

VALEPORT LIMITED

DataLog

Operating Manual For Use With  
Model 105 Current Meters

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# 1 INTRODUCTION

This document covers the operation of the Model 105 Current Meter, when used with DataLog PC software. DataLog software is also compatible with other Valeport instruments, so the user may find functions that are unavailable with this instrument. These functions are for use with other Valeport instruments only, and are not covered in this manual.

## 1.1 DESCRIPTION

DataLog is an event driven program written in VISUAL BASIC FOR WINDOWS for use with Valeport data gathering instruments. The program allows the user to configure the sampling regime of the instruments, view data in real time using a selection of displays, and extract and view data from logging instruments. The new extended memory 105 must be run with a version of DataLog no later than version N.

If you do not have a copy of this software, please consult Valeport Ltd.

Available displays include real time only displays for measured and calculated parameters (if applicable) tabulated scroll, and graphical output. The user can select suitable scales for the graphical displays.

Additional features of DataLog include:

- Recording of real time data to PC.
- Printing of data (tabulated scroll and graphs).
- Test Formula function to allow data checks.
- Simple statistical analysis of data.

## 2 INSTALLATION

### 2.1 INSTALLING DATALOG

It is recommended that an IBM compatible PC of 486 DX2 level or above is used, with Windows 3.1 or above. It is advisable to have at least 8Mb RAM fitted; software will operate with a standard 4Mb, but opening too many windows may cause system to "hang up".

**The new extended memory 105 must be run with a version of DataLog no later than version N.**

If you do not have a copy of this software, please consult Valeport Ltd.

To install DataLog follow the procedures as described below.

- Place the installation disk in drive A.
- Enter WINDOWS Program Manager.
- Select File using the mouse or Alt F.
- Use mouse to select Run or press the R key.
- In the command line type A:SETUP followed by <CR>.
- A Dialog box will appear with the message INITIALISING SETUP.
- After a few seconds you will be asked to select the path and directory in which to install DataLog.
- Select Continue to select default DataLog directory.

The installation will now commence. When finished an OK prompt will appear with the message **INSTALLATION IS COMPLETE**. The DataLog program is now available for use under the Program Manager.

### 2.2 PC SETUP

In order for DataLog to operate correctly, the format of the date, time and numbers must be correctly set within the Windows Control Panel.

Function		Format	Example
<i>Date</i>		dd/MM/yy	23/09/96
<i>Time</i>		HH:mm:ss (24 hr clock)	16:37:20
<i>Numbers:</i>	Decimal Mark	.	1.25
	Thousands separator	,	1,321,000

***Failure to set the above parameters correctly may result in the software being unable to read data from the instrument.***

Flow charts on the next two pages indicate the principle steps in operating the instruments in Self Recording and Direct Reading (if available) modes. For more detailed explanations and instructions please refer to Sections 3 & 4.

FIGURE 1 OPERATION OF MODEL 105 IN LOGGING MODE

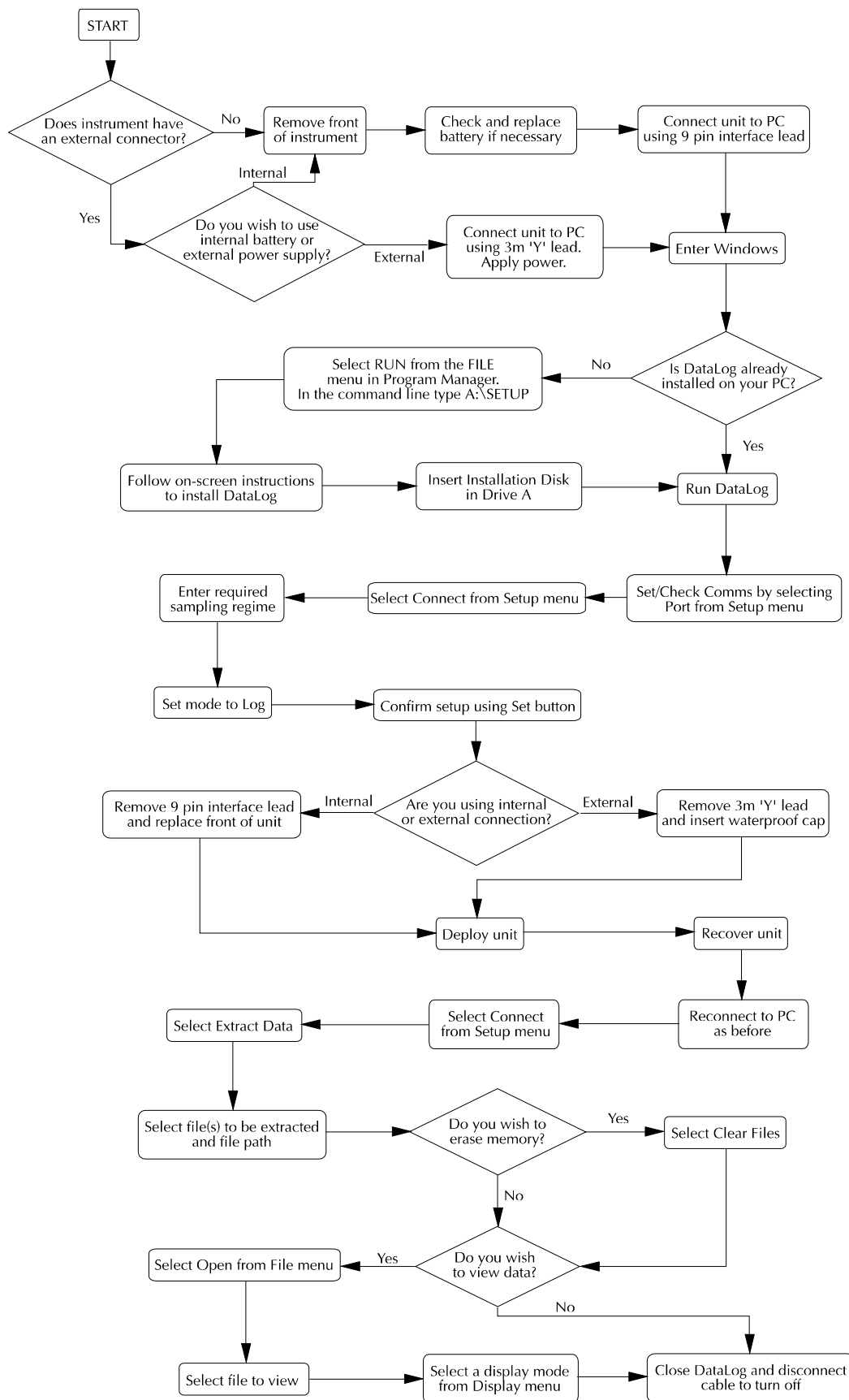
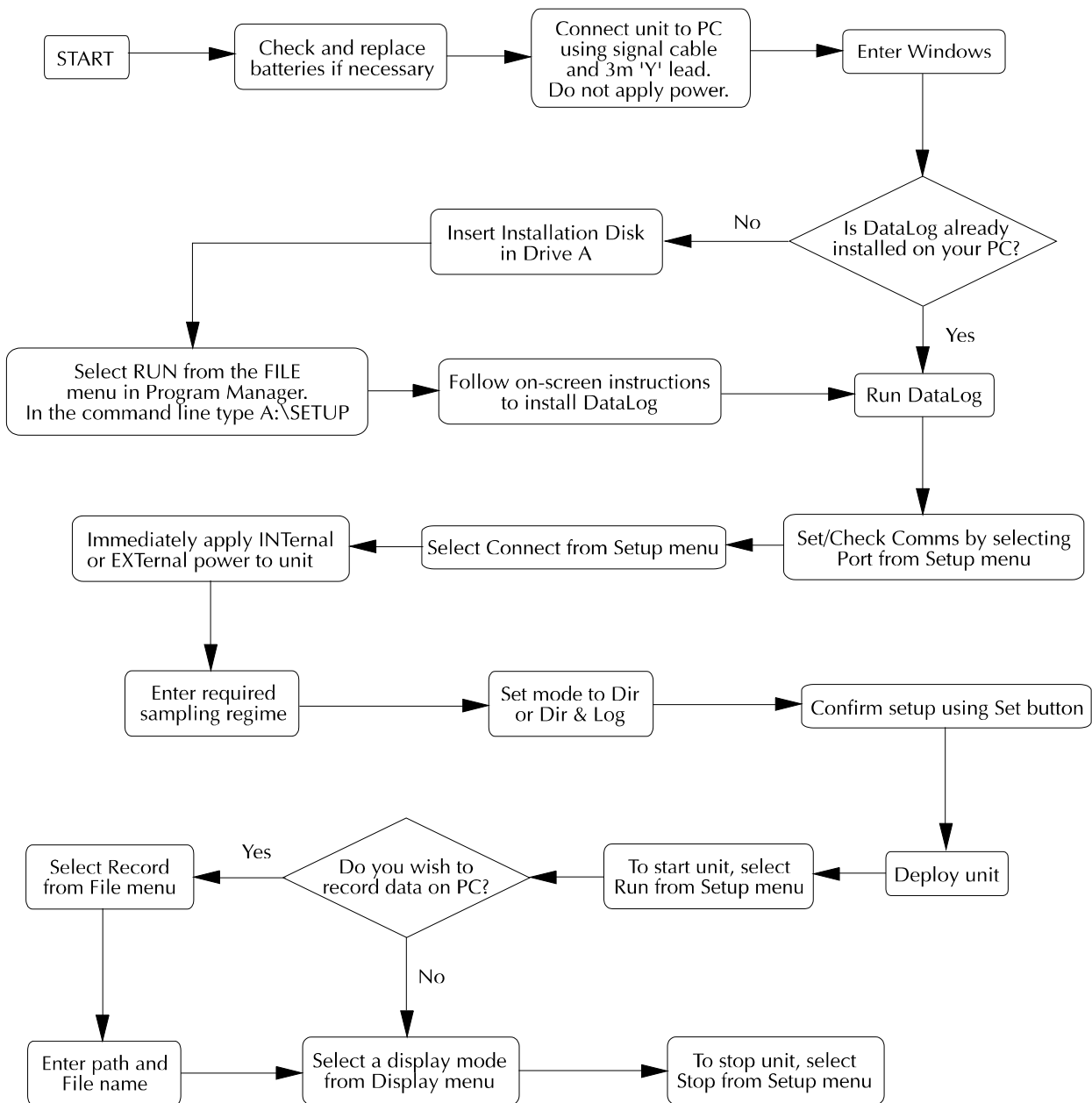


