before attempting to run the Pronto program for the first time, refer to the installation section of this manual to properly prepare for utilization with a dual drive or hard disk system. Attempting to run the program from the program disk without running the install program may not provide satisfactory results.

Starting Pronto

From the DOS prompt, change to the drive/sub-directory where the Pronto program is installed. To start the program type **Pronto**.

The first screen you will see after the program loads is the Omega OM-170 title screen in Figure 8-1. This will stay on your monitor for approximately 10 seconds or until you press any key.



Figure 8-1. Omega OM-170 Title Screen

The next screen that will appear will be the sub-title screen in Figure 8-2. This screen will also appear for approximately 10 seconds.

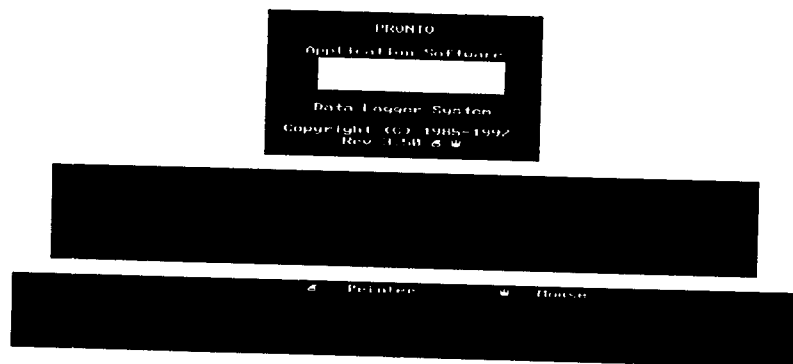


Figure 8-2. Pronto Sub-title

There is some pertinent information in the description box that is valuable to note, particularly if you are calling Omega for application assistance. Our support personnel may ask you for some of this information. First, note the release number of the program, this will be a three digit number with one digit to the left of the decimal point (x.xx).

After the release number, there may be one or two icons present. If present, the first icon is that of a printer. The presence of this icon indicates the file containing printer information has been properly detected. This file is called PDRIVER.EXE. This file is part of the Pronto program set and should be on the same drive/directory as the Pronto program. The presence of this icon indicates printer output is available and graphs can be plotted on your printer. For specific printer installation, refer to Section 7.

The second icon indicates that the mouse driver has been detected and that mouse operation is allowed. If this icon is not present, then mouse operation will not be functional. The Pronto program automatically detects the presence of this capability. If you have a mouse and the mouse icon does not appear, refer to your mouse instruction manual for proper installation.

At any time while the configuration screen is visible, you may strike any key to advance to the main menu screen. If no keys are pressed, the program will automatically advance to the main menu within 10 seconds.

Main Menu

Figure 8-3 shows the Pronto program main menu screen. This screen consists of one line at the top of the display indicating all main functional areas of the Pronto program.



Figure 8-3. Pronto Main Menu Screen

When this screen first appears in the display, function key <F2> (Data File) will be highlighted. Any other function can be invoked by using the <spacebar>, mouse, cursor keys to highlight it and the <return> key to select it, or pressing the appropriate function key directly. All function keys are active upon initialization except function key <F7> (Printscrn). In all cases where a function key is not active an audible sound will result when this function is attempted. Most of the function keys in the main menu will open pull-down windows which allow specific utilities to be selected for that functional group. <F3> and <F7> are direct implementation keys with no sub-menus.

Function keys

F1 (Help) - This is the help key. This key is active anywhere in the program and will open up either a full page help screen if the main menu is present or a 3 line window in the middle or bottom of the screen (depending on graphics card in use) for help messages appropriate to specific functions. Figure 8-4 shows a typical 3 line help window.

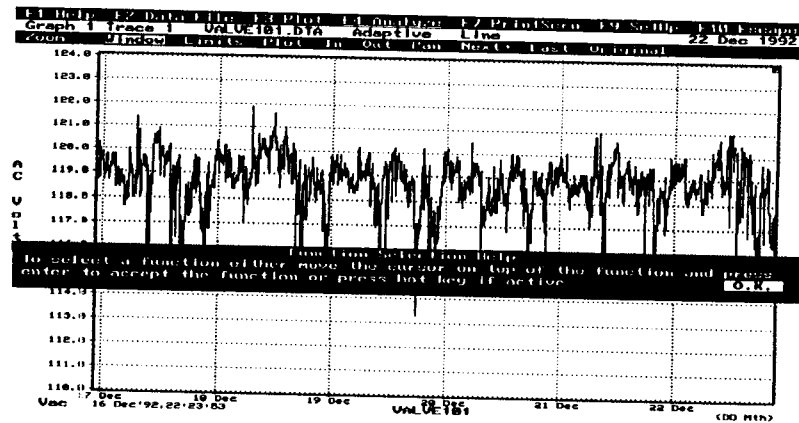


Figure 8-4. Typical Help Window

F2 (Data File) - This group allows you to select the playback function to retrieve data from your data logger. In network mode it allows you to select the data logger you wish to retrieve data from. It allows selection of drive/directory locations for filing. It also allows access to a specific group of files within the directory for review and analysis. It allows you to save any data that is on-screen that has been worked on by the program. Finally, it allows access to the file storage location where the modem transferred files or compacted data logger files are located.

It is important to note here that file selection must be made before function keys <F3> and <F4> will allow their commands or pull-down menus to operate. If a file has not been selected, pressing function key <F3> or <F4> will automatically advance to the file selection window within the Data File group.

F3 (Plot) - Plots all selected files on-screen. This function key is active within the file selection window or when the main menu is present. No pulldown window exists for this function. Up to twelve traces may be plotted at one time.

F4 (Analyze) - Opens the analyze window. This function offers a great deal of utilities and flexibility to you. It is in this set of functions that graphs can be zoomed up in size, textural information can be added to graphs, statistical analysis can be accomplished, the size and location of the graphs on screen can be changed, and graphs can be removed or duplicated as needed. In the

analyze group the format of any graph or group of graphs can be changed adjusting such things as the time base, whether or not grids or events are displayed as well as other valuable features.

The notebook function is accessible in the analyze group which allows you access to a file where comments can be generated to accompany the graph. This file may be edited by most word processors as well. If you choose to edit this file with your word processor, be sure to set the right margin to 54 or less and that you do not have more than 36 lines of text in the file. Notebook files can be recognized by the file extension .DNB in the Pronto file directory.

F7 (PRINTSCRN) - This function key allows printing of any graph or group of graphs that are on-screen. It is active only when a graph has been selected and displayed on the screen. The notebook can be printed using this function as well. An Audible tone results when attempting to use the <F7> function key where it is not active. The <F7> key is active from the main menu and from the following sub-menus: Zoom, Limits, Text, Layout, and Examine.

F9 (Setup) - This function key allows changes to the default conditions of Pronto. Here the drive/directory for all file storage and retrieval can be programmed. The baud rate and location of serial port for data communication can be set and the basic information about graph presentation on screen can be configured. These changes to the default conditions are global and will effect any new files selected. They can be made to be permanent or temporary changes.

F10 (Escape) - This key performs the same function as the <Esc> key. The escape key will take you out of any instruction set or complete the function you are presently implementing as necessary.

Also under the escape group is access to run DOS command without leaving the Pronto program and the ability to exit the program from the main menu position. All other utility programs supporting the Omega OM-170 may also be selected and run from this menu. See Appendix B for proper installation of these programs with Pronto.

Pronto flow diagrams

Overall flow diagrams of the main menu functions and their appropriate pull down windows are listed in Figures 8-5 thru 8-9 to help you understand the relationship between functions. Each of these sub-menus and functions will be discussed in detail in Sections 9,10, and 11.

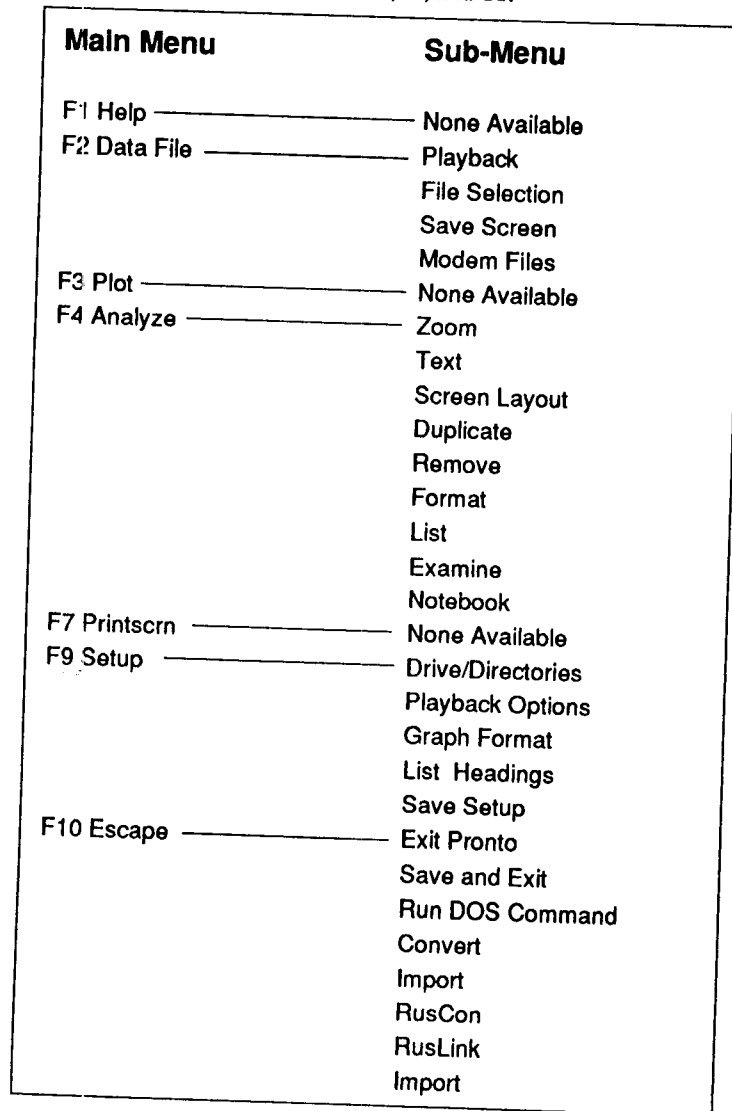


Figure 8-5. Main Menu Flow Diagram

The choices presented in Figure 8-6 are available when the function key <F2> is pressed from the main menu.

F2 Data File Group		Sub-Menu
Playback *		None available
File Selection		Select/Deselect Drive/Directory Clear All Plot Format Erase File
Save Screen	File Name	Save Filename Notebook Drive/Directory
Modem Files		Import Drive/Directory Erase modem files Playback to MDM file*

* This is OM-170 Control in network mode - see Section 12 for details.

Figure 8-6. The Data File Sub-menu Group

The functions shown in Figure 8-7 are available when the function key <F4> is pressed when one or more graphs are on screen. The bracketed [graph choice] notation indicates that if more than one graph is on the screen a choice must be made before the commands will be available. Some menu items will only appear when more than one graph is on screen.

F4 Analyze Group		Sub-Menu	
Zoom	[graph choice]	Window Plot In Out Pan Next Last Original	
Text	[graph choice]	New Edit Move Delete	
Layout	[graph choice]	Auto-Resize Size Move Plot Raise Lower	
Duplicate	[graph choice]	None	
Remove	[graph choice]	None	
Format	[graph choice]	Alignment Show Y-axis Title	Type Alignment Show Move To Graph Value Integral
List	[graph choice]	To screen To printer To file	Go Change headings
Examine	[graph choice]	Frame List Value Max Min Mean Integral Time	
Notebook	[graph choice]	Write/Edit Clear Print Undo	

Figure 8-7. The Analyze Sub-menu Group

The functions shown in Figure 8-8 are available when function key <F9> is pressed from the main menu.

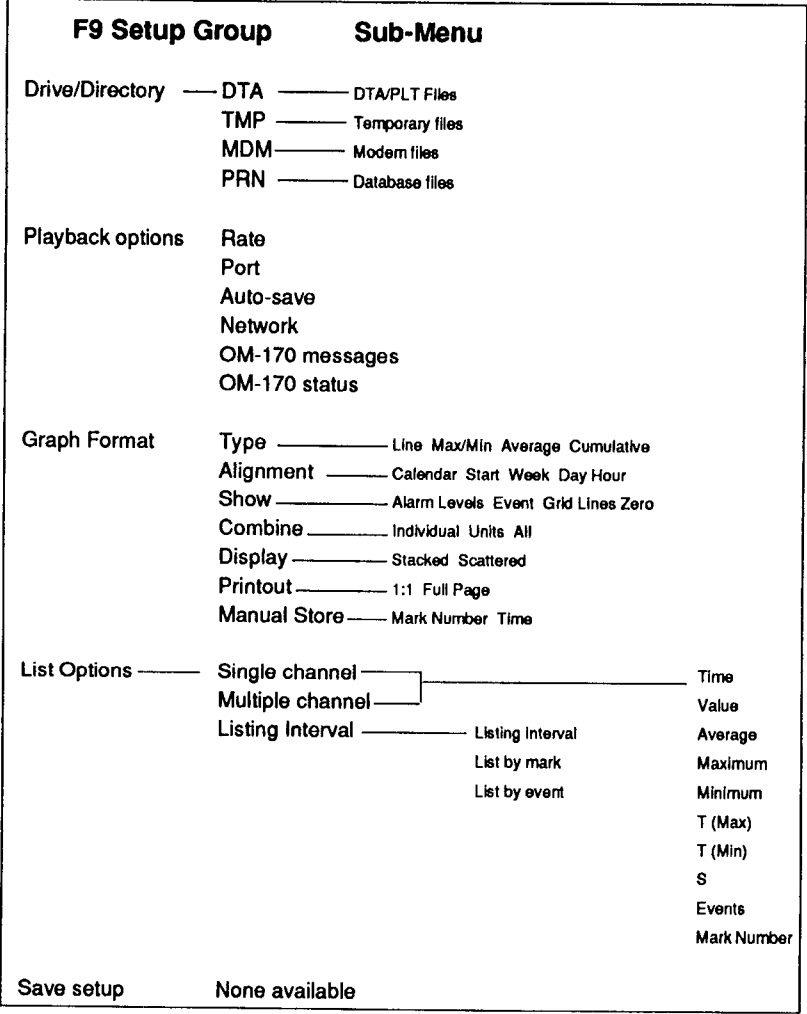


Figure 8-8. The Setup Sub-menu Group

Figure 8-9 shows the choices available under the F10 Escape group. All support programs available for use with Rustrak Ranger and Pronto can be accessed here if they are installed.

F10 Escape Group	Sub-Menu
Exit Pronto	
Save and Exit	Filename
DOS Commands	
Convert	
RusLink	
Import	
RusCon	

Figure 8-9. The Escape Group

Section 9

The Data File Group

Data File **F2**

The Data File functional group is your access to retrieving data from the Omega OM-170, selecting files to be plotted on-screen, pointing the Pronto program to specific drive/directories for selecting and storing data, importing modem and compacted files and saving any work that you have done within the Pronto program. Figure 9-1 displays the pull down menu available when function key <F2> is pressed. Each function, along with their sub-menu choices, will be described in order of appearance in this section.

F1=Help | F2=Data File | F3=Plot | F4=Analyze | F7=PrintScreen | F9=SetUp | F10=Escape



```
Playback
File Selection
Save Screen
Modem Files
```

Figure 9-1. Data File Pull Down Menu

Note: If Pronto is in network mode Playback will be replaced by "OM-170 Control" see Section 12 for details.

Playback **(F2)(P)**

Data may be played back from the Omega OM-170 through the Pronto application software by pressing <F2> and <P> for playback. If you are already within the file group menu system, highlighting **Playback** and pressing <return> will achieve the same function. When the playback function has been initiated, the screen in Figure 9-2 will appear indicating that the Pronto software is beginning its communication process with the data logger. This may take several seconds if the data logger itself is turned off. The Pronto program will turn the data logger on and place it in the serial mode for data playback. To speed up the processing time, you may turn the Omega OM-170 data logger on by pressing both keys on the front panel of the data logger. If the data communications cable is not present or the wrong communications port has been established for data transfer, an error message will appear at the bottom of the screen (see Appendix D for error message numbers 8 and 68). If the data logger is still recording, a message will appear allowing the choice for termination of recording and playback or to abort the selection. See Figure 9-3.

F1=Help | F2=Data File | F3=Plot | F4=Analyze | F7=PrintScreen | F9=Setup | F10=Escape

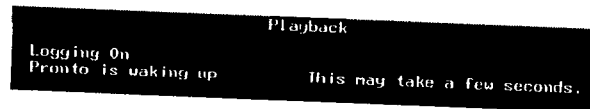


Figure 9-2. The Playback Window

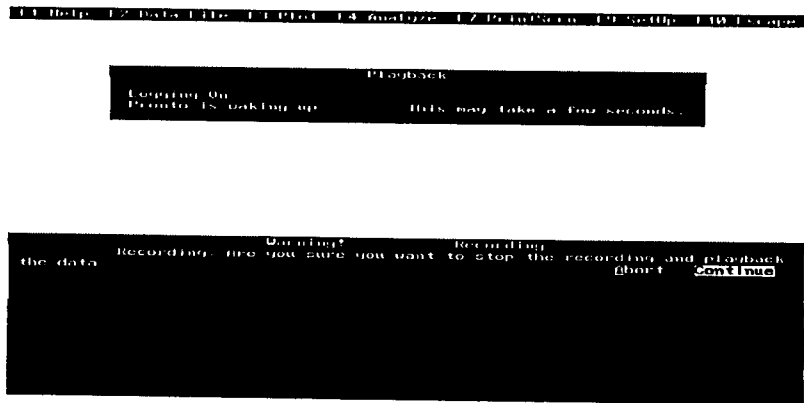


Figure 9-3. Playback When Data Logger Is Still Recording

When proper detection of communication cable and data logger has been established, the screen in Figure 9-4 will appear showing a bar graph, which indicates the percentage of data transfer between 0 and 100%. The data logger display will also indicate the percent transfer.

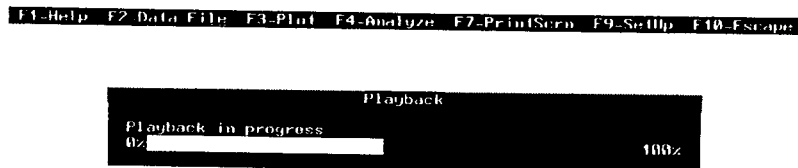


Figure 9-4. Playback Bar Graph

Once all data has been transferred, a verification stage will take place using a similar bar graph presentation as just described. See Figure 9-5.

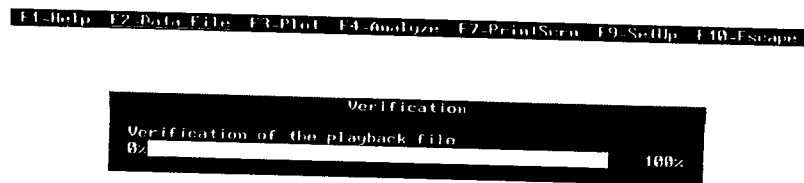


Figure 9-5. Verification Bar Graph

Upon completion of playback and verification, the screen in Figure 9-6 will appear indicating that all files are being sorted by session and file number. The playback, verification and sorting process can take several minutes for long recording sessions containing many files.

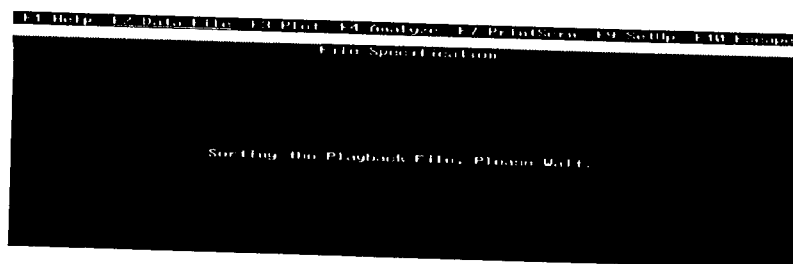


Figure 9-6. File Sorting

After file sorting has been successfully completed, the screen in Figure 9-7 will appear allowing several options which will be described here.

Note: A message will appear in the notebook that indicates how the recording stopped. Refer to Section 11 on OM-170 messages for more details.

Filename

When the screen in Figure 9-7 is first presented, the cursor is resident in the filename field allowing you the opportunity to name the file you just transferred. An 8 character field is provided for this purpose. The last 3 characters in the field are occupied by the session and file number.

Example: 101 = session 1 file, (channel) 1
511 = session 5 file, (channel) 11

These characters may be overwritten if desired by pressing the insert <Ins> key to take Pronto out of the insert mode and place it into the overwrite mode. If the file and session number are desired, simply use the five remaining characters in the field to identify the file names.

Example: Valve101

After file naming has been completed, pressing either the escape <Esc> key or <return> key will return to the command line.

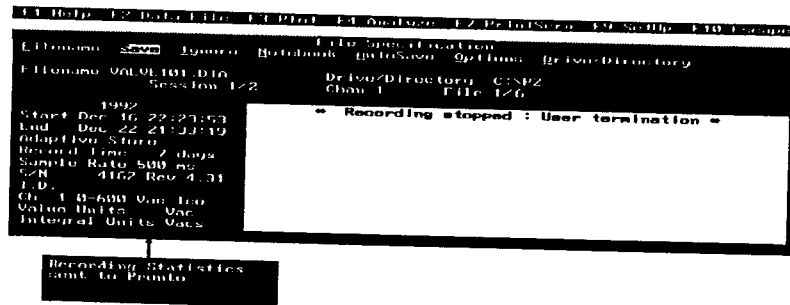


Figure 9-7. File Storage Functions

Save

From the command line, highlighting **Save** and pressing <return> or pressing <S> will save the file to disk. The screen in Figure 9-8 will appear indicating percent of file storage on the right side of the status line. This will be in the form of a bar graph similar to the playback bar graph. This process will be the same for each and every file and session transferred in the playback process.

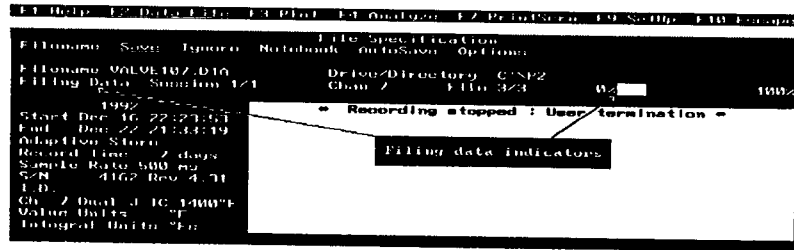


Figure 9-8. File Save Bar Graph

The word "New" will appear on the status line when a session number changes as shown in Figure 9-9 indicating the next session of recording.

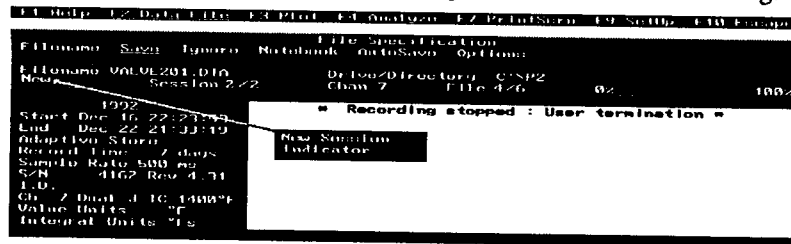


Figure 9-9. New Session Indicator

Ignore

The ignore function allows the discarding of files that you do not wish to store on disk. When the file in question is active on the command line, highlight **Ignore** and press <return> or press <I> . A bar graph will appear on the command line indicating that the file is being erased.

Notebook

The notebook function allows access to a 54 character by 36 lines writing area for adding text information that is to be filed with the graph. The information added here can accompany all files and sessions within the group or can be changed on a file by file basis as necessary. See Section 10 for details.

Auto-save

The auto-save function is the fastest way to save multiple files and sessions to disk. In this way, a filename can be entered once along with a singular description in the notebook. Once the filename has been entered and the command line is active again, press <A> or highlight **Auto-Save** and press <return> . Each file in sequence and each session in sequence will then be stored automatically to disk with a bar graph indicating the progress of each file as it is stored. The last three characters in the name field will be updated automatically to track the proper session and file number.

Drive/Directory

Within the file storage function, access is provided to change the drive/directory. Therefore, files can be kept in convenient locations for your use. For a full description on how to change drive/directory, refer to the drive/directory discussion in the setup menu in Section 11.

Note: The Pronto program can support drives up to and including the letter F. The number of active drives that will be displayed in this menu will be determined by the highest drive letter detected by the Pronto program.

A maximum of 18 characters are allowed for directory designation. An error message will result at the bottom of the screen if an invalid sub-directory has been entered. See Appendix D for error message details.

Quick Plot Mode

Quick plot offers the ability to work with only the files just created using a limited number of the analysis tools. In this way a quick review, analysis and print out can be provided without searching for files among historical data.

After the last file in the playback sequence has been acted upon, the Pronto program will advance to the Quick Plot menu as shown in Figure 9-10.

The command line offers several choices which will be described here.

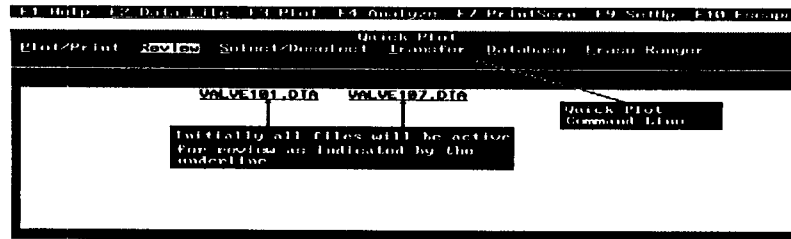


Figure 9-10. Quick Plot Menu

Plot/Print

This is the fastest way to review each graph on screen and obtain a hard copy as well. When the Quick Plot menu appears, only new files will be shown in the file directory. All files will be active as indicated by the underline of the filename. To select Plot/Print press <P> or highlight the **Plot/Print** command and press <return>. Pronto will display each graph on screen and initiate a printout instruction automatically. After the graph is printed the next graph will plot on screen and print out. This sequence will continue until all graphs have been plotted and printed.

Review

The review function allows plotting of all active graphs on screen without an automatic hard copy printout. In this way print out will only occur at your control by pressing the <F7> Printscrn key.

To select Review press <R> or highlight **Review** and press <return>.

To review the next available graph, press the <F2> key. The screen in Figure 9-11 will appear offering the choice of the next graph or to save any work performed. The save screen function will be valuable if any analysis work was applied to the graph on screen. Highlight the desired choice and press <return> . Alternatively press <N> for next graph or <S> for save.

The **Next Graph** choice is highlighted automatically when you press <F2> therefore you may quickly get to the next graph simply by pressing <return>

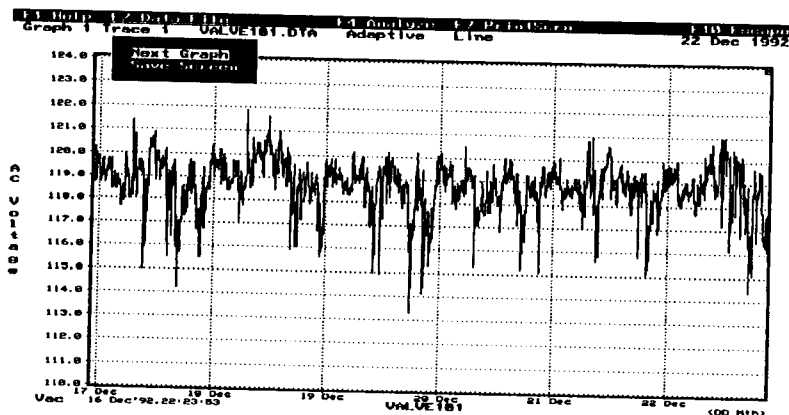


Figure 9-11. Quick Plot Sub-menu

If you select the Save Screen function in Figure 9-12 will appear providing the opportunity to enter a file name for the graph. Pronto automatically adds the extension .PLT therefore you may choose to leave the name the same as the original file.

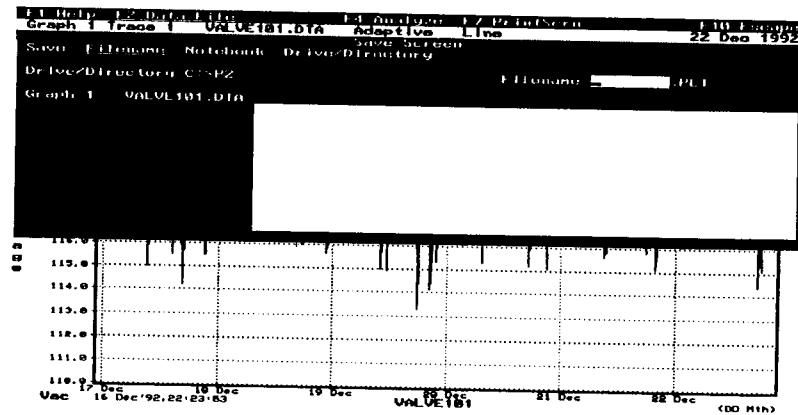


Figure 9-12. Save Screen, File Naming

Select/Deselect

When the Quick Plot mode is entered all files are active as indicated by the underlined filename. If many files were played back, it might be advantageous to deactivate some or all of them and select just one or a specific group of files to review and plot. To accomplish this, highlight **Select/Deselect** from the Quick Plot command line and press <return> or press <S>. The cursor will now move down into the file directory area. Deactivate files by using the <spacebar> or cursor keys to highlight them and then press <return>. The underline will disappear indicating the deactivated condition. In the same way activate files by highlighting a file which is not underlined and press <return>. This process can be executed for each file in the file directory as desired.

When all choices have been completed, press the <Esc> key or <F10> key to leave the file directory and return to the command line. The Plot/Print and Review functions will now work with just those files that are underlined.

Transfer

You may change from Quick Plot to the full capability of Pronto by highlighting **Transfer** and pressing <return> or pressing <T>. This allows a more extensive analyze capability.

Database

You may select the database option within the Quick Plot menu by highlighting **Database** and pressing <return> or by pressing <D>. The screen in Figure 9-13 will appear offering 4 choices.

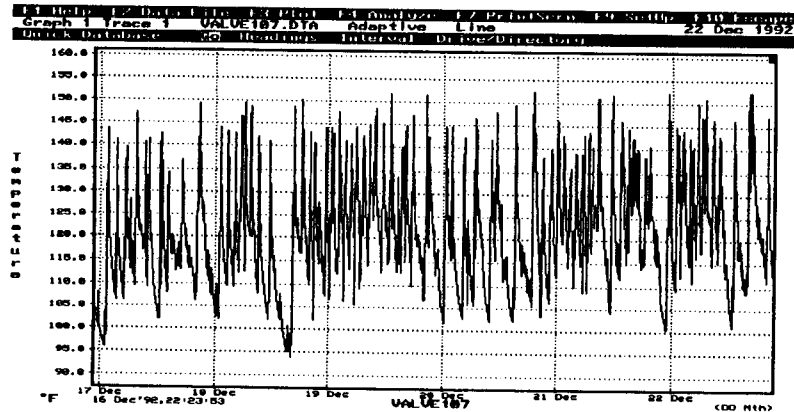


Figure 9-13. Quick Plot Database

Select the desired choice by highlighting it and pressing <return> or by pressing the underlined letter.

Go - This command will create the database using the default headings, interval and drive/directory selected in the Setup menu or the new conditions selected here.

Headings - This command will open the heading selection window which allows you to determine which columns of data will be included in the database. Section 11 describes this in more detail in the List Headings discussion.

Interval - This command allows you to select the time interval for the database. A window will open after you select this command allowing you to use the arrow keys to select a time interval for the database. A default interval can be selected in the Setup function. Section 11 describes this in more detail in the List Headings discussion.

Drive/Directory - You may select a different drive/directory here for database file storage than the default location selected in Setup. Changes made here will only affect database files saved during the current session of Pronto. The default settings will be loaded when you start Pronto from DOS

again. Section 11 describes this in more detail in the Drive/Directory discussion.

