Manual Ifield

Version 2.0

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System: Icontrol for Icone

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FOREWORD

General

Congratulations on your purchase of Ifield®. This program enables you to register the test results acquired with an A.P. van den Berg data acquisition system. If you have any questions, remarks or suggestions regarding the functioning of Ifield® please contact:

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Helpful hints

- Each function in Ifield® is described in a chapter. The chapters are indicated by means of a dark grey bar along the width of the page.
- The sections within the chapter are divided in paragraphs. The paragraphs are indicated by means of a light grey bar along the width of the page.
- The name of a function is mentioned on the paragraph bars. On the right side you find how to select this function.
- In the description of a function in a paragraph it is assumed that the selection of the functions as indicated in the previous chapter and paragraph bars has already been done. A review of the steps taken is given at the right side of the paragraph bar so that a function can be found quickly.
- The manual gives a description of how to perform a function. The procedure for returning to a previous menu or the main menu is always the same. Therefore this procedure is not mentioned each time unless it is necessary for a correct functioning.
- The description in the manual is based on functional processes. This means that all functions are described in the context of the processes that occur within Ifield®.
- The standard Windows mouse control is used for selecting items.
- Basic concepts in the text will be shown in bold. Example: **Test**.

☞ *This symbol is followed by a tip that simplifies the use of Ifield® The corresponding text is in italic.*

This symbol indicates actions which are absolutely necessary or which can lead to undesirable situations. The corresponding text is in italic.

1 Manual Ifield BASICS

Version 2.0

Ifield® is a CPT processing software program developed by A.P. van den Berg for displaying, analysing and storing of CPT test results. The test results are acquired through suitable equipment supplied by A.P. van den Berg.

In order to store the test results in an orderly manner, a project structure is used. Several tests can be performed within a project. The tests can easily be selected. In general a project is performed for a client. This kind of information is attached to the tests, together with a project description.
The test results are shown on screen while testing. Depending on the selected screen layout, the test results are shown in digits, bar diagrams or graphs.

Within Ifield® the standard Windows controls are used. Printing options are set by means of the standard print options of Windows, enabling an easy use of several printer types. Also other peripherals can be installed by means of Windows.

Ifield can be installed on a touch screen PC, a desktop PC or a laptop. There are no differences in the user interface and this manual makes no distinction between these systems.

System requirements

Minimum system requirements

Operating system	: MS Windows 7 (32 or 64 bits)
CPU	: 2 cores, 3.4 GHz
RAM	: 8 GB
Storage	: SSD, at least 10 GB free space
Screen resolution	: 1024 x 768 pixels
UAB	: 2x USB 2.0
Internet Connection (optional)	: 1 Mbit/s download speed *(necessary for auto update and remote control)*

Installation procedure

Installing and using Ifield® requires the following:

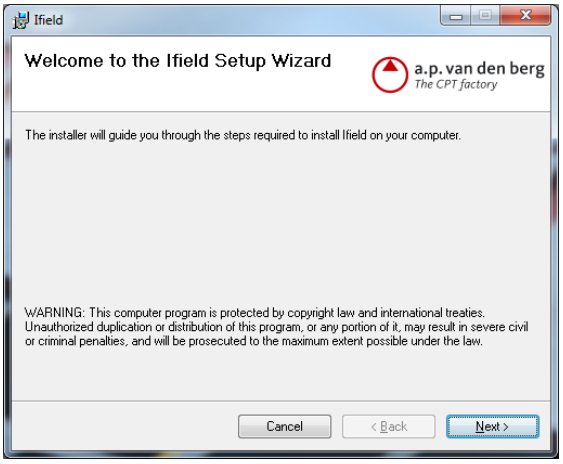
- Dongle with Ifield® license

- Ifield® executable (download or provided on USB)

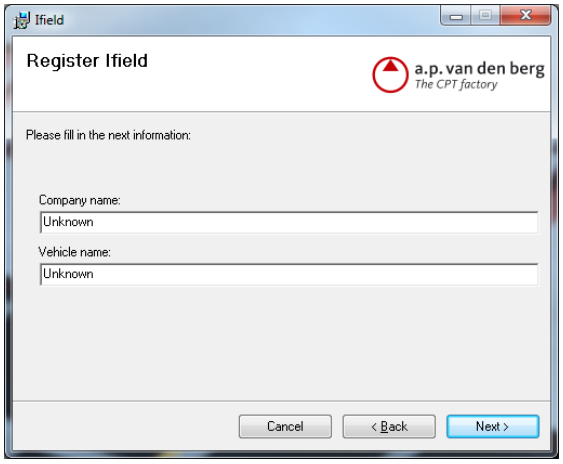
When Ifield® is running, you need to have the dongle in your system. In order to install Ifield®, run the Ifield.MSI file (located on the USB stick or download location) with administrator rights.

Installation

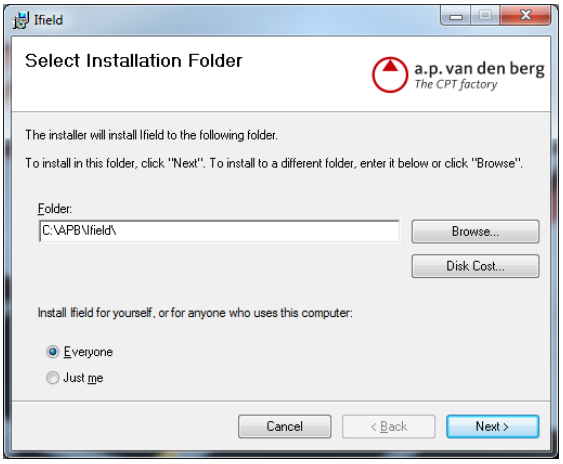
When you install Ifield® be aware that you have Administrator rights.

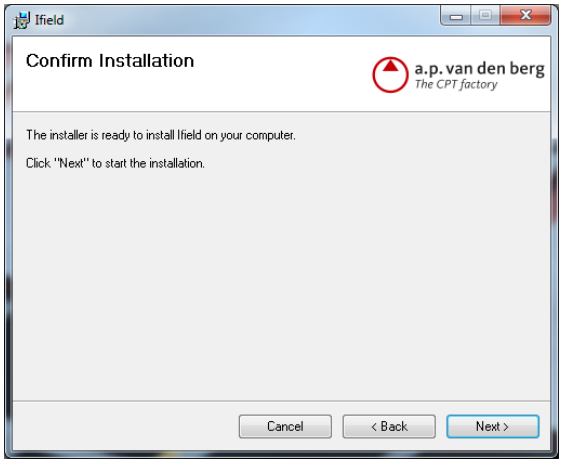


Click on next to start installation process.

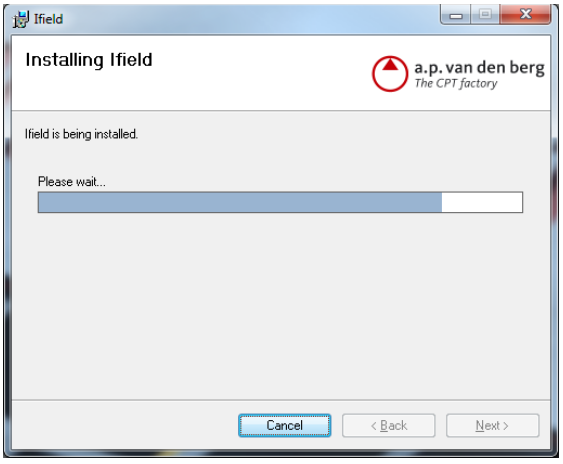


Please fill in your company name and Vehicle name. Then click on Next.

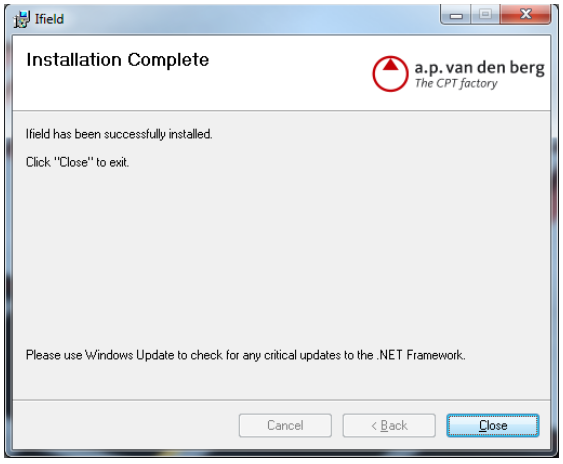




Setup location can be changed here click on Next. Click on next to start installing Ifield.



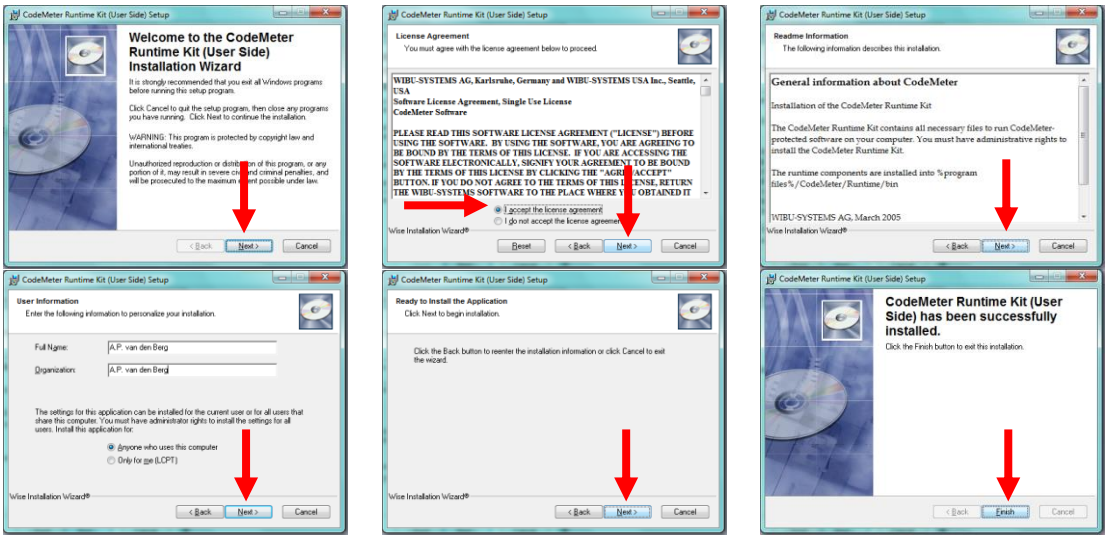
Please wait until program is fully installed.

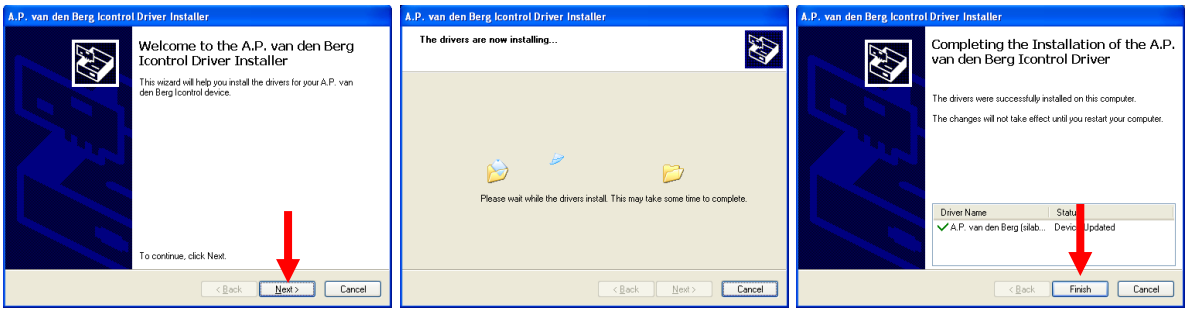


Click on close to finalise the installation

You can now open Ifield with the short-cut on your desktop

When starting for the first time, Ifield will start the installation of two drivers. These drivers are for the dongle and the Icontrol. Run to both installation programs by clicking on the Next button. You have to accept the user license and give the required information when prompted to continue.