FIGURE 2 OPERATION OF MODEL105 IN DIRECT READING MODE

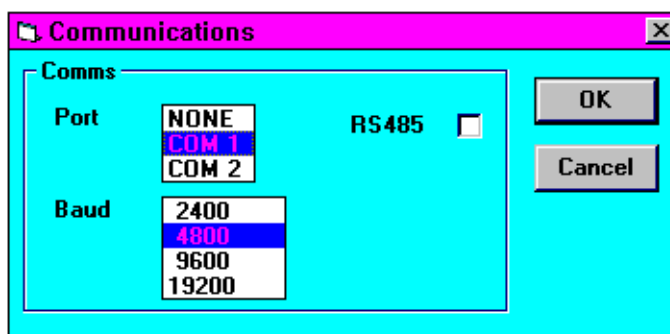


## 3 SETUP

In order to operate the unit, the first step is to correctly configure it using the *Setup* pull down menu in the opening DataLog screen. This menu contains all controls necessary for communication with the instrument, setup of sampling regime, and data extraction.

### 3.1 PORT

Communications are via RS232 comms port. It is necessary to set the comms port configuration before any communications can be achieved. Do this by selecting *Port* from the *Setup* menu. The following display will be shown:



18 September 1996 10:49:32 R

Select the correct comms port number using the mouse. Note that the default baud rate is 4800. For reference, the communications are preset to 8 data bits, 1 stop bit and no parity; these are not user changeable.

Note the presence of the check box marked RS485. The Model 105 do not have the option to communicate in this mode - the box should be left unchecked.

## 3.2 CONNECT

The Model 105 is supplied with a short length of wire with two crocodile clips fixed to either end. When using the instrument in air, it is necessary to attach the clips to the two pins at the tail end of the unit. This simulates the shorting of the pins that occurs when the unit is submerged in water.

When attaching the crocodile clips to the pins ensure that it is the two shorting pins that are used and not the thermistor, which looks similar but is slightly longer. This is effectively the 'on/off' switch and communications will not be initiated unless these pins are shorted either by the wire or by submerging the unit in water.

Having correctly configured the comms port, it is possible to communicate with the instrument. Select **Connect** from the **Setup** menu.

A Dialog box similar to that shown below will appear. Confirmed in the title block are the instrument type (in this case, Model 105 fitted with Temperature and Depth sensors) and the serial number of the unit (20356). This box allows changes to be made to the unit's setup. The different options are detailed below.

**NOTE:** If the **Set** command is not implemented, the changes will **not** be made in the instrument.

**BFM105TD (S/N - 20356)**

**Probe configuration**

Memory: Total/Free 518,000/377,966 bytes  
 Probe time: 19/12/2003 12:50:42  
 Battery Voltage 1.238V  
 Firmware ver. VER 0104706D

**Sample setup**

Sample period (no. of 1 sec periods) 10  
 Averaging period (no. of sample periods) 5

**Sample mode**

Time   
 Burst   
 Pressure

**Mode**

Dir   
 Log   
 Dir & log

**Sensor configuration**

Conductivity Pressure  
 Temperature Speed

**Logged data**

Extract... Clear Files  
 Set File Information

**Miscellaneous**

Baud rate

Set  
 Cancel  
 Set time

It is also possible to return to **Connect** stage from **Run** mode, if changes need to be implemented. **Run** mode must then be reselected once changes have been set.



### 3.3 PROBE CONFIGURATION

The amount of total memory and the amount available for recording data is shown together with the probe date/time. In the above example, the unit has a total of 518,000 bytes of which 517,448 bytes are unused.

### 3.4 SAMPLE MODE

The only sample mode available on the Model 105 Current Meter is **TIME** sampling. The instruments operate on a minimum one second cycle, during which they measure the speed of the flow, and take a single compass reading, and read any optional sensors fitted. The length of this cycle can be set by the user to any number of whole seconds, using the Sample Period box. For example, entering 10 in this box will set the sampling cycle to 10 seconds. This means that the unit will read data from each sensor once every 10 seconds.

The user is also required to set the Average Period. This is set by the user to be the number of Sample Periods over which the data is averaged. Continuing the above example, setting an Average Period of 6 means that the data will be averaged every 6 Sample Periods, i.e. every minute.

*The only data that is displayed or logged is the average value obtained at the end of the Average Period. If the user wishes to log every sample taken, Average Period must be set to 1.*

### 3.5 MODE

DataLog offers three operating modes - Direct Reading, Logging or Both. The Model 105 are self recording instruments as standard. As such, only Logging mode will be available. If the optional Direct Reading capability is fitted to the instrument, all three operating modes will be available. In this case it is also possible to record Direct Reading data to disk. See Section 4.1 for details of how to do this.

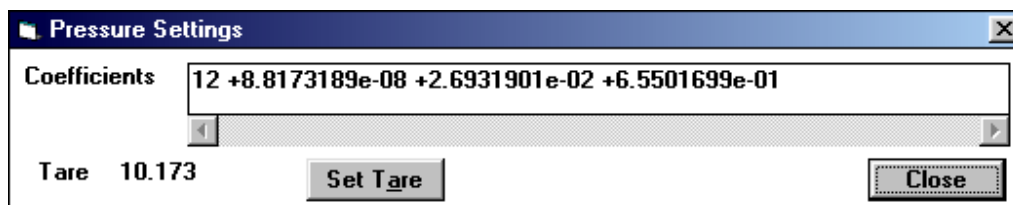
- i) **Dir** This is Direct reading where the data is transmitted in real time mode in intervals defined by the sampling setup.
- ii) **Log** This Logging mode stores averaged data in the instrument RAM in intervals defined by the sampling setup. **No data will be transmitted in this mode.**
- iii) **Dir & Log** This mode performs i) and ii) i.e. realtime data is transmitted and stored to internal RAM.

Select the desired operating mode by clicking on the relevant option with the mouse.

N.B. Do not select Dir & Log Mode unless the communications lead will be connected throughout the deployment or test. Removing the communications lead whilst the unit is running in this mode will result in fragmented data files.

### 3.6 PRESSURE TARE SETTING (IF FITTED)

The Model 105 can have a pressure sensor fitted as an option. All pressure measurements are related to absolute. Prior to deployment the tare pressure can be set. To set the current tare pressure, select Pressure in the Sensor Configuration window. The current calibration and pressure tare will be displayed. Select Set Tare, the instrument will read the current absolute pressure and then adjust all subsequent pressure readings by this amount so they are referenced to the sea level pressure at the time of deployment.