Erase OM-170

The Pronto program offers the ability to erase data from the Omega OM-170 before leaving the Quick Plot mode. To accomplish this task, make sure the Omega OM-170 is still connected to the computer's serial port.

Next select **Erase OM-170** from the Quick Plot command line by highlighting it and pressing <return> or by pressing <E>. The screens in Figures 9-14a and 9-14b will appear in sequence to indicate the progress of the instruction.

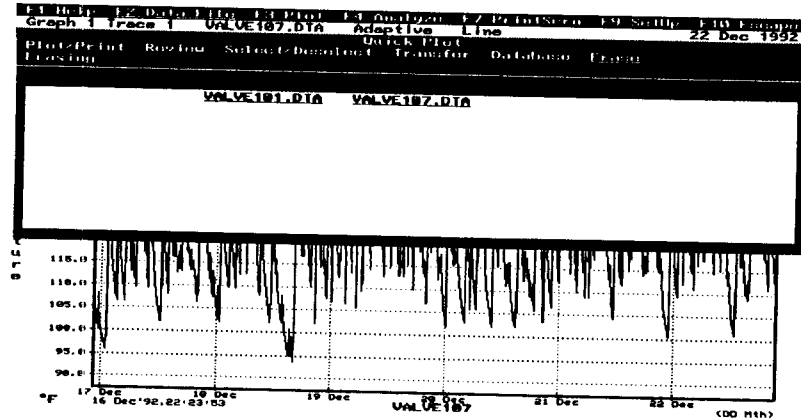


Figure 9-14a. Erase OM-170 Screen

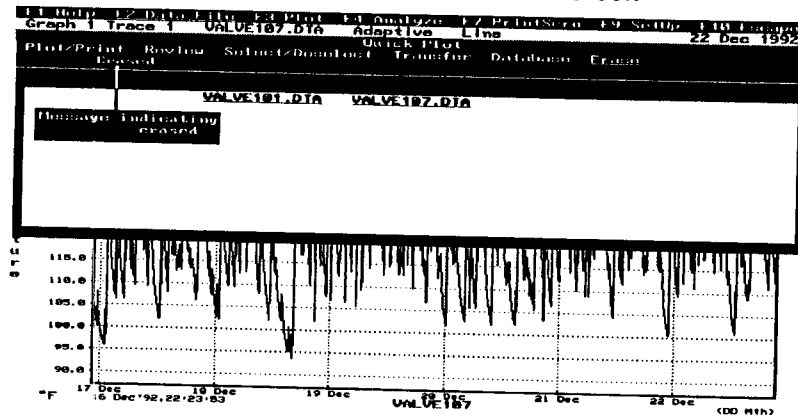
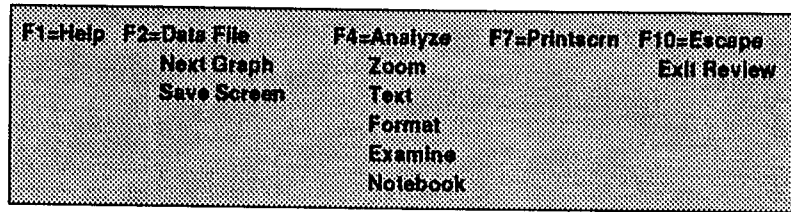


Figure 9-14b. Erase OM-170 Progress Message

Analyzing graphs in quick plot mode

Figure 9-15 shows the menu of all available tools in the Quick Plot mode.



F1=Help	F2=Data File	F4=Analyze	F7=Printscrn	F10=Escape
	Next Graph	Zoom		Exit Review
	Save Screen	Text		
		Format		
		Examine		
		Notebook		

Figure 9-15. Quick Plot Functional Diagram

These tools become available once a graph is on screen and will be indicated by the presence of function key headings at the top of the screen. For a complete description of each of the utilities available in the <F4> analyze menu refer to Section 10 of this manual.

Exiting quick plot

To leave the Quick Plot mode simply press the <F10> or the <Esc> key to bring up the Exit Review choice. Press <return> to go back to the Quick Plot menu. Press <Esc> to exit Quick Plot and return the main menu. Selecting Transfer will also exit the Quick Plot menu, however, it will bring you to the full Pronto analysis capability and plot all the graphs on screen. With this command you can continue to work with the new files without having to select them from the file directory.

File Selection **(F2)** **(F)**

When the file selection command is implemented, a window will open allowing access to the files on the currently active drive/directory for review and analysis. Figure 9-16 shows a typical file selection window. The command line offers several choices which will be described here in order of appearance. If the up arrow ↑ and the down arrow ↓ appear on the right side of the window this indicates that more files are on the disk than can be displayed in the window.



Figure 9-16. Typical File Selection Window

Select/Deselect **F2** **F** **S**

The Select/Deselect function will move the cursor down into the file selection area. Individual files may be accessed and activated for use by Pronto. This is accomplished by highlighting the file and pressing the <return> key. As a file is activated it will be underlined in the display. A maximum of 12 files may be chosen for analysis at any one time. Use the <PgUp>, <PgDn>, or arrow keys to view more files if you do not see the files you want in the window.

This same process is used to deselect files individually by highlighting a file that has been underlined and pressing the <return> key. The underline will disappear and the file will no longer be active. The top right side of the file selection window indicates the number of files selected and the total number of files in the directory.

Drive/Directory **F2** **F** **D**

Access is provided within the file selection window to change the drive/directory. Files from several different drive/directories can be called up for review and analysis. For description on how to change drive/directory, refer to the drive/directory discussion in Section 11.

Clear All **F2** **F** **C**

The Clear All function allows a global deactivation of all files on all directories and sub-directories at one time. This function provides an automatic deselect of any open files anywhere within the system. This is the fastest way to clear files from use. It does not erase files from disks storage.

Plot **F2** **F** **P**

The Plot command allows all selected files to be plotted on screen. To activate this command from within the file selection window first press the <Esc> key or <F10> to exit the file selection directory and return to the command line. Next highlight **Plot** and press <return> or press <P>. Alternatively, <F3> key can be pressed to accomplish the same task with one keystroke direct from within the file selection directory. The <F3> key is not active from the command line.

Format

The Format function will bring up a display of the statistics of the graph highlighted as indicated by Figure 9-17 below. The information displayed here will be alignment, show, Y-axis labeling, graph title, the plot type, mode of storage, and file date. If no files have been previously selected, the Format command is not accessible. Selecting this function will have no effect.

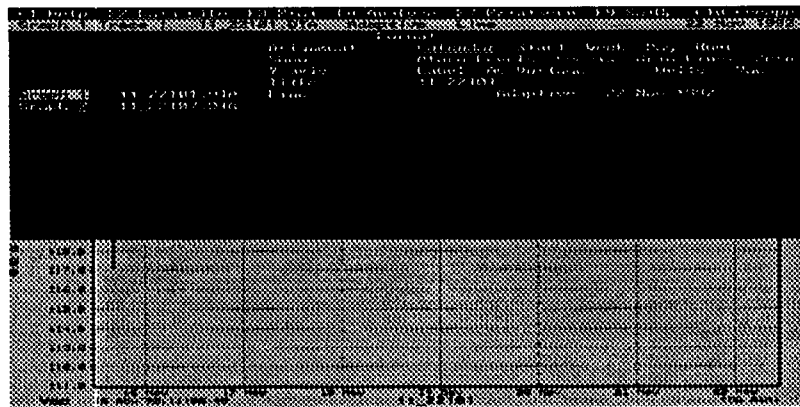


Figure 9-17. Graph Parameters

Once into Format window, any of the graphs or files can be selected for format modification by pointing to them and pressing the <return> key. When first entering the screen, graph number 1 will be the highlighted choice. To change to a file in that graph, you may use the cursor keys or the <spacebar> to point to it. Cursor movement will be to each graph, then to the files. As you point to each file within a graph, or to a different graph, the right side of the screen will change to show the appropriate parameters for the graph or file.



Figure 9-18. File Parameters

Graph formatting

To alter any of the characteristics of a graph, highlight the graph, and press <return>. The cursor will move to the alignment selection.

Alignment

Alignment choices are calendar, start, week, day or hour. These choices indicate the left border starting position of the time axis and the units to be used in displaying time.

To change the alignment, highlight **Alignment** and press <return> or press <A>. The cursor will move to the active alignment type. To change the alignment, use the <spacebar>, cursor key or the underlined of the desired alignment type and press <return>.

The calendar choice provides day, hour, minute and second notation on the time axis.

Choosing start will force the left border to begin at time zero and elapsed time to appear across the bottom of the chart. Accordingly, choosing week, day or hour will force time units in those multiples. If you select a time unit that is too large, the Pronto software will automatically default to the closest appropriate units. For example, choosing a week alignment when the entire recording lasted only one hour, would not allow weeks to be shown on the time axis. The time axis would automatically revert to minutes and seconds.

Show

This function allows event marks, grid lines, alarm levels and zero to be on or off on any graph presentation. The underlined condition indicates that the choice is on.

Event marks

The events choice allows graphs to be viewed with the event markings on or off. This is a toggle function. If **Events** is highlighted and the <return> key is pressed, the status will change on or off depending on its prior setting. The word **Events** will be underlined to indicate the on condition. Figure 9-19a shows a trace where the event is active by the presence of a dotted line. The same trace shown in Figure 9-19b appears with the events removed. This function is useful to clear the graph in areas where more readability is desired.

Note: Events will only appear if they were initiated on the data logger during a recording session. If no events were recorded this function will have no value.

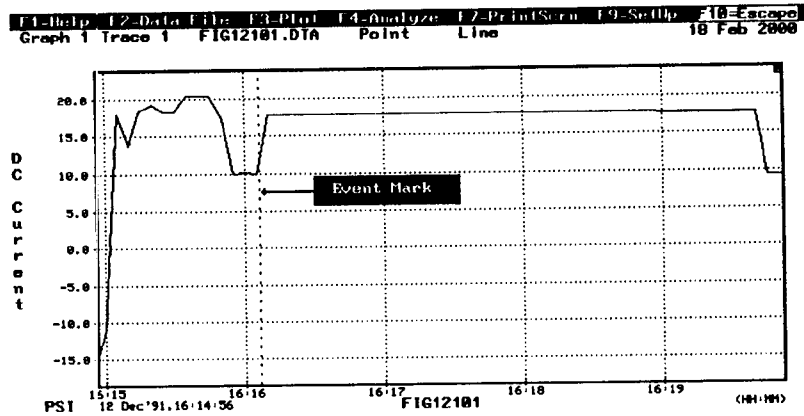


Figure 9-19a. Events On

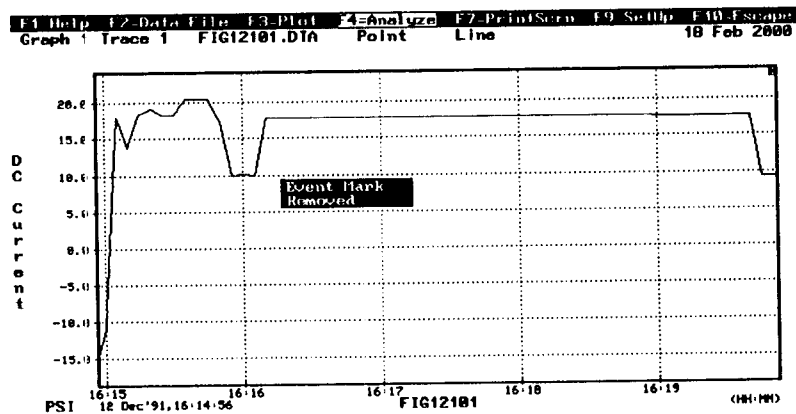


Figure 9-19b. Events Off

Grid Lines

The grid line choice functions in the same way as events in that it is a toggle function. Within the show menu, highlight **Grid Lines** or press <G> , to toggle the grid lines on or off. The Grid Lines will line up along the X-axis

with each time mark and along the Y-axis with each amplitude mark. Figure 9-20a and b below shows a trace with the grid lines on and off respectively.

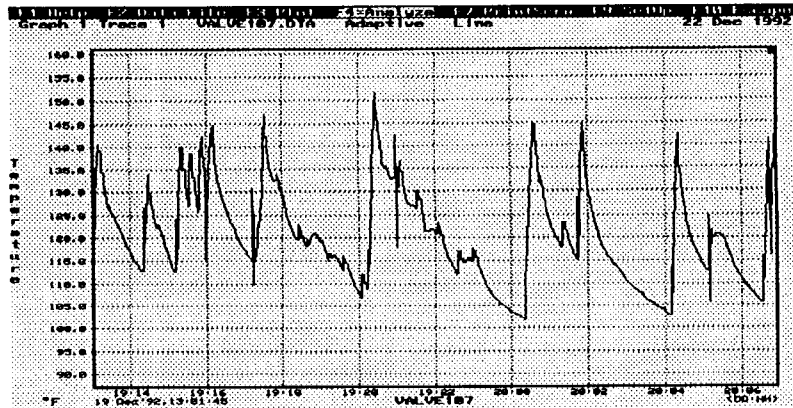


Figure 9-20a. Grids On

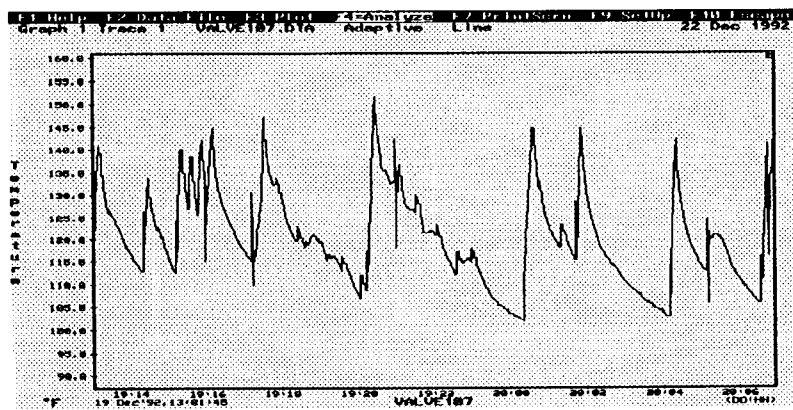


Figure 9-20b. Grids Off

Alarm levels

Pronto will graph a straight line at the high and/or low alarm level on the graph if this choice is active and alarm levels were programmed in the data logger before a recording began.

This is a toggle function that can be changed from within the Show menu. When the show field is entered, highlight **Alarm Levels** and press <return> or press <A> to toggle alarm levels on or off. The underline will appear

under Alarm Levels to indicate the on condition. Figure 9-21 below shows a trace where the alarm level is on.

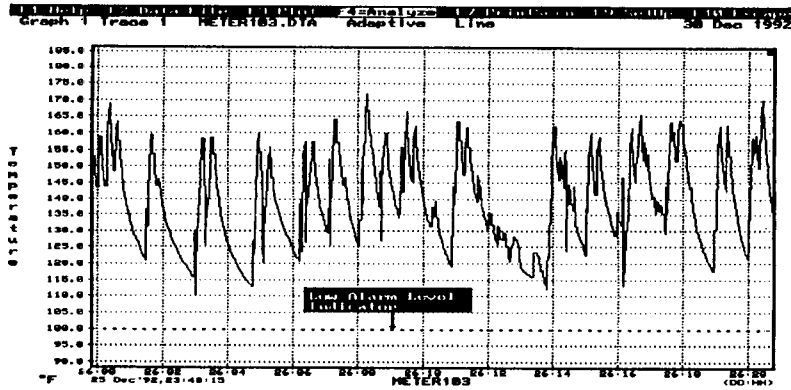


Figure 9-21. Alarm Levels On

Zero

The Zero selection determines whether Pronto will use it's auto -scaling or not for the graph. When enabled, zero will always appear on screen even if the data never actually was at zero. When disabled, the normal auto scaling will take effect.

From within the Show command, highlight **Zero** and press <return> or press <Z> to toggle this function on or off as indicated by the underline for on and no underline for off. Press <Esc> when finished.

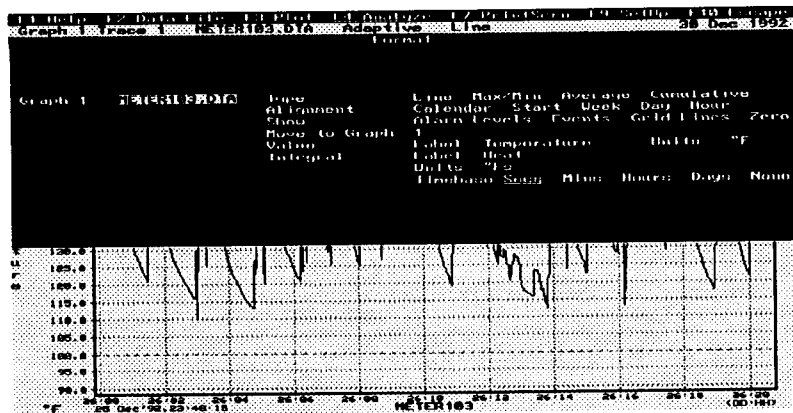
Y-axis

The Y-axis name and engineering units can be respecified for the graph. Press <Y> or highlight **Y-axis** with the cursor keys and press <return> to enter this field. Once in this field, you have two choices: entering a label by pressing <L> or highlighting **Label** and pressing <return> or entering units by pressing <U> or highlighting **Units** and pressing <return>. Once in either of these fields you may enter text from the keyboard. The label field allows up to 15 characters, the units field allows up to 5 characters. Text entered in these fields will appear on the left margin of the graph selected. It will not globally effect all graphs using the same input module as will be effected by changing thses labels with the Pinstall program. Therefore, specific identification can be assigned to a particular graph, such as "valve 1 temp" instead of just temperature.

To change or add the title of a graph, from within the Format window, press <T> or highlight **Title** and press <return>. This allows you to type in a descriptive title that will appear at the bottom of the graph. A maximum of 35 characters may be used in this field. The default condition is for the filename to appear as the title.

When you have completed all the changes for the Graph Format press <F10> or <Esc> to exit.

It is possible to view and alter the format for individual traces. To access this information it will be necessary to escape out of graph formatting (if the cursor is in graph formatting as just described) by pressing <F10> or <Esc>. If a graph is highlighted, press the arrow keys or <spacebar> until the desired trace (filename) is highlighted. As you move from trace to trace, the format settings for that trace will appear on the right hand side of the screen as shown in Figure 9-22.



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Your choices for formatting are Type, Alignment, Show, Move to Graph, Value and Integral. Accessing any of these fields works the same way as in Graph Formatting in that you may point to each field, using the cursor key and access it by pressing <return> or you may implement it directly by pressing the underlined letter for the desired choice.

Type

After selecting a trace to format, the cursor should be highlighting **Type**. To change the plot type press <return>, the cursor will now highlight the present active choice. To deactivate that choice, press the <return> key. You may then use the cursor keys or <spacebar> to point to the desired type. You may employ any combination of plot types in a graph. The exception is if cumulative plot is selected, no other types are allowed. It is acceptable however, to use line, average and max/min simultaneously. If the cumulative choice is selected, it will automatically deselect any other choices previously made. For a full description of graph type refer to Section 11. Once all desired selections are made, press <Esc> or <F10> key, this will again highlight Type. You may now proceed to any of the other choices.

Alignment

Alignment refers to the time alignment along the X-axis and functions identically as described in graph formatting and in Section 10 under Alignment.

Show

As described in graph formatting, events, grid lines, alarm level and zero indicators are also selectable here. If any trace within a graph has its grid lines, events, or alarm level indicators disabled, all traces within that graph will be effected. In other words, if events are turned off, all traces within that graph will have their events turned off.

Move to graph

The Move to graph function can be selected by pressing <M> or highlighting **Move to graph** and pressing <return>. This function allows individual traces to be combined with other traces in a graph. This is a useful function to employ when viewing several traces independently and then the need arises to superimpose them for better analysis. They may be selected individually here as opposed to globally with the Setup menu using the combine function.

Once you enter this field, simply type in the number of the graph you wish this trace to be combined with. To separate a trace out to its own graph, type in a number higher than the total graphs on the screen (e.g., if two graphs are on screen and you want to move a second trace in graph one to its own graph, type in the number 3 here).

Value

The value field is identical to that shown for the graph in terms of operation however, it applies specifically to the active trace you are working with. You may enter a 15 character label or a 5 character unit description by pressing <V> and then the appropriate field, <L> for Label or <U> for Units by highlighting any of these selections with the cursor keys and pressing the <return> key. After typing the information press <return> or <F10> to exit the field.

Integral

The integral label, integral units and integral time base may also be selected and modified by pressing <I> or highlighting **Integral** with the cursor keys and pressing <return>. The choice for Label Units or Time base may be selected in the same way. These choices will effect the engineering units that will appear when the integral of a trace is requested under the examine function, as well as the Y-axis label and the X-axis time base that will appear for the cumulative plot type. For full details see Section 10. When finished with trace formatting, press <F10> or <Esc> to exit back to the graph/trace selection. Press <Esc> again to return to the file selection command line.

Erase files F2 F E

This is the last choice in the file selection command line. Selecting **Erase Files** moves the cursor within the file selection directory which allows files to be marked for erasing. Highlight each file to be erased and press <return>. All files marked for erasure will be underlined. Pressing <F10> or <Esc> will erase access the screen shown in Figure 9-23 the underlined file from disk memory. Once a file is erased it can no longer be viewed within the Pronto program.

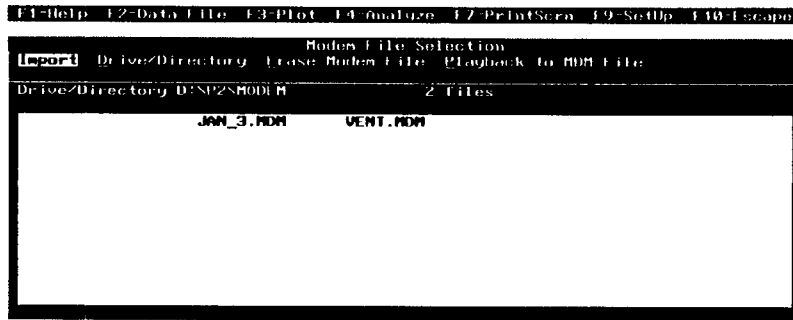


Figure 9-23. Erase File Type Selection

Highlight only PLT files and press <return> to erase only the modified files created from the data files selected.

Highlight all files and press <return> to erase both the DTA and PLT files for those selected.

Save Screen (F2)(S)

The Save Screen command allows the creation of .PLT files. In this way, any work that is on screen comprised of single or multiple graphs that have been analyzed, annotated or modified in any way can be saved as a .PLT file. This function was described earlier in this section in the Quick Plot Mode. See Figure 9-11.

When save screen is selected, the cursor will be active in the filename field. An 8 character field is available for naming the file. Each file will automatically be appended with a .PLT extension. When the filename has been typed, pressing <return> to move the cursor to the command line. Select the Save function to save this screen with the new filename.

Note: Select the file name command again to change the filename or select. Notebook to add descriptive text of any work you have completed.

Modem Files **F2** **M**

Activating the modem file selection brings up the screen in Figure 9-24. Files that have been transferred via modem using RusLink are saved in a compacted form with the extension .MDM. These files can be imported into Pronto from this window. Your choices are to import specific files, to change the drive/directory, or to erase modem files that have already been imported into Pronto. The last choice on the command line will be "Playback to MDM file" or "OM-170 Control", depending on the network setting under F9 - Playback Options. See Section 12 for OM-170 Control information.

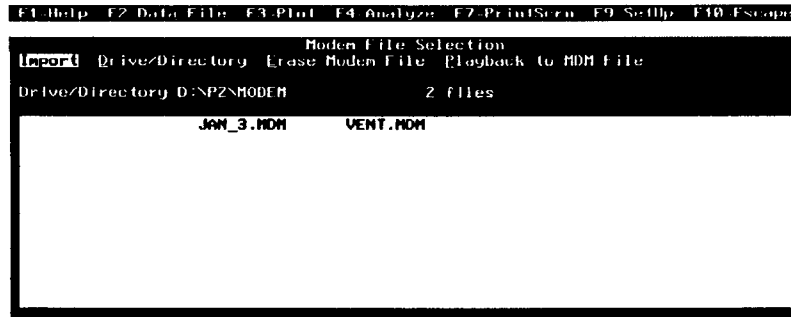


Figure 9-24. Modem File Window

The modem file directory is also the location used to store compacted files transferred directly from the Omega OM-170 to the Pronto program. This is accomplished in the same way as the playback function. Its purpose is to save disk space. This utility has particular benefits on a floppy drive system where disk space is of concern.

Importing modem files

From within the modem file selection screen, highlight **Import** and press <return> or press <I>. The cursor will drop down into the modem file directory area. Highlight the file or files you wish to import into the Pronto program and press <return>. The screen in Figure 9-25 will appear presenting a bargraph showing the progress of the file importing. Once the file has been imported and verification and sorting has been completed, the

file specification screen will appear as normally would in the playback process. Here the files can be named and saved as a .DTA file. See page 9-5 for more details.

F1-Help F2-Data File F3-Plot F4-Analyze F7-PrintSern F9-SetUp F10-Escape

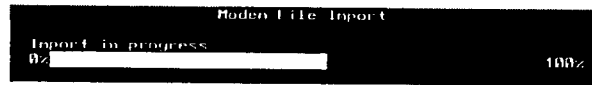


Figure 9-25. File Importing Bar Graph

Drive/Directory

The Drive/Directory location can be selected just as it can be for .DTA files. Highlight Drive/Directory and press <return>. Then select the drive letter and type in the directory as necessary.

If you only use one location for .MDM files use the <F9> setup menu to configure the program to automatically create the path to it. This will eliminate any need to alter it here.

Erasing modem files

To erase a modem file from memory, select **Erase Modem File** from within the modem window and press <return> or press <E>. This will move the cursor into the file directory area. Highlight the file or files to be erased and press <return>. The file will be immediately erased and the cursor will return to the erase modem file selection on the command line.

Playback to MDM file

First, select **Modem Files** from the Data File group. Next select the **Playback to MDM File** choice by highlighting it and pressing <return> or pressing <P>.

The Playback will begin as described in the beginning of this section. The difference is that files transferred using this command will be in their compacted form as they are in the Omega OM-170 and will contain the extension MDM.

Exiting the modem window

To exit from the modem window, first make sure that the cursor is active on the command line. If the cursor is not active on the command line press <F10> or <Esc> until it is. When the cursor is active, exit the Modem files window by pressing the <Esc> or <F10> key.

NOTES

Section 10

The Analyze Utilities

Analyze (F4)

Function key <F4> opens a library of useful tools to analyze, view and report information from the graph or graphs on the screen. If no files have been previously selected, pressing <F4> will open up the file selection window to first allow file selection as described in Section 9. If files have been selected for use then the screen in Figure 10-1 will appear. A description of each of the utility choices in this menu follows.

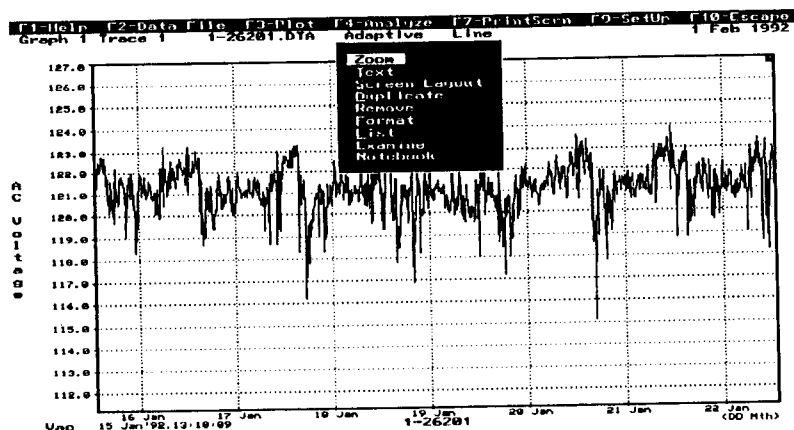


Figure 10-1. The Analyze Window

The choices are Zoom, Text, Screen, Layout, Duplicate, Remove, Format, List, Examine and Notebook. All choices are accessible by highlighting them using the cursor keys and pressing <return> or pressing the underlined letter or pointing to them with a mouse and pressing <return>.

Zoom utility

The zoom utility is an extremely useful function in that it allows you to window in on a particular area of the graph and expand it up for greater resolution. Once within the zoom utility window, you may choose which cursors to move. The framed area can then be plotted or the original graph may be replotted. You may also pan through the graph at the zoomed up resolution.

Text utility

This utility allows textual information to be added to the active graph on the screen. It also allows relocation or editing of textual messages previously added or deletion of any text message on the screen.

Screen Layout utility

This utility allows a graph to be changed in size and placement on the screen. In using this utility, multiple graphs may be changed in size such that they can be superimposed on other graphs. Graphs can automatically be resized to fill the full screen.

Duplicate utility

This utility allows duplication of the graph or graphs that are on screen. If more than one graph is on the screen a choice of duplicating any one of them will be offered.

Remove utility

This feature allows a graph or trace to be removed from active use in the current screen presentation. When this utility is selected, a choice will be offered as to which graph is to be removed, whether there are one or more graphs on the screen.

Format utility

This feature allows the alteration of the conditions displayed for a given graph such as the type of graph, the time alignment, combination of traces within a graph or labels for various functions on the graph.

List utility

This feature lets you list data to the screen, printer or database in alphanumeric columns.

Examine utility

This utility allows statistical analysis to take place for a given graph where maximum, minimum, mean, value, integration and time duration can be provided. Also database list functions are offered in this utility. The statistics can be for the full graph or a framed in portion of the graph.

Notebook utility

This utility allows for text information to be added to a file stored with the current graph or screen. This file may be printed out as required. The notebook also contains status information sent from the data logger such as start and end time, sample rate, and serial number, etc.

A full description will now follow for each of these utilities along with the commands and keystrokes associated with each choice.

Zoom **F4** **Z**

When one or more graphs are on screen, pressing the <F4> Analyze key, then pressing <Z> or highlighting **Zoom** and pressing <return> will bring up a screen allowing you to select the graph or graphs to be zoomed. Highlight each graph you wish to zoom and press <return>. An underline will appear for each graph selected. Next press <Esc> or <F10> to bring up the screen in Figure 10-2. This screen offers several functional choices for zooming in on a particular section of a graph or group of graphs for better viewing resolution. All of these choices are available from the command line. On the left side of the command line is an indication of which utility is open. In this case the word **Zoom** appears to indicate that the zoom utility is active.

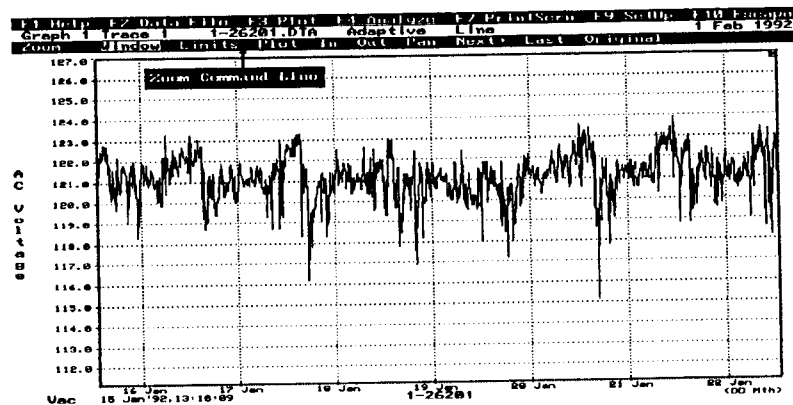


Figure 10-2. Zoom Utility Commands

The choices on the command line are Window, Limits, Plot, In, Out, Pan, Next, Last and Original. Each function is described below.

