

“Lokal 300“ Operating Instructions

Version 1.0.0.2 and higher



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1 Introduction

1.1 General Information

The “Lokal 300 Printmonitor“ programme is to read out and to display correlator measurements. The measurement-related recorded data is evaluated, transmitted to the correlator programme, and clearly displayed in a table and diagram. The measurements transmitted can be printed out and saved as a report once they have been received by the programme.

1.2 Overview of Chapters

These Operating Instructions comprises 4 chapters.

After this Introduction, chapter 2 is to give an overview of the various functions and components of the programme.

Chapter 3 is to provide information on the single menu levels with the particular sub-menus and on the settings required to read out the data.

Finally, chapter 4 is to explain the functionalities of the windows of the programme. Chapter 4.3 contains the single steps required to read out the data.

2 Programme Design

The following chapter offers an overview of the various functions, the design, and the most important components of the programme. Both the menu levels and the window sections of the programme will be presented and explained in detail.

2.1 Menus

In order to control the individual functions of the programme, you have several menu options available. When the programme has been booted, the menu bar will offer three menu levels: "File", "Settings", and "Help".

In the "Files" menu level you will find all relevant information required to open an already existing "Lokal 300 Data File" and to save a read-out measurement as "Lokal 300 Data File". Furthermore, the programme offers you the option to assign a customer's address, to print out data which has already been read out, or to quit the programme through this menu. Illustration 2-1 below shows the extended "File" menu.

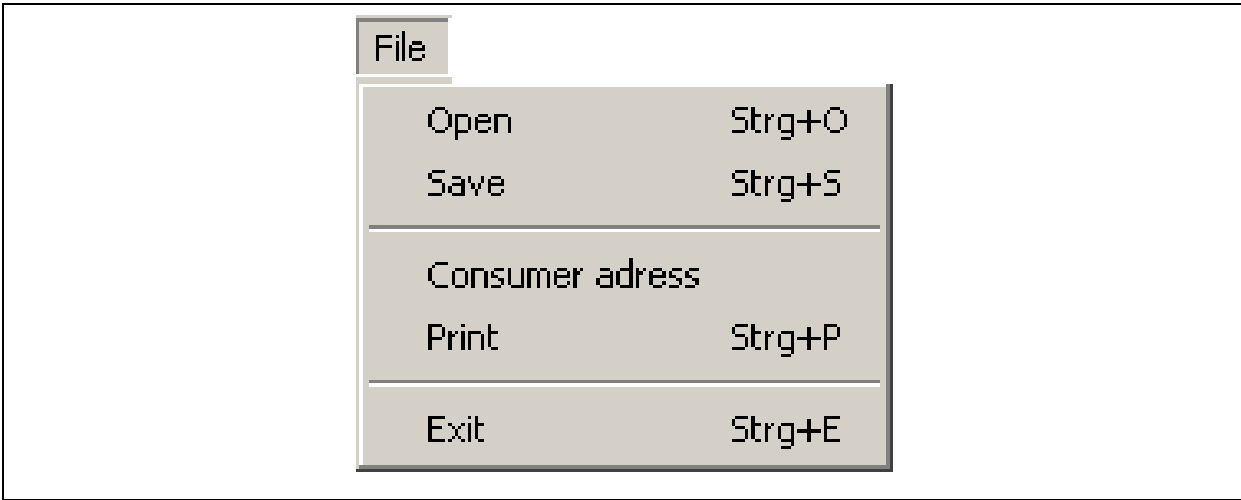


Illustration 2-1: File menu

The "Settings" menu level is used to change some of the features of the programme such as the language, which can be adapted to the customer's requirements. Furthermore, the configuration of the serial interface can be changed in this menu level, and the service supplier's address (to appear on every report) can also be entered here. The expanded "Settings" menu is illustrated below (see Illustration 2-2).

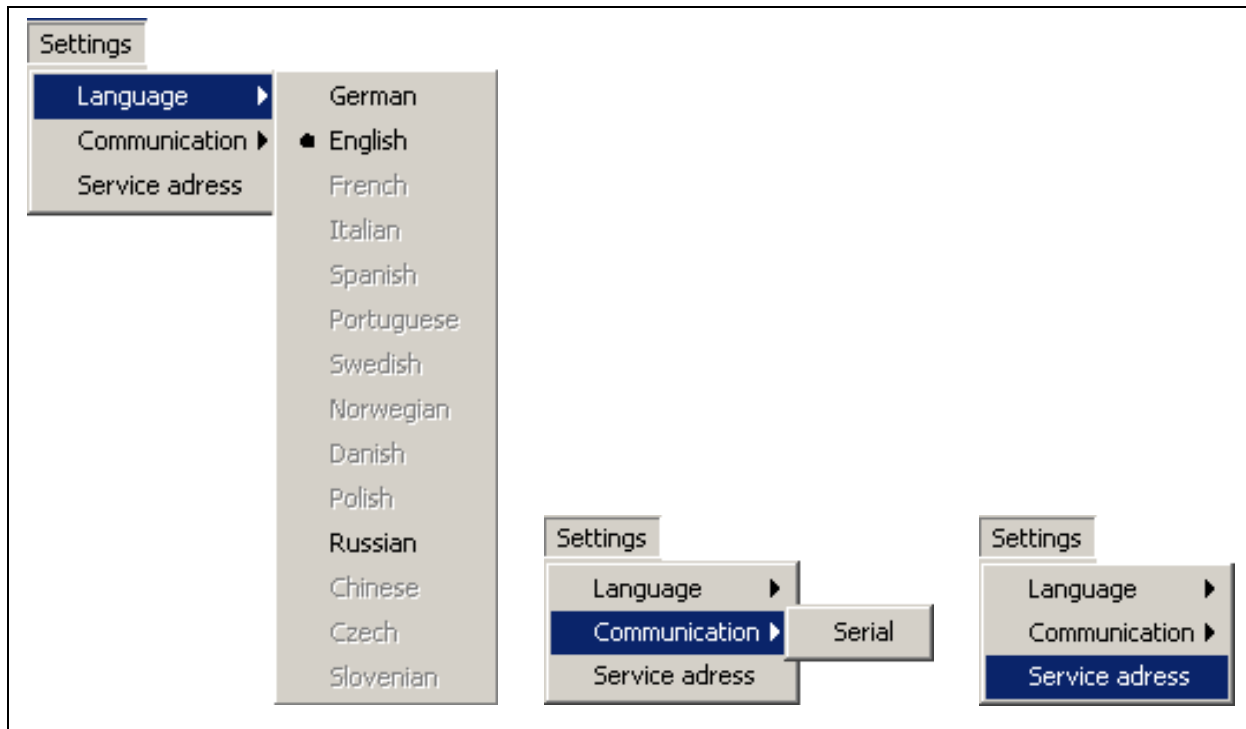


Illustration 2-2: Settings menu

The “Help“ menu provides you with information on the programme itself as well as on the channels such as homepage, telephone, and fax number via which you can contact F.A.S.T. GmbH.

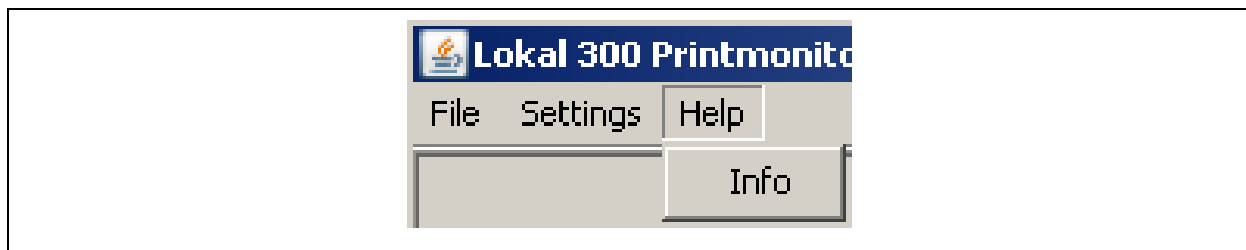


Illustration 2-3: Help menu

For detailed information and descriptions concerning the File, Settings and Help menu levels as well as concerning the corresponding functions, please refer to Chapter 3.

2.2 Windows

The “Lokal 300 Printmonitor“ programme features one main window which can be divided into two sections: the data section and the diagram section. The data section (shown in Illustration 2-4 on the left hand side) displays the parameters of a measurement procedure listed in alphanumeric order. The diagram section on the right hand side displays the results of the correlation and the coherence in graphical form.

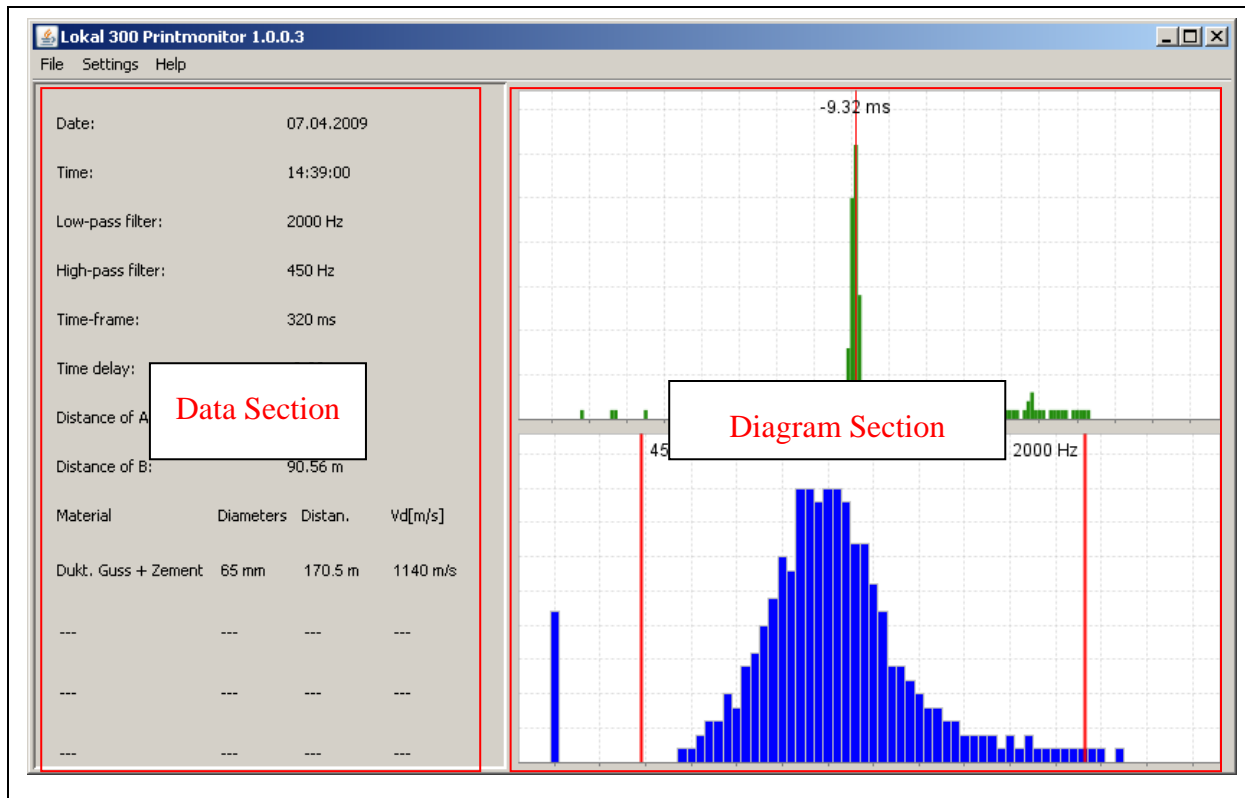


Illustration 2-4: Main window

2.2.1 Data Section

The data section of the “Lokal 300” programme displays the parameters and settings of the particular measurement (see Illustration 2-5). The particular parameters and settings are briefly described below.

