



GeoExplorer CPT Data Acquisition Software

Manual

The screenshot displays the GeoExplorer software interface. On the left, the 'Project Dashboard' shows project details for 'EGS test 003' at 'Sassenheim', including project number 217133, ground level 0, CPT unit 004711, and cone status 'Connected cone' with cone number 515151. The 'Soundings' table lists three tests (14, 15, 16) with their respective dates and locations. The main area shows five data acquisition graphs: Tip Resistance [kN], Sleeve Friction [kN], Pure Pressure [MPa], Friction ratio, and Inclination. A summary table at the bottom provides key values: t_p [kN] = 0.449, s_f [kN] = 0.041, p_p [MPa] = 0.006, Frc [kN] = 0.548, α_x [°] = 15.408, α_y [°] = 1.848, and Inc [°] = -0.213. A video window in the bottom left shows a soil sample at a depth of -03.62m.

Meet the difference

Contents

- About this user manual 3
- 1. Purpose of GeoExplorer 3
- 2. Features 3
- 3. Technical requirements 4
- 4. Software license..... 4
 - 4.1 Grant of license 4
 - 4.2 Description of other rights and limitations 4
 - 4.3 Termination 5
 - 4.4 Copyright..... 5
 - 4.5 No warranties..... 5
 - 4.6 Limitation of liability 5
- 5. Installation procedure..... 6
- 6. Software updates..... 6
- 7. Main screen 7
- 8. Configuration screen..... 8
- 9. CPT testing..... 12
- 10. Reporting 16
 - 10.1 Daily report 16
 - 10.2 Periodic report 17
 - 10.3 Printing the present graph 18
- 11. Project management 19
- 12. Sending project(s) per E-mail..... 22
- 13. Loading a Completed Project / CPT Test 23
- 14. Cone calibration library 23
- 15. International standards..... 25

Nothing from this document may be copied and/or made public by means of printing, photocopy, microfilm or in any other way whatsoever without the prior written permission of the publisher. Technical data can change without prior notification. Eijkelkamp GeoPoint SoilSolutions is not responsible/liable for damage/personal injury due to the use or misuse of this product. Eijkelkamp GeoPoint SoilSolutions is pleased to receive your feedback and comments about its products and this user manual.

About this user manual



When the symbol shown on the left is placed before a section of text, this means that an important instruction follows.



When the symbol shown on the left is placed before a section of text, this means that an important warning follows pointing out a risk of injury to the user or damage to the device. Note: The user is at all times responsible for sufficient personal protection.

Text

Text in italics means that the actual text is shown on the display screen or the device.

1. Purpose of GeoExplorer

The GeoExplorer software is designed to register Cone Penetration Test measures. Years of experience in the CPT branch provided us the tools to make this application fulfill your demands and your wishes. GeoExplorer is based on Microsoft Windows® Technology and updated regularly to meet the demands of changing international standards. This makes the CPT testing clear and understandable, and with the built-in E-mail integration its easy to email a project.

2. Features

The GeoExplorer software has the following features:

- Individual CPT's or complete projects can be E-mailed by means of optional GPRS
- Screen scrolling is possible during testing
- Supports both compression type and subtraction type electrical cones
- Supports electrical measuring heads for mechanical CPT
- Registration of 8 channels, freely definable analog channels
- Alarms, graphs and colors can be selected by the user
- Integrated de-bugger option and functionality test
- Resume test after disruptions
- Integrated project administration
- Load previously saved tests
- GeoPoint, GeoMil and APB Gorilla® output data formats selectable for storage, exchange and process
- Possibility to enlarge or compress graphs during tests
- Possibility to go back to a previous moment while the test keeps running
- Automatic selection of cone type, number of measuring channels, calibration and scale
- Simultaneous recording of the cone signals, such as cone resistance (qc), local sleeve friction (fs), inclination (X & Y), up to two pore pressure(s) (P), temperature (T), conductivity, etc.
- Registration of the depth, time, test speed, zero-shifts, calibration values
- XY inclinometer display
- Recording and presentation of measured values adjustable from every 10 to every 100 mm
- Automatic generation of diary files
- On-screen display of measured values (numerically or graphically) during CPT testing procedure either against time or against depth
- The last 6 to 24 meters are always on screen during CPT testing
- During CPT testing up to 8 analogue and 4 digital channels can be recorded and presented simultaneously
- System warnings for reaching maximum load on cone, maximum inclination and maximum zero-shift. Maximum levels can be entered by the user. System can trigger a visual alarm or send a signal to a shut-off relay for stopping the CPT procedure
- Automatic compensation for heave or slipping of the push-and-pull clamp
- Preliminary test results can be seen on screen or printed in the field (with an optional printer)

3. Technical requirements

The system requirements for the GeoExplorer software are as follows:

- Microsoft® Windows® 7, XP or 2000 recommended
- Intel® Pentium or AMD processor of at least 500 MHz.
- 256MB RAM internal memory (512MB RAM recommended)
- Graphical display card with support for 1024 x 768 x 32-bit colour
- CD-ROM or DVD-ROM drive
- GSM modem to use the E-mail functions. Preferably the Vodafone GSM network card
- Inkjet or laser printer for printing functionality

4. Software license

End-user license agreement for GeoExplorer. Important: Please read the terms and conditions of this license agreement carefully before continuing with the installation of this software package.

End-User License Agreement (“EULA”) is a legal agreement between you (either an individual or a single entity) and Eijkelkamp GeoPoint SoilSolutions for the GeoExplorer software identified above which may include associated software components, media, printed materials, and “online” or electronic documentation.

By installing, or otherwise using the GeoExplorer software, you agree to be bound by the terms of this EULA. This license agreement represents the entire agreement concerning the program between you and Eijkelkamp GeoPoint SoilSolutions, (referred to as “licenser”), and it supersedes any prior proposal, representation, or understanding between the parties. If you do not agree to the terms of this EULA, do not install or use the GeoExplorer software.

The GeoExplorer software is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties.

4.1 Grant of license

The GeoExplorer software is licensed as follows:

- a. Installation and Use; Eijkelkamp GeoPoint SoilSolutions grants you the right to install and use 1 copy of the GeoExplorer software on your computer running a validly licensed copy of the operating system for which the GeoExplorer software was designed (e.g., Windows 98, Windows XP, Windows Vista, Windows 7).

4.2 Description of other rights and limitations

- a. Maintenance of copyright notices; You must not remove or alter any copyright notices on any and all copies of the GeoExplorer software.
- b. Distribution; You may not distribute registered copies of the GeoExplorer software to third parties.
- c. Prohibition on reverse engineering, decompilation, and disassembly; You may not reverse engineer, decompile, or disassemble the GeoExplorer software, except and only to the extent that such activity is expressly permitted by applicable law notwithstanding this limitation.
- d. Rental; You may not rent, lease, or lend the GeoExplorer software to third parties.
- e. Support services; Eijkelkamp GeoPoint SoilSolutions may provide you with support services and software updates related to the GeoExplorer software (“Support Services”). Any supplemental software code provided to you as part of the Support Services shall be considered part of the GeoExplorer software and subject to the terms and conditions of this EULA.
- f. Compliance with applicable laws; You must comply with all applicable laws regarding the use of the GeoExplorer software.

4.3 Termination

Without prejudice to any other rights, Eijkelkamp GeoPoint SoilSolutions may terminate this EULA if you fail to comply with the terms and conditions of this EULA. In such event, you must destroy all copies of the GeoExplorer software in your possession.

4.4 Copyright

All title, including but not limited to copyrights, in and to the GeoExplorer software and any copies thereof are owned by Eijkelkamp GeoPoint SoilSolutions or its suppliers. All title and intellectual property rights in and to the content which may be accessed through use of the GeoExplorer software is the property of the respective content owner and may be protected by applicable copyright or other intellectual property laws and treaties. This EULA grants you no rights to use such content. All rights not expressly granted are reserved by Eijkelkamp GeoPoint SoilSolutions

4.5 No warranties

Eijkelkamp GeoPoint SoilSolutions expressly disclaims any warranty for the GeoExplorer software. The GeoExplorer software is provided 'As Is' without any express or implied warranty of any kind, including but not limited to any warranties of merchantability, non-infringement, or fitness of a particular purpose. Eijkelkamp GeoPoint SoilSolutions does not warrant or assume responsibility for the accuracy or completeness of any information, text, graphics, links or other items contained within the GeoExplorer software. Eijkelkamp GeoPoint SoilSolutions makes no warranties respecting any harm that may be caused by the transmission of a computer virus, worm, time bomb, logic bomb, or other such computer program. Eijkelkamp GeoPoint SoilSolutions further expressly disclaims any warranty or representation to Authorized Users or to any third party.

4.6 Limitation of liability

In no event shall Eijkelkamp GeoPoint SoilSolutions be liable for any damages (including, without limitation, lost profits, business interruption, any kind of damage or lost information) rising out of 'Authorized Users' use of or inability to use the GeoExplorer software, even if Eijkelkamp GeoPoint SoilSolutions has been advised of the possibility of such damages. In no event will Eijkelkamp GeoPoint SoilSolutions be liable for loss of data or for indirect, special, incidental, consequential (including lost profit), or other damages based in contract, tort or otherwise. Eijkelkamp GeoPoint SoilSolutions shall have no liability with respect to the content of the GeoExplorer software or any part thereof, including but not limited to errors or omissions contained therein, libel, infringements of rights of publicity, privacy, trademark rights, business interruption, personal injury, loss of privacy, moral rights or the disclosure of confidential information

5. Installation procedure

The GeoExplorer software can be installed on your computer by clicking on a link you will receive by E-mail. The installation procedure is highly automated and straightforward. During the installation, you can choose for either the English or the Dutch version.

