USER MANUAL

INCLAB
software

Index

1. INCLAB Manager

General Description

1.1

INCLAB Manager is a software used to setup and download the data stored in the readout unit.

In order to communicate with the control unit, it is necessary to connect the RS232 serial cable and to have switched the control unit on in the initial screen.

INCLAB Manager gives the possibility to quickly program the control unit without entering the data manually from it, making preparation easier and faster.

It is necessary for downloading the data of the readings made in the field with the control unit and it is equipped with a DATABASE archive which further facilitates data management.

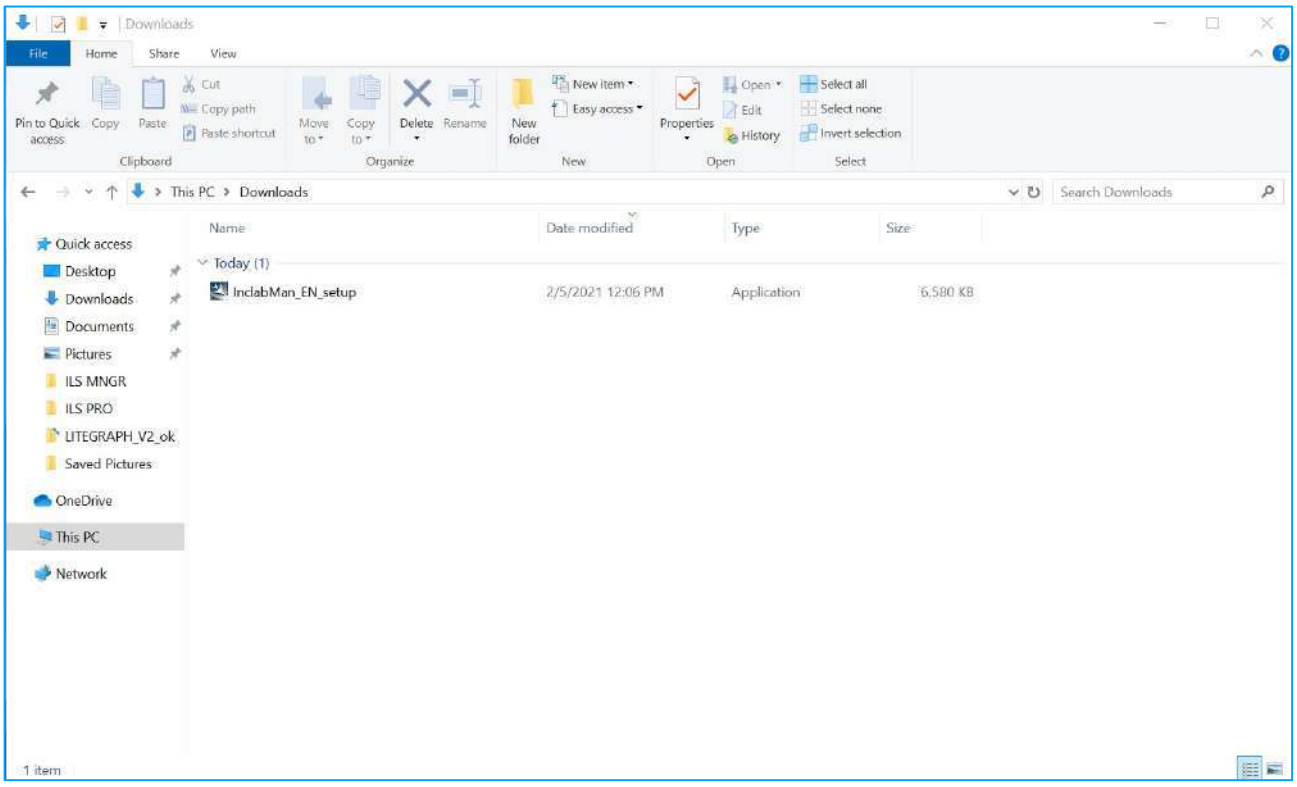
INCLAB Manager can be supplied on a USB key or it can be downloaded directly from SIM STRUMENTI website, in the downloads section:

https://www.simstrumenti.com/downloads/software/

Installation

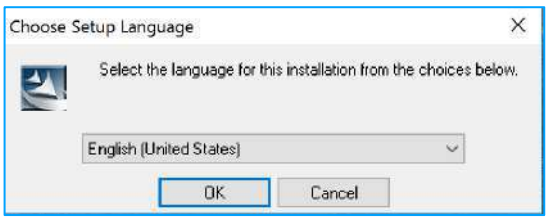
1.2

To start the installation, click twice on the icon  InclabMan_EN_setup (Img.1).



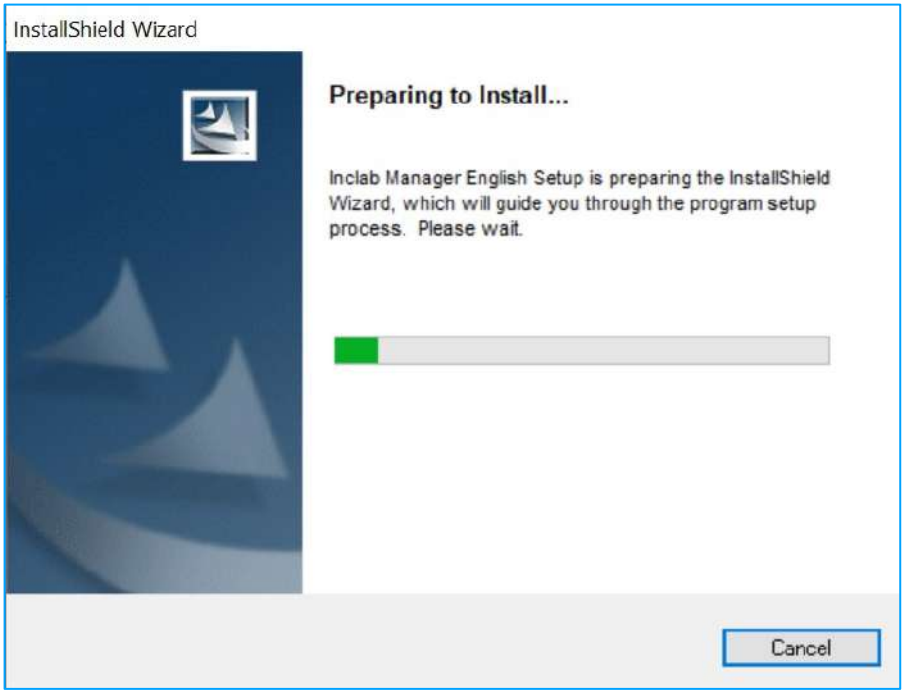
Img. 1

A communication window (Img.2) will open, and it will be possible to select the language for the installation. Therefore, select the desired language among the available options and then click OK to move on.



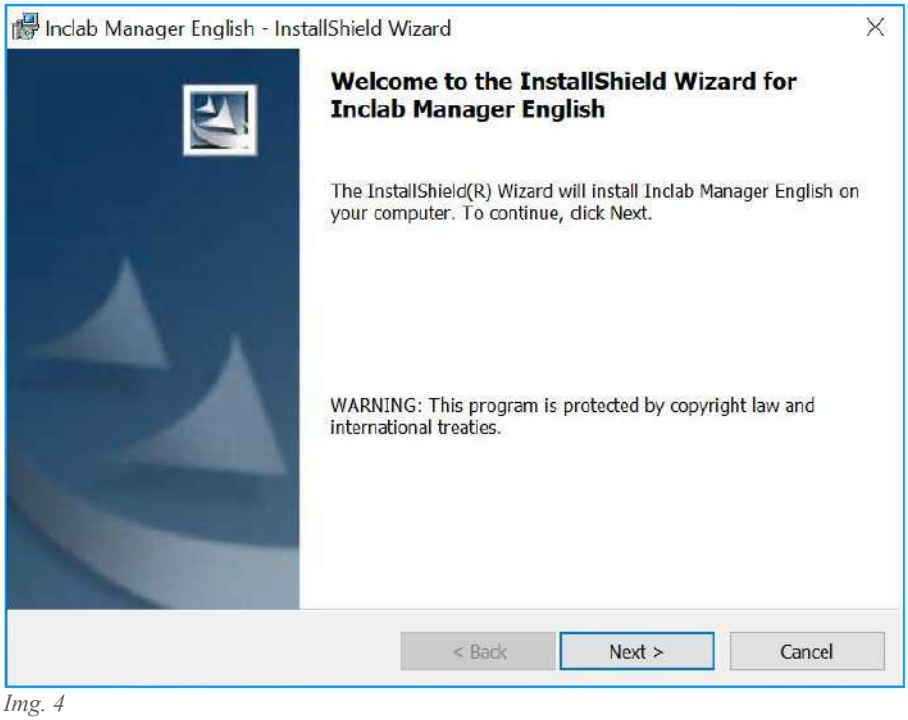
Img. 2

An installation window will open and there will be the need to wait that the *Preparing to install* will be completed (Img.3).



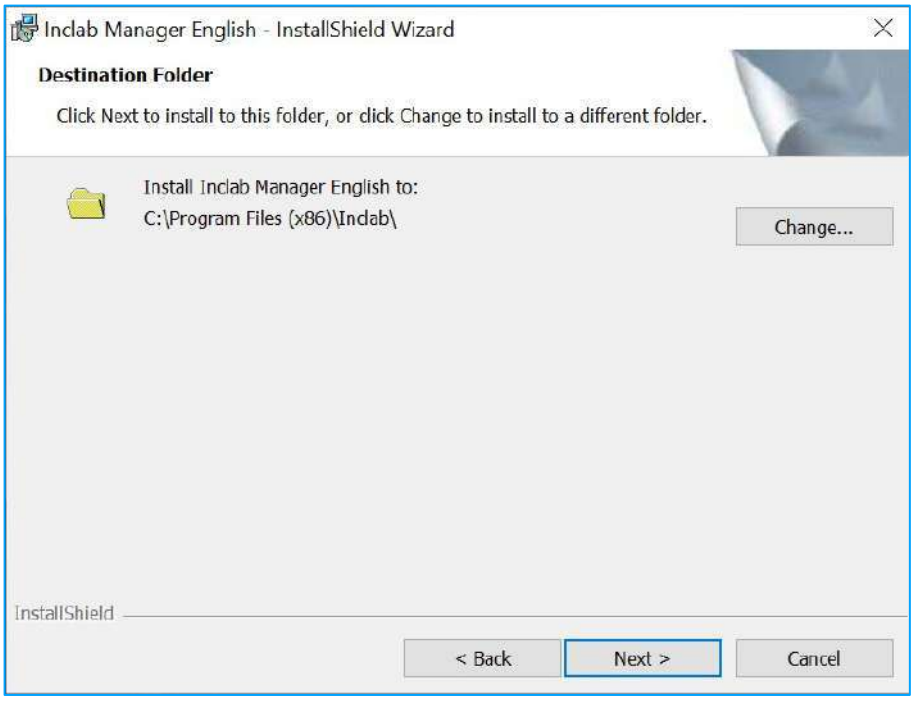
Img. 3

On the following window (Img.4), click on **Next** to proceed with the installation, or on **Cancel** to interrupt it.



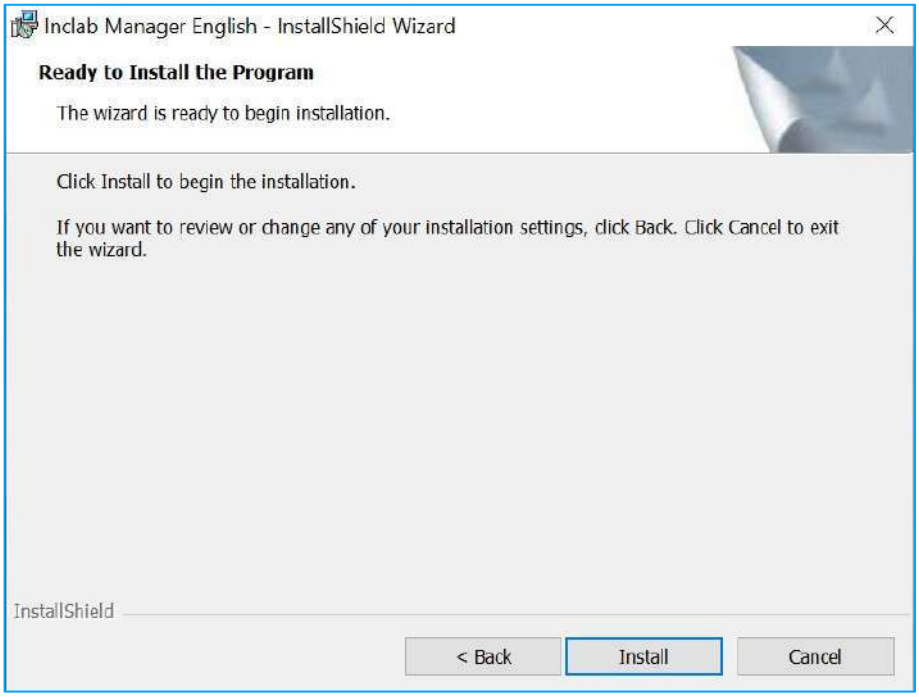
Img. 4

By continuing with the installation, it will be possible to change the destination folder (Img.5) for INCLAB Manager. To keep going, click on **Next**.



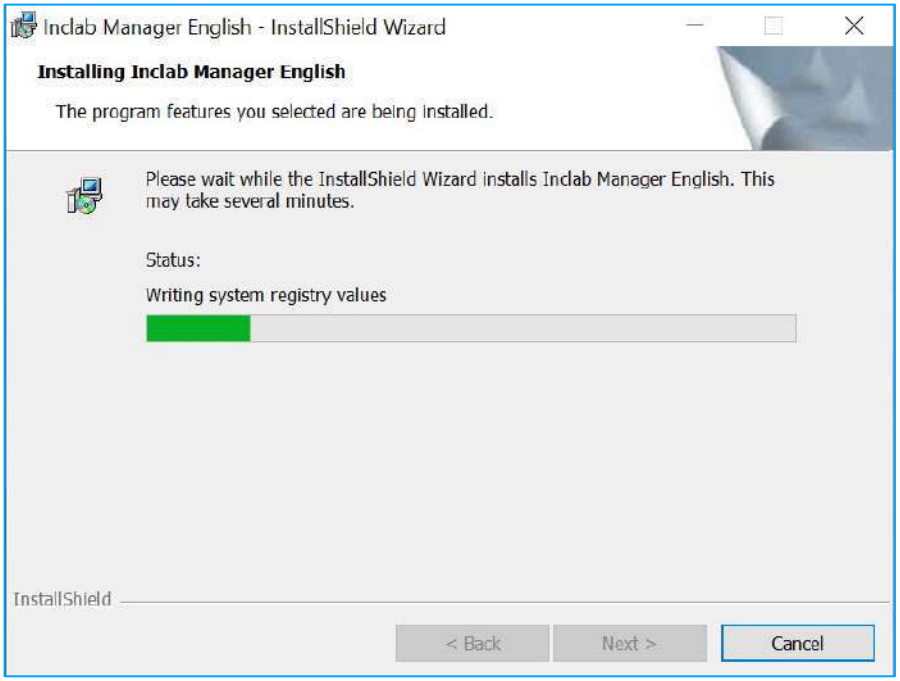
Img. 5

On the next window (Img.6) click on Install to proceed with the actual installation.



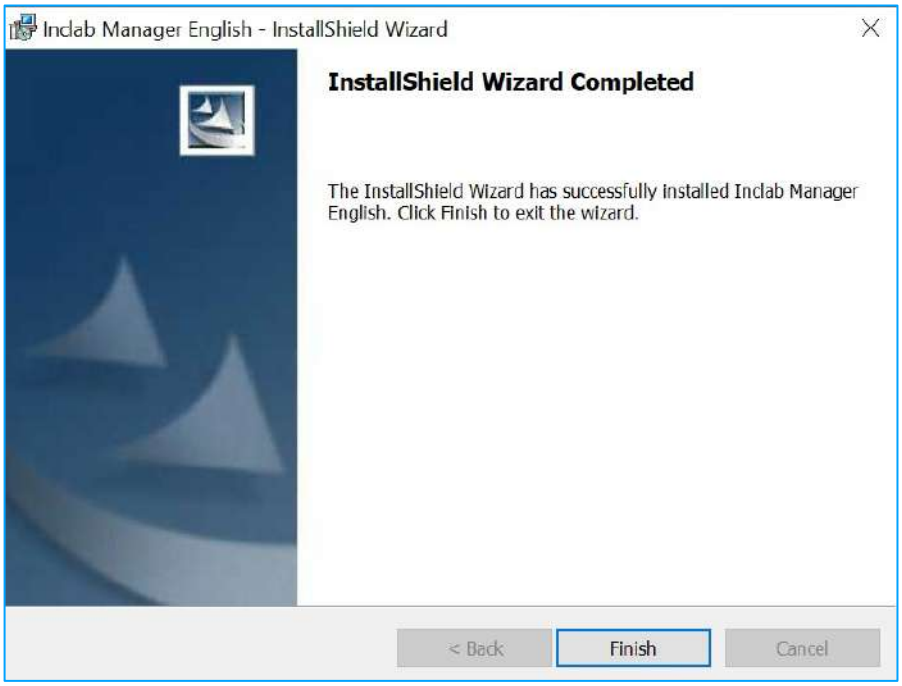
Img. 6

During the installation, a communication window (Img.7) will appear, in which it will be possible to undo the installation by clicking on Cancel.



Img. 7

At the end, another window (Img.8) will show up to confirm INCLAB Manager has been successfully installed. Click now on FINISH.



