

6CH

User Manual

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Before you start...

This software is supplied with the files necessary for the operation of the sonde(s) for which it was developed and has been optimised to operate under Microsoft Windows XP in mode 32-bit colour.

On connecting the Electromind logger acquisition system to your computer for the first time, you will be asked to install the USB drivers. The necessary files and installation documentation can be found both in the subdirectory "Driver" of the 6CH application on your hard-disk and on the supplied logger 6CH installation CDROM. These files are also available for download from our web site www.electromind.eu by following the link to the [Software demos/updates](#) page and clicking on [Full package v1.06.06 with user guide FR & UK](#) under *Installation of the USB driver* or use [Full package v2.06.00 for Windows7](#) .

A sonde configuration file (*.tol) is generated for each down hole probe for which the system has been configured. Be attentive to the fact that the erasure or inappropriate modification of these files can lead to incorrect system operation and, in some cases, even damage to your down hole probe. For each of the down hole probes supplied with your Electromind logger system, a functional .tol file can, if necessary, be regenerated from the relevant text format sonde import file (*sonde_name_import.txt*) supplied on your installation CDROM.

A set of sample data files (T1.*) are also included in the software installation package. Following installation, these files can be located in the « Data » subdirectory of your chosen application installation location. These files allow the user to become familiar with the use of the software in replay mode.

Recommended minimum system configuration:

Intel Pentium XXX MHz/ AMD Athlon 1800 – 256 MB RAM – 1 free USB port

OS: Microsoft Windows XP (SP2) or Microsoft Windows 2000.

1. The main program window

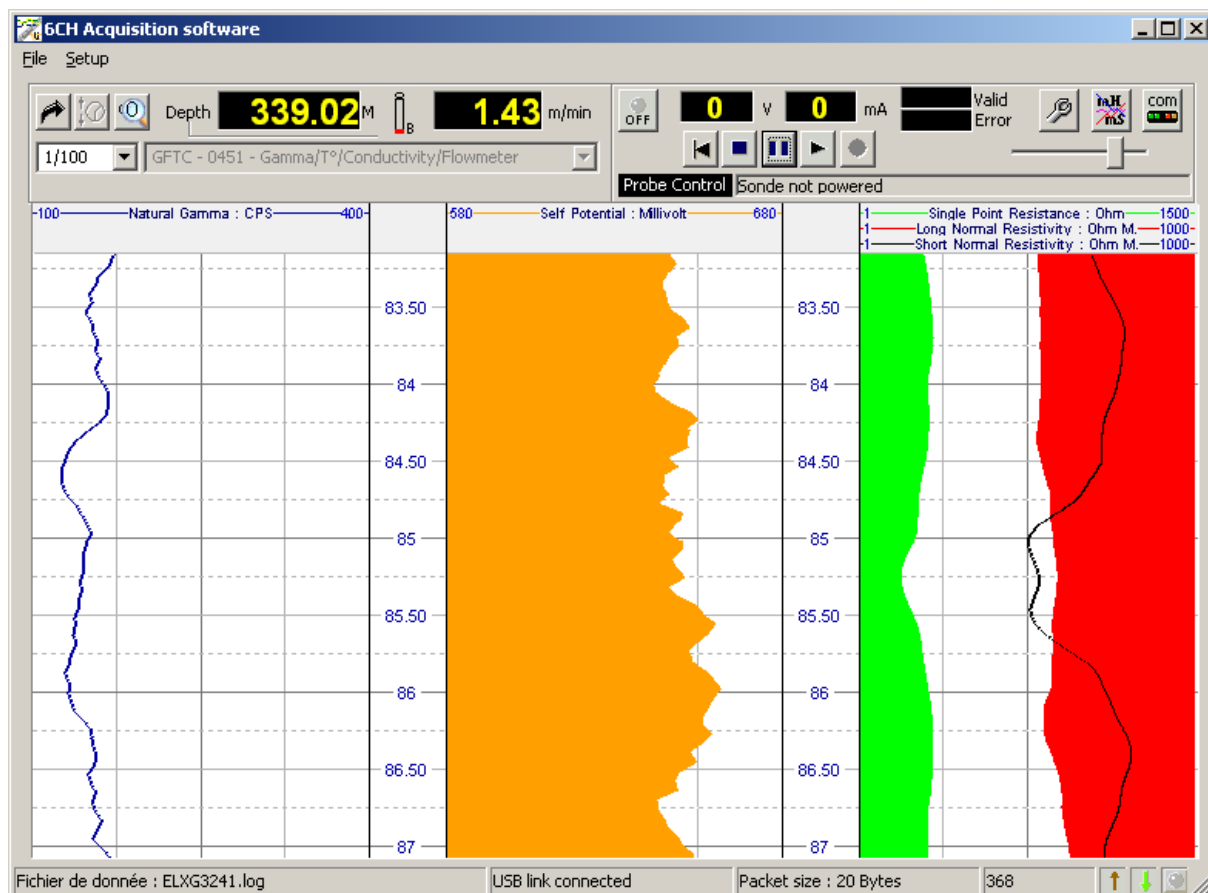


Fig. 1.0

The main program window is divided into several areas concerned with different aspects of the sonde configuration and logging operations.

The current sonde depth, logging speed and a number of other parameters are displayed in the upper left part of the screen (fig.1.2).

In the upper right part of the control panel are found the different controls and information for sonde power switching and data acquisition or replay (fig.1.5).

A status bar in the lower part of the screen provides additional information concerning system status, data transmission and the recording in progress (fig.1.1).

Additionally, the programme menu bar allows access to other functions related to data recording or replay and sonde or system configuration options.

The program status bar information display:

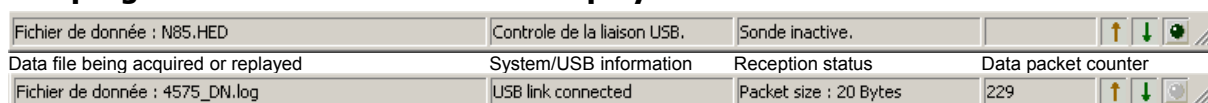
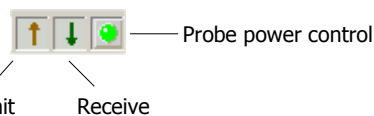


Fig. 1.1



1.1 Depth, logging speed, display scale, sonde selection and auxiliary commands panel

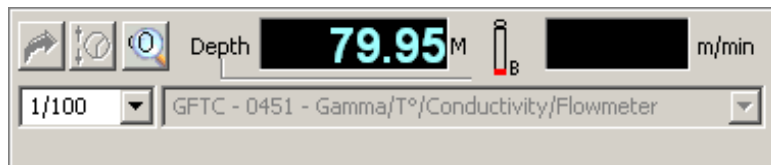


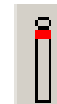
Fig. 1.2a Replay mode.



Reference = probe top



Fig. 1.2b Acquisition mode – probe powered off or replay mode with probe connected.



Reference = probe bottom



Fig. 1.2c Acquisition mode sonde powered on or replay mode with probe connected

The current tool depth and logging speed are updated continuously in real time while the Logger is powered on and connected to the logging computer's USB port.

While in acquisition mode, the depth display (in yellow) indicates the current depth of the probe. The depth display becomes blue when the Logger is powered off or when operating in replay mode. In the latter case, the depth display indicates the point reached in the data file replay.

A double-click on the depth reference icon  changes the log depth reference from the top to the bottom of the probe, or vice-versa.


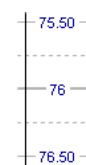
Clicking on the magnifying glass icon  in the upper left part of this panel opens an enlarged depth display window as shown below:




Fig.1.3



Depth scale in M
Referenced at bottom of probe

This display window, which also provides the current logging speed, can be closed either by double-clicking on it or by clicking on the close window button in its upper right-hand corner.