For future support and easy access, it is strongly recommended to install GeoExplorer to its default folder, namely C:\GEOEXPLORER. However, this is not mandatory.

When going through the installation procedure you install the official version, but the license file is still a so-called demo-file. This demo-file will give you access to all functions of GeoExplorer for a period of maximum 45 days. During this period you can evaluate the program and order the license file, if you're satisfied.

This license file can be obtained from Eijkelkamp GeoPoint SoilSolutions by sending us the correct machine-code of your computer. This code can be found in the pop-up dialog screen that opens up when starting GeoExplorer. This code consists of 8 numbers and letters. Based on this code we will generate the official software license, which we will send you immediately by E-mail.

The installation procedure of the full license is straightforward. Proceed as following:

1. Go to the directory where the GeoExplorer software is stored. In general this is directory C:\Geoexplorer
2. Remove the present geoexplorer.lic file (this represents the demo-version of the software) and replace it by the geoexplorer.lic file attached to the E-mail you will receive.

Now you have installed the official license and can use all features of GeoExplorer without any limitations.



By installing GeoExplorer, a default demonstration calibration file will be installed as well. Please do realize, that you first have to select the electric CPT cone or measuring head you intend to use before using the program and starting the CPT testing procedures!



We assume here that the program is installed in the recommended default directory. When Windows asks you to replace the file, please confirm. A license file is always valid until the end of the year. A new license file will be send to you automatically for each license you have.



In this manual the term keyboard combination will be used at multiple occasions. This implies that a certain functionality of the software can be started by hitting 2 or 3 keys on the keyboard simultaneously; e.g. 'CTR', 'ALT' and for instance a letter.

6. Software updates

Because the GeoExplorer software is constantly under development, you are able to update the software. Every two years the GeoExplorer software is updated with new and better features. This update will be free off charge.

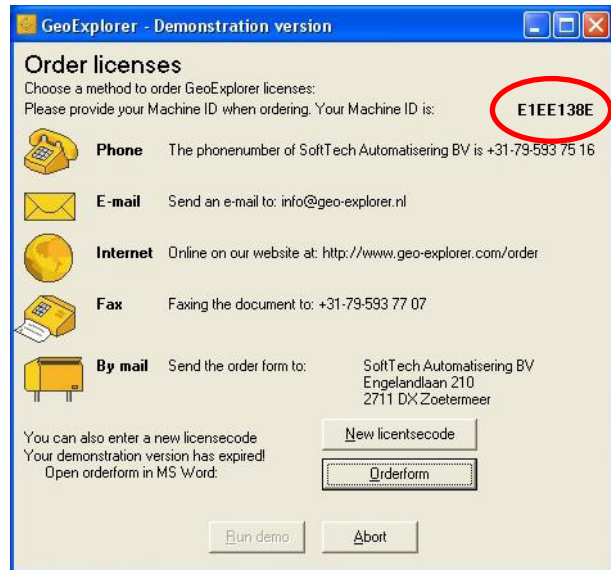


Fig. 1 The machine-code of your computer (8 digits!)

7. Main screen

When starting up GeoExplorer, the following main screen will be displayed on screen:

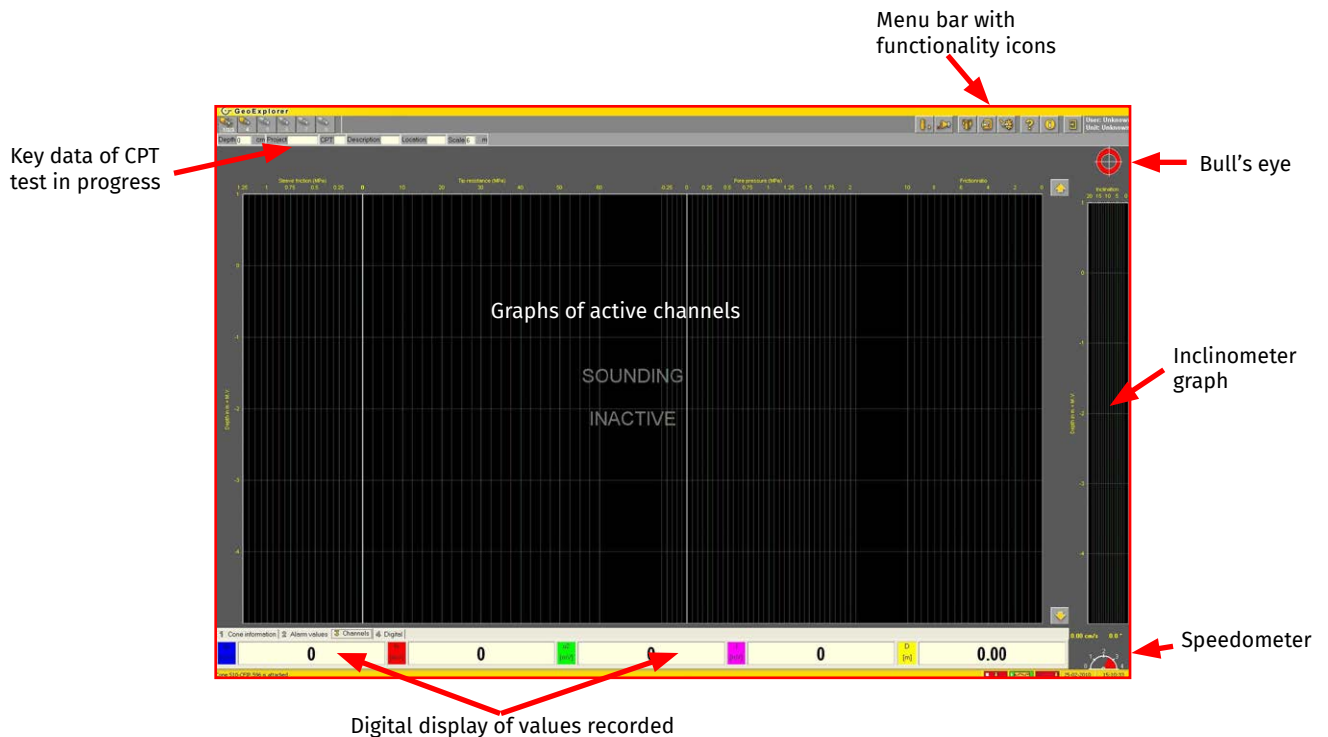


Fig. 2 Main screen

The main screen is divided in 5 main areas:

1. Graphs of the channels in operation. This is the main graph in the middle of the screen.
2. Inclinometer graphs. On the right hand side of the screen is a long, small graph is displayed. This graph shows the deviation of the electric cone of the vertical axis during CPT testing. The circle ("bull's eye") at the top of this graph gives in fact a topside view of the electric cone. It indicates the direction the cone is moving to. The inclinometer graph does not function in combination with an electrical measuring head, since a mechanical cone doesn't feature an inclinometer.
3. At the bottom right of the main screen you'll find the speedometer, displaying the actual speed the cone penetrates the ground. The speedometer obtains its input signal from the encoder, that synchronises the CPT test results with the depth.
4. At the bottom left and in the middle of the main screen a group of numbers and tabs is shown. This is the digital display of the values as recorded per each individual channel. These values are also updated when the whole system is idle.
5. At the top of the main screen the key data of the CPT test in progress at that moment are displayed. At the very top of the screen the icons to operate the program can be found. Every individual icon has a corresponding hotkey, which can be found in the hotkey chart.



By pressing the F1 key a help screen will open containing information on hotkeys.

8. Configuration screen

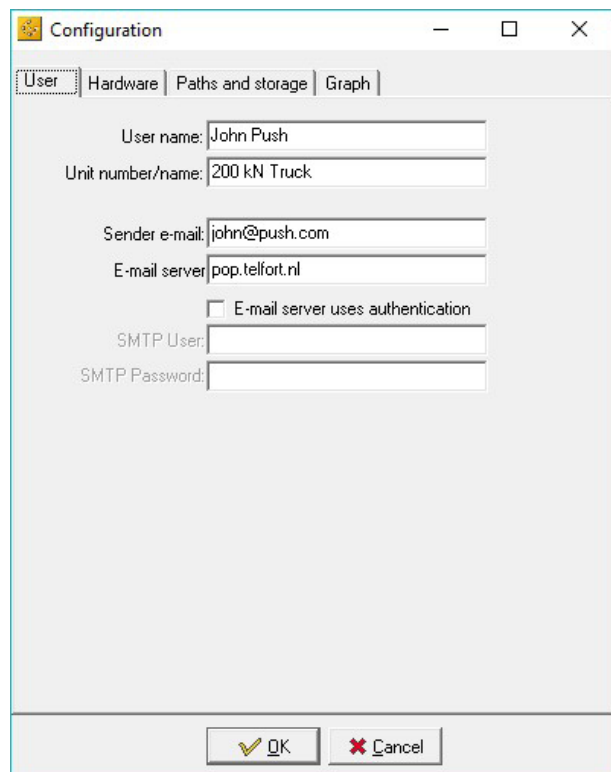
By means of the functionality “*Configuration Screen*” multiple settings can be personalised. The functionality “*Configuration Screen*” can be accessed in 2 different ways:

Method 1: When the main screen is displayed on screen, first press the keyboard combination ‘CTRL-ALT-S’ and then the combination ‘CTRL-ALT-C’.

Method 2: When the main screen is displayed on screen, click with the mouse cursor on the 4th icon from the right “toothed wheel” in the menu bar top right and then, when the next menu bar appears, click with the mouse cursor on the again on the next “toothed wheel” icon that appears.

The “*Configuration Screen*” window is divided in 4 tabs. When the functionality is started up, the first tab will be the first screen to be seen. This tab concerns general user information.