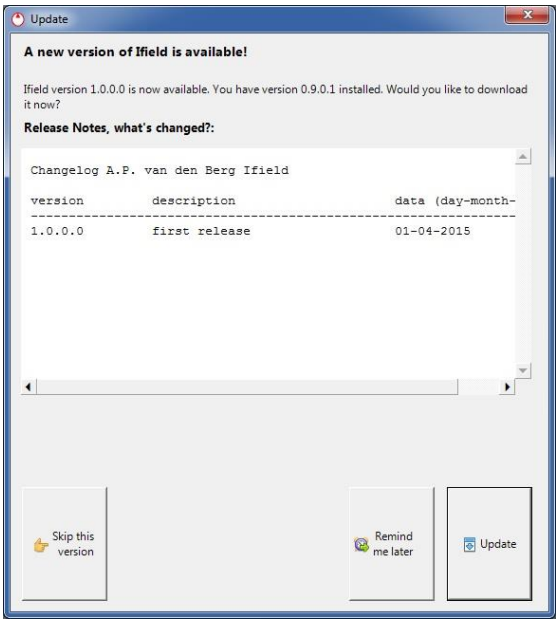


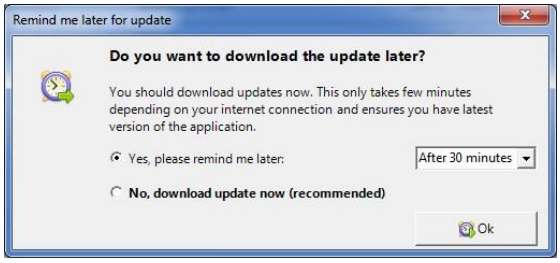
Ifield® stops functioning when a "power save option" terminates the power to the USB-connection, to the Icontrol data logger or to the dongle. Ask your system administrator how to eliminate power termination to USB-connections.

Firewall and Virus scanner might need to be disabled during installation

Automatic update

Ifield® will give a warning if there's an update available when you have an internet connection. The following screen will appear:

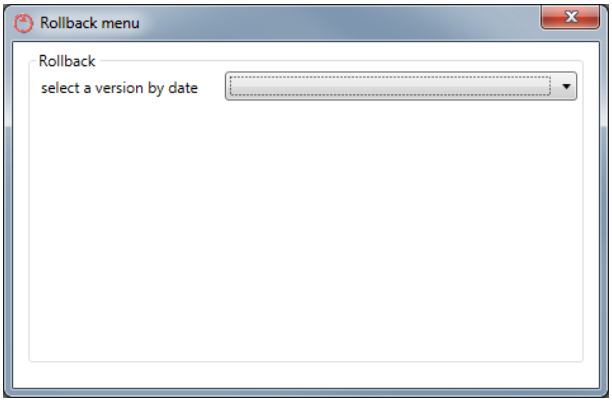




You can update immediately by clicking on "Update". Delay the update by clicking on "Remind me later" and then select the delay time or skip this update by clicking on "Skip this version". Be aware that downloading the update (about 70MB) can be charged by our internet provider.
You can also manually check for an update (needed if you want to update but you pressed the "Skip this version" button) by going to more (F9) and the update (f7) and click on check (F2).

Rollback update

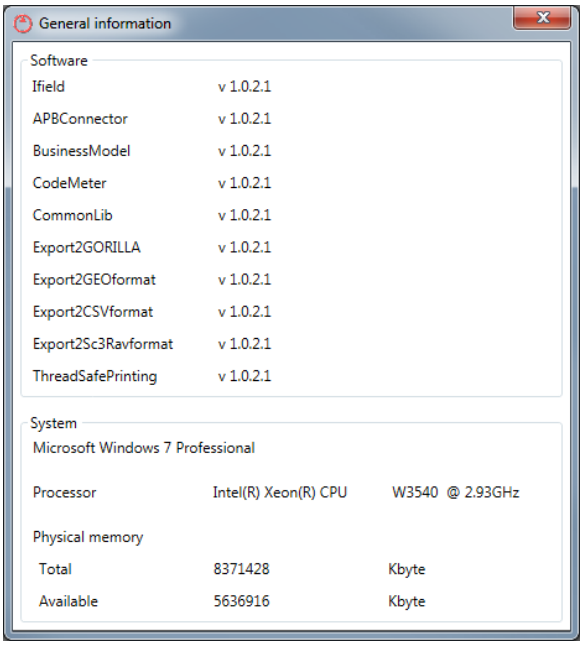
If a new update gives any problems you can roll back to the previous version if you update with the update function in Ifield. You can do this by going to more (F9), then update (f7) and click on Rollback (F1).



Select last the date when the software was still working correctly (so just before the update) and click on OK (F9)

Version information

By going to more (F9) and the info (F9) you can see your current version of Ifield and its libraries.



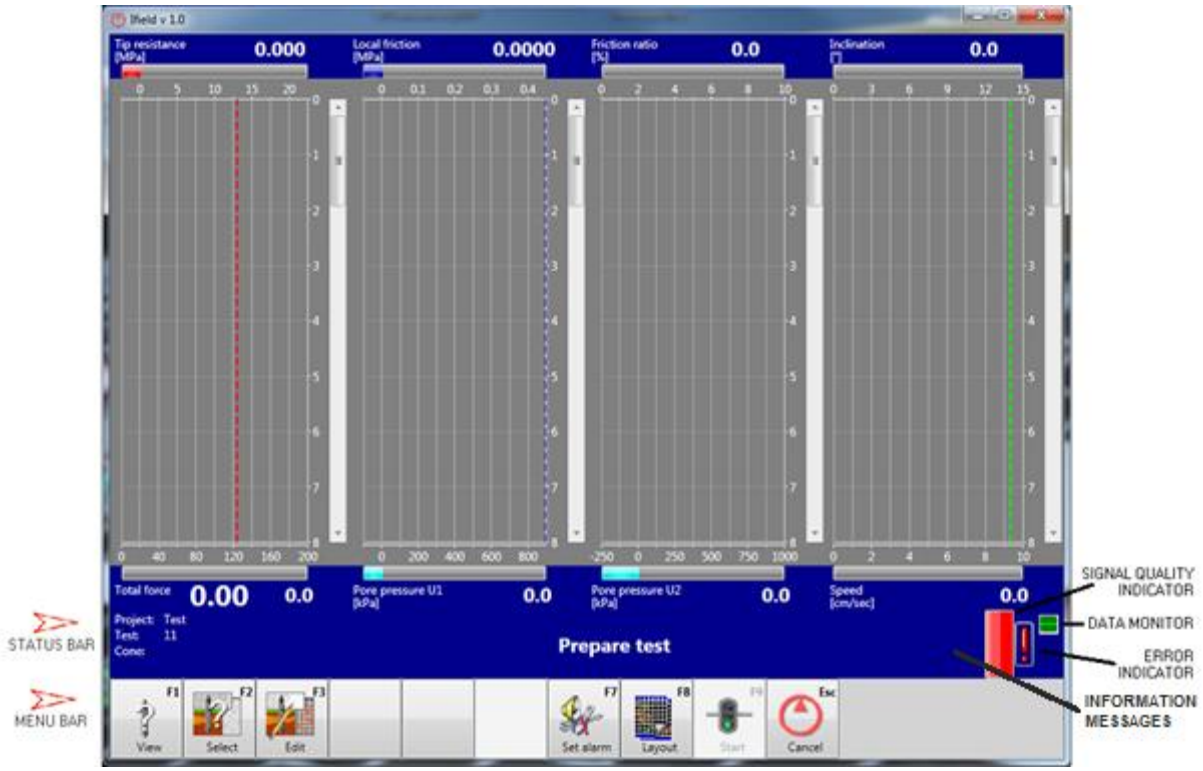
Help

Program control

To control the program, the keyboard and mouse can be used. The functions on the menu bar can be selected by clicking on them with the mouse. They can also be selected by using the function keys F1 thru F10 or by using the cursor keys.

Screen information

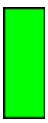
The functions in Ifield® can be found back in several menus. Each menu has a different menu bar definition and screen layout. In the illustration of the screen, the standard items are shown the same way as they will be shown generally in the screen layout.

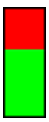


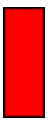
status bar
Shows information related to the status of the test.

menu bar
Functions are selected by means of a button on the menu bar. By selecting a certain function the screen changes to a different menu with a corresponding screen layout. A new menu may have buttons different from the previous menu. In this way the control of the system is kept simple, with only those functions available on the menu bar that are applicable at that point.

signal quality indicator (only visible when using Icone Optical or Icone Powerline)
The indicator visualizes the amount of communication errors in the data stream received from the Icone or Module:

 No errors / good signal

 Errors / bad signal

 No data received / no signal

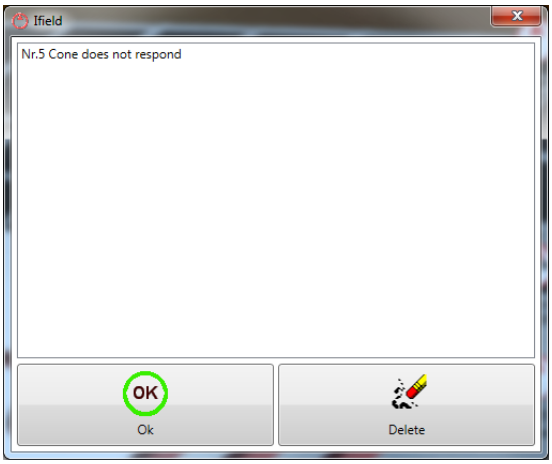
When the indicator is (partly) red, there are communication problems. In case of an Icone Optical system, the optical signal should be amplified: exchange the rod that was placed last with an Optocone Repeater module. In case of an Icone Powerline system, the powerline length may be too long or errors are caused by electromagnetic interference (EMI) by electric drives.

data monitor
The data monitor shows communication between the data acquisition system and the system on which Ifield® was installed. If for any reason there is no data communication, this will be shown as follows:

 Communication OK

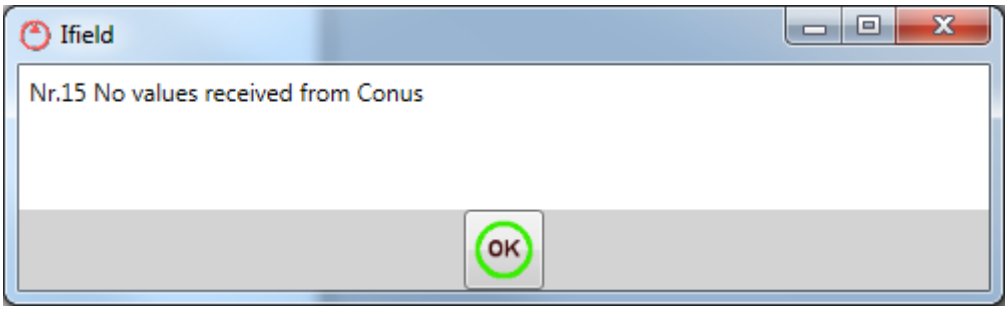
 Communication bad or interrupted

Error message
The symbol for an error message is the red exclamation mark **!**. Click on the red **!** For more information on the error message. The following screen will appear.



Press the Delete button when an error is no longer active. The red **!** will disappear. Depending on the type of error, it is possible to continue the CPT. If not, restart the system. If the failure message box is totally filled up with messages, a scroll bar will be visible that allows you to scroll through the information that is relayed by the data acquisition system. Please contact A.P. van den Berg if more information or support is needed.

Warning messages
When something happens that can compromise a function of Ifield®, the software will give a warning and if necessary some tips to solve the issue. A warning message looks like this:



Additional information
When a power line modem is used, the registration procedure will be made visible here. Also other information to support operating Ifield® will be displayed here.

2 Manual Ifield SYSTEM SETTINGS

Version 2.0

System settings

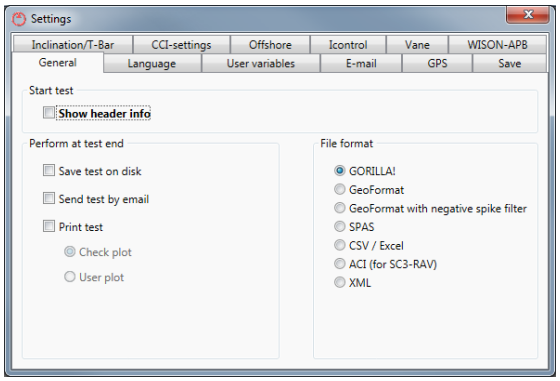
Before starting testing with Ifield®, it is advisable to fine-tune several settings in order to obtain the required results. Usually this needs to be done only once. Settings can be changed later on if they appear to be incorrect. Several settings directly influence the functioning of the system. These settings resort under menu System, item "MORE".


Select and change setting options

On the screen a number of tab pages with options are shown. For a description see below:

 	Select the required option.	
	Click on the selected option.	*A check mark appears before the option.* *The check mark disappears by selecting the option again.*
	Confirm the selected settings.	*Return to the previous menu.*

General settings



Show header info
By selecting this option, the input screen for changing the additional information will automatically appear when you start a test. This way it is almost impossible to forget to fill out the additional information. We advise not to select this option if the additional information is only known mostly after testing.