The depth setting button  allows the operator to enter an initial depth value prior to commencing a logging run, providing that the Logger is connected and powered on and that the logging tool is not powered on. (Fig.1.4).

The depth value entered at this point should correspond to the depth offset between the probe head connector locking collar and the chosen log depth reference (e.g. ground level, top of casing). When the probe head connector locking collar is located **above** the log depth reference level a **negative** offset should be entered.

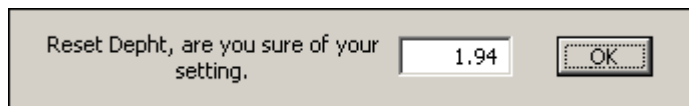





Fig.1.4

The current tool depth can be displayed in one of two ways: with respect to the probe head connector locking collar or, alternatively, with respect to the bottom of the probe. Double-clicking on the sonde icon to the right of the depth value display will switch the depth display between these modes, with the icon changing accordingly.

Depth at sonde top displayed:  ← → Depth at sonde bottom displayed: 

With the sonde powered on, the data display mode can be chosen by means of the  button from the three possible options : depth up, depth down and time.



The log data display depth scale can be selected from this drop down list box at the extreme left of the panel.

The table below explains how the different options available relate in terms of screen display properties:

Setting	Depth scale	Screen pixels	Data (1cm sampling)
1/25	1m/div at 4*magnification	400/div	100/div
1/50	1m/div at 2*magnification	200/div	100/div
1/100	1m/div	100/div	100/div
1/200	1m/div	50/div	200/div
1/500	5m/div	100/div	500/div
1/1000	10m/div	100/div	1000/div

NB: « div » = one major scale division

The data display depth scale can be changed at any moment during replay or log acquisition subject to the condition that the "Auto Print" option has not been activated.

Probes for which the system has been configured will appear in the drop-down list under the depth display. **The system will only allow a new probe to be selected with probe power switched off.** Where appropriate, auxiliary command buttons (such as caliper open/close) will appear immediately beneath the sonde selection list box. (See Fig. 1.2b and Fig. 1.2c).

1.2 Sonde data replay and recording controls



Fig. 1.5a Replay mode









Fig.1.5b Acquisition mode



Fig. 1.5C Acquisition mode – recording in process

This control panel changes according to how the software is currently being used :

In **replay mode** (fig. 1.5a). The control buttons  operate as for a video recorder, file replay speed being adjustable with the sliding cursor control . Clicking on the stop button  will terminate the replay in progress. While in pause mode, the restart button  allows a replay to be restarted from the beginning of the data file.

In **acquisition mode** (fig.1.5b) Once the Logger is correctly connected and switched on, the probe power button  becomes visible. After checking that system is configured correctly for the sonde by means of the  button (logging cable type, and sonde power voltage), the sonde can be powered up to begin the recording of a log; the probe communication status being indicated by the "Probe Control" display. Alert messages will be displayed here in case of problems, such as the **OVERRUN** message appearing when excessive logging speed causes data loss. The start of data transmission is signalled by a "beep" from the system.

The sonde function status is confirmed by the indicator at the lower right of the main programme window.

As a further check on correct sonde operation, the sonde voltage and current consumption indicators will flash red in the case that abnormal values are detected.




Recording a log (fig.1.5c) when the sonde is powered up and the communication with the sonde correctly configured, the « New log » menu option under « File » becomes available (see section 3.1.2) and the record button  is activated. Either of these methods can be used to begin recording a new log. Confirmation that recording is taking place is given by the flashing record button , the incrementing data counter and the recording time clock (see Fig. 1.5d).




Fig. 1.5d

Stop recording: this is accomplished by clicking on the stop button  or by switching off sonde power. A new log can then be started using the "File" – "New log" commands.

NB: Should the user click on the record button immediately after having stopped a preceding recording, a dialogue box will open allowing the user to choose either (a) to record a new file with the same file name, thus overwriting the previous file or, (b), to begin a recording a completely new file with a new file name, file location, header information etc.

2. System and probe configuration

2.1 Winch settings

To access this configuration dialogue, click on the  button from the main program window and then on the **Winch** tab of the setup dialogue box (Fig. 2.0).

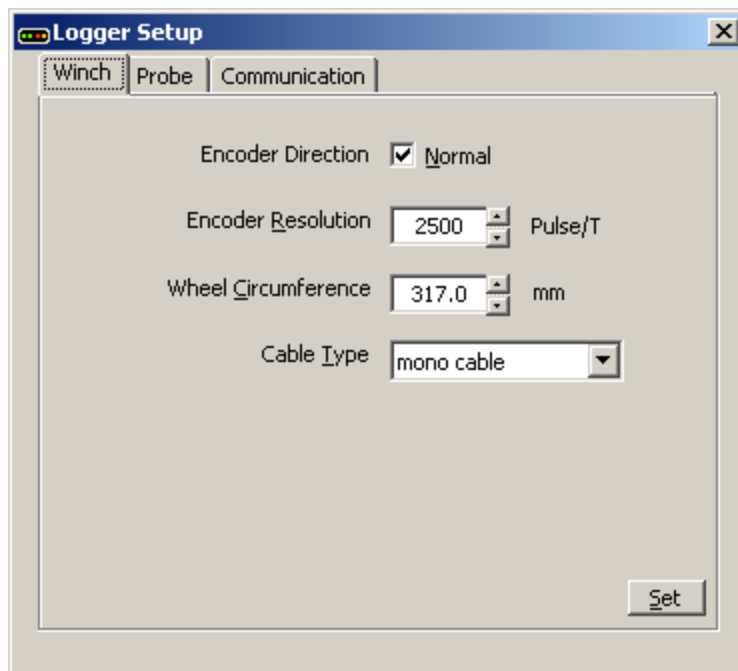


Fig. 2.0


By means of this dialogue box the user configures the software according to the parameters of the logging winch to be used: encoder direction and resolution, depth wheel circumference and logging cable type.

To avoid potential damage to down hole probes, it is particularly important to verify that the system is set up for the correct type of logging cable.

NB: Note that, to protect the logging system and connected probes, this configuration dialogue can only be accessed when probe power is switched off.

In replay mode, certain parameter settings may be greyed out to prevent accidental system reconfiguration.

2.2 Sonde voltage and data sampling settings

To access this configuration dialogue, click on the  button from the main program window and then on the **Probe** tab of the setup dialogue box (Fig. 2.1).

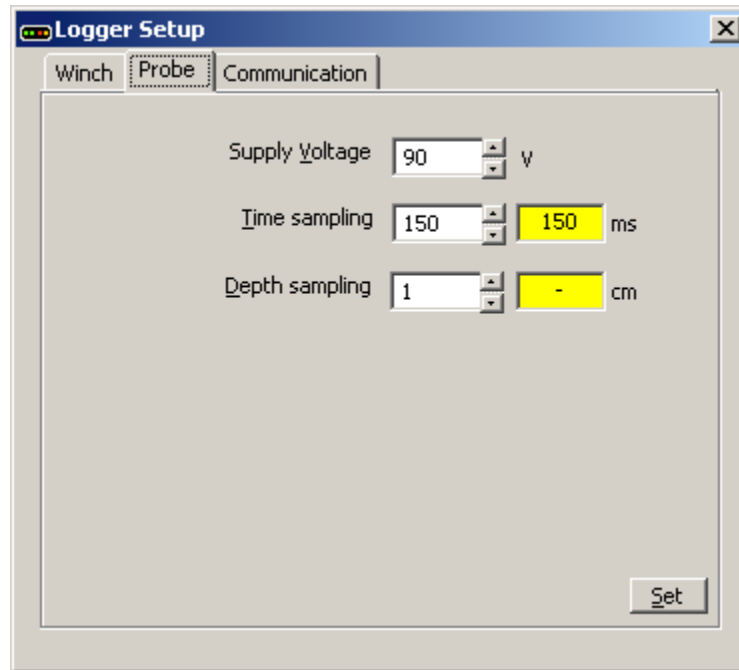


Fig.2.1

The probe power supply voltage can be adjusted within the range authorised by the system (80 to 120 Vdc).