- *User name*; enter here the name of the CPT operator that will use this version of GeoExplorer most frequently.
- *Unit number/name*; enter here the name or the internal identification number of the CPT unit (e.g. the license plate number) on which this version of GeoExplorer will run.
- *Sender E-mail*; enter here the default E-mail address with which the CPT test data will be send. In case no E-mail address is entered, it is not possible to use the E-mail functionality van GeoExplorer.
- *E-mail server*; enter here the SMTP mail server of your provider. In general this is the GPRS provider.



The screenshot shows a window titled "Configuration" with four tabs: "User", "Hardware", "Paths and storage", and "Graph". The "User" tab is selected. The form contains the following fields and options:

- User name: John Push
- Unit number/name: 200 kN Truck
- Sender e-mail: john@push.com
- E-mail server: pop.telfort.nl
- E-mail server uses authentication
- SMTP User: (empty)
- SMTP Password: (empty)

At the bottom of the window are two buttons: "OK" and "Cancel".

Fig. 3 Configuration screen, tab “User”

The second tab concerns the hardware settings:

- *Comport*: Select the COM port of your computer providing the connection with the datalogger (e.g. the GeoLogger)
- *Depth registrationpulse*: The encoder, that synchronises the CPT data with depth, generates a certain number of pulses per cm. Check the manual of the relevant encoder type here the number of pulses corresponding with 1 cm displacement. In general that's 10 or 15 pulses per 1 cm.
- *Take offsetreading*: Select for each measuring channel whether an offset should be taken into consideration or not during the CPT test. This means that the zero-readings are subtracted from the recorded values during the CPT test. This calculation will also stored in the CPT data file.
- *Invert direction depth pulses*: Use this checkbox for set-ups where depth decreases when digitizer pulses increase.
- *An external alarm is connected*: It is possible to connect an external alarm to the datalogger that is activated as soon as a pre-set alarm value is exceeded. This can be a simple acoustic or optical alarm or an alarm that stops the entire CPT penetrometer rig. Here you can select whether such an external alarm is connected to the digitizer or not. If this is the case, GeoExplorer will trigger this external alarm when a value exceeds the alarm settings.
- *Packet terminator*: It is possible to determine what the end of a line (named packet terminator) in the datalogger ought to be. By default this is set to a RETURN LINEFEED (see above example).

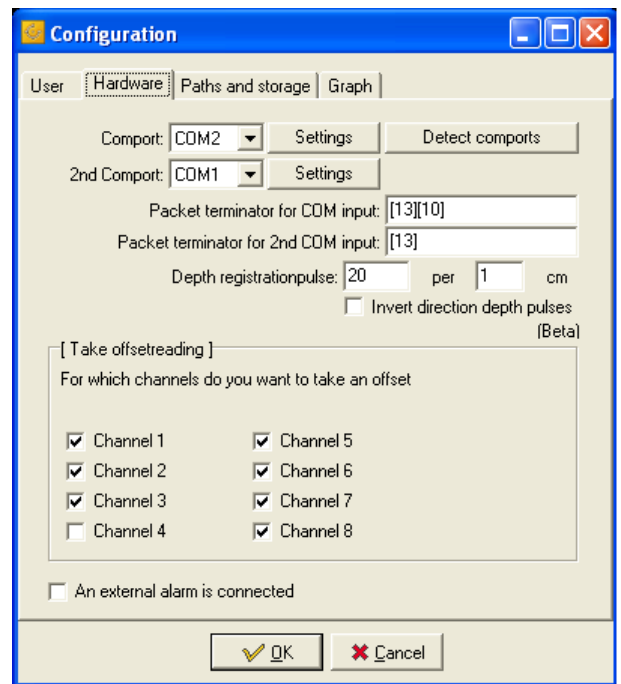


Fig. 4 Configuration screen, tab "Hardware"



This can be modified, but only do this if you exactly know what you do!

The third tab concerns the settings where and how CPT data files are stored:

- *Cone library*: It is possible to change the directory where calibration files of electric cones / measuring heads are stored. This location is called the *Cone library*. It is recommended to use the default directory.
- *Sounding results*: It is possible to change the directory where the CPT test data (which comprises of several files) are stored. It is recommended to use the default directory.
- *Temporary files*: GeoExplorer requires a directory to store temporary files. This directory is cleared regularly and requires therefore not much storage capacity.
- *Sounding log*: A so-called log file is generated of every CPT test done. This log file is needed for reporting purposes. The directory where the log files are stored can be determined freely by the user.
- *Storage formats*: By default all CPT tests data are stored in the so-called GeoPoint format. Here you may specify whether GeoExplorer saves the data in *Gorilla* format as well. The data of each individual CPT test will then be stored in 2 different formats for further processing.
- *Gorilla save each*: In case you opt to have the data stored in the *Gorilla* format as well, you'll have to specify the data saving interval. By default, this is done every 1 cm.
- *Backup location*: It is possible to make a back-up of the CPT test data on an external storage device (e.g. a harddisk drive, USB-stick, etc.). Here you can specify if that back-up is to be made. In case the external storage device is not connected or when a diskette or USB-stick is not inserted, GeoExplorer will inform you and will ask you to connect such a device.
- *Save log files*: As previously indicated, GeoExplorer also generates so-called log files. In order to prevent that the directory, where these log files are stored, gets jam-packed, all log files are deleted automatically after a while. By default this is done after 15 days, but dependant on the storage capacity of your computer, the user can select another storage period. In case of problems, an extended version of the log files can be generated.
- If *Qc & Diss* is checked, the dissipation files will contain an extra last column for the corresponding tip value.
- If *Incl. project data in CSV* is checked, the CSV file will include the project data.
- If *Extra Gorilla lines* is checked, the overflow (up to 7) of values will be added to the *Gorilla* file, containing the last tip values before end of sounding.
- If *Store comb. Incl.* is unchecked, the inclination X and Y channel values are stored separately in the "1..." file, rather than combined (combined is default). Also, if unchecked, the zeropoint values in the "0..." file are stated in the channel information section, instead of the additional section.

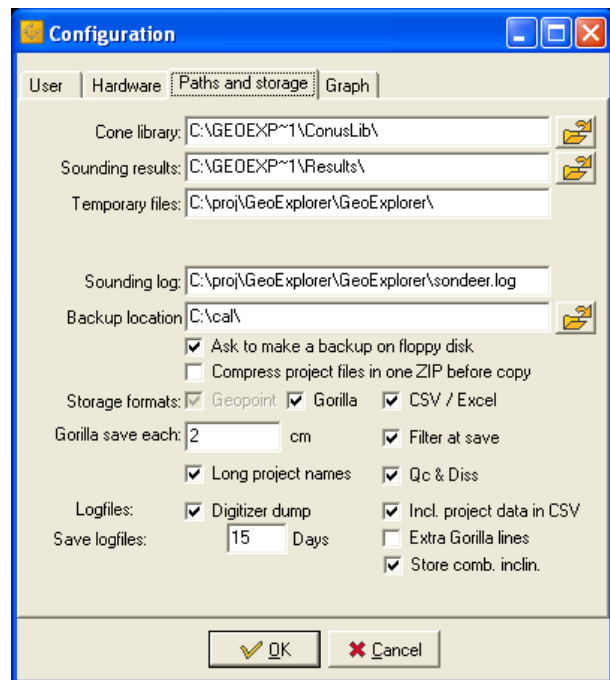


Fig. 5 Configuration screen, tab "Paths and storage"

The fourth tab offers the opportunity to personalise the settings and colours of the graph.

- *Graph line thickness*: It is possible to change the thickness of the graph lines.
- *Graph scale*: It is possible to select the default graph scale; this could be either 6, 12 or 24 meters.
- *Graph background colour*: It is possible to personalise the colour settings of the graph. Just click with the mouse cursor on one of the different colour boxes.
- *Sleeve friction graph from right to left*: It is possible to specify whether the sleeve friction graph should be drawn from left to right or from right to left. By default, the zero-line of both the sleeve friction graph and the cone resistance graph is the same. In that case the a positive value of the sleeve friction will result in a left movement of the graph. This can be confusing. It is therefore you can opt to have the zero-line positioned at the left resulting in a right movement of the graph in case of a positive value.

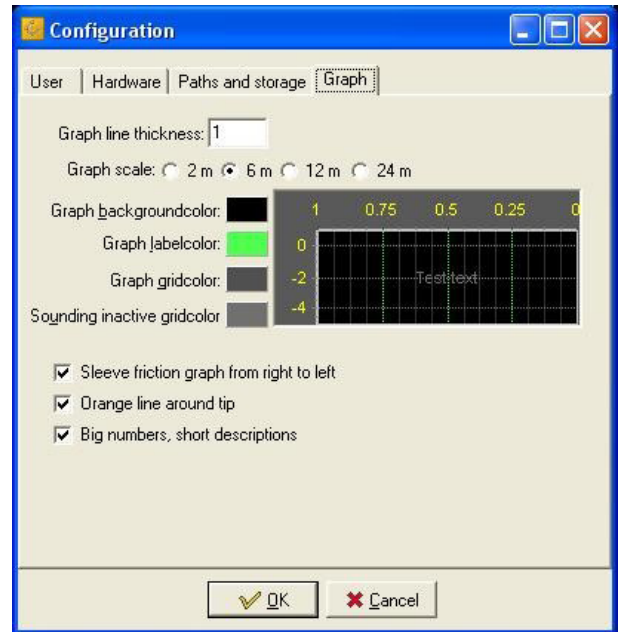


Fig. 6 Configuration screen, tab "Graph"

- *Orange line around tip*: In order to enhance clarity of the graph, it is possible have an orange border drawn around the graph line for cone resistance. Please do realise, that some details might get lost.
- *Big numbers, short descriptions*: It is possible to modify the lay-out of the screens and to show large number instead of large descriptions. It is here where you can select this setting.