### 3.7 OTHER PARAMETER INFORMATION

Similar Dialog boxes will appear for the optional Temperature sensors, showing the current calibration details. These cannot be altered in DataLog. For details of how to change calibration data, refer to the main Unit Operation Manual.

## **3.8 MISCELLANEOUS**

### **3.8.1 BAUD RATE**

When uploading data, the baud rate limits the time taken. To speed the transfer process up, the baud may be changed to a higher rate than the standard 4800. It must be stressed that the cable lengths and the type of communications being used may restrict the maximum baud rate. If an upload error occurs, reduce the baud rate and retry.

For example, if using a short 'Y' lead to set up the instrument or extract data, 19200 should be acceptable assuming the PC in use can support this. When using very long cable lengths with current loop communications for example, the data rate may need to be slowed down to 1200 baud for successful protocol.

It should be noted, however, that the instrument will always start at 4800 baud from switch on.

## **3.9 LOGGED DATA**

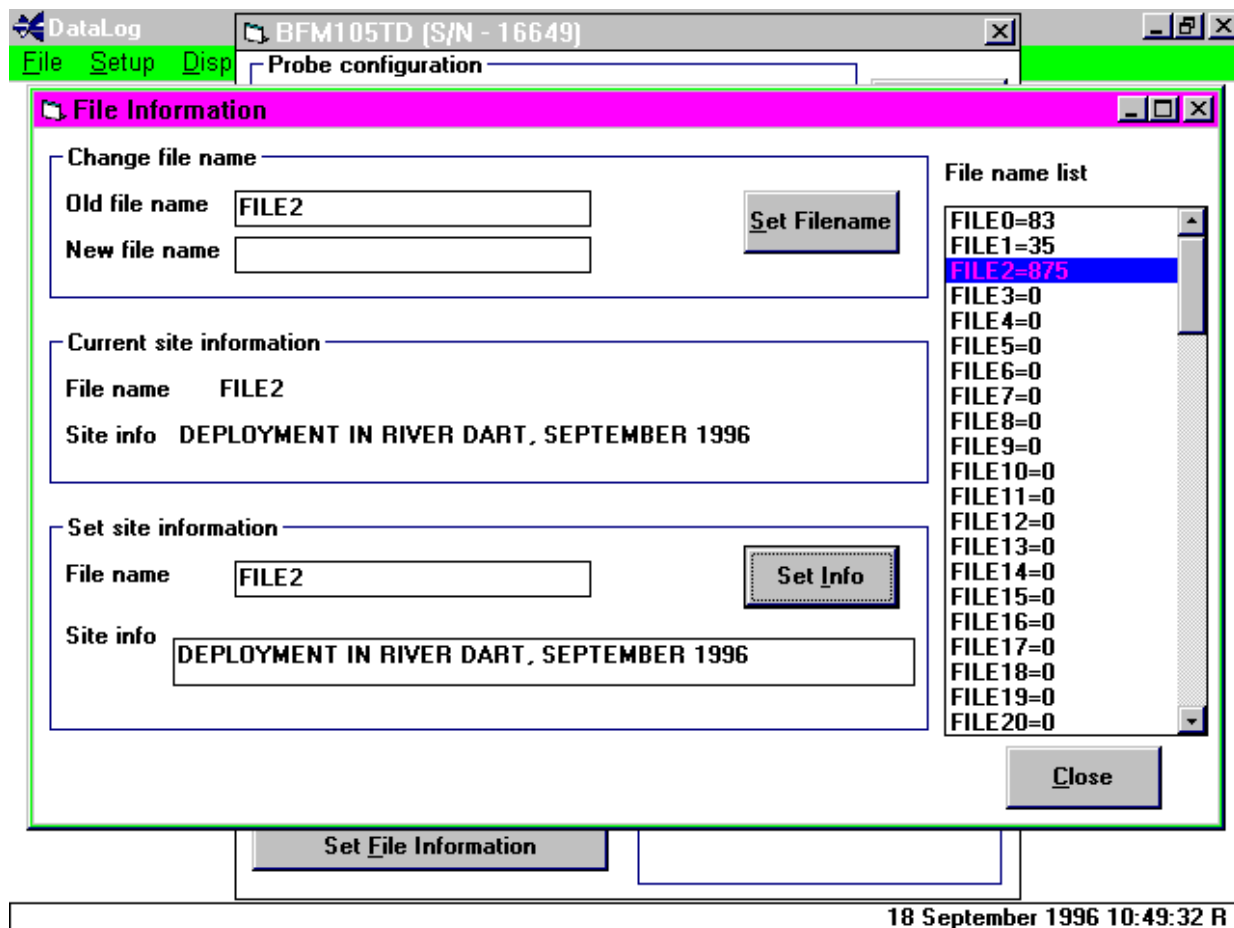
The user also has the option to Upload Logged Data from the unit. Full details on how to do this are given in Section 5.1.

### **3.9.1 CLEAR FILES**

Click on this button to Erase the memory of the unit. A confirmation is displayed, and clicking on OK erases memory.

### 3.10 SET FILE INFORMATION

The last function that can be performed in the Setup Menu is to specify the Site Information for each File contained within a Self Recording unit's memory. Clicking on this button reveals the following display:



On the right hand side is a list of all files contained within the fish memory, and their sizes. To change or view the information of any file, click on that File with the mouse, or alternatively type the File name into any of the Old File Name boxes on the screen.

Having selected a File, the user has the option to change the File name, view current Site Information (Get Info), or set new File Information (Set Info). This information is contained within a header record for each File within the unit's internal memory.

---

## 4 RUN MODE

### 4.1 RUNNING THE INSTRUMENT

After all the instrument configurations have been set as required, it is possible to begin the sampling program. If you are using the meter in Direct Reading or Both Mode, this is achieved by selecting **Run** from the **Setup** menu. The unit enters an interrupt period for 5 seconds, during which the message *Initialising* is displayed in the bottom left hand corner of the Window. Following this, the unit enters Run mode.

To run the unit in Logging only mode, either select **Run** from the **Setup** menu, or submerge the unit.

*In all cases, the unit will not function until it is submerged. To conserve battery life, the unit is fitted with a sea switch mechanism that prevents it working unless it is underwater.* To bypass this when workshop testing, it is necessary to fit the crocodile clips provided to the back of the unit. See the main Unit Operation Manual for details of how to do this.

To see real time Direct Reading data, use one of the display modes detailed in Section 5, by selecting the appropriate command from the Display pull down menu.

### 4.2 RECORD

It is possible for Direct Reading data to be recorded on computer disk. After the desired configuration has been set in the Connect Screen, select **Record** from the **File** pull down menu. You will be asked to specify a drive, directory and file name for the record. Then proceed to run the unit as above. The data will automatically be recorded as it is produced.

In order to view direct reading data, you must select a display mode from the **Display** pull down menu. Full details on these modes are in Section 5.3.

### 4.3 STOP

To stop the unit Running in Direct Reading or Both modes, select **Stop** from the **Setup** pull down menu. The unit will also stop if **Connect** is selected. The unit must be stopped in order to allow certain functions to be used in the displaying of data. See Section 5 for further details.

## 5 DATA HANDLING

### 5.1 UPLOADING LOGGED DATA

Data are stored in internal battery backed RAM in binary format. Each time the unit is switched on or 'RUN' , a new data file is created with its own header information containing averaging period etc. following which the data is recorded. These data files can be uploaded and saved to disk by selecting **Extract** from the **Connect** screen in **Setup**. A binary file is created initially which mirrors the requested stored data files; the default name is RAW.

Calibrated files (default name CAL) are created from the binary files.

The Calibrated files can later be displayed in the various formats available with this package or imported into spreadsheets for statistical analysis.

The Display will now show the following:

**Extract data**

Extract

**Data areas**

- 0: FILE0=139808 bytes
- 1: FILE1=9 bytes
- 2: FILE2=152 bytes
- 3: FILE3=32 bytes
- 4: FILE4=9 bytes
- 5: FILE5=24 bytes

**Raw filename** RAW

**Calibrated filename** CAL

**Data directory** c:\  
datalog

**Drive** c: [MQ\_FIXED]

**Make separate header file**

**User Tare**

Use Instrument Pressure Tare

Use User Tare

0.000

Extract

Close

- i) Data Areas: Scrollable text box containing file allocation within the instrument. If no data has been stored in the instrument, the message 'Nothing to upload' will be displayed.
- ii) Raw filename: Binary format files in non engineering units. The default filename RAW may be changed; it should be restricted to 8 characters.
- iii) Calibrated filename: Calibrated files generated from RAW binary files. The default filename CAL may be changed; it should be restricted to 8 characters.
- iv) Data directory: Standard type Dialog box to allow alternative directory paths to be set. The default path is c:\datalog.