A time sampling interval of between 100 and 5000 ms can be entered with the appropriate control. When the system has been correctly reconfigured, an identical value will appear in the adjacent confirmation display.

For depth mode sampling, values of between 1 and 100 cm can be entered (the value is common to both up and down logging directions). When the system has been correctly reconfigured, an identical value will appear in the adjacent confirmation display.

NB: Note that, to protect the logging system and connected probes, this configuration dialogue can only be accessed when probe power is switched off.

In replay mode, certain parameter settings may be greyed out to prevent accidental system reconfiguration.

2.3a Communication configuration and status display

To access this configuration dialogue, click on the  button from the main program window and then on the **Communication** tab of the setup dialogue box (Fig. 2.2a).

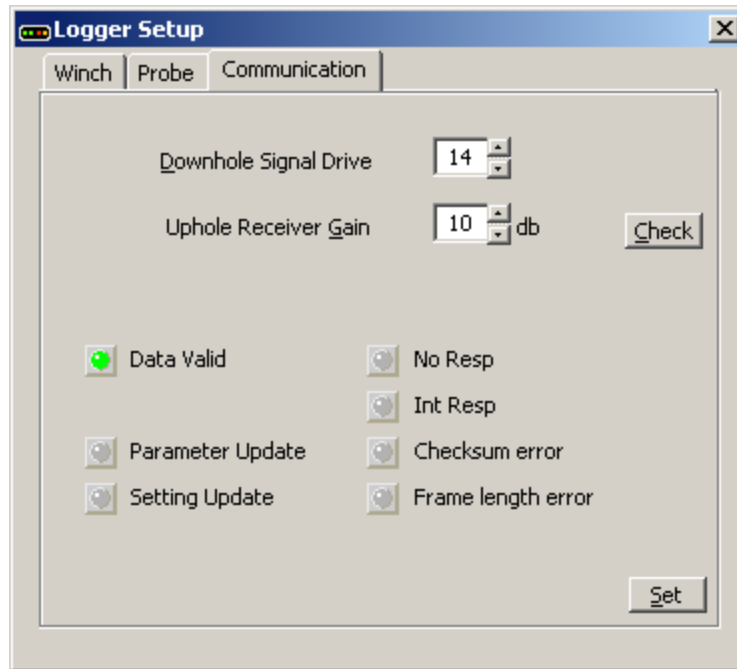


Fig.2.2a

Communication settings

The surface to probe signal level (Down hole Signal Drive) and acquisition module receiver amplification (Up hole Receiver Gain) can both be adjusted by means of this dialogue, in order to optimise communications in both directions along the logging cable.

A correctly configured system will minimise data loss caused by transmission errors.

Communications status

The lower part of this dialogue box comprises of a number of LED-type communications status indicators.

- Data Valid **GREEN** ⇒ communications OK
- Parameter or Setting Update **YELLOW** ⇒ system reconfiguration taking place
- No Resp/Int Resp/Checksum Error/frame Length Error **RED** ⇒ indicates a communications problem caused by incorrect configuration or equipment breakdown.

In replay mode, certain parameter settings may be greyed out to prevent accidental system reconfiguration.

2.3b Automatic communication settings tool

This routine can be used to automatically adjust the relevant communications parameters in order to achieve maximum data transmission reliability.

The procedure may require up to several minutes to complete, depending on the type and length of logging cable used. Assuming that the system has been able to successfully communicate with the connected probe, the software will propose to install the optimum settings for automatic future use.

To run the automatic communication settings tool, click on the button *Check* in the communication configuration and status display.

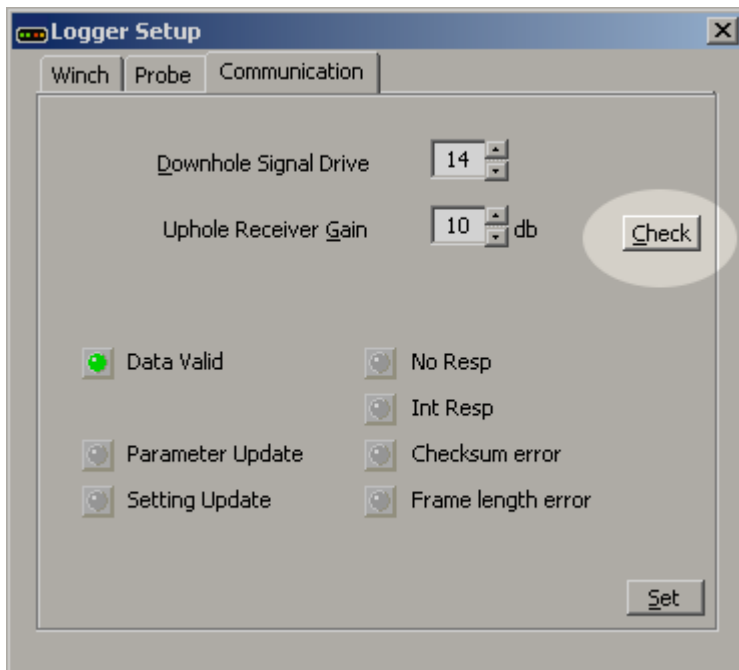


Fig. 2.2b

The optimised values for each individual probe installed on the system are stored in the program's probe configuration database.

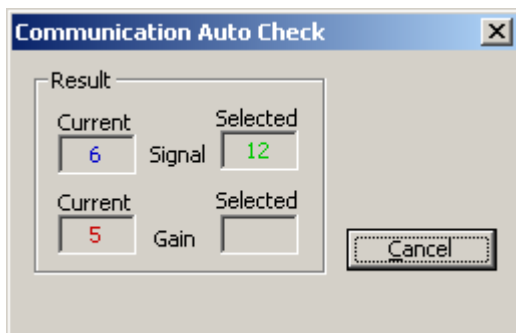


Fig.2.2c Check in progress: establishing and checking communication parameters..

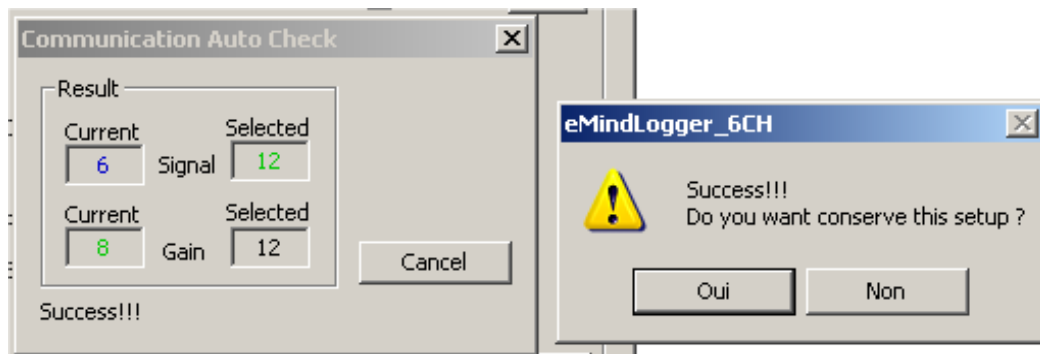


Fig.2.2d End of the test – successful completion.

2.4 Data values display

Open the dialogue by clicking on the  icon in the main program window.