9. CPT testing

The main function of GeoExplorer is the registration of CPT data during CPT testing and the recording of CPT data in files. After having started up GeoExplorer, a CPT test can be started by pressing 'S' or clicking with the mouse cursor on the 8th icon from the right, the "cone with arrow to the right".

The first window that opens, concerns the selected electric cone or measuring head. You can either select another cone / measuring head or accept the current settings. The electric cone / measuring head that was used during the last CPT test appears as default.

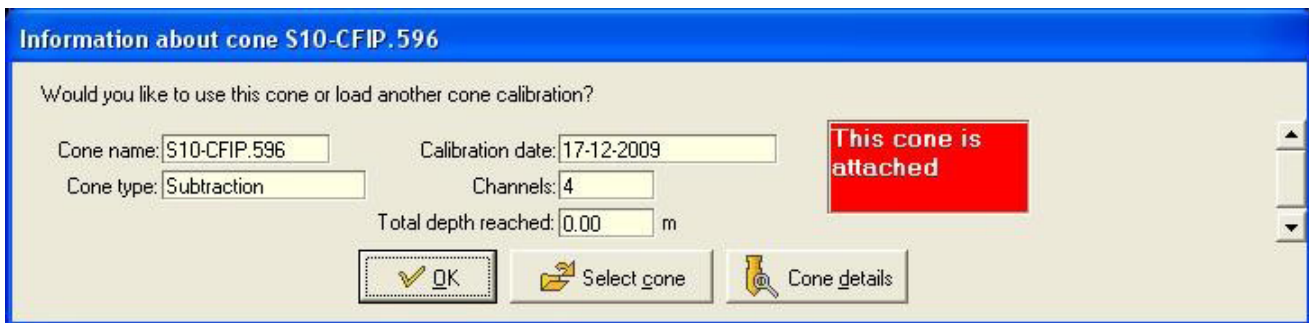


Fig. 7 Information about cone

Press 'ENTER' or click with the mouse cursor on 'OK' to accept the settings. When you press 'C' or click with the mouse cursor on "Select cone", you can select another cone or measuring head.

The next window shows the project options.

Here you can enter the project-specific values. When GeoExplorer requests a value, the specific field will colour red. Some fields are mandatory.

In general, only the CPT test number will change. All other data are 'remembered' from the previous CPT test. Only change all values when indeed an entirely new project is started.



Ground level and pre-drill depth are so-called floating point numbers. The separator is a point ("."). Do not use a comma (",") as a separator!!!!

When the settings meet your requirements, press 'ENTER' or click with the mouse cursor on 'OK' to proceed to the next screen.

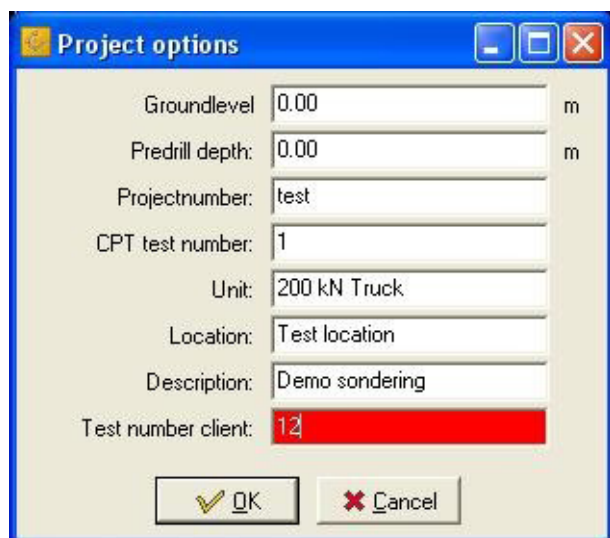
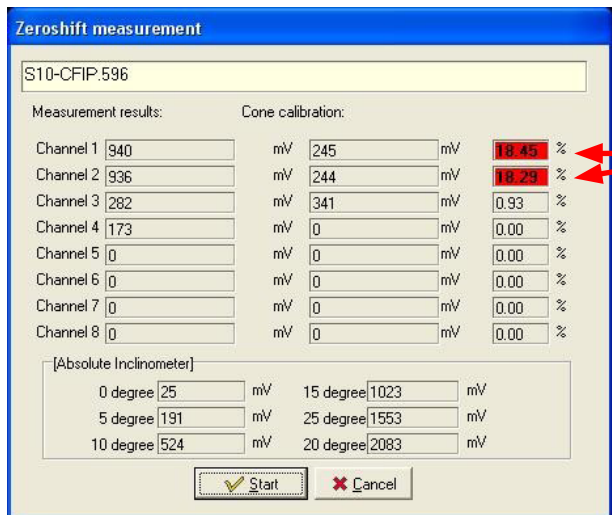


Fig. 8 Project options

A last window will appear before the CPT test can begin. Before each CPT test the zero-readings must be determined. The found values may not differ too much from the original 'ex-works' calibration values.

The maximum accepted difference (= drift) is 3% of the "full scale" (f.s.); the full measuring range of that specific channel. When a value differs too much from the original calibration value, the corresponding field of that specific channel will colour red. It is possible to continue the CPT test, but that isn't recommendable. We recommend to return the cone or measuring head to Eijkelkamp GeoPoint SoilSolutions for repair, maintenance and calibration.



ALARM: The zero-values of channels 1 and 2 in this example have drifted considerably ; i.e. beyond the acceptable 3% of the f.s. threshold. Therefore are both values coloured red to warn the operator that the values are far beyond the initial calibration values. The measuring instrument was most probably overloaded during the previous test and is to be returned to Eijkelkamp GeoPoint SoilSolutions for repair, maintenance and calibration.

Fig. 9 Zeroshift measurement



The values in the example above are pretty extreme.

Press 'ENTER' to start the CPT test or click with the mouse cursor on the 8th icon from the right, the "cone with arrow to the right". On screen you will see the graph progressing with depth, when the cone penetrates the ground. When the connected electric cone or measuring head has more than the 4 default measuring channels (Cone resistance, Sleeve friction, Pore Pressure and Inclination), it is possible to monitor these extra channels in additional graphs.

These additional graphs can be viewed using the F4 - F8 hotkeys (= channel 4 till 8). The F3 hotkey always brings back the main screen showing the 3 default channels, i.e. Cone resistance, Sleeve friction, Pore Pressure(s). The F4 hotkey stands for channel 4; in general the channel recording the inclination. Pressing the F4 hotkey shows you a large graph of the inclination. Whenever a channel is not available on a cone, the corresponding graph will not be displayed.

In order to prevent a CPT test to be closed or interrupted 'by accident' and possible loss of data, practically all hotkey and normal keys are disabled during the CPT test. The following keys will remain available during the whole CPT test:

- 'S' : Stop the CPT test. In the upper left corner a question will appear asking if you indeed want to stop the CPT test. The question will disappear after 30 seconds if you do not press a key or when you press 'N' (to continue the CPT test). Press 'Y' or click with the mouse cursor on 'OK' in order to stop indeed the CPT test.
- 'D' : Start a dissipation test. Press 'D' again to stop the dissipation test and to return to the main screen and proceed the CPT test. The CPT test will continue from that moment on. You may do as many dissipation tests as you wish.
- 'F' : Freeze the graphs. The screen will show the CPT test results on that moment for the selected interval. On the background the recording of the CPT test data and the build-up of the graph proceed as normal. Just press 'F' again to return to the main screen showing the proceeding graph.
- 'A' : Reset the alarm. During a CPT test it might happen, that one of the measuring channels exceeds a preset alarm value. In that case the entire screen will turn red and perhaps an acoustic or optical alarm will go off. It even is possible that the CPT test procedure will be interrupted as well. Your urgent attention is required. Press 'A' or click with the mouse cursor on 'Cancel' in order to reset the alarm.

'Z' : Zoom in the graph (maximum 6 m, minimum 24 m)

'X' : Zoom out the graph

PGUP : Scroll a 'page' up in the graph (previous)

PGDN : Scroll a 'page' down in the graph (later)

↑↓ : Scroll through the graph up / down

ALT-A : Show information window

HOME: Move graph to 0 meter

END : Move graph to end of sounding

←, → : Move graph left/right

CTRL-HOME : Center graph to 0 line

ALT-↑↓ : Increase/decrease scale magneto graph

ALT-HOME : Reset scale magneto graph

0 (zero) : Toggle shift gradient magneto graph to vertical axis

'P' : Toggle the part showing the cone resistance on / off in magneto graphs

'B' : Toggle the gradient of magneto channels between actual values and the average between the actual value and the previous value, smoothing out peaks. A message will be shown in the left top of the screen.

Some keys have a double function. In case you press:

'F' : The graph will be frozen. This means in fact that the graph will not proceed to build up whilst the CPT test proceeds normally. Press 'F' again to resume.

'D' : A dissipation test will start. Press 'D' again in order to stop the dissipation test and to proceed with the CPT test. You may do as many dissipation tests as you wish.

'P' : The cone resistance part will disappear in magneto related graphs. Pressing 'P' again will make the cone resistance part visible again.

'B' : The gradient of the magneto channels will no longer plot new readings based on actual values, but the average value between the actual value and the previous value. Pressing 'B' again will switch plotting actual values again.

'0' : Will shift the new values of the gradient of the magneto channels to the vertical axis. Pressing '0' again will restore the original offset.

Keys while in reports:

'I' : View calibration info

'B' : Browse projects

'R' : Daily report

'CTRL-R' : Periodic report

'P' : Print graphs

'F1': Help

'BCKSPC/ESC' : Back to main menu

Keys while in system configuration:

'CTRL-ALT-C' : Configuration window

'ALT-Q' : Exit program

'CTRL-ALT-D' : Start debugger (advanced feature)

The cone or measuring head is in that case to be returned to Eijkelkamp GeoPoint SoliSolutions for calibration and possible repair.