Window

This utility is the most expeditious way to frame in a section of the graph using the mouse or cursor keys for boundary definition. Pressing <W> or highlighting **Window** and pressing <return> activates this choice. When first activated, both the left frame and the top frame are active. The left and right cursor keys can be used to reposition the left hand frame. The up and down cursor keys can be used to reposition the top frame or the mouse can be dragged diagonally to move both frames at the same time. Once the top and left cursors are in the new desired position, pressing the <return> key freezes the new frame position and activates the bottom and right frame lines. The same technique can then be employed to relocate the bottom and right frames to their new desired locations. Once they are in place, pressing the <return> key will lock in these coordinates and return the selection cursor to the command line. You will then see the framed in area to be zoomed on the screen as shown in Figure 10-3. If these coordinates are not the final desired coordinates, you may re-enter the Window command by pressing <return> and moving the frames once again. Alternatively, you can select **Pan** and move the frame to the desired section of the graph.

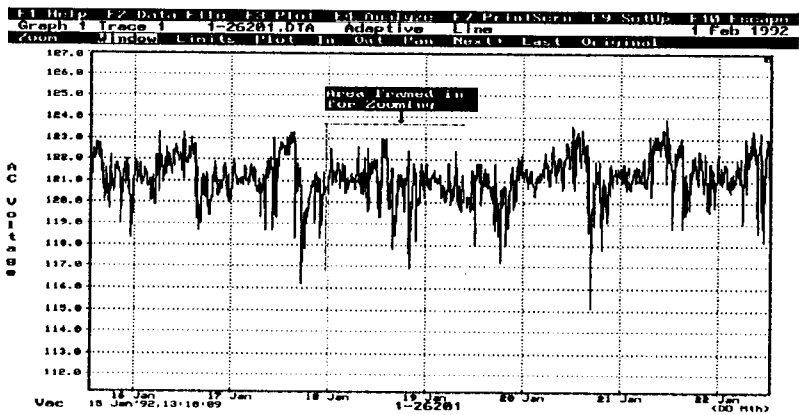


Figure 10-3. Area Framed for Zooming

Limits

Access to a particular cursor can be gained by highlighting **Limits** and pressing <return> or pressing <L>. The Left, Right, Top and Bottom frame cursors can then be selected individually.

Left

Pressing <L> or highlighting **Left** and pressing <return> activates the ability to define the new location of the left cursor for framing in an area to be zoomed. This choice is the most direct way to define an exact point in time for the left cursor position. When this choice is first selected, the screen in Figure 10-4 will appear, indicating the current position of the left cursor with the year highlighted and the underline on the most significant digit in the year. If the year is correct press <return> to move directly to the month location. If not, type in the correct year. This generally will only be of any significance when a recording is conducted over a year boundary such as one started in December and ended sometime in January.

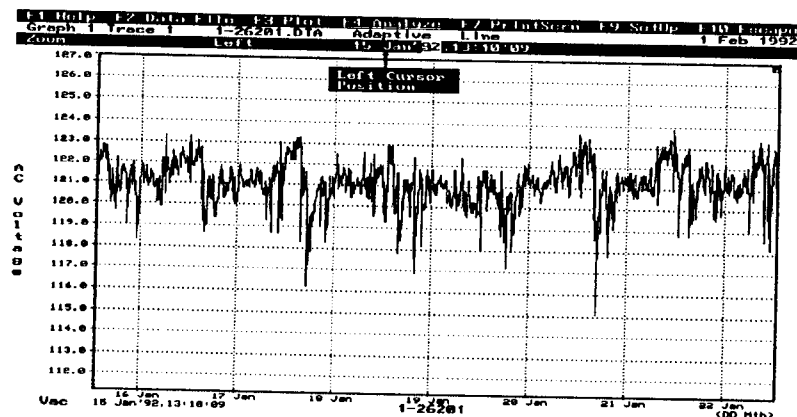


Figure 10-4. Left Cursor

When the year selection is completed, the month will be highlighted, this may be advanced to a different month by using the up and down arrow keys to increment or decrement through the months of the year. When the desired month is in the highlighted area, press <return> to move onto the day of the month. The day will now be highlighted with the most significant digit

underlined. To change to a different day of the month, simply type in the correct number and press <return>. The hour will then automatically be highlighted and the process can begin again by typing in the correct hour, pressing <return>, activating minutes, type in the correct minute, press <return>, seconds will then be highlighted, finally typing in the correct seconds will complete the choice and again return the cursor to the command line. The new left frame cursor position will be indicated on screen with a vertical line at the directed time position. It is important to note here that the time selection is in 24 hour increments, thus the selection of 1 o'clock in the afternoon should be entered as 13. It is acceptable to enter a value for the cursor position that is a historical time (prior to the start of recording) or a future time (past the ending of the recording). These are useful features when trying to provide more visibility to data that may occur on the left or right graph boundary.

Right

To activate the positioning of the right cursor press <R> from the command line or highlight **Right** and press <return>. The same process is employed in placing the right cursor position to its new location as previously described under the left cursor heading. All rules are exactly the same as with the left cursor placement. When the right cursor coordinates have all been established, pressing <return> will again make the command line active and show the new location of the right frame cursor.

Top

To change the location of the top frame cursor position highlight **Top** from the command line and press <return> or press <T>. When first implemented, the screen in Figure 10-5 will appear indicating the current position of the top cursor with an underlined cursor in the most significant digit. To select the new location of the top cursor simply type in the correct numeric value for the new cursor position. Decimal places are allowed in selecting this cursor position. The left and right arrow keys are also active allowing you to point to specific location in the numeric field. In this way if only the least significant digit needed to be changed, the cursor could be placed active on the least significant digit, thus only one number would need to be typed in. Once the correct number appears in the display, press <return> to lock in this new top cursor position. The command line will again be active and the top frame cursor will move to its new position.

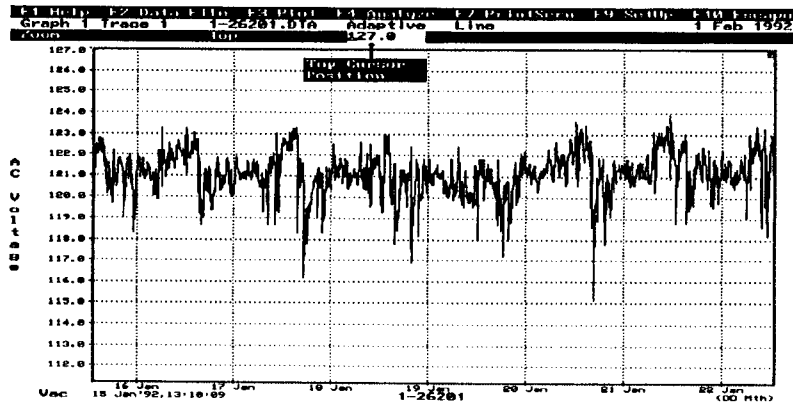


Figure 10-5. Top Cursor Selection

Bottom

To relocate the bottom frame cursor to a new position, select bottom from the command line by pressing or highlighting **Bottom** and pressing <return>. Again, as described for the top cursor position, a new numeric value may be typed in to relocate the bottom cursor. Once the desired number is entered, press <return> to move the bottom frame cursor to it's new location and return the command line.

Once all frame cursor positions have been decided upon, a framed in area will appear on the screen showing the boundaries that will be used for zooming. The cursor positions can be selected again or the window function can be selected again to alter the location if necessary of any or all of these cursor positions before actually zooming in on the new coordinates or the Pan command can be used to move the frame to the desired area.

Plot

Once the desired coordinates have been established for zooming, the plot utility may be implemented to complete the task. This is accomplished by pressing <P> from the command line or highlighting **Plot** and pressing <return>. Immediately, the graph will be replotted using the new coordinates selected. The time and amplitude scale labeling will be adjusted automatically to the new coordinates. Figure 10-6 shows the zoomed in area replotted.

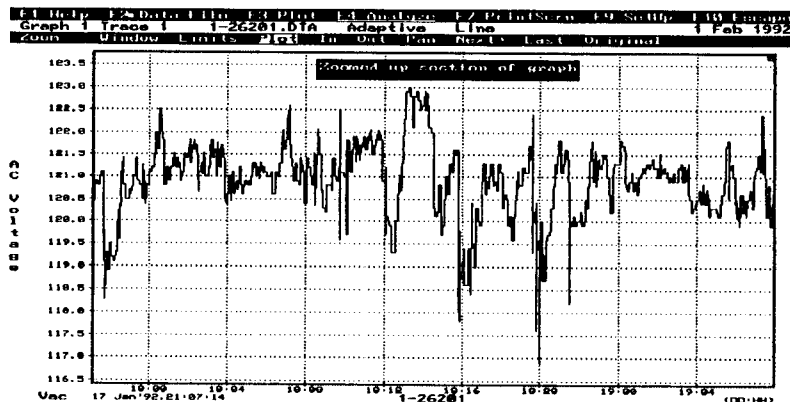


Figure 10-6. Zoom Frame

In

Selecting the In command will automatically zoom in on the time axis by a factor of 2 each time it is selected (i.e., 2x, 4x, 8x etc.). The center time point in the graph will be maintained however, the left and right end points will zoom in each time it is selected. Therefore repeated selections of in by pressing <I> or pressing return when In is highlighted will quickly zoom in on a center point in the graph.

Tip: Use the Pan command first to get the desired area of data in the center of the graph before using the Zoom In command.

Out

Selecting the Out command will automatically zoom out on the time axis by a factor of 2 each time it is selected (i.e., .5x, .25x, .125x etc.). The center time point in the graph will be maintained however, the left and right end points will zoom out. Therefore repeated selections of out by pressing <O> or pressing return when Out is highlighted will quickly zoom out to display more of the graph.

Pan

The Pan feature allows you to move the whole frame to a desired point and have the graph re-plot from this point maintaining the same time and amplitude window. For example the original graph may be 7 days in duration with a scale of 50 to 175. Using the **Zoom-Window** selection you zoom to

show only day one with a scale of 80 to 130. The pan feature would then move this one day, 80 to 130 unit window around on the screen to the new desired starting point. When the <return> key is pressed, the new frame will plot on screen. The only limitation is that you cannot move the cursor past the screen boundaries in any direction.

The Pan feature can be used in conjunction with the window command to relocate the window (after all cursors have been set) to a new location before pressing <return> to zoom the graph.

To pan a graph, highlight **Pan** and press <return> or press <A>. Then use the cursor keys or mouse to move in any direction to the desired point to zoom. This may be completed as often as you like even if it is past the ends of the graph.

Next

The Next feature allows you to move one screen width in the time axis either left or right depending on the direction of the arrow that appears with the Next command. The direction of the arrow will change as dictated by whether you panned left or right before selecting Next. To use this command, highlight Next or press <N>. Continued selection of the Next command will move one screen width in the direction shown by the arrow. Selecting the Last command can change the direction just as panning in the opposite direction will. Figure 10-7 shows the Next arrow pointing to the right which is increasing time.

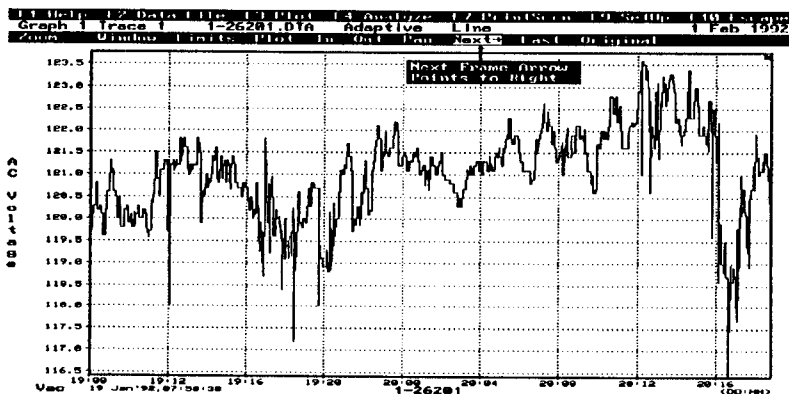


Figure 10-7. The Next Command Indicator

Last

The Last feature allows you to re-plot the last screen prior to the frame shown. This command works in conjunction with Pan and Next. It is a useful tool to employ when comparing results from adjacent sections of the graph while maintaining amplified resolution. Highlight **Last** and press <return> or press <s> to see the last frame.

Note: If the graph on screen is the first change since the original plot, the last feature will then bring back the original plot.

Original

There are many times where it is necessary or desirable to return to the original plot using the full time and amplitude presentation as it appeared when first downloaded or called up for active use. This can be accomplished from within the zoom utility with a zoomed graph on screen by selecting original from the command line, by pressing <r> or highlighting **Original** and pressing <return>. Immediately, the graph will be resized on the screen to show it's original coordinates for both time and amplitude. In this way, other sections of the same graph may be accessed for zooming or analysis if desired without going back and reselecting the file from system memory. To leave the zoom utility, simply press the <Esc> key or the <F10> key. The command line will disappear and the Analyze function in the main menu will again be highlighted.

Text **F4****T**

To access the text utility, it is first imperative that a graph be present on the screen. If this condition exists, press <F4> to open the Analyze window then press <T> or highlight **Text** and press <return>. The screen in Figure 10-8 will appear. There are 4 choices on the command line available in the text utility. These are: New, Edit, Move and Delete.

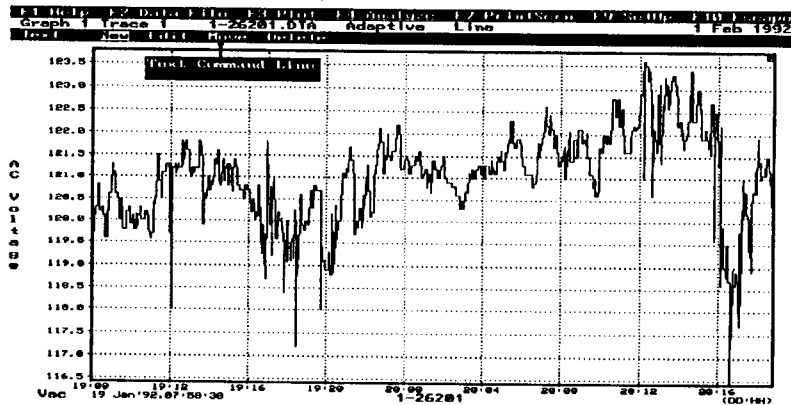


Figure 10-8. Text Utility

New

To add text to the present graph, highlight **New** and press <return> or press <N>. The screen in Figure 10-9 will then appear, opening a field on the command line allowing up to 39 characters to be entered in a given text string.

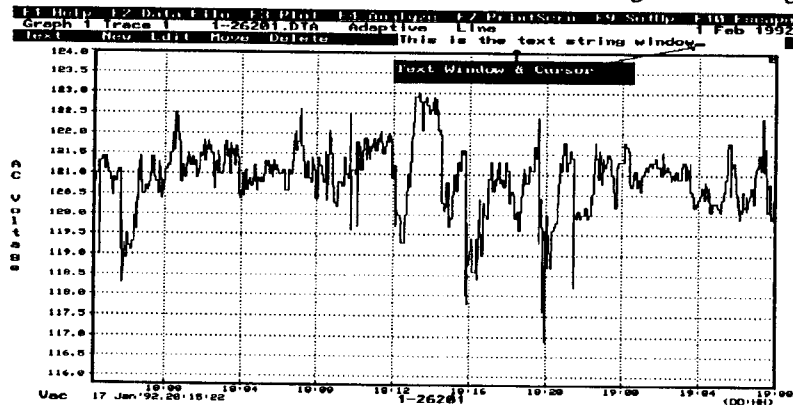


Figure 10-9. Text String Window

The cursor bar will appear in the left most position of the field. Simply use the computer keypad to type in the desired text information. All normal text editing keys are active in this field. (i.e., the home key moves the cursor to the left most position, the end key moves the cursor to the last character entered in the text string, backspace deletes the character to the left of the cursor, delete will erase the character at the cursor position, the insert key will toggle the insert and overwrite mode.) Once the desired text string is complete, press <return> move the cursor down to the graph as shown in Figure 10-10. The text positioning cursor will be the size of the entire text string field. You may use the arrow keys or mouse to reposition the text field to its desired location. The advantage of having the entire silhouette of the text field is that it is visually possible to place the text string on the graph in an area where it will not interfere with any portion of the trace. Once the field cursor is placed in it's desired location, press <return> to move the text from the command line to this location. The text string will immediately appear in this location and New will again be highlighted. To add additional text simply press <return> and enter the next text information and follow the procedure just described to locate the new text string.

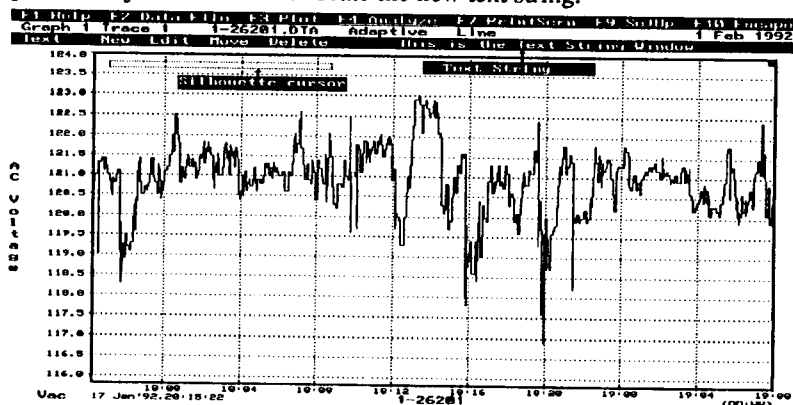


Figure 10-10. Positioning the Text on the Graph

Edit

Any text string on a graph can be edited as needed. From the Text command line, highlight **Edit** and press <return> or press <E>. The cursor will move to the last text string placed on the graph in the case where it was just placed. It will move to the first text string it finds if you are using the Text command on a graph just called up onto the screen. An audible tone will sound if edit is selected and no text is on the graph.

Use your cursor keys or mouse to select the desired text string for editing. Press <return> when the cursor is anywhere in the text string. A silhouette will appear around the text and the text will be placed in the editing window on the command line as shown in Figure 10-11.

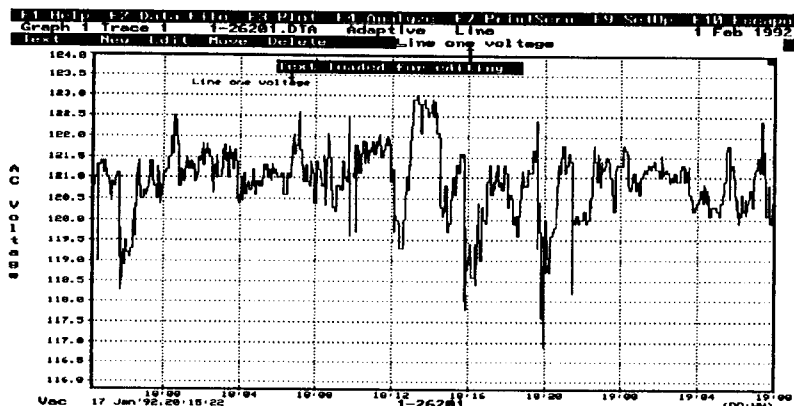


Figure 10-11. Text Editing Screen

Alter or add to the text as desired using the computer keyboard. When you are finished, press <return> to place the edited text on the graph at the silhouetted location.

Move

To move text from one location to another location on a graph from within the text utility, select **Move** by highlighting it and pressing <return> or by pressing <M>. A cross cursor will appear at the start of the first text string in the graph. To select this text string for movement, simply press <return>. If a different text string is desired use the cursor keys or mouse to move the cross cursor to the desired text string and then press <return>. The text string to be moved will then be silhouetted as shown in Figure 10-12 indicating that it may now be moved to its new location using the mouse or arrow keys. When the new location has been selected, press <return> to move the text to that new location. Move will again be highlighted on the command line when the task has been completed.

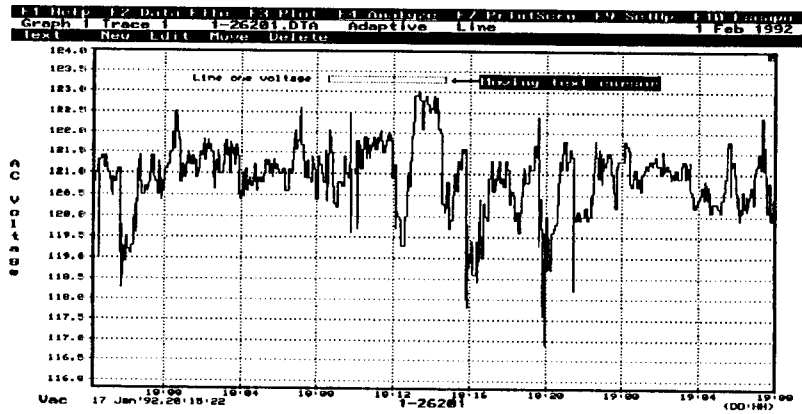


Figure 10-12. Moving a Text String

Delete

To delete text from this screen select **Delete** by highlighting it and pressing <return> or by pressing <D>. A cross cursor will appear on the first character of the first text string. To delete this text string just press <return>. To select a different text string for deletion, move the cursor to a place within that text string and press <return>. The text string will be silhouetted and a choice to delete or cancel the command will be offered as shown in Figure 10-13. To delete the chosen text string, simply press <return> when the choice OK is highlighted. If OK is selected the text string will immediately disappear and the command will again be active. Press <C> to cancel the operation or select **Cancel** using the mouse or cursor keys and press <return>.

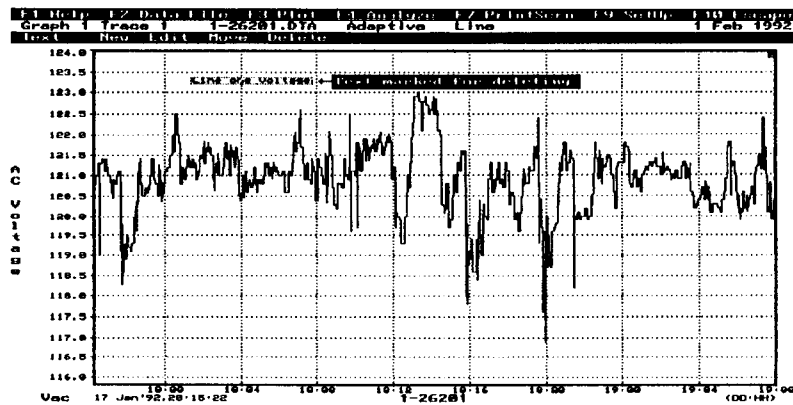


Figure 10-13. Deleting a Text String

To exit from the text sub-menu, press the <F10> key or the <Esc> key to return to the main menu. The Analyze function will again be highlighted.

Screen Layout **F4**(S)

To enter the screen layout command it is necessary that a graph be on the screen. The layout command is selected by pressing <F4> to open up the Analyze window and then selecting **Screen Layout**, highlighting it with the cursor keys and pressing <return> or pressing <S>. When this command is first selected, the screen in Figure 10-14 will appear showing the layout choices on the command line. The word layout will appear on the extreme left to indicate that the layout sub-menu is now active. The choices here are: Auto-resize, Size, Move and Plot. Two additional commands are available when more than one graph or trace is on the screen. The commands are Raise and Lower.

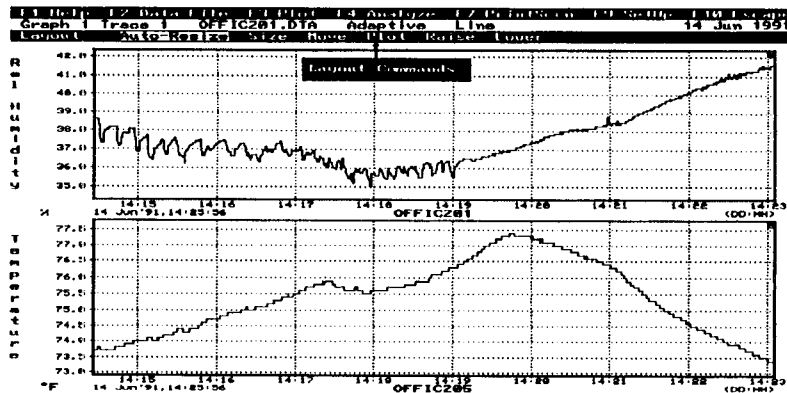


Figure 10-14. Layout Choices

Auto-resize

This choice can be selected by highlighting Auto-resize and pressing <return> or by pressing <A> from the layout command line. This function allows all graphs to be resized to use the optimum available space on the screen. If it is the only graph on the screen, it will be resized to the full screen. If the graph already occupies the entire screen, then the auto-resize command will have no effect. If there is more than one graph on the screen, but all others are at their maximum size, the graph will be resized to optimize its position on the screen in the area allotted to it as shown in Figure 10-15.

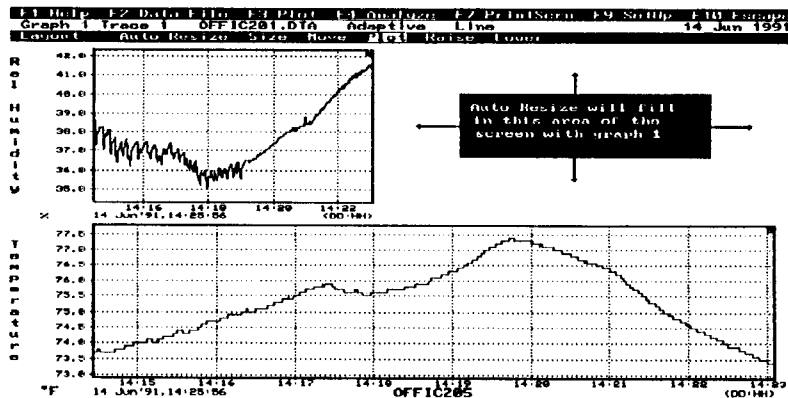


Figure 10-15. Auto-resize a Graph

Size

To activate this command, press <S> or highlight **Size** and press <return>. This will activate the bottom and right cursors of the active graph. The only visual change on the screen is that the word **size** will be underlined. To resize the active graph use the cursor keys or mouse to move the bottom and right cursors to their new location for sizing of the graph. This has no immediate relevance as to the final placement of the newly sized graph on the screen. When the desired cursor positions have been selected, press <return> to bring the cursor back to the command line. Frame lines will appear on the bottom and right side to indicate the new size of the graph. At this point, the graph may be plotted to its new size or the move function may be selected to relocate the position of the newly sized graph first. To plot the newly sized graph press <P> or highlight **Plot** and press <return>. To move the graph press <M> or highlight **Move** and press <return>.

Move

This command allows repositioning of the newly sized graph any where on the screen. This includes the ability to overlap or superimpose it on another graph by selecting **Move** and pressing <return> or pressing <M>. When this command is active, the cursor keys will allow repositioning of the graph by moving them to the desired new location. A silhouette of the graph will move along with the cursors to the new location as shown in Figure 10-16. Once the silhouette of the graph is in its desired location, press <return> to move the cursor back to the command line and press <P> or highlight **Plot** and press <return> to move the graph to its new location.

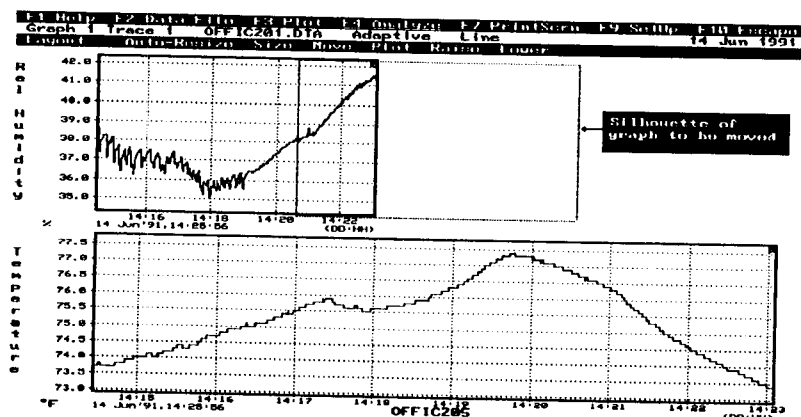


Figure 10-16. Moving Graph to a New Location

Plot

The plot utility here provides the same function as it does in any other menu. Selecting plot by pressing <P> or highlighting **Plot** and pressing <return> will plot the current graph or selections of graphs to the new conditions of size and location selected from within this menu.

Raise

When more than one graph is on the screen and graphs have been superimposed on each other or partially overlaid on each other, it is possible to cover up sections of a trace by the new placement of the graph. In the example shown in Figure 10-17, graph number two covers up a portion of graph number one. The raise command works on the positioning of the active graph shown on the status line. Pressing <R> or highlighting **Raise** and pressing <return> will reverse the order of graph one and graph two such that graph one now covers up the section of graph two making all of graph one visible. In this way, all attributes of both graphs can be viewed without repositioning them.

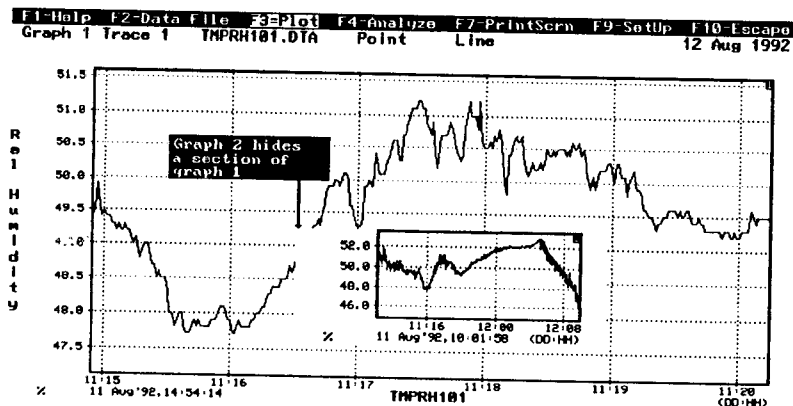


Figure 10-17a. Raising a Graph from the Background

Lower

This command is the complement of the raise command and is selected by pressing <L> or by highlighting **Lower** and pressing <return>. It works exactly in the same way as the raise command except that it takes the graph that appears on top and reverses its order with the graph that is covered up allowing the lower graph to appear unobstructed by the top graph. The lower and raise commands are used as toggle functions to reposition the order of graphs to see all aspects of every trace whenever graphs are superimposed.

To exit the layout utility press <F10> or the <Esc> key to move back to the main menu. The Analyze function will be highlighted in your menu.

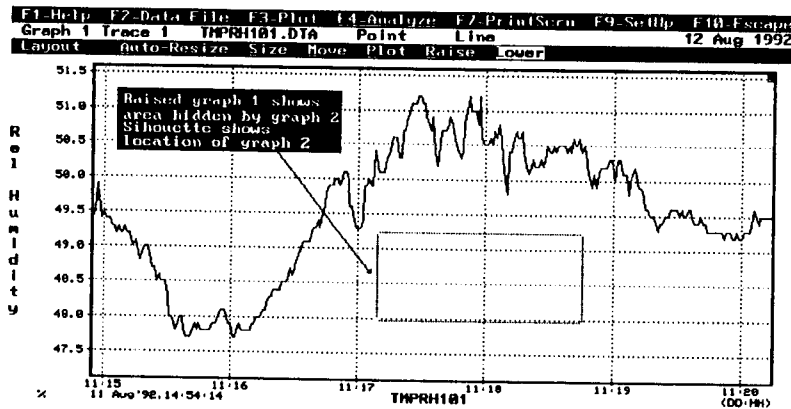


Figure 10-17b. Lowering a Graph from the Background

Duplicate (F4)(D)

With one or more graphs on the screen, the duplicate command can be implemented by first entering the Analyze mode, pressing <F4> from the main menu, and then pressing <D> or highlighting **Duplicate** and pressing <return>. If only one graph is on the screen, it will automatically be duplicated. Two graphs of the same data, each occupying half of the screen, will appear.

If more than one graph is on the screen a screen similar to that shown in Figure 10-18 will appear. The <spacebar>, cursor keys or mouse can be used to select the graph that is to be duplicated. Once highlighted, press <return> to duplicate that graph. Upon execution of the Duplicate command, the cursor will automatically move to the main menu.