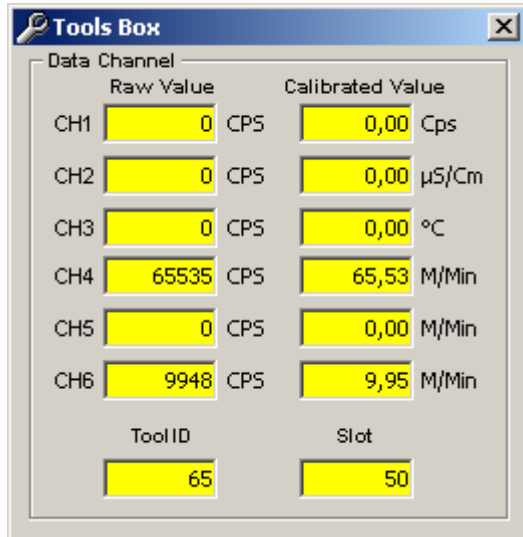


Fig.2.3a

The data values received from the probe are displayed in real-time in raw (left-hand column) and calculated (right-hand column) formats.

Double-clicking on any of the raw or calculated data values will open a new, large-format display window for that particular parameter (Fig. 2.3b). Selecting the **Fast update** option increases the refresh rate of this display window.

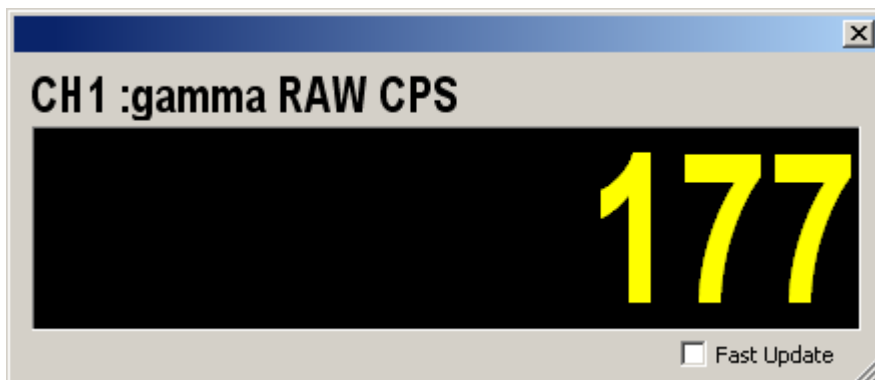


Fig.2.3b

The lowermost line of the data values display the Tool ID time slot parameter values transmitted by the probe.

2.5 Data display settings

Open the dialogue by clicking either on the  icon in the main program window, or by clicking on the title bar of the graphic log display window.

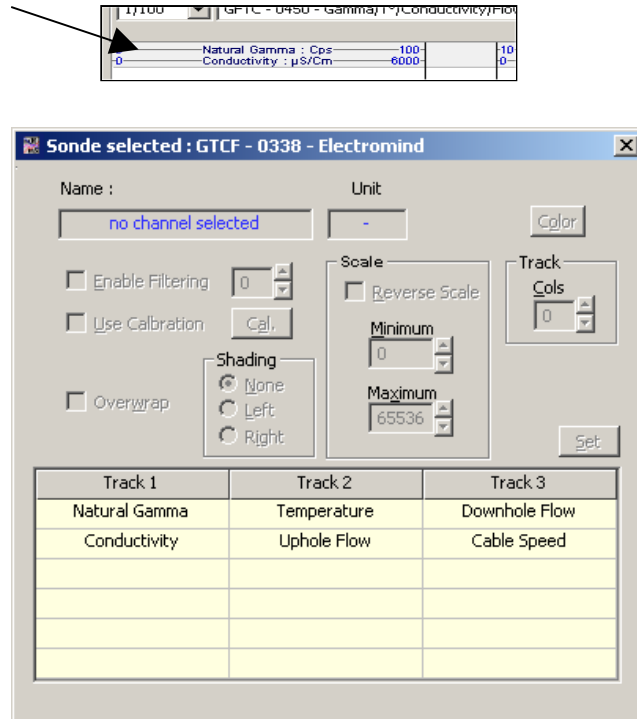


Fig.2.4

This will open a dialogue box (see Fig.2.4) from which the different display parameters for each data channel can be accessed and modified.

To modify the presentation of a particular data channel, click on its name in the track listing table and modify the values of the relevant control as shown below (Fig.2.5).

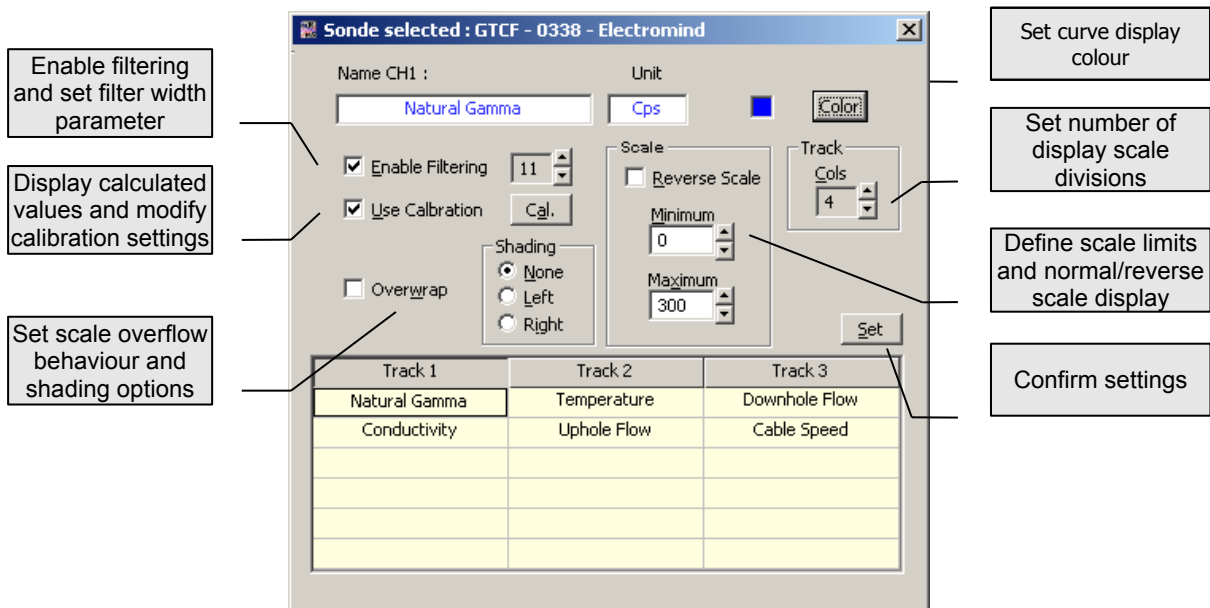


Fig.2.5



Clicking on the *Colour* button opens the curve colour selection dialogue. Double click on a colour to select it or click on *Cancel* to keep the current colour.

Probe data channels can be allocated to one of three « tracks » or columns for on-screen display or printing, each track being able to contain up to six data parameters.

If the probe in use provides data parameters over and above those currently displayed, these can be retrieved and positioned in any track having an available free position. Right mouse-click on the zone of the track listing table where you wish the log to appear, then select one from the available parameters from the list that opens after clicking on *Add a channel*.

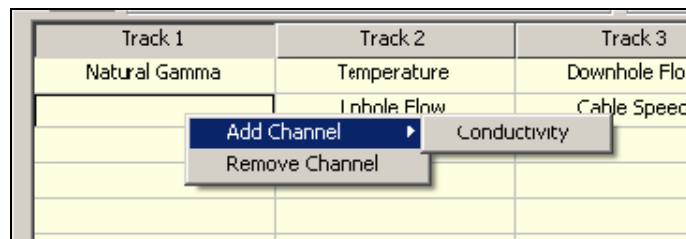


Fig2.6a

An unwanted parameter can be « deleted » from the track display by right mouse-clicking on its name and selecting *Delete this channel* on the contextual menu that then appears.