A header file is created as default, which contains various information about the file, with the following structure. To override this, select make Separate Header File.

```
File header created by DataLog on 03/08/99 16:33:54
Device: BFM308, Serial number: 18564
Header text: VALEPORT 105
Mode: TIME_SAMPLE
Sample period (x5 secs): 3, Average period: 1
Impeller coefficients: 17 +1.4143845e-19 -3.5458315e-11 +2.4820728e-09 -5.5286880e-10
-4.8346085e-06 +1.6050182e-04 +5.6165843e-02 +1.7216420e-0
Speed of sound formula Chen & Millero
```

As many files as you want can be selected at once with the mouse by holding down Ctrl while using the mouse to click on each file. Once the desired files have been highlighted, select **Upload**. Initially the RAW binary files will be created with an extension relating to file number e.g. RAW.005 corresponds to file number 5 in the instrument. The Calibrated data files are created using the same extension as the binary files from which they were created.

Note that the data in the instrument is not erased after uploading, further logging will occur after the last record.

## 5.2 SAVED DATA

If you wish to look at data already on the computer, either Uploaded from the unit or recorded from Direct Reading mode, select Open from the File menu. Select the desired drive, directory and file and push Enter. The correct file will then be opened.

## 5.3 DISPLAYS

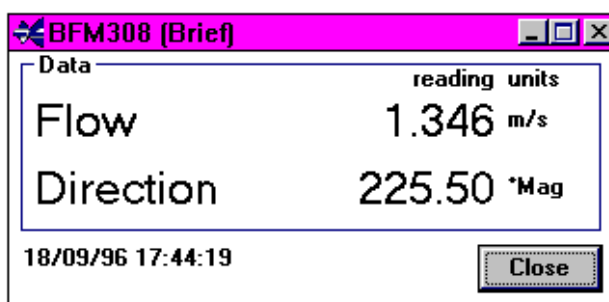
Data from the unit can be displayed in 5 formats. Several different displays can be shown simultaneously and iconized.

### *For Direct Reading Display*

#### 5.3.1 BRIEF

The *Brief* display will show the parameters transmitted by the instrument in real time mode only. It should be noted that data will only be updated at the end of an averaging period. Data stored on disk cannot be displayed in this format.

This display is not sizeable, but can be iconized and moved outside the DataLog environment.



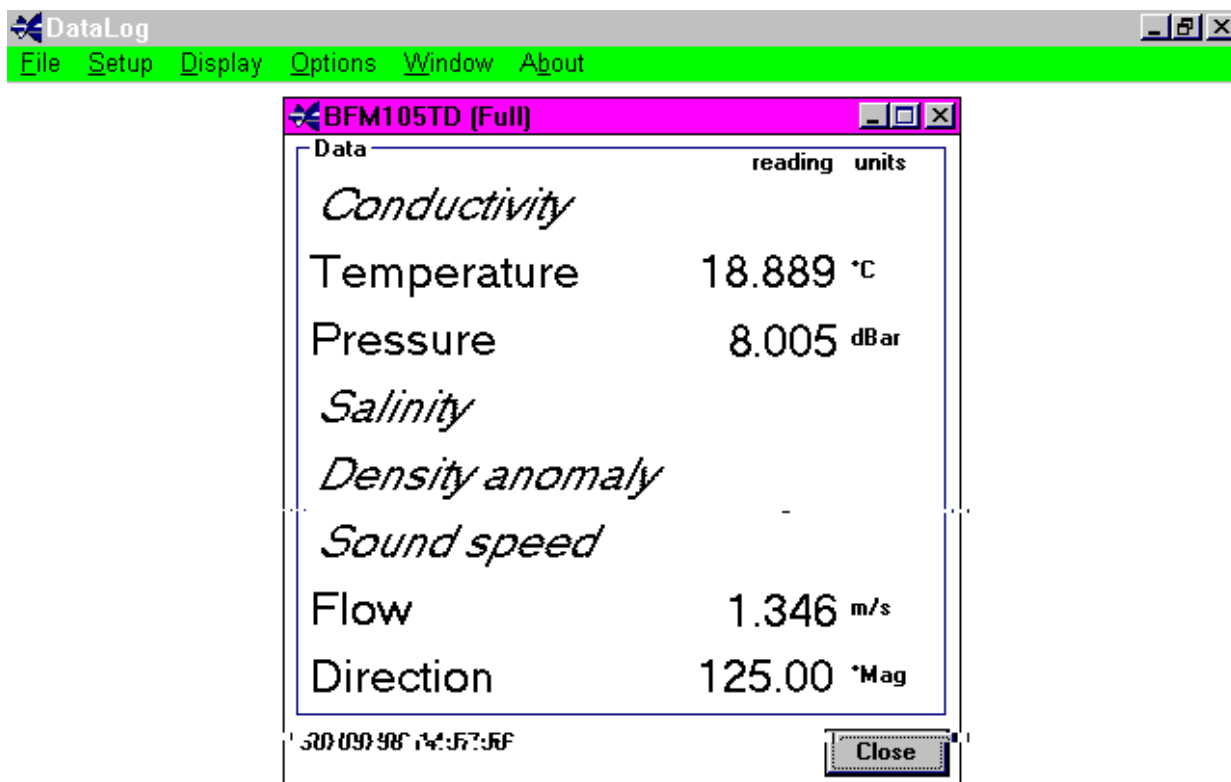
18 September 1996 17:44:19 R



### 5.3.2 FULL

The *Full* display is provided primarily for use with other Valeport instruments, and provides a display of calculated parameters as well as the measured ones available under the Brief display. Since the Models 104 and 105 do not have the option of a Conductivity sensor, calculation of these additional parameters is not possible. The unavailable parameters are shown in italics and are not updated.

Use of this display is not recommended with the Model105 - use the Brief display instead.



30 September 1996 14:57:56 R

### 5.3.3 SCROLL

As the title suggests, a Scrolled display will be shown as below. The most recent data will be displayed at the top therefore scrolling data down. To view information outside the text box, shift the display using the arrow controls with the mouse. Unlike the *Brief* and *Full* display options, data previously stored from real time recording (see sections 4.1 & 5.2) or Uploaded from the instrument (see section 5.1) can be recalled and displayed in this format. The example below shows a typical scrolled display of recorded data from a Model 105 Current Meter.

Time-stamp	Temperature	Pressure	Flow	Direction
	°C	dBar	m/s	*Mag
25/09/96 10:11:59	19.953	6.259	0.564	274.00
25/09/96 10:01:59	20.038	8.562	0.776	280.20
25/09/96 09:51:59	20.050	8.639	0.775	280.10
25/09/96 09:41:59	20.059	8.846	0.784	276.70
25/09/96 09:31:59	20.061	9.105	0.845	278.60
25/09/96 09:21:59	20.053	9.208	0.848	277.80
25/09/96 09:11:59	20.046	9.415	0.865	276.70
25/09/96 09:01:59	20.041	9.545	0.779	279.00
25/09/96 08:51:59	20.038	9.752	0.837	275.90
25/09/96 08:41:59	20.039	9.777	0.801	276.00
25/09/96 08:31:59	20.046	9.984	0.790	274.20
25/09/96 08:21:59	20.059	10.243	0.726	274.60
25/09/96 08:11:59	20.062	10.398	0.709	272.80
25/09/96 08:01:59	20.082	10.605	0.720	273.30
25/09/96 07:51:59	20.099	10.786	0.740	273.30
25/09/96 07:41:59	20.104	11.019	0.751	272.80
25/09/96 07:31:59	20.096	11.200	0.760	271.40
25/09/96 07:21:59	20.085	11.433	0.725	270.50
25/09/96 07:11:59	20.141	11.459	0.685	271.10
25/09/96 07:01:59	20.182	11.588	0.648	271.20

25 September 1996 10:43:33 R

Data displayed in this format can be printed, but not while the unit is actually running. If this screen is being used for real time display, *Stop* or *Connect* must be selected to allow data printing. To print off a table of data, select *Print* from the *Options* Menu. A standard Windows Print Options form will be displayed.

It is also possible to select the font in which the data is to be printed. Selecting *Set Print Font* before selecting the *Print* function reveals a display showing all available printer fonts. NB Some TrueType fonts will not size to the page correctly, so use of these is not recommended.