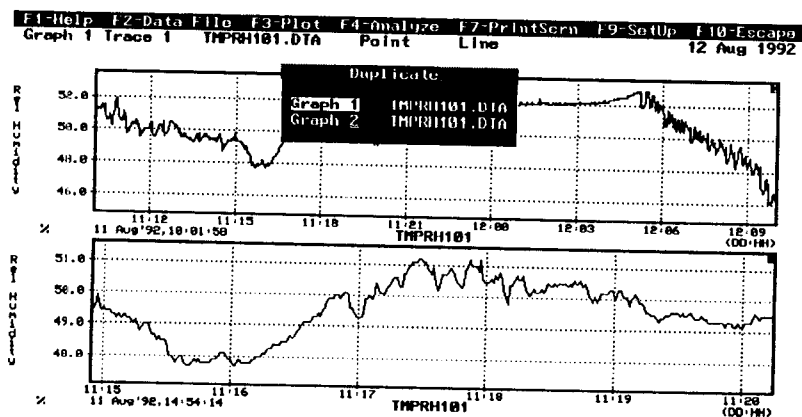


Figure 10-18. Choosing the Graph to Duplicate

Remove (F4)(R)

With a graph or graphs on the screen, the remove command can be accessed by selecting the Analyze function by pressing <F4> then pressing <R> or highlighting Remove and pressing <return>. When first entering the remove sub-menu, a window will open similar to that shown in Figure 10-19. This will allow you to select a particular graph or trace within a graph for removal.

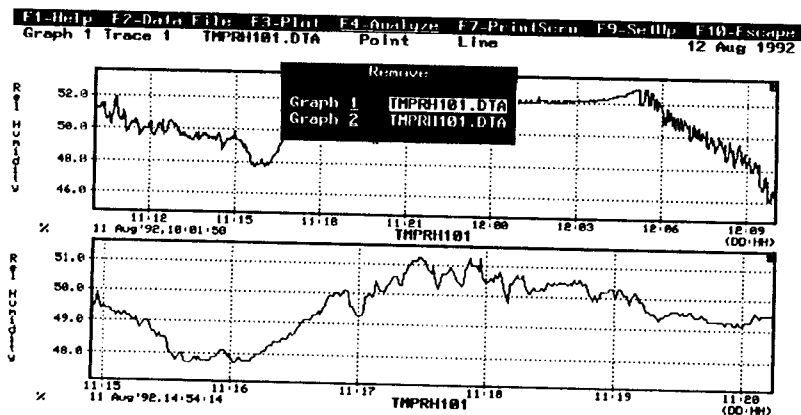


Figure 10-19. Selecting a Graph for Removal

The graph or trace may be chosen by highlighting it using the <spacebar>, mouse, or arrow keys and pressing <return>. The graph or trace will automatically be removed and the cursor will return to the main menu. If graphs contain more than one trace, the remove function can point to a specific trace within a graph or the entire graph for removal.

Format **(F4)(F)**

To execute the format command it is first imperative that a graph be on screen. Press <F4> to enter the Analyze mode then select the format command by pressing <F> or highlighting **Format** and pressing <return>.

Graph Formatting

Once activated, a screen similar to Figure 10-20 will appear allowing selection of the desired graph choice for formatting. This screen will appear whether one graph or several graphs are on screen.

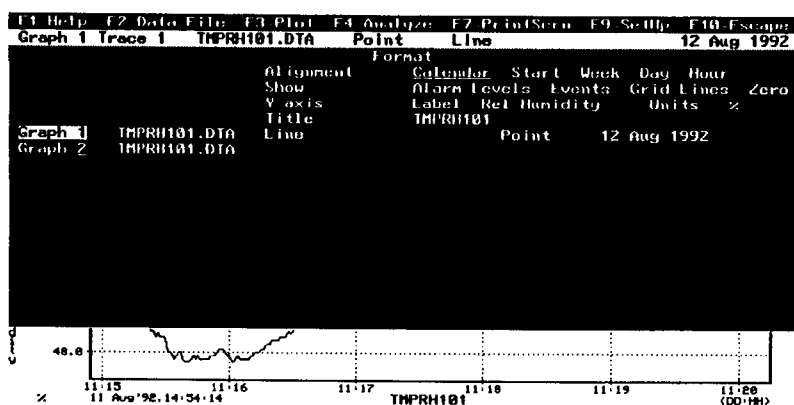


Figure 10-20. Selecting a Graph for Formatting

Next use the <spacebar> or arrow keys to point to the graph to be formatted. Once highlighted press <return> to enter the format sub-menu as shown in Figure 10-21. The choices here are Alignment, Show, Y-axis and Title.

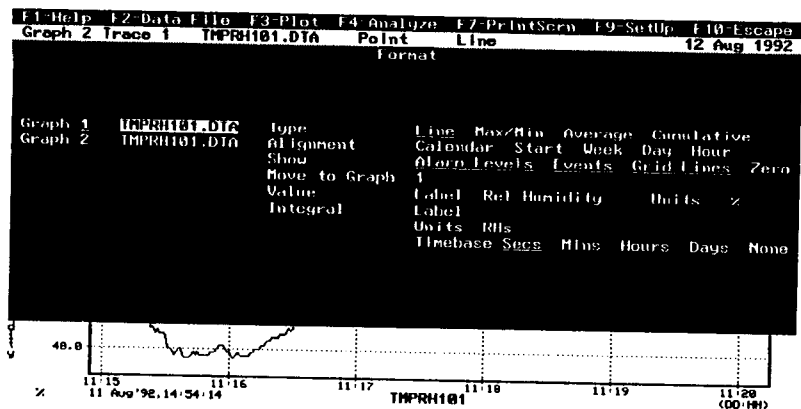


Figure 10-21. Format Choices for Graph

Alignment

To change the alignment highlight **Alignment** and press <return> or press <A>. The current alignment choice will be shown underlined. The choices within the alignment selection are Calendar, Start, Week, Day and Hour. These choices effect the time axis and data presentation with respect to time on screen. If the Calendar choice is selected, the month, year, day and time will appear across the horizontal axis. If **Start** is selected the left most time position will be that of 0 days, 0 hours, 0 minutes and 0 seconds. Time will then appear as elapsed time across the graph as shown in Figure 10-22.

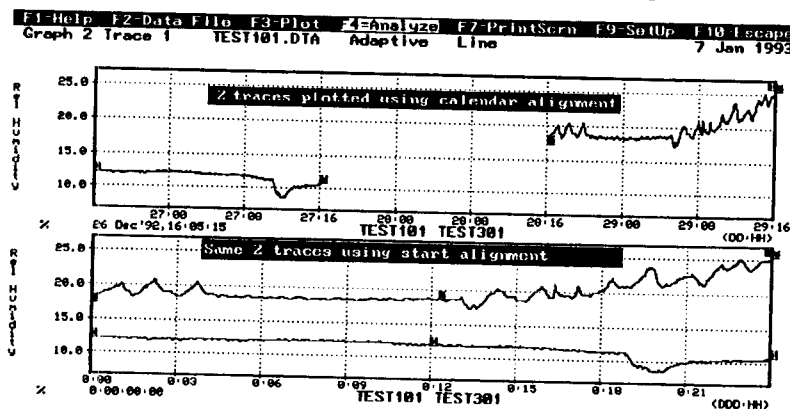


Figure 10-22. Start Time Alignment

If **Weeks** are selected, graphs will be displayed as shown in Figure 10-23 with the time axis normalized to weeks. This selection is only effective if recordings span several weeks in time.

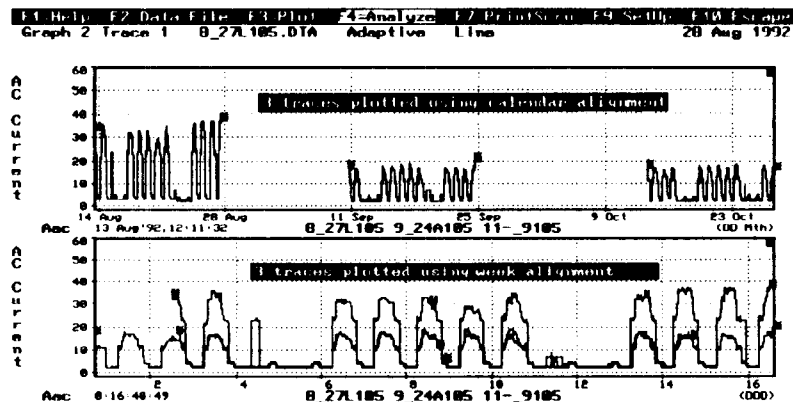


Figure 10-23. Week Time Alignment

The **Days** selection allows for the time axis to be normalized in days and fractions of days as shown in Figure 10-24; here the time axis will be broken down to days and hours with each time axis marking a twelve hour increments. This selection is only effective if the trace is several days long.

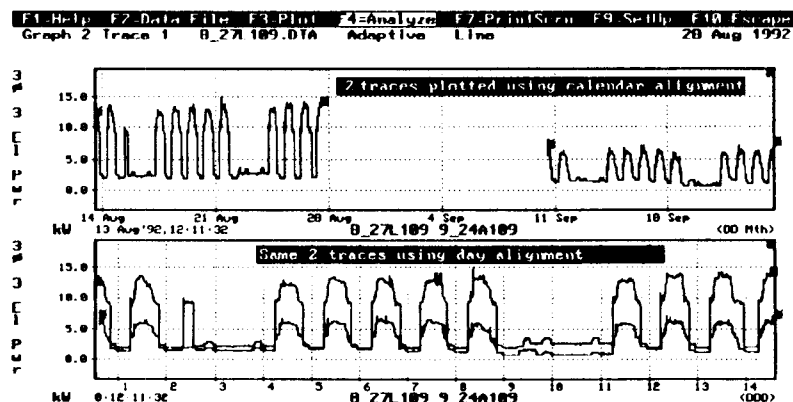


Figure 10-24. Day Time Alignment

The **Hours** selection will normalize the trace in hourly increments, from the start of the recording as shown in Figure 10-25.

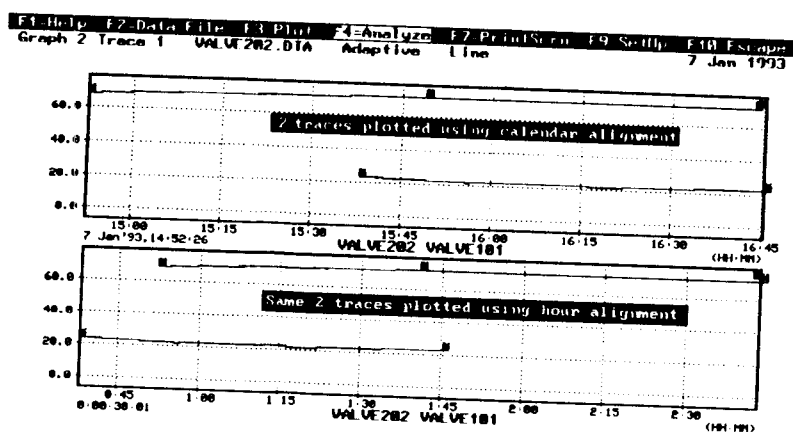


Figure 10-25. Hour Time Alignment

To make any of these selections within the Alignment sub-menu simply highlight the choice with the <spacebar> or press the underlined letter of the selection, such as <W> for **Weeks**. Once the selection is made, pressing the <Esc> or <F10> key will implement the selection and regraph the trace with the new time alignment. All traces within a graph will be realigned to the new choices.

Show

Show selection effects markings on the screen that aid the analysis of trace information. Specifically alarm level indicators, event markings, grid lines and zero baseline can be toggled on and off using the show selection. Active conditions are indicated by underlined choices. To toggle any of these selections on or off select Show from the format menu for a given graph by highlighting Show and pressing <return> or pressing <S>. Once all choices are made, pressing the escape key exits the selection. Refer to the format discussion in Section 9 for more details on the show command.

Y-axis

Y-axis labeling and engineering units may be altered to match the specific presentation required. This selection may be made by pressing <Y> or

selecting **Y-axis** with the cursor keys and pressing <return>. Once in this selection, your choices are **Label** or **Units**. These selections may be invoked by pressing <L> for **Label** or <U> for **Units** or pointing to the desired choice and pressing the <return> key. The default label and engineering units associated with the input module used in the recording appear as shown in Figure 10-26.

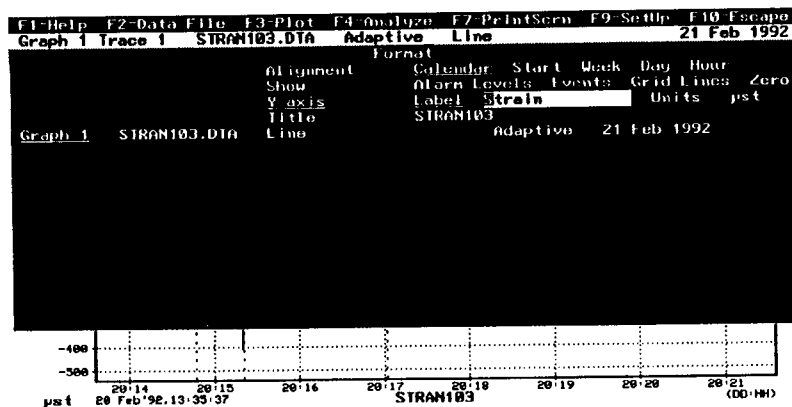


Figure 10-26. Y-axis Labeling

The label field allows up to 15 characters. Once in the label field, the keyboard may be used to type in a descriptive label for the Y-axis. For example, temperature, which is the label associated with all temperature measuring modules could be changed to a specific temperature measurement such as "Fan temp" or "Outlet temp" or other descriptive wording associated with the measurement involved. Once the desired nomenclature has been typed in, pressing <return> will again highlight the Label field.

The engineering unit field works in the exact same way. Five characters may be used for the engineering units associated with the Y-axis.

Once both label and engineering units have been entered, pressing the <Esc> key will exit the Y-axis choice.

Title

The default characteristics for all graphs are to use filename on the title line of the graph. This may be altered to a more descriptive title by highlighting **Title** from within the Format sub-menu and pressing <return> or pressing

<T>. The title field will then open as shown in Figure 10-27 where up to 39 characters may be typed in as the title to appear below the graph. When the title has been completed, press <return> to exit the field.

This completes all options and selections from within the graph format choices. Pressing <return> will exit the format selection and regraph the information with the new format selections chosen.

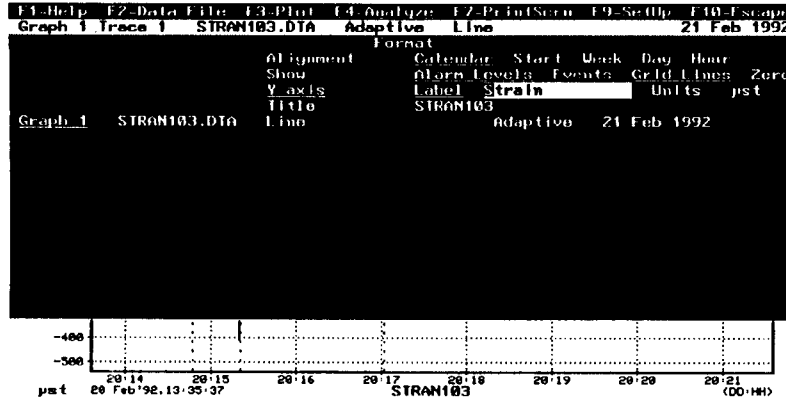


Figure 10-27. Graph Title

Trace Formatting

Also within the format sub-menu, traces can be selected for formatting whereby the information selected will effect a given trace rather than a complete graph. The choices are Type, Alignment, Show, Move to Graph, Value and Integral. Each of these menu choices have sub-choices within them.

Type

The type choice allows selection of the graph presentation to be used for the trace in question. The choices within the type sub-menu are Line, Max/Min, Average and Cumulative. To make the selection highlight **Type** and press <return> or press <T>. The current active choice will appear underlined. This choice may be deactivated by highlighting it and pressing <return>. All choices may be activated to work together with the exception of cumulative. When the cumulative choice is selected, all other choices will automatically be deactivated. Likewise, if the cumulative choice is active and any other

graph type is selected, the cumulative choice will automatically be de-emphasized. For a description of each graph type, refer to the glossary of terms at the end of this manual. Once all graph presentation types have been selected, press <Esc> or <F10> key to exit. Refer to Section 9, Trace Formatting, for more details.

Alignment

This choice effects the time alignment presentation and works in the exact same way as described in the graph format choices earlier on in this section. Refer to alignment commands beginning on page 10-22 for further description.

Show

The show command for a given trace within a graph works in the exact same way as the show command does for the graph format selection described earlier, toggling Alarm Levels, Events, Grids and Zero on or off as needed. Even though you are working with a single trace, all traces in a graph will be effected by changes to show settings.

Move to Graph

The **Move to Graph** command may be selected by highlighting the choice and pressing <return> or <M> within the trace format sub-menu. This command allows any trace to be combined with any other trace on screen or separated out from other traces. Once this choice is activated, type in the number of the graph you wish to move this trace to. Once this choice has been completed and a valid number has been entered, pressing <return> will now move this trace to be combined with other traces in the graph selected or to a new separate graph. Graph numbers allowed are present graphs plus one number (e.g., up to the number three would be allowed if two graphs were on screen).

Value

To implement the value command press <V> or highlight **Value** and press <return>. Once in this command, your choices are **Label** and **Units**. These are implemented by highlighting them and pressing <return> or pressing <L> or <U> respectively. These commands allow keyboard entry of information for the Y-axis label for the trace or the engineering units associated with it. A 15 character field is available for label and a 5 character field is available for engineering units. Once the desired information is typed in, pressing <return> will exit the field. Once the engineering units and label have been selected, pressing the <Esc> key will exit this sub-menu.

Integral

To select the integral function, highlight **Integral** and press <return> or press <I>. The choices within this sub-menu are Label, Units and Timebase. The label choice provides a 15 character field to type in the appropriate label for the integral associated with the trace. For example: the integral of a flow graph might be volumn. Press <L> or highlight **Label** and press <return> to access this field.

The units field may be accessed by typing <U> or highlighting **Units** and pressing <return>, here a 5 character field is available for an engineering unit description. Once this choice has been selected,press <return> to exit the field.

Timebase may be selected by pressing <T> or highlighting **Timebase** and press <return>. The choices here are Seconds, minutes, Hours or None. The appropriate time base should be selected for the application. For example, if kilowatts were being measured and it was desirable to integrate sections of the curve to determine kilowatt hours, then hours should be selected as the appropriate time base. Once the selection has been made, by pointing to the selection and pressing <return> or pressing the underlined letter for the choice, the cursor will automatically return to the selection line. To exit the Integral sub-menu, press <Esc>. To exit the trace format menu press <Esc> or <F10> a second time, this will now graph the data with all the new format selections programmed.

List (F4) (L)

The alphanumeric listing of data from a graph may be sent to the screen, to a printer, or to a database file with this command. Highlight **List** from the Analyze menu and press <return> or press <L>. The screen in Figure 10-28 will appear offering three choices.

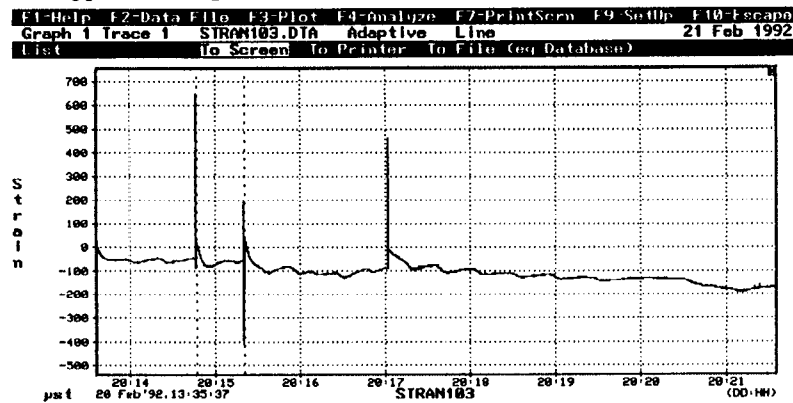


Figure 10-28. List Choices

Select **To Screen** if you want to see the data in columns on the computer monitor. Select **To Printer** if you want a hard copy of the data listings. Select **To File** if you want to create an ASCII comma delimited file on disk that your database or spreadsheet program can import.

Once the type of listing has been established, the screen in Figure 10-29 will appear. This screen will display the total time in the graph and prompt for a list interval as shown on the status line.

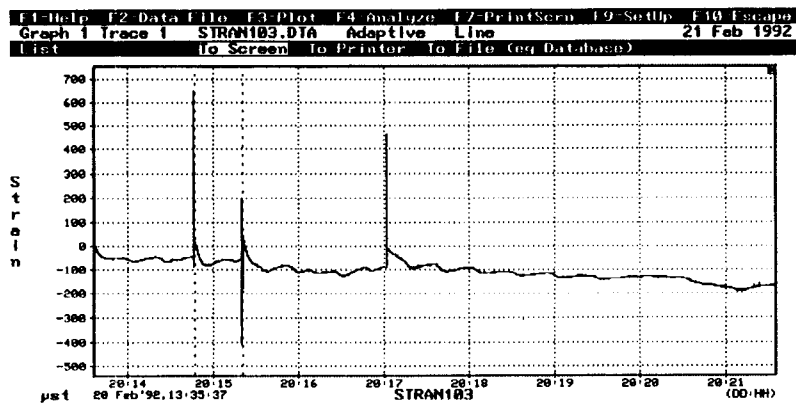


Figure 10-29. List Time and Interval Indication

The cursor will be active in the interval field. Use the up or down arrow keys to scroll through the available list intervals. These intervals will match those offered as sample rates in the Omega OM-170 data logger. The first interval offered will be the default selected in SetUp - List Headings (see Section 11). When the desired interval is in the window, press <return>.

If ___ Days is selected as the interval, then there will be an additional step required to type in the number of days between 1 and 999 for the interval. Next two choices will be displayed, Go and Change Headings.

Go will begin listing data to the screen, printer or file.

Change Headings will offer the opportunity to select just the columns of data you wish to send to the screen, printer, or database. Refer to Section 11 on List Headings for a thorough explanation of this option. Depending on the storage mode chosen at time of recording, there are different field presentations available for both the graph and the printer. If the adaptive mode was chosen to record the data, the list fields available are Date, Time, Value, S (synthesized), Average, Max, Min, T max and T min. The date field provides the day, month and year for the line of data being presented. The time field presents hours, minutes and seconds for the line of data. The value field provides the numeric value of the data at the time and date shown to its left. The S field will be blank or contain an asterisk. Blanks indicate that the data in the value column is a stored point. An asterisk in the S column indicates that the data is a computer calculated data point based on max/min, average and integral information stored in the adaptive file for that data point. The

average field is the average of all values contained within the sample interval selected for listing.

For example:

If the adaptive mode was the mode of storage and a two minute interval was selected, the average field would contain the average of all samples on a 500ms basis between the two minute intervals, or in this case, the average of 240 samples, (120 seconds divided by 500ms).

The maximum field indicates the maximum value during the interval, the minimum field contains the minimum value during the interval, Tmax indicates time that the maximum value occurred and Tmin indicates the time at the minimum value occurred. This will be in hours, minutes and seconds for both.

If any of the point storage modes were used for recording the fields and descriptions will be the same as just described for the adaptive store with the one exception in that the S field will not appear. This is because there are no computer decisions being made for value information in that all samples received on the data logger's inputs are stored at the sample rate selected.

To Screen

If data is listed to the screen and the number of lines of data are greater than the lines available on screen, a choice for **More** or **Cancel** will appear at the bottom right side of the screen as shown in Figure 10-30.

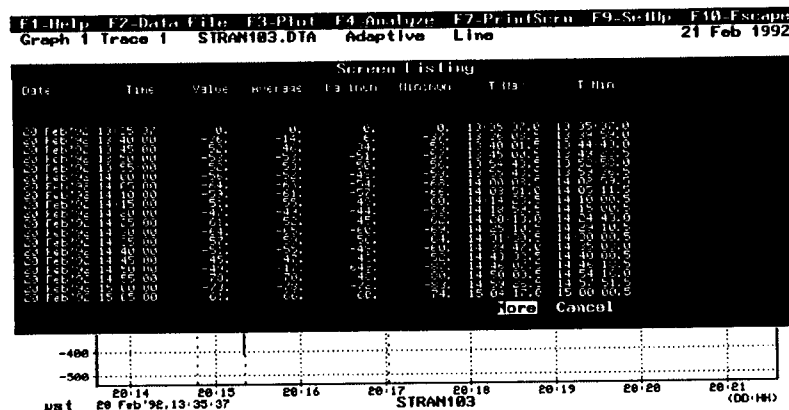


Figure 10-30. Listed Data to the Screen

Select **More** to see the next page of data. Select **Cancel** to clear the screen and return to the main menu. When the last page of data is on screen, the **More** choice will not be offered.

To Printer

If data is to be listed to a printer, the screen in Figure 10-31 will appear to let you determine the printer width.

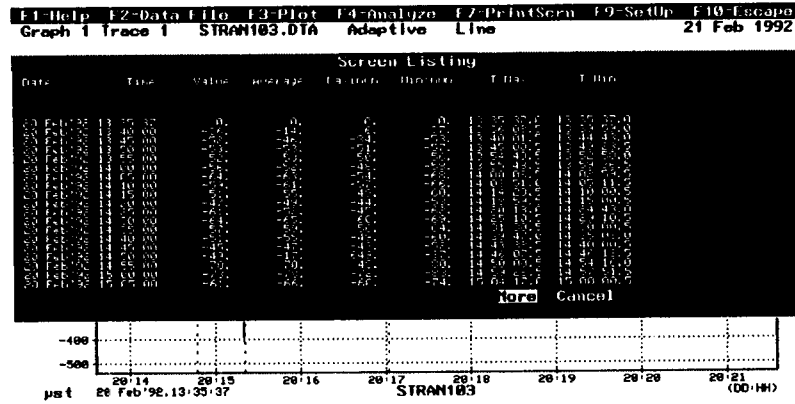


Figure 10-31. Printer Width Selection

Standard (128 Col) will print on a 8.5 inch wide paper in condensed print. This will allow all the columns to fit on the page even if all headings are active.

Narrow (80Col) will print on 8.5 inch paper in normal print size. Some columns will wrap to the next line if all headings are active. Use this setting when only some of the columns are required.

Table 10-1 will help you determine if the 80 column printer mode can be used. Determine which fields will be active, then add up the number of columns required. If more than 80 then use the 128 column mode.

Wide (232 Col) will print on 14 inch wide paper in normal size print. This will allow all the columns to fit on the page even if all headings are active.

Heading	Column Width
Calendar	20
Elapsed	14
Value	10
Average	10
Maximum	10
Minimum	10
(Tmax)	10
(Tmin)	10
S	3
Events	6
Mark Number	7

Table 10-1. Listed Data Column Widths

After the printer width has been selected, the screen in 10-32 will appear offering the **Go** choice to print or the **Change Headings** choice to determine which fields will be printed.

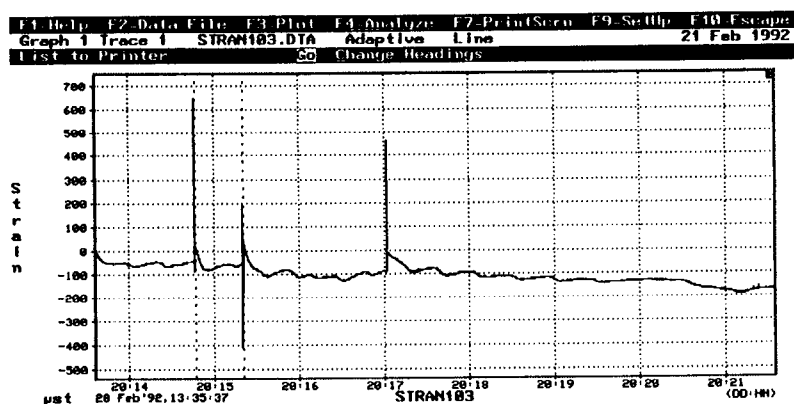


Figure 10-32. Print or Change Heading Choice

When Go is selected, the screen in Figure 10-33 will appear indicating that data is being sent to the printer. There may be a delay before printing starts due to the compiling taking place to get the data into the selected interval.

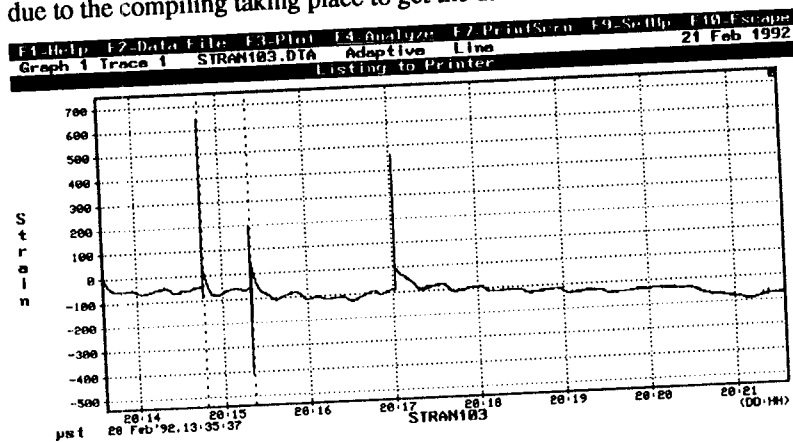


Figure 10-33. Listing to a Printer

If your printer is turned off or not connected, an error message will occur after approximately 90 seconds. See Appendix D for error message numbers 12, 29, 40 and 41. When this error message is on screen press the <return> key to go back to the examine command line.

To a File

If data is being sent to a database file, the screen in Figure 10-34 will appear after the To File command is selected and the interval has been established as described earlier.

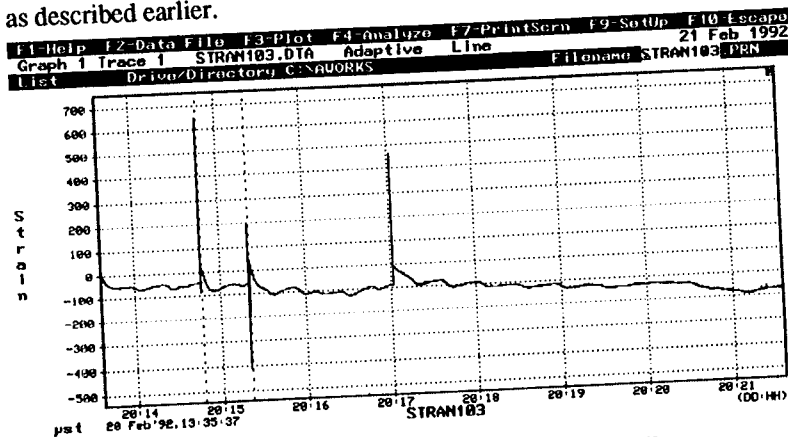


Figure 10-34. Listing to a Database File

The status line will indicate the Drive/Directory where the file will be stored and will offer a file name with a .PRN extension for the file. This file name will be the same as the graph itself. You may overwrite it if desired. Up to eight characters are allowed for the file name. Pronto automatically assigns the .PRN extension.

Next choose **Go** to create the database or **Change Headings** will be offered as described above and in Section 11 on List Headings.

After the list activity has been completed, the main menu will again be active.

Examine (F4)(E)

Examine utility allows several key statistical analysis functions to take place on a given trace. To implement this function it is required that at least one trace be on the screen. Press <F4> to enter the Analyze menu then press <E> or highlight **Examine** and press <return> to enter the examine sub-menu. The command line will then show the available choices as shown in Figure 10-35. The choices on the command line will be Frame, List, Value, Max, Min, Mean, Integral and Time.