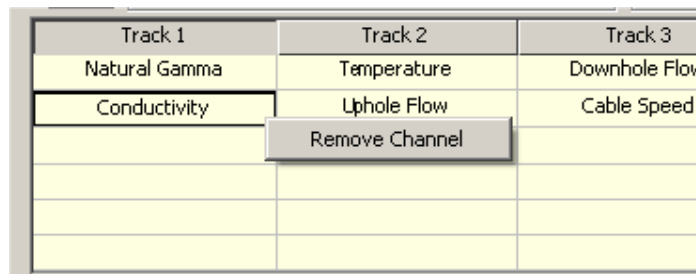


Fig2.6b

Moving a log parameter from one track to another is accomplished by first « deleting » it from its current position and subsequently « adding » it in any available new location.

3. Program menus

3.1 File and print menu

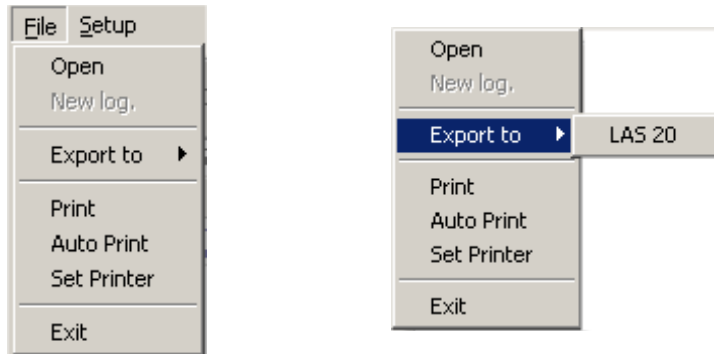


Fig.3.0

3.1.1a Open and replay a log: load a data file for replay

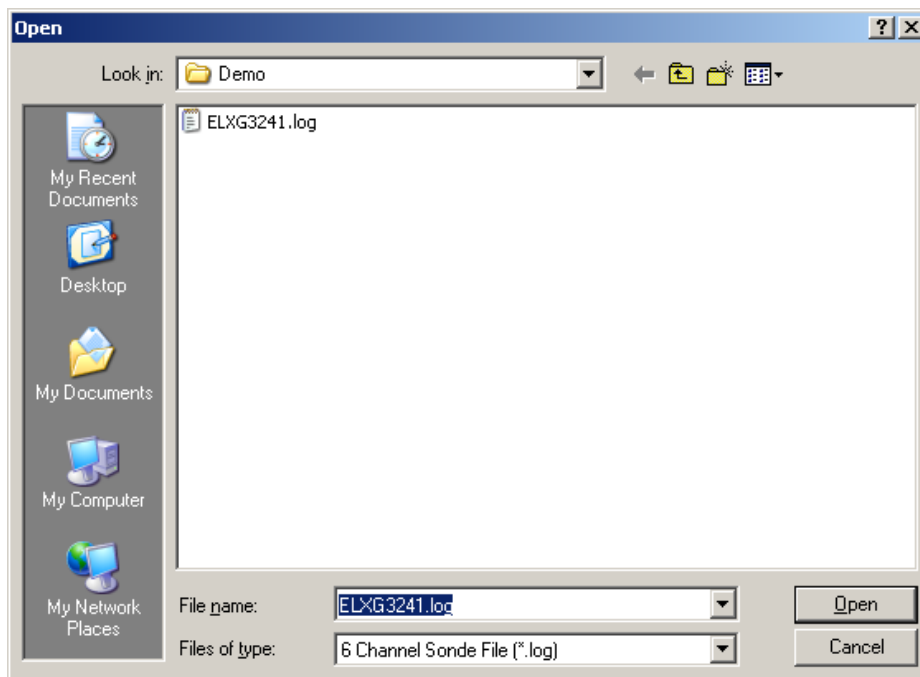


Fig.3.1

Choose the field data file (*.log) to be replayed by means of the dialogue box that opens on clicking *File, Open*. Click on the *Open* button of the dialogue to load the data file for replay. The selected file name will appear in the program status bar and the file replay control buttons will be activated in the main program window.

3.1.2.1 Record a new log:

Begin this procedure by clicking on *File, New log*. This requires a probe to be connected and powered on. A dialogue box will then open, asking the user to confirm the type of log to be recorded (Fig.3.2).

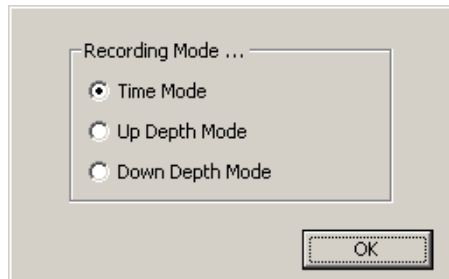


Fig.3.2

Once the log type has been selected, proceed to enter a file name for the log to be recorded.

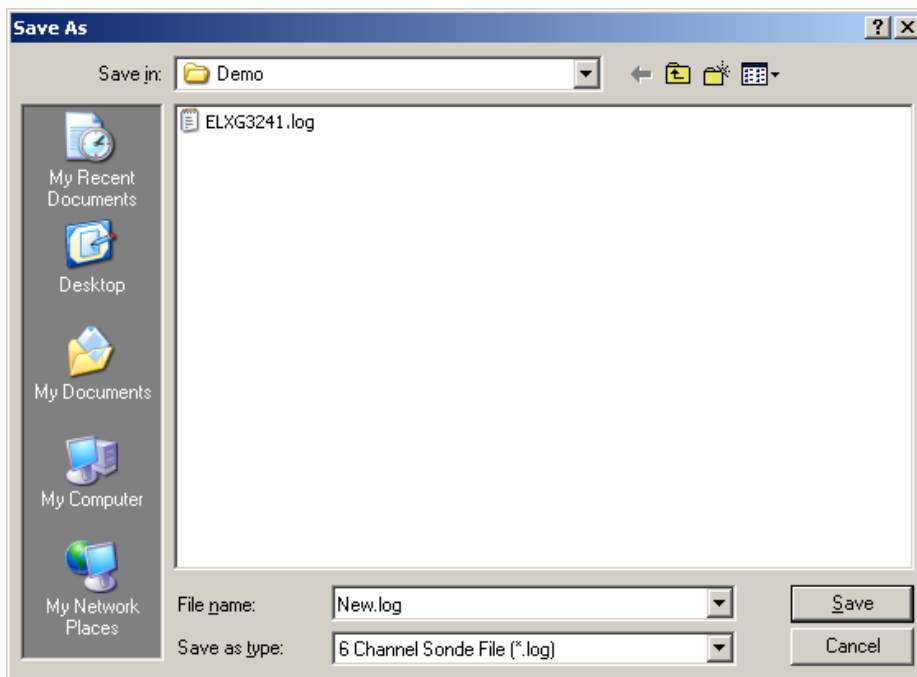


Fig.3.3

Whether or not the user chooses to enter any data in the following log header information dialogue boxes, log recording will begin once the file name has been entered.

3.1.2.2 Log header: client and borehole site.

The screenshot shows a software window with a blue title bar and a close button (X) in the top right corner. The window has a tabbed interface with the following tabs: 'Client / Location' (selected), 'Log Datum', 'Logging Run', 'Drill Bit Size / Casing', and 'Remarks'. The main content area contains the following fields:

- Project Heading:
- Main Log Title:
- Compagny:
- Well:
- Field:
- Country:
- State:
- Latitude:
- Longitude:

Below these fields is a section labeled 'OtherServices' containing five empty checkboxes:

At the bottom of the window are four buttons: 'Load', 'Reset', 'Cancel', and 'Save'.