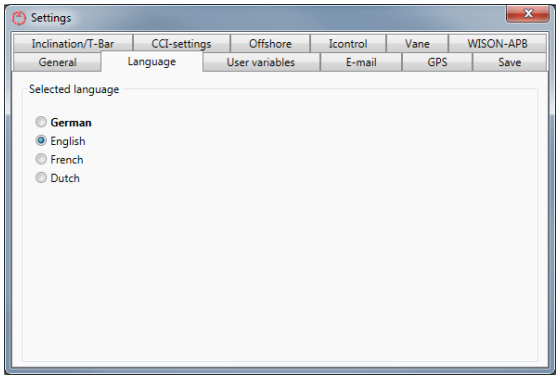
Save test on disk
By selecting this option, the test results will be automatically stored on the "storage device" immediately upon completion of the test.

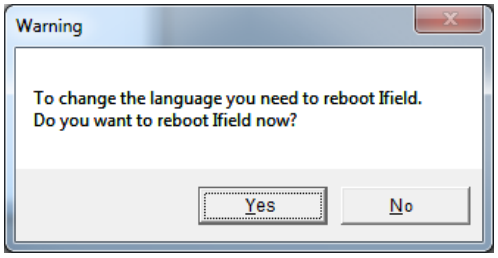
Send test by e-mail
By selecting this option, the test results will be sent automatically by e-mail immediately upon completion of the test. The settings necessary for sending data with e-mail are included on the tab page **e-mail**.

Print test
By selecting this option, the test results will be printed automatically immediately upon completion of the test. A draft printout will show unfiltered test values and is printed with the watermark "draft". The user's printout will be filtered for peak test values and the above-mentioned watermark will not be printed. A.P. van den Berg can adjust the user's printout on the customer's request.

File format
To store test data the standard GORILLA!® format is used. If other format is needed please contact A.P. van den Berg for more information.

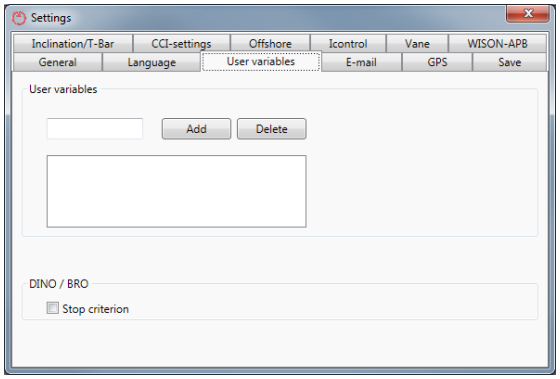
Language





Selected language
Here the language Ifield is using can be changed, after changing the language Ifield will reboot.

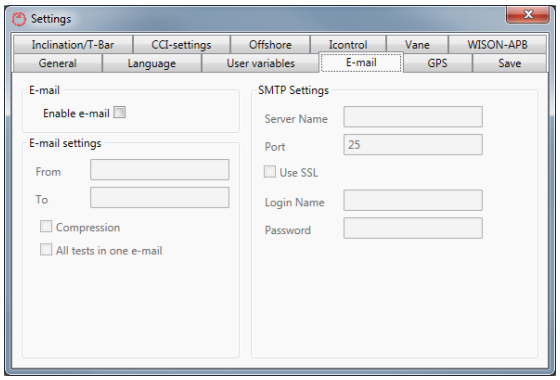
User variables



User variables
Here you can add and remove your user variables.

DINO / BRO
Dino/BRO is a database setup by the Dutch government and has some extra demands on data in the measuring file. If you need to provide data for the Dino database select "Stop criterion" and click apply. At the end of a CPT some data has to be filled out after choosing this option. See chapter **AFTER A TEST**, *Completing a test*.

E-mail settings



If you have an internet connection you can fill out here the e-mail settings so you are able to send an e-mail with CPT-data directly from Ifield®. These settings are provided by your internet service provider.

Enable e-mail
Enable the e-mail function. If this box is not selected, the e-mail function in Ifield® is disabled.

From
Fill out the e-mail address from which the data is sent.

To
Fill out the e-mail address to what address the data has to be sent.

Compression
In the standard setting, the test data will be compressed when sent by e-mail. This way files are made smaller, saving transmission time and expenses.

Compressed data must be decompressed after receipt for further processing.

All tests in one e-mail
When this box is selected all selected tests from a project are sent in one e-mail. If the box is not selected all tests will be sent in separate e-mails.

Server Name
Fill out the outgoing mail server name (ask your provider).

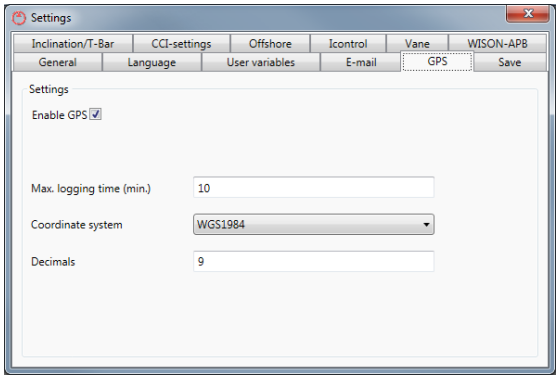
Port
Fill in the port of outgoing mail server (ask your provider).

Use SSL
Select if SSL is needed for the outgoing mail server (ask your provider).

Login Name
Fill in the username if needed for the outgoing mail server (ask your provider).

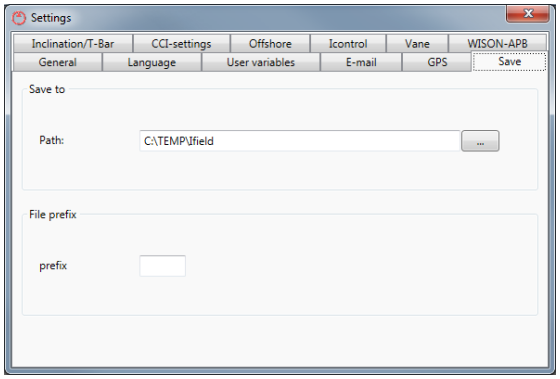
Password
Fill out the password of the mail server if needed (ask your provider).

GPS



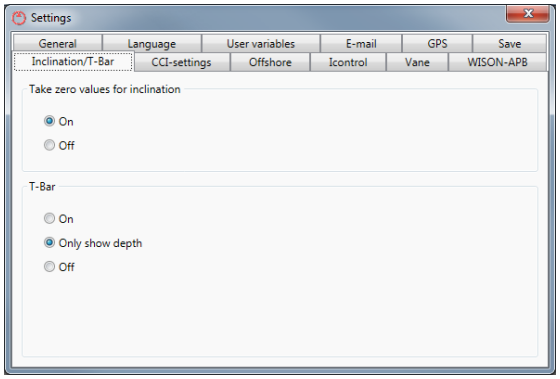
If a GPS device is connected to the PC that gives out NMEA strings the software automatically recognize the data. This data will be stored in the CPT-file in the format you can select here.
If you not sure your GPS device is supported please contact A.P. van den Berg.

Storage device settings



Here you can fill in the location for the Ifield® data files to be saved to when you using store function explained in chapter 6: "ADDITIONAL FUNCTIONS: how to store test data".

Inclination / T-bar settings

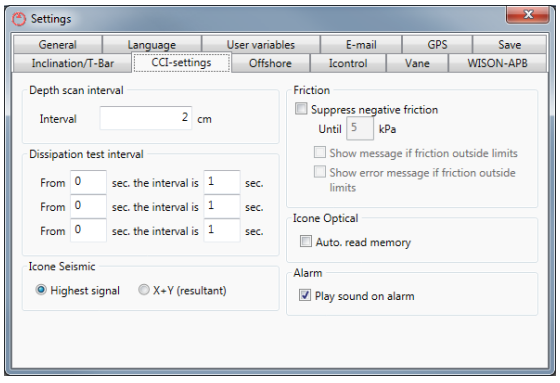


Here you can set whether zero readings of the inclination have to be taken or not. An absolute inclinometer is mounted in the cone. If you want to start the CPT on zero degrees, than select: "On". If you want the real/absolute angle, than select "Off".

T-bar settings are optional
If the T-bar setting is set to "On" the depth will count back and the measured values will be displayed in kN. A "T" is added to the cone number. So cone number 123456 will be 123456T. If you select "On but only depth no values in kN" only the depth will be counting back but the values are not changed to kN and no "T" will be added.

After changing one of these settings, you need to restart Ifield® to activate.

CCI-settings



Standard Ifield® takes a sample every 2 cm. Changing the interval value with "Depth scan interval" will change this. The value needs to be an integer like 1 or 2 not 0.5 or 1.5.

When starting a dissipation test, Ifield® saves the test values with an interval of one second default. By using "Dissipation test interval" there are three boxes in which you can fill out the time interval you want for the dissipation test. In practice a larger interval can be chosen as the test lasts.

The data from Icone seismic can be displayed and saved as an absolute result value of the X and Y channel or just the highest signal (X or Y).

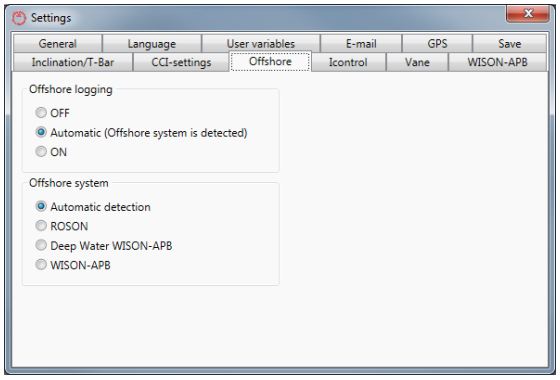
Due to the inaccuracy of the measurement (see Calibration Certificate/Data Sheet) sometimes a very small negative friction can be measured. Some software can't handle negative friction values. To

prevent problems with this software you can setup the software to suppress negative friction. Be aware to stay within the allowed inaccuracies of the standard you are using.
Initial suppress negative friction is enabled until 5 kPa. You can configure it to the limitation of 9 kPa.

If Icone Optical is used and you select "Autom. read memory", Ifield® will automatically start reading out the memory of the Icone after ending the measurement.

If you prefer not to have an acoustic warning when an alarm is set, you can disable it here by deselection "Play sound on alarm".

Offshore



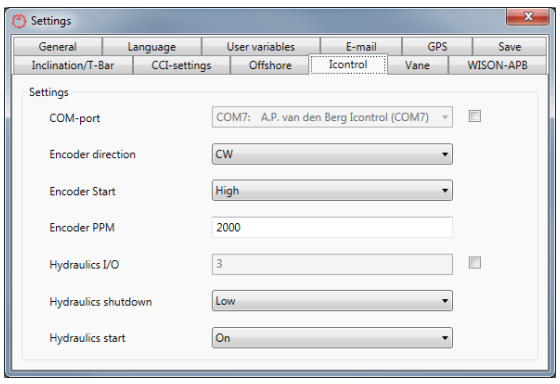
This tab is to setup some options you need when using offshore CPT-tools.

Offshore logging
If you want to log data during lowering the CPT-unit, select "ON" or "Automatic" for automatically detecting an offshore system. The log-file will be saved in the directory "Log". The log-file will have the name of the project followed by the test number. All files will be zipped. The newest file is also unzipped available.

Offshore system

Here you can select for which system Ifield® has to be configured. The options for this system will be configured even if your selected system is not attached.

I-control



Ifield® should find the Icontrol automatically so the COM-port doesn't need to set.

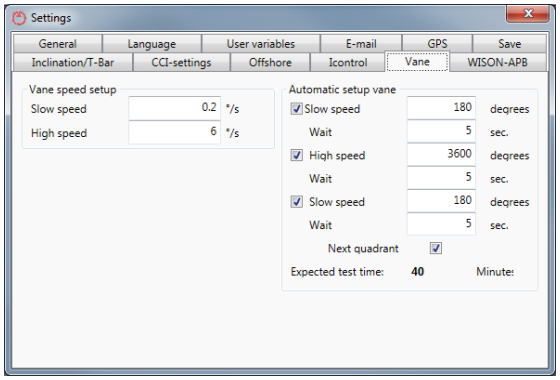
If the encoder (depth measuring system) counts backwards, you can change the setting "encoder turn" from CW (Clock Wise) to CCW (Counter Clock Wise) or the other way around.

"Encoder start" indicates at which signal level, depth recording starts. Select "High" to start recording when the level is high (Start/Stop LED on Icontrol front lights). Select "Low" to start recording when the level is low (Start/Stop LED is off).

If the system counts too much or too less depth, you can setup the "Encoder PPM". Fill in the pulses per meter (PPM) of the depth measuring system. Standard this is set to 2000 PPM.