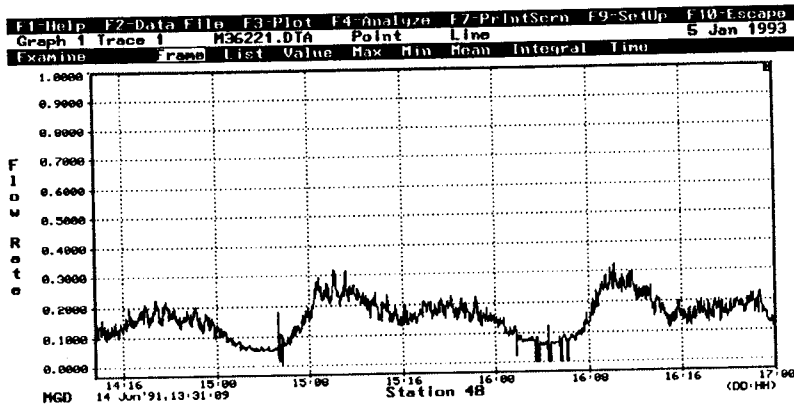


Figure 10-35. The Examine Functions

Frame

The frame choice allows for cursor positioning to frame in a section of the graph for examination. The functionality here works in a similar fashion as that of the zoom command with the exception that the section framed in is not zoomed up in size; however, the frame marks stay on screen providing a visual indication of the area to be examined. To implement this choice, highlight **Frame** and press <return> or press <F>. The sub-menu choices in Figure 10-36 will appear allowing the choices for Window, Left, Right, Top or Bottom. These choices work in the exact same fashion as described in the zoom utility earlier in this section.

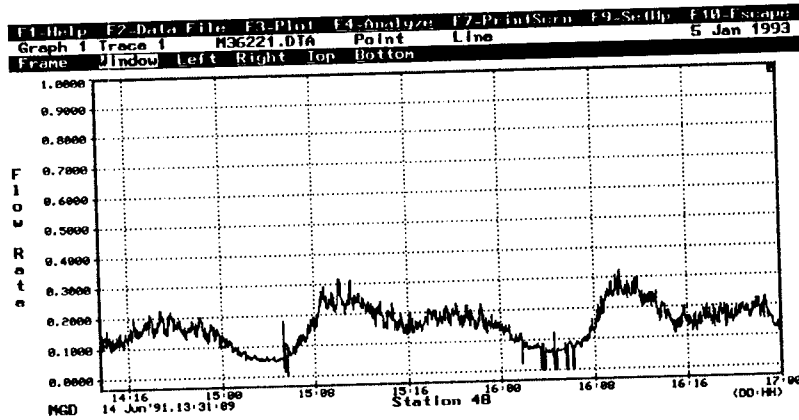


Figure 10-36. Frame Cursor Choices

Once all frame cursor positions have been selected, pressing the <return> key will exit the frame selection, returning to the examine command line with the area of the trace to be examined framed in as shown in Figure 10-37. The other choices on the command line can now be selected to operate only on the trace contained within the frame. It is important to note that it is not necessary to frame in any area to use the examine choices, the entire graph can be used for all examine statistical functions.

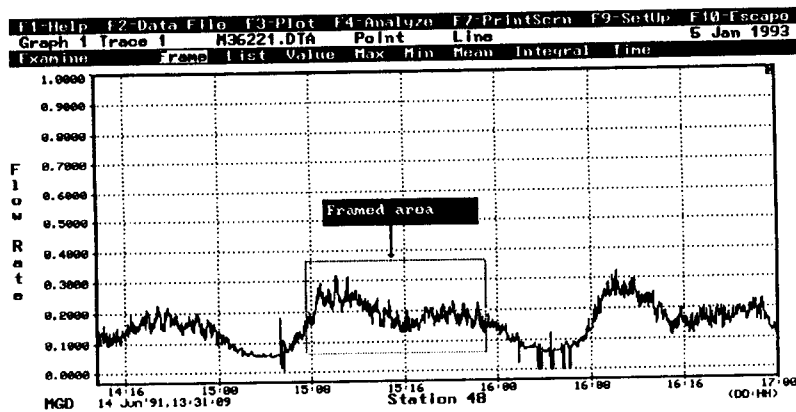


Figure 10-37. Framed In Trace

List

The List function here works the same as selecting it from the Analyze menu. Refer to page 10-31 for full details.

Value

To implement the value command from the examine command line press <V> or highlight Value and press <return>. This will bring an active cursor onto the trace being examined as shown in Figure 10-38. The command line will also show the Y-axis value and the X-axis time of the cursor location.

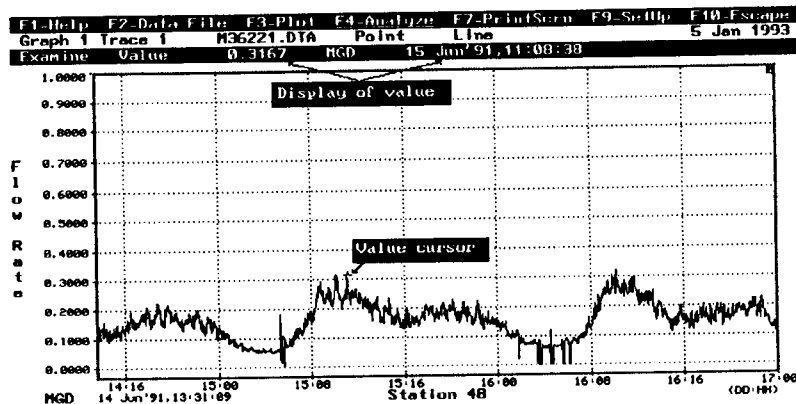


Figure 10-38. The Value Screen

The cursor keys or mouse can be used to move this cursor anywhere within the graph boundaries. As the cursor is moved a real time update is visible on the command line for both time and value. Once the cursor is located at the desired place on the trace, pressing the <return> key freezes the cursor position and allows the value to be printed on the graph by highlighting Write and pressing <return> or pressing <W>. See Figure 10-39.

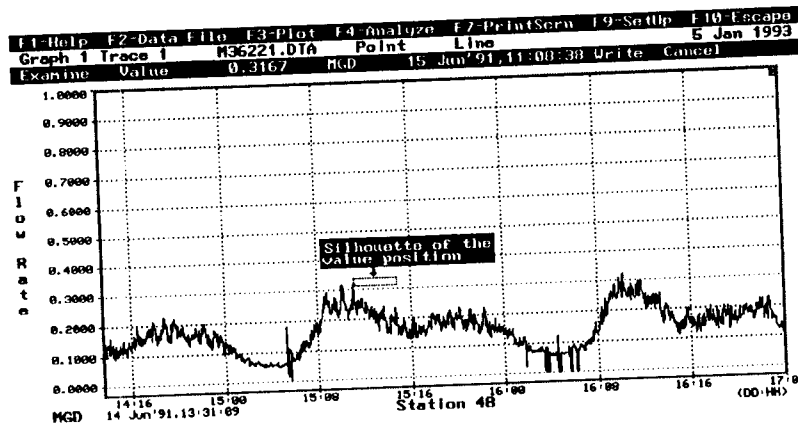


Figure 10-39. Writing a Value on Screen

When this command has been selected, a silhouette cursor will appear on the screen at the place of the cross cursor showing the exact size of the value information that will be placed on the graph. Use the cursor keys to relocate the silhouette cursor to the desired locations and press <return> to print the information of the graph. Selecting the cancel command by highlighting Cancel and pressing <return> or pressing <C>, returns the cursor to the command line without writing the value on the graph. This same result occurs once the value has been printed on the graph using the Write command. Value can again be selected to locate a new data point. This may be initiated as many times as desired.

Max

The maximum value of the trace on screen or within the framed in area can be quickly determined by selecting Max from the Examine command line and pressing <return> or by typing <x>. If this is the first of the statistical command invoked the message in Figure 10-40 will appear indicating that statistics are being calculated.

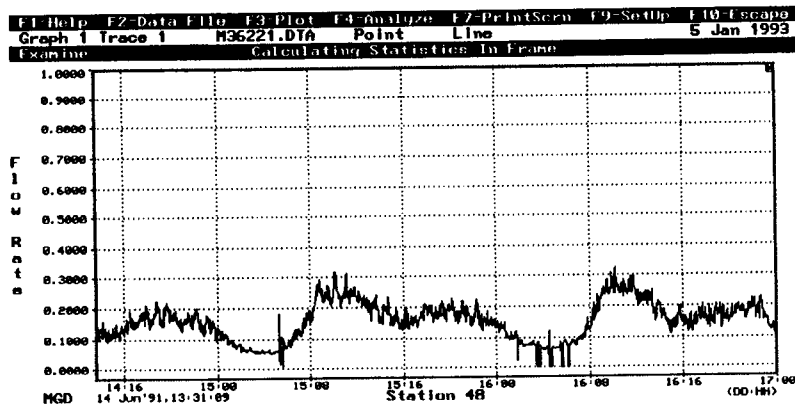


Figure 10-40. Calculating Statistics

The Pronto program calculates all 5 of the statistics (max, min, mean, integral and time) at the same time; thus when any of the other statistical values are requested, the results will be available instantly. Once the statistical values have been calculated, the screen in Figure 10-41 appears showing the max value if max was the selected choice.

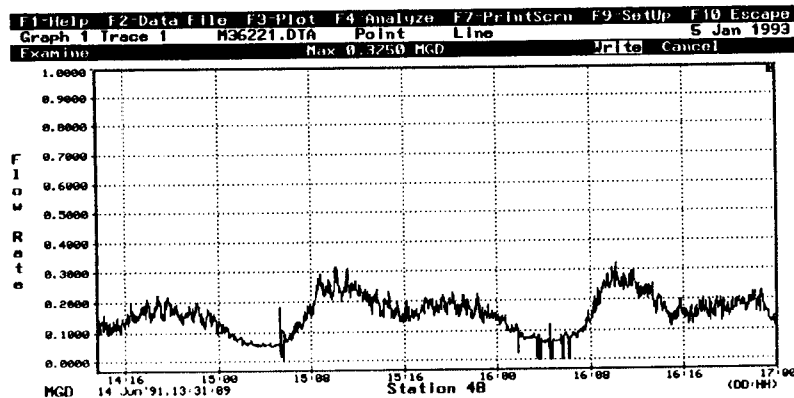


Figure 10-41. The Max Value Calculation

The command line shows the maximum value and offers the opportunity to write it on the graph by selecting **Write** and pressing <return> or pressing <W>. Alternatively the request for writing the value to the graph can be cancelled by pressing <C> or highlighting **Cancel** and pressing <return>.

If the write command is selected, a silhouette cursor will appear on screen at the point of the maximum value as shown in Figure 10-42.

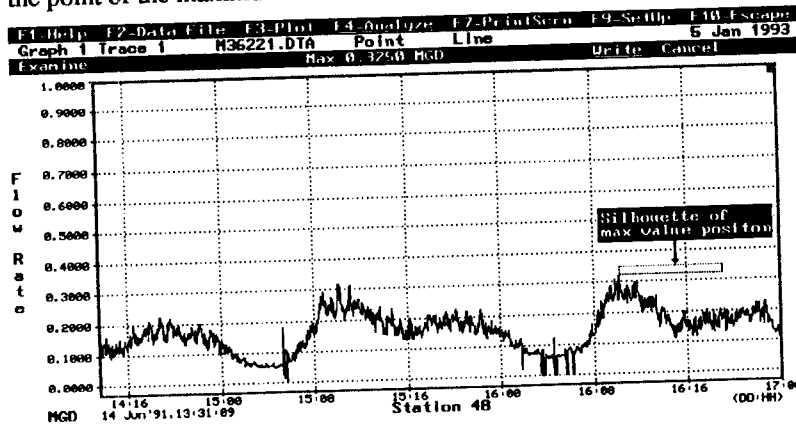


Figure 10-42. Writing the Maximum Value on Screen

The cursor keys may then be used to relocate the silhouette cursor anywhere on the screen for placement of this data. It is a good idea to place the max value close to its actual location just slightly moving the cursor such that the text information will not overwrite the graph. When the <return> key is pressed the maximum value will be placed on the screen as shown in Figure 10-43.

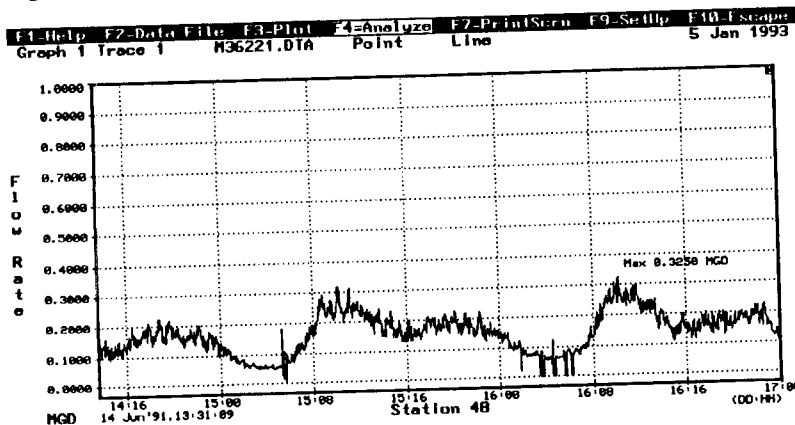


Figure 10-43. Final Position of Maximum Value on Screen

Min

In the same way as the maximum command is used, the minimum command allows the Pronto program to identify the minimum value of the graph or the framed in area. This can be accomplished by highlighting **Minimum** from the Examine command line and pressing <return> or typing <n>. The minimum value will then appear on the command line and the options to write it to the screen or cancel it will be available as described under the maximum command.

Mean

The mean command can be selected from the command line by highlighting **Mean** and pressing <return> or pressing <M>. The Pronto program will return the mean value of the graph or the framed in area displaying the result on the command line. The option is available to write this value onto the graph by selecting the **Write** command or to cancel the request by selecting **Cancel** as described in the maximum command.

Integral

This command can be selected from the examine command line by selecting **Integral** by and pressing <return> or by typing <I>. The integral command provides a calculation of the area under the curve from the bottom graph or frame position to all data points on the curve. This will be calculated in conjunction with the integral time base selected from the Format command or the default set by the Pinstall program. As described in the previous commands, the calculation will appear on the command line and the choice will be offered for writing this integral on the graph or cancelling the request.

Time

This command offers the ability to display the total time of the graph or the framed in area selected. This command can be initiated from the Examine command line by highlighting **Time** and pressing <return> or by pressing <T>. The time will appear on the command line and the choice will be offered to write this time to the graph or to cancel the request as previously described in other commands. The time calculation will be based on the position of the left and right frame boundary positions. This will be the extreme left and extreme right positions of the graph if no framing has been initiated or it will be the time difference between the left and right frame marks if they have been moved to any other position on the graph as shown in Figure 10-44.

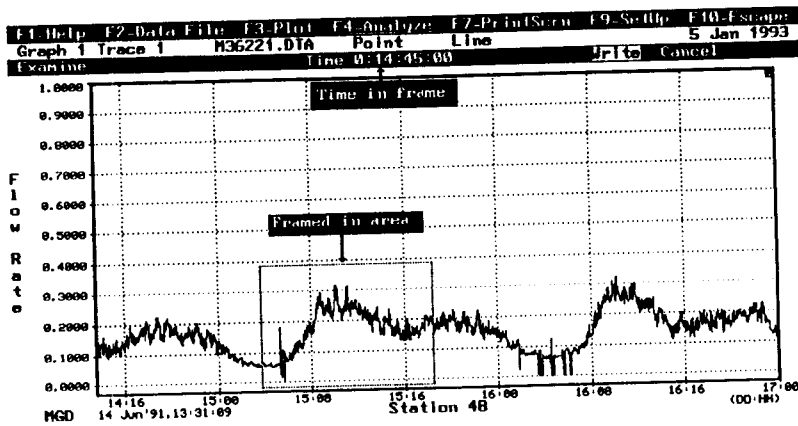


Figure 10-44. Time within Frame

The time calculation can be used in another form to indicate total time that the trace was above a particular value. This is accomplished by using the frame command and positioning the bottom frame cursor to the desired threshold level. Requesting time at this point will then return the total amount of time that the trace was above this value. It is also possible to determine the time that the trace was below a certain level by using the frame command and moving the top cursor down to the threshold level. Requesting time then will return the total amount of time that the trace was below this level.

Leaving the examine sub-menu

To exit out of the Examine sub-menu when the command line is active, simply press <F10> or <Esc> to return back to the main menu. The Analyze command in the main menu will be highlighted.

Notebook **F4** **N**

The last function within the analyze window is the notebook feature. This may be accessed by pressing <N> or highlighting **Notebook** and pressing <return> from within the Analyze menu. The screen is Figure 10-45 will appear.

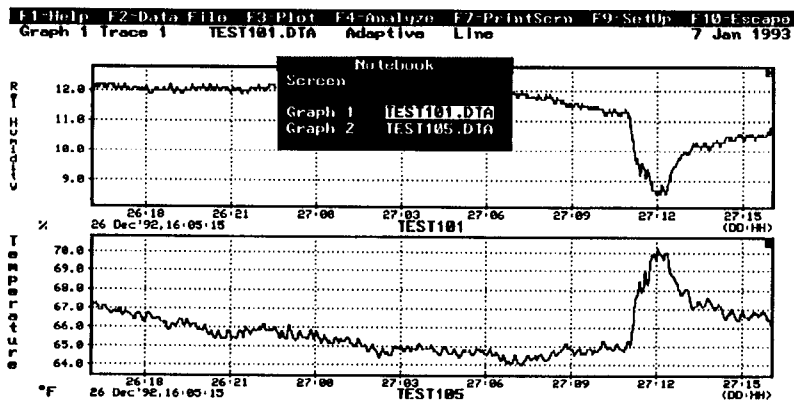


Figure 10-45. Notebook Selection

Here you have the choice to pick a file within a graph or the screen in which to access a notebook. Use the cursor keys to highlight a Filename or Screen. If the Screen is highlighted, a notebook window will open similar to the one shown in Figure 10-46. The left side of the notebook will show the graphs and files associated with the notebook.

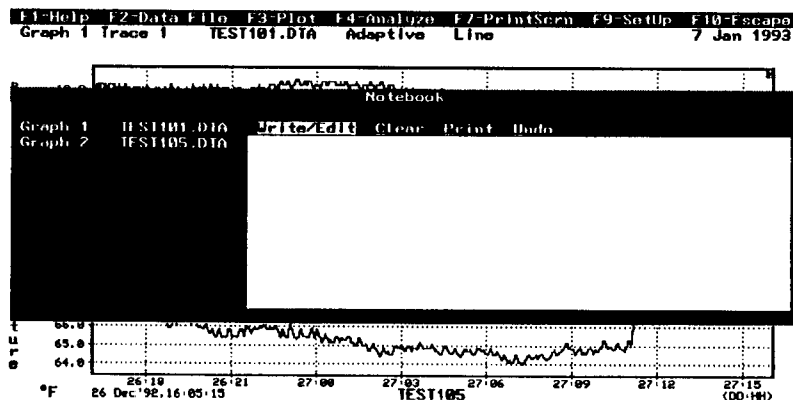


Figure 10-46. Screen Notebook

If a file is highlighted, the screen in Figure 10-47 below will appear. The left side of this notebook will show specific statistical details associated with the recorded data. Once a notebook has been activated, the tools available on the command line are: Write/Edit, Clear, Print and Undo.

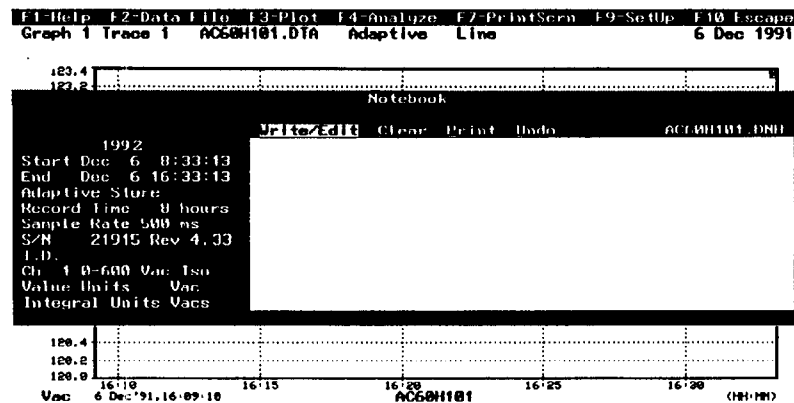


Figure 10-47. Notebook for a File

Write/Edit

To enter the notebook writing area, highlight **Write/Edit** with your cursor key and press <return> or press <W>. This will activate the writing cursor. When first activated, the cursor will be in the top left hand corner of the notebook. Once within the notebook, the cursor keys are functional much the same as any text editor. The left, right, up, and down cursor keys will move the cursor one character in the direction of the arrow. The <home> key will position the cursor to the first character on the line. The <end> key will move the cursor to the last character on that line. The <Ins> key toggles the insert/overwrite mode. The key deletes the character at the cursor position. The <backspace> key deletes the character to the left of the cursor position. The <PgUp> key will move to the top of the current page; the <PgDn> key will move to the end of the current page. The notebook allows for 54 characters on a line and allows for 9 lines of text.

An automatic column wrap feature will advance to the next line once the 54th character is entered on a line. When all the text has been entered, pressing the <Esc> or <F10> key will exit the text editing window.

Clear

To activate the **Clear** function, highlight it with the cursor key and press <return> or press <C>. Implementing this function will erase all information in the notebook and will return the cursor to the Write/Edit choice. In this way a notebook can be completely erased and new data can be entered into it. Caution should be exercised when using this function in that all previous information recorded in the notebook will be lost.

Print

To activate the print function for the notebook, highlight **Print** using the cursor keys and press <return> or <P>. If the printer is properly connected to the computer all information in both the left and right sides of the notebook will be printed.

Undo

The undo function allows you to erase only the new information just added to the notebook, keeping the information previously written and stored in the notebook intact. To activate this selection highlight **Undo** and press the <return> key or <U> from the notebook command line. Once the new information has disappeared, the cursor will again highlight the Undo choice.

Saving Notebook Entries

All information entered into the notebook will be saved when the file has been saved using the save command within the F2 sub-menu. Notebook files are stored separately on disk using the file name associated with the graph or trace followed by the extension .DNB. Notebooks are text files and can be accessed by any word processor program for editing. When using a word processor to edit notebook files, care should be taken that no more than 54 characters appear on a line and no more than 36 lines are used. Also, a non-document mode should be used to prevent control characters associated with your particular word processor from being used.

Plot Type Selection **(F5)**

The <F5> function key performs a plot type change on any graph on screen. It is active from the main menu and in some of the <F4> Analyze sub-menus even though the selection is not shown in the main menu. Pressing <F5> will change the plot type presentation for the active graph shown in the status line. Continued pressing will scroll through and change the plot to the Max/Min, Line, or Average plot type. If more than one graph is on screen, press the <PgUp> or <PgDn> key to make the desired graph active. Next press <F5> to change the trace type. This is a particularly useful tool to use in conjunction with the Zoom and Examine utilities. It allows you to more fully examine a graph or section of graph.

For example:

A trace is presented as a Line Plot, the <F4> Analyze is pressed followed by <E> for Examine. Then the Max value is asked for. When Pronto finishes the calculation, it shows the maximum value to be higher than any point on the line graph. Pressing <F5> to change the plot type from Line to Max/Min will show that the Max value corresponds to the highest point on the Max/Min plot.

Rules and Restrictions:

1. Graphs displayed with multiple plot types active (e.g., Line and Max/Min) or in the cumulative plot type will not respond to the <F5> hot key.
2. Cumulative plot is not available with <F5> key as one of the types.
3. The <F5> hot key is only active from the main menu and in the Zoom, Text, and Examine sub-menus to <F4> Analyze.
4. Up to 12 traces in a graph are allowed.
5. An audible tone will sound if the <F5> key is pressed from a place where the function is not allowed.
6. The <F5> choice is not shown on the command line.

Section 11

The SetUp Utility

SetUp (F9)

The SetUp command is accessible from the main menu by highlighting SetUp and pressing <return> or pressing the <F9> function key. When first invoked the screen in Figure 11-1 will appear offering the choices for selecting Drive/Directory locations, Graph Format, List Options, and Serial Options. The SetUp command provides on-line configuration without leaving the Pronto program. It is not necessary to have a graph on the screen to invoke the SetUp command although it is perfectly acceptable to change setup conditions while a graph is on screen. It is important to note however, that the new setup conditions selected will effect new graphs added to the screen from the point of these changes. Graphs already on screen will not be immediately effected by the new setup unless they are cleared from the screen and accessed again using the Data File command. Changes made using the SetUp commands will become the new defaults for the Pronto program if saved using the save SetUp command. If not saved, they will be active only for the current Pronto session. The <F9> menu will stay active when you exit from any of its sub-menus.



Figure 11-1. The SetUp Window

Drive/Directories **(F9)** **(D)**

The SetUp menu allows Pronto to store the files created on specified drive/directories that you choose. It also allows you to determine where to look for files downloaded from the data logger via modem. To initiate drive/directory changes from within the SetUp sub-menu select **Drive/Directories** and press <return> or press <D>. The screen in Figure 11-2 will immediately appear allowing selection of any one of the 4 file types (DTA, TMP, MDM, or PRN) to be chosen for drive/directory configuration. A description of each of the file types is presented in Section 7.



Figure 11-2. Drive/Directory Window

Note: The Pronto program can support drives up to and including <F>. The number of active drives that will be displayed in this menu will be determined by the highest drive letter detected by the program upon startup.

A maximum of 18 characters are allowed for sub-directory designation. An error message will result at the bottom of the screen if an invalid sub-directory has been entered (refer to error message number 11 in Appendix D).

Selecting DTA Drive/Directory

To point Pronto to the desired location for storing .DTA and .PLT files, select DTA from the Drive/Directory sub-menu by highlighting it and pressing <return> or by pressing <D>. The screen in Figure 11-3 will appear allowing you to select the drive and type in the subdirectory.

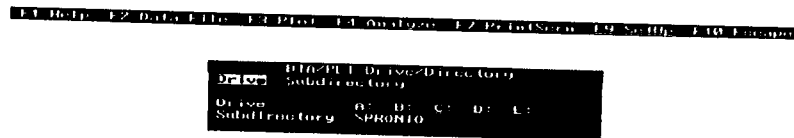


Figure 11-3. The DTA Drive/Directory Selection

The lower half of the window will indicate the current active drive by an underlined letter and will indicate the current selected subdirectory by the name typed in the subdirectory field. Highlight **Drive** and press <return> or press <D> to select the new drive you wish to use. Highlight the drive and press <return> or press the drive letter itself. The choice will be underlined and the cursor will move back to the drive subdirectory menu. To change the subdirectory, highlight **Subdirectory** and press <return> or press <S>. An 18 character field will open allowing you to type in the name of the appropriate subdirectory. It is important that the first character in the field be preceded by a backslash (\). Press <return> when finished typing. Upon completion of the drive and directory selections, pressing the <Esc> or <F10> key will move the cursor back to the file type menu. If an invalid directory has been selected, an error message screen will appear indicating that a new choice must be made or the default current directory will be used. See error message number 11 in Appendix D.

Selecting TMP Drive/Directory

The temporary file, drive/directory locations are chosen in the exact same manner as described for DTA files. To change the location of temporary file, storage, select **TMP** from the Drive/ Directory sub-menu by pressing <T> or highlighting it and pressing <return>. Then proceed with the instructions as described for .DTA files.

Tip: If your computer is configured for a RAM drive, it is recommended that TMP files be stored there to speed up the playback function.

Selecting MDM Drive/Directory

To change the Drive/Directory for storage of MDM (modem) files, the operation is exactly the same as described with .DTA files. To activate this choice, highlight **MDM** from within the drive/directory sub-menu and press <return> or press <M>. Proceed with the instructions as described for .DTA files. The RusLink communication program should also be set to this Drive/Directory if you are using it and are communicating with your data logger via modem.

Selecting PRN Drive/Directory

The PRN file drive/directory storage location is selected in the exact same way as previously described in the DTA file drive/directory setup. To activate this choice from within the drive/directory sub-menu, highlight the **PRN** choice and press <return> or press <P>. Proceed then with the instructions as described in the DTA drive/directory choice. It is a good practice to set this Drive/Directory to match your database or spreadsheet program.

Serial Options (F9) (S)

This SetUp command allows selection of the port location and data transmission speed associated with the playback process. It allows Pronto to determine whether to check for duplicate filenames or not. It also allows selection of single or network mode. OM-170 messages can be toggled active or inactive here as well. To modify these settings, select **Serial Options** from the setup window by highlighting it and pressing <return> or pressing <P>. The screen in Figure 11-4 will immediately appear allowing access to six commands. These are Baud Rate, Port, Auto-Save, Network, OM-170 Messages, and OM-170 Status.

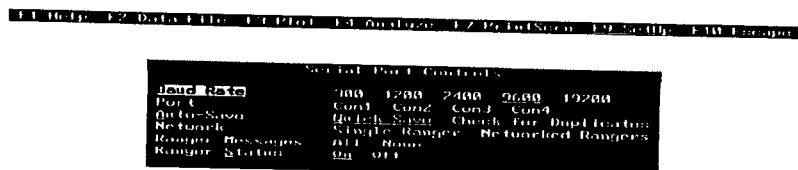


Figure 11-4. Serial Port SetUp Window

Baud Rate

Pronto supports data transmission at 300, 1200, 2400, 9600 and 19200 baud. The default choice is 9600.

To select a different baud rate highlight **Baud Rate** and press <return> or press . The cursor will then move into the rate field to the active choice. Use the <spacebar> or cursor keys to select the new baud rate then press <return> to lock in the selection. The cursor will move back to the command line.

Port

To change the port location where Pronto will look for data transmission from the Omega OM-170, highlight **Port** and press <return> or press <P>. The cursor will move to the current default communication port. To make a new choice, highlight the desired choice with the cursor keys and press <return> or press the number of communication port itself. Pronto supports Communication ports 1 through 4. Immediately upon making this selection, the cursor will return to the Serial Options menu command line.

Auto-Save

This command allows filenames created to be automatically saved or to have the Pronto program check for duplicates to protect against overwriting. To select the desired operation, highlight **Auto-Save** and press <return> or press <A> from within the Serial Options menu. The choices within this

menu are: **Quick Save** and **Check for Duplicates**. Prior to selecting Auto-Save you will notice the current active choice will be underlined. The default setting is Quick Save. When you select Auto-Save, the active choice will toggle from one to the other. That is, if Quick Save was the previous default setting selecting Auto-Save will then activate Check for Duplicates as will be indicated by the underline. If Check for Duplicates is activated, the file saving process will take longer time while the program checks to see if a file exists matching the data logger serial number, start time and date, and end time. If found, even if the filename is different, a duplicate file will not be created.

Network

The Network choice allows you to configure Pronto for playback from a single OM-170 data logger in close proximity to the computer or to operate in network mode addressing one or multiple data loggers from longer distances. The default setting is Single OM-170 as indicated by the underline. If Single OM-170 is selected, the first command that will appear in the F2 menu will be Playback. If Network OM-170s is selected, the first command in the F2 menu will be OM-170 Control. Refer to Section 9 for detailed information on Playback or Section 12 for detailed information on Network operation. To toggle between Single OM-170 or Networked OM-170 as the active choice highlight **Network** and press <return> or press <N>. The new active choice will then be underlined.

OM-170 Messages

The Omega OM-170 data logger beginning with Revision 4.20 sends message strings to the Pronto program along with the recorded data. These message strings convey the reason that a recording session has ended. You have an option with this menu to display those messages or prevent them from being displayed. If the OM-170 Messages are activated, they will appear as the first line in the notebook as shown in Figure 11-5.