Press 'ENTER' or click with the mouse cursor on 'OK' to proceed.

When a CPT test is completed and ended, a screen will pop up showing the zero-readings of the measuring channels and the zero-shifts (= drift). Based on these data you can decide if you can use the cone / measuring head again or not.

When the zero-shift of one of the measuring channels exceeds the 3% limit of the "full scale" (f.s.), i.e. the full measuring range of that specific channel, than it is possible that the cone / measuring head has been overloaded somewhere during the CPT test (e.g. it has hit an obstacle or was pushed beyond the technical limits).

It is recommended to store historical information of the electric cone / measuring head on a disk or USB-stick, that came with the instrument and contained the calibration file. In case a problem arises, these data can be used to see what happened to the cone / measuring head. Make sure the disk or USB-stick is in the relevant drive when data are stored. In case there is no diskette or USB-stick, a screen will pop up, warning you that the data can't be stored. Insert in that case a disk or place an USB-stick or click with the mouse cursor on 'Cancel'.

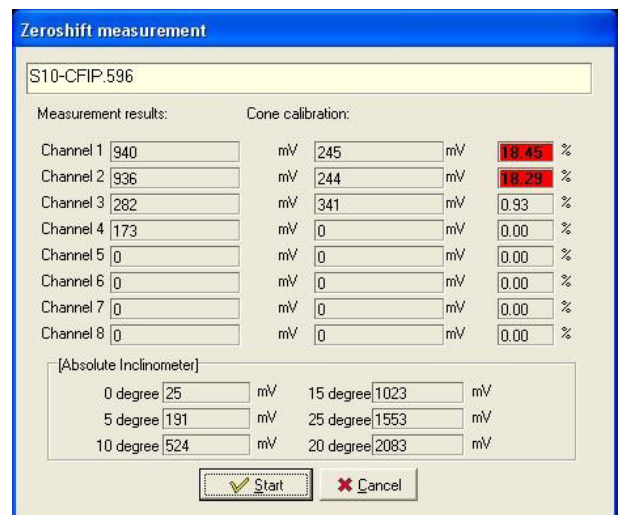


Fig. 10 Zeroshift measurement



Fig. 11 Backup cone calibration

A back-up of the CPT test is saved onto the diskette or USB-stick as well. Insert **another diskette** or place another USB-stick in case the previous one is full. All files are ALWAYS stored on the harddisk of the computer you are working. The **diskette or USB-stick** is purely for back-up purposes. In case you don't want a back-up on diskette or USB-stick, than press the keyboard combination 'ALT-A' in or click with the mouse cursor on 'Cancel'.

Finally, a window will open showing some key aspects of the CPT test done.

Press 'ENTER' to complete and close the CPT test. The CPT files are now stored on the hard-disk of the computer and remain available through the functionality "Project Management" (see Chapter 11).



Fig. 12 Backup cone calibration

10. Reporting

3 different kinds of reporting types can be selected, i.e.:

1. Daily report
2. Periodic report
3. Printing the present graph

10.1 Daily report

A daily report provides an overview of all CPT tests done on a certain day. The "Daily Report" functionality can be accessed in 2 different ways:

Method 1: When the main screen is displayed on screen, first press 'R' and then again 'R'.

Method 2: When the main screen is displayed on screen, click with the mouse cursor on the 5th icon from the right "chest of drawers" in the menu bar top right and then, when the next menu bar appears, click with the mouse cursor on the 5th icon from the right "book"

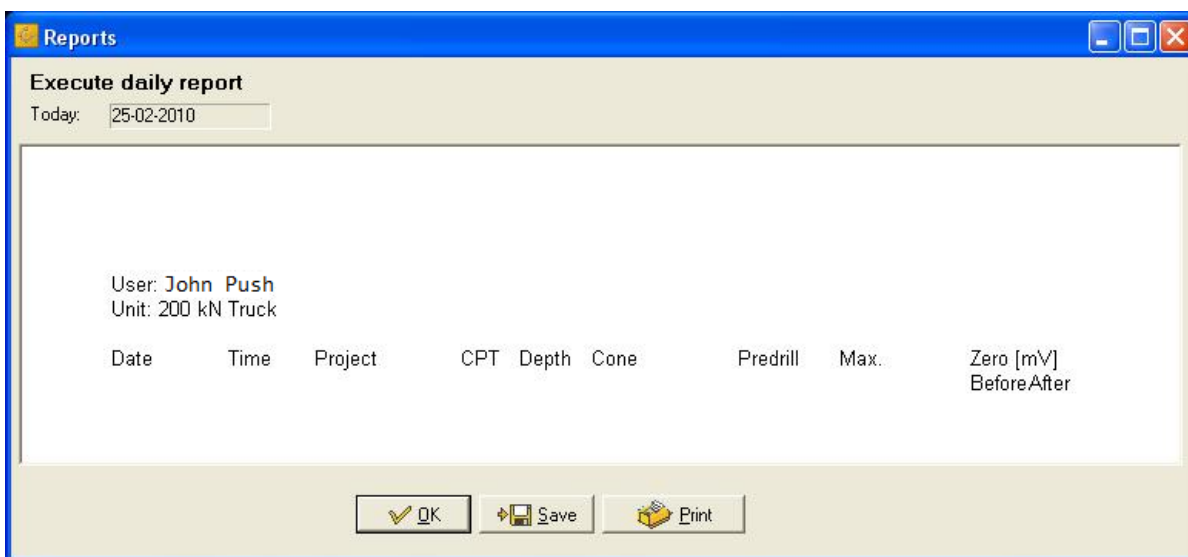


Fig. 13 Reports: Execute daily report

The daily report contains the following data:

- Date
- Time
- Project
- CPT number
- Reached depth
- Which cone / measuring head was used
- Pre-drill depth (if applicable)
- Maximum values (per channel)
- Zero-readings before and after a CPT test (per channel)

It is possible to save this report on either a **diskette**, an USB-stick or on the hard-disk. By default GeoExplorer will store all CPT test files in the results directory on the hard-disk anyway.

10.2 Periodic report

A periodic report contains the same information as a daily report. The only difference is an extra functionality, making it possible to select a period (start-date until end-date). The “*Periodic Report*” functionality can be accessed in 2 different ways:

Method 1: When the main screen is displayed on screen, first press ‘R’ and then ‘P’.

Method 2: When the main screen is displayed on screen, click with the mouse cursor on the 5th icon from the right “chest of drawers” in the menu bar top right and then, when the next menu bar appears, click with the mouse cursor on the 4th icon from the right “book with clock”

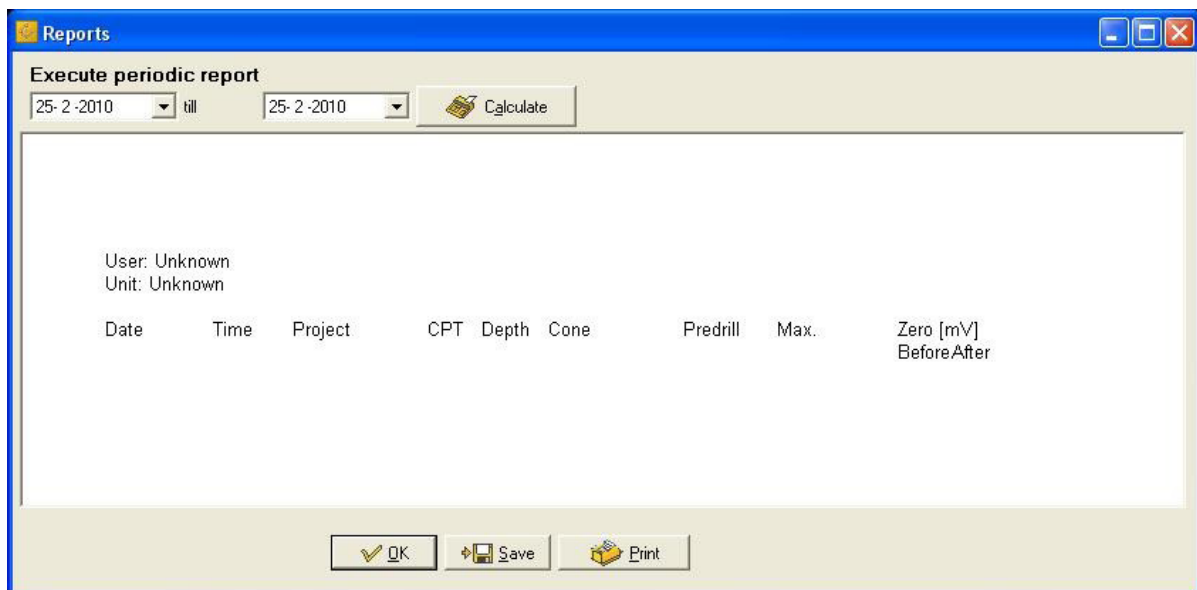


Fig. 14 Reports: Execute periodic report

Select the start-date and the end-date and press the keyboard combination ‘ALT-B’ or click with the mouse cursor on “*Calculate*”. When you would return to this functionality at a later moment, the start-date is automatically set to the last selected end-date. The new end-date is automatically set to TODAY.

As mentioned before, the information in the “*Periodic report*” is identical to that of a “*Daily Report*”. It is possible to save this report on either a diskette, an USB-stick or on the hard-disk. By default GeoExplorer will store all CPT test files in the results directory on the hard-disk anyway.

10.3 Printing the present graph

This functionality can be very handy on site. In GeoExplorer a CPT test can be selected and printed on a connected desk-jet or laser printer. This “Printing” functionality can be accessed in 2 different ways:

Method 1: When the main screen is displayed on screen, first press ‘R’ and then ‘G’.