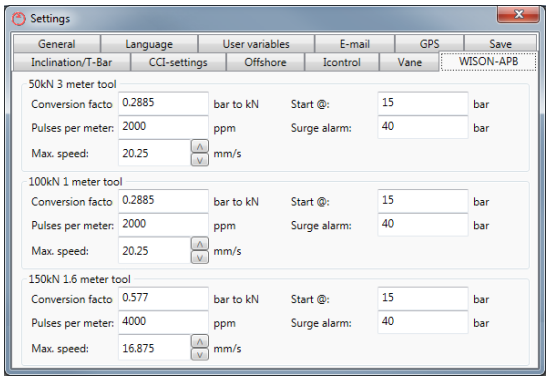
Please do not change "Hydraulics start", "Hydraulics shutdown" and "Hydraulics I/O" unless told so by an employee of A.P. van den Berg.

Vane



In this tab the high and low speed for Icone Vane can be configured.
An automatic Vane test can be setup here for more explanation see chapter 5.3 Vane.

WISON-APB settings

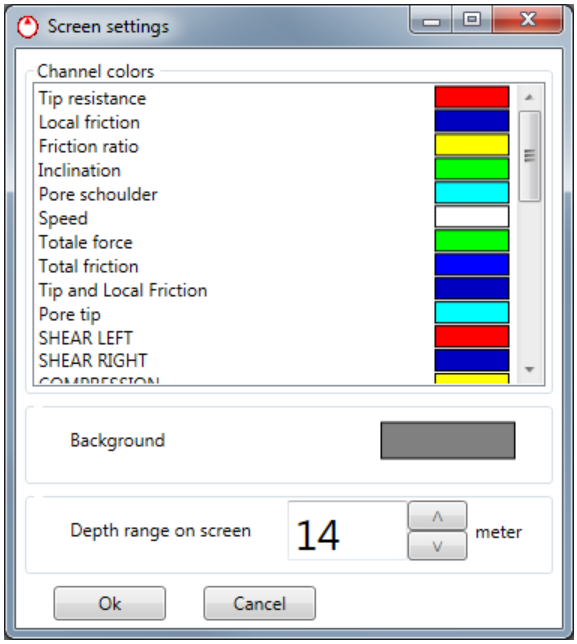


In this tab the settings for each WISON-APB tool can be configured.
This is need when you are using the WISON-APB pressure sensor to measure the total pushing force and start signal. More information on how the setup the WISON-APB see the manual of this system.

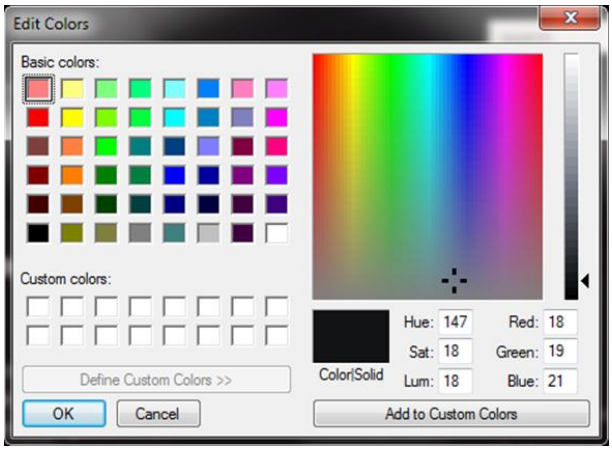
Screen settings

This function is used to set the colours of the graphs and the background colour of the test screen and the CPT-length in the graphs. Usually these settings are made only once. Changes are carried through in all available screen layout definitions.

After selecting this function the following screen appears:



Channel colors and background
Select one of the parameters or the background colour to adjust the colour setting. The following standard Windows screen is shown:



Select the required colour and exit the function by clicking **OK**. The previous screen reappears. Adjust the next colour and repeat the procedure or exit this function by clicking **OK**.

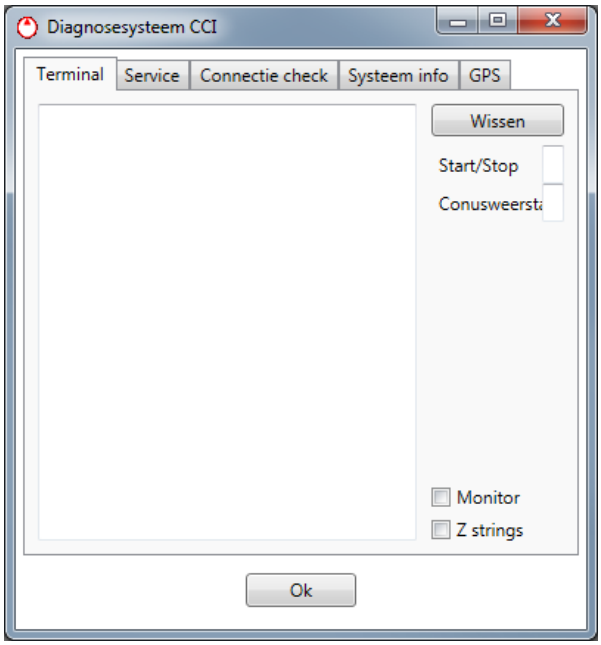
Depth range on screen
There you can change CPT-length in the graphs. Minimum length is 2 meter maximum is 24 meters.

Diagnostic

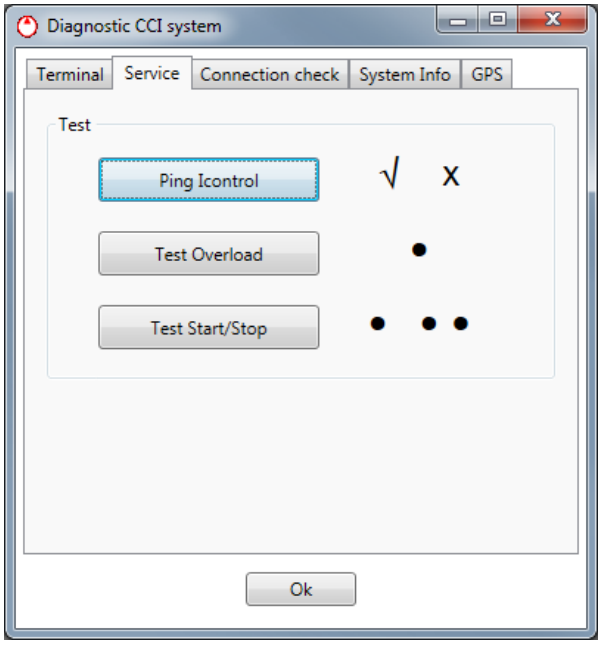
The diagnostic screen shows a number of sub chapters. Find underneath a description for each sub chapter.

Terminal

The functions on this tab are only be used in consultation with an employee of A.P. van den Berg.

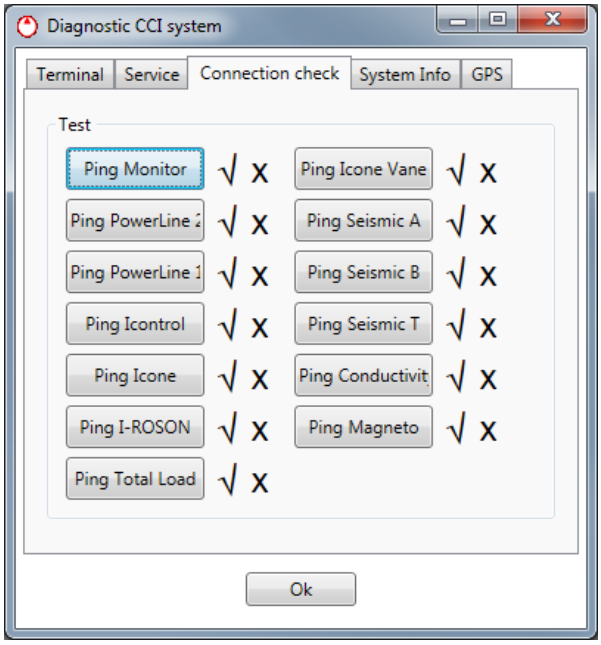


Service



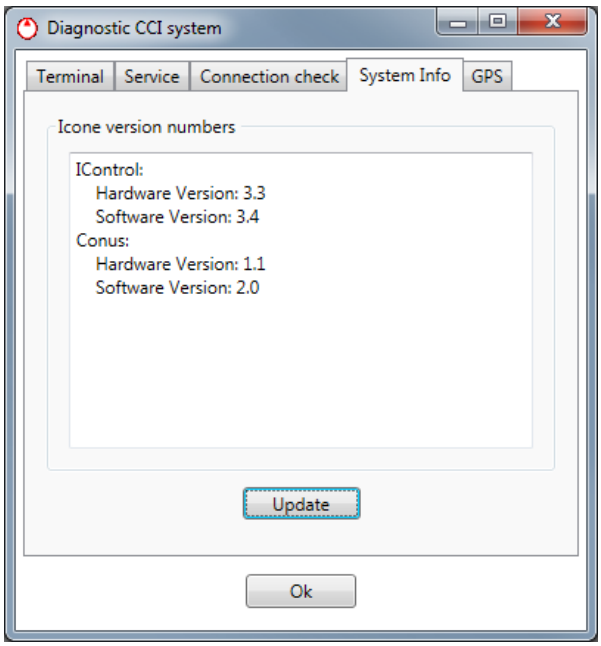
Here can we test the connection (ping Icontrol) and function of the Icontrol. If the test overload give a red result the Icontrol needs to be reset (turned off and on again) to reset the current overload protection (sort circuit protection). The start/stop test should give the same result as the leds on the Icontrol.

Connection check



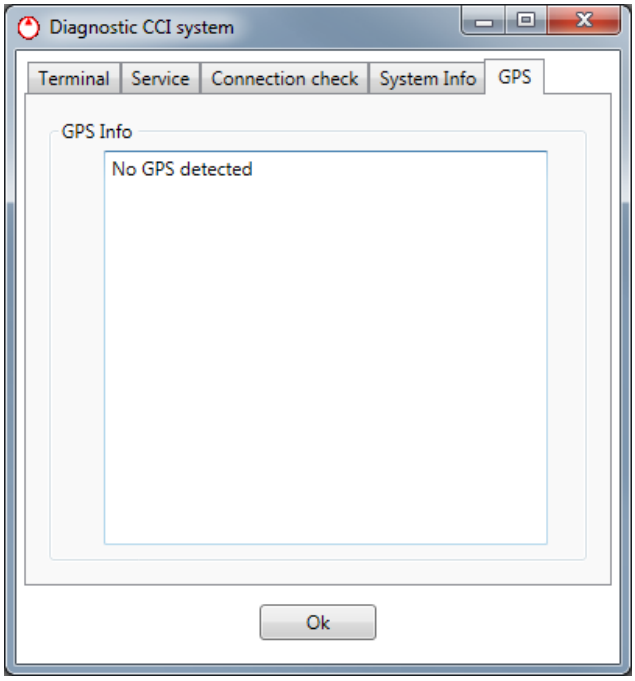
Here we can test the connection to the Icone modules.

System Info



Here you see the version numbers of the modules connected to the Icontrol. By clicking the "update" button you will update this data. The data will also be updated when you open this tab.

GPS



Here you see the data received from the GPS device if connected.

3 Manual Ifield PREPARATIONS

Version 2.0

Before testing can be started, some preparations are necessary.

Daily
Before testing it is necessary to create a project to which the test results belong.

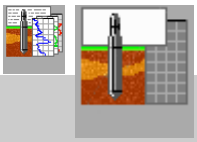
Creating a project

On the screen a list will appear with the existing projects. Below this list an extra window will be visible in which the information of the new project can be entered.


Select the required field.

Use the keyboard to enter text.

☞ *Repeat the procedure to create more projects.*



Preparing a test

Sometimes it is useful that you do not only create a project but also add test numbers that are connected to the project. By preparing ahead it is clear from the start of a project, which tests need to be done.
Before activating this function, select the correct project as indicated below.


Select the required project. *The test numbers belonging to the project are listed. See below.*


Select the required screen listing of test numbers.

Select the required test number. *The test number turns blue.*

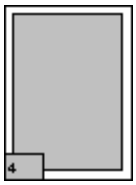
To de-select a test number click the test number again

Now select the function **preparing a test**


Select the required field.

Use the keyboard to enter text.

Possible test number designations.



No test results are available and no additional information has been entered. This test number is therefore available for preparation.

This test has already been prepared, but not yet been performed. Additional information needs to be entered.

☞ *By double-clicking on an empty test number the screen for entering the data appears automatically.*

When using a mechanical cone and measuring body

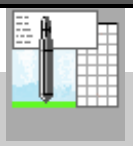
If a mechanical cone is used together with an automatic discontinuous measuring body, the mechanical cone type has to be selected.