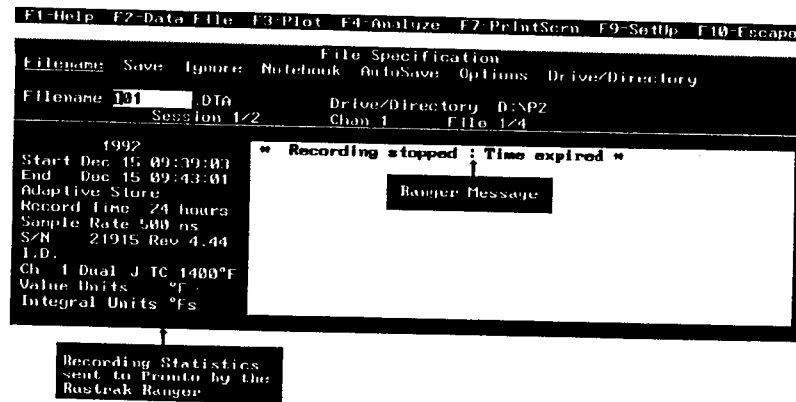


Figure 11-5. Typical OM-170 Message

These messages will indicate if a recording has ended normally because the record length of time had expired, whether it ended for a low battery condition, a removed module, or a user stoppage. This information can be helpful in troubleshooting premature record end conditions should they occur. Listed below are the messages that are possible.

- *Recording stopped : User termination*
- *Recording stopped : Memory full*
- *Recording stopped : Time expired*
- *Recording stopped : Battery low*
- *Recording stopped : Module/Configuration change*
- *Recording stopped : Too many manual recordings*

Although the information appears in the notebook, it will not be saved to disk unless you open the notebook and save it. To toggle between active and inactive OM-170 messages, highlight **OM-170 Messages** and press <return> or press <R>. The underline will shift to the new active choice of either All or None.

OM-170 Status

Pronto can be directed to display status conditions or not display them with the Display Readings command in network mode. If active, the OM-170 status information will be displayed at the bottom of the screen when readings are displayed. The status items displayed are:

Serial Number	Revision	Battery Voltage
Time and Date	Storage Mode	Session Number
Remaining Capacity	Elapsed Time	Remaining Time

The choice to make this active (on) or inactive (off) is accomplished in the Serial Options menu in Setup. Once in this menu, highlight **OM-170 Status** and press <return> or press <S>. The status will toggle from On to Off or vice versa as indicated by the underline. Refer to Figure 12-7 to see how OM-170 Status will be displayed.

When all the desired changes in the Serial Options menu have been completed, press <F10> or <Esc> to return to the SetUp menu.

Graph Format **(F9)(G)**

Global considerations can be set from within the setup menu to configure Pronto to display graphs in a particular format. Thought should be given to the most common way you will be referring to and analyzing your data before making any changes. Individual exceptions to this may be selected on a graph by graph basis using the format command within the Analyze window, see Section 10 for more details on this. To change the Graph Format from within the setup window, highlight **Graph Format** and press <return> or press <G>. The screen in Figure 11-6 will appear. The choices are Type, Alignment, Show, Combine, Display, Printout and Manual Store.

Change Defaults	Graph Format
<u>T</u> ype	<u>L</u> ine <u>M</u> ax/Min <u>A</u> verage <u>C</u> umulative
<u>S</u> how	<u>C</u> alendar <u>S</u> tart <u>D</u> ate <u>D</u> ay <u>H</u> our
<u>C</u> onfig	<u>M</u> ain Levels <u>L</u> imits <u>G</u> rid Lines <u>Z</u> ero
<u>D</u> isplay	<u>I</u> ndividual <u>D</u> ata <u>G</u> rid <u>A</u> ll
<u>P</u> rintout	<u>S</u> tacked <u>S</u> cattered
<u>M</u> anual Store	<u>I</u> T <u>L</u> ock Page
	<u>B</u> ack Number <u>T</u> ime

Figure 11-6. Graph Format Window

The current active choice for each of these settings will be underlined for easy reference. Figure 11-6 shows the factory default settings of Pronto. The general procedure for changing any of these settings is to highlight the choice and press <return> or to press the underlined letter. This will move the cursor into the choice selection area of that setting. New choices within each field may be enabled by highlighting the desired choice and pressing <return> or pressing the underlined letter. Currently highlighted choices can be deactivated by highlighting the underlined field and pressing <return>. The Type and Show fields allow multiple choices. Functions that only have two choices, such as Display, Printout, or Manual Store, will toggle between the choices when selected.

Type

To change the way a graph will be presented on the screen from within the Graph Format sub-menu, highlight **Type** and press <return> or press <T>. The cursor will then move into that field on the currently activated choice. Select the desired type for the graph or press the underlined letter to activate your choice. The choices are Line, Max/Min, Average, or Cumulative. Any combination of Line, Max/Min, or Average may be selected to be active at one time. The selection of cumulative is not allowed with any other graph type. If cumulative is selected, any other choice will automatically be deselected and vice versa. It is important to note that if the graph data is extremely busy, multiple selections can make data extremely difficult to read. To help you distinguish between multiple graph types, each will come up in a different color if you are using a color monitor. Table 11-1 shows the colors that will appear.

Trace No.	Line	Max/Min	Average
Trace 1	Light Cyan	Light Red	Green
Trace 2	Light Yellow	Cyan	Light Red
Trace 3	Light Green	Magenta	Light Yellow
Trace 4	Bright White	Light Yellow	Light Red
Trace 5	Light Red	Light Green	Magenta
Trace 6	Light Magenta	White	Brown
Trace 7	White	Green	Light Magenta
Trace 8	Light Blue	Brown	Blue
Trace 9	Brown	Light Blue	Light Cyan
Trace 10	Cyan	Light Red	White
Trace 11	Green	Light Magenta	Light Blue
Trace 12	Red	Light Cyan	Light Green

Table 11-1. Trace Color Chart

Once all desired choices have been selected, press <Esc> or <F10> to return to the selection field. For a further description of each graph type refer to the glossary of terms under the appropriate graph type heading. Figure 11-7 shows a typical presentation of each graph type. Figure 11-8 shows a combination of line and max/min on the same graph for the same trace.

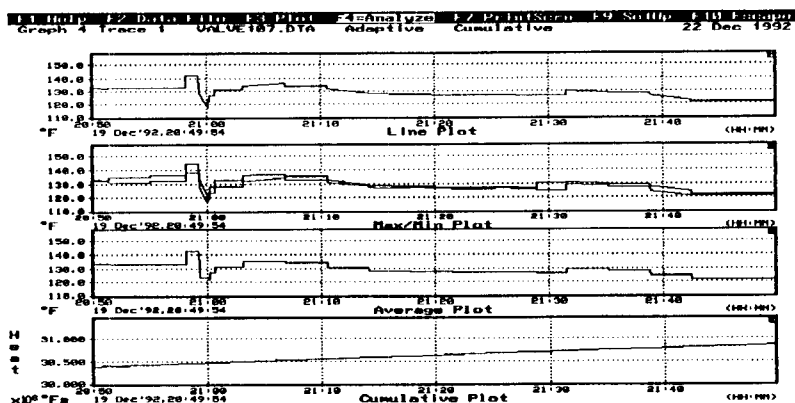


Figure 11-7. Graph Types

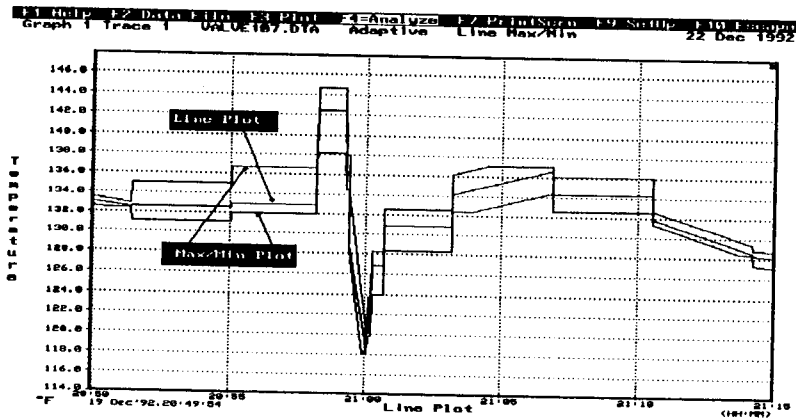


Figure 11-8. Combined Line and Max/min Plot

Alignment

To select the desired alignment for the time base (X-axis) highlight **Alignment** from within the Graph Format sub-menu and press <return> or press <A>. The cursor will be active in the alignment field with the current choice highlighted. The choices are Calendar, Start, Week, Day or Hour. Make the desired selection by highlighting it and pressing <return> or pressing the underlined letter. The choice will be activated and the cursor will return to the selection field. For a further explanation of the different time alignment choices, refer to Section 9 and review the discussion of alignment under Analyze/Format.

Show

The show command allows Pronto to determine whether or not certain features will be toggled on or off in the graph presentation. These features are alarm level indicators, events, grid lines and zero baseline. To activate this choice from within the Graph Format sub-menu, highlight **Show** and press <return> or press <S>. The cursor will then move into the selection area with the alarm levels highlighted if it is active. If alarm levels is not active, the cursor will move to the first detected active field. To activate any or all of these choices, highlight the choice and press <return> or press the underlined letter. To deactivate any of these choices, highlight the underlined choice and press <return>. Once all choices have been activated or deactivated as desired, press the <Esc> or <F10> keys to leave this field and return to the selection field. Refer to Section 10 for complete details on the Show command.

Combine

The Combine command allows Pronto to determine the arrangement of multiple traces on graphs. The choices are Individually, Units or All. The individual choice sets Pronto to graph every file selected as its own individual graph. A maximum of 12 graphs are allowed on the screen at any one time.

The selection of **Units** will group all files selected by the module type used in recording. That is multiple files recorded using the same input module type will appear in the same graph. Those using different modules for the recording will appear on different graphs. Figure 11-9 shows 3 files plotted with 2 of them combined together with the same recording units and the third separately because a different module was employed when recording took place.

The "All" choice disregards any consideration of module type and will automatically group all selected files onto the same graph. A maximum of 12 traces can be employed in one graph.

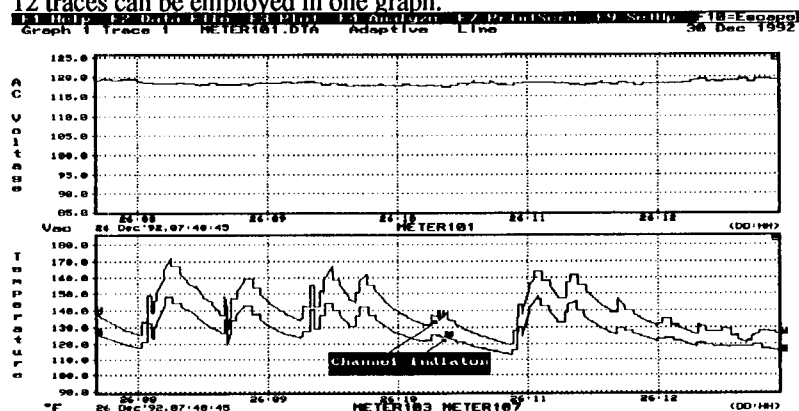


Figure 11-9 . Graphs Plotted Combined by Units

To make the selection from within the graph format sub-menu highlight **Combine** and press <return> or press <C>. The currently activated choice will be highlighted. This may be deactivated by pressing the <spacebar>. A new selection may be activated by highlighting it and pressing <return> or by pressing the underlined letter. Only one active choice is allowed in this field. When a choice is made, it will automatically deactivate the previous choice and the cursor will return to the selection field.

Display

The display command allows two choices which determine the placement of multiple graphs on screen. The choices are Stacked or Scattered. The Stacked command will place graphs on top of each other on the screen. In this way multiple graphs can be viewed with respect to a specific point in time.

The scattered command will place graphs horizontally and vertically across the screen to optimize the use of the screen for the number of graphs selected. More resolution is given to the amplitude axis than the time axis in this selection. Figures 11-10a and b show typical graph arrangements of Stacked and Scattered graphs.

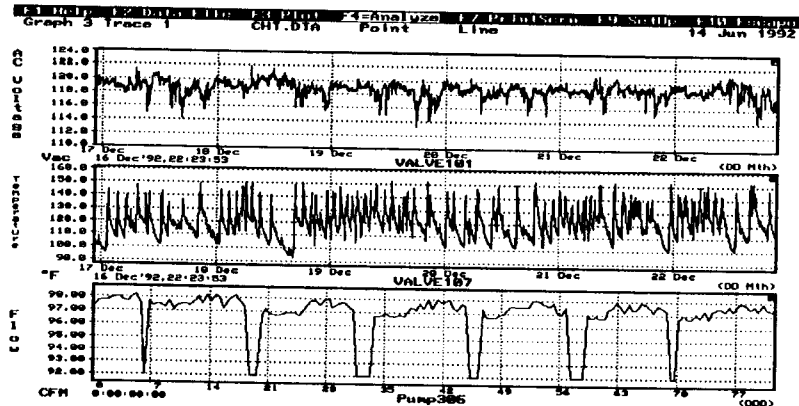


Figure 11-10a. Stacked Graphs

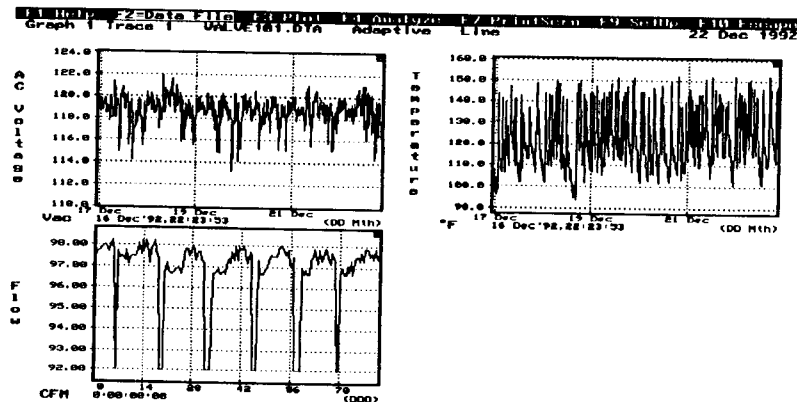


Figure 11-10b. Scattered Graphs

To implement this choice, highlight **Display** from the Graph Format sub-menu and press <return> or press <D>. Because there are only two choices in this field, selection of this command will toggle between **Stacked** and **Scattered** each time it is selected. The Display choice will remain highlighted after implementation.

Printout

This command allows selection of a 1:1 relationship between the screen presentation and the printer in use or a full page presentation where the graph is rotated 90° and printed out in a larger form maximizing the use of the paper. In some cases depending on the printer in use, this may fill an 8 ½" x 11" sheet of paper. On other printers the amplitude axis may be closer to half the width of the paper. This is governed by the dot resolution capability of the printer in use.

To make the printout selection, highlight **Printout** from the Graph format sub-menu and press <return> or press <P>. Because there are only two choices, the implementation of this function toggles between 1:1 and Full page.

Manual Store

This command allows you to select how data manually stored in the Omega OM-170 will be graphed. The choices here are by **Mark Number** or **Time**.

In the manual store mode, each data point stored is tagged with the time, date and a mark number. If **Mark Number** is selected, each point will be uniformly spaced on the graph and the mark number will be the timebase as shown in Figure 11-11a. If **Time** is selected, each point will be plotted with respect to the time it was recorded. This may not be a uniform presentation as shown in Figure 11-11b because the points are not likely to be recorded in even increments of time.

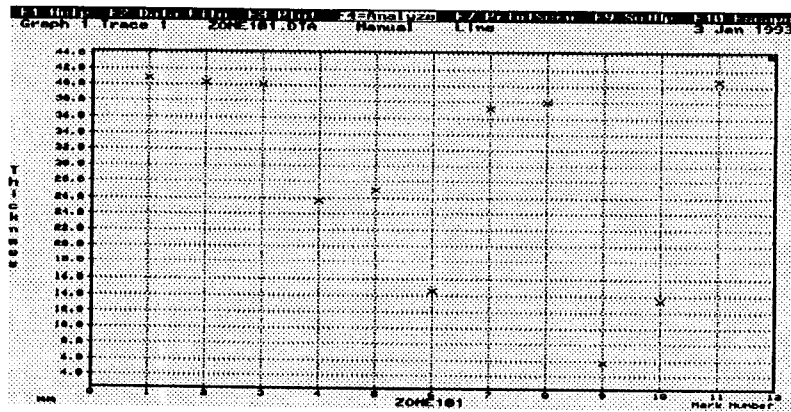


Figure 11-11a. Mark Number Timebase

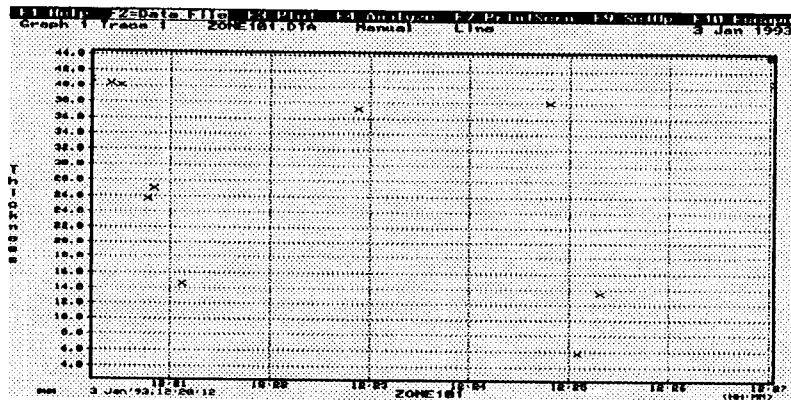


Figure 11-11b. Calendar Timebase

To implement this choice highlight **Manual Store** and press <return> or press <M>. Because there are only two choices in this field, selection of this command will toggle between Mark Number and Time as indicated by the underline.

List Options (F9) (L)

The Pronto program offers the opportunity to select the columns of information and the time interval default that will be displayed when listing data whether it be to the screen, to the printer or to a database file.

There are three choices in the sub-menu for list option as shown in Figure 11-12. These are: Single Channel, Multiple Channel, and Listing Interval.

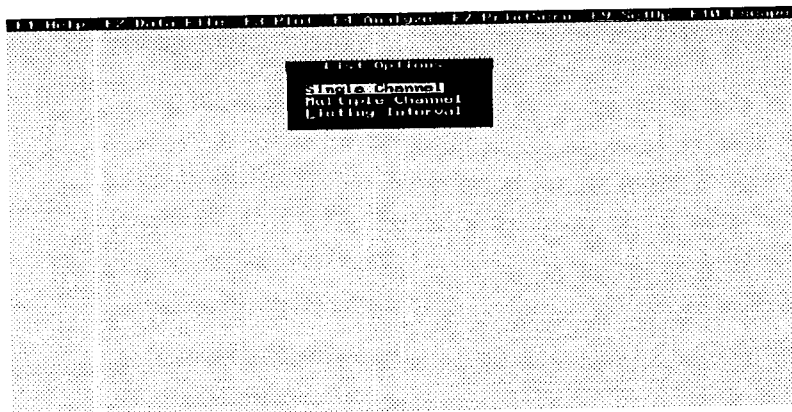


Figure 11-12. List Options

The Single Channel and Multiple Channel selections work identically. However, they can be set differently. Single Channel listings apply to those graphs that contain one trace. Multiple Channel listings apply to those graphs that have more than one trace. To alter single channel list headings, highlight **Single Channel** and press <return> or press the letter <S>. To alter Multiple Channel list headings, highlight **Multiple Channel** and press <return> or press the letter <M>. In either case, a screen similar to Figure 11-13 will appear showing all of the column headings available. Those that are active will have a check mark next to them or in the case of calendar and elapsed time under, the active choice or choices will be underlined. To change the Time selections highlight **Time** and press <return> or press the letter <T>. You may then select each of the options to be active or inactive by highlighting them and pressing <return> to toggle them from inactive to active or vice versa. Active choices are indicated by an underline. When selections are complete press <Esc> to exit the field. All other List headings may be toggled on or off by highlighting the choice and pressing <return> or pressing the underlined letter. A choice will become inactive if it is active

and the check mark will disappear. When a selection is changed from inactive to active the check mark will be present. After each column heading has been acted upon as desired, press <Esc> to return to the List Options sub-menu. The factory default condition is all headings active.

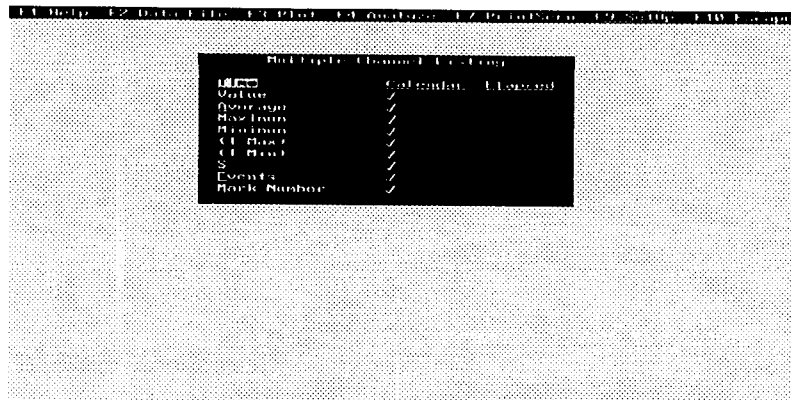


Figure 11-13. Column Headings

List Interval

In addition to selecting which headings and fields are to be included in the listing or database, you may also predetermine the time interval for the listing. To do this highlight **Listing Interval** and press <return> or press <L>. The screen in Figure 11-14 will appear offering the choices of Listing Interval, List by Mark and List by Event.

Listing Interval will apply to any graph. List by Mark will apply to those graphs that were recorded using the Manual storage mode. List by Event will apply to those graphs employing event modules only.

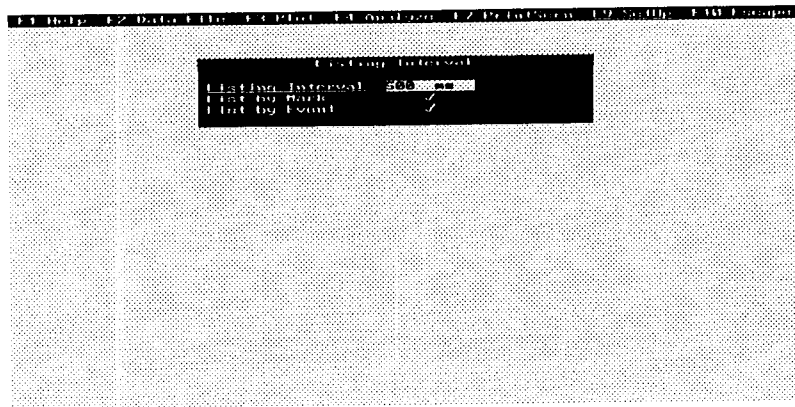


Figure 11-14. Listing Interval

To change the Listing Interval highlight **Listing Interval** and press <return> or press the letter <I>. The cursor will move into the Interval time field. You may use the up and down arrow keys to scroll through the available list intervals. These Intervals coincide with the available sample rates of the data logger itself from 62.5ms to 12 hours. When the desired interval is in the window, press <return> to make that the new default setting.

An additional choice is available in this window for listing by days. To make this choice use the up or down arrow keys until **___Days** appears in the window and press <return>. You may then type in a number from 1 to 999 and press <return> to make this the active list interval.

Note: List intervals that are faster than the recorded sample rate will not be offered when a graph is on screen.

List by Mark and List by Event are toggle functions. Selecting either of these will change it from active to inactive or vice versa as indicated by the presence of a check mark or not. To change each of these settings highlight the choice and press return or press the underline letter. The check mark will appear or disappear as required.

Save SetUp **F9** **S**

To make any of the changes described in the setup menu permanent, highlight **Save SetUp** and press <return> or press <S>. The Pronto.CNF file will be updated and the main menu will be active.

If **Save SetUp** is not executed, the changes will stay active as long as the Pronto program is running. When you exit Pronto they will be lost.

NOTES

Section 12

Network Mode

The Pronto program can be set to work with a single OM-170 data logger for direct playback or with a single or multiple OM-170 data loggers in a local area network. The determination is made in the F9 SetUp window under Serial Options. Refer to Section 11, the SetUp Utility, for more details on selection of this option.

In network mode, the Playback command in the F2 Data File window is replaced with "OM-170 Control" as shown in Figure 12-1.

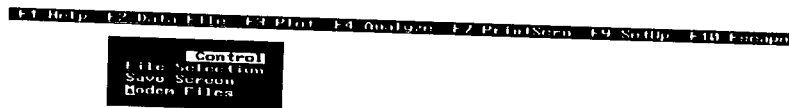


Figure 12-1. OM-170 Control Command

Note: Network operation was designed to work with Omega OM-170 data loggers beginning with version 4.40. It is possible, however, that most of the commands will function with earlier versions.

OM-170 Control (F2)(R)

To begin network communication with a data logger on the network, press <F2> from the main menu then highlight **OM-170 Control** and press <return> or press <R>. The Pronto program will bring up the screen shown in Figure 12-2.

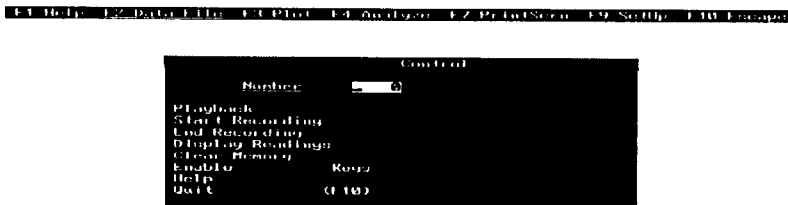


Figure 12-2. OM-170 Control Menu

OM-170 Number

The first task is to select the address for the data logger you wish to communicate with. This is referred to as the OM-170 Number. When you open this window for the first time, the OM-170 Number will be set to 0 and the cursor will be in the field. If the cursor is not in the field, highlight **OM-170 Number** and press <return> or press <R>. The cursor will move into the address field. Type in the address (up to 5 digits) for the data logger you wish to communicate with and press <return>. This address must match the address set into the data logger and must be between 1 and 60000. Next, the link will initialize to the data logger at the address selected. This will take several seconds. While initialization takes place, the screen in Figure 12-3 will appear. A flashing asterick will indicate communication activity.

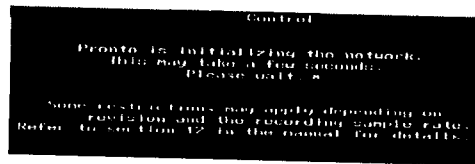


Figure 12-3. Initialization Screen

Note: If only one data logger is on the network and a COM-502 serial communication module is used, the address is not relevant. Any number will be acceptable. Communication distance is limited to approximately 30 feet (9 meters) using the RS-232 link.

After initialization, the OM-170 Control menu will reappear and the data logger's recording status will appear next to **Start Recording**. If it is blank, the data logger is not recording. If a recording session is in progress, the word "Recording" will appear. See Figure 12-4.

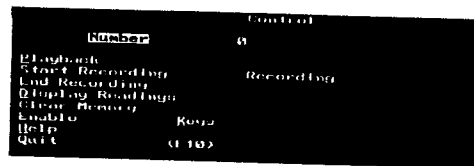


Figure 12-4. Data Logger Recording Status Displayed

The commands available in the OM-170 Control menu will be discussed next in order of appearance not in necessarily in order of use.

Playback

This command allows you to playback the data in a OM-170's memory. It is not necessary to stop the recording if the data logger is still recording. You will be offered the opportunity to stop the recording once you issue this command.

To begin, highlight **Playback** and press <return> or press <P>. Within a few seconds a bar graph will appear which tracks the progress of the playback as shown in Figure 12-5.



Figure 12-5. The Playback Bar Graph

If the data logger is still recording, a window will open at the bottom of the screen as shown in Figure 12-6 offering the opportunity to stop the recording and playback or to abort the request.

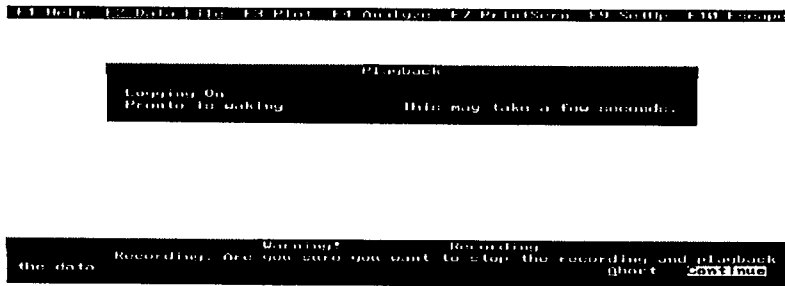


Figure 12-6 . Playback Decision Message Window

Once playback is complete, the OM-170 Control screen will close and the file specification screen will appear. See Section 9 on Playback for more indepth information on naming and saving files.

Start Recording

To start a recording session highlight **Start Recording** and press <return> or press <S>. Pronto will display the message "Starting" while the command is sent to the data logger followed by the message "Recording Started" when the instruction has been carried out. Finally the message "Recording" will appear and remain to signify the data logger's status. The OM-170 Control menu will again be active once the instruction is completed.

If the data logger is already recording when the instruction is sent, an error message will appear at the bottom of the screen indicating that the command can not be completed. See error message number 61 in Appendix D for the full expression.

End Recording

A recording session can be ended by issuing this instruction. To end a recording session highlight **End Recording** and press <return> or press <E>. Pronto will display the message "Ending" while the command is sent to the data logger followed by the message "Recording Ended" when the instruction has been carried out. The OM-170 Control menu will again be active once the instruction is completed and the message will be removed.

Display Readings

This command will display the channel readings and the OM-170 status. A window will open in the middle of the screen displaying the channels. Another window will open at the bottom of the screen with the status information. The channel display window will show all channels if the data logger is in the display mode. It will only show those channels that are recording if the data logger is in the record mode as indicated by the flashing **R** next to the reading. The rate at which the display will update will depend on the baud rate selected. Refer to Serial Options in Section 11, the SetUp Utility, for more details on selection of baud rate.

Note: The OM-170 status can be turned on or off as desired. If it is turned off, it will not appear when the display reading command is issued. See Section 11, SetUp Serial Options for instructions on how to turn OM-170 Status on and off.

To begin displaying readings, highlight **Display Readings** and press <return> or press <D>. Within a few seconds a screen similar to the one shown in Figure 12-7 will appear displaying the readings and status information if active. If a channel is in alarm, the alarm flag (↑ or ↓) will appear in the display with the "R".

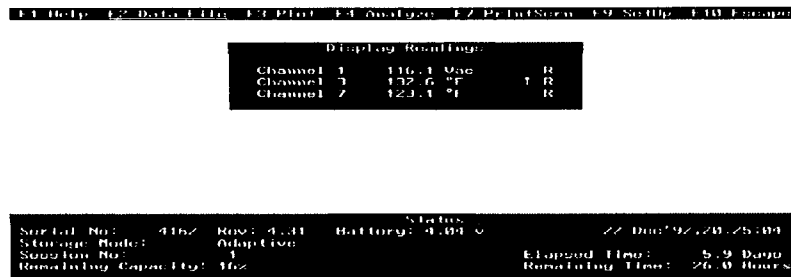


Figure 12-7. Display Readings Screen

Note: If a recording session ends while the readings are being displayed on your computer screen, the display reading screen will terminate and the OM-170 control screen will appear.

Exceptions to Display Readings

Earlier Revisions of the Omega OM-170

Omega OM-170 data loggers prior to revision 4.40 may respond erratically to the display readings command. It is possible that the readings will appear on screen, however the flashing "R" and the alarm flags may not be shown. It is also possible the message "Failed" will appear instead of the readings. If you have earlier versions and would like to upgrade your data logger to the latest capability, contact your distributor for information.

Sample Rates Faster than 500 ms.

At 500 milliseconds or slower sample rates, the data logger will be able to service Prontos' request for information while completing its' other tasks. At the faster sample rates of 250, 125, and 62.6 milliseconds available in Point and Store on Alarm, the computer screen update will be at random intervals or not at all. Eventually an error message will appear at the bottom of the screen as shown below in Figure 12-8. It is not recommended to use these faster sample rates with the Display Readings command in network mode.

The Display Readings command might work at the higher speeds if only 1 or 2 channels are in use.