Method 2: When the main screen is displayed on screen, click with the mouse cursor on the 5th icon from the right “chest of drawers” in the menu bar top right and then, when the next menu bar appears, click with the mouse cursor on the 3th icon from the right “printer”

 **It is not possible to print whilst performing a CPT test.**

The printer window that opens offers the opportunity to select the channels to be printed.

In the default setting the (*Tip*) Cone resistance, the *Sleeve* friction and the *Frictionvalue* are already selected. Optionally you can add the *Inclination* and the *Pore* pressure.

Press ‘ENTER’ to generate the graph.

The next window shows the print of the graph as it will appear on paper.

When the example shown meets your requirements, press ‘ENTER’ or click with the mouse cursor on “Print” to start printing.

 **The print always goes to the default selected printer. There is no option to select another printer.**

If you wish to abort the print, press the keyboard combination ‘ALT-C’ or click with the mouse cursor on the ‘CANCEL’ button.



Fig. 15 Channel selection

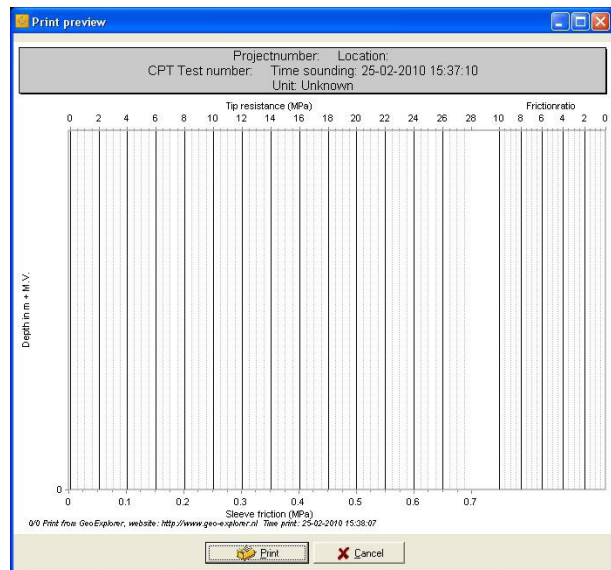


Fig. 16 Print preview

11. Project management

GeoExplorer has a functionality enabling the user to organise and manage all done CPT tests and projects easily and efficiently.

The “*Project management*” functionality can be accessed in 2 different ways:

Method 1: When the main screen is displayed on screen, first press ‘R’ and then ‘B’.

Method 2: When the main screen is displayed on screen, click with the mouse cursor on the 5th icon from the right “chest of drawers” in the menu bar top right and then, when the next menu bar appears, click with the mouse cursor on the 7th icon from the right “suspension map”

The following dialog window will pop up and all stored projects will be shown. When so many projects are stored in the “*Project management*” functionality that it will become difficult to keep an overview, it is better to opt for small icons. Pressing the keyboard combination ‘ALT-I’ will make the various options appear on screen. Press ‘TAB’ to move from one button to another and the main screen showing the icons. Use the arrow keys to browse through the projects. Press ‘ENTER’ to select a project.

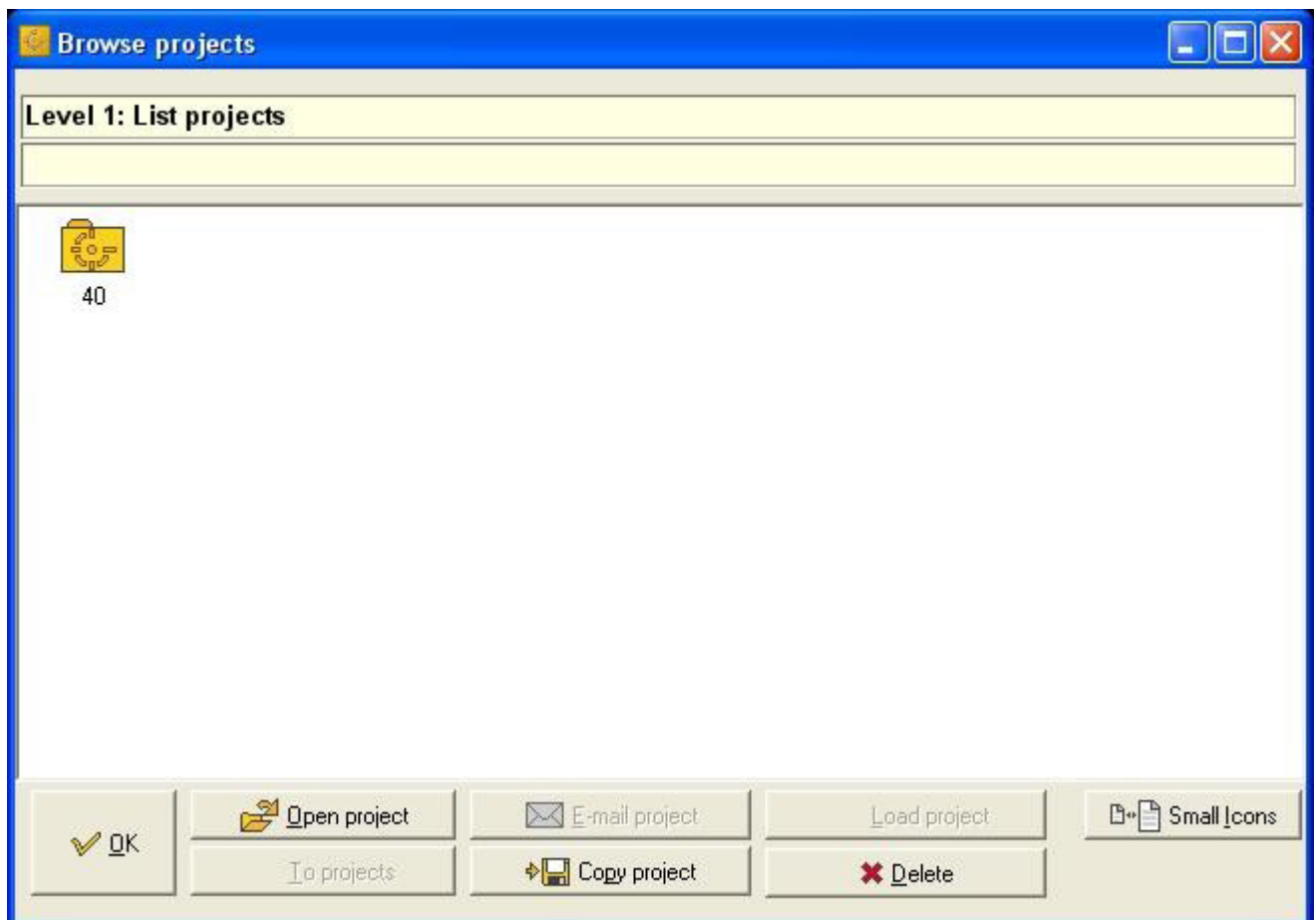


Fig. 17 Browse projects

It is possible to copy a complete project from the archive to the disk in drive A:. GeoExplorer will collect all individual files belonging to that project and compress these files to one single ZIP-file and then copy the file to the disk in drive A:.

It is also possible to send the complete project to another person by E-mail. Note that this E-mail functionality is only available when the appropriate settings in the configuration screen are set. More on E-mailing is explained in the chapters “12. Sending project(s) per E-mail” and “8. Configuration screen”.

Old, obsolete or already processed projects that are no longer need can be deleted by means of the “Project Management” functionality.

 **Be careful however, once removed project files can never be retrieved!**

After opening a project, all CPT tests done for that specific project will be shown. Again you can browse through these CPT tests using the arrow keys. Press ‘ENTER’ to open a CPT data-file.

Press ‘ESC’ to go one level up to return to the list with projects.