The initial information on the overview is the date and the time of the measurement. Then the set high-pass and low-pass filters are indicated in hertz [Hz], followed by the time-frame of the measurement as well as the time delay in [ms]. The time-frame reveals the time the signal required to travel from the middle of the section to the receivers. The time delay indicates the time the leakage-borne noise required to travel from the fracture spot or crack to pick-up A in comparison to the time the noise required to reach pick-up B.

The following two points indicate the distance between the leakage and the two pick-ups A and B in [metre]. At the bottom of the data section, the underlying material properties are displayed. Up to four definitions for one measurement procedure can be applied. The indicated information (properties) describe the material of the pipeline section, the pipe diameter, the length in [metre], and the sonic velocity on the pipeline in [m/s].

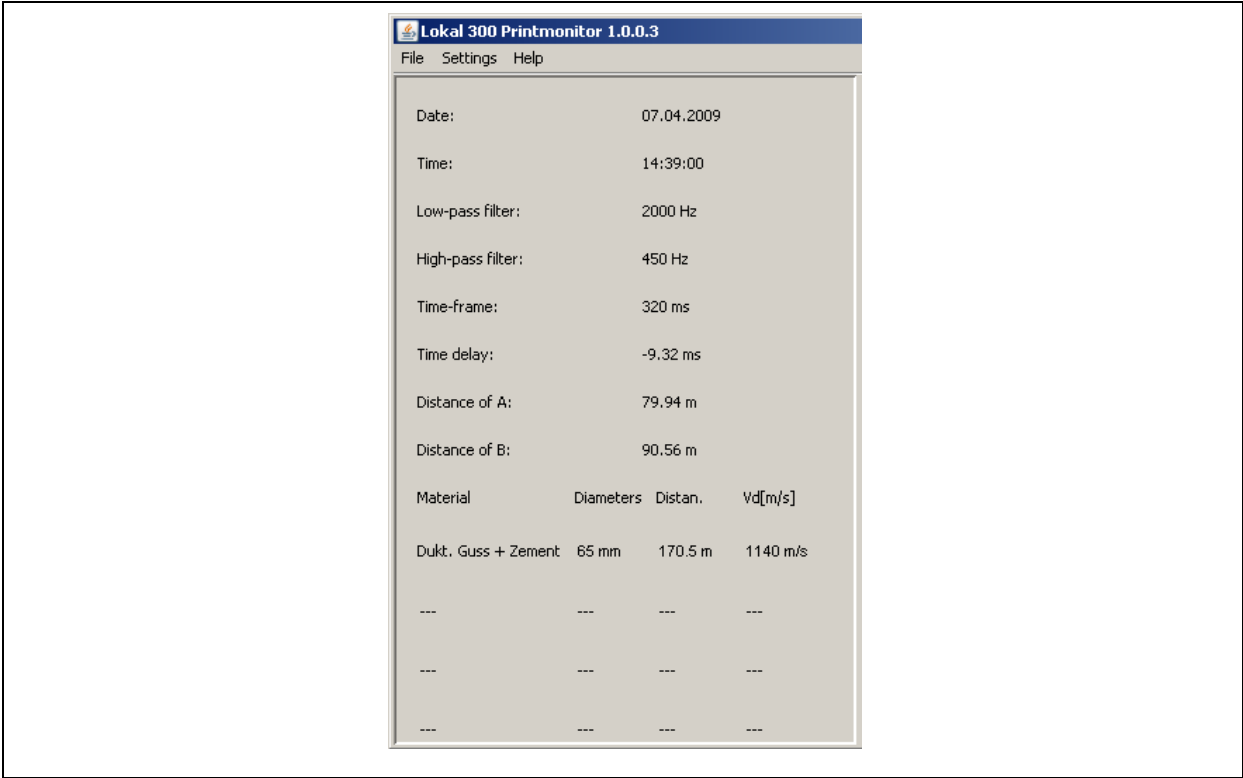


Illustration 2-5: Data Section

2.2.2 Diagram Section

In the upper part of the diagram section, the results of the correlation and the peak of the correlation function are displayed. In the lower part, the coherence representing the entire portion of the pipeline-borne noise picked up at both receivers is displayed (see Illustration 2-6).

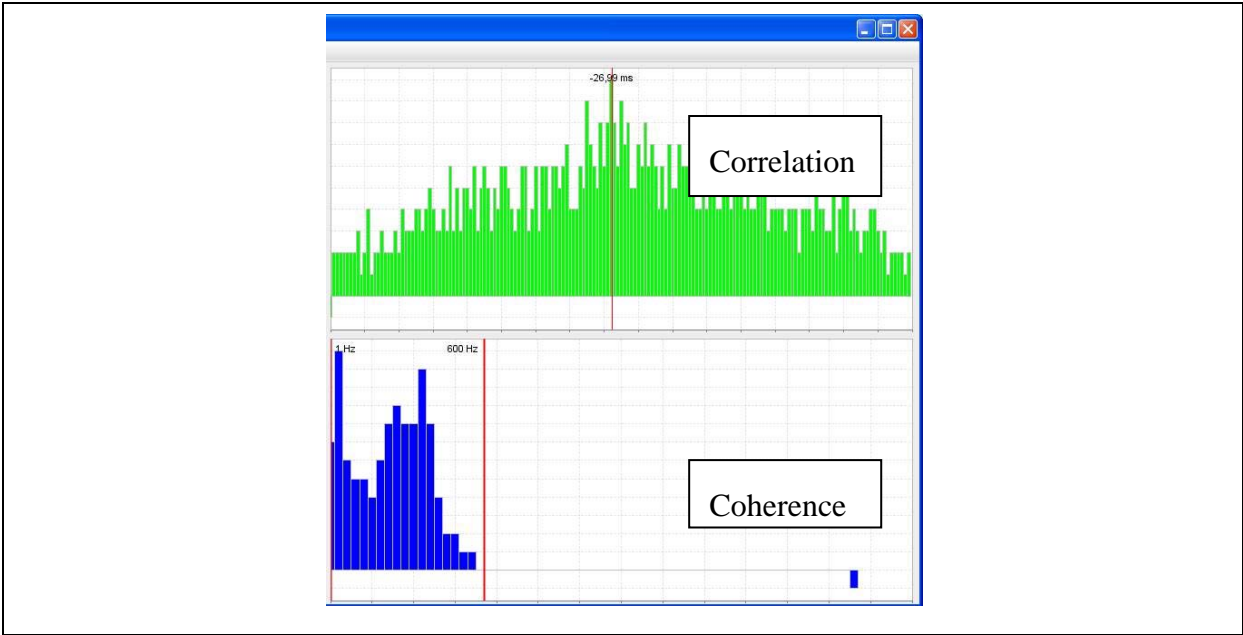


Illustration 2-6: Graphical view

The correlation function determines the difference in propagation times generated by two signals which reach the pick-ups in different times. This difference in propagation times is displayed with a peak in the correlation function (see Illustration 2-7). In the below example, the difference in propagation times reveals that the leakage is located 26.99 ms closer to receiver A than to receiver B.

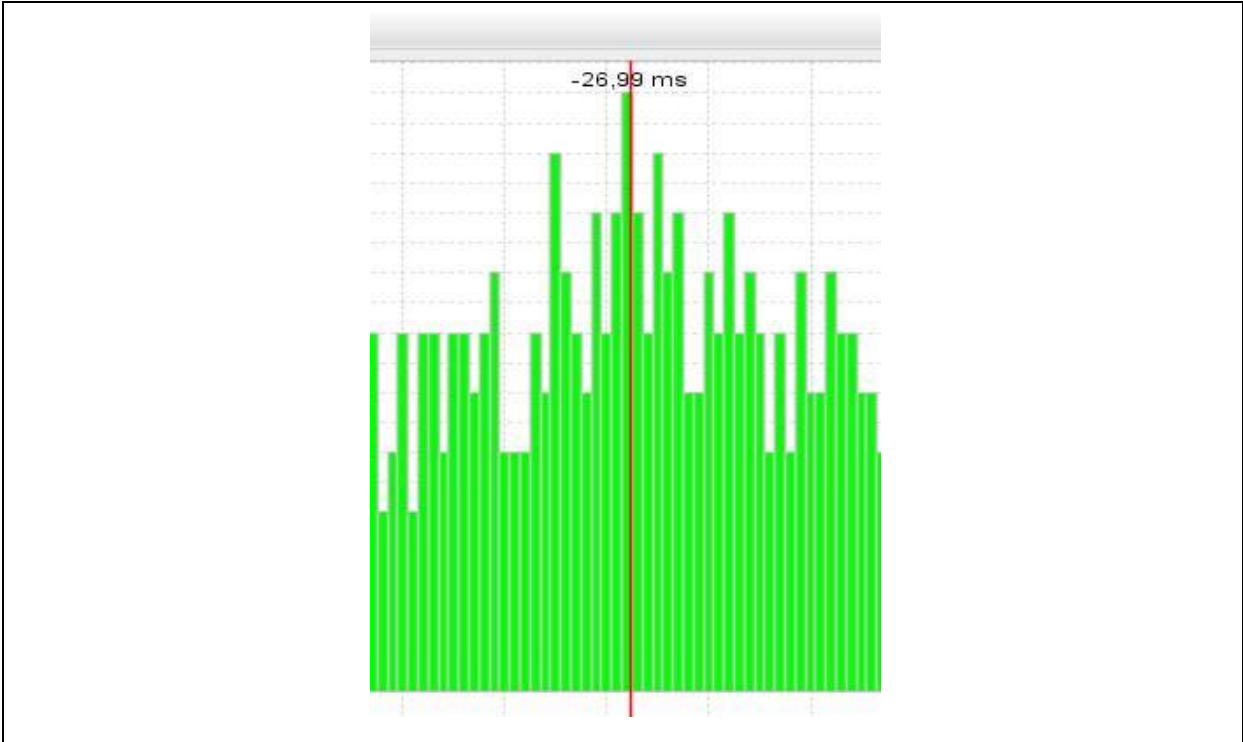


Illustration 2-7: Graphical display of the difference in propagation times

The coherence indicates the common portion of the pipeline-borne noise (pipe fracture, water meter) received by the two pick-ups at measurement spot A and measurement spot B with the current high-pass and low-pass filter settings. Disturbing noise such as cars, people, conversations, etc. picked up by the two sensors will reduce the coherence as such noises envelop the common pipeline-borne noise.

The coherence is displayed by means of blue bars, with the height of a bar abstracting the level of noise coincidence at measurement spot A and measurement spot B. Furthermore, the position of the bar in the diagram reveals an estimate concerning the corresponding frequency. The more the bar is positioned to the right, the higher is the frequency the bar represents. The coherence can be used as decision guidance for the setting of the digital filters. The digital filters set by the operator are displayed with vertical red lines in the coherence diagram. The corresponding hertz value is indicated at the upper tip of the particular line (= filter) (see Illustration 2-8).