Img. 8

Start

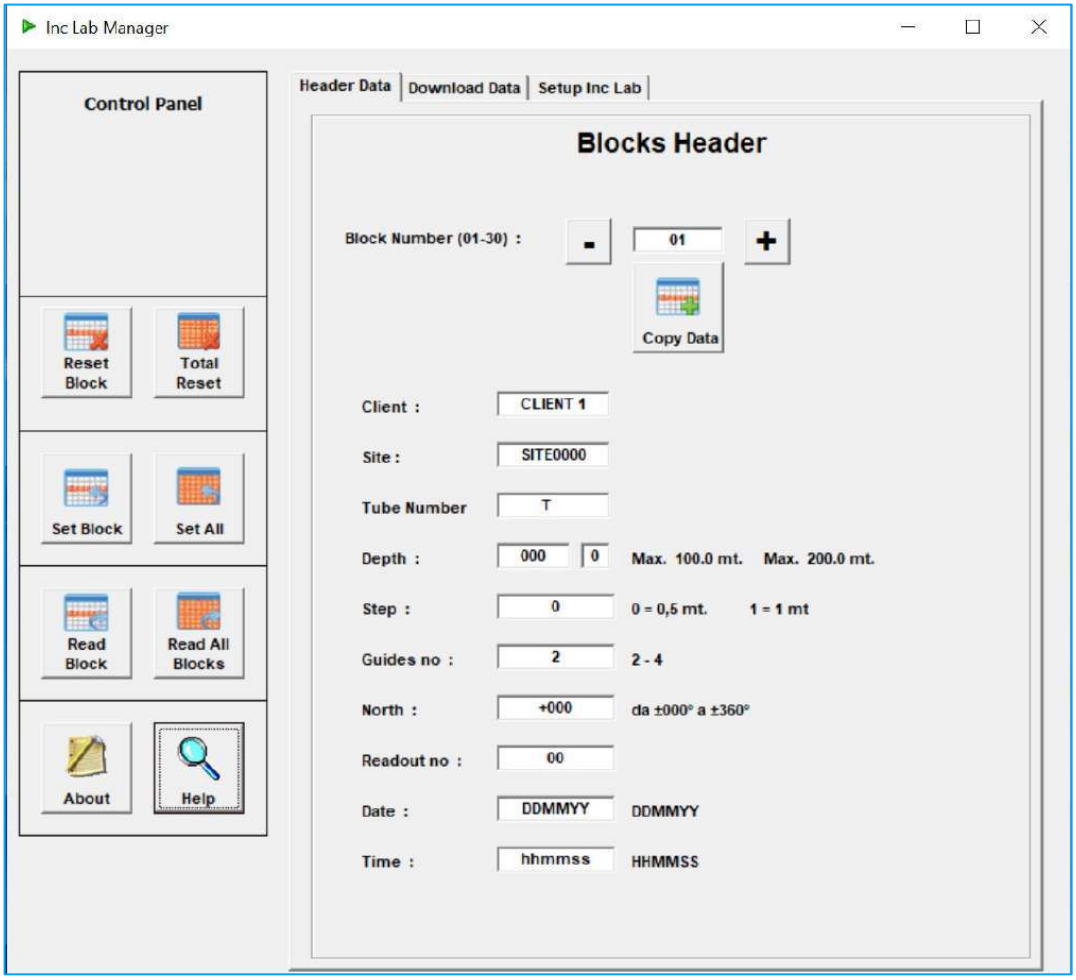
1.3

To start the INCLAB Manager, proceed in the following way:

START ➡ PROGRAMS ➡ Inc Lab Manager

Img. 9

During the loading of the program, it will be visible the boot screen (Img.9) and then the main screen of the software will appear (Img.10).



Img. 10

The main screen consists of two main areas:

On the left is the Control Panel where the function keys are located:

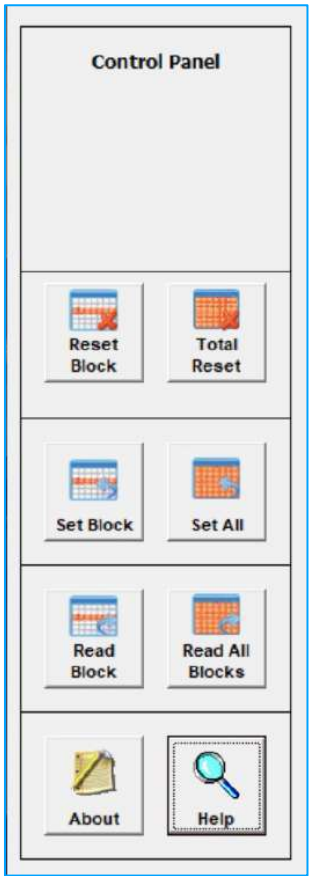
- Reset Block
- Total Reset
- Set Block
- Set All
- Read Block
- Read All Blocks
- About
- Help

In the central area there is the communication and data management window containing three sheets (to switch from one to another, just click on the corresponding title):

- Header Data
- Download Data
- Setup Inc Lab

Control Panel

1.4



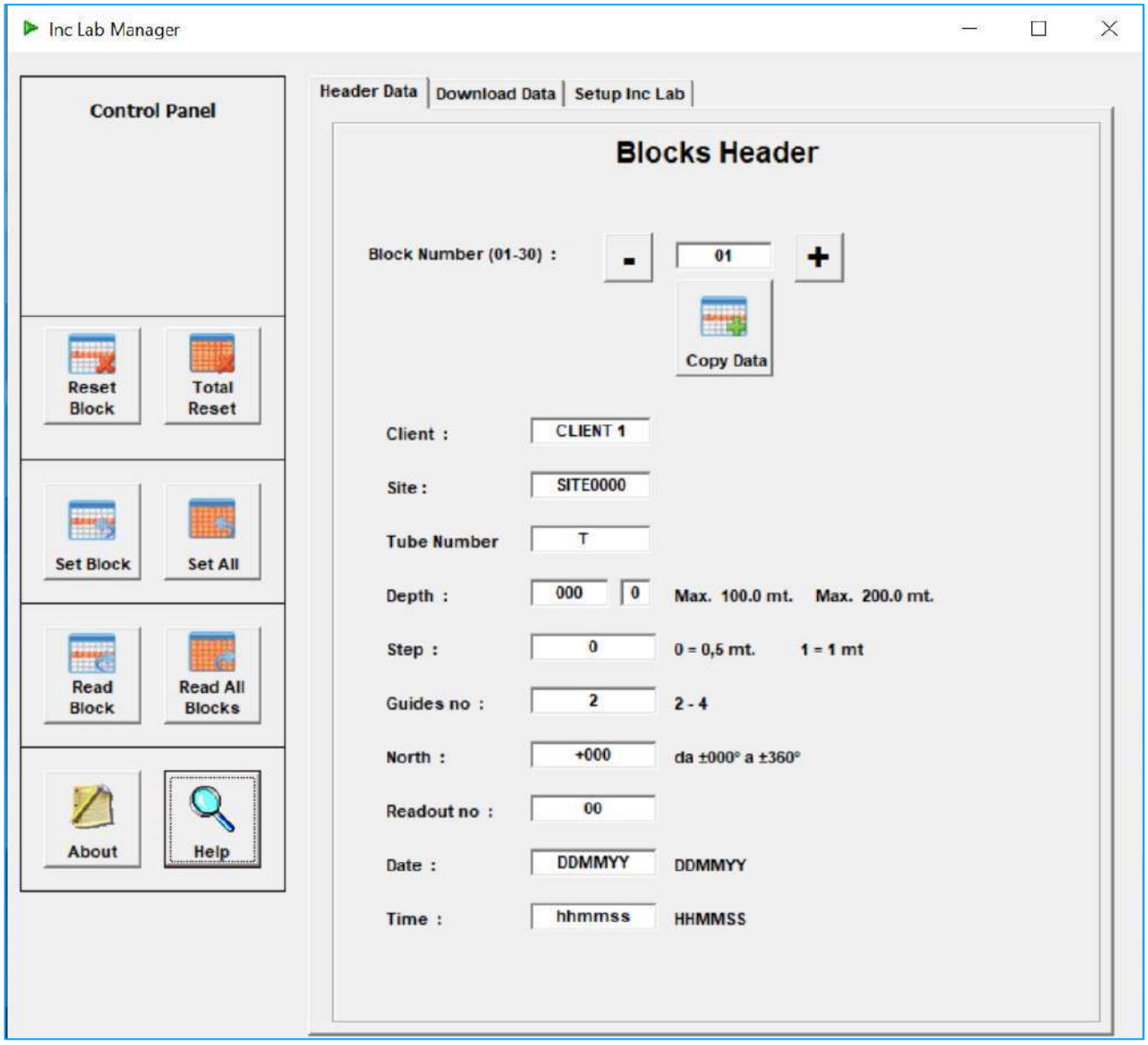
Img. 11

Reset Block	The data relating to the indicated block (both the pipe management data and the readings) will be deleted.
Total Reset	The data of all blocks from 1 to 30 (both the pipe management data and the readings) will be deleted.
Set Block	The management data of the indicated block will be transmitted.
Set All	The management data of all blocks from 1 to 30 will be transmitted.

Read Block	The pipe management data relating to the indicated block will be read.
Read All Blocks	The pipe management data of all the blocks from 1 to 30 will be read.
Database Inc Lab	Saves a configuration file.
About	Informations about SIM STRUMENTI and INCLAB Manager.
Help	Link to the user manual of INCLAB Manager.

Header Data

1.5



Img. 12

List of management data for inclinometer tube and relative reading:

Client	Customer name (maximum 8 characters selectable between letters and numbers).
Site	Site name (maximum 8 characters selectable between letters and numbers).

Tube Number	Tube identification number (maximum 4 characters selectable between letters and numbers).
Depth	Tube depth (the maximum depth is 200mt with a step of 1mt and 100mt with a step of 0.5mt).
Step	Step between the readings: it can be 1mt (indicated with "1" in the cell) or 0.5mt (indicated with "0" in the cell).
Guides no.	Number of guides (it can be 2 or 4).
North	The degrees of difference between guide 2 and north (between 0 and 360 degrees plus the sign)
Readout no.	Sequential number of the reading (selectable between 0 and 25).
Date	Date the reading was taken.
Time	Time the reading was taken.

All management data, except Date and Time, can be entered manually or automatically from the database. Date and Time are relative to the reading done and they are displayed only after the measurement has been made and recorded.

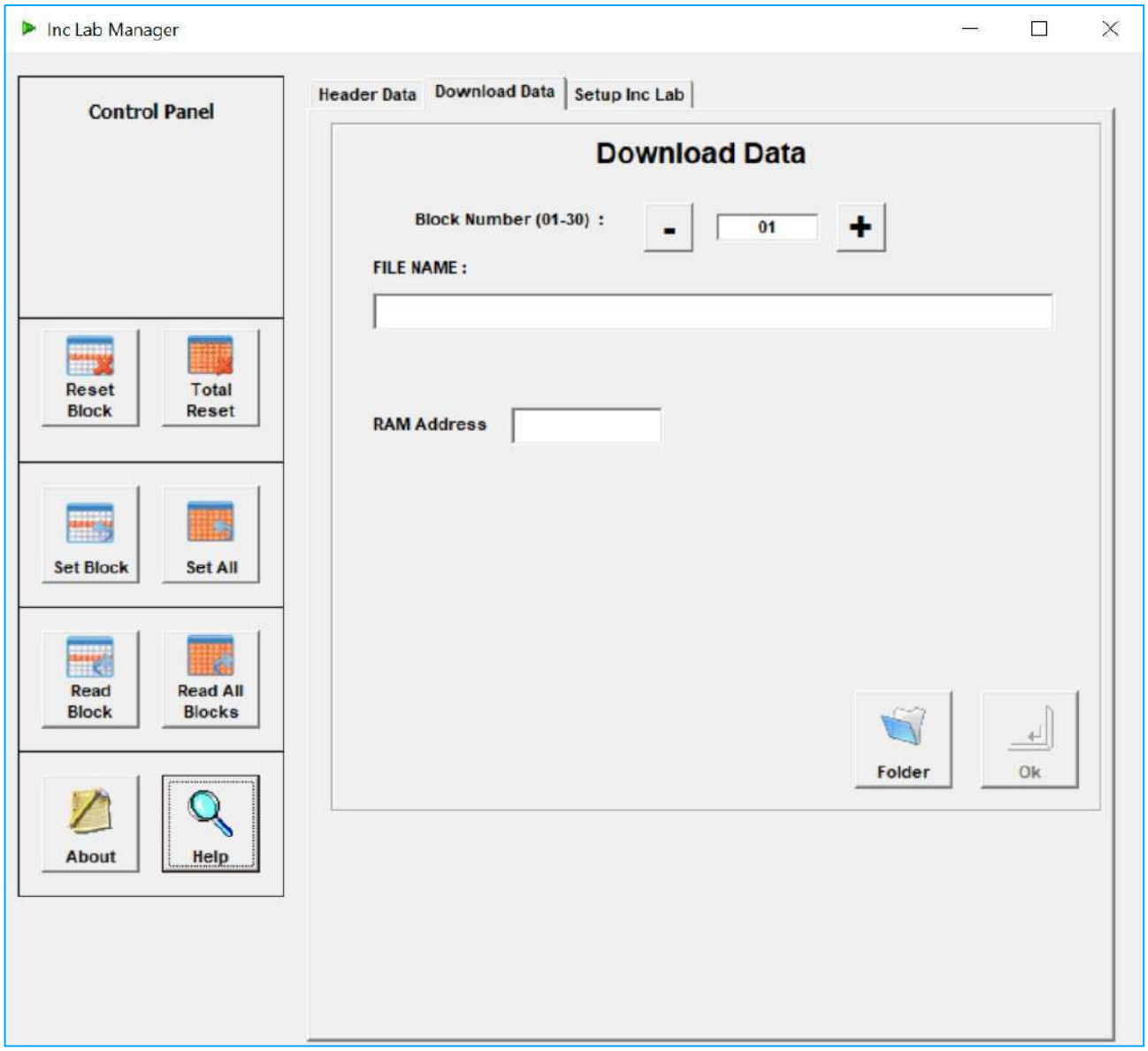
By clicking on the + - keys, we can choose the block (30 available) to be modified.

By clicking on the Copy Data button, the data from the current block will be copied to the next block so that the operator does not have to rewrite all the data.
For example, if a reading campaign is carried out for the same customer on the same site or if a test on the same pipe is carried out several times in the same day (such as the horizontal load test in a pole).

Download Data

1.6

In the Download Data window (Img.12) we will be able to download the data, i.e. the readings made in the site.

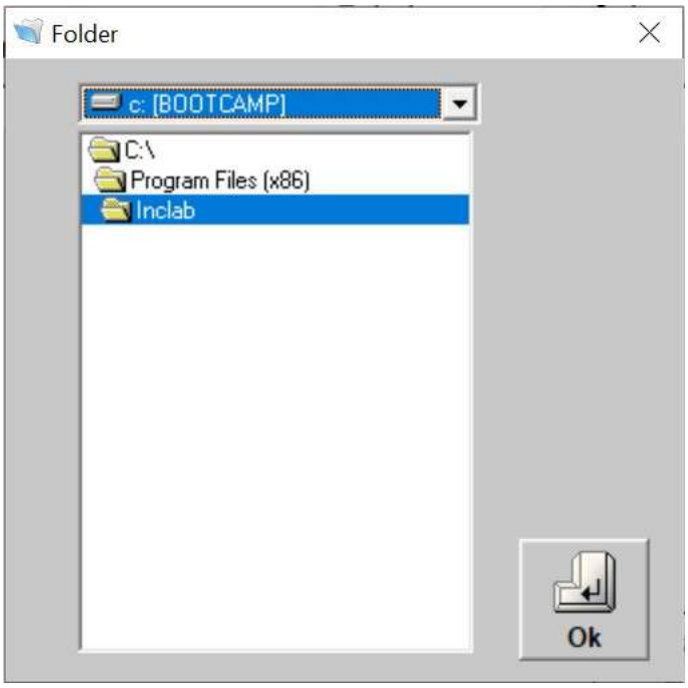


Img. 13

To download the data, proceed in the following way:

1. Using the + - keys, go to the block to be downloaded (from 1 to 30).

2. Click on the Folder button and a dialog box will appear (Img.13), where we can choose the folder where to save the file.