Fig.3.4

3.1.2.3 Log header: log datum information.

The screenshot shows the same software window as Fig.3.4, but with the 'Log Datum' tab selected. The main content area contains the following fields:

- PermanentDatum:
- Elevation:
- Log Datum:
- Drilling Datum:
- Kelly Bushing Elev:
- Drill Floor:
- Ground Level:

At the bottom of the window are four buttons: 'Load', 'Reset', 'Cancel', and 'Save'.

Fig.3.5

3.1.2.4 Log header: borehole information.

The screenshot shows a software window titled 'Logging Run' with a tabbed interface. The 'Logging Run' tab is active. The window contains the following fields:

Run No	0	Density	
Date	07 August 2006	Level	
Type of log		Max. Temp.	0.00
Depth Driller		Rig. Time.	
Depth Logger		Witnessed by.	
Log Deepest			
Log Shallow			
Fluid in Hole			
Log Engineer			
Salinity			

Buttons at the bottom: Load, Reset, Cancel, Save.

Fig.3.6

3.1.2.5 Log header: borehole diameter and casing information.

The screenshot shows a software window titled 'Drill Bit Size / Casing' with a tabbed interface. The 'Drill Bit Size / Casing' tab is active. The window contains the following fields:

Run No	0
Casing Record	
Size	
Weight	
From	
To	
BitRecord	
Bit	
From	
To	

Buttons at the bottom: Load, Reset, Cancel, Save.

Fig.3.7

3.1.2.6 Log header: other remarks.

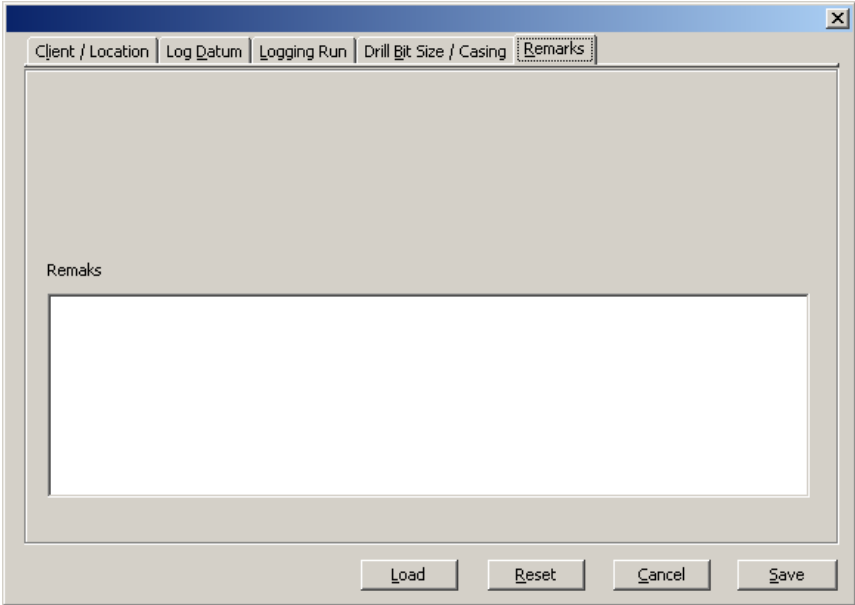


Fig.3.8

3.1.3 Export data

Currently, only LAS20 file export is available by clicking on *File, Export to, LAS20*.

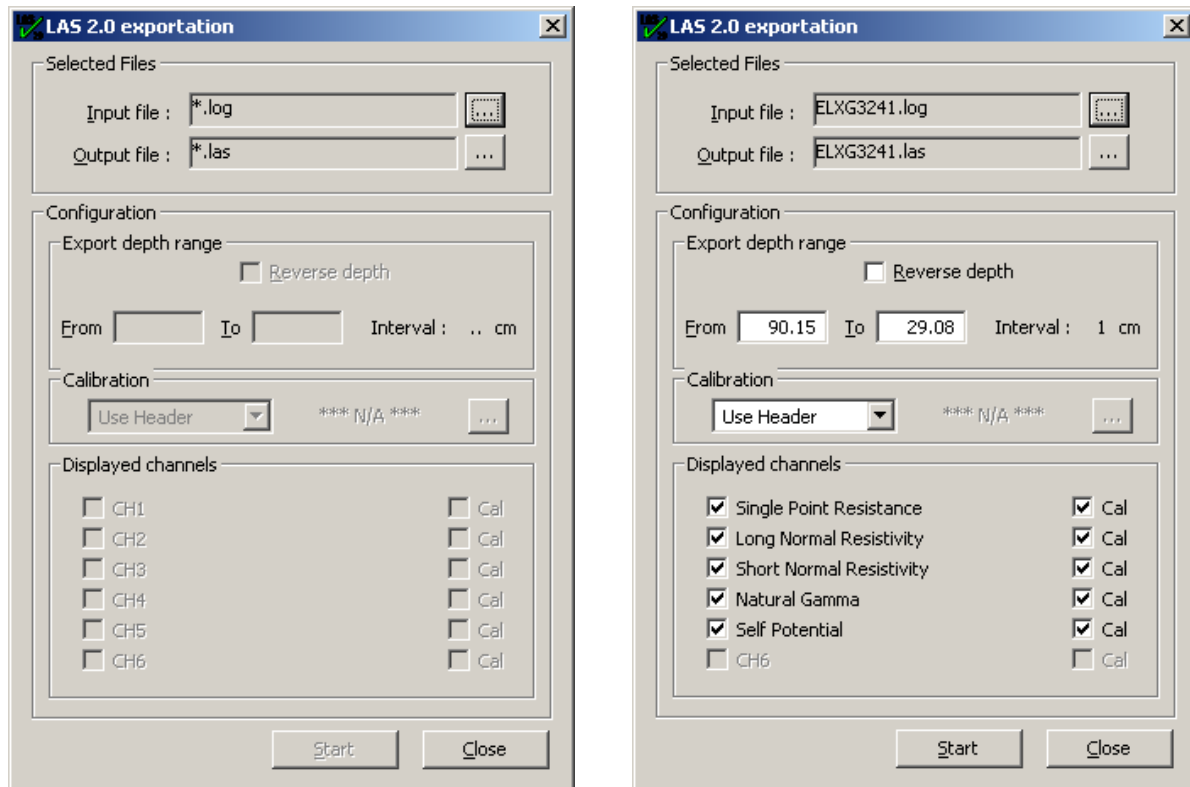


Fig 3.1 Export a LAS format file

The user must first select a field data file for exportation using the browse button in the upper part of this dialogue box. Once a valid file has been selected, the log depth range and available channels are listed. At this point the user can choose, if he so wishes, to export only a certain depth interval and/or to reverse the depth order in the exported LAS format file by selecting, or entering values in, the appropriate controls. By default, all available data channels are exported in calibrated format, according to the calibration settings contained in the field data files. The user can, however, de-select certain channels and/or choose to export raw, uncalibrated data if required.

Clicking on the *Start* button will generate the exported data file. An example of such an exported LAS format file has been included in this document (Appendix 4.2).

3.1.4 Printing

3.1.4.1 Print

By means of the *File, Print* menu commands, the user can produce hard-copy output of a file in course of recording or being replayed.

3.1.4.2 Auto Print

With this option selected, the *Print* menu command is disabled and the user can no longer modify the log depth scale. Log data will be automatically sent to the printer, page by page,

as a background task during recording, until such time as the user powers off the logging probe or de-selects this menu option.

3.1.4.3 Printing configuration.

The *File, Set Printer* commands open the Windows printer setup dialogue.