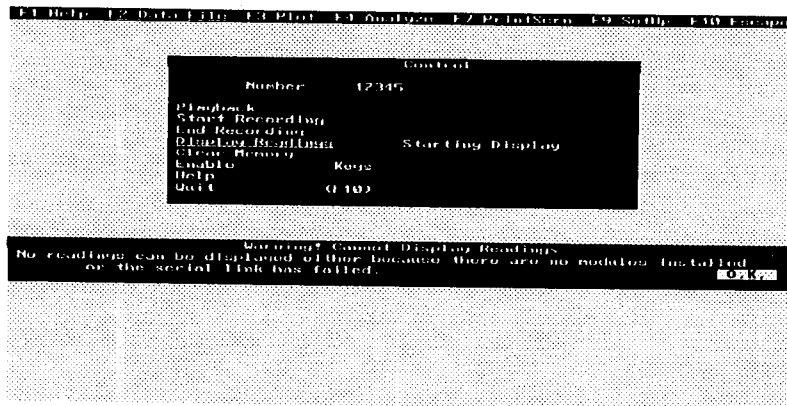


Figure 12-8. Display Readings Error Message

Clear Memory

While under network control, the data loggers memory can be cleared so that the next recording session will have access to 100% of the memory for the session. This command is only accepted by the data logger if it is not in a recording session. To Clear the data logger's memory highlight **Clear Memory** and press <return> or press <C>. Pronto will display the message **Clearing** while the command is sent to the data logger followed by **Memory Cleared** when the instruction has been carried out. If the data logger is recording, an error message will appear at the bottom of the screen indicating that the command can not be completed. See error message number 61 in Appendix D for the full expression.

Enable OM-170's Keys

When the Pronto program initiates communication with a data logger, it takes the data logger out of local (keyboard) mode and places it in serial mode. In serial mode the keys on the front panel of the data logger are inoperative. This is to prevent any local activity from interfering with the remote communication. When you exit network communication, the data logger will stay in serial mode. You can set the data logger back to keyboard mode. To do this highlight **Enable OM-170's Keys** and press <return> or press <K>. Pronto will display the message "Enabling Keys" while the command is sent to the data logger. Once the data logger acknowledges the command, a message window will open at the bottom of the screen as shown in Figure 12-9. The message will indicate the results of the selection and offer a choice to continue or abort. **Continue** will set the data logger back to the keyboard mode. **Abort** will leave the data logger in serial mode. In either case you will be returned to the OM-170 Control menu once the selection is complete.

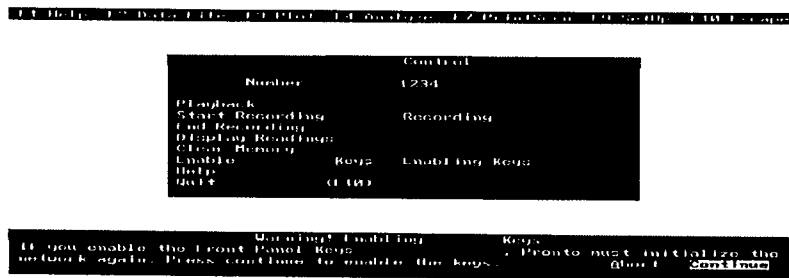


Figure 12-9. Enable OM-170 Keys Message Window

If the data logger is recording, an error message will appear at the bottom of the screen indicating that the command can not be completed. See error message number 61 in Appendix D for the full expression.

Note: At any time should the message Failed appear when an instruction is sent, it is an indication that either the data logger is not responding or it is too busy to respond or the communication link is not complete. Try the command again (several times) before suspecting trouble.

Help

Pressing <H> or highlighting **Help** and pressing <return> will open a full screen help window detailing OM-170 Control usage. Pressing the normal <F1> help key will open a different help window at the bottom of the screen with instructions on function selection.

Quit (F10)

Pressing <F10> or <Q> or highlighting **Quit** and pressing <return> will exit the OM-170 Control communication mode and return you to the Pronto main menu.

NOTES

Appendix

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Appendix A

Trouble-shooting

RAM-resident programs

Some RAM-resident programs (also called TSRs for terminate-stay-resident) will cause interference with the Pronto program while it is transferring data during the playback process. They will usually cause a serial link error or a data verification error. This happens because these programs make use of the serial interrupts denying Pronto access to them while the OM-170 is sending data. If you experience this problem you may try one of the following suggestions .

1. Playback the data at a slower baud rate. This will allow many RAM-resident programs to complete their tasks in between data logger data transmissions.
2. Restart your computer from a floppy disk containing the DOS system files. This will prevent your AUTOEXEC.BAT file from loading the TSRs.
3. Systematically eliminate one TSR at a time to find the ones that interfere with the Pronto playback process. This can be accomplished by editing the AUTOEXEC.BAT file, typing the letters "rem" in front of each TSR to prevent it from loading. You must restart your computer to run the AUTOEXEC.BAT with these changes.

Other Problems

1. Pronto gives a DOS path error.

Possible solution:

TMP files are probably being directed to a directory that doesn't exist. Change where the temporary files are being stored to a directory that does exist by using F9=Setup in the Pronto program. You may also leave the TMP directory choice blank which will force the Pronto program to use the current directory for storing this file.

2. OM-170 doesn't communicate with Pronto program.

Possible solution:

- A. Make sure the COM 502 module is installed in J5. This can be checked in the review mode or by looking in the top data logger compartment.
- B. Check to make sure the serial cable is connected to the same communications port that is selected in the Pronto program.
- C. Check the serial cable itself for continuity.
- D. Turn SMARTDRV off or turn off the write cache by adding a /C command switch to the SMARTDRV statement.

3. Pronto will not verify the data after downloading.

Possible solution:

- A. If a network is being used to run Pronto, it is possible that the computer gets interrupted for a short duration, which can result in an error. To solve this problem run Pronto off either the hard disk or a floppy disk.
- B. Try reducing the baud rate using the Pronto setup.
- C. If a large spike occurs on an input channel during recording it is possible that it may have corrupted the data. Try downloading the data using "Playback to MDM File" or downloading the data to a datapack. Then try a new recording after erasing the data logger. If you are unable to retrieve the data from the MDM File or

datapack contact your distributor for assistance.

- D. Some verification errors may be caused by memory resident programs (i.e., "Windows ver. 3.1"). To correct that problem, the program must be removed from the system or you can turn SMARTDRV off. See RAM-resident programs earlier in this section.

4. After typing "Pronto" the screen goes blank and the keyboard is locked up.

Possible solution:

- A. The wrong graphics driver is loaded. Rerun Pinstall to load the correct graphics driver for your computer.
- B. Run Pronto using command line switch for graphs card.
Example: Pronto/VGA

5. The graph comes on screen without a scale on the Y-axis or with a numerical scale but without engineering units or without a Y-axis label.

Possible solutions:

- A. The module used in the data logger required a later revision of the data logger firmware than the one in use.
- B. Two or more traces are in the graph with different engineering units or different Y-axis labels.
- C. MODPARAM>DAT file not found by Pronto. Check to see that is is on the same directory as Pronto.

6. After playing back data the mouse is no longer operative.

Possible solution:

Both the mouse and the serial port used for playback are set to the same COM port. One must be changed to a different COM port or the Pronto program must be reloaded after playback.

7. Printer prints out hieroglyphics and keeps feeding paper.

Possible solutions:

- A. The wrong printer driver has been installed. Exit to DOS, log onto the drive/directory where Pronto is and type PDRIVER ? and press <return>, the current driver will be shown.

Example:

Epson 9-pin printer driver V1.10 25 Mar. 91

If this does not match your printer, run Pinstall and select the correct printer driver.

- B. Your printer is not compatible with the drivers supplied with Pronto. Contact your distributor for details on possible driver updates.

8. The value of the integral function or cumulative plot is incorrect (i.e., kwh).

Possible solution:

The integration time base may be incorrect. You may need to change it using the Format choice under the F4 menu or by editing graph labels with Pinstall.

Appendix B

Pronto Companion Programs

Beginning with release 3.25, Pronto has the capability to run companion programs under the <F10> escape menu. When <F10> is pressed from the main menu the window shown in Figure B-1 will appear.

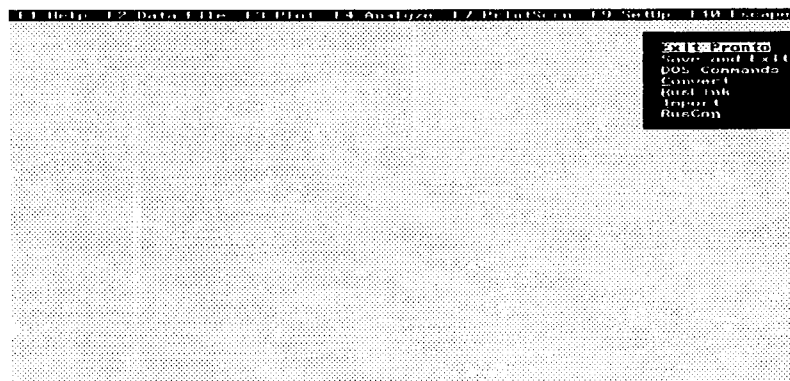


Figure B-1. Escape Menu

The additional programs allowed are Convert, RusLink, Import, and RusCon. All of which were designed for enhancing the operation of Omega OM-170 data loggers.

Convert is a utility program which will restructure .LOG files created with OM-160 to the .DTA format required for the Pronto release 3 program associated with the Omega OM-170.

Import allows the Pronto release 3 program to graph and analyze data that is presented in a ASCII format generated by other programs and/or devices such as word processors, Lotus 1-2-3, Excel, and others or instruments capable of creating an ASCII data file as an output.

RusLink is a communications program used in conjunction with the Omega OM-170 and COM-504 modem controller module allows retrieval of data from remote sites over telephone lines manually or automatically. It allows data loggers to be reviewed while recording as well as starting, stopping, erasing and restarting recording sessions.

RusCon allows Omega OM-170 data loggers to be configured by a computer rather than by the front panel keys. It also allows CFG-580 configuration modules to be programmed by a computer directly or from a pre-stored configuration file via the RR2-261 reader/writer unit. The CFG-580 module can then be transported and downloaded into the Omega OM-170.

The menu selection for all of these programs are always present even though the programs themselves may not be installed in the computer. Selection is made by pressing the underline letter or pointing to the choice using cursor keys or the <spacebar> and pressing <return>.

When you exit the companion program, the Pronto main menu will automatically load.

If the program is not installed or the path statement is missing an error message will appear at the bottom of the screen as shown in Figure B-2.

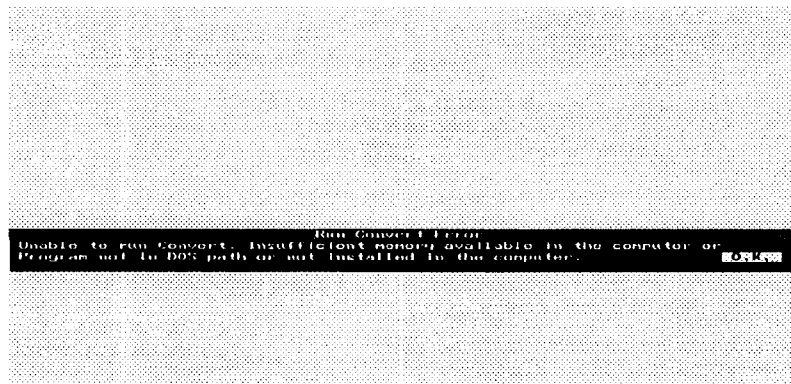


Figure B-2. Companion Program Error Message

Rules for Running Companion Programs

The following rules apply when running companion programs under Pronto control.

1. DOS Path

In order for Pronto to find and execute any of the companion programs, it is mandatory that the DOS path statement instructs the computer to look in the appropriate directory/directories for these programs. This path instruction should be included in your Autoexec.bat file.

For example, if Pronto was installed on a directory called P3, RusLink installed in subdirectory P3\RusLink, and Import in subdirectory P3\Import, all of which were in drive C, the path statement should include the following string somewhere in the path statement:

Path=C:\P3;C:\P3\RusLink;C:\P3\Import.

For further information on path instructions refer to your DOS manual.

2. Drive/Directory

To save keystrokes, the setup function within Pronto can be configured such that the drive/ directory for the appropriate files can be loaded and pointed to when Pronto is activated. Example, if RusLink is configured to store the .MDM files created by modem transfer to P3\RusLink then the Pronto setup for drive directories for .MDM files should be configured to the same subdirectory.

RusCon, Import and Convert do not have setup configuration files to permanently direct these programs to specific drive directories. When loaded separately these drive directories can be specified on the DOS command line, however under Pronto control they cannot. To simplify choices when using these programs under Pronto control the following should be considered:

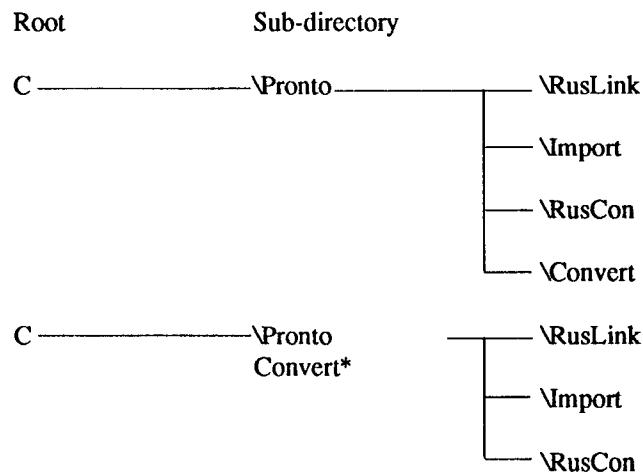
1. The Import program will look to the subdirectory where Pronto is set for PRN files for its ASCII data. The .DTA drive/subdirectory will be where Pronto is set to store .DTA files.

2. Store the Convert utility program on a subdirectory of the Pronto release 3. Release 3 has no settings for .LOG files. The .LOG drive subdirectory will have to be set from within the Convert program after loading.
3. The RusCon program is not required to store the setup files in concert with any other Pronto file type, therefore any directory will be acceptable for this program. The default will be the current directory.

For these programs to function as just described under Pronto control, the earliest release levels are required are:

RusLink	1.03
Convert	1.06
Import	1.03
RusCon	1.02

A typical drive/directory structure might look like these:



* Convert stored in Pronto directory.

The Convert Program

Using Files Created with OM-160

It is not possible to use the data files stored using Pronto versions 2.40 or earlier directly with Pronto release 3 because of the additional recording formats supported by Pronto release 3. A conversion utility program is available which contains a filter program called **Convert.EXE**. It converts files collected and stored from Omega model RR-400 and Pronto Release 2 to a format compatible with Pronto Release 3. The program is supplied on a 5 1/4" low density disk. The ordering information and specifications are as follows:

Specifications

Equipment	IBMPC,XT,AT,PS/2 or 100% compatibles
Ram Memory	Requires 512K minimum when used in conjunction with Pronto
DOS Level	2.1 or later
Video Board	requires graphics interface-Hercules,IBM CGA, EGA, VGA or 100% compatibles
Mouse	Compatible with Microsoft mouse or 100% compatibles. Mouse must be installed according to its manual before running the Convert program
Program Size	125.6K
Maximum Number of Files at One Time	1024
File Conversion Type	New files will be Adaptive Mode type with sample rate normalized to 500ms

Ordering Information

Convert Utility program
Part number 114933

The RusLink Program

The RusLink software is a communication program for use with the OM-170 data logger equipped with a COM-504 modem controller module. This program is necessary to communicate with remote data loggers for the purpose of reviewing data, down loading data, erasing and starting a new recording session, and to remotely configure data loggers through the use of a modem from a host site via telephone. This program is a companion program to the Pronto program supplied with the data logger.

Features

- Easy to follow pull-down menus
- Manual or automatic communication with remote data loggers
- Automatic retrieval of data from up to 256 data loggers.
- On-line viewing of data while recording
- Password protection for higher security
- Alarm callback allows data logger to call host during alarm conditions

Specifications:

Computer compatibility	XT, AT, PS/2
DOS Level supported	2.1 or higher
Medium supplied	5 1/4" floppy disk
Maximum baud rate	9600
Minimum baud rate	300
Maximum entries in phonebook	256
Com ports supported	COM1 through COM4
Mouse compatibility	Microsoft or equivalent requires separate port from modem

Ordering Information

RusLink program
Part number 114933-1

The Import Program

The utility program called Import allows values from spreadsheets and sources other than the OM-170 data logger to be stored in a DTA file format for use with Omega's graph analysis software, Pronto. It is ideal for combining historical data created by other sources with new data recorded by the OM-170. Another use of this program is to create theoretical models such as profiles of programmable controllers.

Import reads text files. If you want to transfer values from another program, you first must save the data in text form. Import generates DTA files equivalent to the Omega's point store mode. It takes a single set of readings for each file; readings must also lie on regular sample boundaries and the sample rate must not change during the recording.

Screen Environment

The Import program runs from pull-down windows. Functions are selected using all popular methods: point and execute with mouse, (Left key=Enter, Right key=Escape), cursor action or selecting the underlined letter of the function (the hot key). Function key <F1> always provides on-line help.

The top line of each window is the command line. All command choices are easily selected and implemented from this line. The second line of the main menu and the import menu is a status line. It indicates the active drive/directory, file selection and other information.

Features

- Easy to execute commands from pull down windows.
- Automatic conversion of time and date from Lotus format.
- Manual or automatic sample rate calculation.

Applications

- Create theoretical curves to which actual recorded data can be compared.
- Convert archived data to a form compatible with new data recorded by the Omega OM-170 data logger.
- Adjust time axis of older Omega OM-170 files for easy comparison to current files.
- Import ASCII data from hand-held multimeters and other instruments.

Specifications

The following hardware is recommended to properly run the Import Utility Program.

IBM-XT, AT, PS/2 or equivalent computer
DOS 2.1 or higher operating system
512K RAM minimum
Hard disk drive recommended
Graphics adaptor card
Your files must be:

ASCII files
Must be text files
Columns must be separated by a space, comma or tab
Files must be continuous with no blank rows
Time and date must be uniform (rate must stay constant in each column)

Ordering Information

Import program
Part number 115341

The RusCon Program

The RusCon program is used to program Omega OM-170 data loggers from the computer. It also will program User configuration modules.

Features

Easy to follow pull-down menus
Create and store a library of configurations on disk
Quickly set up data loggers or configuration packs using a configuration from the library
Read in a data loggers configuration and modify it as needed
Configure math channels and input channels

Specifications

Computer compatibility	XT, AT, PS/2
DOS Level supported	2.1 or higher
Medium supplied	5 ¼" floppy disk
Maximum baud rate	9600
Minimum baud rate	300
Maximum files in library	256
Com ports supported	COM1 through COM4
Mouse compatibility	Microsoft or equivalent requires separate port from modem

Ordering Information

RusCon program
Part number 115429

NOTES

Appendix C

Using RAM Drives

Speeding Up Data Processing Using Virtual Disks

File transfer of Omega OM-170 files can be greatly increased in time by using virtual disks within the computer's memory. This will show an appreciable improvement in playback time vs. that of a floppy disk. In many cases improvement can be as much as 150% or better. The reason for this is that the memory is able to access the data at a faster speed than the access time of the disk system.

Listed below is a procedure for installing the program VDISK.SYS which is applicable to MSDOS version 3.0 or greater. (For earlier versions of DOS, programs like RAMDISK.COM or RAMDISK.SYS are available.) Refer to your DOS manual for further information on how to use the particular RAM drive program available with your version of DOS. To review a summary instruction set for DOS 5.0 in RAMDRIVE.SYS refer to the end of this section.

VDISK.SYS Setup

The VDISK.SYS file on your DOS diskette is a device driver that simulates a disk drive by using a portion of your computer's memory as the storage medium. These simulated disks are called virtual disks. The following characteristics apply to virtual disks:

Virtual disks are fast, since they operate at the speed of the computer's memory.

You can install more than one virtual disk; each is referred to by a drive letter, in the same way you refer to disk drives. For example, if your computer has two diskette drives and no fixed disks, the diskette drives are referred to as drives A and B, the first virtual disk is referred to as C, the second as D, and so on.

Vdisk may alter the sector size from what you may have specified in CONFIG.SYS. The sector size is adjusted in order to address all clusters of a virtual disk.

For each virtual disk, you can specify the amount of memory to be used (the “disk size”), the sector size, and the number of directory entries it is to contain.

The contents of a virtual disk are lost if you restart the system or if power is lost.

Virtual disks cannot be formatted. Each VDISK is installed in formatted form.

Installing VDISK

To install the VDISK device driver, include this statement in the CONFIG.SYS file:

```
device=[d:][path]vdisk.sys[comment][bbb]  
[comment][sss][comment][ddd][E[:m]]
```

[d:][path] is the drive and directory path containing the VDISK.SYS file.
Example C:\DOS

[comment] contains ASCII characters at the slash /. For example:

```
device=c:/dos.dir/vdisk.sys buffer size=128  
sector size=512 directory entries=16
```

The **bbb** is the virtual disk size in K bytes, and is specified as a decimal integer value. The default value is 64K bytes.

If there is 64K or less available memory at the time VDISK is being installed, VDISK issues an error message and does not install the virtual disk.

If the specified size leaves less than 64K of available memory, VDISK adjusts the virtual disk size downward. VDISK always leaves a minimum of 64K of available memory after the installation of the virtual disk.

The buffer size includes the space used by VDISK for a boot sector, the file allocation table and directory entries, the available space for files is less than **bbb**.

The **sss** is the sector size in bytes. Allowable sizes are 128, 256, or 512. If sector size is omitted, or if an incorrect value is typed, VDISK uses the default value of 128. If you use your virtual disk to hold relatively small files, you may want to use a smaller sector size to minimize wasted space. Better performance is achieved with a large sector size.

The **ddd** is the number of directory entries (number of files) that the virtual disk can contain (one directory entry is required for each file). The default value is 64. The range of values is between 2 and 512. VDISK may adjust the value you entered.

The value is adjusted upwards to the nearest sector size boundary. For example, if you specify a value of 10, and your sector size is 128, VDISK generates 12 directory entries (12 entries at 32 bytes each to round up to a multiple of the sector size).

The following example shows how to install a 160K-byte virtual disk with 512-byte sectors and 64 directory entries:

```
device=vdisk.sys 160 512 64
```

The next time you start DOS, VDISK displays the following message:

```
VDISK Version 3.3 virtual disk x
```

This message is displayed as an informative message to tell you that VDISK is attempting to install a virtual disk. It also tells you the drive letter x that is assigned to the virtual disk.

Using VDISK with Pronto

After installing VDISK into your configuration file, reboot your computer using <Ctrl>-<Alt>-.

Copy all files you wish to review with Pronto to the virtual disk using the DOS COPY command.

Load Pronto application program.

From the file specification screen press F2. Drive/Directory will then be highlighted.

Press <return> and change the drive/directory to the letter designator associated with your virtual disk then press <return> again.

You will now see the files in the file specification screen that are on your virtual disk.

Proceed by operating Pronto as described in the Pronto manual.

Using VDISK with new Pronto files

Load the Pronto program.

Run Setup <F9> to be sure .TMP files are stored on you Vdisk directory.

Begin playback by pressing <F2>.

Note: For DOS version 5.0 the procedure would be the same except the file is RAMDRIVE.SYS.

The string for the CONFIG.SYS file would be:
device = [d:][path] RANDRIVE.SYS [bbb]/X

Where [d:][path] = Drive/Directory where RAMDRIVE.SYS is stored
[bbb] = size of RAM DRIVE memory.

/X = lettername of new RAMDRIVE

Appendix D

Error Messages

Pronto Error and Warning Messages

Error Message No 1

PRONTO.HLP Version Error

There is a version error between Pronto and the Help information. The help information may be invalid. Beware!

O.K.

Error Message No 2

New Text Error

A maximum of fifty four annotations may be held in memory at one time. You have already reached this limit.

O.K.

Error Message No 3

File Selection Error

A maximum of 12 traces may be selected. You have tried to select too many. To select another you must deselect one or more files.

O.K.

Error Message No 4

MODPARAM.DAT Not Found

MODPARAM.DAT was not found with Pronto. Select Continue to use the default values for this module. This is NOT recommended.

Abort Continue

Error Message No 5

Verification Failure

Verification of the playback file failed. *.DTA files cannot be created. Retry the playback function.

O.K.

Error Message No 6

Consistency Check Failure

OM-170 store consistency check failed. This data may be invalid. DTA files will be created. Beware!

O.K.

Error Message No 7

Session Decode Failure

OM-170 measurement check failed. All files already stored for this session may be invalid. Pronto will try to decode the next session.

O.K.

Error Message No 8

Serial Link Log On Error

There has been a Log On error from OM-170. Check that the serial cable is connected and OM-170 is not recording; then restart.

O.K.

Error Message No 9

DOS Path Error for the Temporary Files

The path for the temporary files has not been found. Select Continue to use the current path or Abort to respecify the path.

Abort Continue

Error Message No 10

Serial Link Playback Error

An error has occurred during the playback of data from OM-170.

O.K.

Error Message No 11

Invalid Drive/Directory

Invalid drive/directory entered. Reenter or use the current drive/directory offered

O.K.

Error Message No 12

Printer Error

A printer error has occurred. Please check your printer.

O.K.

Error Message No 13

PDRIVER.EXE Error

Pronto cannot print the screen without PDRIVER.EXE. Please use PINSTALL to place this file with Pronto.

O.K.

Error Message No 14

PDRIVER.EXE Error

There is insufficient free memory in your computer to run the printer driver.

O.K.

Error Message No 15

PDRIVER.EXE Error

Pronto is unable to run the printer driver (PDRIVER.EXE).

O.K.

Error Message No 16**Insufficient Memory**

There is not enough memory available to perform this listing. Make sure you have sufficient free RAM before running Pronto. O.K.

Error Message No 17**Run DOS Commands Error**

Unable to run DOS commands. Insufficient memory available in the computer or Program not in DOS path or not installed in the computer. O.K.

Error Message No 18**Run Convert Error**

Unable to run Convert. Insufficient memory available in the computer or Program not in DOS path or not installed in the computer. O.K.

Error Message No 19**Run RusLink Error**

Unable to run RusLink. Insufficient memory available in the computer or Program not in DOS path or not installed in the computer. O.K.

Error Message No 20**Run Import Error**

Unable to run Import. Insufficient memory available in the computer or Program not in DOS path or not installed in the computer. O.K.

Error Message No 21**Run Config Error**

Unable to run Config. Insufficient memory available in the computer or Program not in DOS path or not installed in the computer. O.K.

Error Message No 22**No Data To Examine**

No samples were recorded on the chosen trace between the left and right axes. To use Examine on this trace you must re-zoom. O.K.

Error Message No 23**No Data In Frame**

The current frame does not contain any samples from the selected trace. Alter the frame to enclose one or more readings. O.K.

Error Message No 24**Cannot Examine Data**

It is not possible to use the Examine functions on a multiple event module recording. You can, however, use the List option.

O.K.

Error Message No 25**Cannot List Data**

No samples were recorded on the chosen trace between the left and right axes. To use List on this trace you must re-zoom.

O.K.

Error Message No 26**Cannot List Data**

Recording sessions from different data loggers must not overlap.

O.K.

Error Message No 27**Cannot List Data**

Separate recording sessions must not overlap.

O.K.

Error Message No 28**Cannot List Data**

Multiple sessions must be aligned to calendar time.

O.K.

Error Message No 29**Printer Error**

Device off-line: please check hardware

O.K.

Error Message No 30**File System Error**

File XXXXXXXX.DTA has been lost

O.K.

Error Message No 31**File System Error**

XXXXXXXX.DTA is not a valid filename

O.K.

Error Message No 32**File System Error**

The drive/directory for XXXXXXXX.DTA is full

O.K.

Error Message No 33**File System Error**

Device not known: LPT2

O.K.

Error Message No 34	File System Error	
File XXXXXXXXX.DTA was not found.		O.K.
Error Message No 35	File System Error	
File XXXXXXXXX.DTA has been write-protected.		O.K.
Error Message No 36	File System Error	
File XXXXXXXXX.DTA is already in use.		O.K.
Error Message No 37	File System Error	
Disk write-protected. Cannot write XXXXXXXXX.DTA.		O.K.
Error Message No 38	File System Error	
Drive E: is not valid.		O.K.
Error Message No 39	File System Error	
Drive A: is not ready: check that disk is in and drive door is closed.		O.K.
Error Message No 40	Printer Error	
Printer out of paper: reload printer and try again.		O.K.
Error Message No 41	Printer Error	
Printer not responding: please check that it is switched on.		O.K.
Error Message No 42	File System Error	
File system error occurred when accessing XXXXXXXXX.DTA.		O.K.
Error Message No 43	Warning! Graph Alignments	
Graphs cannot be linked together with the multiple zoom function if they have different alignments. Use the Format command to change the alignments.		O.K.

Error Message No 44

PRONTO.HLP Not Found

Help cannot be provided unless the file PRONTO.HLP is stored on the same drive/directory as Pronto. O.K.

Error Message No 45

Too Many Files In Directory

Pronto can only handle 254 files per directory. Reduce the number of directory entries by Archiving/Erasing files. O.K.

Error Message No 46

Warning: Cannot Duplicate Text

The maximum limit of fifty four annotations is already held in memory. Therefore no more text can be duplicated. O.K.

Error Message No 47

Warning: Calendar Span Too Large

The traces on this graph spanned more than 1500 days on Calendar alignment so the graph has been divided into multiple graphs. O.K.

Error Message No 48

Warning: Zoom Limits Changed

The new zoomed limits you have entered will be lost unless you select Plot. Select Cancel to leave the graph unchanged. Plot Cancel

Error Message No 49

Warning: Graph Layout Changed

The new graph layout you have entered will be lost unless you select Plot. Select Cancel to leave the graph unchanged. Plot Cancel

Error Message No 50

Warning! Limits reached

The pan limit on one or more graphs has been reached and it is not possible pan any further. O.K.

Error Message No 51

Warning! Limits reached

The maximum magnification has been reached on one or more graphs and it is not possible to zoom in any further. O.K.

Error Message Nov 52

Warning! Limits reached

The minimum magnification has been reached on one or more graphs and it is not possible to zoom out any further.

O.K.

Error Message No 53

Warning: Calendar Span Too Large

The traces on a single graph spanned more than 1500 days on Calendar alignment so the graph has been divided into multiple graphs.

O.K.

Error Message No 54

Warning: Extra Text Ignored

A maximum of fifty four annotations can be held in memory. All text read beyond this limit has been ignored.

O.K.

Error Message No 55

Warning: You are Erasing Files

Are you sure you want to erase the files? Select Continue to erase the files.
Abort Continue

Error Message No 56

Warning: All files will be deselected

Before any files can be erased all the files will be deselected. Any graph on the screen will be cleared. Hit Continue to erase files.

Abort Continue

Error Message No 57

Warning: Erasing DTA files

You have chosen to erase one or more DTA files which may be part of a PLT file. Select All Files to erase DTA & PLT files. Only PLT files.

All files

Error Message No 58

File Exists

A .PLT file already exists with the same name as you have given above.
Continue if you wish to overwrite it.

Abort Continue

Error Message No 59

Warning! OM-170 Address

The OM-170 Address is used to specify which OM-170 on the network you wish to talk to. The OM-170 Address must be less than 60000.

O.K.

Error Message No 60**Warning! Enabling OM-170 Keys**

If you enable the Front Panel Keys on this OM-170, Pronto must initialize the network again. Press continue to enable the keys. Abort Continue

Error Message No 61**Warning! OM-170 is Recording**

It is not possible to start a recording or to clear OM-170 memory while OM-170 is recording. Stop the recording and retry. O.K.

Error Message No 62**Warning! OM-170 is not recording**

OM-170 has already stopped recording so there is no need to try and end this recording session. O.K.

Error Message No 63**Warning! Cannot Display Readings**

No readings can be displayed either because there are no modules installed in OM-170 or the serial link has failed. O.K.

Error Message No 64**Warning! Cannot Display Readings**

No readings can be displayed either because the serial link has failed or there was an error in the readings from OM-170. O.K.

Error Message No 65**Playback Warning**

The playback file did not contain any recordings. O.K.