Img. 14

3. Double click on the desired destination folder and then click OK.

   The data is downloaded in 2 different files. The names of the files will consist of:

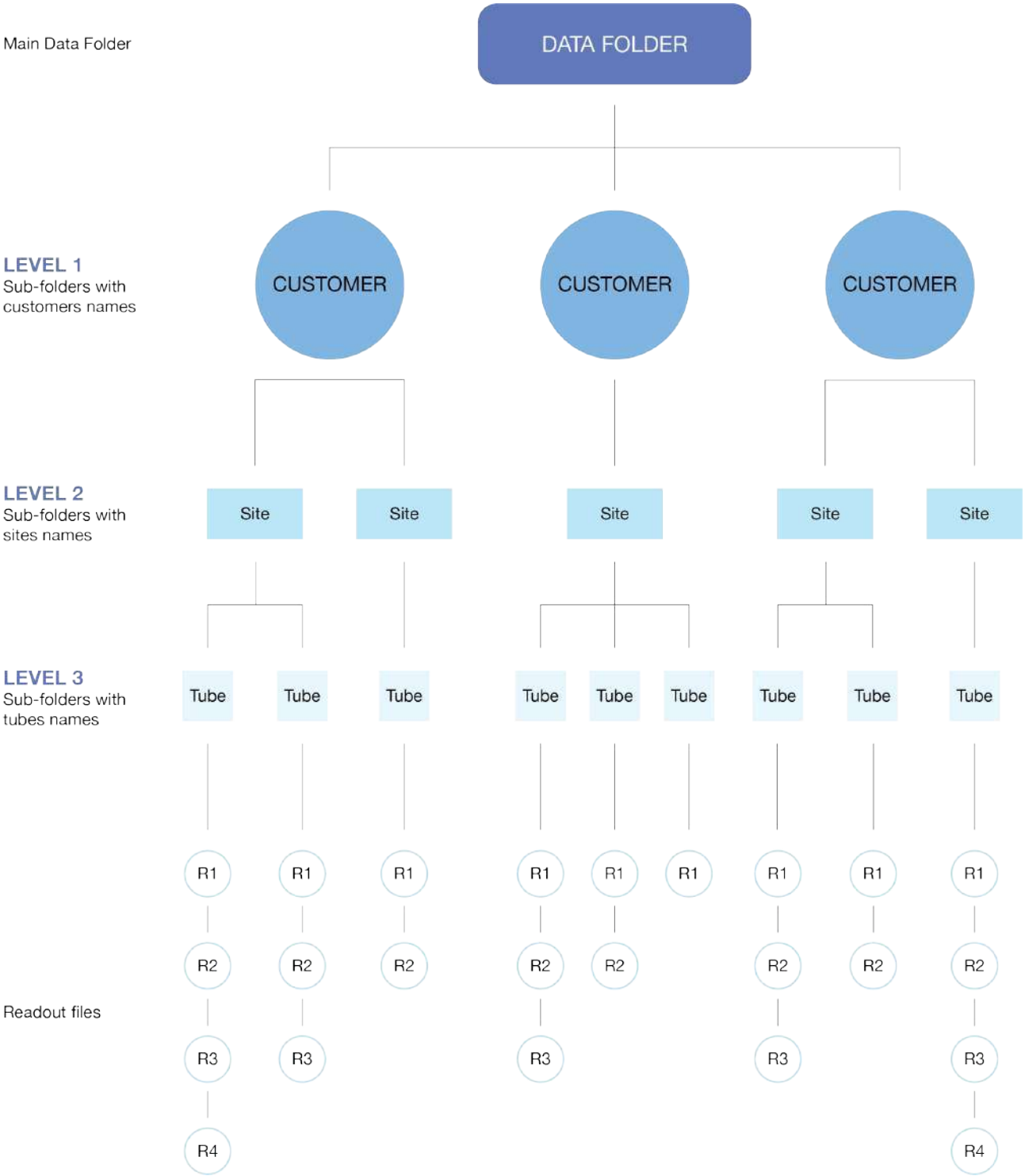
   customer name + site name + pipe name + reading number

   A file will end with the word DAT: it will store the data relating to the tube.
   The other will end with the word NUM: it will store the reading data.

   In this way, the operator will be able to recognize from the name of the file which tube it refers to and which reading over time it is.

   INCLAB Manager create a Data folder in C:\ to store the data files in it.
   However, in order to keep the data in greater order, we recommend that the operator create a 3-level folder for each customer, with a sub-folder for each site and a sub-sub-folder for each pipe, so that the files relating to that pipe are saved within these (look at the following diagram – Img.14).

DATA FILE SAVING – BLOCK DIAGRAM



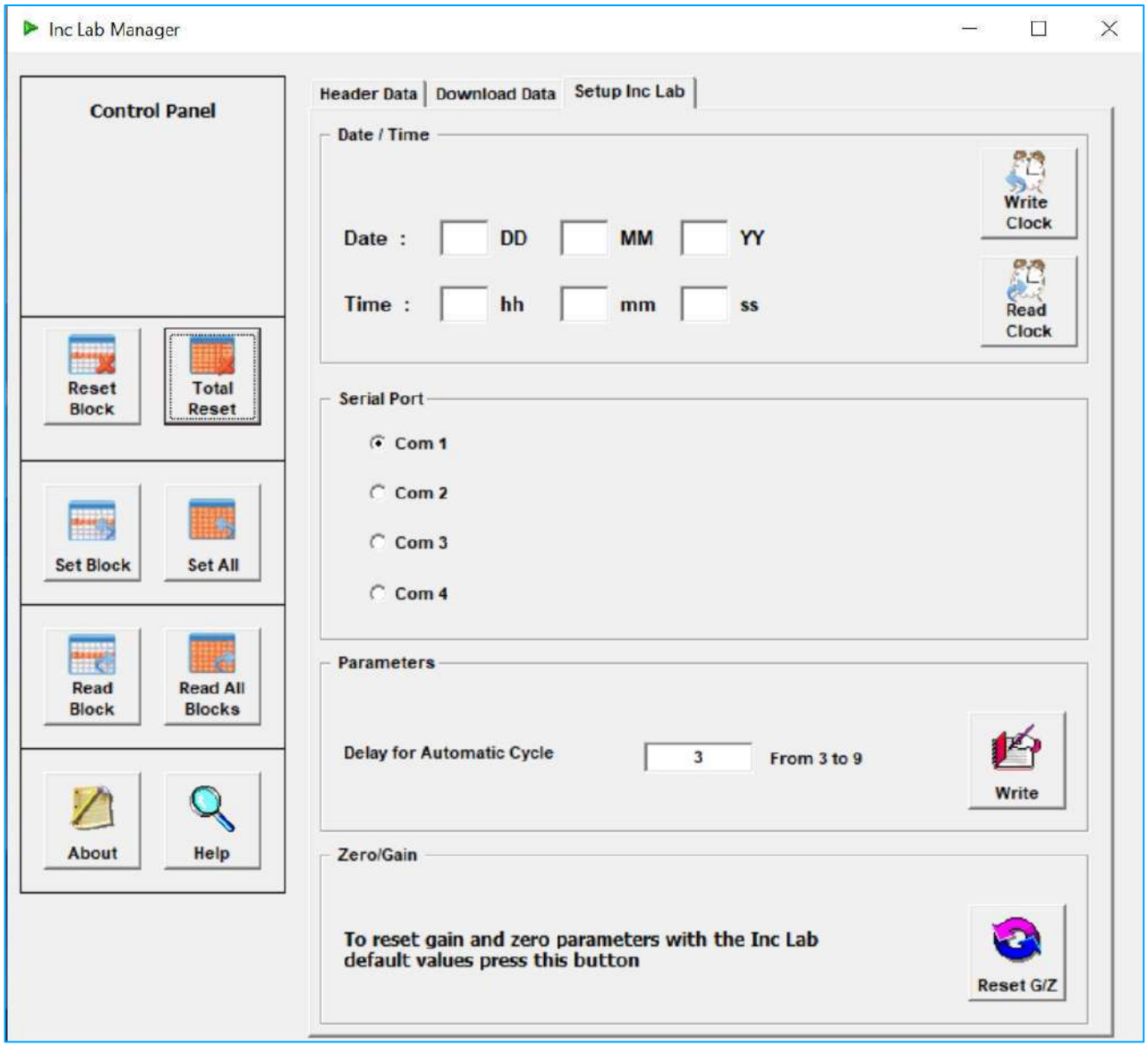
Img. 15

Setup
Inc Lab

1.7

In the Setup Inc Lab window (Img.15) there are the following submenus:

- Date / Time
- Serial Port
- Parameters
- Zero / Gain



Img. 16

Date / Time	In this section, we will be able to read the current date and time inserted in the control unit and if we need, we can change it. • To read date and time, click on **Read Clock** button • To change date and time, enter the values in the appropriate spaces and click on **Write Clock**.
Serial Port	In this section we can modify the serial port in operation by highlighting the desired one.
Parameters	In this section we can change the delay between one reading and another in the Automatic Readout mode. The delay can be from 3 to 9. • To modify the delay, write the new one in the box and click on **Write** button.
Zero / Gain	! Use this function very carefully In this section we can reset Zero and Gain values to the default ones and the current ones in the Control Unit will be canceled. • To reset the values, click on **Reset G/Z** button.

About

1.8

By pressing **About** in the Control Panel, a window (Img.18) will appear showing informations about SIM STRUMENTI and the installed **version of INCLAB Manager**.
In this window **SIM STRUMENTI contacts** are shown to easily get in touch for any technical assistance.

Img. 17

Help

1.9

By pressing **Help** in the Control Panel, it will open the link to the **User Manual** of INCLAB Manager.

2. INCLAB Processing

General Description

2.1

INCLAB Processing is a software used to process the data acquired with the INCLAB control unit.

This software does not require connection to the control unit, but only access to the acquired data.

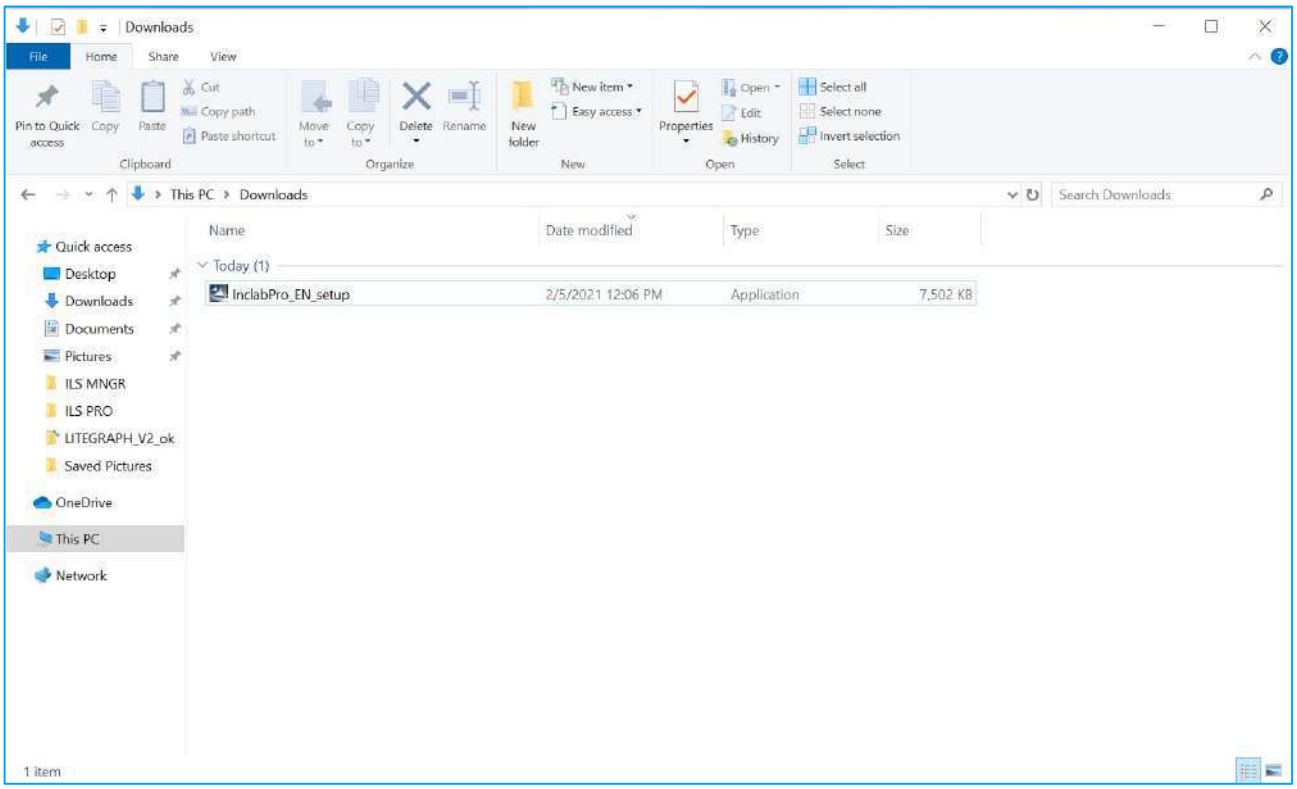
INCLAB Processing can be supplied on a USB key or it can be downloaded directly from SIM STRUMENTI website, in the downloads section:

https://www.simstrumenti.com/downloads/software/

Installation

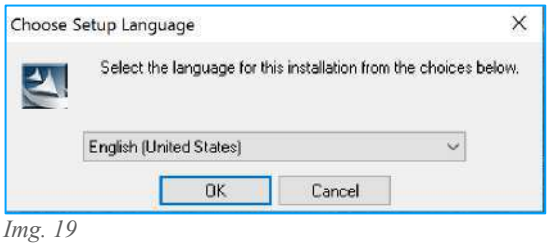
2.2

To start the installation, click twice on the icon  InclabPro_EN_setup (Img.1).



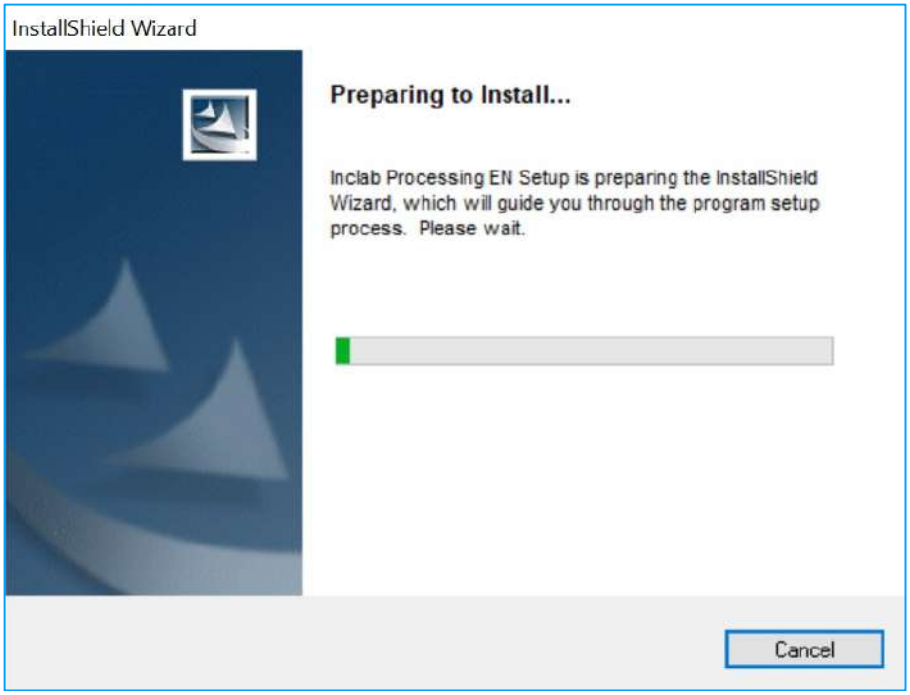
Img. 18

A communication window (Img.2) will open, and it will be possible to select the language for the installation. Therefore, select the desired language among the available options and then click OK to move on.



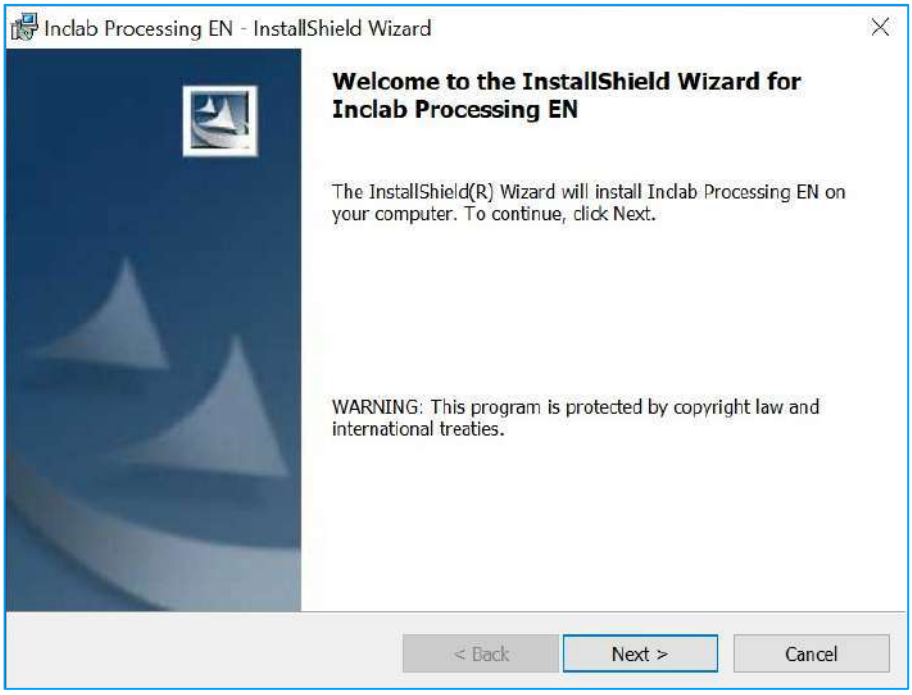
Img. 19

An installation window will open and there will be the need to wait that the *Preparing to install* will be completed (Img.3).