#### 5.3.3.1 AVERAGE DATA

A display of average data values can be obtained from this screen. While the unit is stopped (or with recorded/uploaded data), the Scroll table has the property of allowing values within the table to be highlighted. This can be done either by dragging the mouse over the desired values, or by clicking on a column header to select the entire column. Then select *Data Analysis* from the *Display* menu. A table will be displayed, showing high and low values, the mean value of the data, and the Standard Deviation of the data.

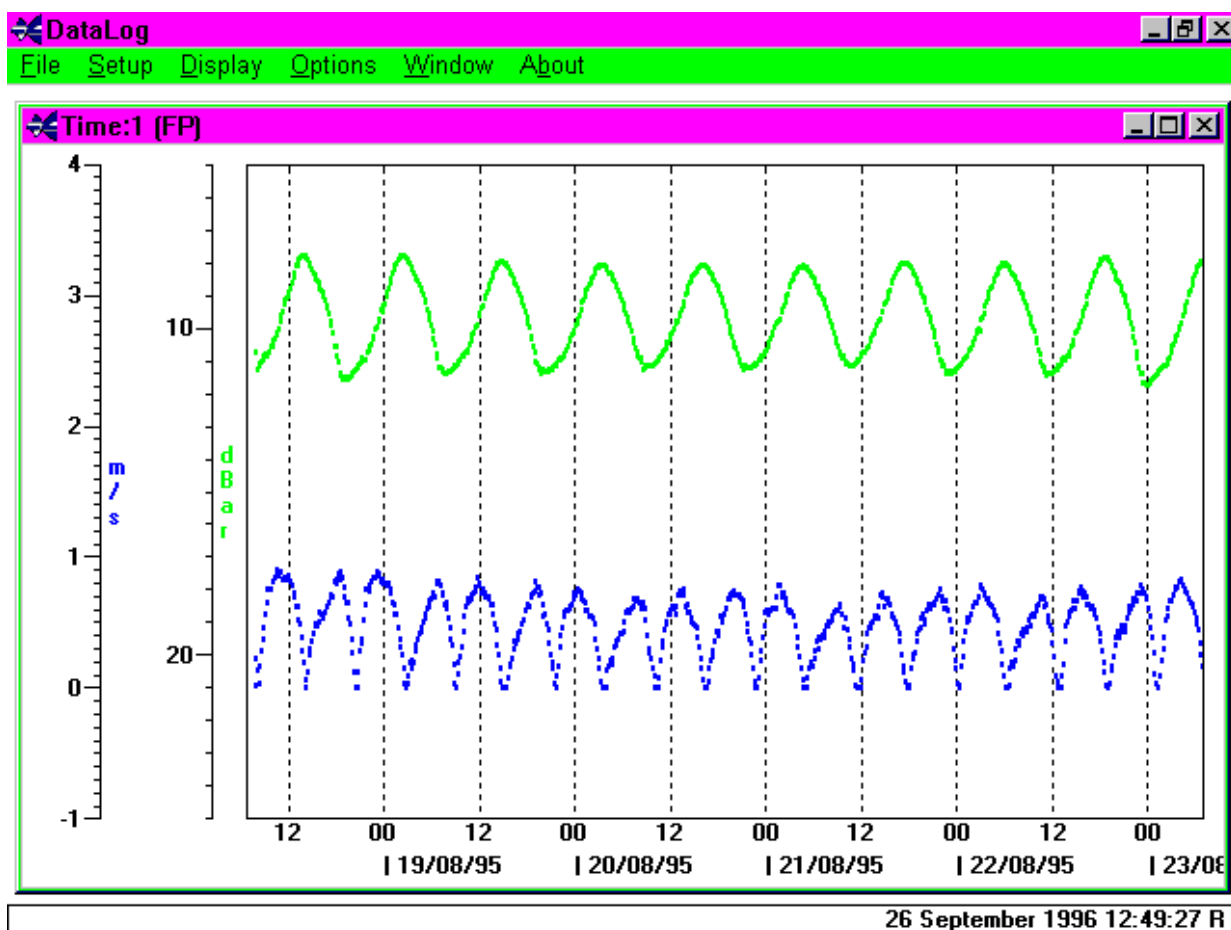
NOTE: It is not possible to perform Data Analysis on more than one parameter at once.

### 5.3.4 GRAPH

The Graphical display function can be used for either real time or recorded data, and allows each parameter of the instrument to be displayed as a function of time or pressure. The outputs provided show the parameter type by way of engineering units; the 'Y' axes can be scaled individually but the 'X' axis can only be scaled for all parameters within each graph. To select more than one parameter for display on the same graph, use Ctrl and the mouse to click on each in the Dialog box. Several individual graphs can be displayed at once, the limitations of which would depend upon PC configuration and the number of tasks running in the WINDOWS environment, such as statistical analysis packages, word processor etc.

Graphical representation can be made of any of the parameters of an instrument in real time mode once connection has been established. Each graph may be iconized, but will still be refreshed as new data appears. A hard copy of the plot can be produced by selecting the pulldown menu *Files* and selecting *Print* which will then show a standard type Dialog box from which print resolution, no. of copies etc. can be chosen.

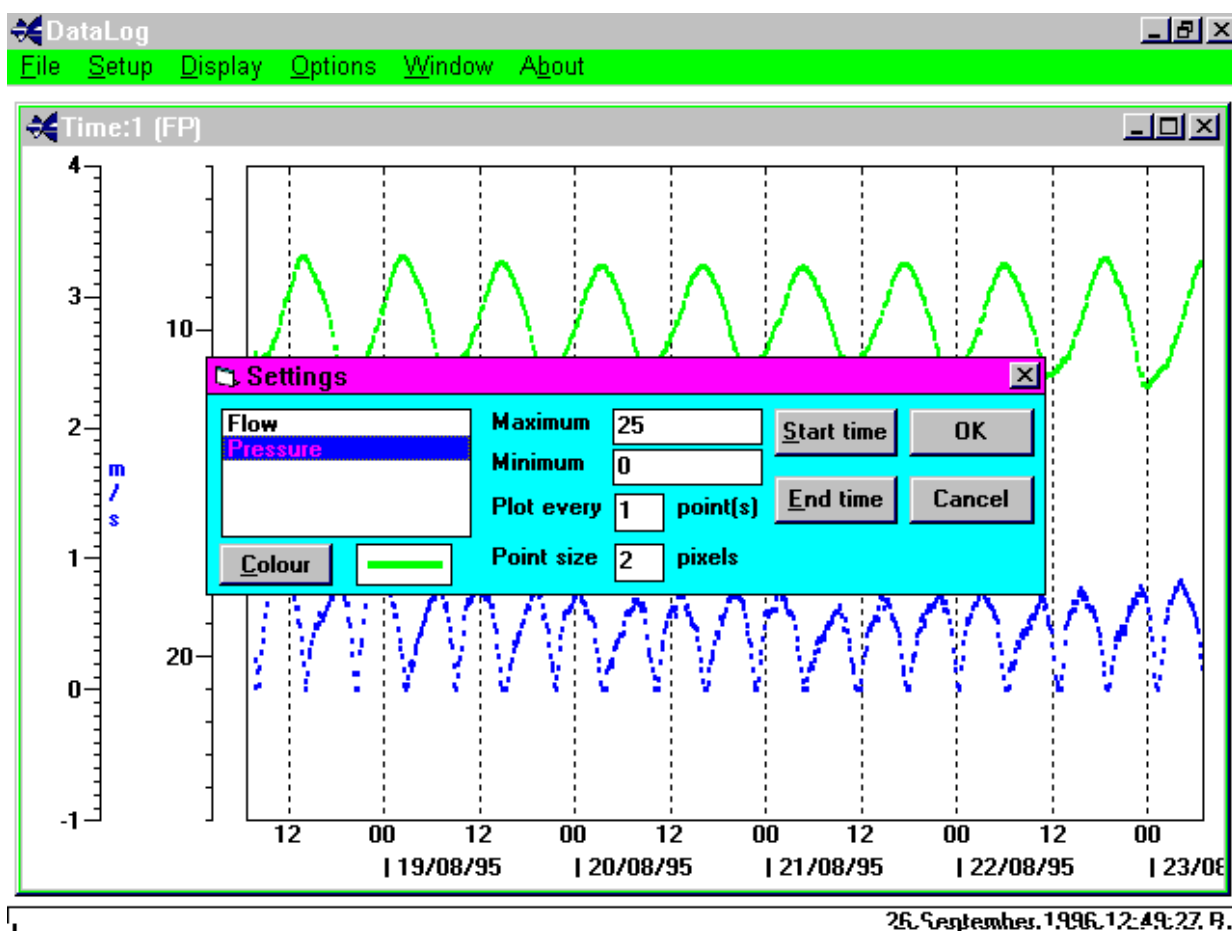
A typical graph is shown below as a function of Time.