Error Message No 66**Continue Plot And Print?**

Do you wish to plot and print the Current graph again, advance to the Next one or Abort plot and print completely? Current Next Abort

Error Message No 67**Warning: Too Many Files to Transfer**

Continue will plot the first 12 files selected. Reselect will allow you to change your selection in QuickPlot. Continue Reselect

Error Message No 68

Serial Cable Not Found

The serial cable for the playback of recordings from OM-170 has not been found. Connect and restart playback.

O.K.

Error Message No 69

The Datapack Reader cannot determine the size of the Datapack installed.

O.K.

Error Message No 70

Datapack Reader

A Datapack is not installed in the Datapack reader.

O.K.

Error Message No 71

Datapack Reader

The Datapack has a format error and cannot be read.

O.K.

Error Message No 72

Datapack Reader

An error has occurred while reading the Datapack.

O.K.

Error Message No 73

Datapack Reader

An invalid module is installed in the Datapack reader.

O.K.

Error Message No 74

Datapack Reader

An unknown error has occurred in the Datapack reader.

O.K.

Error Message No 75

Warning! OM-170 is Recording

OM-170 is Recording. Are you sure you want to stop the recording and playback the data from OM-170?

Abort Continue

Error Message No 76

File Already Exists

A file already exists with this filename. Select Continue to Overwrite or Abort to respecify the filename.

Abort Continue

Error Message No 77

End Playback

If you select Abort you cannot save any more DTA files

Abort Continue

Error Message No 78

DTA Filenames

The filename must be longer than 3 characters. The initial offering gives session/channel details for the file. e.g., 102 is Session 1, Chan 2. O.K.

Error Message No 79

Warning: Cannot Move Trace

If this trace were moved to the required graph then the total span would be more than 1500 days. To combine them do not use Calendar alignment. O.K.

Error Message No 80.

Warning

Abandoning Modem Filename Entry will lose the Modem file unless it is saved. Select Abort only if you still wish to quit. Abort Continue

Error Message No 81

File Exists

A .MDM file already exists with the same name as you have given above. Continue if you wish to overwrite it. Abort Continue

Error Message No 82

Warning: Notebook Overflow

The notebook file being read contains too many lines for the editor. Surplus lines will be lost. O.K.

Error Message No 83

PRONTO.CNF Not Found

The Pronto configuration file was not found on the Pronto drive/directory. Defaults will be used if you Continue. Abort Continue

Error Message No 84

File Already Exists

A PRN file already exists with the same name as you have given above. Continue if you wish to overwrite it. Abort Continue

Pinstall Error and Warning Messages

Error Message No 85

Invalid Drive/Directory

The drive/directory you have given was not found.

O.K.

Error Message No 86

Invalid Drive/Directory

It was not possible to create the directory you have named.

O.K.

Error Message No 87

Invalid Drive/Directory

You cannot install Pronto onto itself. Please enter another drive/directory.
O.K.

Error Message No 88

Create New Directory?

The directory you have named does not exist. Select Continue if you want to create a new directory with this name.
Abort Continue

Error Message No 89

Insert Program Disk

Please remove the utility disk and insert the Pronto program disk in drive
Select Continue when ready or Abort to exit.
Abort Continue

Error Message No 90

MODPARAM.DAT

This file already exists on your working disk. Do you want to overwrite your current copy (select No if unsure)?
Yes No

Error Message No 91

Looking for PRONTO.CNF

Please remove the Pronto program and insert the utility disk disk in drive A:
Select Continue when ready or Abort to exit.
Abort Continue

Error Message No 92

PDRIVER.EXE

This Pronto file failed to copy to your working disk. You will be returned to the Top Menu from which you may try again. O.K.

Error Message No 93

Insert Utility Disk

Please insert the utility disk containing PINSTALL and the printer drivers. When you are ready hit Return to continue. O.K.

Error Message No 94

MODPARAM.DAT Not Found

The file containing module graph labels was not found on your working disk. It is therefore not possible to view or change them. O.K.

Error Message No 95

Printer Drivers Not Found

The list of printer drivers (PDRIVER.LST) and the actual drivers (*.DRV) must be on the Utility disk to pick another printer. O.K.

Error Message No 96

Printer Driver Not Installed

It was not possible to copy the selected printer driver to your working disk. Check your disks and try again if necessary. O.K.

Appendix E

Help Messages

Pronto Help Messages

Help Message 1

Help for the use of Pronto

The Pronto program runs from pull down windows. Functions are selected using all popular methods: point and execute with mouse, (Left key = Enter, Right key = Escape), cursor action or selecting the underlined letter of the function (the hot key). The function keys shown at the top of the screen indicate the main functions available.

- Help (F1) Provides additional information for the current function.
- Data File (F2) Allows playback, file selection and saving of files.
- Plot (F3) Plots the selected files on the screen.
- Analyze (F4) Obtains information from the plot(s) on the screen.
- PrintScrn (F7) Plots the graphs on the printer.
- SetUp (F9) Changes the default conditions for Pronto.
- Escape (F10) Takes you out of and/or completes the present function.

Help Message 2

String Entry Help

Enter text. Insert key toggles overwrite/insert mode. Enter accepts text.

Help Message 3

Month Selection Help

Use cursor keys, mouse to scroll through the month options. Enter accepts the month.

Help Message 4

Exponent Selection Help

Use cursor keys, mouse to scroll through the exponent options. Enter accepts the exponent.

Help Message 5**Notebook Help**

Notebook is limited to 36 lines. Insert key toggles overwrite/insert mode.
All cursor keys are active. Escape ends editing.

Help Message 6**Function Selection Help**

To select a function either move the cursor on top of the function and press enter to accept the function or press hot key if active.

Help Message 7**Graph Selection Help**

A graph may be cumulative or non cumulative. If non cumulative then it may be any combination of Line, Average or Max/Min.

Help Message 8**File Selection Help**

To select/deselect a file move the cursor over the file name and press enter. An underline shows file selected. Escape leaves this function.

Help Message 9**Help for Quick Plot Review**

Files can be reviewed one at a time using the Quick Plot Review function. A limited set of analysis functions is available for this graph. The graph may be plotted on the printer and/or saved on disc. The function keys shown at the top of the screen indicate the main functions available.

Help (F1) Provides this help screen

Data File (F2) Review the next graph or save the current graph.

Analyze (F4) Obtains information from the plot on the screen.

PrintScrn (F7) Prints the current graph.

Escape (F10) Exits Quick Plot Review.

Help Message 10**Set Frame Corner Help**

Use the mouse or cursor keys to move the corner of the frame.
Press enter to accept.

Help Message 11**Pick Text Help**

Use the mouse or cursor keys to position the cross hair pointer on the text to be moved or deleted.

Help Message 12**Place Text/Graph Help**

Use the mouse or cursor keys to position the text/graph outline.
Press enter to accept.

Help Message 13**Value Help**

Use the mouse or cursor keys to move the cross hair pointer. XY Position is displayed in the command line window.

Help Message 14**Options/Format Help**

Use the mouse or cursor keys to select either a graph or a trace.
Press enter to change the format of the graph/trace.

Help Message 15**Headings Help**

Time headings in the list/database may be either Calendar and/or Elapsed time. If no heading is chosen Pronto defaults to Calendar.

Help Message 16**Show Alarms/Events/Grids Help**

Any combination of alarm levels, events and grid lines may be displayed on a graph (selected features are underlined).

Help Message 17**Interval Selection Help**

Use cursor keys or mouse to scroll through the available intervals. Hit return to accept an interval or enter a number of days.

Help Message 18**Channel Headings Help**

Move the cursor to the required channel. Hit Return to add (tick) or remove the selected heading. Hit Escape when finished.

Help Message 19**Change Interval Help**

Select the listing interval for files. Hit Return to add (tick) or remove list by Mark and list by Event. Hit Escape when finished.

Help Message 20**OM-170 Control Help**

Pronto offers limited control functions for OM-170s connected together on the serial network. Choose which OM-170 you want to control by setting the OM-170 Number. If there is only one OM-170 on the network and a COM 502 serial module is installed in OM-170, check using the Review function in OM-170, then use OM-170 Number = 0.

Pronto initializes the network to ensure all the OM-170s on the network have stopped transmitting and are waiting for a command. This takes a few seconds.

Commands available once the network has been initialized are :-

Playback	Download of all recordings, if any, from OM-170 to Pronto.
Start Recording	Start a new recording session in OM-170.
End Recording	Stop the current recording session in OM-170. No need to stop a recording before downloading the data from OM-170.
Display Readings	On line display of all channels.
Clear Memory	Clear out all the old recordings from OM-170's memory.
Enable OM-170's Keys	Return control of OM-170 from the network to the front panel keys. Beware! Pronto will have to reinitialize the network to regain control of this OM-170.

Help Message 21 Multiple Zoom Help
One or more graphs can be zoomed together. Select (underline) all the graphs to link them for multiple zooming. Press escape to zoom.

Pinstall Help Messages

Help Message 22 Date Entry Help
Enter desired Year, Month and Day. Insert key toggles between overwrite and insert mode. Return key accepts text.

Help Message 23 Month Selection Help
Use cursor keys or mouse to scroll through the month options. Return key accepts the month.

Help Message 24 Enter Module Number Help
Enter the number of the input module whose default labels you wish to view or edit. Standard editing keys may be used. Hit Escape to Abort.

Help Message 25 Edit Label/Units Help
Enter the Label/Units normally used with this module. The cursor keys may be used for editing. Hit Escape to leave unchanged.

Help Message 26 Select Module By Cursor Help
Use the mouse or cursor keys to select the module to be viewed or changed. Hit Escape to leave unchanged.

Help Message 27 Select Module Help
To view and/or change the graph labels for an input module select one from the list either by using the Cursor or entering the module Number.

Help Message 28 Change Module Help
To change a graph label or time base select it using the cursor. Hit Escape to exit this screen and save the module.

Help Message 29 Integral Timebase Help
Select the time base which you normally use for calculating the integral with this module. Hit Escape to leave it unchanged.

Help Message 30 Help
Use the mouse or cursor keys to scroll through the options. Hit Return to accept; hit Escape to leave unchanged.

Help Message 31 Enter Drive/Directory Help
Enter the name of the drive and directory (e.g. C:\PRONTO). Use the cursor keys to edit. Hit Escape to abort.

Help Message 32 Graphics Card Selection Help
Use mouse or cursor keys to select the Graphics Card to suit your computer. If you are unsure select Auto Detect.

Help Message 33 Help to Change Pronto Settings

The majority of Pronto's initial settings may be changed within the Setup menu of the program. PINSTALL allows you to change some of the settings which are not accessible by this means. However, it will not be necessary for most users to change the factory set defaults (AutoDetect for the graphics card and an Epson MX/FX (9 pin) compatible printer). The options are:

Graphics Card	Choose the graphics card to suit your computer display. If unsure select Auto Detect (which works on most)
Printer	Select the type of printer your computer uses. Most printers can be used with the Epson (9 pin) driver.
Module Graph Labels	Change the standard graph labels for the OM-170 modules. If unsure use the factory defaults.

This program operates using pop up windows. Functions may be selected using all popular methods: point and execute with mouse (left key = Enter, right key = Escape), cursor action, or selecting the underlined letter of the function (the "hot key"). F1 provides help at all times. Use Escape or F10 to exit a window or function.

Help Message 34 Help to Install Pronto

PIINSTALL may be used either to create a new working system of PRONTO or to review/modify an existing system. To users creating a new working copy we recommend installing Pronto onto a hard disk (if you have one); however the program will fit onto a single floppy disk if necessary. PINSTALL will automatically create a new directory on your disk for PRONTO, if needed.

PRONTO is setup in the factory to use automatic screen type detection, and to print using an EPSON 9-pin compatible printer. If these defaults do not suit your particular needs then you may use this program to change them. MODPARAM.DAT contains the graph labels used with each OM-170 input module. You can use PINSTALL to review or change them. To add new modules from the utility disk to your working copy select Update MODPARAM.DAT from the first menu.

This program operates using pop up windows. Functions may be selected using all popular methods: point and execute with mouse (left key = Enter, right key = Escape), cursor action, or selecting the underlined letter of the function (the "hot key"). F1 provides help at all times. Use Escape or F10 to exit a window or function.

Appendix F

Importing database files into Lotus

Database files generated by Pronto may be imported directly into Lotus 1-2-3 and other programs. The following information is a step by step guideline to be used to import Pronto database files into Lotus 1-2-3.

The first step is to create a database file which Lotus can import. The instructions for this are found in Section 10.

Once the data file has been created and saved to disk, it is now ready for import into Lotus 1-2-3. These files are identified by a .PRN suffix.

Exit the Pronto program and then start the Lotus 1-2-3 program.

Note: It will be more convenient for you if you store the database file created by Pronto on the same drive/directory where Lotus 1-2-3 will be looking for it's files. See the discussion on the Drive/Directory in Section 11 for instructions on how Pronto can do this automatically for you.

When Lotus 1-2-3 first appears on screen, you should see a screen similar to Figure F-1.

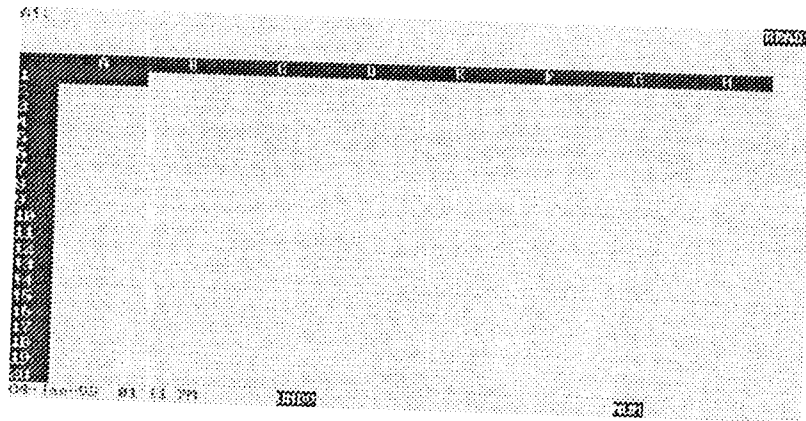


Figure F-1. Initial Lotus Screen

Next, enter the slash (/) command followed by <F> for FILE, your screen should now look like Figure F-2. Press <I> for IMPORT.

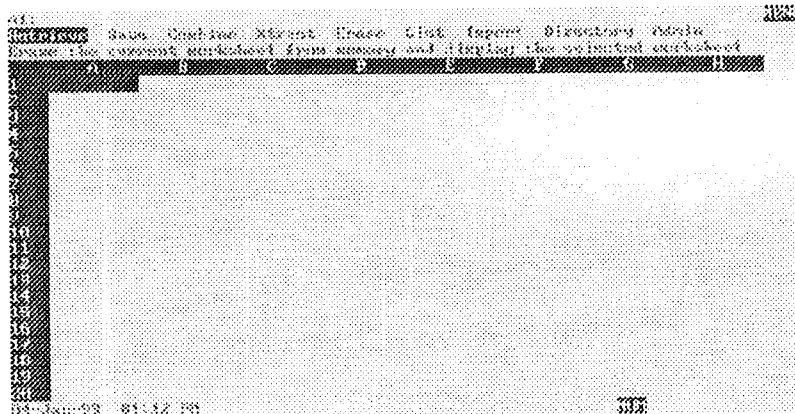


Figure F-2. Lotus File Retrieve Screen

Now you must tell Lotus whether you will be using text or numbers; press <N> for NUMBERS and press the <return> key.

You will now be asked to name the file you wish to import. If you followed the note above, you may simply select it using the <spacebar> to highlight the file then press the <return> key to enter it. If not you will have to type in the drive/directory location as well as the file name and extension. Pronto database files have a .PRN suffix.

Once the data file has been imported, it will appear on the screen in a columnized fashion as shown by the sample file in Figure F-3. The eleven columns of data will conform to the description detailed in Section 10 in the List/Database discussion.

Appendix G

Sample plot screens

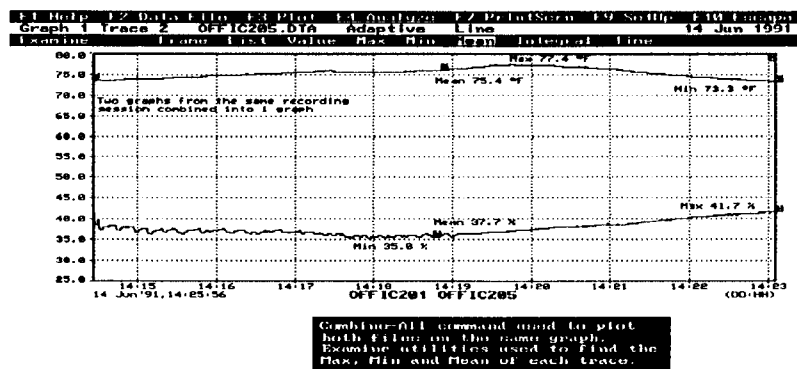


Figure G-1. Temp/RH Plots Joined Together

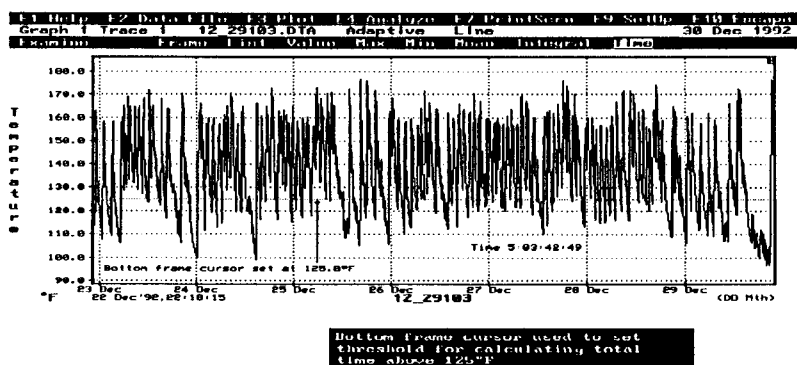


Figure G-2. Total Time Above Frame Calculated

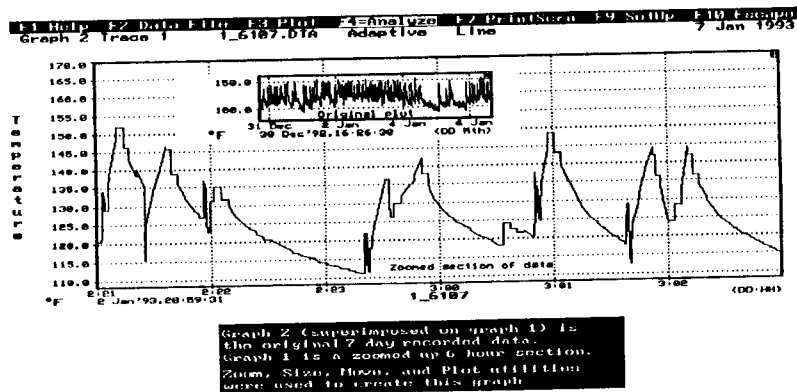


Figure G-3. Original/Zoomed Graph

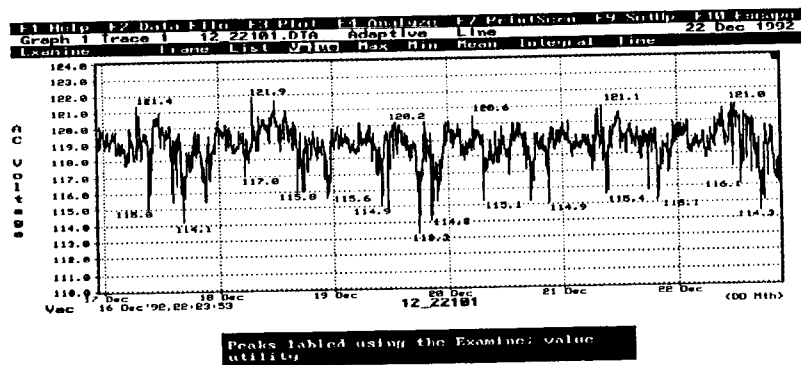


Figure G-4. Peaks Labeled Using Value Option

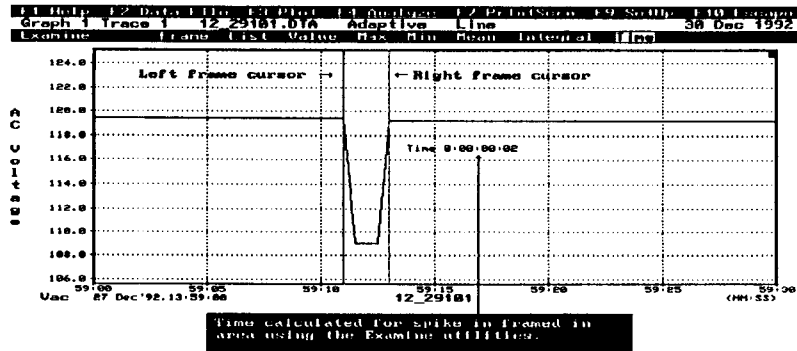


Figure G-5. Duration of Transient Calculated

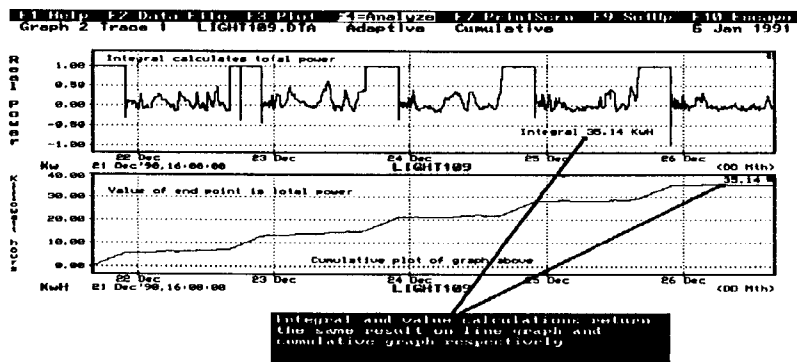


Figure G-6. Total Power Calculated Using Two Methods

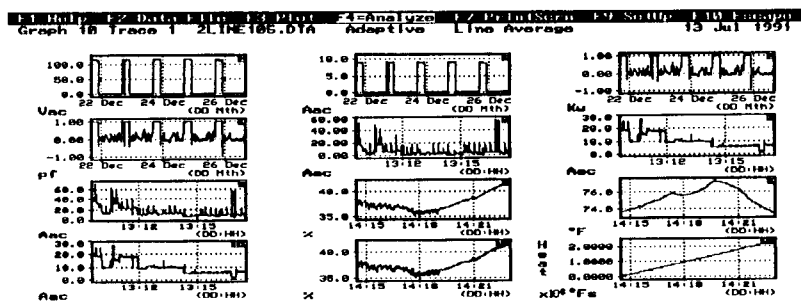


Figure G-7. 9 Plots Shown in Scattered Mode

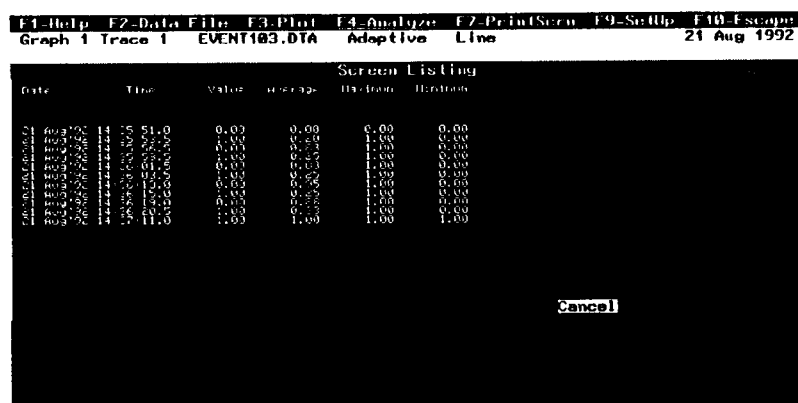


Figure G-8. List by Event

NOTES

Appendix H

Pronto Program Specifications

Specifications

Computer compatibility	IBM PC, XT, AT and PS/2 or 100% compatibles
Graphics Adaptor	Hercules, CGA, EGA, VGA compatible
RAM requirements	512K minimum
DOS Compatibility	2.1 or later
Mouse Compatibility	Microsoft or equivalent (requires separate serial port from data logger)
Program Size (Pronto)	340K
(Pinstall)	80K

Graph

Maximum number of traces on screen	12
Maximum time from left to right axis.	1500 days
Maximum value on graph	99999
Minimum value on graph	-99999

Text/Per Graph

Maximum text annotations per graph	54
Maximum characters in text annotations ...	39
Maximum characters in graph title	35

Notebook

Maximum lines in notebook	36
Maximum characters per line	54
Character set	ASCII

Playback

Maximum Baud rate 19200 baud (PS/2),
9600 baud (AT,XT)
Minimum Baud rate 300 baud
Maximum number of files in
a Playback session 255
Communications ports supported COM1 through COM4

Time Resolution

Minimum time span across graph 1 second
Resolution of left and right axis 1 second
Resolution of division on time axis 0.1 second

Glossary

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Glossary

Address - A 1 to 5 digit number programmed in the data logger which will act as a password allowing the data logger to respond to commands from Pronto without other data loggers responding.

ASCII- American Standard Code for Information Interchange

Autorangeing - The ability of the Pronto program to automatically select the best amplitude resolution for a given graph.

Average Graph - The average graph is a Pronto graph depicting the average of all samples within a recorded period and is displayed as a series of straight lines vs. time. Each line representing the average of the stored record for that block of time.

Baud Rate - Data rate in bits per second associated with serial transmission of data. Pronto can accept data at rates from 300 to 19,200 Baud.

Boot - Term used to indicate the turning on and initialization of the computer.

Command Line - This is the action line in the Pronto program where instructions can be initiated. Usually this is the third line down from the top of the display.

CPU - Central Processing Unit, a term associated with the computer itself excluding monitor and keyboard.

Cumulative Graph - The cumulative graph is a Pronto graph displayed as a line graph of the integration of all the plot progressing with time.

Cursor - A line, bar, cross or reversed video block on screen that indicates the command that will be issued or the place in a text string being typed or a place on the graph.

Directory - The location on disk within the computer where information is stored

Disk drive - A device that reads and records data on disk. Usually named by a letter such as A or C

DNB - File extension assigned to notebook files created by pronto.

Download - The process of transferring data from the Omega OM-170 to the computer. This is accomplished via the serial port in the computer and slot J₅ in the data logger.

Driver - The name given to sections of program that allow communication with peripheral devices such as printers. Within the Pronto program set, these files have the extension .DRV

DOS - Disk Operating System.

DTA - File name extensions assigned to data sent to the Pronto program from the Omega OM-170.

Escape - The computer Key labeled Esc used in Pronto to complete or exit an instruction depending on the functional choice. The <F10> key provides the same functionality.

Filename - The name given to a file stored on disk. The name may be up to eight characters long and can include letters, numbers and some special characters such as a hyphen. Pronto will not allow the following characters as part of the filename . " [] : | < > + = ; ,

Frame - The area contained within the top, bottom, left, and right boundaries of the graph or section of the graph on screen.

Function Key - The set of keys to the left or top of the normal alphanumeric keys on the computer keyboard labeled as F1 through F10 or 12 (depending on model) that allow special commands to be implemented. Pronto shows the functionality of these keys on the top line of all Pronto displays.

Global - A computer term associated with program changes that effect the entire program. Global changes are accomplished in Pronto in the SetUp menu (F9).

Graph - The screen presentation in Pronto whereby up to 9 traces vs. time may be displayed.

Graphics Adaptor - A circuit board in the computer required to accomplish graphical presentations on screen.

Hard Copy - Computer output printed on paper such as graphs and data listings.

Highlight - A means of showing the command or function that will be invoked. Pronto usually shows this condition by reverse video effect on the command.

Hot Keys - Any key on the computer keyboard that will directly implement a function. In Pronto these are the function keys and underlined letters.

Import - The ability to bring data in to a computer or program from another source.

I/O - Input/Output, usually associated with a computer communications port indicating the ability to transfer data.

Last - A zoom utility that brings back the last frame of the graph of on screen.

Line Graph - A line graph is a type of plot displayed in the Pronto software where all the data points are connected to form a line graph with respect to time.

Max/Min Graph - A max/min graph is a Pronto graph that shows an overall envelope of signal excursions capturing the maximum and minimum for each stored record, this data is displayed with respect to time.

MDM - Filename extensions assigned to modem transferred files or compact data files.

Menu - A list of available activities. Pronto displays menus via pull down windows.

Modem -Modulator Demodulator, a device which facilitates serial data transmission via the telephone lines.

Monitor - Name associated with the computer display. Also referred to as a screen or display.

Mouse - A device used as a pointer and command executor. Movement of the mouse selects commands in Pronto while the left button executes them. The right hand mouse key is equivalent to the computer escape <Esc> key.

Next - A zoom utility that brings up the next frame of the graph on the screen.

Notebook - The area in Pronto where text information can be stored in paragraph form. The Pronto notebook is 54 characters per line by 36 lines and is identified on disk by the file extension DNB.

Online - Refers to the printer and indicates that it is ready to receive data from the computer. Most printers have an indicator light showing online status.

Pan - A zoom utility that lets you move that frame in any direction before re-plotting the graph.

Parallel Port - The connection where printers are usually interfaced to the computer. Generally these connections are assigned as LPT1 or LPT2.

Pixel - The smallest dot on the screen. Your graph is made of many pixels. Pixels vary in size with screen resolution.

Port - The connector on the computer used to attach the cable from an external device such as a printer or modem or the data logger.

PRN - File name extension assigned to database files created by Pronto.

Pull down menu - A window area on screen containing a series of functions that may be selected. Usually opened by use of function keys.

RAM - Random Access Memory.

Ram Drive - A temporary storage area used to speed up data processing.

Return - The key on the computer keyboard used to initiate an instruction, it is sometimes labeled "enter" and also has an arrow symbol on it.

Root Directory - The directory in which the computer boots or starts up. Can be reached by typing CD\.

Screen - A term used interchangeably with the term monitor or display. It refers to the Computer Display or, in the case of the Omega OM-170, the LCD.

Scroll - The ability to move up or down the screen one line or page at a time.

Serial Port - A 9 or 25 pin interface where serial data transmission takes place between external devices and the computer. Generally used for mouse control, modem communication and on the Omega OM-170 for download of data to the computer.

Session - The data contained within one stat and stopping of a recording in the Omega OM-170. A session may contain as many as 12 files (one for each channel).

Status Line - The second line down from the top in the Pronto program which indicates the active graph and trace, the record mode and the file date.

Store - Term associated with data storage within the Omega OM-170 or the computer.

Toggle - Changing condition or state between two choices.

TMP - A file extension given to temporary files created by the Pronto program.

Trace - The reference to a particular file that may be graphed within Pronto separately or combined with other files. As many as 12 traces may be contained within one graph or displayed separate graphs.

Verify - The process whereby data is checked for validity when ever information is transferred from the Omega OM-170 to the computer.

Undo - The ability to remove changes just made from the computer keyboard. This is used in the Pronto notebook function.

Window - A sub-menu which opens on the computer screen to allow further instructions to be implemented. Generally windows appear whenever a function key is pressed or a command is implemented from within Pronto.

Write - The adding of data to the notebook within Pronto.

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RETURN REQUESTS / INQUIRIES

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- ☒ Turbine/Paddlewheel Systems
- ☒ Totalizers & Batch Controllers

pH/CONDUCTIVITY

- ☒ pH Electrodes, Testers & Accessories
- ☒ Benchtop/Laboratory Meters
- ☒ Controllers, Calibrators, Simulators & Pumps
- ☒ Industrial pH & Conductivity Equipment

DATA ACQUISITION

- ☒ Data Acquisition and Engineering Software
- ☒ Communications-Based Acquisition Systems
- ☒ Plug-in Cards for Apple, IBM & Compatibles
- ☒ Datalogging Systems
- ☒ Recorders, Printers & Plotters

HEATERS

- ☒ Heating Cable
- ☒ Cartridge & Strip Heaters
- ☒ Immersion & Band Heaters
- ☒ Flexible Heaters
- ☒ Laboratory Heaters