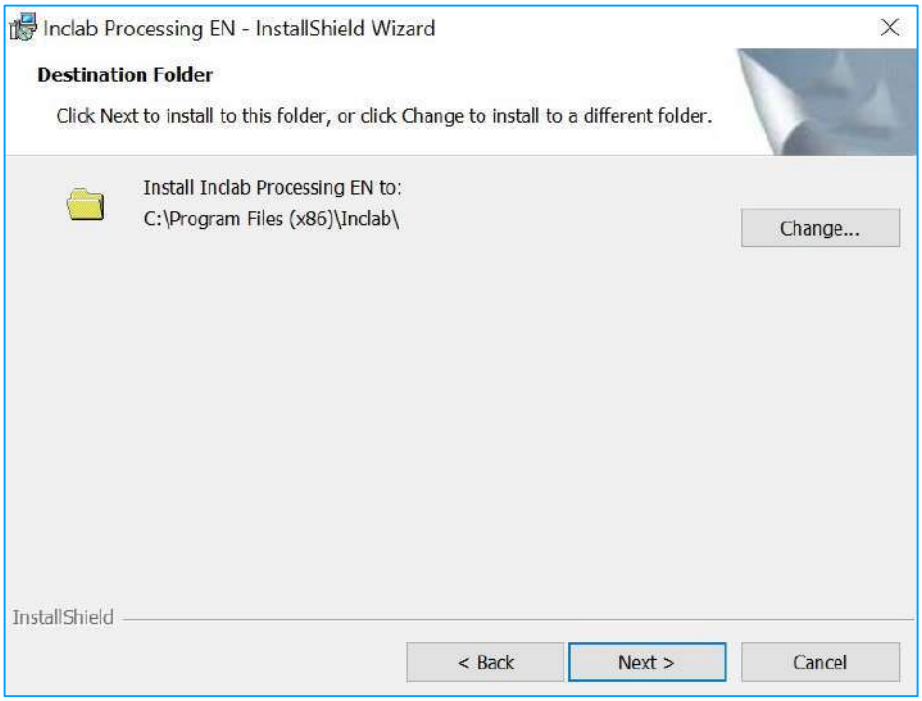
Img. 20

On the following window (Img.4), click on **Next** to proceed with the installation, or on **Cancel** to interrupt it.



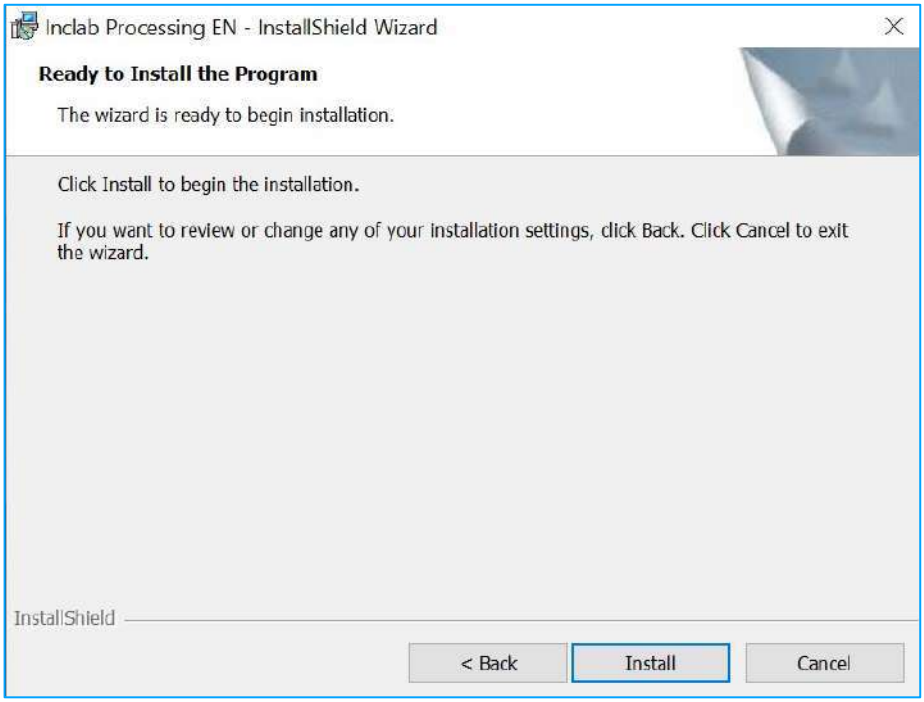
Img. 21

By continuing with the installation, it will be possible to change the destination folder (Img.5) for INCLAB Processing. To keep going, click on **Next**.



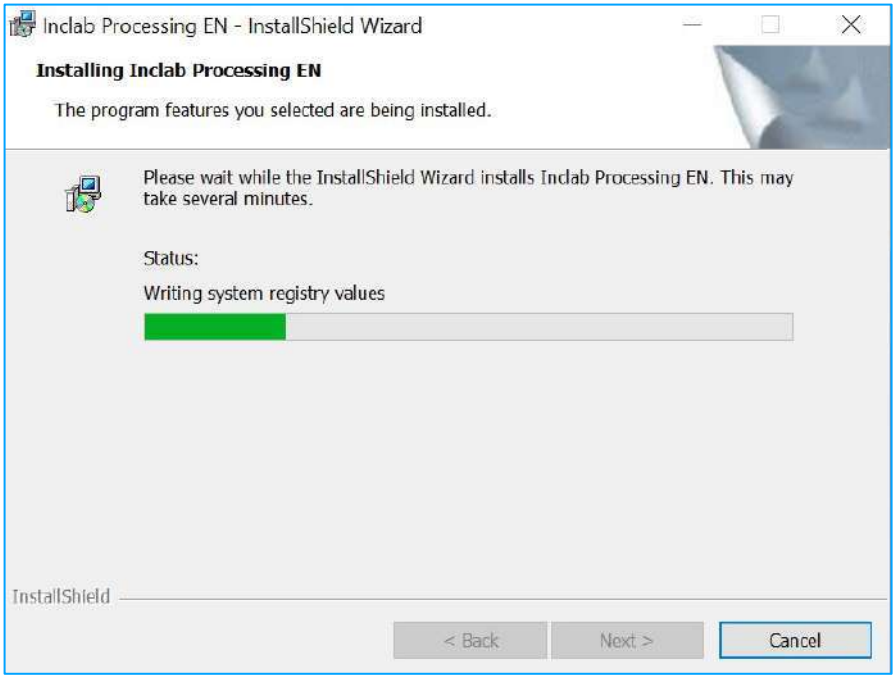
Img. 22

On the next window (Img.6) click on Install to proceed with the actual installation.



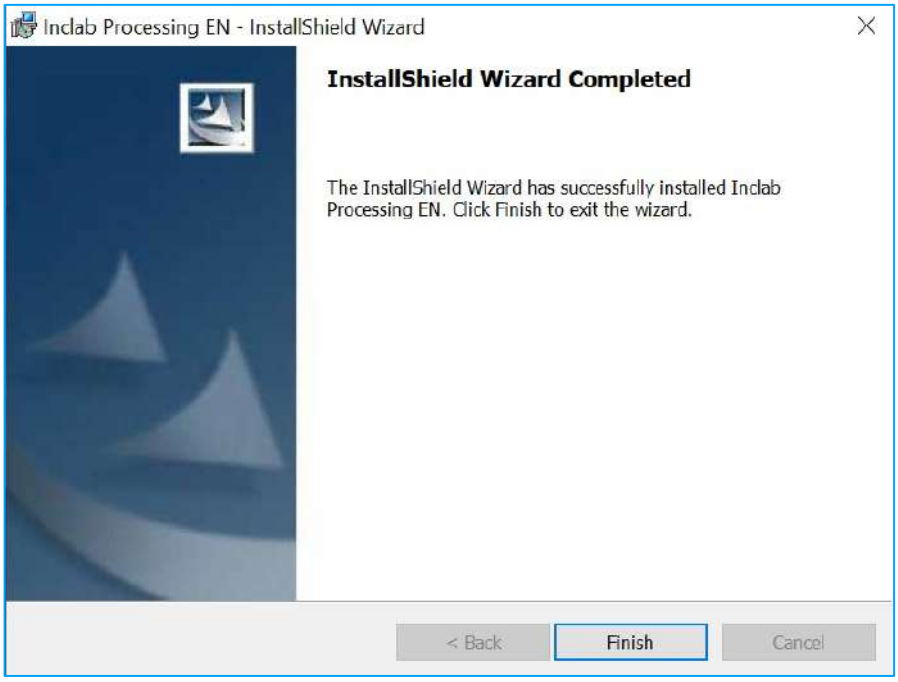
Img. 23

During the installation, a communication window (Img.7) will appear, in which it will be possible to undo the installation by clicking on Cancel.



Img. 24

At the end, another window (Img.8) will show up to confirm INCLAB Processing has been successfully installed. Click now on FINISH.



Img. 25

Start

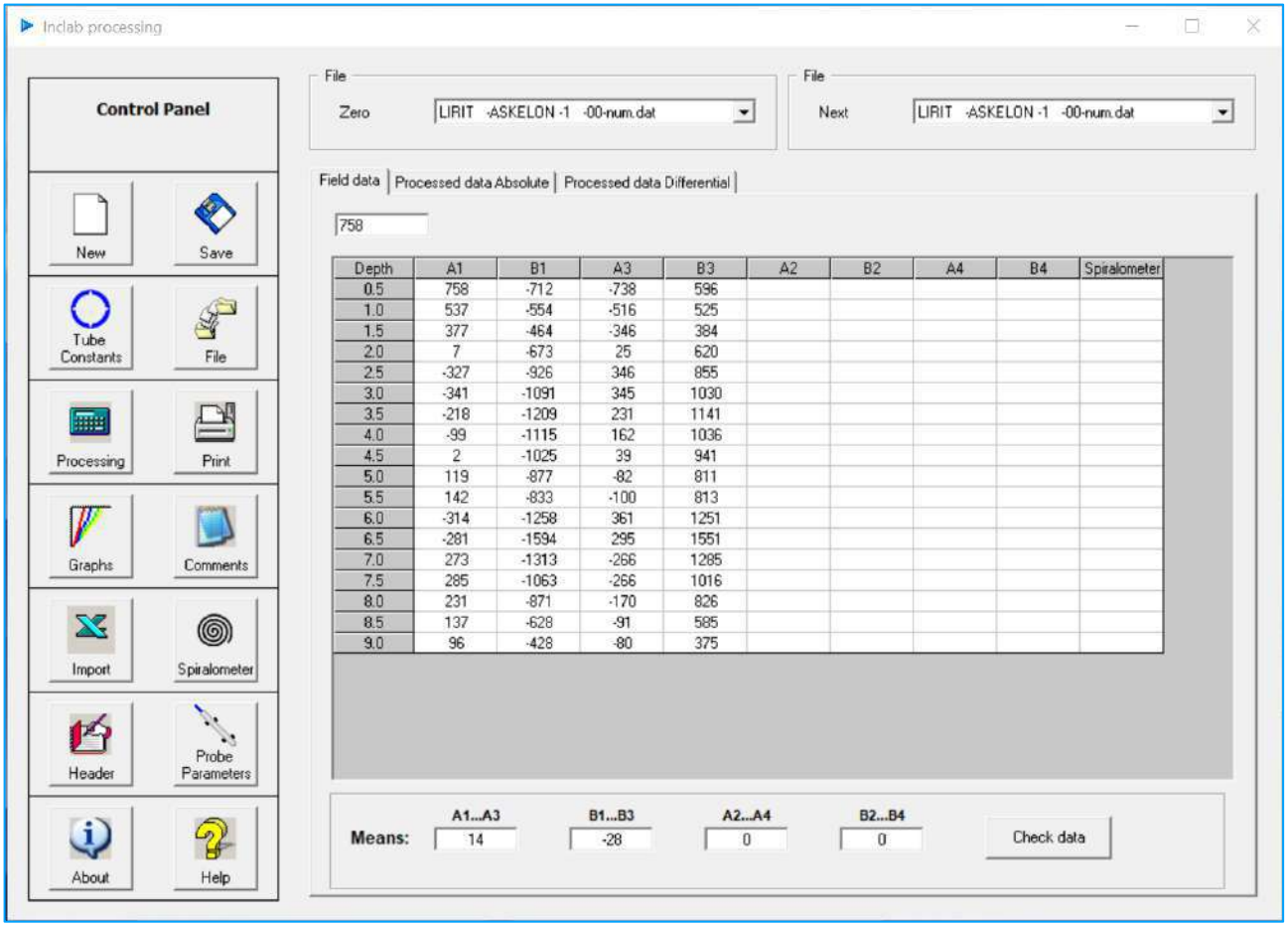
2.3

To start the INCLAB Processing, proceed in the following way:

START ➡ PROGRAMS ➡ Inc Lab Processing

Img. 26

During the loading of the program, it will be visible the boot screen (Img.26) and then the main screen of the software will appear (Img.27).



Img. 27

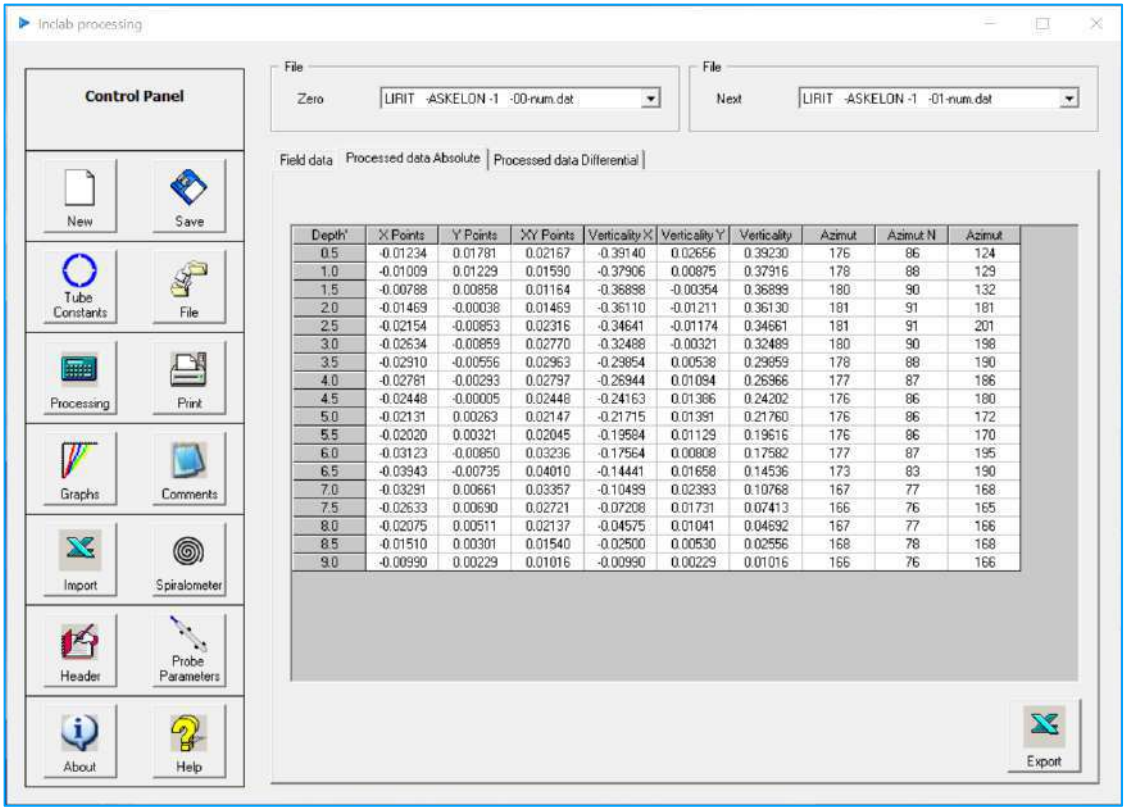
On the left is the Control Panel where the function keys are located:

- New
- Tube Constants
- Processing
- Graphs
- Import
- Header
- About
- Save
- File
- Print
- Comments
- Spiralometer
- Probe Parameters
- Help

In the central area there is the data view window containing three sheets (to switch from one to another, just click on the corresponding title):

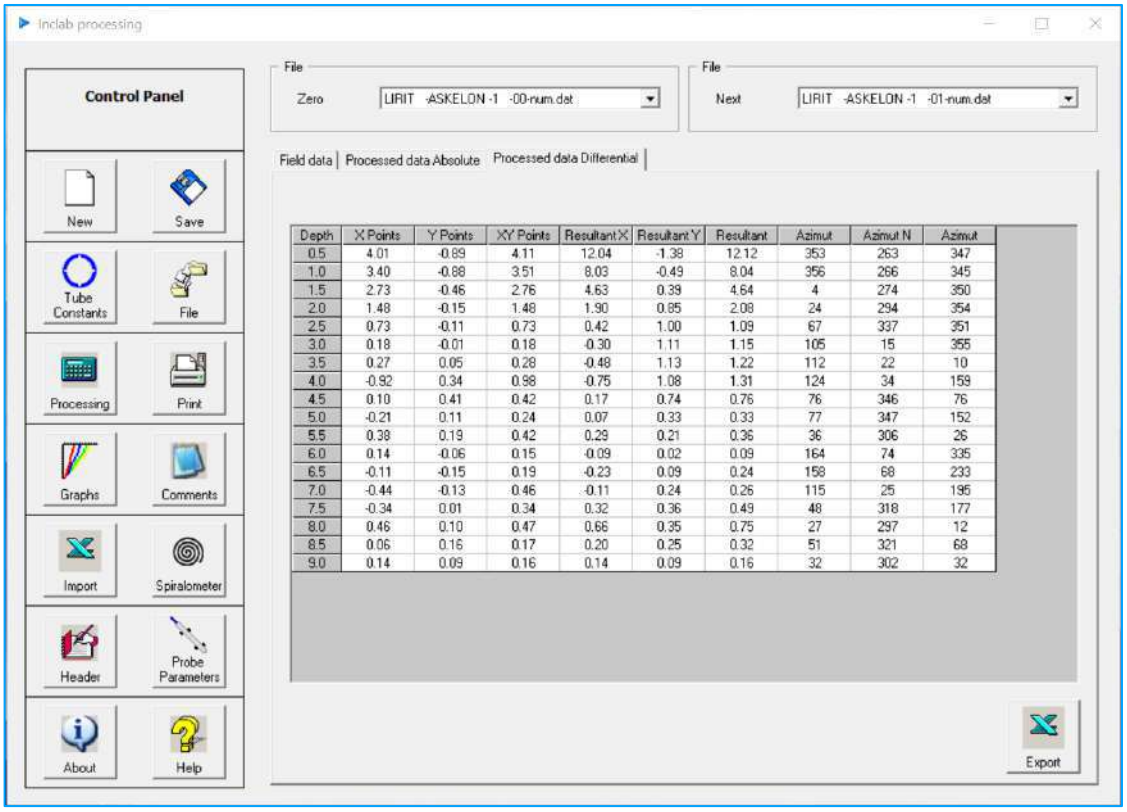
- Field data (Img.27)
- Processed data Absolute (Img.28)
- Processed data Differential (Img.29)

In the text boxes at the top are specified the zero files to be used and the files they will refer to.