### 5.3.4.1 GRAPH SETTINGS

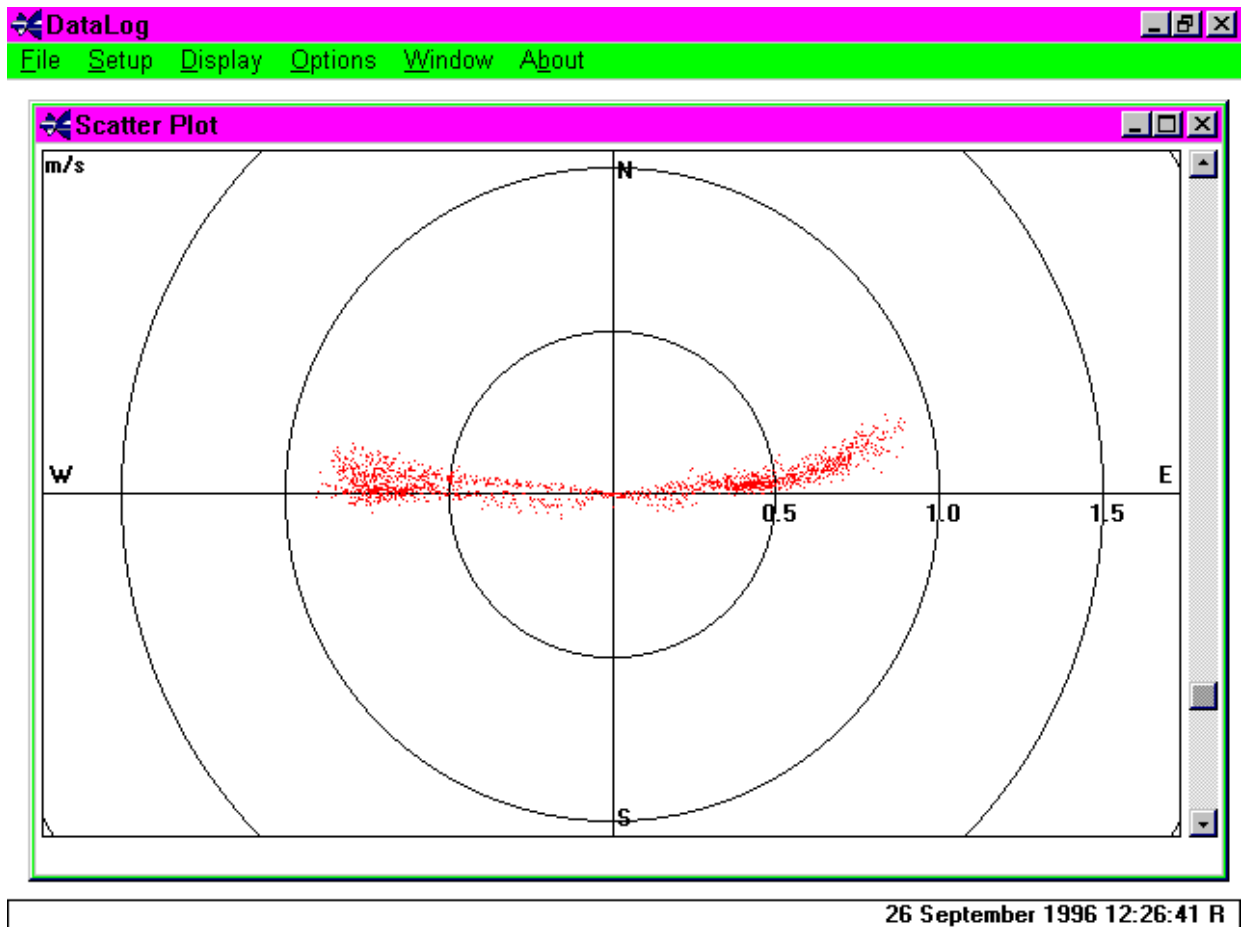
Selecting *Graph Settings* from the *Options* menu in graph mode allows the user to change certain features of the display. Shown below is the settings Dialog box, to allow changes to be made to 'X' and 'Y' axes scales, and parameter display colour. Select the parameter, in the example below this is Pressure, and enter new maximum and minimum value for the scale. The colour can be changed by selecting *Colour*, from which a set of basic and custom colours may be selected to suit.

As mentioned previously, the time axis can be changed, but this will be for all parameters displayed. Simply select *Start time* and enter required date/time, then select *End time* and enter as appropriate.



### 5.3.5 SCATTERPLOT

Speed and Direction data from a Model 105 can also be represented on a Scatterplot diagram. This function is available for viewing logged data or for real time viewing. The scroll button on the right of the display is a zoom function. This screen can also be printed by selecting **Print** from the **File** menu. This function is not available with data from a Model 104 Flow Meter.



## 5.4 OPTIONS

This function allows the user to set various options as detailed below. Some functions are only available at specific points within the software. At all times, *Options* allows the user to select/de-select the status line at the bottom of the page

### 5.4.1 STATUS LINE

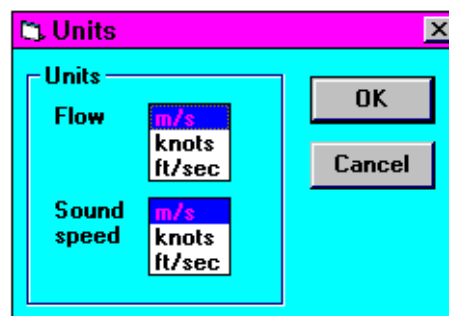
The Status line is situated at the bottom of the DataLog window. Real time data/filename and PC time and Date are displayed here. This can be toggled on/off by selecting *Status Line* with the mouse.

### 5.4.2 CONSTANTS

Select either the *UK* nautical mile (1853.18 metres) or *International* nautical mile (1852 metres) as required followed by OK to confirm.

### 5.4.3 UNITS

The units of speed can be selected as below (OK to confirm).



18 September 1996 10:49:32 R

#### 5.4.4 TEST FORMULA

A feature of DataLog is its Test Formula Option. Selecting *Test Formula* from the *Options* Menu reveals the following display, which allows the user to calculate Density Anomaly, Salinity/Conductivity, Speed of Sound using a formula of their choice, and to perform a Depth/Pressure calculation.

The following display is revealed, and an explanation of each function is given below:

The screenshot shows a software window titled "DataLog" with a menu bar containing "File", "Setup", "Display", "Options", "Window", and "About". Below the menu bar is a dialog box titled "Test Chen & Millero 1977". The dialog box contains several input fields and output boxes:

- Input fields:**
  - Enter Conductivity (mS/cm): 38.775
  - Enter Salinity (PSU):
  - Enter Pressure (dBar): 10.04
  - Enter Temperature (°C) IPTS-68:
  - Enter Temperature (°C) IPTS-90: 13.667
  - Enter Latitude (Degrees):
- Output boxes:**
  - Density Anomaly (Kg/m<sup>3</sup>): 24.2478
  - Salinity (PSU): 32.343
  - Sound speed (m/s): 1499.43
  - UNESCO standard depth (m): 9.985
- Buttons:**
  - Change Speed of Sound Formula
  - Calculate
  - Close

At the bottom right of the window, a status bar displays "26 September 1996 10:47:10 R".

##### 5.4.4.1 USER INPUT VALUES

###### CONDUCTIVITY/SALINITY

The user has the option to input either Conductivity (mS/cm) or Salinity (PSU). Click on either to select (highlight), or click the check box. The program will calculate whichever is not input.

###### PRESSURE

Enter the required pressure in decibars.

###### TEMPERATURE

It is possible to use either IPTS-68 or IPTS-90 temperature values in the calculations. Simply click on the desired scale or the check box to select.

###### LATITUDE

This is required to correct for local gravity, which is required in depth calculations for Speed of Sound [for all formulae with the exception of Chen & Millero 1977]. Enter the geographical latitude for the measurement site, using a negative number if South of the equator.