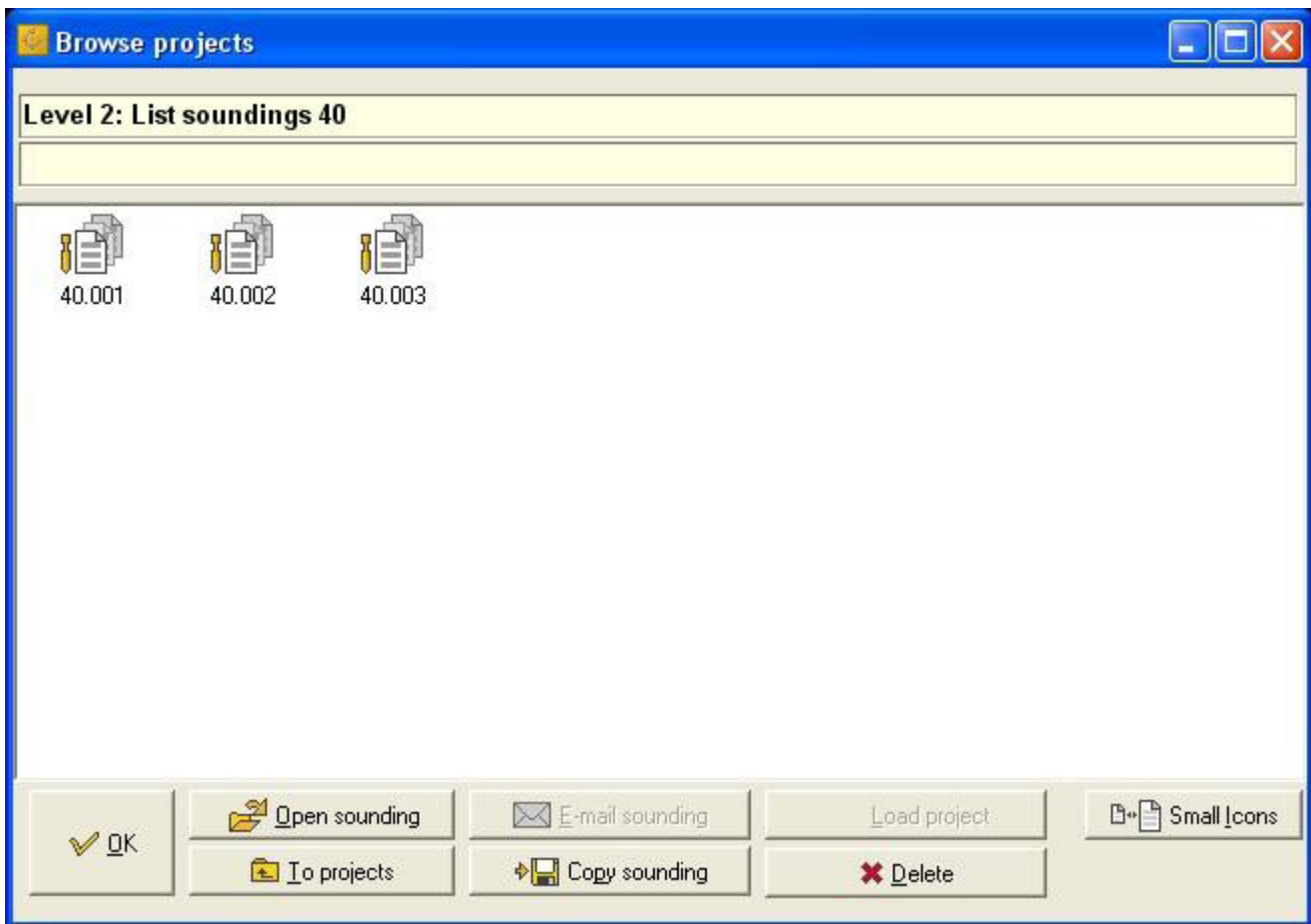


Fig. 18 Browse projects: Level 2: List soundings 40

It is possible to copy, E-mail or remove individual CPT tests. All files will be compressed first to one single ZIP-file before copying or E-mailing and are then processed.

The lowest level in the filing structure is reached when a CPT test is opened. Here you can see out of which individual files a CPT file composes. Using the arrow keys you can select an individual file. Some files (like *test.G01* in the screen shot underneath) cannot be opened by the user and are therefore greyed out. In the window the following files will appear:

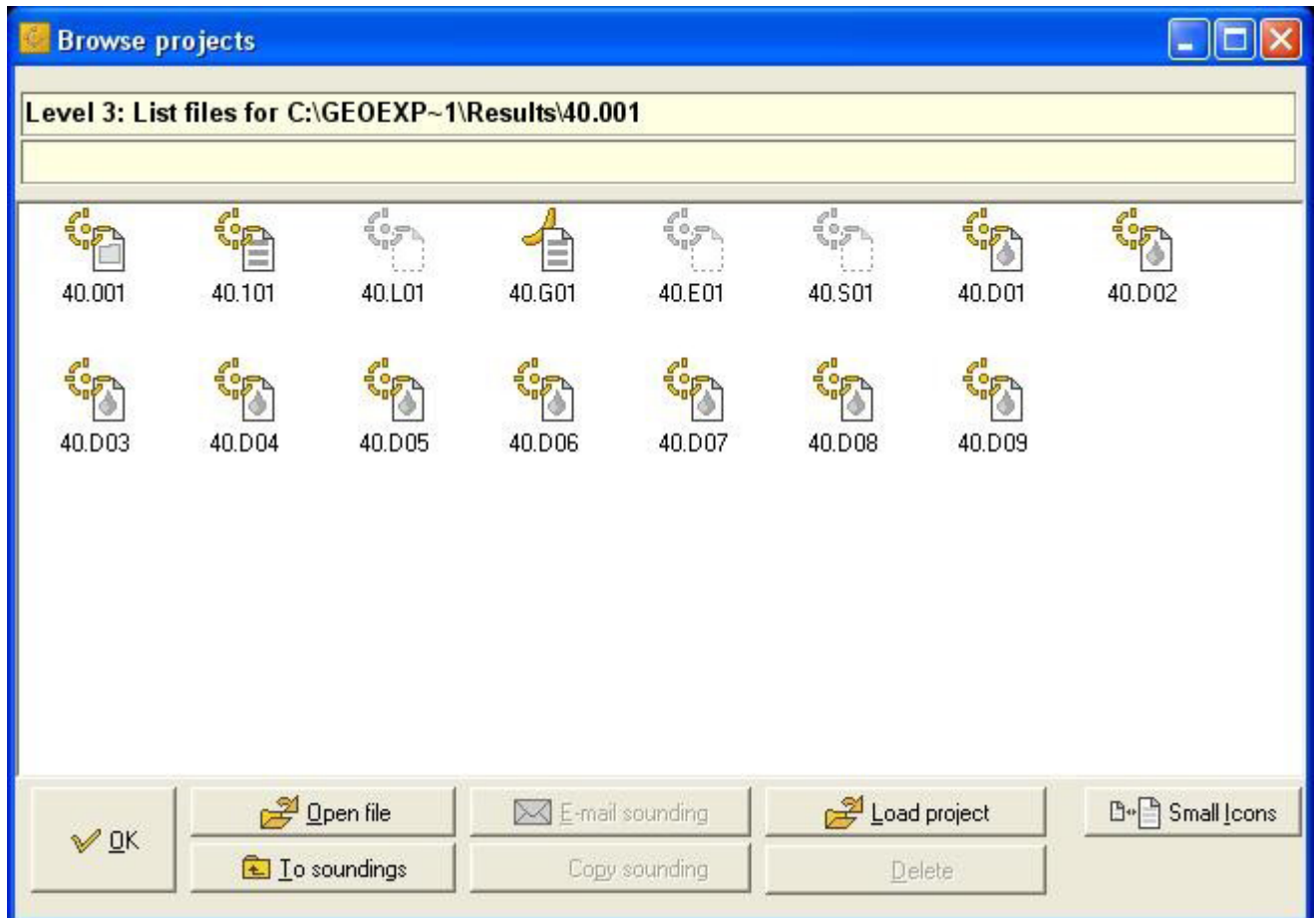


Fig. 19 Browse projects: Level 3: List files for

Different files are described as following:

- *<project>.0<cpt>* : Geopoint project header-file
- *<project>.1<cpt>* : Geopoint data-file
- *<project>.L<cpt>* : Hardware dump (a real-time dump of raw, unprocessed CPT test data)
- *<project>.G<cpt>* : Gorilla data-file (only available if selected in the “*Configuration screen*”)
- *<project>.Dxx* : One or more dissipation files. These files are stored in ascending order; xx is to be replaced by a number varying between 01 to 99.

For above mentioned files the following applies:

- The symbol *<project>* is to be replaced by the project name
- The symbol *<cpt>* is to be replaced by the CPT test number

At this level in the “Project Management” functionality it is not possible to copy, E-mail or delete individual files. It is possible though to open these files in a file viewer and see their contents.

12. Sending project(s) per E-mail

It is possible to send the CPT test results to another person by E-mail. In case you wish to send CPT test results by E-mail, access the “Project Management” functionality and click with the mouse cursor on ‘E-mailing projects’. The following window will appear:

As you can see, some of the fields are filled with default values and information. You can add more information or text yourself, if you wish. You can also see which file(s) have been added to the E-mail.

GeoExplorer remembers the E-mail address you used the last time. In most cases, when all values are correct, simply press *Send*. Sometimes it is necessary to enter additional information in the body text. GeoExplorer will always insert the last used E-mail address.

GeoExplorer will always insert the last used E-mail address for ‘E-mail to’. In daily use the CPT test results will in general always send to the same address. In that case there is no need to re-type the E-mail address over and over again. However, you may enter any E-mail address, provided it’s a correct E-mail address.



Fig. 20 Send e-mail message

E-mails can also be sent directly out of the *Address book*.

In the *Address book* you can store all E-mail addresses you might need regularly. All stored E-mail addresses are shown when you open the *Address book* functionality.

New E-mail addresses can be added easily by entering the name and address and to click with the mouse cursor on ‘Add’ or to press the keyboard combination ‘ALT-A’.

Using the arrow keys you can select another E-mail address. Press ‘ENTER’ to select an address to send an E-mail message to.



Fig. 21 Choose an e-mail address

When all setting are to you likings, then press “Send” or press the keyboard combination ‘ALT-V’ to send the E-mail message. A warning window will pop up giving you an approximate of the time it will take to send the message.

Sending E-mails over GPRS or GSM can be time consuming and is quite expensive. This warning window will tell you how many data will be transferred per E-mail and how long that will take. Please do realise, that it is only an indication.



Fig. 22 Confirm send

Press ‘OK’ to accept and GeoExplorer will send the E-mail message.

13. Loading a Completed Project / CPT Test

It is possible to load a previously completed project or CPT test. That will replace the CPT test data displayed on screen on that very moment. It gives the opportunity to review or print a project or CPT test completed earlier.

In case you wish to load a previously completed project or CPT test, access the “Project management” functionality. For more information please consult chapter ‘11. Project Management’.

After having loaded a project or CPT test, initially the first few meters of the test are shown.

In case the project or CPT test contains any dissipation tests, you may consult them by pressing ‘D’. A window will open and show all available dissipation tests.

A selected dissipation test can be loaded and viewed. Return to the main page by pressing ‘D’ again.

Simple press one of the hotkeys ‘F3’ till ‘F8’ to return to a channel with a graph. The channel has to be active though.