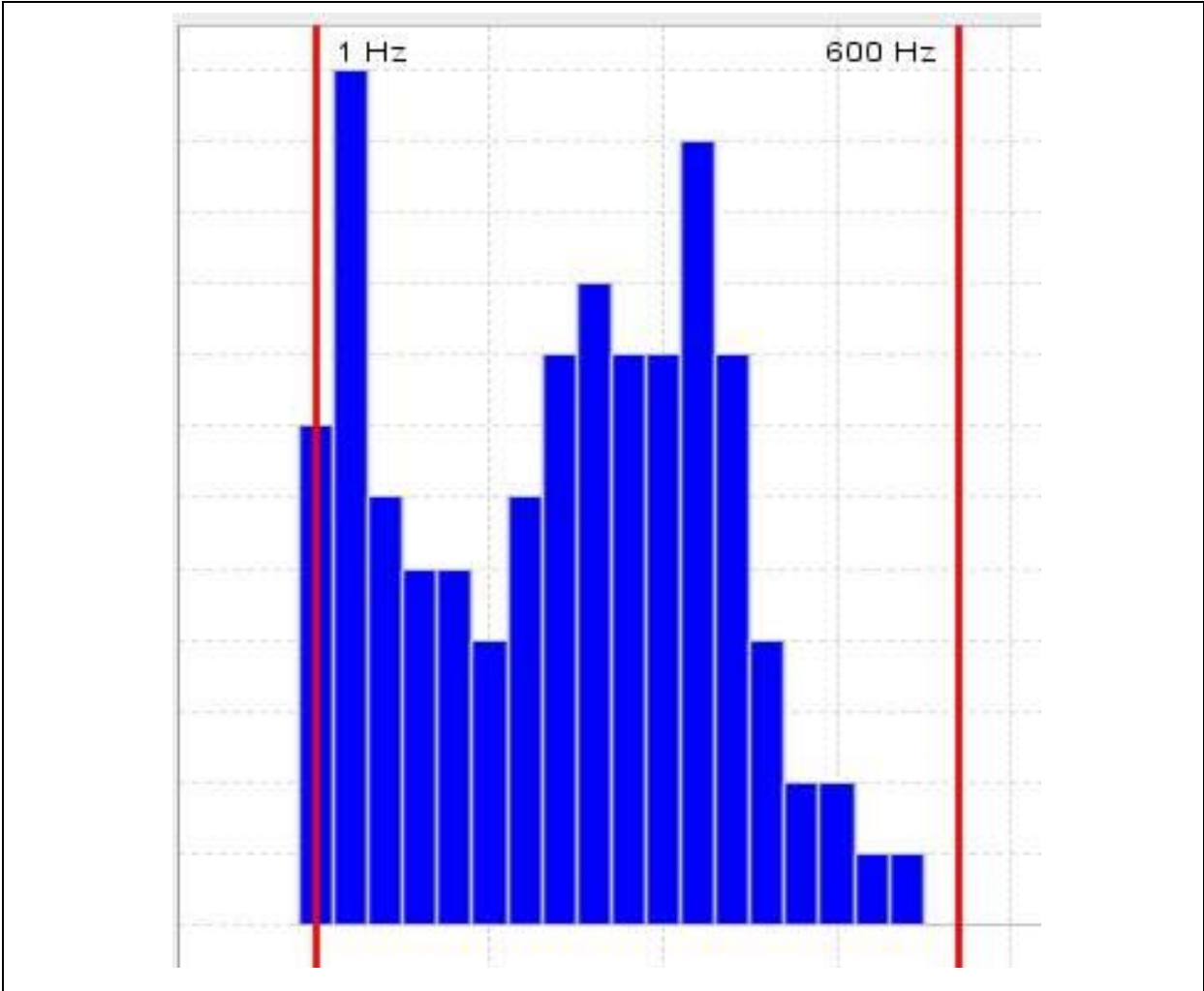


Illustration 2-8: Graphical display of coherence

3 Functionality of the Menu

Chapter 3 is to present in detail the single menu levels and the particular sub-menus. First, the functions related to the "File" menu are explained in Chapter 3.1. Chapter 3.2 then deals with the "Settings" menu, and Chapter 3.3 provides information on the "Help" menu level.

3.1 File

In the "File" menu, you can "Open" or "Save" a "Lokal 300 Data File" and also enter the customer's address to be printed on the report(s). In addition, this menu level offers a number of print functions as well as the function to quit the programme. The menu levels are described in detail in the following sections.

3.1.1 Opening a File

If you want to open an already existing file, click on "File" -> "Open" or press the key combination "STRG" + "O". Illustration 3-1 below is to visualize the menu.

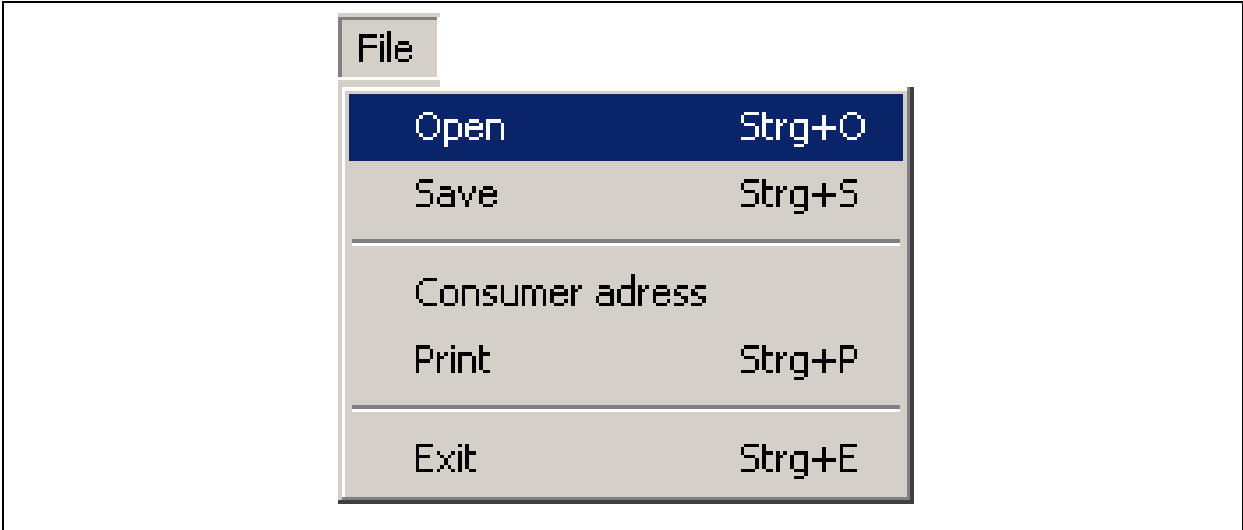


Illustration 3-1: Opening a file

Pressing on "Open" makes a file selection dialogue appear on the screen where you can select the desired file (see Illustration 3-2). Open the folder of the project containing the "Lokal 300 Data File" and choose the file you intend to open. Then click on "Open" to open the desired file, which will then be displayed.

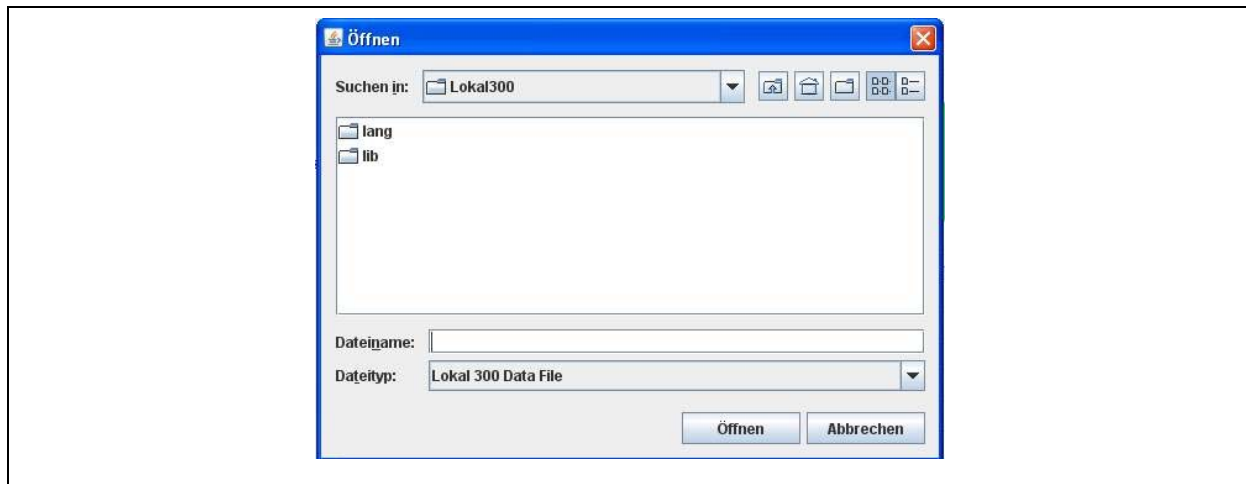


Illustration 3-2: Opening a File dialogue

Once the file has been opened, the data section will be filled with the values related to the particular measurement, and the diagram section shows the results of the correlation in the upper part and the coherence in the lower part.

3.1.2 Saving a File

If you intend to save the read-out values in a file, click on "File" -> "Save". A "Save File Dialogue" will appear similar to the one shown in Illustration 3-2 above, where you can select the path for the particular file. The programme automatically suggests a file name, which can be seen in the "File Name" window. The name consists of the word "Measurement" and of the date and time of the measurement, e.g. "Measurement-21_06_2006-08_43_00.ldf".

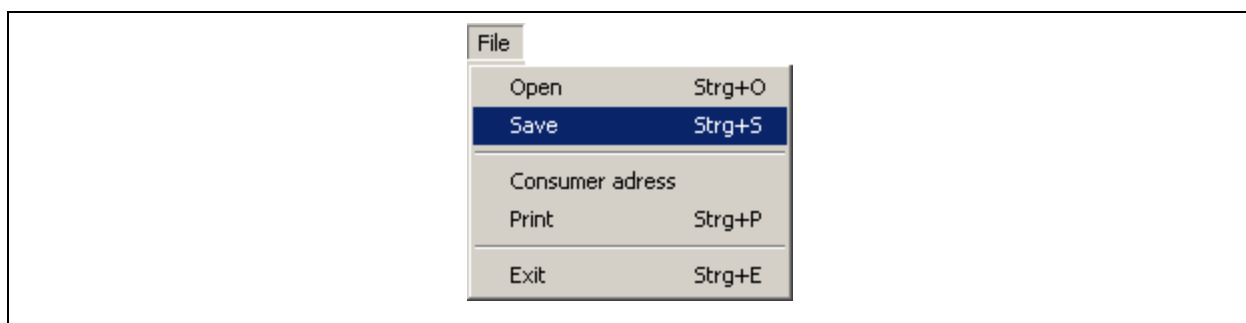


Illustration 3-3: Saving a file

3.1.3 Customer's address

If the measurement was carried out on behalf of a customer, you can assign the customer's address on this menu level. The customer's address will then be shown on the print-out. Click on "File" -> "Customer's address" (see Illustration 3-4 below).