☞ *Reconnect the automatic discontinuous measuring body to change the selection*

The Dutch cone is a mechanical jacket cone that is used to measure cone resistance and total friction. The Begemann cone is a mechanical friction jacket cone that is used to measure cone resistance, sleeve friction and total friction in a discontinuous way.

4 Manual Ifield PERFORMING A TEST

Version 2.0



General

Before you can perform a CPT a cone has to be connected and a test number has to be selected. See chapter: **PREPARATIONS,** *Preparing a test* how to select a test number.

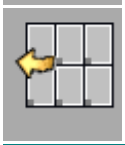

View cone

In this screen you can see which cone and which click-on module are connected. The software recognizes the cone automatically and the Icone will automatically send the calibration data to the laptop or touch screen PC. The cone type and number of the cone that's connected will be shown in the status bar behind "cone :". The parameters and calibration data of the cone can be found on the Calibration Certificate and Data Sheet provided with the cone.

The dongle needs to be connected to the computer when the cone is attached!

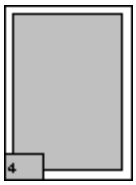
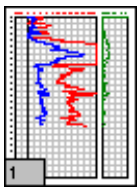

Test number selection

Before testing first select the required project:

		Select the required project.	*A list of all test numbers is given.*
		Select the required screen listing of test numbers.	
		Select the number of the test to be performed.	*The box containing the test number turns blue.* ☞ *Check the summary below to select the correct number.*
		Confirm the selection of the test number.	*Follow the indications on the screen if any.* *The screen to perform a test reappears.*

Possible test number designations.

	This test has already been prepared, but not yet been performed. Additional information needs to be entered. (See Chapter : **PREPARATIONS,** *creating a test.*)	*Select this test number especially where the preparations for a test have been made.*

	No additional information has been entered and no test has been performed.	*Select this test number especially where additional information is not available or has not yet been entered.*
	The test was started but was aborted due to failure.	*Select this test number when the failure has been repaired and the aborted test can be continued.* *To continue, select the test once more and choose the option "Append". See also below:*
	The test was started and ended.	*By selecting this test number you have next two options:* - *the new data is added to the existing data.* - *the existing data is deleted and replaced by new data*d

With the optical system you can't append a CPT!


Changing additional information

Additional information that is available before starting the test, can be entered immediately. Sometimes additional information is only available after completion of the test.

This function can only be used if a project and a test number have been selected. See Chapter **TESTING,** *test number selection*.

On the screen the available fields are listed. The list is divided in three sections: a general section, a section with fields relating to test standards and a section defined specifically for the user.


Select the required field.

Use the keyboard to enter text.

If the option 'SHOW INPUT SCREEN' has been selected at system settings ', this function will automatically be selected upon starting a test.

This function can also be used after completing a test. The TEST menu does not need to be closed to do this.


Screen layout selection

The screen shows a summary of the available screen layout definitions.

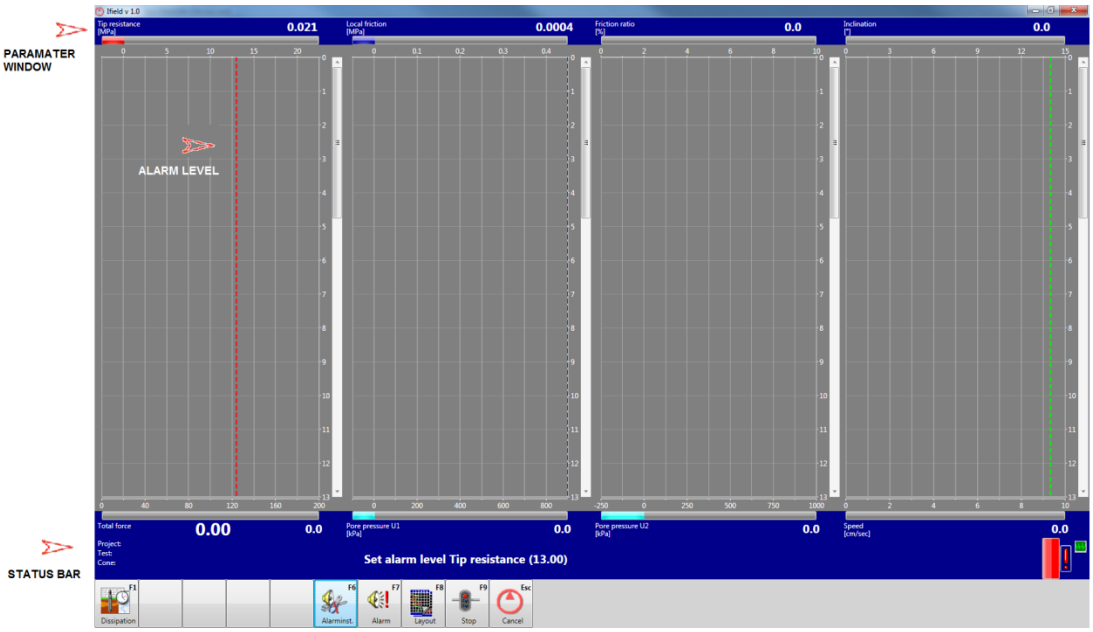
Click!	Select the required screen layout.	*The selected layout is indicated by a red frame.*
OK	Confirm the selection.	*The test is shown in the selected layout.*



Alarm level settings

Select the window of the parameter for which the alarm level needs to be set. The vane torque can be setup when performing a vane test.

☞ If the value to be set is not in the available layout, you need to select another layout.



The selected parameter appears in the status bar, together with the value already set. Now you can set values outside the range of the graph.

Click!	Click on the area at the left of the graph.	*The alarm level is reduced.* ☞ the alarm level is indicated in the status bar

	Click on the area at the right of the graph.	*The alarm level is raised.* ☞ the alarm level is indicated in the status bar
	Confirm the setting.	

Starting a test

Depending on the test you prepared, the start-up can be different. In the following, you only have to read the part of your setup. You can choose between a CPT-test onshore, offshore or a Vane test. If you have to perform a Conductivity, a Seismic or a Magneto test, just follow the standard CPT instructions. For Conductivity you need to select a special lay-out to be able to see the Conductivity test results.

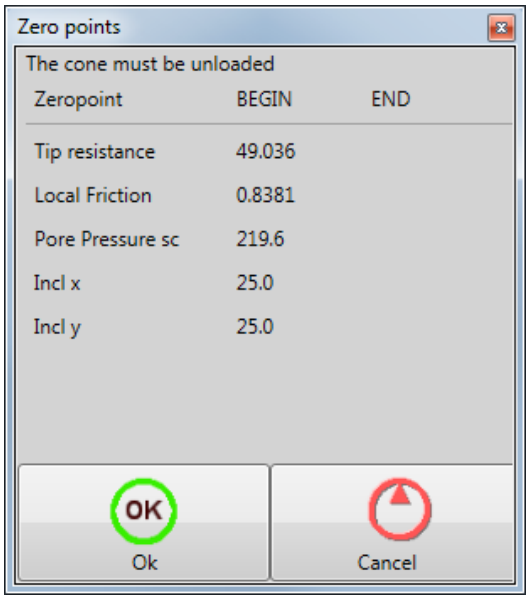
- Onshore testing
- Offshore testing
- Vane testing

Only when a measuring module is connected and a test number is selected, the test can be made.

The dongle needs to be connected to the computer before the measuring module is attached!

Onshore testing

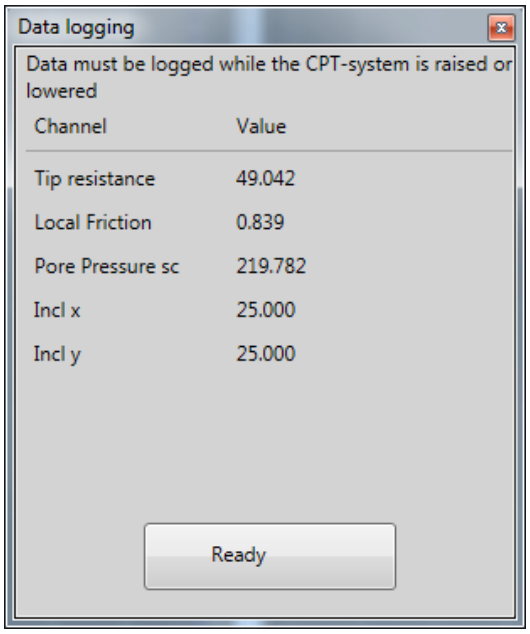
Take care that before starting the test, the measuring module has to be placed above the ground level WITHOUT BEING LOADED. In this unloaded state, the zero readings can be taken and the module will be zeroed. This means that the measured values will be corrected with the zero values. The window for measuring the zero values is shown on the screen.



This window displays only the channels that are zeroed. If a channel is not shown in the window, it doesn't need to be zeroed, like conductivity or seismic channels. Make sure the values are stabilized before accepting them. Note that when this dialog is shown, the zero values cannot be accepted until the stabilization process is started.

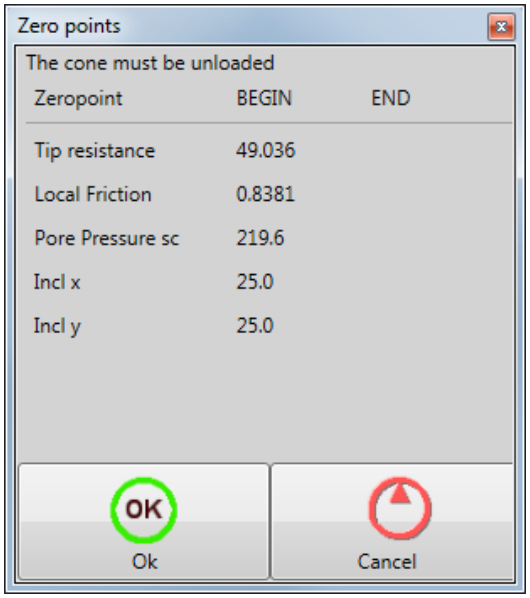
Offshore testing

If you have enabled offshore logging, see chapter 2 *SETTINGS, diagnostic tab Offshore.* The test starts with the log screen which remains on the screen during lowering and raising the CPT unit.



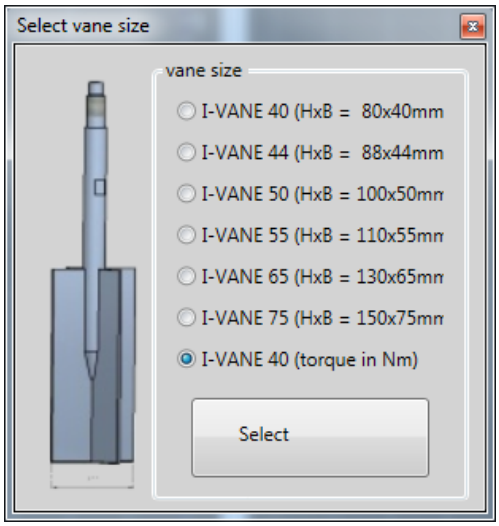
Select "Ready" when the system is in position.

Take care that before starting the test, the measuring module has to be placed above the ground level WITHOUT BEING LOADED. In this unloaded state the measuring module can be zeroed. This means that the test results will be corrected for the values that the measuring module gives in its unloaded state. The window for measuring the zero values is shown on the screen.

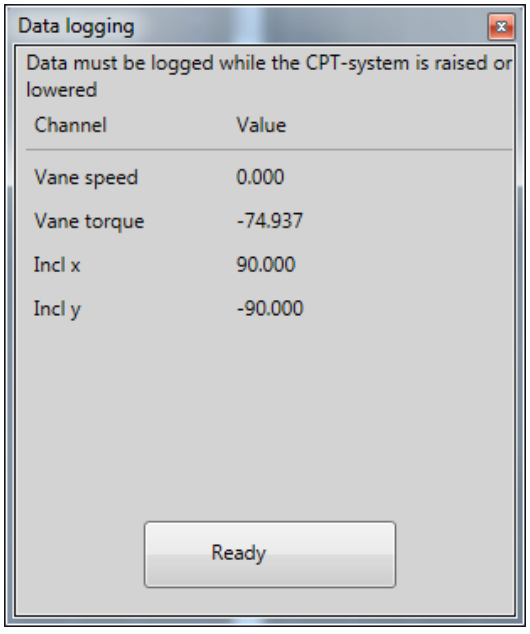


Vane testing

If you connect an Icone Vane module, you need to select the vane-blade size before you can continue. If an unknown size is attached you have to select "I-VANE".