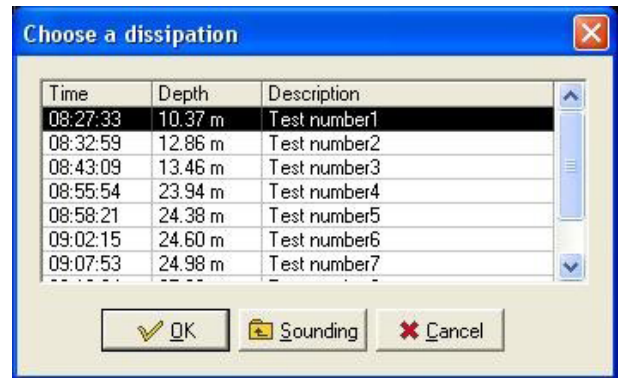


Fig. 23 Choose a dissipation



When loading a completed CPT test, GeoExplorer will try to load the calibration file, that was used when said CPT test was performed. In the “Project management” functionality it is archived which cone / measuring head was used during the CPT test, enabling GeoExplorer to find the right calibration file.



After a while the calibration files will change, because of the fact that the measuring instruments are re-calibrated again. As per that moment it will not be possible to open the CPT test correctly. When the CPT test will be opened though it will be recalculated using the present day calibration file. Please bear this in mind when you load a CPT test.

14. Cone calibration library

GeoExplorer has a comprehensive functionality, where calibration files of electric cones and measuring heads can be saved; this is the so-called cone calibration library. The calibration files of all electric cones and measuring heads ever used in combination with this GeoExplorer version are saved in this library, unless the user deletes them himself.

Using the cone calibration library, it is really easy to select the right calibration file, to add new calibration files or to amend existing files in case the relevant measuring instrument has been re-calibrated. The cone calibration library also offers the possibility to make changes in already saved calibration files.

The cone calibration library can be accessed in 2 different ways:

Method 1: When the main screen is displayed on screen, press ‘C’

Method 2: When the main screen is displayed on screen, click with the mouse cursor on the 4th icon from the right “toothed wheel” in the menu bar top right and then, when the next menu bar appears, click with the mouse cursor on the again on the next “toothed wheel” icon that appears

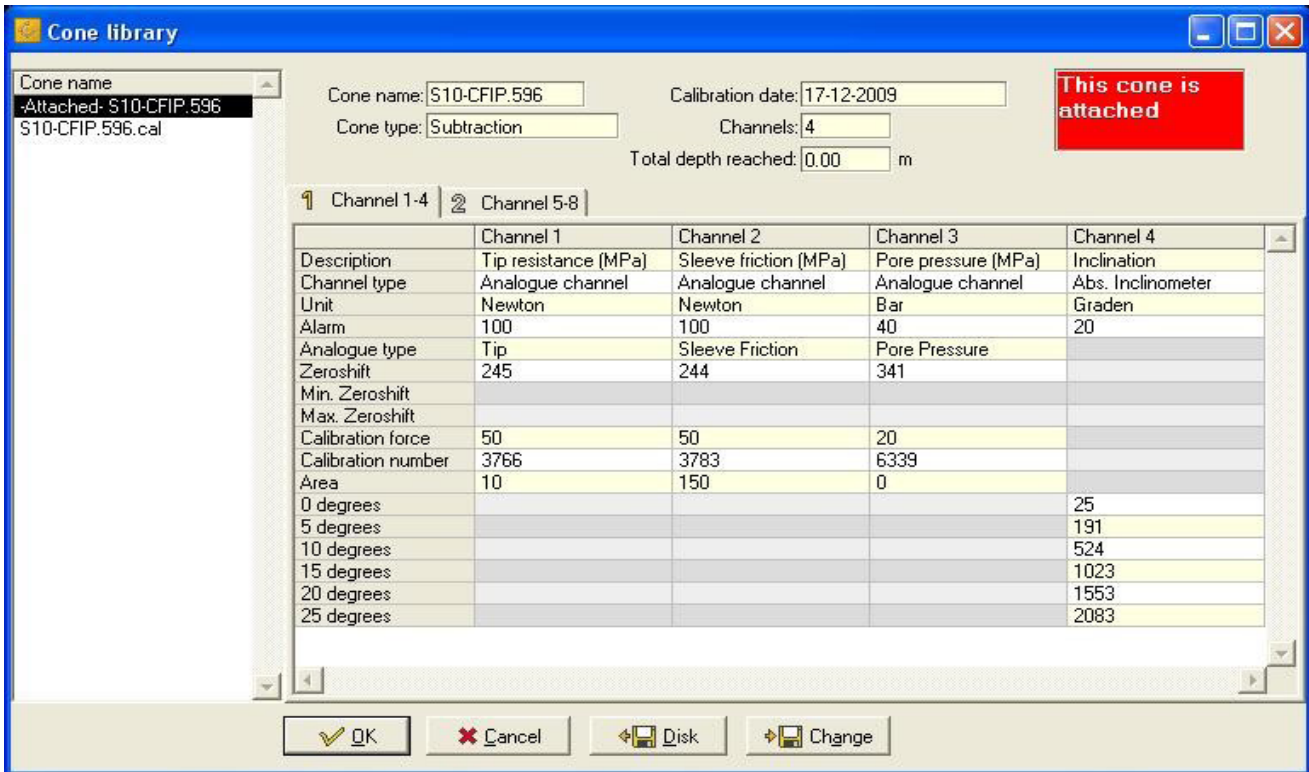


Fig. 24 Cone library

When the cone calibration library is opened, the window above will appear on screen. The list at the left shows all previously registered / used cones and measuring heads. The first element in the list is always the calibration file of the cone or measuring head connected at that very moment.

Use the arrow keys to browse through the available calibration files. Use keys '1' en '2' to switch between the calibration data of channel 1-4 and those of channel 5-8.



In case you would select the calibration file of another cone / measuring head than the one that is connected, GeoExplorer will then automatically load the calibration values of that other instrument. If you're only browsing and don't want to select another cone / measuring head, press 'ESC' or press the keyboard combination 'ALT-A' to cancel and close the window. In case you would press 'ENTER', the window will be closed as well and the calibration values of the other cone / measuring head you selected will be loaded and considered by GeoExplorer as the new connected cone / measuring head.

In case you have a diskette or USB-stick with one or more new or updated calibration files, you can insert this diskette or USB-stick in the computer and press the keyboard combination 'ALT-D' or click with the mouse cursor on 'Disk'. GeoExplorer will copy all calibration files from the diskette or USB-stick to the cone calibration library. In this functionality you can select a new calibration file to be loaded.

In some cases, it could be necessary to amend some or more values of a calibration file yourself. You can select that calibration file and press the keyboard combination 'ALT-W'. The following screen will appear:

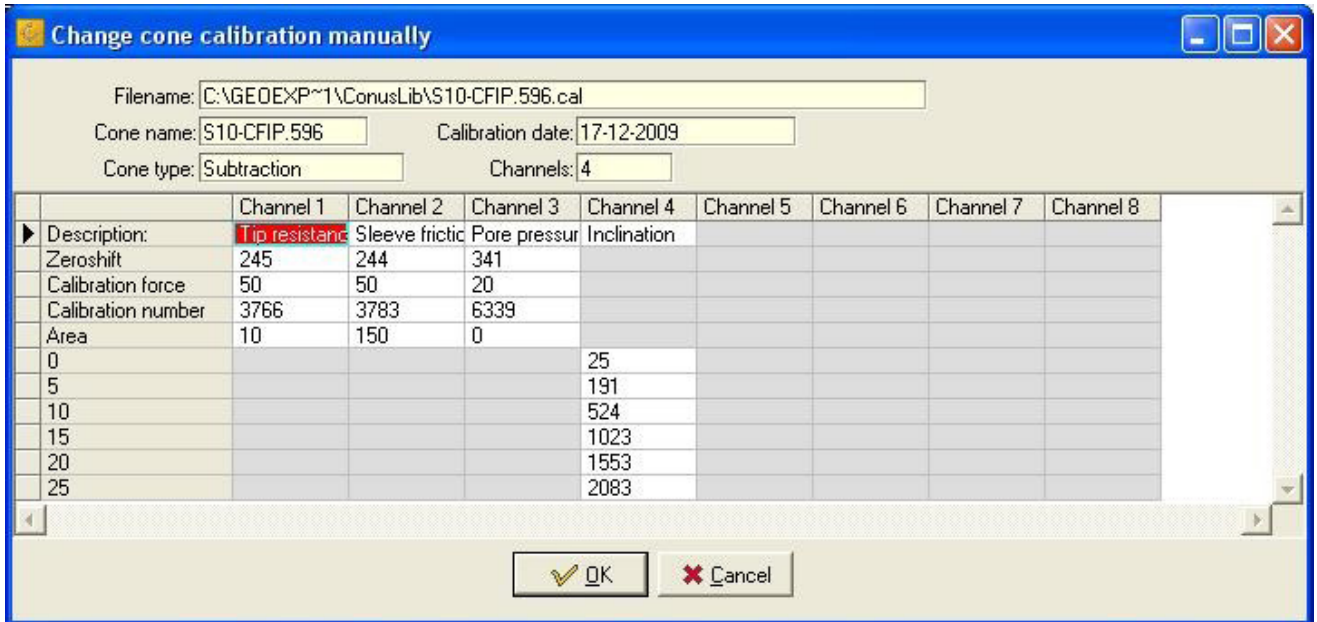


Fig. 25 Change cone lcaliobration manually

Use 'TAB' to move from one field to another. It might appear, that all values can be changed; that is not the case. Forbidden fields will remain 'empty' though. When all setting are to you likings, press 'ENTER'. In order to cancel, press the keyboard combination 'ALT-A' or press 'ESC'.



KNOW WHAT YOU DO! USE THIS OPTION WITH CARE!

15. International standards

The GeoExplorer data acquisition software is, like any other CPT equipment manufactured or supplied by Eijkelkamp GeoPoint SoilSolutions, in accordance with all national and international standards for CPT testing, such as NEN 3680, NEN 5140, DIN 4094-1, NF P94-113, ISO/DIS 22476, Eurocode 7, ISSMGE standard, ASTM D 3441-86, ASTM D 5778-95, etc.