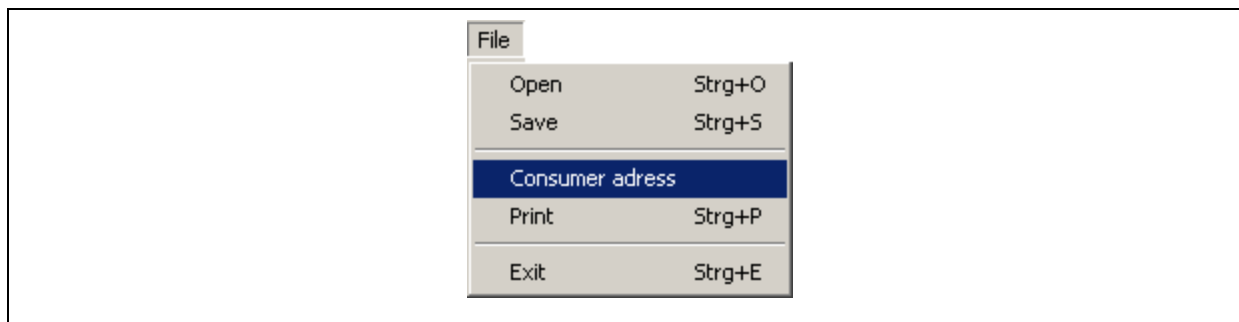


Illustration 3-4: Customer's address

A window will appear where you can enter the particular data. After you have entered the particulars, click on "Save" and the data entered into the boxes will be accepted (see Illustration 3-5).

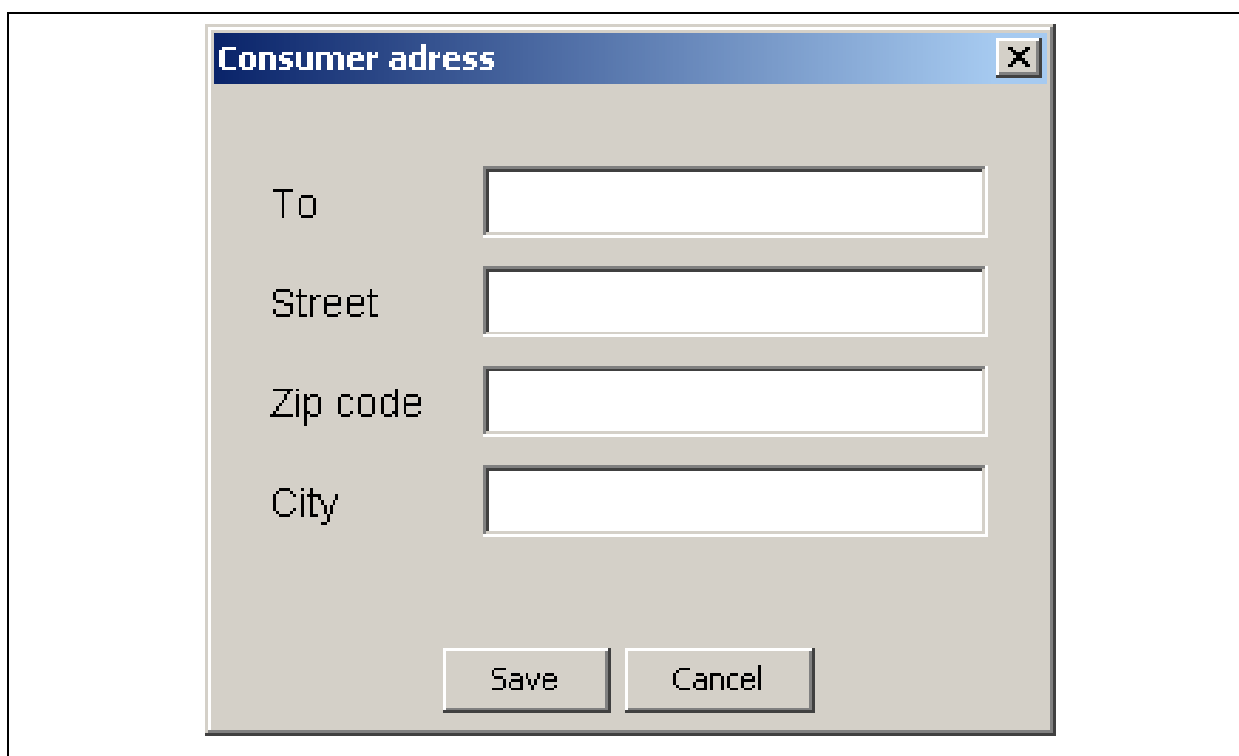


Illustration 3-5: Entering the customer's address

If you click on "Cancel", the window will be closed and the entered data will be deleted, i.e. the entered data will not be accepted by the programme. If the boxes have not been filled with the particulars, the print-out (reports) will not show the customer's address.

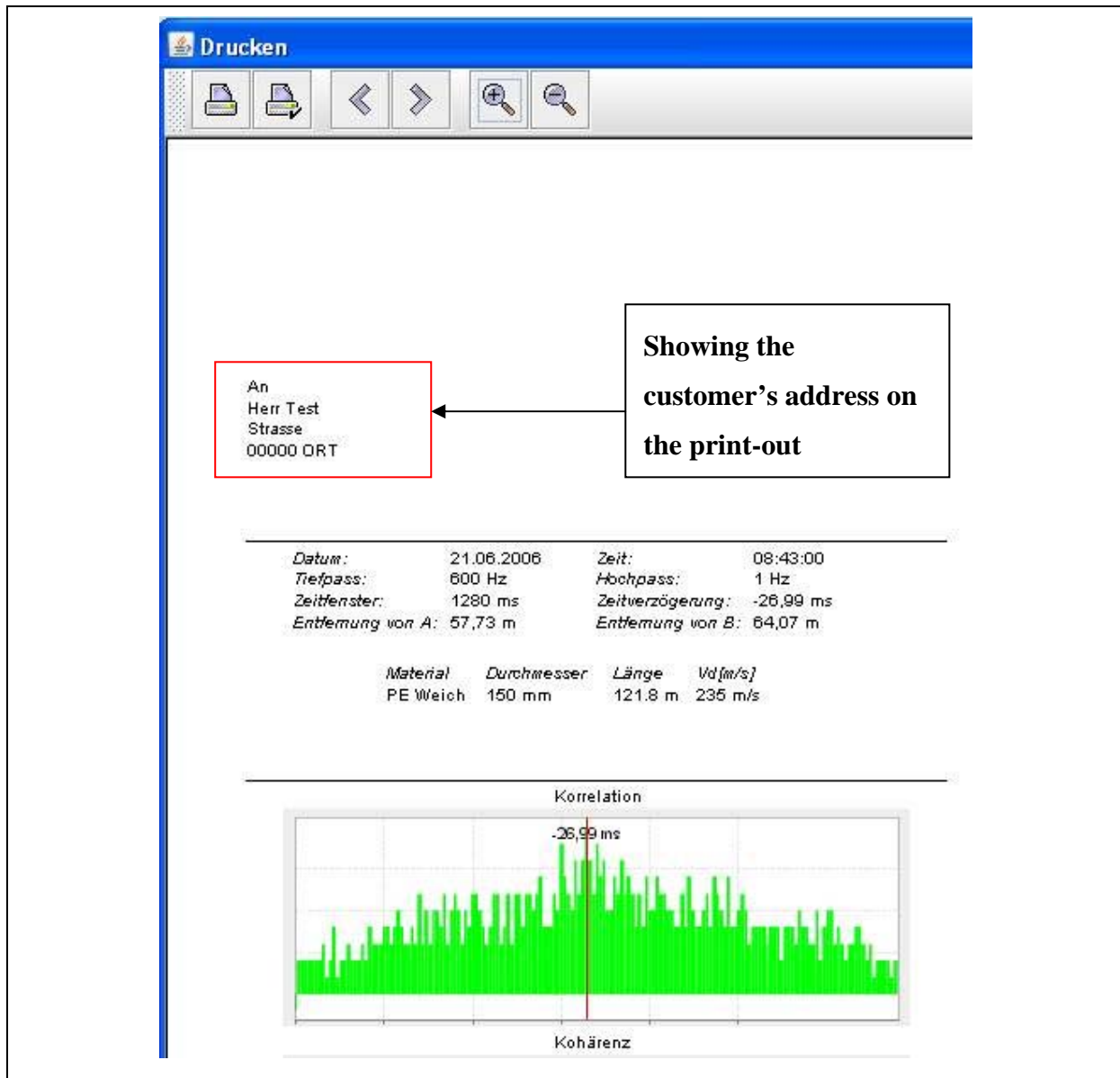


Illustration 3-6: Print-out showing the customer's address

If you have assigned a customer's address (see Illustration 3-4 above), this address will be shown on the print preview and on the print-out in the address box (see example in Illustration 3-6). If you want to delete the customer's address again, just open the entry window for the customer's address (see Illustration 3-4) and delete the particulars from the entry sections. Then click on "Save" to make sure the particulars will not be shown on the print-out.

3.1.4 Printing

In order to print out a clearly arranged report containing the data and diagrams related to the particular measurement procedures, click on "File" -> "Print" and the currently displayed measurement will be printed out (see Illustration 3-7 below).

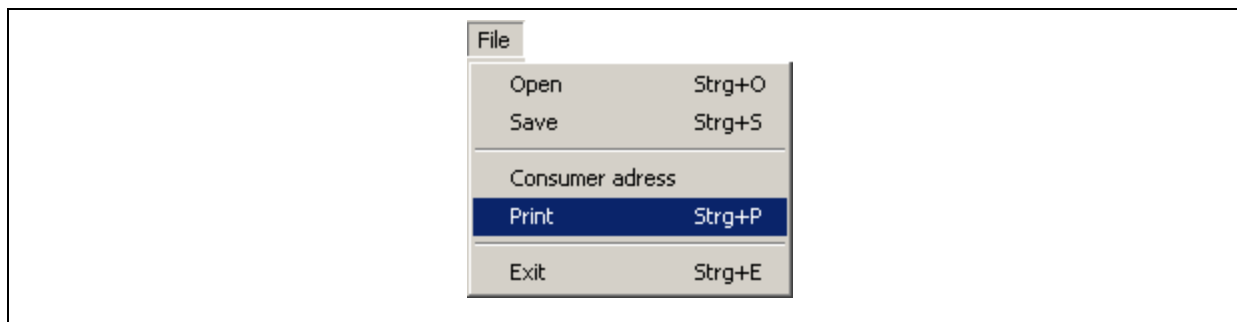


Illustration 3-7: Printing

A print preview will appear giving an overview of the report. Here you will find further menu levels such as Scaling up / down or Paging. These menu levels are described below.