###### CHANGE SPEED OF SOUND FORMULA

The user can select a formula with the Change Speed of Sound Formula button. Note that for all formulae apart from Chen & Millero, geographical latitude must be input. Clicking the Calculate button then reveals the Speed of Sound as calculated using the selected formula. This has no effect on the formula used by the software for the Speed of Sound in Running Mode.

#### 5.4.4.2 CALCULATED PARAMETERS

The formulae used for calculating Density Anomaly  $\gamma$ , Salinity, Depth and Speed of Sound are complex, and are not given here. They are available, if required, by contacting Valeport. Conductivity is calculated from Salinity using a Newton Raphson Iteration of the Salinity formula. Salinity and Conductivity are self explanatory functions. Speed of Sound can be calculated using various formulae (user selectable under *Change Speed of Sound Formula*). The default formula is Chen & Millero (1977). For details of this and the other available formulae, contact Valeport. Density Anomaly  $\gamma$  and Depth require further explanation:

**Density anomaly  $\gamma$**       This is Density ( $\rho$ ) - 1000

**Depth**      This is based on the Simple UNESCO Depth formula which is based on assuming a salinity of 35 PSU and temperature of 0 °C. For simple calculations of depth for different densities, the standard depth can be corrected by multiplying it by the ratio of average density over depth of 35PSU, 0 °C water to the average density of the actual water column.

e.g.

Standard Depth [35,0] for 1000 dBar at 0 latitude = 992.117 metres

Average density [approx.] over 1000dbar range for [35,0] seawater  
 = [Density at 0 dBar + Density at 1000 dBar]/2  
 = [1028.1 + 1032.8]/2  
 = 1030.45 kg/M<sup>3</sup>

Average density from data, using Data Analysis function [see section 5.3.3.1]  
 = 1027.6 [example number only for calculation]

Density ratio      = 1030.45/1027.6  
 = 1.0028

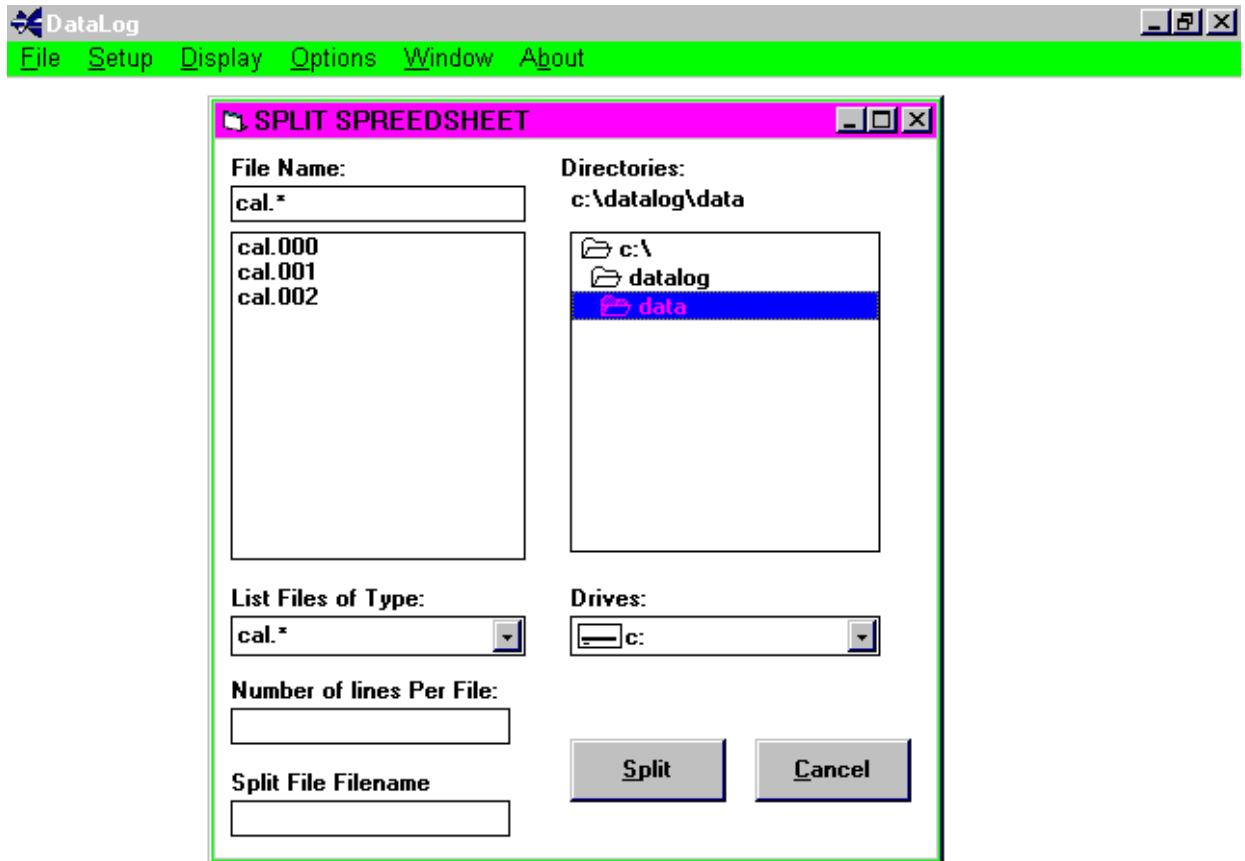
Revised depth estimate      = 992.117 \* 1.0028  
 = 994.895 metres



#### 5.4.5 SPLIT SPREADSHEET

If a saved datafile is very large, the user may find it easier to split the file into a number of smaller files for ease of analysis. If this is required, select Split Spreadsheet from the Options menu. A display similar to that shown below will appear. Select the file to be split, and choose a new name for the smaller files. By default, the new extensions to the smaller files will be of the form .000, .001, .002 etc.

The user is also invited to select the size of the new files (Number of Lines per File).



18 September 1996 10:49:32 R

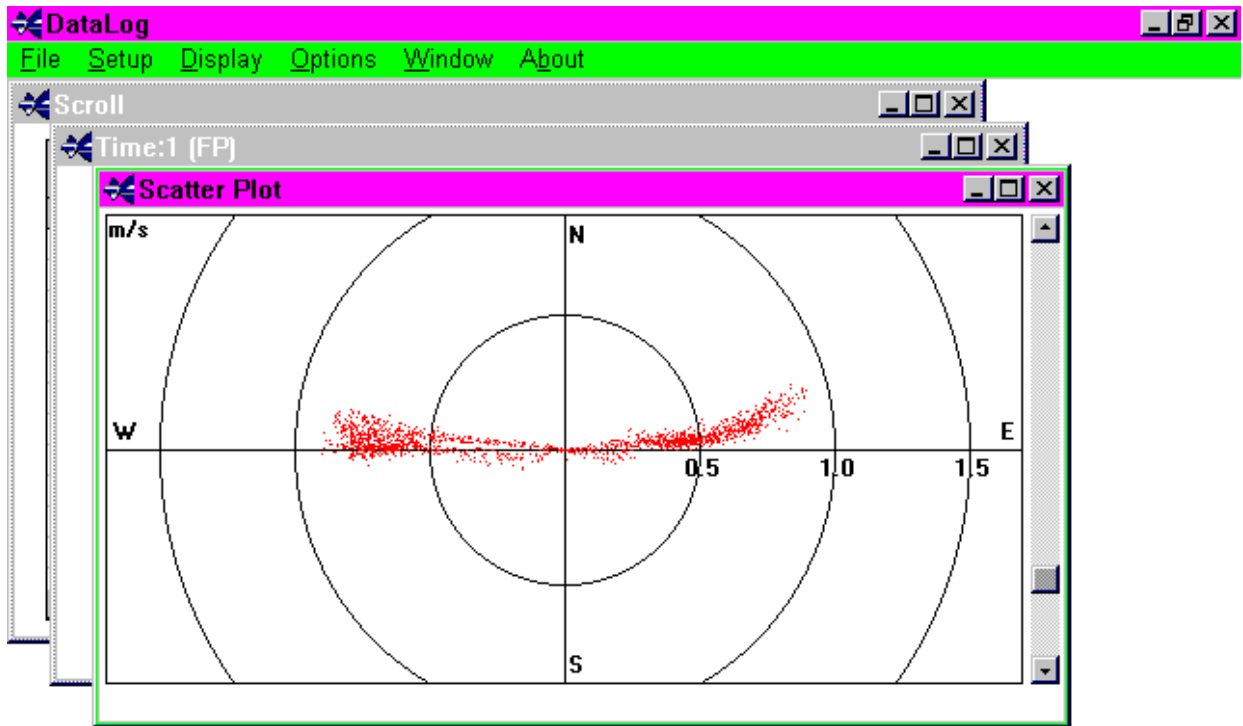
Each new file will have the same Header information as the original, but the fact that it is a Split Spreadsheet will also be indicated.