Depth'	X Points	Y Points	XY Points	Verticality X	Verticality Y	Verticality	Azimut	Azimut N	Azimut
0.5	-0.01234	0.01781	0.02167	-0.39140	0.02656	0.39230	176	86	124
1.0	-0.01009	0.01229	0.01590	-0.37906	0.00875	0.37916	178	88	129
1.5	-0.00788	0.00858	0.01164	-0.36898	-0.00354	0.36899	180	90	132
2.0	-0.01469	-0.00038	0.01469	-0.36110	-0.01211	0.36130	181	91	181
2.5	-0.02154	-0.00853	0.02316	-0.34641	-0.01174	0.34661	181	91	201
3.0	-0.02634	-0.00859	0.02770	-0.32488	-0.00321	0.32489	180	90	198
3.5	-0.02910	-0.00556	0.02963	-0.29854	0.00538	0.29859	178	88	190
4.0	-0.02781	-0.00293	0.02797	-0.26944	0.01084	0.26966	177	87	186
4.5	-0.02448	-0.00005	0.02448	-0.24163	0.01386	0.24202	176	86	180
5.0	-0.02131	0.00263	0.02147	-0.21715	0.01391	0.21760	176	86	172
5.5	-0.02020	0.00321	0.02045	-0.19584	0.01129	0.19616	176	86	170
6.0	-0.03123	-0.00850	0.03236	-0.17564	0.00808	0.17582	177	87	195
6.5	-0.03943	-0.00735	0.04010	-0.14441	0.01658	0.14536	173	83	190
7.0	-0.03291	0.00661	0.03357	-0.10489	0.02393	0.10768	167	77	168
7.5	-0.02633	0.00690	0.02721	-0.07208	0.01731	0.07413	166	76	165
8.0	-0.02075	0.00511	0.02137	-0.04575	0.01041	0.04692	167	77	166
8.5	-0.01510	0.00301	0.01540	-0.02500	0.00530	0.02556	168	78	168
9.0	-0.00990	0.00229	0.01016	-0.00990	0.00229	0.01016	166	76	166

Img. 28

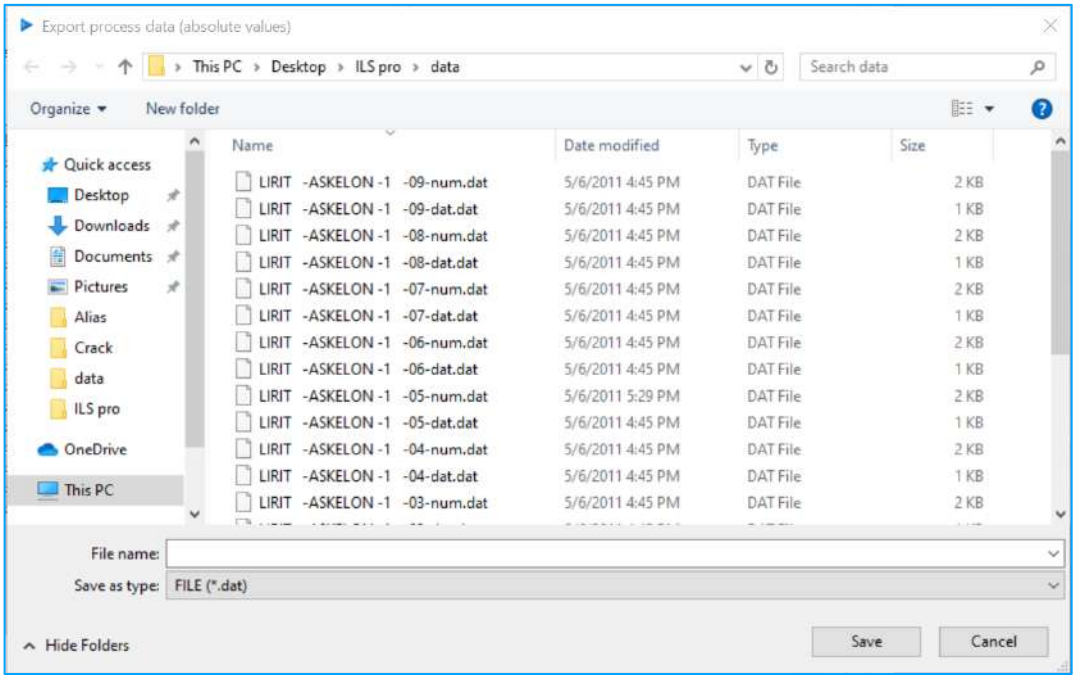


Depth	X Points	Y Points	XY Points	Resultant X	Resultant Y	Resultant	Azimut	Azimut N	Azimut
0.5	4.01	-0.89	4.11	12.04	-1.38	12.12	353	263	347
1.0	3.40	-0.88	3.51	8.03	-0.49	8.04	356	266	345
1.5	2.73	-0.46	2.76	4.63	0.39	4.64	4	274	350
2.0	1.48	-0.15	1.48	1.90	0.85	2.08	24	294	354
2.5	0.73	-0.11	0.73	0.42	1.00	1.09	67	337	351
3.0	0.18	-0.01	0.18	-0.30	1.11	1.15	105	15	355
3.5	0.27	0.05	0.28	-0.48	1.13	1.22	112	22	10
4.0	-0.92	0.34	0.98	-0.75	1.08	1.31	124	34	159
4.5	0.10	0.41	0.42	0.17	0.74	0.76	76	346	76
5.0	-0.21	0.11	0.24	0.07	0.33	0.33	77	347	152
5.5	0.38	0.19	0.42	0.29	0.21	0.36	36	306	26
6.0	0.14	-0.06	0.15	-0.09	0.02	0.09	164	74	335
6.5	-0.11	-0.15	0.19	-0.23	0.09	0.24	158	68	233
7.0	-0.44	-0.13	0.46	-0.11	0.24	0.26	115	25	195
7.5	-0.34	0.01	0.34	0.32	0.36	0.49	48	318	177
8.0	0.46	0.10	0.47	0.66	0.35	0.75	27	297	12
8.5	0.06	0.16	0.17	0.20	0.25	0.32	51	321	68
9.0	0.14	0.09	0.16	0.14	0.09	0.16	32	302	32

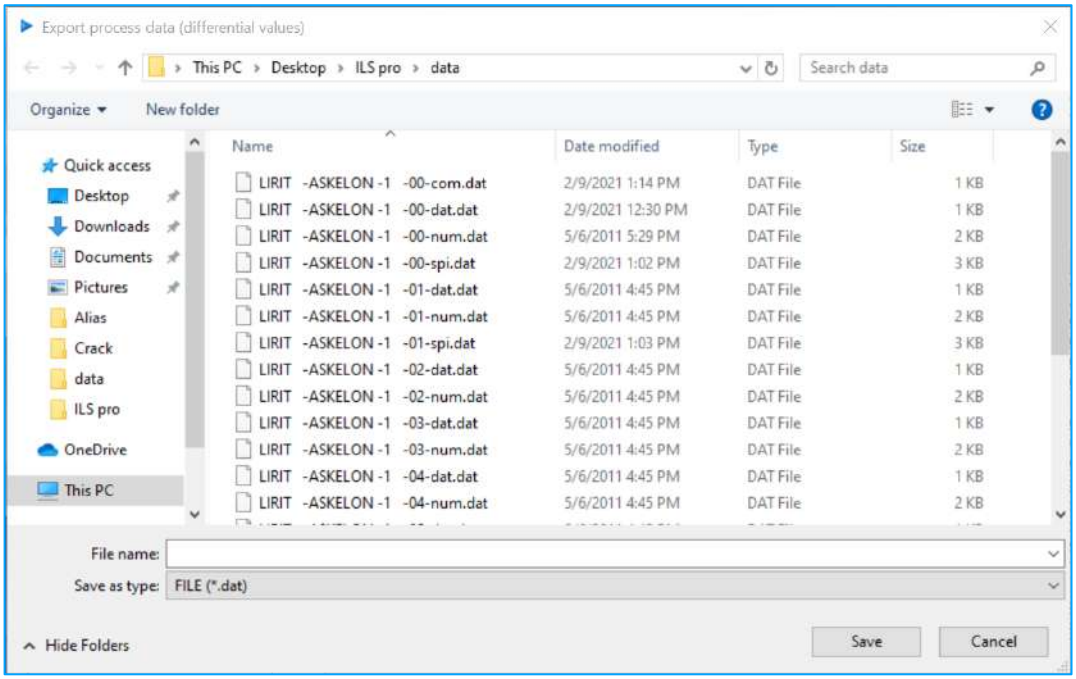
Img. 29

When the Absolute or Differential mode is shown, we can click on the **Export** key at bottom right to export the relating data as and Excel file.

After clicked it, a window will appear and we can choose where and with which name save the Absolute (Img.30) / Differential (Img.31) data.



Img. 30

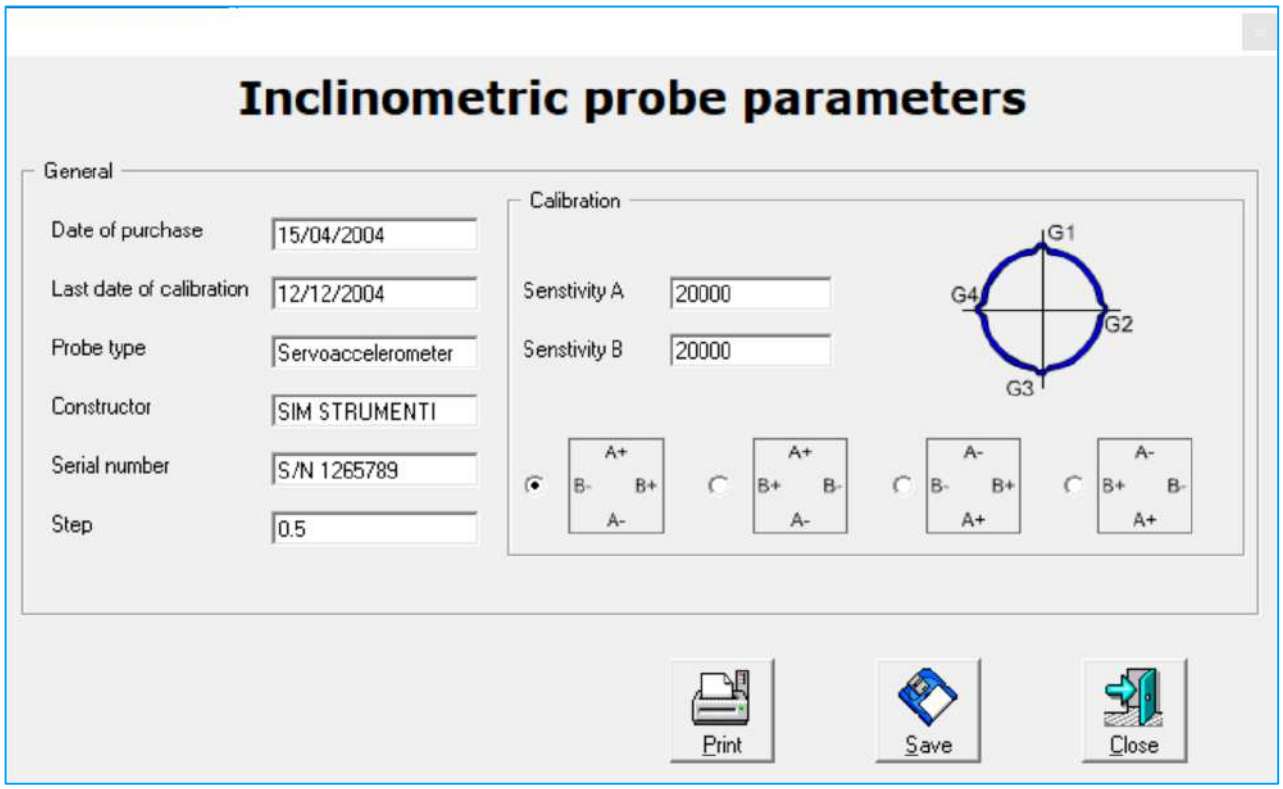


Img. 31

Probe Parameters

2.4

By pressing Probe Parameters key in the Control Panel, a window will open (Img.32) where we can enter or modify the data relating to the probe.



Img. 32

In the Calibration part, we will choose the orientation of the probe compared to the tube, consequently the sign of the sensitivity of the A and B axes will be changed so that the azimuth always starts from guide 2 in an anti-clockwise direction.

Press Print key to print a sheet where all the probe parameters will be specified.

Press Save key to save the new configuration.

Press Close key to exit the Inclinometer Probe Parameters procedure.

Header

2.5

By pressing **Header** key in the **Control Panel**, will open a communication window (Img.33) where we can insert two header lines that will appear on all numeric and graphic printouts.

Img. 33

The data entered will be stored so that it is not necessary to rewrite them every time.

Press **Close** key to exit the Header procedure.

Import

2.6

Excel file configuration

In order to load Excel files, they must be modified so that they are recognized by INCLAB, since the software checks the file name and data so that two different tube files are not loaded in the same processing.

In Excel file, the data must be entered in the following way:

- A1 guide readings in column A
- B1 guide readings in column B
- A3 guide readings in column C
- B3 guide readings in column D
- A2 guide readings in column E
- B2 guide readings in column F
- A4 guide readings in column G
- B4 guide readings in column H

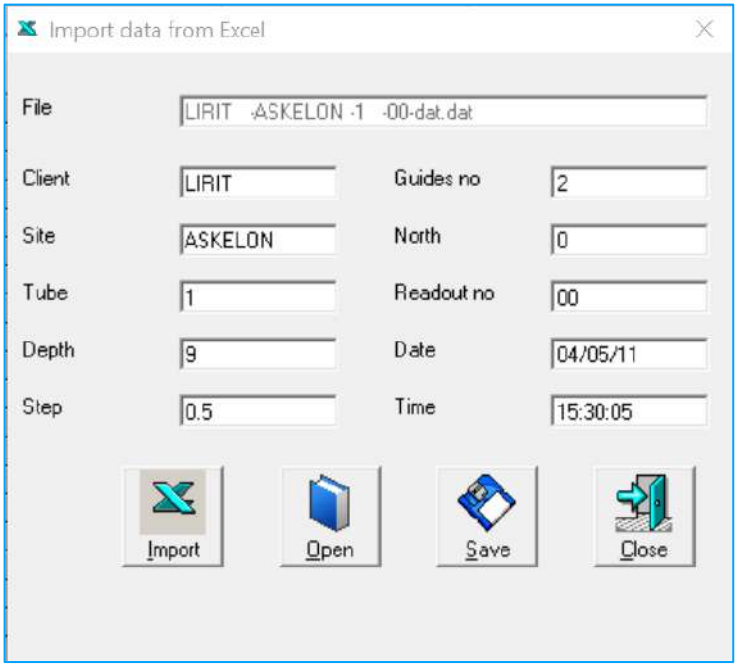
By taking the readings with INCLAB control unit, two files will be created automatically for each reading, where already from the file name, we can go back to the tube and to which reading they refer.
For each Excel file, the software will create two files, one with the tube constants and one with the numerical data.

By pressing the **Import** key in the **Control Panel**, will open a communication window (Img.34) where we can enter the data relating to the reading to be imported. The data can be entered by typing from the keyboard or by opening an existing file (clicking on **Open**) and modifying it.

By clicking **Save**, the name of the file created will appear. The file name will contain:

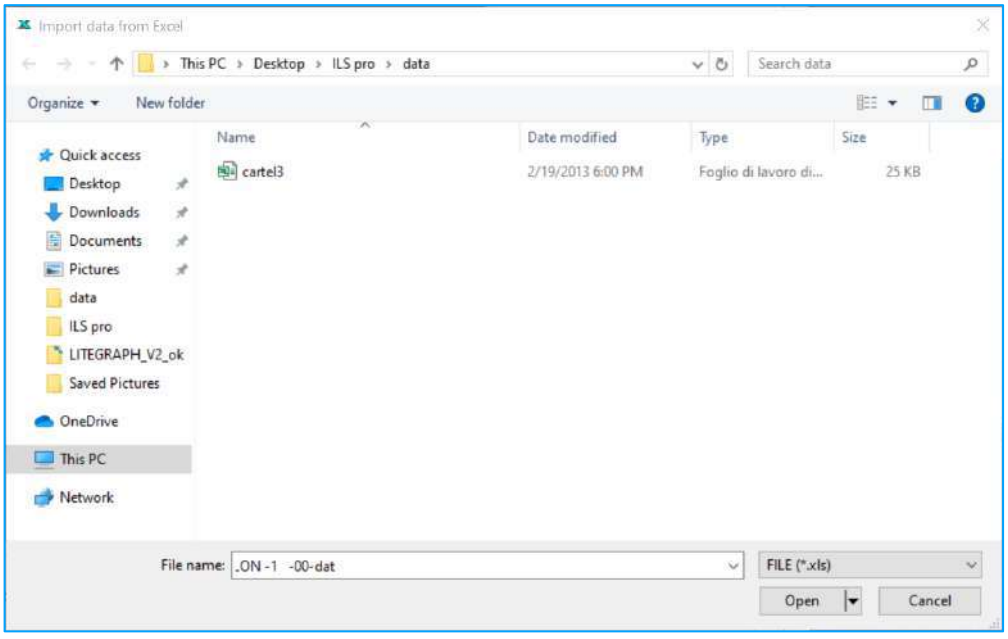
"**customer name**, **site name**, **pipe name** and the **number of the reading**".