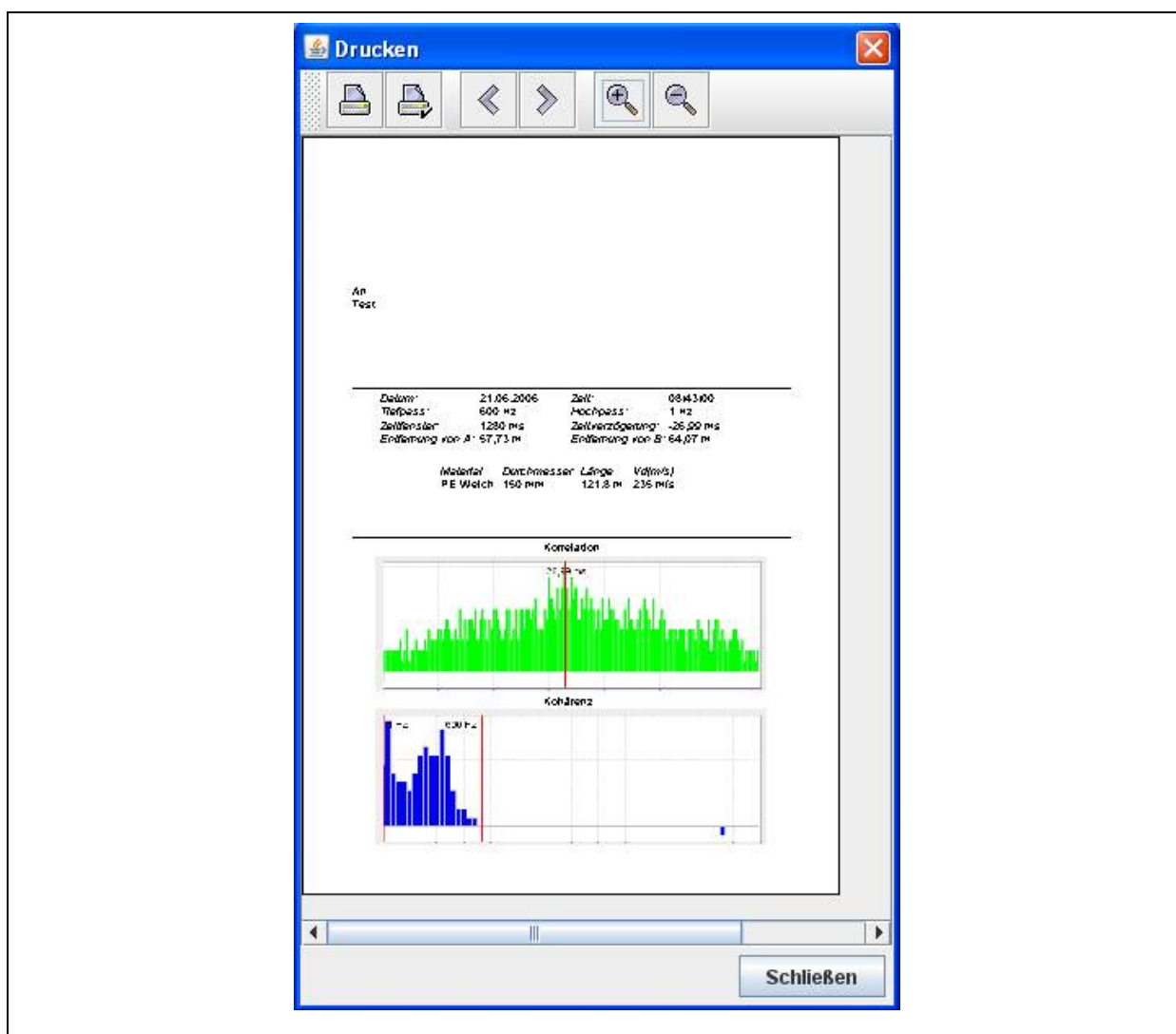


Illustration 3-8: Print Preview

The button bar of the print preview contains the following menu levels: Print and Select printer respectively, Setting up a page, Paging, and Zoom, which offer a number of different functionalities as described below.

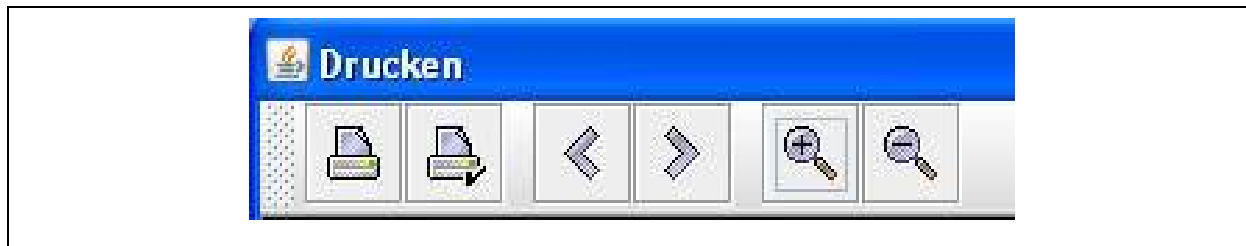








Illustration 3-9: Print Preview menu


The magnifying function   is to scale up or scale down the report in the print preview mode.

The arrow keys   make you go to the next/previous page if the report consists of several pages.

The first printer symbol  takes you to the “*Print*” dialogue window. A new window appears where you are requested to select any of the installed printers, to adjust the settings for the desired paper format and the print-out quality, to determine the number of copies to be printed out, and to start the printing process by clicking on ”Print out“.

The second printer symbol  leads you to the “Setting up the page“ dialogue window. Here you are requested to select the desired paper format and the page format as well as to set the margins for the print-out.

3.1.5 Quitting the Programme

If you want to leave the programme, click on “File“ -> ”Exit“ or use press the key combination ”STRG“ + ”E“. As an alternative, you can also quit the programme by clicking on the red X .

3.2 Settings

The Settings menu level of the “Lokal 300 Printmonitor“ programme is to assist you in adjusting any programme-related settings such as language settings and communication settings. In addition, you can also assign a service supplier’s address to be printed on the report. The individual menu levels are described in detail in the below chapters.

3.2.1 Language

In the menu “Settings“ -> “Language“ you can adapt any text-related features in the programme to your national language. The programme supports up to nine languages, as shown in Illustration 3-10 below. As soon as the “Lokal 300 Printmonitor“ programme has been installed, German and English will be available as standard languages. These two language packages are firmly implemented in the programme and cannot be deleted or modified.



Illustration 3-10: Language menu

Consequently, you can select only German or English in the “Language“ menu when the programme has been installed. For the other seven languages, a separate language file has to be created before these other languages can be activated. In order to ease this adaptation, the programme creates a template of the language file during installation, which is located in the ”lang“ folder. You will find this “lang“ folder in the installation directory of the ”Lokal 300 Printmonitor“ programme. If, for example, you have installed the programme at “C:\Programmes“, the installation directory of the programme can be found at ”C:\Programmes\Lokal300“ and the template of the language file is located at ”C:\Programmes\Lokal300\lang“.

Once you have opened the “lang“ folder, you will see the template called ”Sprache.properties“. This file can be opened and processed with the ”Editor“ or ”Wordpad“ programmes. However, before you process the file, you will have to create a copy of the “Prache.properties“ file in the same folder as the template itself must not be modified in order to avoid an error functions in the programme. **Never change the template, only modify the copied version of the file.**

You can create a copy of the file by clicking once on the file with the left mouse key to highlight the file. Then move the cursor across the highlighted file and press the right mouse key. A so-called pop-up menu will open up where you have to click on the ”Copy“ button with the left mouse key. As a final step, the copy of the file has to be inserted into the same folder. In order to do so, please go to the “Process“ menu of the folder window and click on ”Insert“. You now should have another language file named “Copy of Sprachen.properties“ in the “lang“ folder. This copy can now be adapted to the desired language.

When you have completed the adaptation to the desired language, the name of the language file has to be assigned for the programme so that the programme is capable of identifying and loading this new file properly. So please rename the copy of your language file (“Copy of Sprachen.properties“) in accordance with the following pattern shown below:

- French -> “Sprache_fr_FR.properties“
- Spanish -> “Sprache_es_ES.properties“
- Italian -> “Sprache_it_IT.properties“
- Danish -> “Sprache_da_DK.properties“
- Norwegian -> “Sprache_no_NO.properties“
- Swedish -> “Sprache_sv_SE.properties“
- Portuguese -> “Sprache_pt_PT.properties“
- Polnisch -> “Sprache_pl_PL.properties“
- Russisch -> “Sprache_ru_RU.properties“
- Chinesisch -> “Sprache_zh_CN.properties“
- Tschechisch -> “Sprache_cs_CZ.properties“
- Slowenisch -> “Sprache_sl_SI.properties“

3.2.2 Communication

Determine the mode of data transfer at “Settings“ -> “Communication“ via the serial interface.

Reading-out via the serial interface

Before the data provided by the Lokal 300 correlator can be read out, the configuration for the serial interface must be called. This can be done by clicking on “Settings“ -> ”Communication“ -> ”serial“ in the menu.

The “Com1“ port will be selected by default. Select the appropriate Com-Port your correlator has been connected to. Normally all other settings do not have to be changed. As soon as you have set the appropriate Com-Port, adapt the setting(s) by clicking on “Save“. The programme is now ready for operation and is awaiting the data sent by the correlator. As soon as the data has been sent, the information displayed by of the programme is updated with the information sent in by the correlator. Chapter 4.3 is to describe in which way the data is transferred from the correlator to the programme.

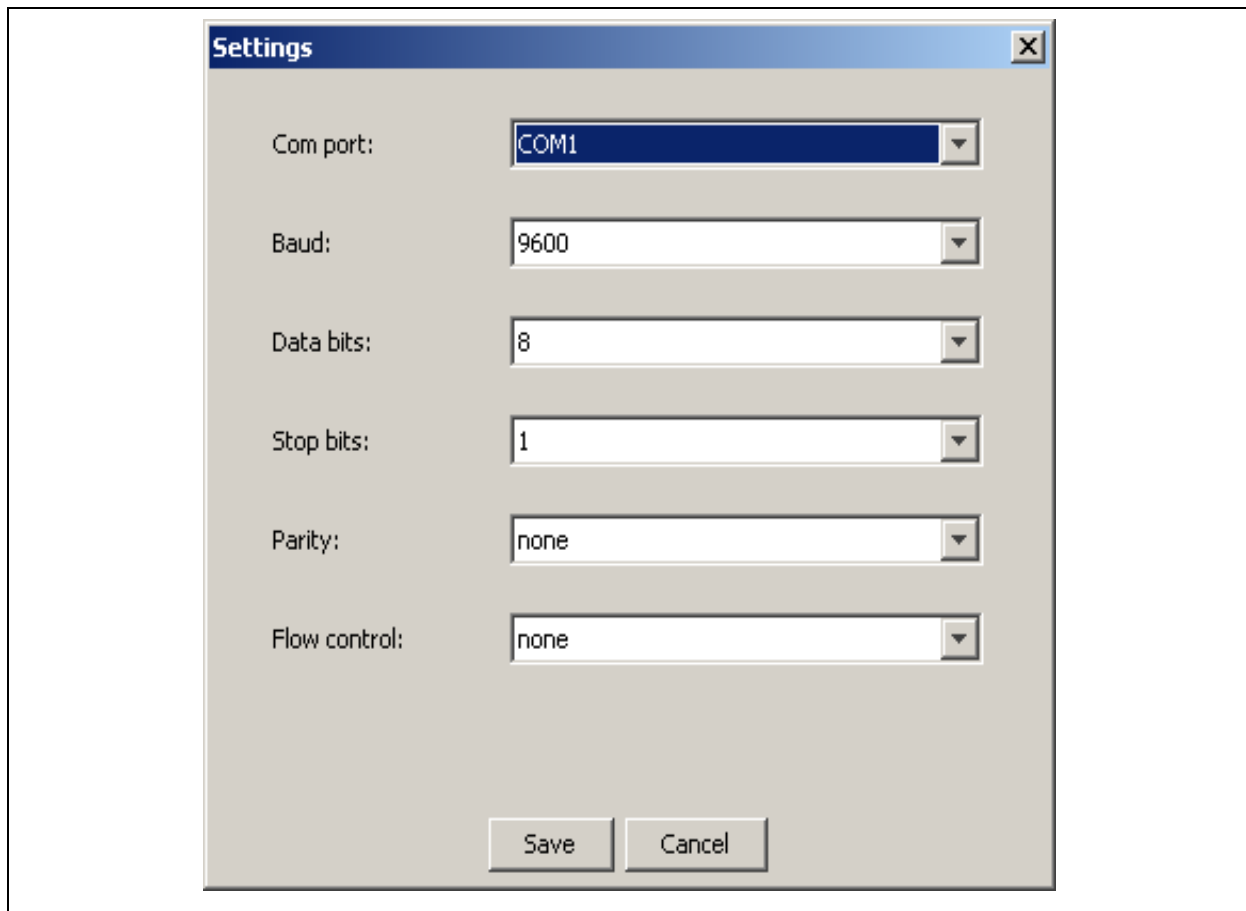


Illustration 3-11: Com-Port settings

3.2.3 Service Supplier's Address

If you act as a service supplier, you have the option to assign a service supplier's address which will then be shown on the printed reports. In order to insert a service supplier's address, click on "Settings" -> "Service address" (see Illustration 3-12 below).