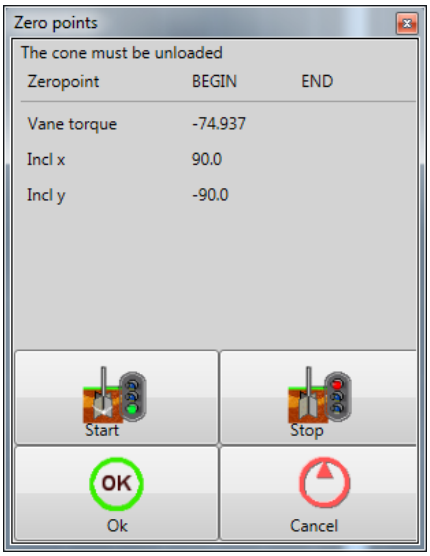


When using Icone Vane offshore
Check if offshore logging is enabled (button ON or Automatic is set), see chapter 2 SETTINGS, paragraph *diagnostic,* tab Offshore. the test will start with the log screen as shown below which remains on the screen during lowering and retracting of the Icone Vane tester.
When the ROSON-system is stable on the seabed floor or the WISON-APB is latched inside the drill pipe, press "Ready" on the Data logging window. Continue with taking zero-values as described in the next step.

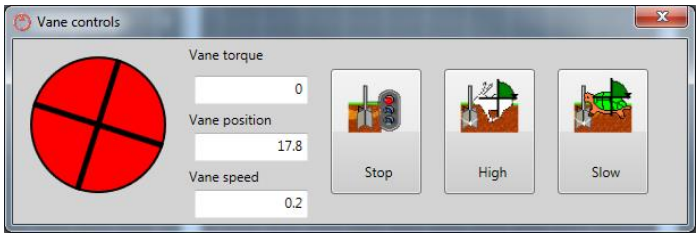


Taking zero-values
Before an Icone Vane test can be started you have to take a zero-value in order to assess the accuracy of the test by comparing this zero-value with the zero-value taken at the end of the test. A zero-value is also needed to correct the test results with the values that the Icone vane tester gives in its unloaded state.

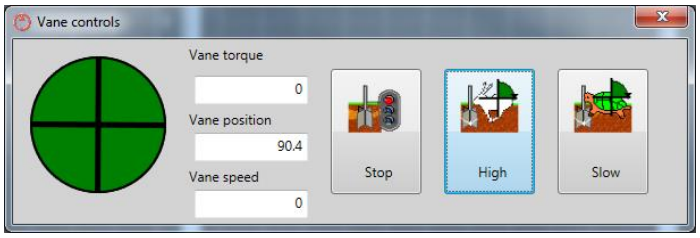
To take a zero-value the Icone Vane has to be out of the protection tube (if used) and HAS TO BE FULLY UNLOADED! Follow next steps to take a zero-value, use the control buttons of the Zero points window:



- Press the Start button, the Vane will start moving (slow speed) and the actual torque-value is shown on the Zero points window.
- Wait until the torque-value is stabilized, then press the OK button.
- The zero-value is set now, the Zero points window will disappear.
- Stop the Vane by pressing the Stop button on the Vane controls window.
- Turn the Vane to a controlled position by pressing the High button on the Vane controls window. The vane will go to the next quadrant
- The Vane graph on the vane control window will be green now. If not, repeat this procedure by starting a new test.
- Retract the vane inside the protection tube.
- You are ready to push the Icone Vane to its first test depth.



Red means Vane is out of position to retract in protection tube.



Green means Vane is in position to retract in protection tube.

With the Vane controls window you are able to rotate the Icone Vane by using the buttons High and Low to the next quadrant. The high and low speed is configured in chapter 2 SETTINGS, paragraph *Diagnostic CCI System,* tab CCI settings III . With the Stop button you can stop the Icone Vane.

The parameters Torque, Position and Speed of the Icone Vane are displayed. The position of the vane is shown by a graphical representation. If the graphical representation is white, the Vane is not in position to retract inside the protection tube. If the graphical representation is green, the Vane is on position to retract inside the protection tube.

During a Vane test it is possible to leave the Vane controls window on your screen. It is also possible to close the window by pressing the X-button.

Performing a test

During executing of a test, a number of actions can be taken that do not affect the test results. These actions can be performed at any time during testing, like selecting a different layout or setting up an alarm level.

When a Magneto Module is connected, a second screen appears. This second screen is described in chapter Magneto test.
During a CPT it is allowed to start extra tests. Make sure you stay at the same depth during an extra test. You can take multiple tests on the same depth, even different kind of tests. Every extra test is indicated with an unique test number. Examples of these extra tests are a dissipation test, a seismic test or a vane test. To perform these tests, you need to attach a cone, a Seismic Module or an Icone Vane tester to your measuring system.

☞ *For starting a test see Chapter: **TESTING,** starting a test*

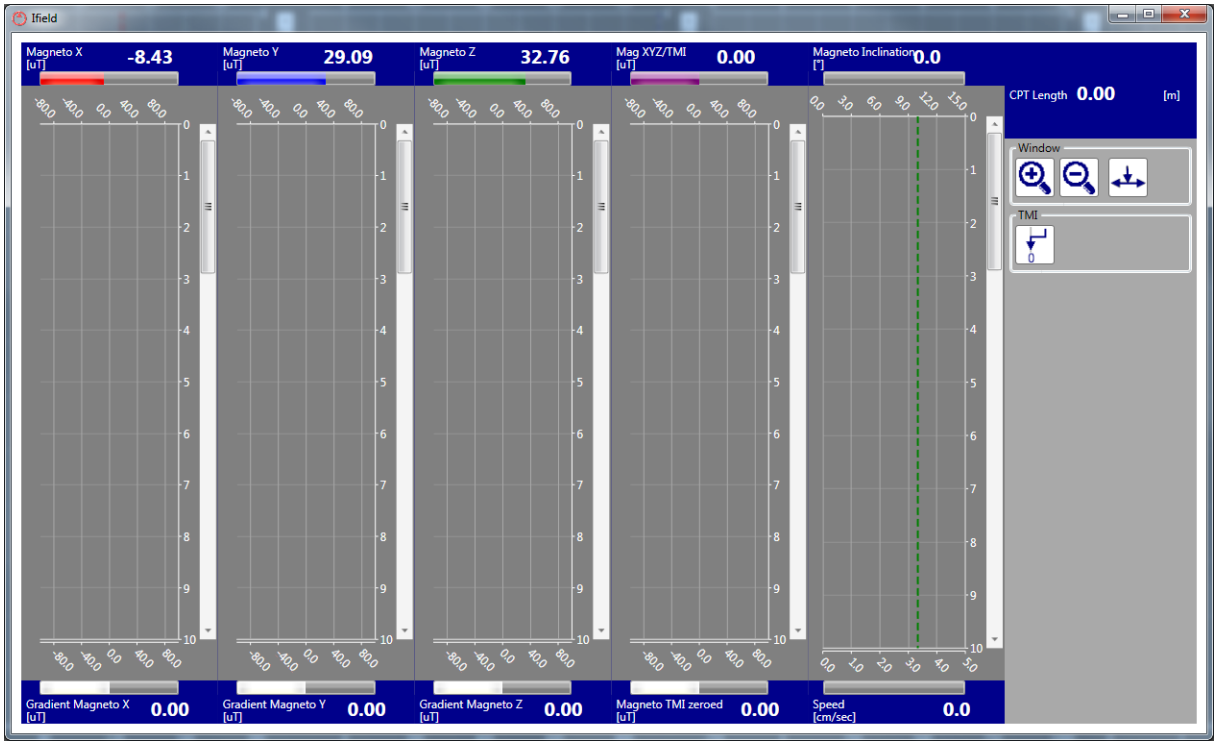
☞ *Keep the dongle connected to the computer during a test, if a cone restarts the dongle is needed*

☞ *If a value is not presented in the layout, please select a layout with the value you need*

☞ *If the second screen (magneto screen) is closed it can be reopened by selecting a layout*

Magneto test

General information



When a Magneto Module is connected, a separate screen is shown for the Magneto Module. This screen will only show magneto data.

☞ *This screen can be moved to a second monitor. This can be useful when a magneto expert is present during a test. In that case the CPT-operator and the magneto expert have both their own screen.*

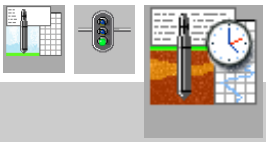
Graphs
The magneto signal is shown in a color, the gradient (first derivative) is shown in white. The gradient is calculated each depth scan. The depth scan interval can be set, see chapter SYSTEM SETTINGS, *System*, CCI Settings.
The Total Magnetic Intensity (TMI) is shown in a separate graph and is called Mag XYZ/TMI. This is the vectorial sum of Mag X, Mag Y, Mag Z. In another separate graph the inclination of the Magneto Module is shown.

Window Zoom and Centre

To increase or decrease the scales of the magneto signal a zoom function (button with magnifier with + or – sign) is available.
The centre function will use the newest value as the centre value for the magneto graph.

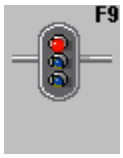
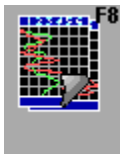
TMI zero

Pressing this button will change the calculation of Magneto TMI zeroed. The X, Y and Z component are zeroed and then then TMI is calculated $TMIzeroed = \sqrt{Xzeroed^2 + YzeroedY^2 + Zzeroed^2}$.

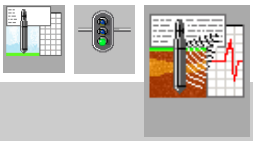


Dissipation test

When using a cone that can measure pore-water pressure, a dissipation test can be performed. A dissipation test is performed against time.

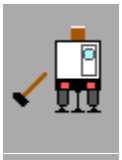
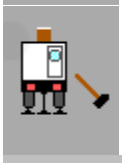
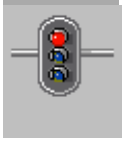
	The dissipation test starts as soon as the function is selected.		*The screen layout is automatically adapted for a reproduction of the test results against time.*
		End of dissipation test.	*The dissipation test window is closed. Registration against depth can be resumed. The screen layout for reproduction of test results against depth reappears.*
		Setup Alarm	*See chapter 4 Performing a test, paragraph Alarm level settings*
		Cancel alarm	*See paragraph Alarm cancelling later in this chapter*
		Select layout	*See chapter 4 testing paragraph Screen layout – selection.*

Registration of the dissipation test results is divided into several periods. In the first period measurements are made with an interval of 1 second. In the following periods, registration finds place with intervals using a slower time base. See also Chapter: **SETTINGS**, *CCI Settings*.

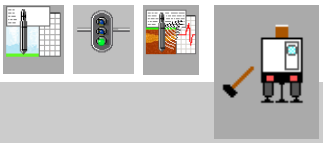


Seismic test

Seismic tests can be performed with a Seismic Module. During a seismic test the travel time of a vibration in the soil layers will be measured and registered.

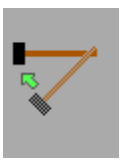
	After selecting the function as indicated, a menu is shown giving a choice to three seismic tests.	*The screen layout is adjusted automatically to show the test results of the three seismic tests.*
	Select the test Shear wave left.	*The screen layout is adjusted automatically to perform this test. See further* **DURING TESTING,** *Start a seismic test.*
	Accept satisfactory test results.	*The screen layout is adjusted automatically to show the test results of all three seismic tests.*
	 Select in a similar way the test Shear wave right and the Compression test.	
	Quit Seismic Test as soon as you have correct results for all performed tests.	*Registration on depth base can be continued. The screen layout is restored to show registration on depth base.*

☞ *You don't have to keep to the order of testing as indicated here. You can repeat a seismic test as often as you wish. The last obtained test results will be stored after acceptance and quitting the seismic test.*



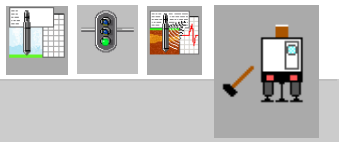
Start a seismic test

☞ *In the example below a test with Shear wave left is used. You can follow the same procedure for Shear wave right and the Compression test.*

	 Select the desired amplification.	☞ *Too high an amplification is NOT dangerous for your equipment. However the test results will not be reliable. See the example below.* ☞ *The selected amplification is shown on the right hand top corner of the screen.*
	Select this key to (re)arm the seismic source and software.	*As soon the test is started, the software takes care of registration. On the right side of the lower blue beam you are able to check if the trigger signal was received and also the progress of data processing.*

Perform the test by generating the shear wave in the desired direction.