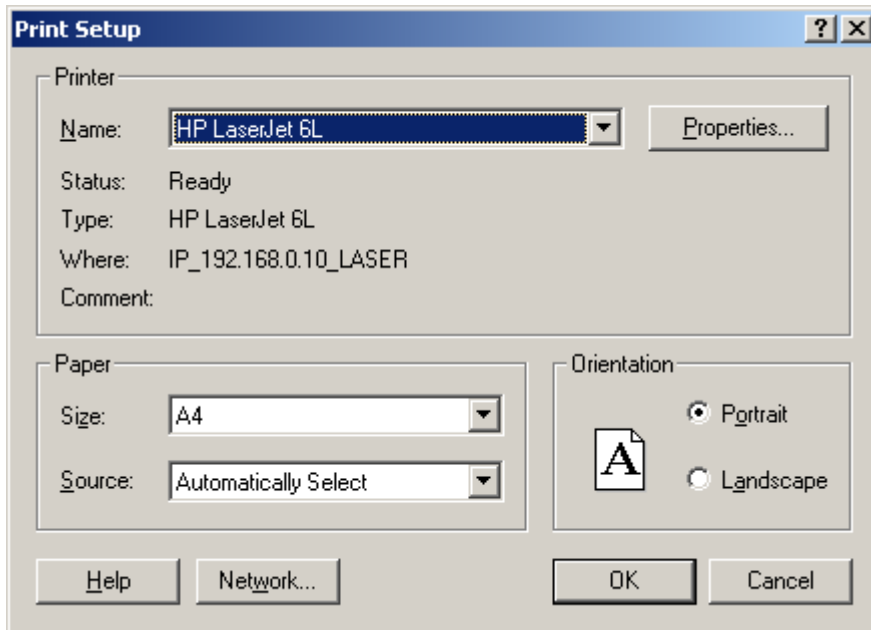


Fig.3.9

3.1.5 Exit: The *File, Exit* commands will close the program. For safety and data security reasons, power off any connected probe and close any file recording in progress before quitting the program.

3.2 Setup

3.2.1 Sonde import, calibration and deletion



Fig 3.11

3.2.1.1 Sonde import

Click on *Setup, Sonde, Sonde Import* to open the dialogue to configure the software for a additional logging probe (Fig.3.12). The user is then prompted for a .txt format sonde import file (this file will have been supplied with your Electromind sonde and should be copied to the **Sonde Import** sub-directory of your logger 6CH software installation).

If necessary, the sonde import file can be edited by the user prior to sonde importation, for example to take into account new calibration coefficients (Coefficient0 ... Coefficient3) for a particular probe data parameter. These coefficients can be entered in either normal (0.001234) or scientific (1.234E-3) notation up to a maximum of six decimal places.

The example sonde import file included in this document (see section 4.2) can be used to create a suitable file to configure the system for a compatible sonde sourced from another manufacturer.

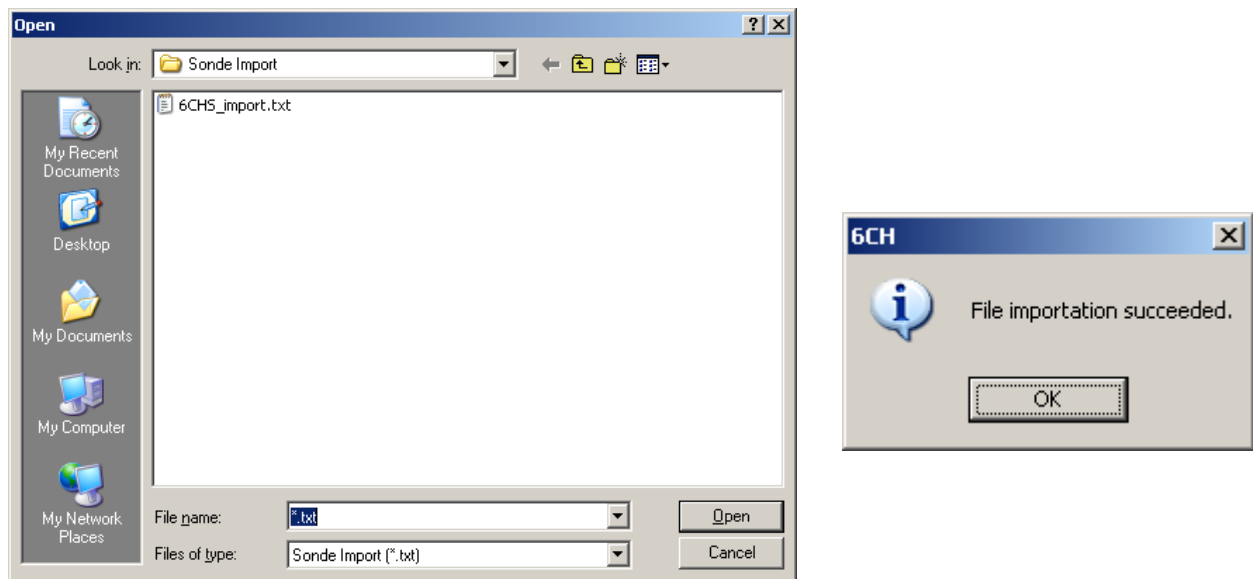


Fig 3.12

When a sonde has been successfully imported, the program creates new *.tol and *.cal files for the probe concerned incorporating the different configuration elements defined in the .txt sonde import file. Whereas the *.tol file is updated at each probe calibration or other modification, the *.cal file preserves the factory supplied probe calibration parameters.

NB: the .txt format sonde import file is only relevant to the initial importation of the probe concerned. Subsequent configuration changes, for example to calibration coefficients, are **not** reflected in this file but are incorporated to the system-generated *.tol file.

3.2.1.2 Calibration

By means of this dialogue, accessed by clicking *Setup, Sonde, Calibration* menu options, the user can rename, change the calibrated units label or enter new calibration coefficients for any data parameter provided by the probe.

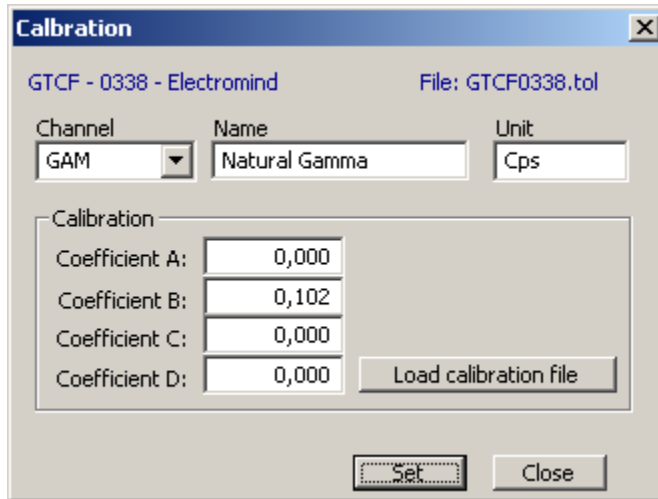


Fig.3.13

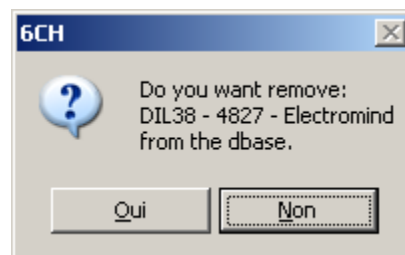
The coefficients A, B C and D are applied in the following manner:

$$\text{CalibratedValue} = \text{CoeffA} + (\text{CoeffB} * \text{cps}) + (\text{CoeffC} * \text{cps}^2) + (\text{CoeffD} * \text{cps}^3)$$

In case of necessity, the button **Load calibration file** can be used to restore the original factory-supplied calibration coefficients.

3.2.1.3 Remove sonde

The *Remove sonde* menu option allows the user to delete a probe from the program configuration database. After choosing one from the probes currently installed on the system, the deletion must be confirmed in the following dialogue box. At this point the probe's *.tol file will be deleted from the system.



After deletion, a probe can be reinstalled, if necessary, using its sonde import *.txt file and following the procedure described in section 3.2.1.1 above.