! Be careful not to create the same constant file for different tubes.



Img. 34

At this point we can press the **Import** key and the software will open a dialog box (Img.35) where we can choose the file to import from Excel.



Img. 35

The name of the imported file will be the same as the constant file name, except that:

- the constants file will end with the word **dat**
- the file with the readings will end with **num**

Click on **Open** to import the desired file.
Then click on **Close** to end the IMPORT procedure.

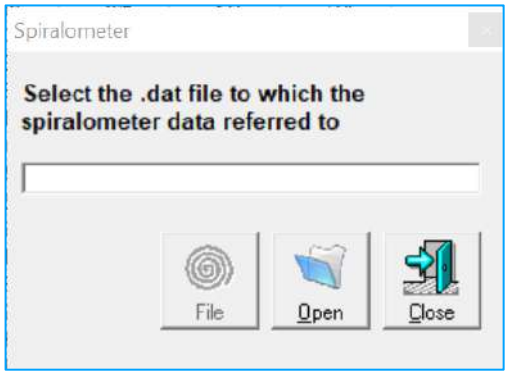
Spiralometer

2.7

The SPIRALOMETER function is used to import an EXCEL file with spiralometric measurements in the INCLAB data file. This operation is performed only once, since the software will create an INCLAB file, corresponding to the DAT file, such as:

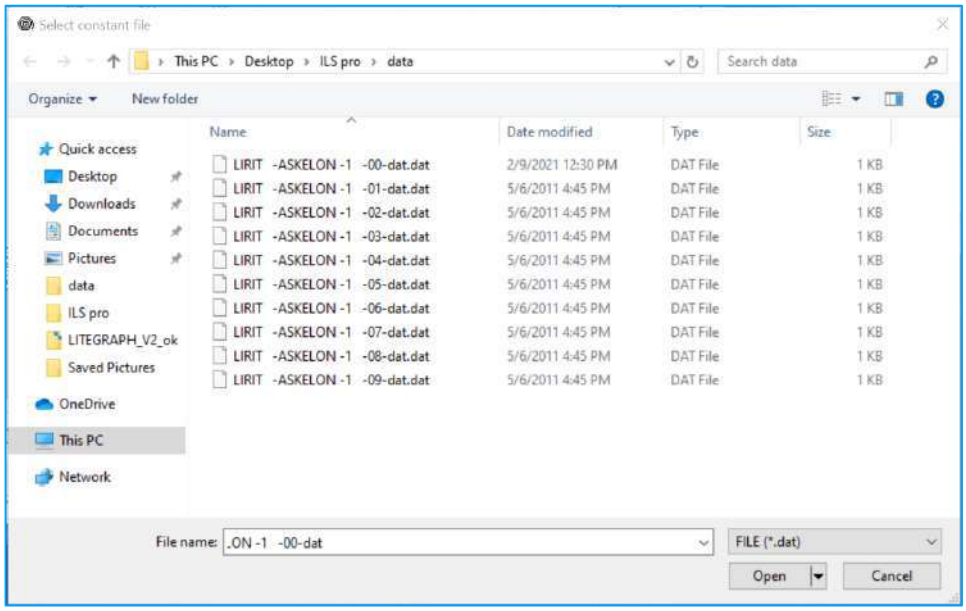
CUSTOMER – SITE – TUBE NO. – READING NO. – SPI. DAT

By pressing the **Spiralometer** key in the **Control Panel**, will open a communication window (Img.36) where we will need to insert the DAT file (it must be the .dat file relating to the zero reading) that we want to combine with the spiralometric reading.



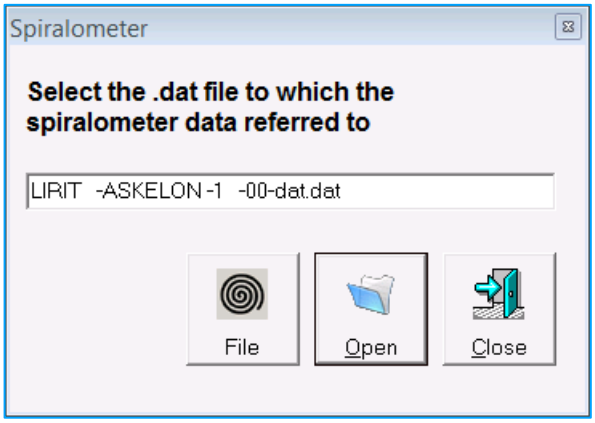
Img. 36

Clicking **Open** will open the dialog box (Img.37) from which we can choose the desired file.



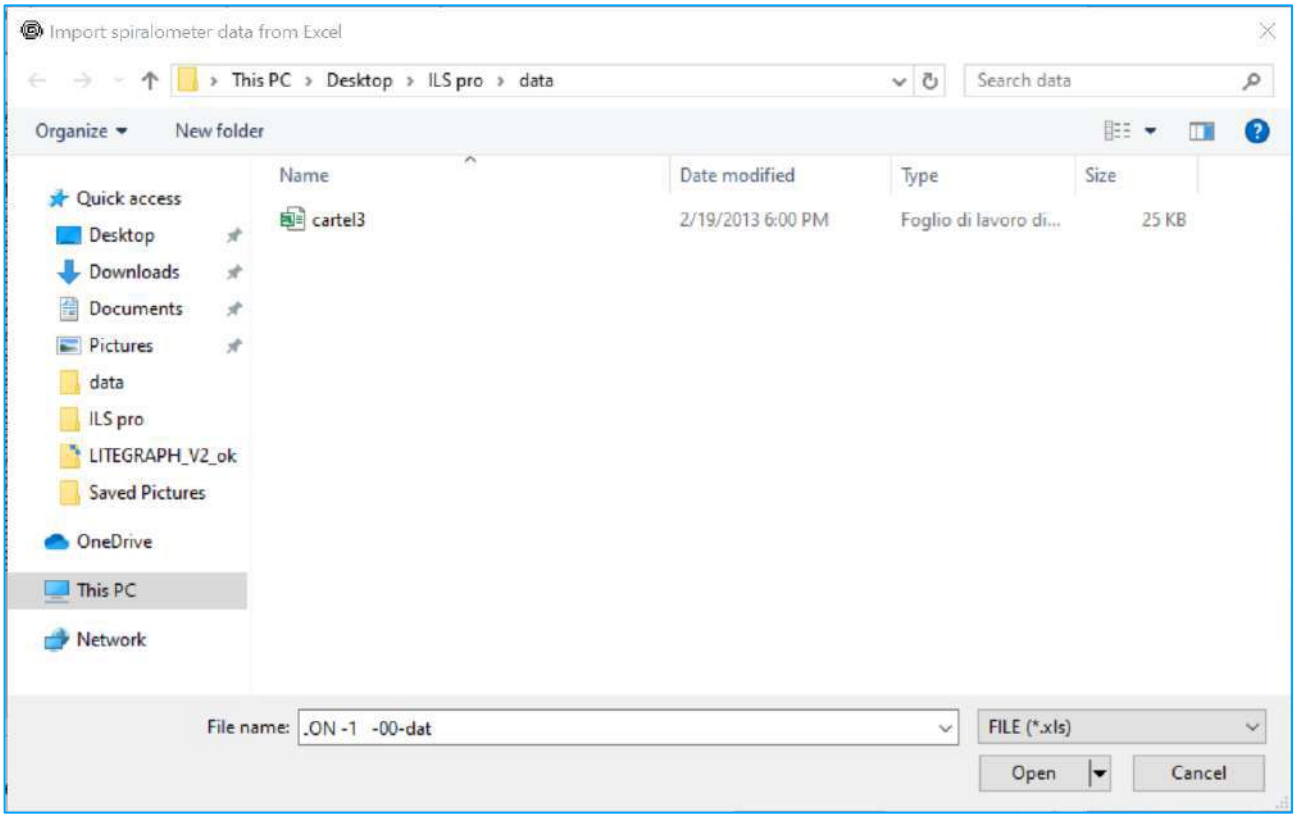
Img. 37

Once the file has been selected, the File key will become visible (Img.38).



Img. 38

By pressing the File key, a dialog box will appear (Img.39) from which we will choose the corresponding EXCEL file.

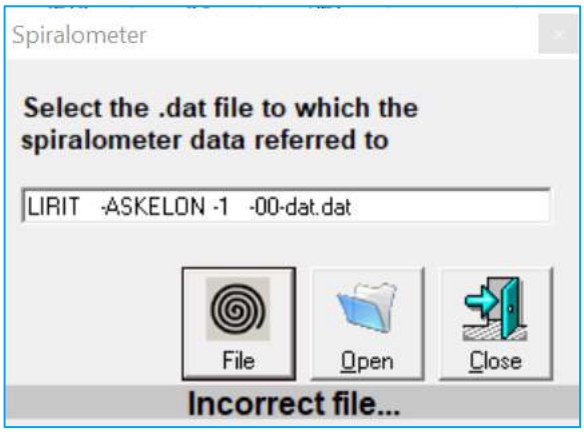


Img. 39

Excel file configuration

! Note that the readings must be entered in column A of the EXCEL file and from row 1 for the same length of the pipe.

If the readings do not match, the software will send an error message (Img.40).



Img. 40

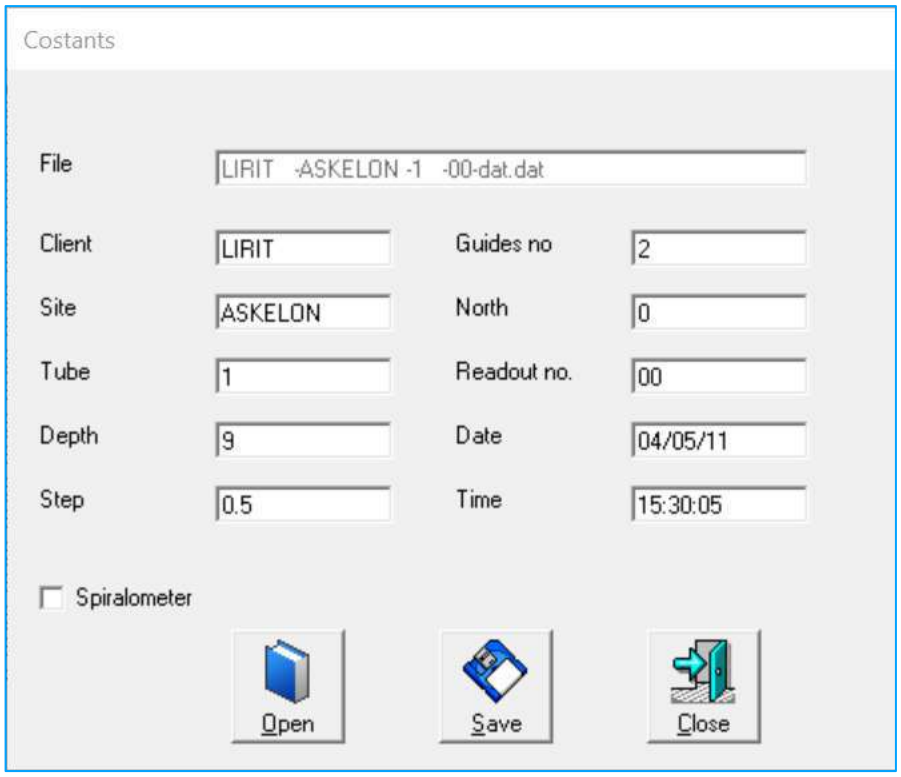
Tube Constants

2.8

To start data processing, we will need to upload the field data files. The File key in the Control Panel is disabled until we determine a constant file to which all loaded files will be able to reference (up to seven files can be loaded at the same time).

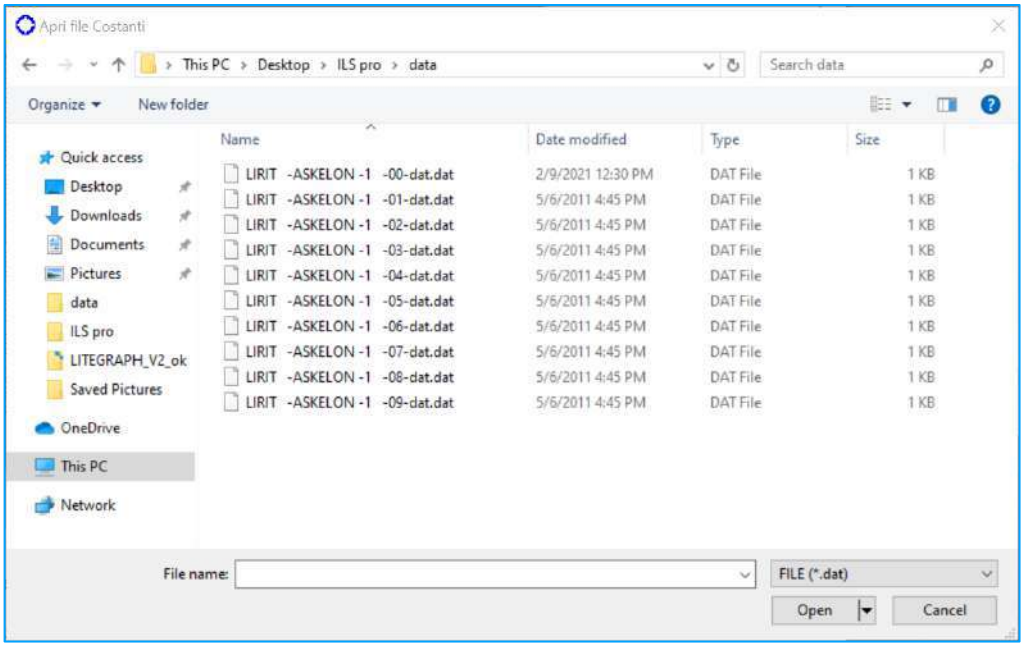
To load the constants file, click on Tube Constants in the Control Panel and a communication window will open (Img.41).

If there is a corresponding spiralometric file, it will be possible to load the data by simply checking the Spiralometer box. The software will take this into account when processing the data.
It is, however, possible to insert these spiralometric data at any time and then subsequently re-elaborate the reading data.



Img. 41

By clicking on the Open key, a dialog box will open (Img.42) where we can choose the file to upload.

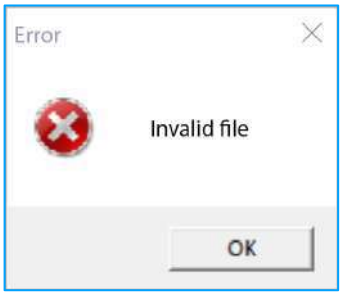


Img. 42

The file to upload must be like:

CUSTOMER – SITE – TUBE – READING NO. – DAT

Otherwise, the software will send an error message (Img.43).



Img. 43

Once the desired file has been loaded, we can edit and save it if necessary.

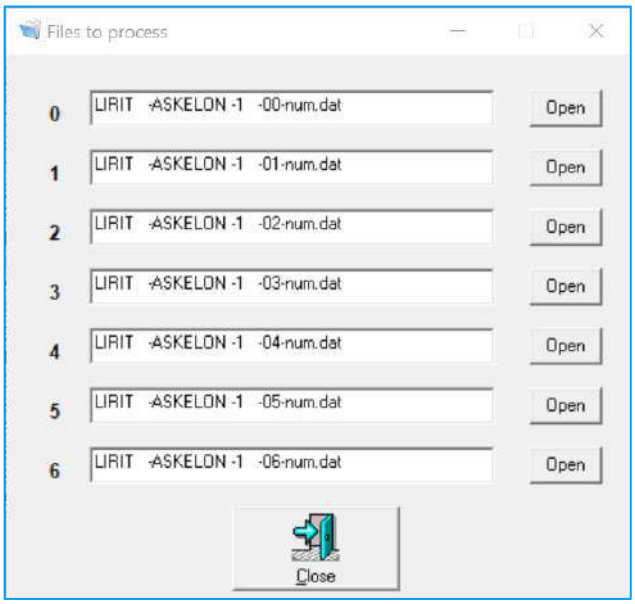
Click on Open to upload the file.

Then click on Close to end the procedure.

File

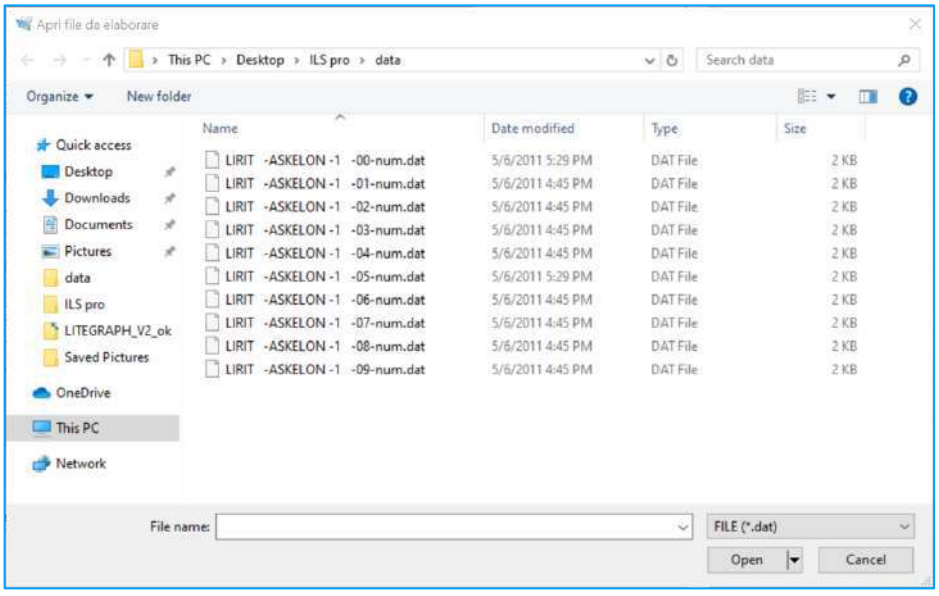
2.9

Once the constants file has been loaded, the File key will be activated and will be used to load the files with the field data; by pressing it, a dialogue window will appear (Img.44).