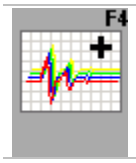
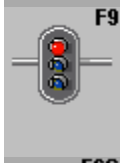
 	Scroll through the obtained results for an assessment.	*Total registration time is 600 msec, which will not be shown all at once.*



Seismic sample received

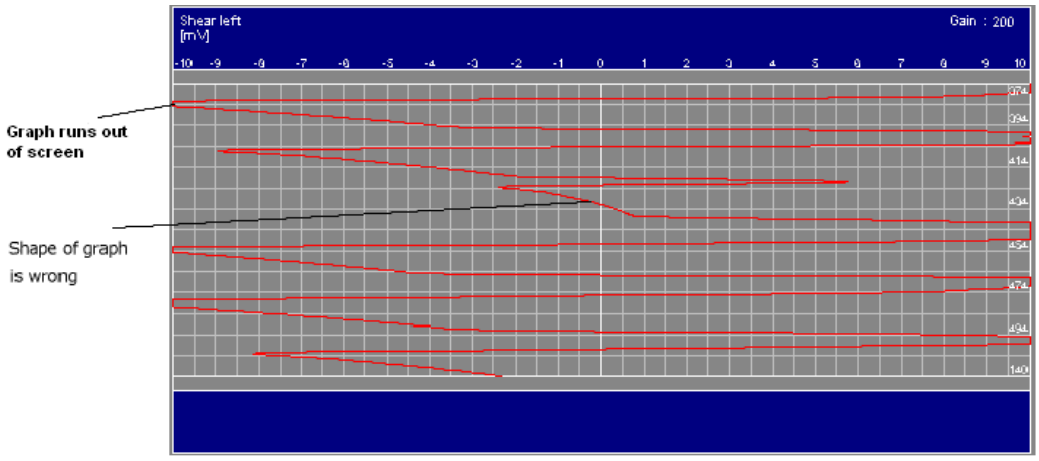
☞ *The example is for the test Shear wave left, but you can follow the same procedure for Shear wave right and the Compression test.*

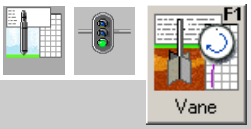
After receiving of the sample, a choice can be made to "Accept the sample" or to "Stack the Sample"

 	Accept sample or Stack sample.	*Use and stack sample. Rearm for new sample.* ☞ *Stacking (adding multiple signals) reduces the Noise ratio.*
	Delete sample.	*Do not use this sample. (Rearm for a new sample)*
	Accept test.	*Accept the test results.*
	Stop test.	*Stop and save performed tests.*
	Cancel.	*End this test without saving.*

Quit when the results are satisfactory. If not: repeat from the start, whereby the new test results will replace the earlier ones. Adjust amplification until you have obtained an acceptable result.

Below: an example of a test with a too high amplification factor:





Vane test

With the "Vane setup" button you can setup the test to perform a preset program. You can also start a manually operated test with the "Vane slow speed" or "Vane High Speed" button. These buttons will start a continues motion until the "Vane stop" button is pushed.

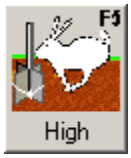
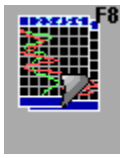
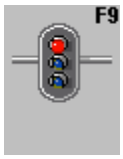
☞ The buttons of the vane controls window will start a motion that stops at the next quadrant

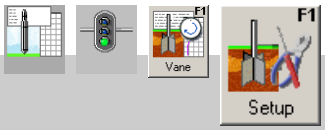
☞ Multiple tests can be performed at the same depth.

☞ Be aware you enabled "next quadrant" in the Setup Icone Vane window to assure the Vane will stop in a right position to retract if you use a protection tube.

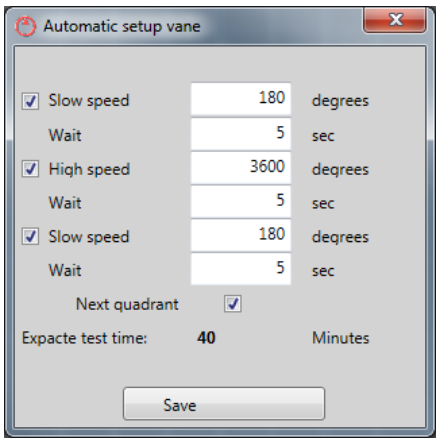
When the test is finished, press the stop button to save the results.

	Vane setup	*Setup a Vane test. See next paragraph for more information about how to setup a Vane test*
	Vane start	*The vane will start and execute the setup as previously set. After the test has been stopped temporarily, this button will continue the test.*
	Vane stop	*The vane will stop rotating*
	Vane slow speed	*The vane will start with continuous rotation on slow speed* ☞ *The speed is configured in chapter 2, paragraph Diagnostic CCI System, tab CCI settings III*

	Vane high speed	*The vane will start with continuous rotation on high speed* ☞ *The speed is configured in chapter 2, paragraph Diagnostic CCI System, tab CCI settings III*
	Setup Alarm	*See chapter 4 Performing a test, paragraph Alarm level setting.*
	Cancel alarm	*See paragraph Alarm cancelling later in this chapter.*
	Select layout	*See chapter 4 Performing a test, paragraph Screen layout selection.*
	Stop test	*Stop and save performed test.*
	Cancel	*End this test without saving.*



Vane test setup



In the vane test setup you can configure the speed and waiting times between the selected test stages. To rotate the vane after a test automatically to the next quadrant select the option "next quadrant". If you use a protection tube you need to use this option to make sure you can retract it back into the protection tube.

☞ It's also possible to use separate tests, you can start multiple vane tests on the same depth.

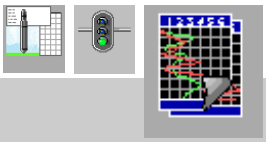
Alarm level settings

See chapter 4 *Performing a test,* paragraph *Alarm level setting.*

Alarm cancelling

This function overrides the alarm and can be used when the alarm level is exceeded. The acoustic signal is switched off and the automatic cut-off of the hydraulic push system is cancelled.

☞ *Automatic cut-off of the hydraulic push system is optional.*



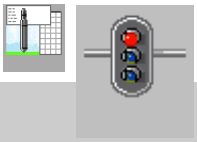
Screen layout selection

See chapter 4 *Performing a test,* paragraph *Screen layout selection.*

5 Manual Ifield AFTER A TEST

Version 2.0

A number of functions will generally be used after completion of a test. These functions will be explained in this chapter.



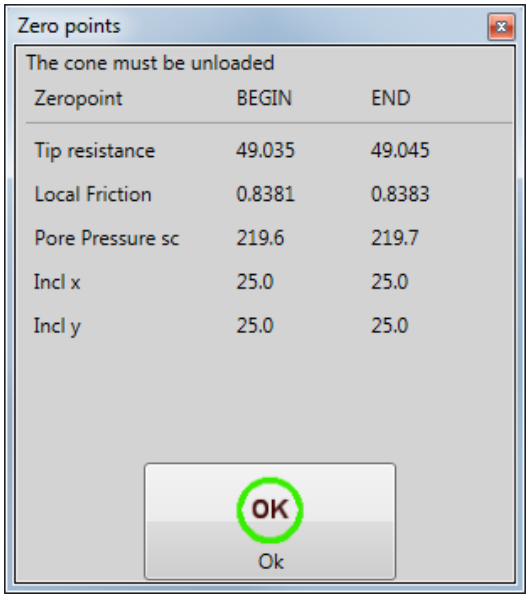
Completing a test

After ending a test by pressing the stop button and confirming, Ifield® will show different windows depending on which test you started. Please read the section of the test you were doing. The section are:

- Onshore testing
- Offshore testing
- Vane testing

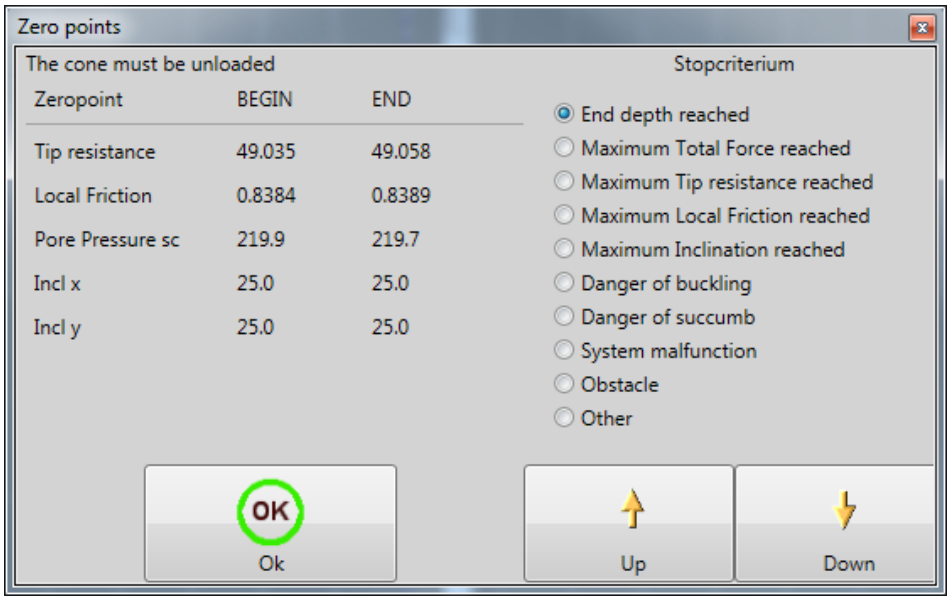
Onshore testing

After completing a test the cone can be retrieved to ground level, and the zero readings can be taken again. This has to be done upon completion of the test. If there is a significant difference in zero readings before and after the test, the cone may be damaged. In such cases further inspection is recommended.



☞ *Both the results of the zero value registration before and after the test are shown.*

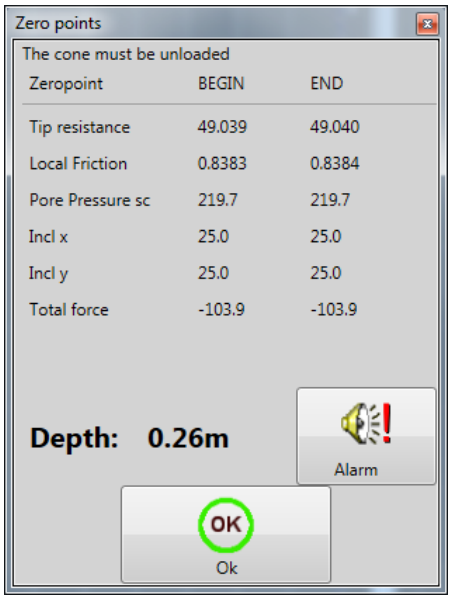
The window below is shown if the "DINO" function is set. See for more information chapter **SETTING**, *DINO.* On the right side of the window you must then select the reason why you have stopped the CPT.



Offshore testing

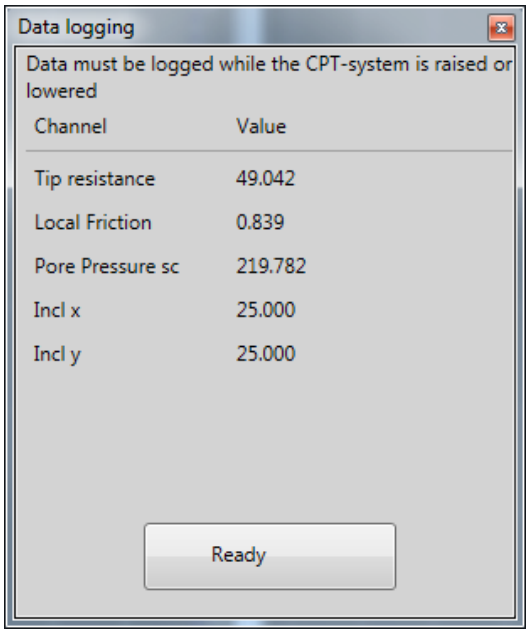
After completing a test the cone can be retrieved to ground level, and the zero readings can be taken again. This has to be done upon completion of the test. If there is a significant difference in zero readings before and after the test, the cone may be damaged. In such cases further inspection is recommended.

If you are working with the ROSON system, the depth will be shown below the OK button. When using the HMI panel of the ROSON to retract the cone, the ROSON will stop automatically on reaching the start position (0.00 meters). Be aware the automatic stop is NOT functioning when using the handheld during manual operation.



☞ Both the results of the zero value registration before and after the test are shown.

If you have enabled offshore logging, (see chapter **SETTING**, *diagnostic tab Offshore),* the data logging window will appear after you have pressed the OK button in de zero point window. The data logging window has to stay on the screen during lowering or retrieving the CPT unit.