NB: Minimum one probe must remain in the database for proper operation of the application .
Maximum of 100 probes can be imported .

4. Appendices:

4.1 LAS sample file:

```
#Written by Electromind s.a. V:1.0
~VERSION INFORMATION
#-----
VERS. 2.0 : CWLS LOG ASCII STANDARD - VERSION 2.0
WRAP. NO : ONE LINE PER DEPTH STEP
~WELL INFORMATION
#MNMEN.UNIT          DATA          DESCRIPTION
#-----
STRT.M              10.11          : START DEPTH
STOP.M              2.21          : STOP DEPTH
STEP.M              -0.10          : STEP VALUE
NULL.               -999.250         : NULL VALUE
COMP.               Electromind   : COMPANY NAME
WELL.               N/A          : WELL NAME
FLD.                N/A          : FIELD NAME
LOC.                N/A          : LOCATION
CTRY.               N/A          : COUNTRY
CNTY.               N/A          : COUNTY
STAT.               N/A          : STATE
SRVC.               N/A          : SERVICE COMPANY NAME
DATE.               02 February 2004 : DATE
API.                N/A          : API REFERENCE NUMBER
~PARAMETER INFORMATION
#MNEMO.UNIT          VALUE          DESCRIPTION OF MNEMONIC
#-----
CH1-COEFA.          0.000000      CH1 : CALIBRATION COEF A
CH1-COEFB.          -1.000000     CH1 : CALIBRATION COEF B
CH1-COEF C.         0.000000      CH1 : CALIBRATION COEF C
CH1-COEF D.         0.000000      CH1 : CALIBRATION COEF D
CH2-COEFA.          0.000000      CH2 : CALIBRATION COEF A
CH2-COEFB.          -1.000000     CH2 : CALIBRATION COEF B
CH2-COEF C.         0.000000      CH2 : CALIBRATION COEF C
CH2-COEF D.         0.000000      CH2 : CALIBRATION COEF D
CH3-COEFA.          0.000000      CH3 : CALIBRATION COEF A
CH3-COEFB.          1.000000      CH3 : CALIBRATION COEF B
CH3-COEF C.         0.000000      CH3 : CALIBRATION COEF C
CH3-COEF D.         0.000000      CH3 : CALIBRATION COEF D
CH5-COEFA.          0.000000      CH5 : CALIBRATION COEF A
CH5-COEFB.          1.000000      CH5 : CALIBRATION COEF B
CH5-COEF C.         0.000000      CH5 : CALIBRATION COEF C
CH5-COEF D.         0.000000      CH5 : CALIBRATION COEF D
~OTHER INFORMATION SECTION
#-----
Notes: The log is recorded in Down Mode.
#-----
~CURVE INFORMATION
#MNEMO.UNIT          API CODE          CURVE DESCRIPTION
#-----
DEPTH.M              : 0 Depth
CH1.Cps              : 1 gamma
CH2.Cps              : 2 Sample2
CH3.Cps              : 3 Sample3
CH5.Cps              : 5 Sample5
#-----
~A DEPTH            CH1            CH2            CH3            CH5
10.11              -86.000        94.000         101.000        116.000
10.01              -85.000        93.000         100.000        115.000
9.91               -84.000        92.000         99.000         114.000
9.81               -83.000        91.000         98.000         113.000
9.71               -82.000        90.000         97.000         112.000
9.61               -81.000        89.000         96.000         111.000
~                  ~              ~              ~              ~
~                  ~              ~              ~              ~
~                  ~              ~              ~              ~
2.51              -999.250       -999.250       -999.250       -999.250
2.41              -999.250       -999.250       -999.250       -999.250
2.31              -999.250       -999.250       -999.250       -999.250
2.21              -999.250       -999.250       -999.250       -999.250
```

4.2 Sonde import *.txt file example

```
[Sonde]
Name=6 Channel default sonde          # Sonde name
Abbreviation=6CHS                     # Abbreviated sonde name (4 characters)
Manufacturer=Electromind              # Sonde manufacturer
SerialNumber=0001                     # Sonde serial number
Length=200                            # Sonde length
NumberOfChannels=6                    # Number of data output channels (1 to 6)
Date=03/02/2004                       # File creation date
Voltage=100                            # Sonde power supply voltage

[Cmd]
***-1 or empty = cmd Disabled ***    # Caliper or auxiliary sonde commands
Aux1=80                               # Manufacturer-defined binary value sent to sonde
Aux1Txt=Aux1                          # Command button text label
Aux2=05                               # {NB: should all Aux$ commands be set to -1,
Aux2Txt=Aux2                          # the command bar will not appear in the application.
Aux3=96                               # In the case of individual Aux$ commands set to -1, the
Aux3Txt=Aux3                          # relevant command button text will appear greyed-out.
Aux4=06                               # In such cases the text can be replaced by "-".)
Aux4Txt=Aux4
Aux5=105
Aux5Txt=OPEN
Aux6=135
Aux6Txt=CLOSE

[Channel1]
Offset=200                            # Shift in cm of measure point from bottom of sonde
PhysicalCh=1                          # Position of data channel in transmitted data packet
Title=Channel 1                       # Channel title
TitleShort=CH1                        # Abbreviated channel title
Unit=Cps                              # Measurement unit
Minimum=0                             # Minimum scale value (by default)
Maximum=65535                         # Maximum scale value (by default)
Calibration=no                        # Display calibrated (yes) or raw (no) values
CalibComma=0                          # Number of decimal places displayed
Coefficient0=0.0                      # Coefficient A {can be formatted 0.123456
Coefficient1=1.0                      # Coefficient B or as 1.123456E-6
Coefficient2=0.0                      # Coefficient C to max 6 decimal places}
Coefficient3=0.0                      # Coefficient D
Filter=no                              # Apply filter to data (yes/no)
FilterWidth=21                       # Filter width parameter (number of data samples)

[Channel2]
.
.
[Channel6]
```

4.3 What to do if ...

An error message « Can't load FTD2xx.dll » appears

This message signifies that the USB driver is either not installed or of an incorrect version for your hardware. Restart the USB driver installation. The necessary files and installation documentation can be found both in the subdirectory "Driver" of the logger 6CH application on your hard-disk and on the supplied logger 6CH installation CDROM. These files are also available for download from our web site www.electromind.eu by following the link to the [Software demos/updates](#) page and clicking on [Full package v1.06.06 with user guide FR & UK](#) under *Installation of the USB driver*.

Used system resources exceed 75% when logging.

The PC used probably does not meet the minimum requirements for use with logger 6CH program and hardware in one or more respects: processor, memory, graphics system or USB interface. Using the programme and hardware in such conditions can lead to data loss and/or fatal program crashes.

Problems with importing .LOG et .HED files in WellCad :

*« on importing my data files into WellCAD I don't have the possibility to display raw uncalibrated data. In WellCAD the *.LOG files can be imported without difficulty (Import -> Single File -> RGV106). The dialogue box "File Header Import" opens to allow me to choose which log header items to include in the WellCad document ("Company", "Date", "Start Depth" etc...). But at no point am I asked whether I want to import raw or calibrated data. If I click on "OK" or "Skip Header", the .LOG file opens and the data are imported in calibrated format. »*

To switch between importing calibrated or raw data into WellCAD, use the menu options **Tool, Options, RGV106** and apply the required setting by means of the « *Use calibration* » checkbox.

WellCAD does not propose these two possibilities at the moment of file importation with this format.

If I try to import a .HED file, WellCad produces two error messages :

```
«
-> "The file .HED does not correspond to the LGX file format"
then
-> "Cannot read .HED"
»
```

This occurs when the « LGX » file type is incorrectly selected for the importation of logger 6CH data into WellCAD. Permitted file formats for import into WellCAD are RG v106 (for native format 6CH field data files) or LAS (for files previously exported from the 6CH program).