Img. 44

By clicking on the Open key (near the first free text box) relating to the number of the file to be loaded, a dialog box will open (Img.45) where we can select the desired file.



Img. 45

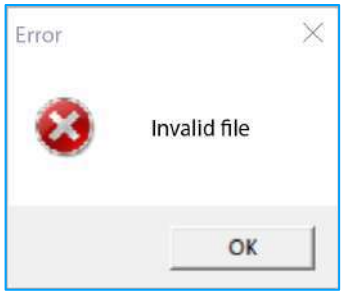
Note that:

- the file must be like:

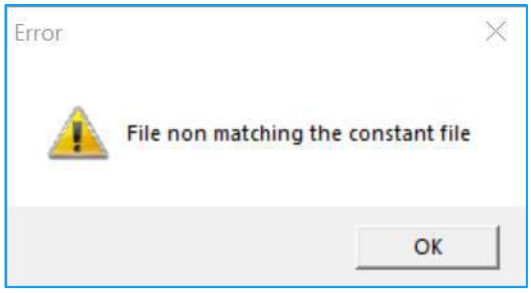
CUSTOMER – SITE – TUBE – READING NO. – NUM

- and that the first file loaded (in the text box relating to number 0) cannot be edited, while the other readings can.

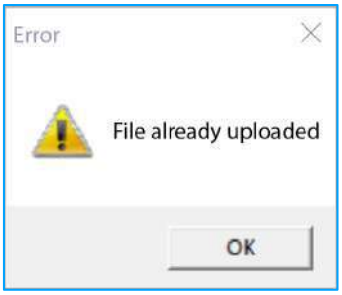
If we try to load a file that does not correspond to the tube or the same file, the following error messages will be sent (Img.46-47-48):



Img. 46



Img. 47



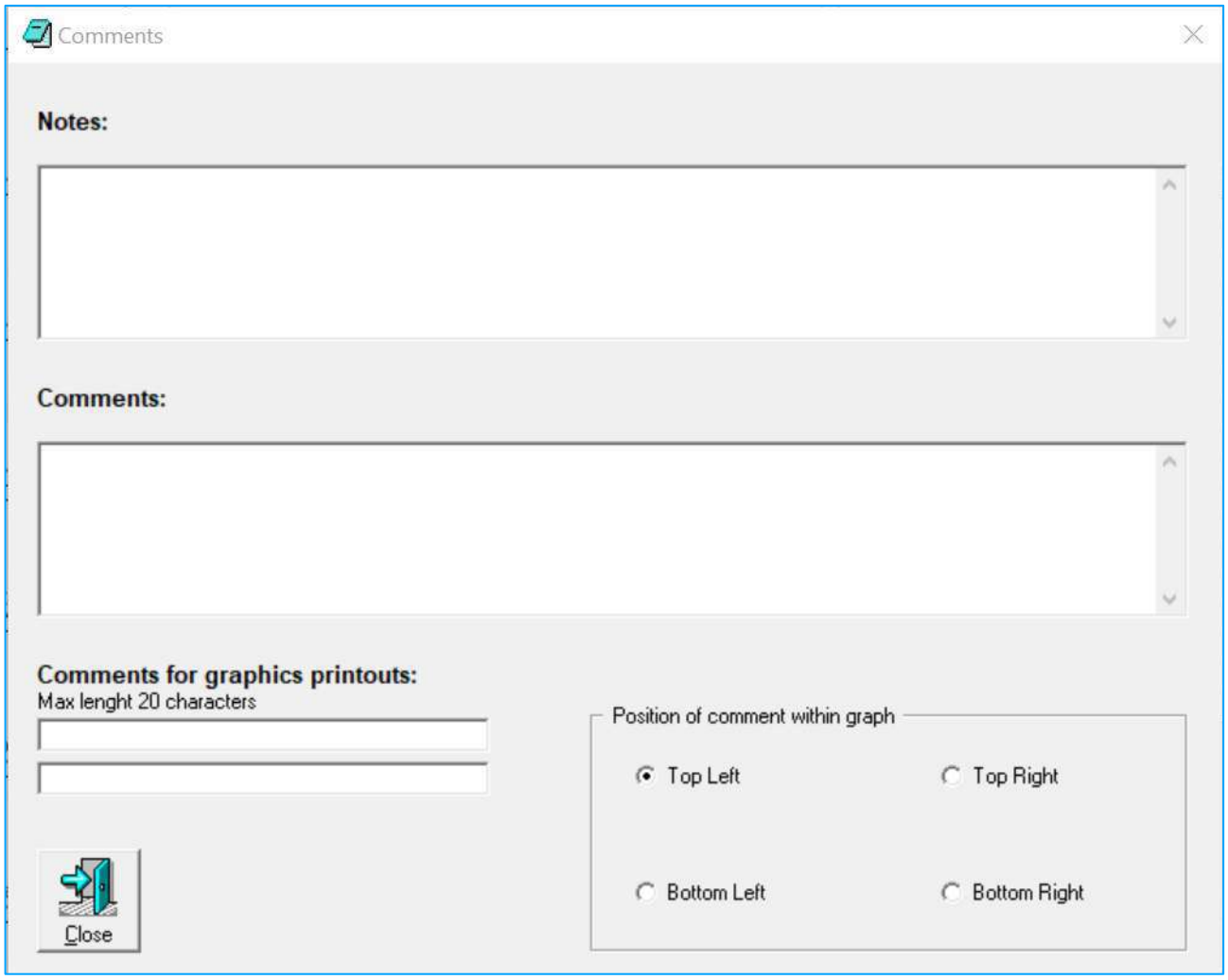
Img. 48

Once the desired files have been loaded, press the Close key to end the procedure and continue with data processing.

Comments

2.10

By pressing the Comments key will open a window (Img.49), where we could insert personal comments as a reminder or insert a comment that we could print with the graphs.

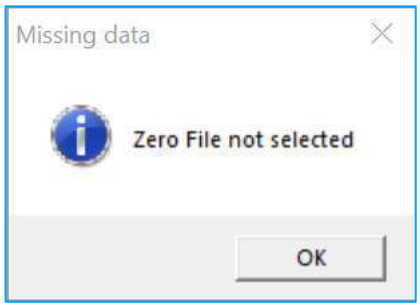


Img. 49

Processing

2.11

By pressing the Processing key the software will process all the readings loaded, comparing them to the zero reading entered in the ZERO text box. If the box remains empty, the software will send an error message (Img.50).



Img. 50

To view the field data or the reports, select reading desired in the Next text box, at the top of the main screen.

Also, we can choose another zero file from the list and process all the other readings comparing them to this.

Once we have selected a desired reading in the Next text box, the Graphic and Print keys will be enabled.

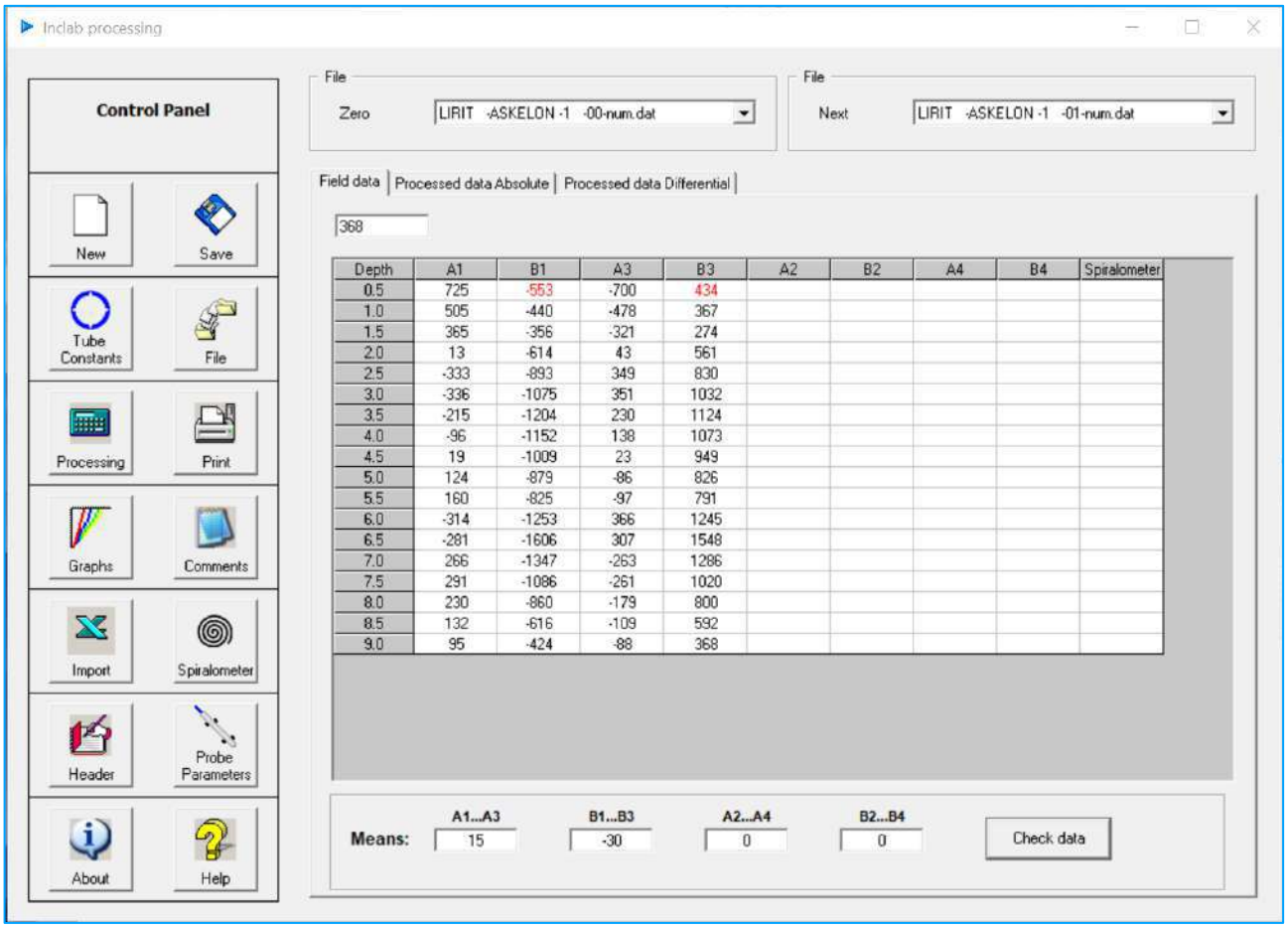
Check data

2.12

In the lower part, there are boxes in which the average values of the field data appear, which are used to check the correctness of the readings. This way we can tell if a reading is off average.

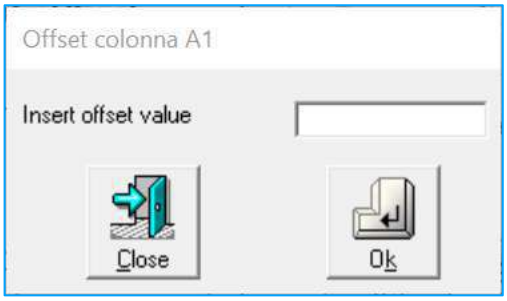
By clicking on Check Data the software will check the averages and highlight in red (Img.51) the boxes that are out of average.

To change a filed data, click on the corresponding box in the table and type the new data in the appropriate text box at the top (Img.51).



Img. 51

To change the Offset (the value of zero) click twice on the column to be changed and a dialog box will open (Img.52).



Img. 52

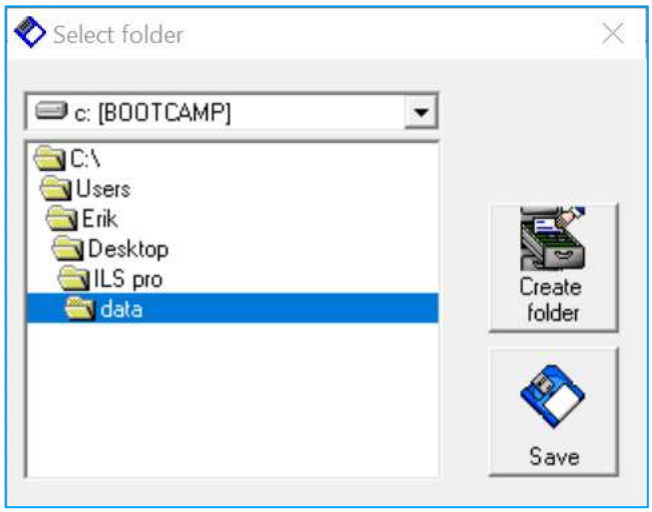
Enter the value in the box and press Ok to confirm. Press Close to cancel the procedure.

If the differences between the values of A1 and A3 for zero reasons are large, an Offset value can be entered in order to balance the zero. The value that should be entered is the one displayed in the A1-A3 Averages box but with the opposite sign to what appears.
We can proceed in the same way for the other columns.

Save

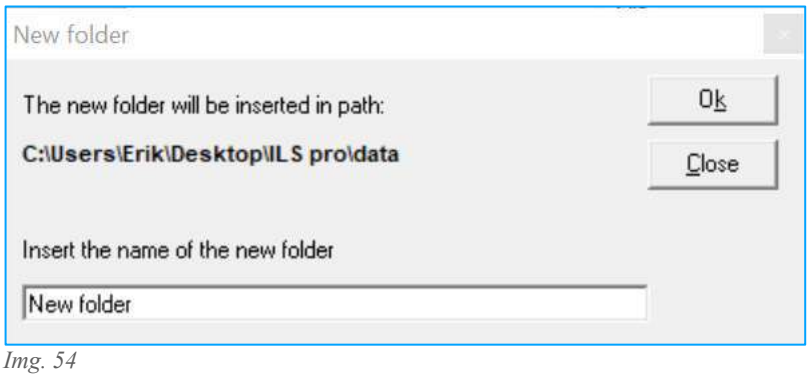
2.13

Field readings can be edited before or after processing. After editing the data, it is possible to save the change by pressing the Save key in the Control Panel.
A dialog box will open (Img.53) where we can choose the destination of the file with the edited data.



Img. 53

Clicking on Create Folder will open a dialog box (Img.54) in which we can create a new folder to save the file.



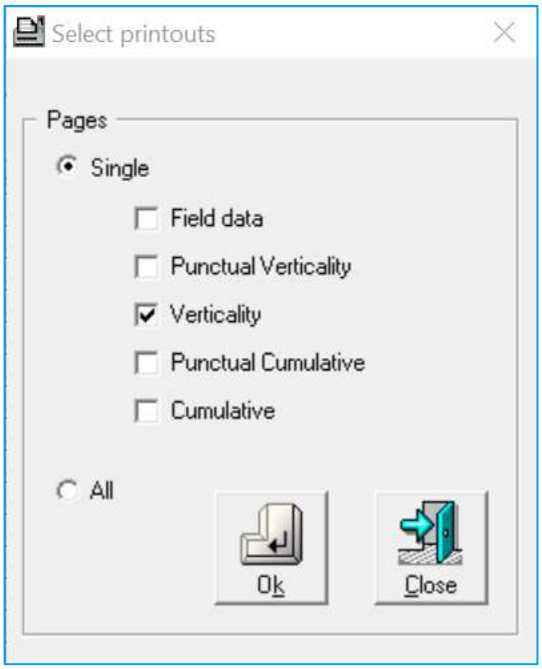
Img. 54

After we entered the name for the new folder, press Ok to confirm.
Press Close to exit without creating a new folder.

Print

2.14

By pressing **Print** in the **Control Panel**, will open a dialog box (Img.55) where we can choose the numerical data to be printed (only the data relating to the file being displayed will be printed).