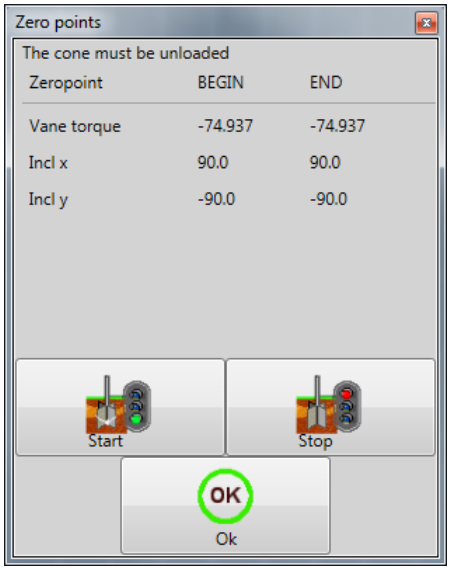
When the system is back at deck level, press the Ready button to stop the test.

Vane testing

After completing a test with the Icone vane module, it can be retrieved to ground level and the zero readings can be taken again. This has to be done upon completion of the test. If there is a significant difference in zero readings before and after the test, the vane tester may be damaged. In such cases further inspection is recommended.

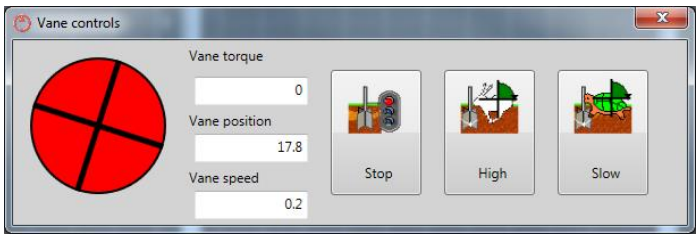
To take zero readings, the Icone Vane has to be out of the protection tube (if used) and HAS TO BE FULLY UNLOADED! Follow next steps to take a zero-value, use the control buttons of the Zero points window:

- Press the Start button, the Vane will start moving (slow speed) and the actual torque-value is shown on the Zero points window.
- Wait until the torque-value is stabilized.
- When the zero-value difference between begin and end of the test is more than 10 kPa, the test results are unreliable for further use. If the vane tester shows such a significant zero-reading differences more often, a recalibration is needed.
- Press the OK button and the Zero points window will disappear.
- Stop the Vane by pressing the Stop button on the Vane controls window.

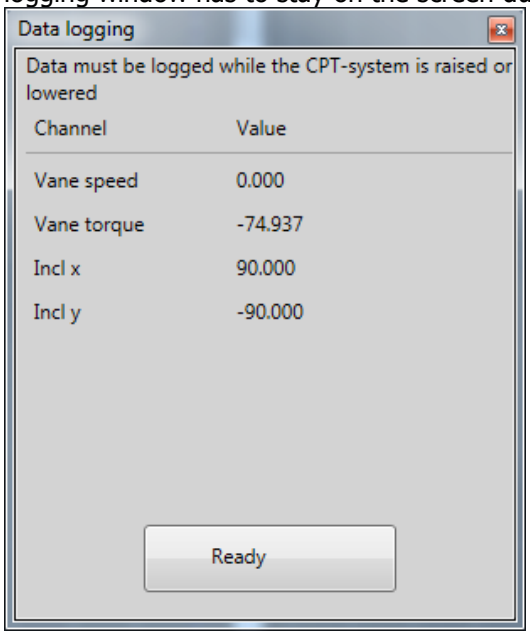


- Rotate the Vane to a controlled position by pressing the High button on the Vane controls window. The vane will go to the next quadrant.

- Close the Vane Controls window by clicking the X to end the measurement!



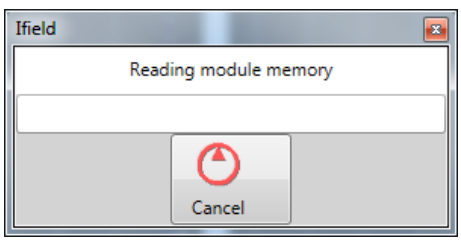
If you have enabled offshore logging, (see chapter **SETTING**, *diagnostic tab Offshore),* the data logging window will appear after you have pressed the OK button in de zero point window. The data logging window has to stay on the screen during lowering or retrieving the CPT unit.



When the system is back at deck level press the Ready button to end the test.

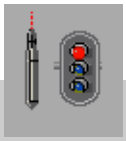
Reading out Icone Optical

You can read out the memory of the Icone in order to fill up the "holes" in the CPT measurement. The CPT-readings in the Icone memory are available until you start a new test with the Icone. If Ifield® has been rebooted, you can use this function in the "Select test" section. This is only possible if the CPT has been done with the Icone Optical.



☞ *The cone needs to be stopped before using this function.*

☞ *The rods can be too close to the camera for a good data transmission. Move the rods and try again.*

Stopping cone measurements

When the cone doesn't stop measuring you can press this button to make the cone stop. If the cone has been stopped it will blink once every 3 seconds on the screen. If the cone is still in measuring mode the signal will be continuous.


Editing project data

In a number of cases it may be necessary to change the project data that has already been entered. First select the project that has to be changed.


Select the required project.

Edit project data:


Select the required field.

Use the keyboard to edit text.


Editing additional information

Sometimes additional information becomes available only after completion of the test.

This function can only be used after selection of a project and test number. See Chapter **TEST,** *test number selection.*

The screen lists the available fields. This list is divided in three sections: a general section, a section with a field relating to the test standards and a section defined per user.


Select the required field.

Use the keyboard to enter text.

Test data

The test data can be printed using two options:

- **check plot**
  By choosing a **check plot** the user will get a printout with rough (unfiltered) test results. The paper layout is standard. The printout will carry a watermark with the text "draft".

- **user plot**
  Test results are filtered and there is no watermark. A.P. van den Berg can adjust the layout on the customer's request.

	Select the printer.	*This option is only available if more than one printer was installed.*
	OPTION: Select check plot.	
	OPTION: Select user plot.	
 	Select the required project.	*A list of all test numbers is given.*
 	Select the required screen listing of test numbers.	
Click!	Select the test you want to print out. Several tests can be selected at the same time.	*The test is marked with a* √
	OPTION: Mark all tests of the selected project.	*All tests are marked with a* √
	OPTION: View the test results of the selected tests.	*Use this option to view the test results before printing.*
	Print all selected tests.	

☞ *It is possible to select and print tests from several different projects all at the same time.*

☞ *If option 'TEST COMPLETION, print test' has been selected in the system settings, the test will automatically be printed upon completion.*

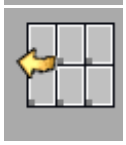
6 Manual Ifield ADDITIONAL FUNCTIONS

Version 2.0

This chapter explains the functions that are not directly involved in the testing process.


How to delete test results

To delete test results, first select the relevant project and test number.

 	Select the required project.	*A list of all test numbers is given.*
 	Select the required screen listing of test numbers.	
	Select the test that has to be deleted.	*Answer YES to the question if the test has to be deleted.*

Repeat the procedure to delete more tests

☞ *The test results can also be deleted by using the DELETE key on the keyboard. In that case the same selection procedure applies.*


Delete a project

Before deleting, select the project:

 	Select the required project.	*A list of all test numbers is given.*
	Select the project that has to be deleted.	*Answer YES to the question if the project has to be deleted.*

Repeat the procedure to delete more projects.

 *When deleting a project, all tests belonging to that project are deleted at the same time! Therefore be careful using this function.*

Archive

A copy of each test that is performed is stored in the archive. These test data can be copied to a USB-stick. Standard the last 400 tests are stored in the archive.

Insert an USB-stick in the USB-port of your computer system. The tests in the archive are listed on the screen.

Select the required field.

Confirm the selection and copy the test to the USB-stick.

Repeat the procedure to copy more tests.

Storing test data

This function is used to store all test results belonging to a project on a storage device. Make sure that the save location is available and there's enough free space.

Select the required project.

A list of all test numbers is given.

Select the required screen listing of test numbers.

Select the test that has to be copied.

The test is marked with a ✓

☞ *Repeat the procedure to copy more tests.*

OPTION:
Mark all tests of the selected project.

All tests are marked with a ✓

OPTION:
View the test results of the selected test.

Use the option to look at the test results before storing the test.

Confirm selection and copy the test(s).

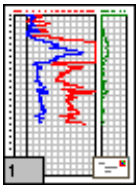
Repeat the procedure to copy tests belonging to other projects before confirming.

☞ *Sometimes storage devices are used to exchange test data. In that case use the option to automatically store test data on the save location immediately upon completion of the test (see Chapter **SETTINGS, system settings**)*

☞ *The save location can be configured in Chapter 2 **SETTINGS**, Storage device settings*

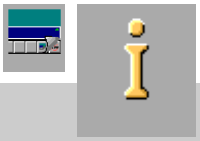
E-mail

When sending the test data by e-mail, use the same selection procedure as for printing. Tests that have been sent by e-mail are marked with in the test number list.



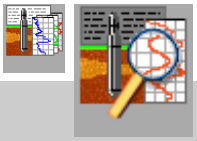
The necessary hardware has to be installed in order to send test results by e-mail.

☞ *If the option 'TEST COMPLETION, send test by e-mail' has been selected in the system setting, the test will automatically be sent by e-mail upon completion.*



System information

This screen gives information of the computer system on which Ifield® is installed and about Ifield® itself. This information is needed only in case of failures.



View test results

With this option you can look at the test results once again. Test data against depth as well as against time (dissipation test) are listed. In case of multiple dissipation tests, individual tests can be shown in an easy way.

First select the required project and test number.

Select the required project.	*A list of all test numbers is given.*
Select the required screen listing of test numbers.	
Select the test that you want to view.	*Display of the test can be adjusted to show depth by moving the vertical bar.*

In case of viewing dissipation tests a different menu bar appears. A maximum of five of the same buttons enable you to view successive dissipation tests. Each button is numbered. By selecting the required button, the dissipation test is shown with the corresponding number. If more than five dissipation tests have been performed, buttons with arrows will appear, allowing you to select additional dissipation tests.

	Show the test results of the selected test against depth.	
	Show the test results of the selected test against time.	*Select the required dissipation test in case of multiple dissipation tests.*
	Select the previous dissipation test.	
	Select the next dissipation test.	

GLOSSARY

Additional information

Usually **test results** are completed with extra information that helps to further classify the **test results** or to add comments.

Begemann cone

Mechanical friction jacket cone see paragraph *Preparing a mechanical CPT* of chapter 3

Conductivity module

The Conductivity module can be used as a module behind an Icone or as a stand-alone measuring module without an Icone and provided with a dummy tip. No special action has to be taken to use the Conductivity module. The Ifield® software automatically recognizes the module and the screen layout for measuring conductivity will come available. If the right screen layout is not displayed select a layout manually, see paragraph 5.5 'Screen layout'.

Dissipation test

A measurement against time, during a CPT-test against depth is called a dissipation test. This type of test is made mainly with measuring equipment suitable for registering pore-water pressure. Additional information about the soil characteristics can be obtained from the change in water pressure measured against time.

Dutch cone

Mechanical cone see paragraph Preparing a mechanical CPT of chapter 3

Free variables

There is standard additional information and there is client-specific information. The latter is known as free variables which are different for every user.

Ground level

Usually the ground level is used as the level at which a test begins. At this level the depth is set at zero and registration against depth is started. Ground level is a relative indication of height. Therefore an indication is given of its relative position with respect to a certain reference system.

Reference level

The reference level indicates the absolute height at which a test has been performed. Usually the zero level of a test is set at ground level and then the position of the ground level is given with respect to a standardized reference level.

Pre-drilling

If it is impossible to start testing from ground level because of a hard top layer (asphalt, stones etc.), a hole is made first by means of drilling or digging. This means, that there is no ground level anymore. There are two ways to start the test:

1. **Start the test at the original ground level.** The pre-drilled interval will not yield any valid measuring results, because the soil is disturbed there. By including the pre-drilled interval in the general information, Ibase® will not show the measuring results of this interval while presenting test results during the test.

Start the test at the bottom of the pre-drilled hole. The pre-drilled interval is skipped. It has to be indicated that the test started at the bottom of the hole instead of at ground level. Ifield® indicates this level as the starting depth.

Project description

Projects generally contain several tests. Each project has its own project description. The project description is a short explanation of the project.

Project information

A project features a number of characteristics. These characteristics are stored per project, and are indicated as project information.

Starting depth

The depth on which the CPT is started. This depth is offset from the reference level.

Tests

Tests are the total of measuring results and additional information taken together.

Test results

2. Test results are data acquired by means of measuring the different soil parameters during soil testing. They are usually stored against depth or time. They can be shown in a graph.

Vane test

With a the Icone Vane, you can made a vane test. Speed an rotation can be setup.

Water depth

With a test under water it is not possible to use the ground level as reference level. Usually the seabed is entered at reference level. In order to also include the water depth in the graph, the variable water depth can be used.

Bit depth

Current position of the drill bit.
$Bit\ depth = water\ depth + drill\ depth$

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