## 5.5 WINDOW

The *Window* pull down menu allows the user to configure the display to either *Cascade*, *Tile* or *Arrange Icons* if showing. It should be noted however that the *Brief* and *Full* displays are not affected by this command as they are created for display outside the DataLog window.

### 5.5.1 CASCADE

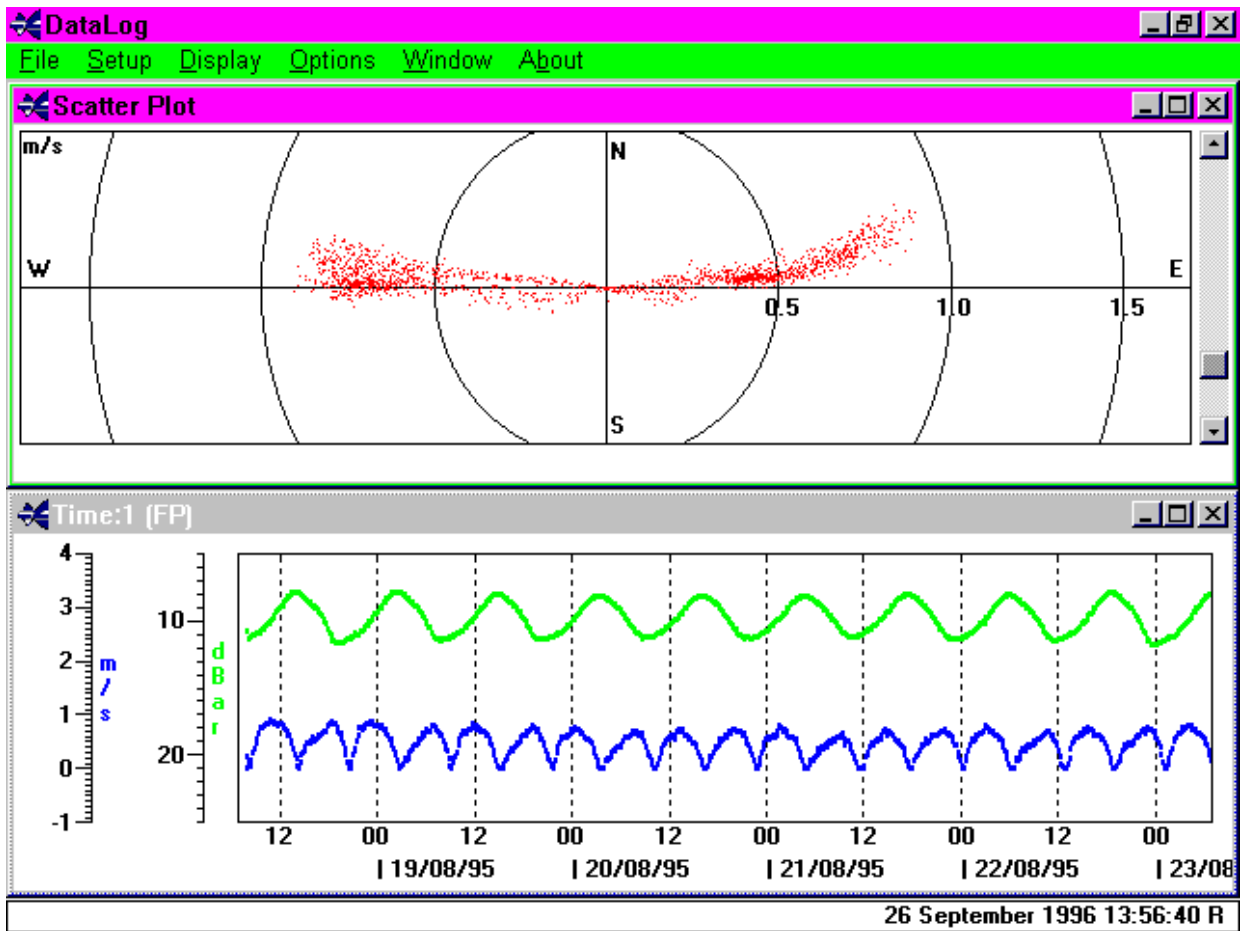
Below is an example of a cascaded display.



26 September 1996 13:54:33 R

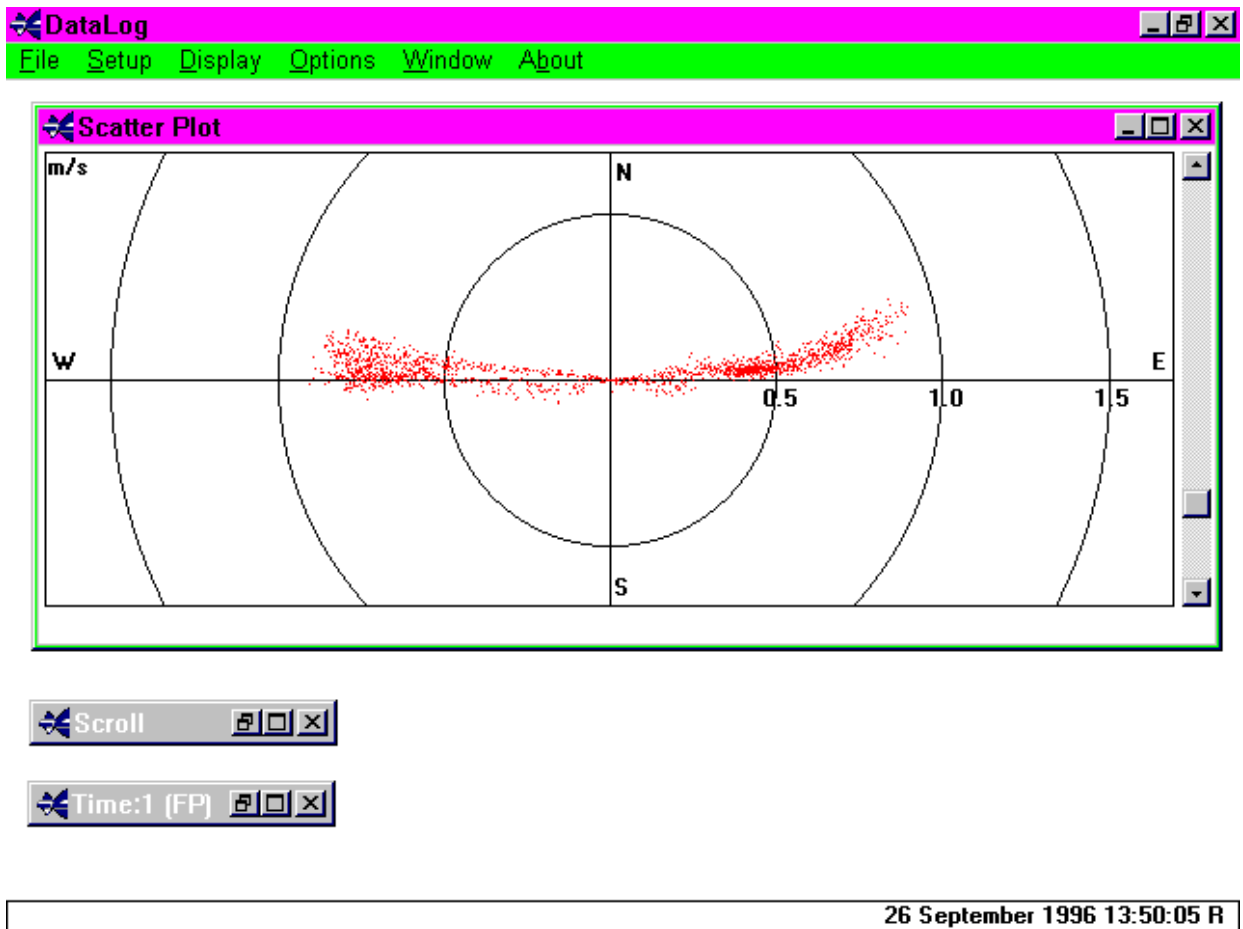
5.5.2 TILE

Below is an example of a Tiled display.



### 5.5.3 ARRANGE ICONS

Shown below is an example of the above function with a scatterplot display.



## 5.6 ABOUT

To enable the user to determine which software version is operating, select the *About* function. A display similar to below will be shown which contains information with regard to PC configuration.