Img. 55

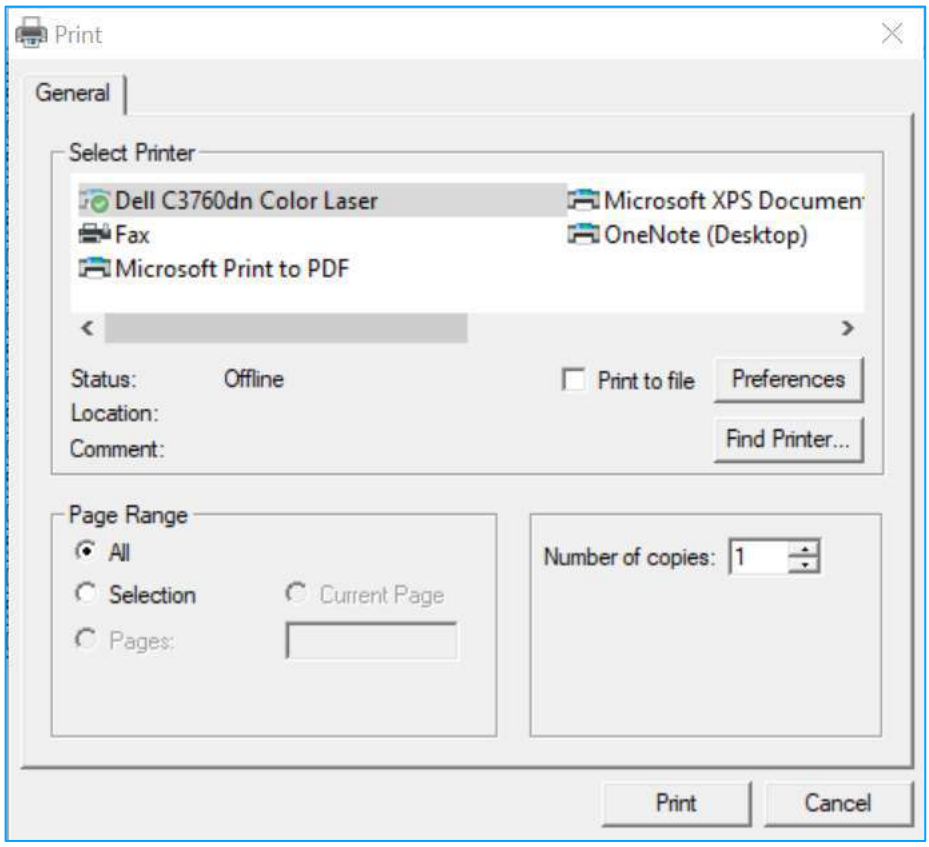
By choosing the **All** option, the following data will be printed:

- Field data
- Punctual Verticality
- Verticality
- Punctual Cumulative
- Cumulative

While choosing the **Single** option, we will be able to print only the selected data.

After checking the data to be printed, press **Ok** to confirm and a dialog box will open (Img.56) where we will have to choose the printer to be used.

Press **Close** to exit without printing.



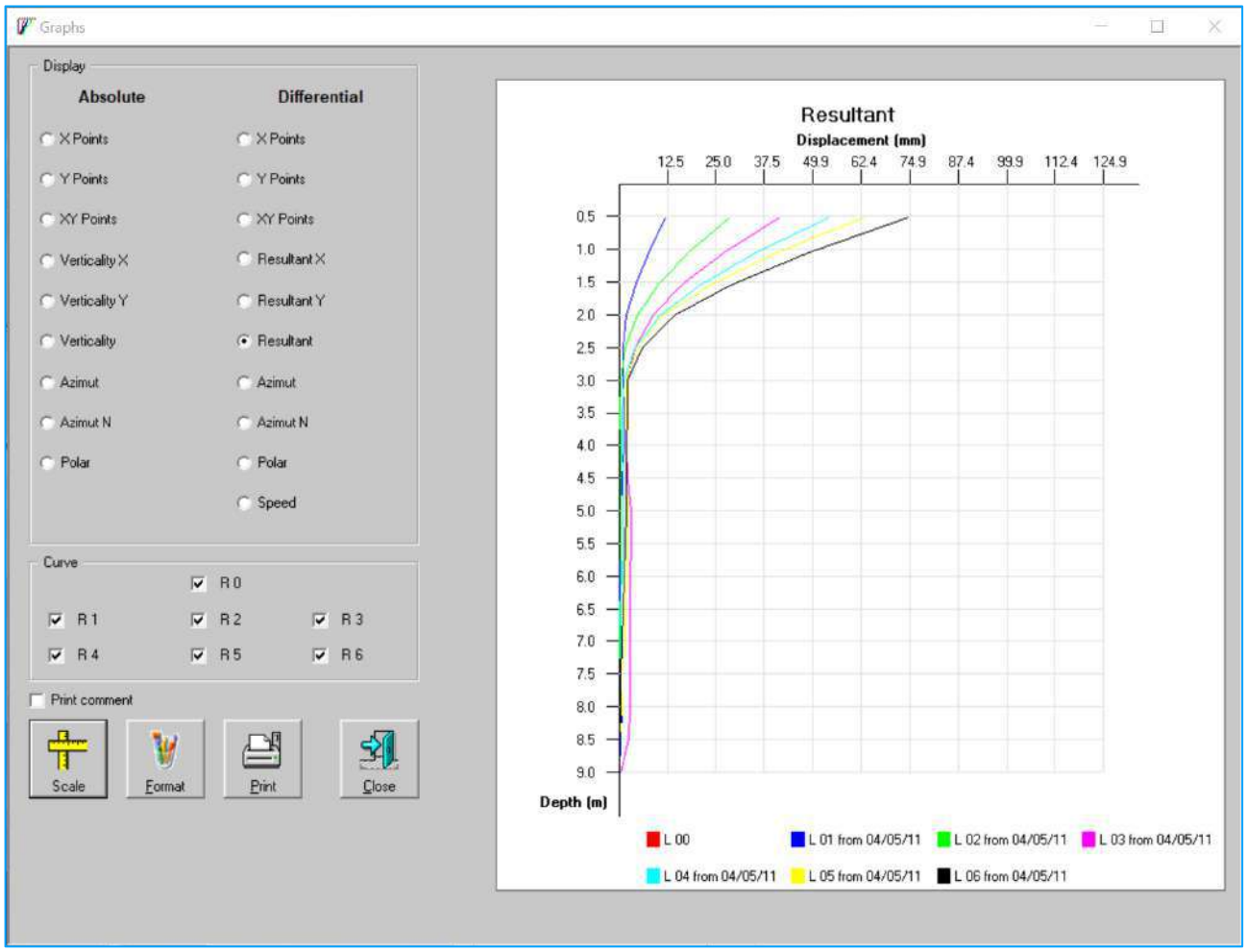
Img. 56

Press **Print** to confirm and start printing the chosen data.

Graphs

2.15

By clicking on **Graphs** key in the **Control Panel**, will open the graphs window (Img.57).



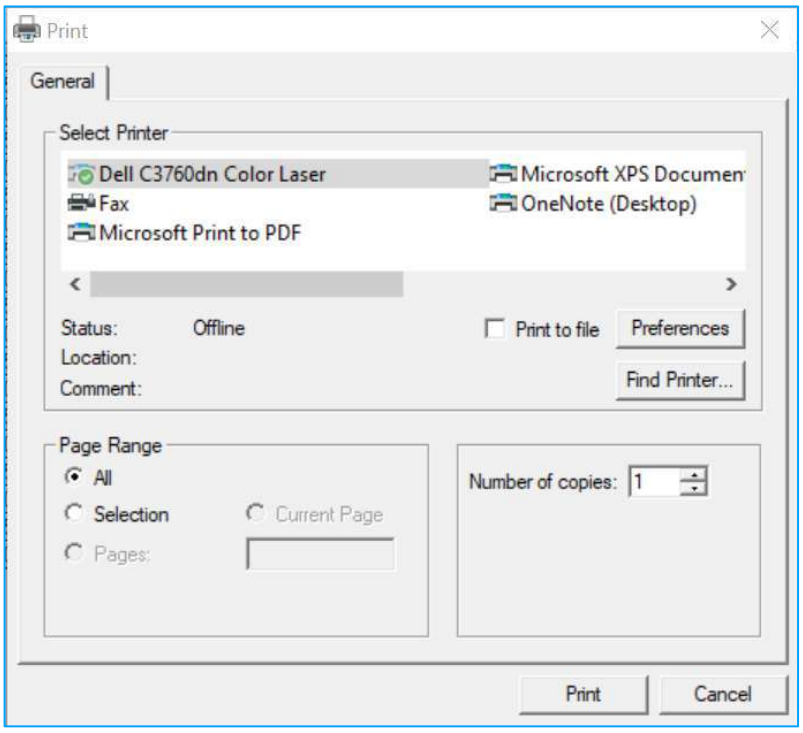
Img. 57

In this window we can choose:

- the readings we want to display
- the scales of the X axis
- the type of the graph
- the format of the graph, such as colors and thickness of the lines (Img.58).

Img. 58

Click on the **Print** key to print the graph and a dialog window will open where we will have to choose the printer to be used (Img.59). The graph to be printed will be the one currently displayed on the screen.



Img. 59

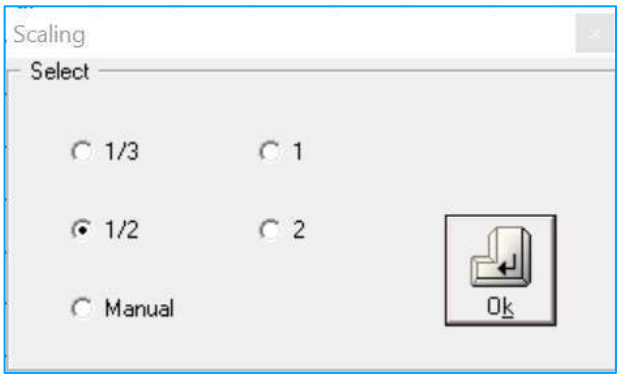
Press **Close** to exit the Graphs procedure.

SCALE

By pressing the **Scale** key, a dialog box will appear (Img.60) where we can change the scale of the **X axis** (the default scale is 1 that is three times the maximum value).

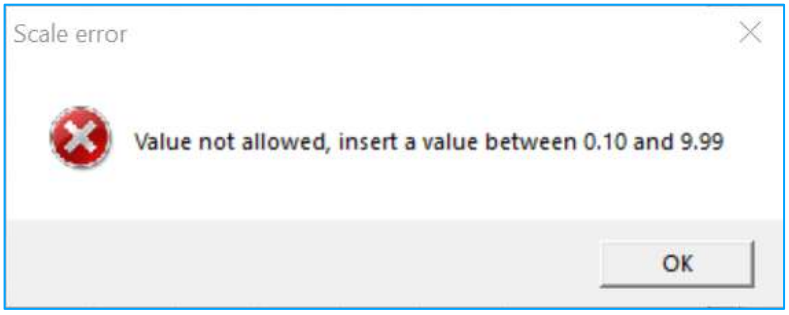
In this window there are:

- four fixed scales (1/3, 1/2, 1, 2)
- a MANUAL scale (variable between 0.10 and 9.99).



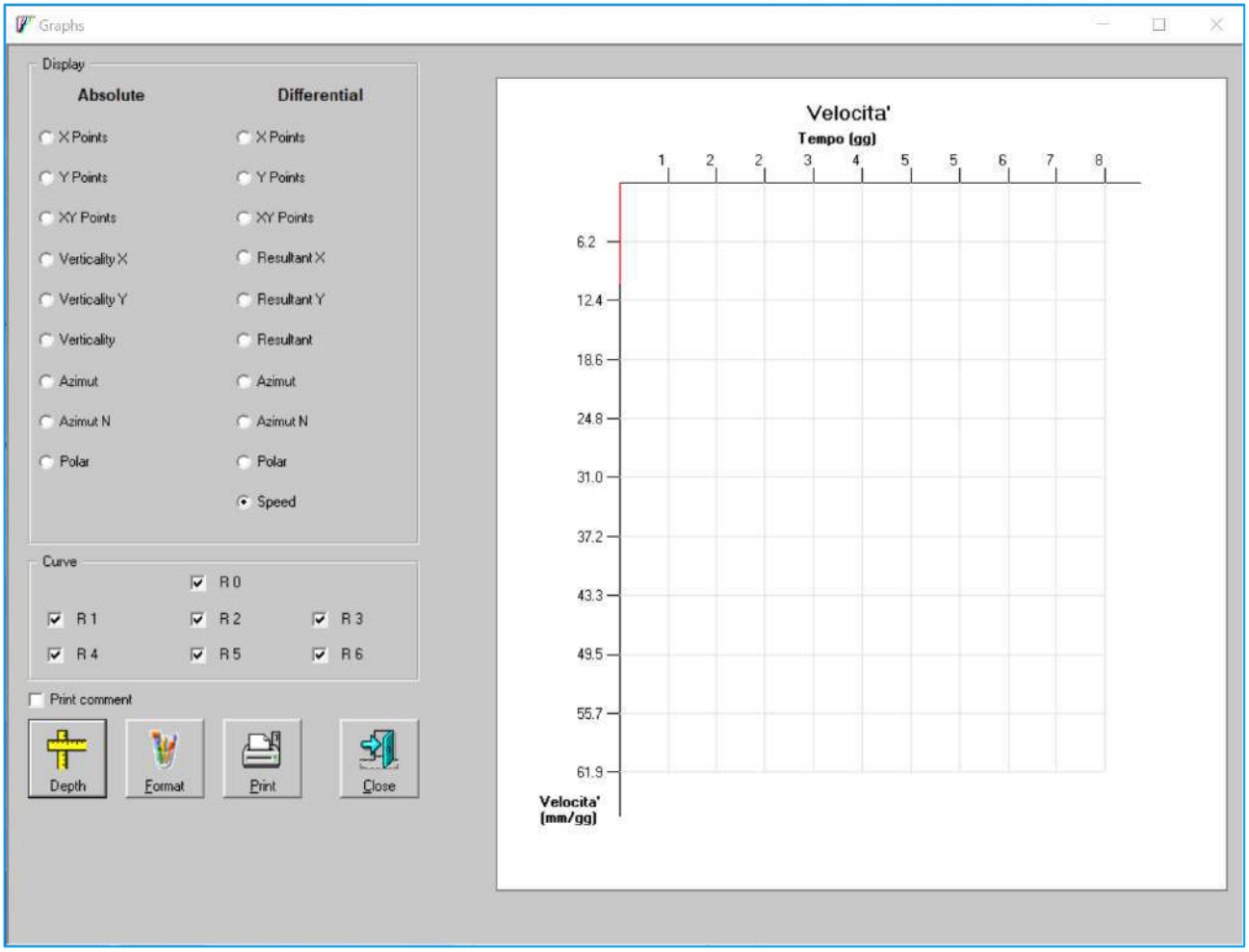
Img. 60

Select the one you want and press **Ok** to confirm.
If a value lower than 0.10 or higher than 9.99 is entered, the software will show an error window (Img.61).



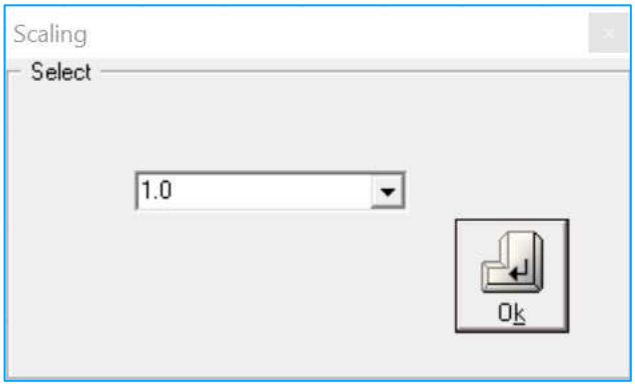
Img. 61

By checking the **Speed** graph (Img.62), the Scale icon will change to **Depth**.



Img. 62

By pressing **Depth** key, a window will appear (Img.63) where we can choose the altitude to which we could refer the speed data (mm/day).

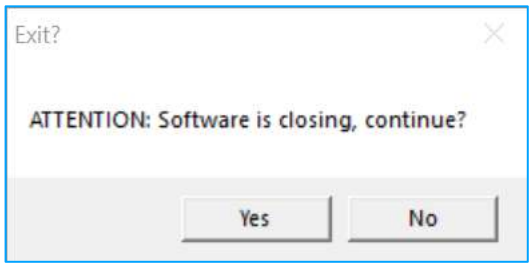


Img. 63

Exit

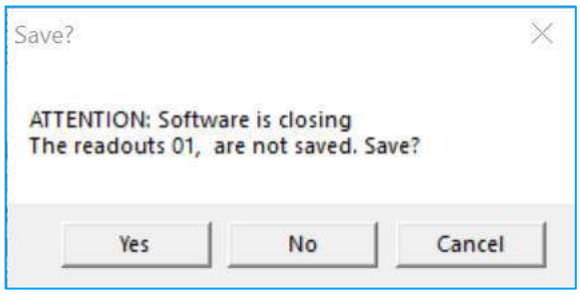
2.16

By pressing the X button at the top right of the screen, we will start the process of closing the software. A communication window will be displayed (Img.64) which will ask us to continue with the exit or cancel the operation.



Img. 64

In the event that one or more readings have been modified and not saved, the software will warn the operator with a communication window (Img.65).



Img. 65

Press Yes to save the unsaved data.

Press No to close the software without saving.

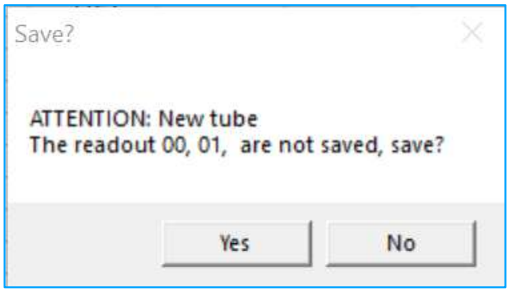
Press Cancel to remain within the software.

New

2.17

Click the New key in the Control Panel to move to a new tube without closing the program: all data and boxes will be cleared.

In the event that the changes made were not saved, the software will send a communication window (Img.66).



Img. 66

Press Yes to return to the software and we will be redirect to the save procedure.

Press No to reset all data without saving.

About

1.8

By pressing **About** in the **Control Panel**, a window (Img.61) will appear showing informations about SIM STRUMENTI and the installed **version of INCLAB Processing**.
In this window **SIM STRUMENTI contacts** are shown to easily get in touch for any technical assistance.

Img. 67

Help

1.9

By pressing **Help** in the **Control Panel**, it will open the link to the **User Manual** of INCLAB Processing.

NOTES

NOTES

NOTES

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