Illustration 3-12: Service Supplier's Address menu

A dialogue window where you are requested to enter the particulars of the address will appear. The entered data will be accepted and saved by clicking on the "Save" button. Click on "Chancel" if you want to close the window and to reject the entered data.



Illustration 3-13: Service Supplier's Address window

If you want to delete the service supplier's address from the report, open the input window for the service supplier's address and delete the particulars from the entry boxes. Then click on "Save" to finally delete the service supplier's address.

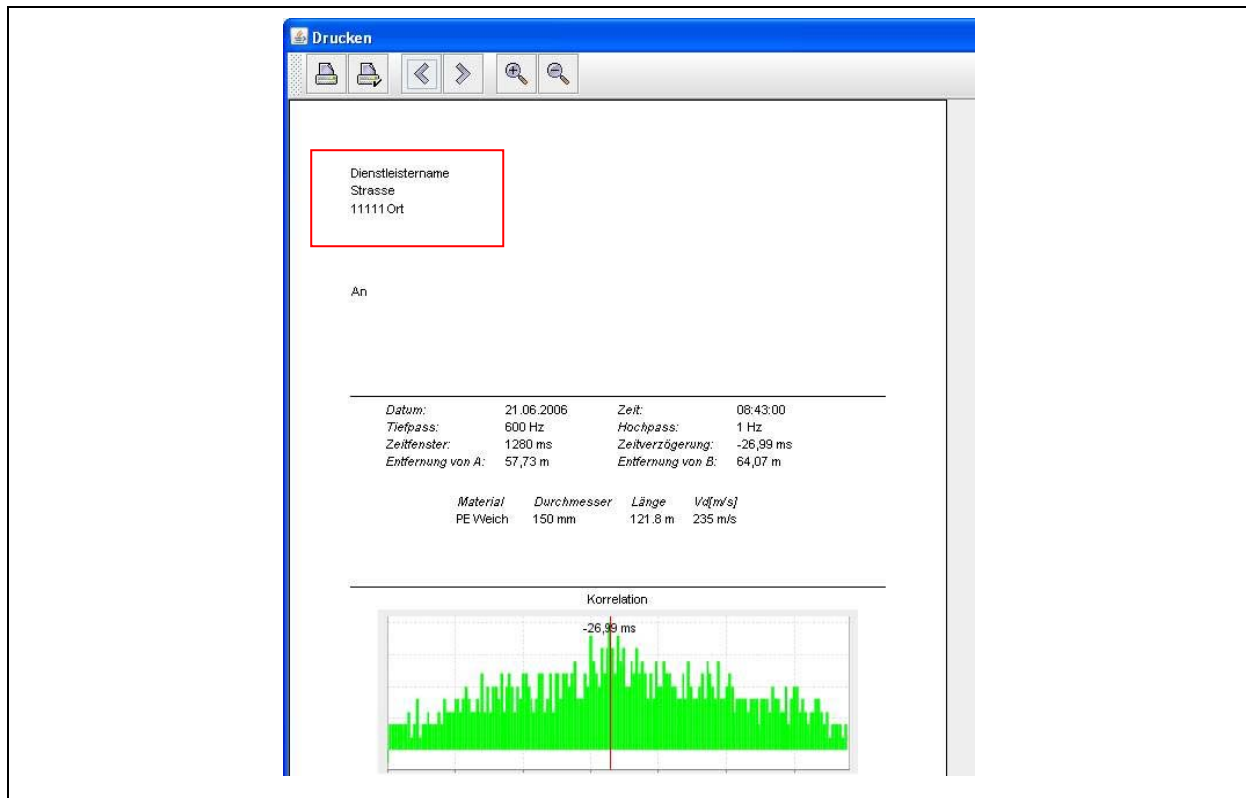


Illustration 3-14: Service Supplier's Address print-out

3.3 Help

3.3.1 Information Window

The Help menu offers an information menu level where the current version of the Lokal 300 Printmonitor software is indicated and where you will find some information on how to contact us (see Illustration 3-15).



Illustration 3-15: Information window

4 Window Functionality

The following chapter is to provide an overview of the window functionalities of the programme. Chapter 4.1 is to describe the “*Data Section*“ where the measurement parameters used for a certain measurement procedure are displayed. Chapter 4.2 contains the “*Diagram Section*“ where the measurements are displayed graphically.

4.1 Data Section

The left-hand part of the main window shows a breakdown of the set measurement parameters and of the read-out values related to the particular measurement procedures (see Illustration 4-1). The particular values are explained below.

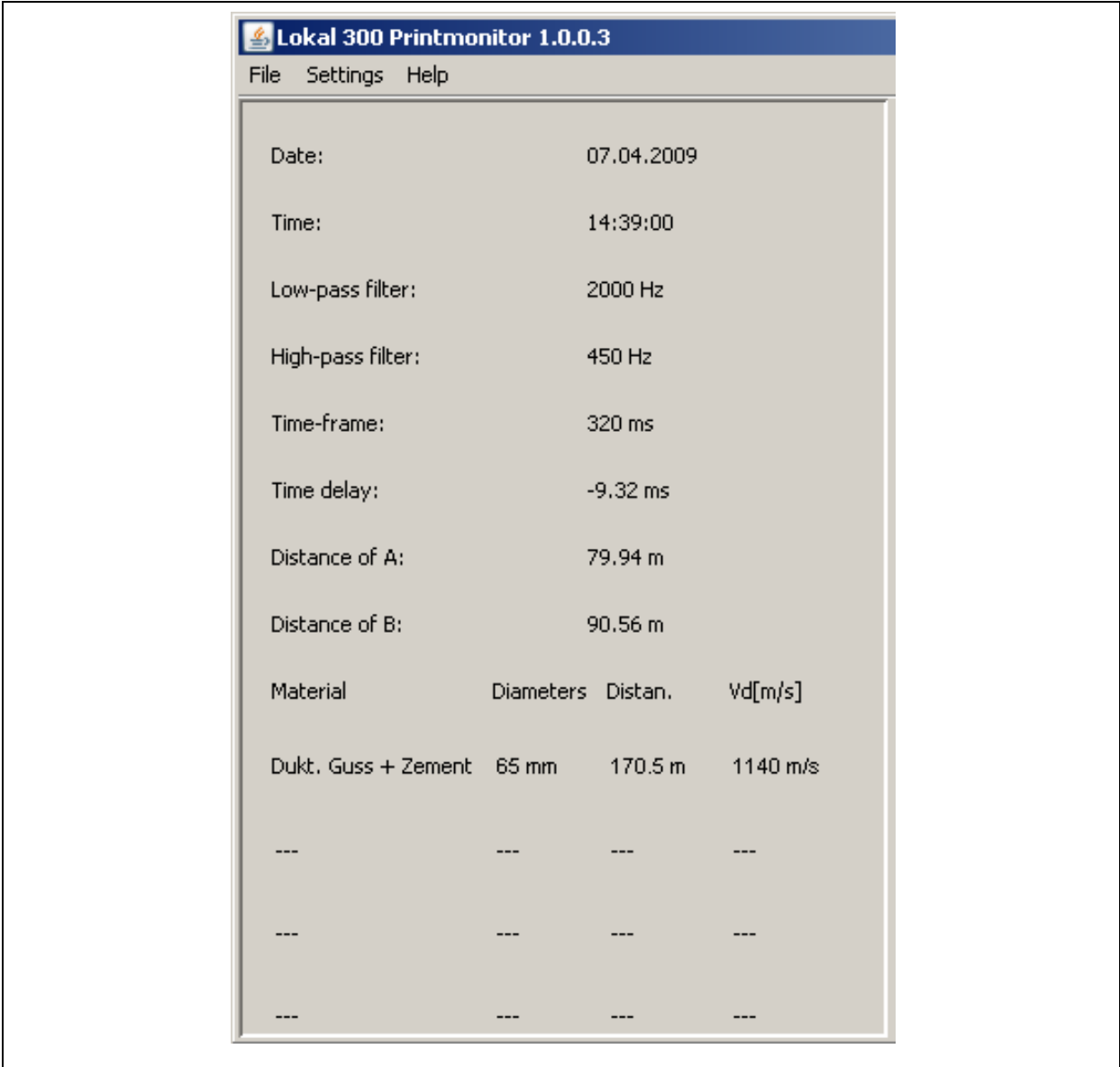


Illustration 4-1: Data Section window

The first two points indicate the date and the time when the measurement was carried out. The next point shows the low-pass and high-pass filters set for the measurement. These filters can be used to filter any disturbing noise. The next value shows the time frame as well as the time delay of the measurement, indicated in [ms].

The time frame indicates the propagation time in [ms] the signal required to travel from the middle of the section to pick-up A and pick-up B, which in the example shown in Illustration 4-1 above means a total of 320 ms in direction A and 320 ms in direction B.

The time delay indicates whether the leakage is located closer to pick-up A or closer to pick-up B. A negative time delay means that the leakage spot is closer to pick-up A, and a positive time delay reveals that the leakage spot is closer to pick-up B. The time delay reflects the value ΔT which is used to determine the distance between the leakage spot to the pick-ups in [metre]. This calculation is based on the sonic velocity related to the set material properties.

In addition, the lower part of the illustration shows the set material properties which constitute the basis for the measurement (see Illustration 2-5). For measurements on sections featuring different pipe and material properties, you have the option to set up to four different properties, which will be used for the determination and calculation of the leakage.

4.2 Diagram Section

The values of the measurement are displayed graphically in the diagram section. The upper part graphically shows the correlation, the lower part graphically shows the coherence between the set high-pass and low-pass filters with a bar chart. The peak of the correlation function is also graphically highlighted in the correlation programme. The functions available are described below.

4.2.1 Functions of the Diagram Section

Both diagram windows offer functions to scale up and to scale down the diagrams and to auto-adjust them. These functions are available through an object menu. Click on the right mouse key when the cursor is on a diagram in order to call this object menu.

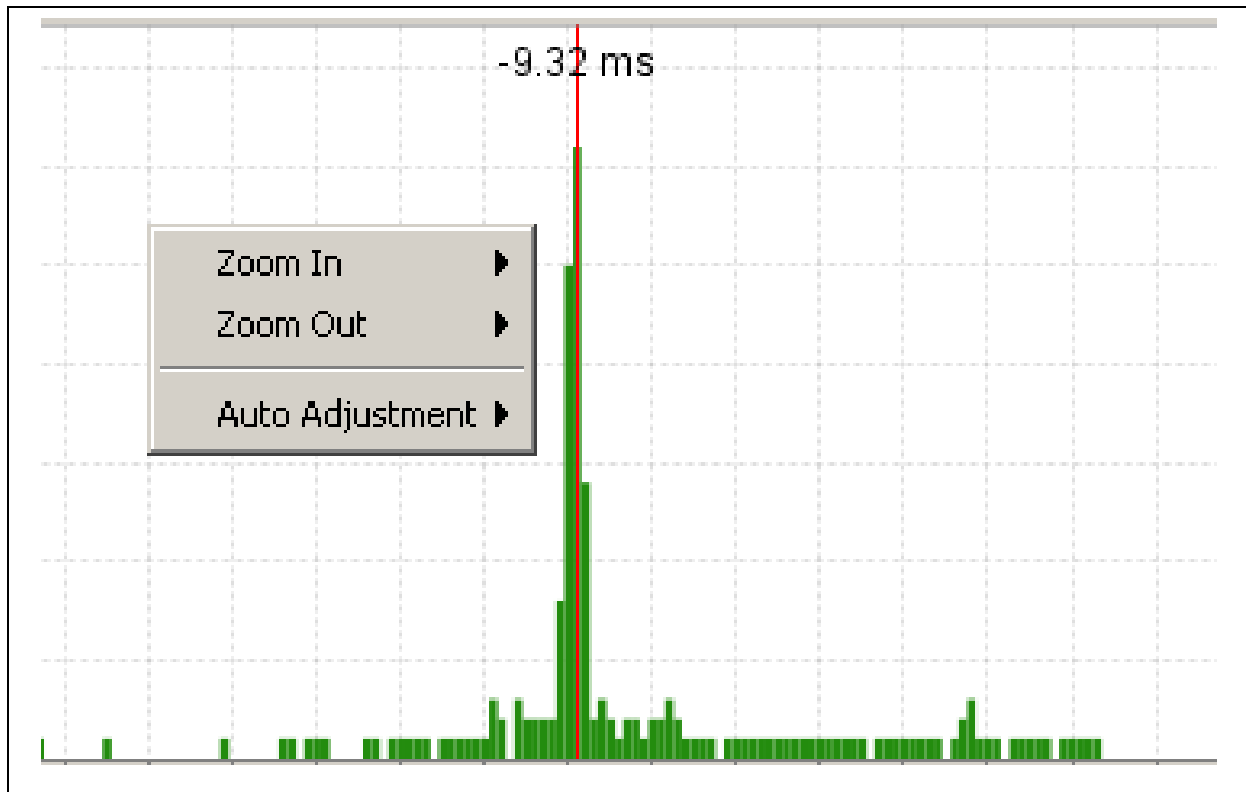


Illustration 4-2: Object menu

4.2.2 Scaling up the Map

If you intend to scale up a diagram, call the object menu and click on the "Zoom In" button. You can now scale up either only the horizontal axis, or only the vertical axis, or both axes at the same time.

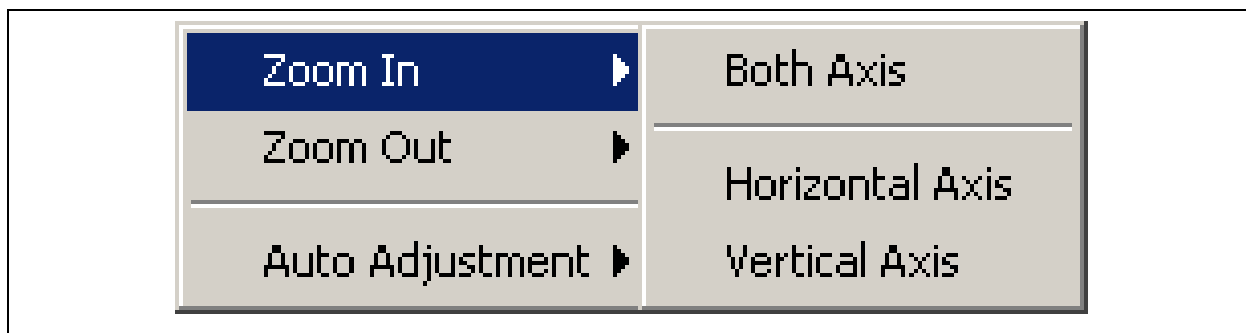


Illustration 4-3: Zooming in object menu

As an alternative, you can also scale up the graphic with the mouse. Press the left mouse key, keep it pressed, and highlight the area you intend to scale up. When you release the left mouse key, the area you selected will be displayed in a scaled-up way.

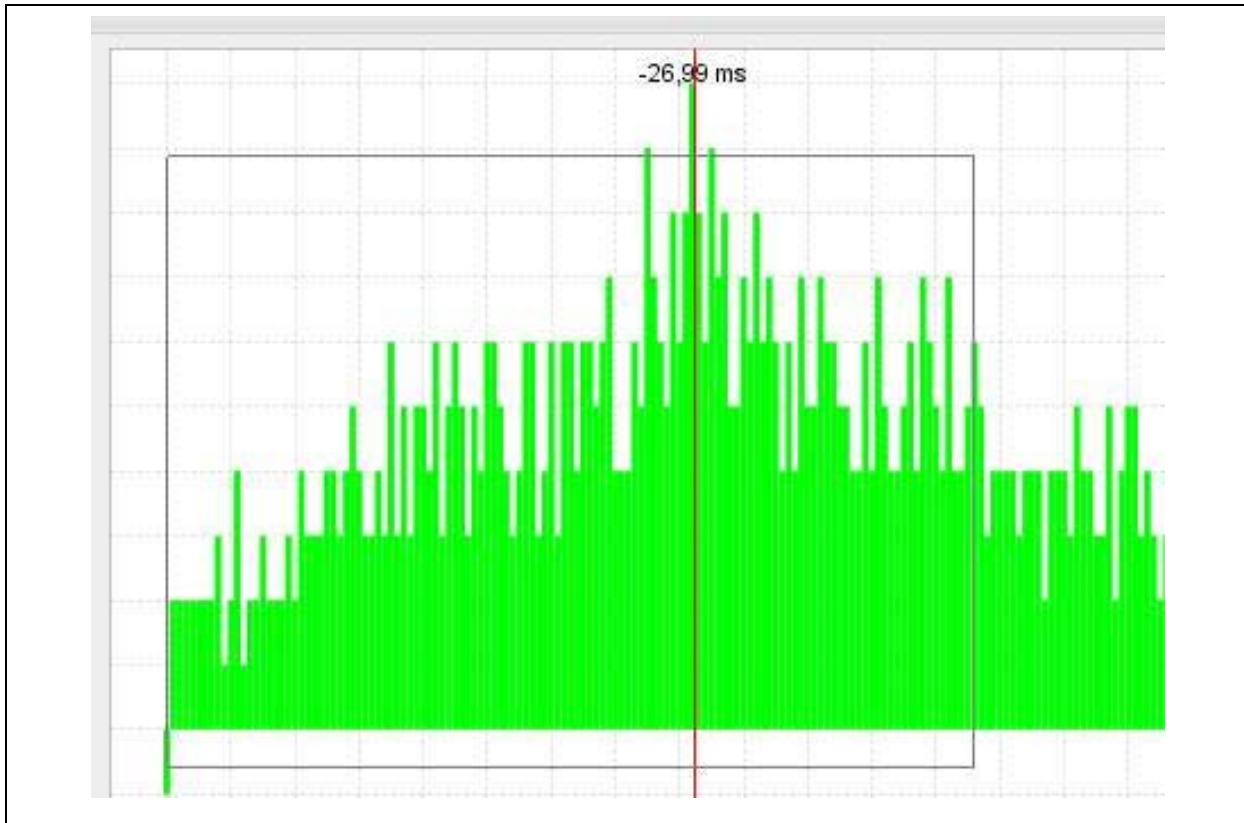


Illustration 4-4: Scaling up with the mouse

4.2.3 Scaling down the Map

If you intend to scale down a diagram, call the object menu and click on the "Zoom Out" button. Here as well you can scale down either only the horizontal axis, or only the vertical axis, or both axes at the same time.

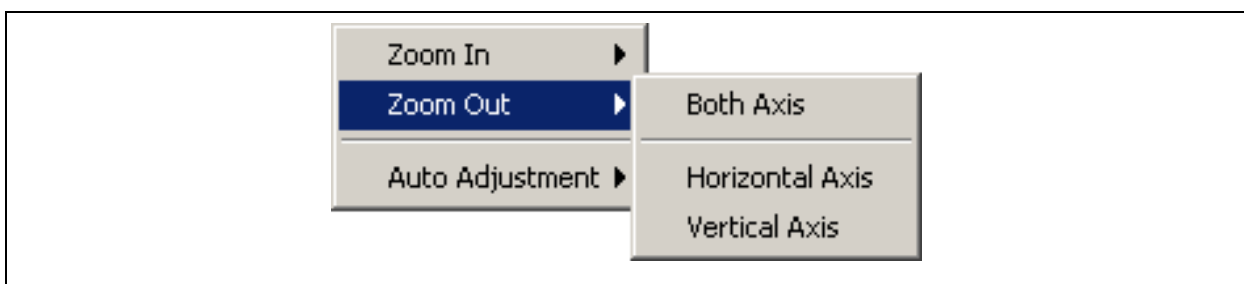


Illustration 4-5: Zooming out object menu

4.2.4 Auto-adjustment

Click on "Auto Adjustment" in the object menu to call the auto-adjustment function. This function is to fit the diagram in an optimal way into the window so that the visible area is as large as possible. Here as well, you can choose which axis (horizontal, vertical, or both) you wish to adjust.

As an alternative, you can control the auto-adjust function with the mouse. In order to do so, keep the mouse key pressed and draw the mouse a little bit to the left or to the top. When you release the mouse key, the diagram will be auto-adjusted in both axes so that the visible area is as large as possible. The auto-adjustment function works only if the graphic has been scaled up to a smaller section beforehand.

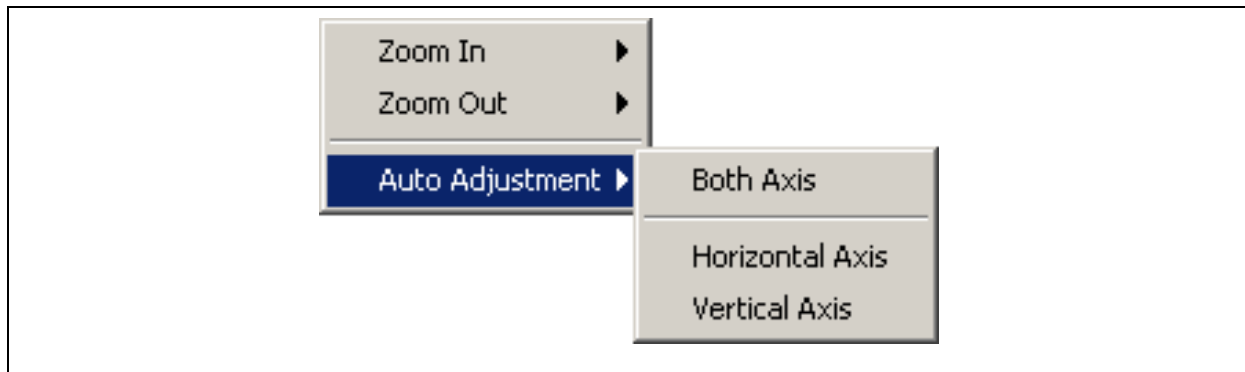


Illustration 4-6: Auto-adjustment object menu

4.3 Reading out the Lokal 300 Data

In order to read out the data provided by the Lokal 300, start the "Lokal 300 Printmonitor" programme.

Hint:

Please note that the data cannot be read out with a customary serial cable. You need a null modem cable with crossed data links or a null modem adapter for the serial cable in order to be able to read out the data.

Please ensure that all settings for the serial interface have been made correctly and that the appropriate Com-Port has been selected (see also Chapter 3.2.2). There is no need to make further adjustments in the programme.

Connect the Lokal 300 with your PC and switch in on. Change to the "Save/Load Measurement" category in the correlator (see point 1, Illustration 4-7) and confirm by pressing the "E" key on the Lokal 300 device.

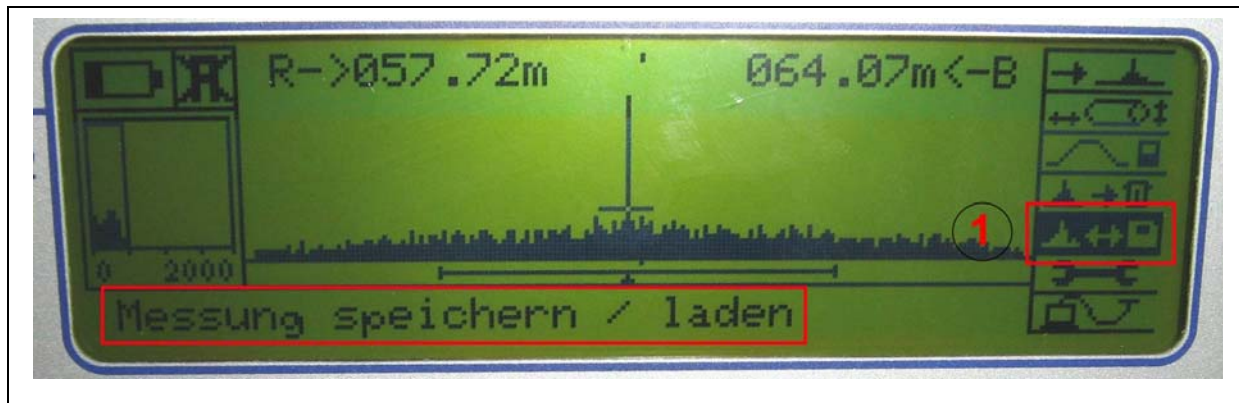


Illustration 4-7: Saving/loading a measurement

The measurements saved in the correlator will be displayed now. Select the measurement (see point 2, Illustration 4-8) you want to have displayed in the "Lokal 300 Printmonitor" programme.

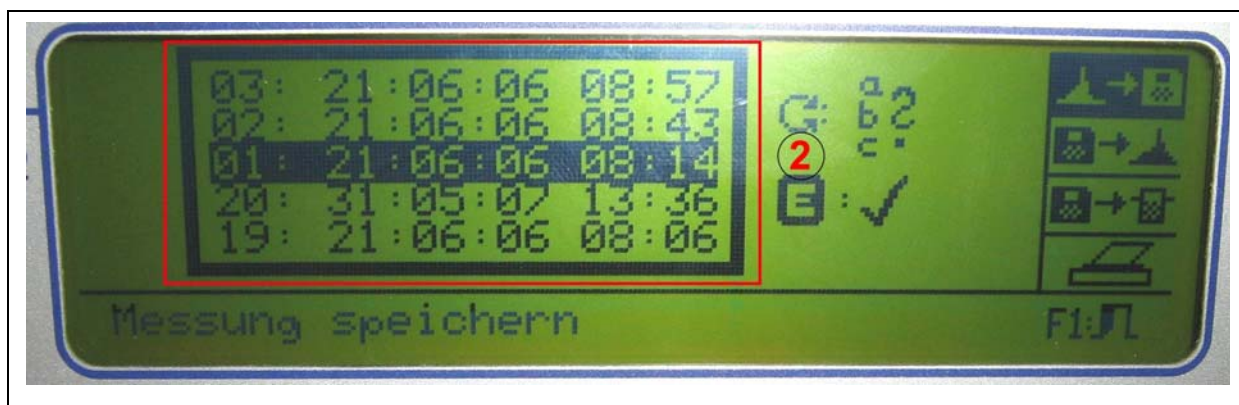


Illustration 4-8: Selecting a measurement

When you have selected the desired measurement, go to "Load Measurement" (see point 3, Illustration 4-9) and confirm by pressing the "E" key on the Lokal 300 device.

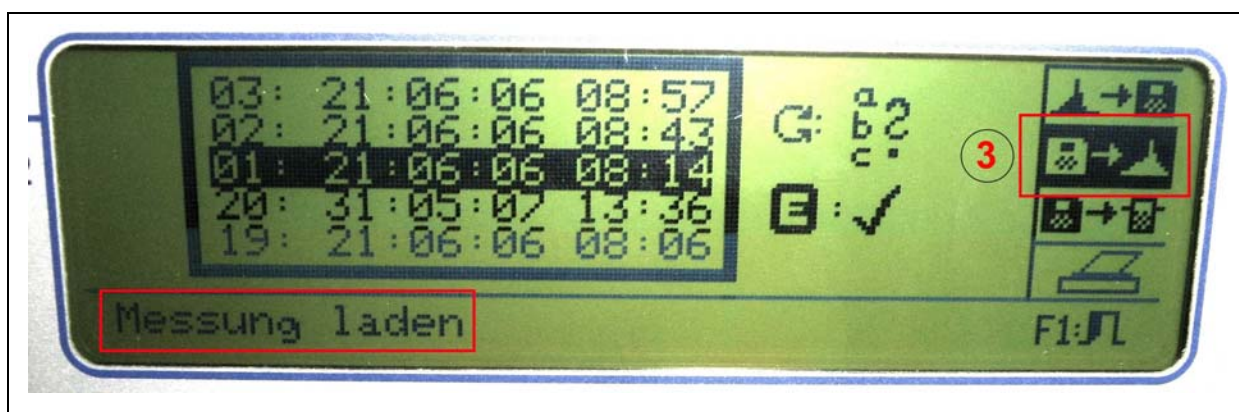


Illustration 4-9: Loading a measurement

When you have pressed the “E” key, the measurement you have selected will be loaded. Once the measurement has been loaded, you are requested to select the ”Print“ function of the Lokal 300 (see point 4, Illustration 4-10) and to confirm again by pressing the ”E“ key.

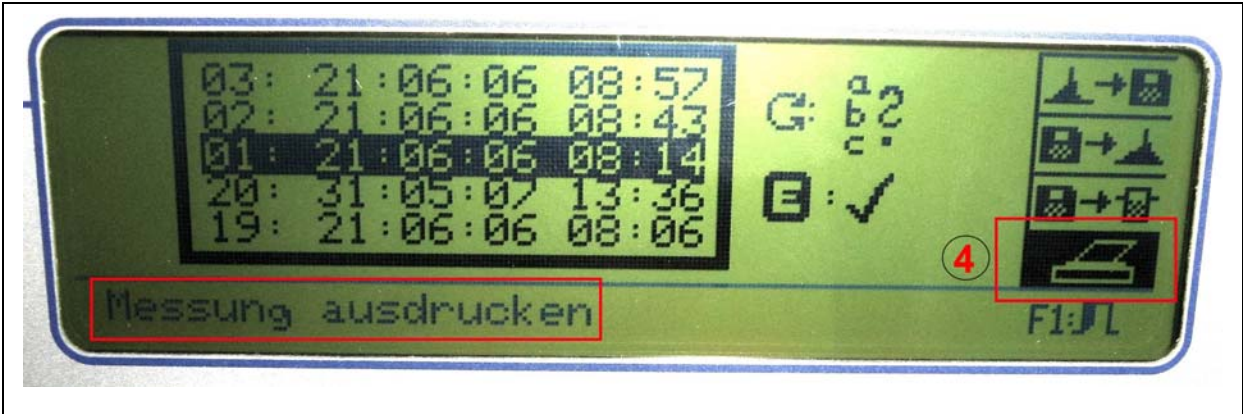


Illustration 4-10: Printing out a measurement

When you have pressed “E” and thus confirmed the printing process for the particular measurement, this measurement will be sent to the PC, and the ”Lokal 300 Printmonitor“ programme will receive the data transmitted by the correlator. This data will then be displayed.



Illustration 4-11: Printing out a measurement

When you see the view as shown in Illustration 4-11, the data is being sent to the ”Lokal 300 Printmonitor“ programme and is displayed by the programme as shown in Illustration 4-12 below.

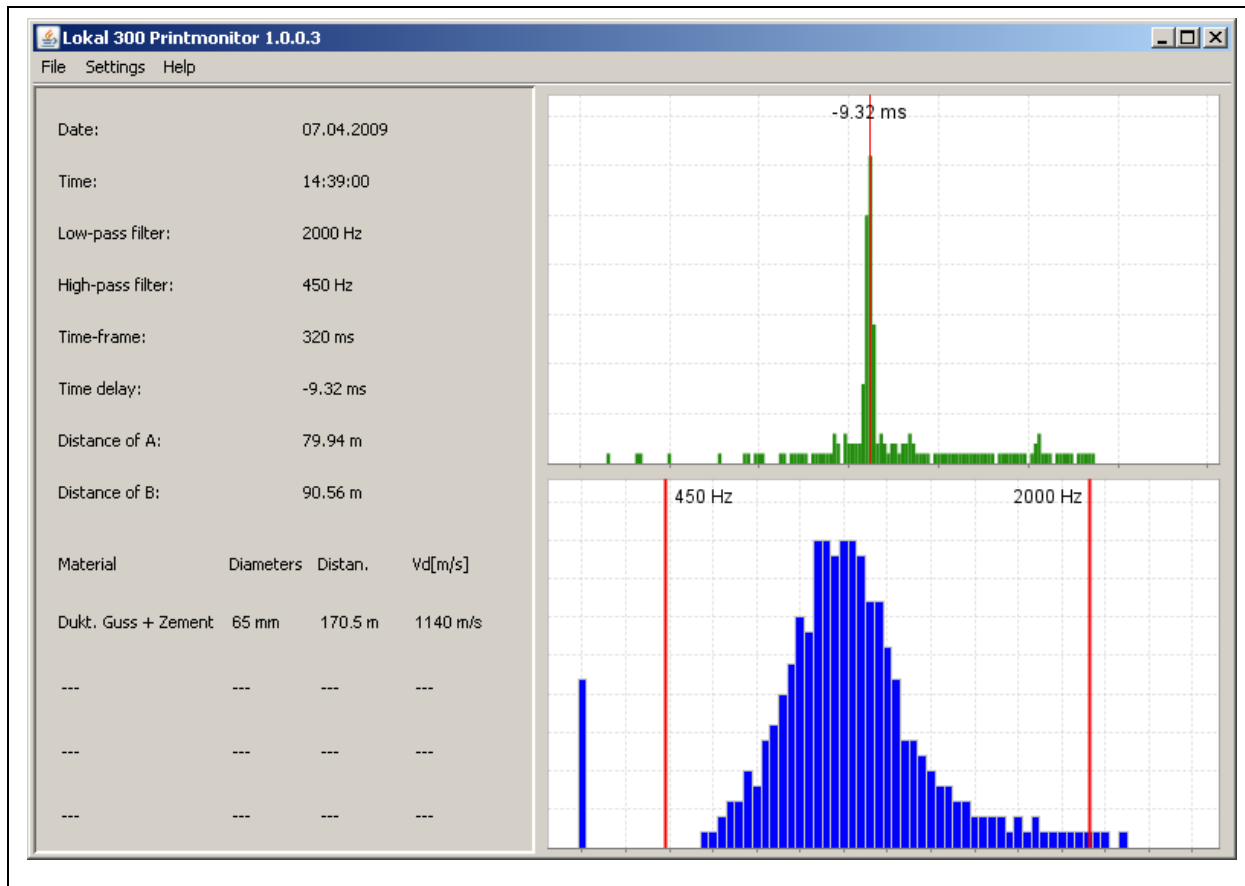


Illustration 4-12: Measurement displayed by the programme