

Instruction Manual for NivuMaster Software

Ultra PC and BlackBox PC

(Original Instruction Manual – German)



valid as of Software Revision 4.xx

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Translation

In case of delivery to EEA countries the instruction manual has to be translated into the language of the user's country.

If discrepancies in the text should occur, the original instruction manual has to be referred to or the manufacturer has to be contacted for clarification.

Use of names

The use of names, trade names, product names and the like in this manual may be protected and not everyone is allowed to use them.

Registered trademarks are legally protected, even if they aren't indicated as such in this manual.

Licence Agreement

This program is a single-seat version. The buyer is entitled to use this software on a single computer. The rights of use entitle the user to completely or partly save or copy the software on a single PC terminal, to run the programs as well as to create a backup. If used within a network each workstation is considered as a single computer which requires a separate licence from the software manufacturer or to buy an additional copy.

It is not allowed to lend or hire the software. It is allowed to sell the software to third persons. The vendor will forfeit every right to use the software by selling the product. By this act he is committed to erase and delete the software from any data carrier remaining under his ownership. Furthermore the vendor is committed to inform the vendee about the regulations of this licence agreement as well as about the fact that the vendee cannot claim further rights than the vendor had before.

It is not allowed to decompile, re-develop and disassemble the software.

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Im Taele 2

D-75031 Eppingen

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2 Overview and use in accordance with the requirements

2.1 Overview



Fig. 2-1 Installation Screen

2.2 Use in accordance with the requirements

The NivuMaster PC-Software package is a compilation of several software tools. This manual will describe how to use and to operate the UltraPC and BlackBox-PC programs. The software tools are powerful tools providing best results regarding the evaluation of you ultrasonic measurements.

The software is for measurement place analysis by means of echo profiles and to program and to save all parameters of your application e.g. on floppy disk or harddisk.



Please make sure to use units with the same firmware version for transmission of parameter data. Otherwise there might be compatibility problems occurring.

In order to request a comprehensive analysis send the data saved to >level@nivus.de<. If you do not have an Internet connection available print paramters or echo profile and fax them to NIVUS (Fax: +49 (0)7262 9191 999).



This handbook is to describe all functions of the NivuMaster PC-Software (UltraPC and BlackBox PC).

In order to generally get used to NivuMaster PC-Software operation we recommend to thoroughly read the provided handbook and to install the software subsequently.

The software will run for a period of 30 days without a licence.

An unlocking code will be required after that period has expired.



This software is intended to be used according with the purposes mentioned above exclusively.

Modifying or using the software for other purposes without the written consent of the manufacturer will not be considered as use in accordance with the requirements.

Any damage resulting from misuse is entirely left at user's risk.

2.2.1 Notes to the user

The software manufacturer is assuming that the reader/user is familiar with the basics of the operating system (Windows9X, 2000, ME or Windows XP) and particularly how to operate it. Operational elements such as e.g. mouse, windows, buttons and similar will not be explained separately but knowledge about this is assumed.



The manufacturer is not responsible for faults, data loss or problems resulting from faulty knowledge about these basics.

2.3 System requirements

Operating System	- Windows® 9X, 2000, ME, XP
RAM	- 256MB recommended
Hard Disk Space	- Program: approx 6 MB; (installation: approx. 6-7MB) - Data: varying (depending on application)
Processor	- 133 MHz (minimum)
RAM	- 32 MB (minimum)
Connections	- serial interface RS232
Graphics	- 800 x 600 or higher

The NivuMaster PC-Software (UltraPC and BlackBox PC) was tested under the operating system mentioned above. Though it was placed great importance on being compatible with other operating systems during development we cannot guarantee proper function under other operating systems.

Regarding this handbook, an installation under another operating system than mentioned above means a "faulty installation".

The program requires approx. 6 MB of space on your hard disk drive. However it is necessary to have a lot more space in order to store measurement data. The required space may vary strongly depending on the respective applications. We recommend to designate 100 MB of free disk space at least. It is useful to individually analyze the requirements.

A serial interface RS232 is required for communication with the measurement devices. For more information on availability of these interfaces please refer to the hardware manual of your computer.

3 General Notes on Safety and Danger



Cautions

are framed and labelled with a warning triangle.



Notes

are framed and labelled with a "hand".



Danger by electric voltage

is framed and labelled with the Symbol on the left.



Warnings

are framed and labelled with a "STOP"-sign.

4 Storing, Delivery and Transport

4.1 Receipt

Please check your delivery according to the delivery note for completeness and intactness immediately after receipt. Any damage in transit must be instantly reported to the carrier. An immediate, written report must be sent to NIVUS GmbH Eppingen as well.

Please report any delivery incompleteness in writing to your representative or directly to NIVUS Eppingen within two weeks.



Mistakes cannot be rectified later!

4.1.1 Delivery

The standard delivery of the NivuMaster PC-Software contains:

- instruction manual with the certificate of conformity. Here, all necessary steps to correctly install and to operate the software are listed.
- software CD (UltraPC or BlackBox PC) with single-seat licence
- connecting cable; Type NM00KABEL9POL00

Additional accessories depending on order. Please check by using the delivery note.

4.2 Storing

The following storing conditions must be strictly kept:

- Keep the CD in a dry and cool place and keep it away from strong electromagnetic radiation.

4.3 Return

The units must be returned at customer cost to NIVUS Eppingen in the original packaging.

The return cannot be accepted otherwise!

5 Installation and Connections

General

The initial installation and the software setup should be carried out by the NIVUS initial-start-up service. In case of faulty or wrong installation any guarantee claims will expire.

5.1 Installing Your Software

The software is compatible to WINDOWS operating systems.

Prior to installing the software make sure that the auto start function of your PC is enabled and your computer meets the system requirements (see Chapter 2.3). Terminate all other applications if possible before you begin to install the program. Make sure to have administrative rights on the respective PC. It is not possible to install the software without having administrative rights.

1. Put the CD >NIVUS Software Tools< into your CD-ROM drive.
The CD will start automatically if the AutoStart function on your PC has been enabled. The screen below will come up (Fig. 5-1) as soon as you have chosen your language. If the CD should not start automatically, please access the CD-ROM drive of your PC manually.
2. Double-click on >start.bat< to start the CD menu.
Once having the menu opened you can see the options below. Select your language and your type of device subsequently. To install the software for the desired unit click on the respective symbol and follow the instructions on the screen.

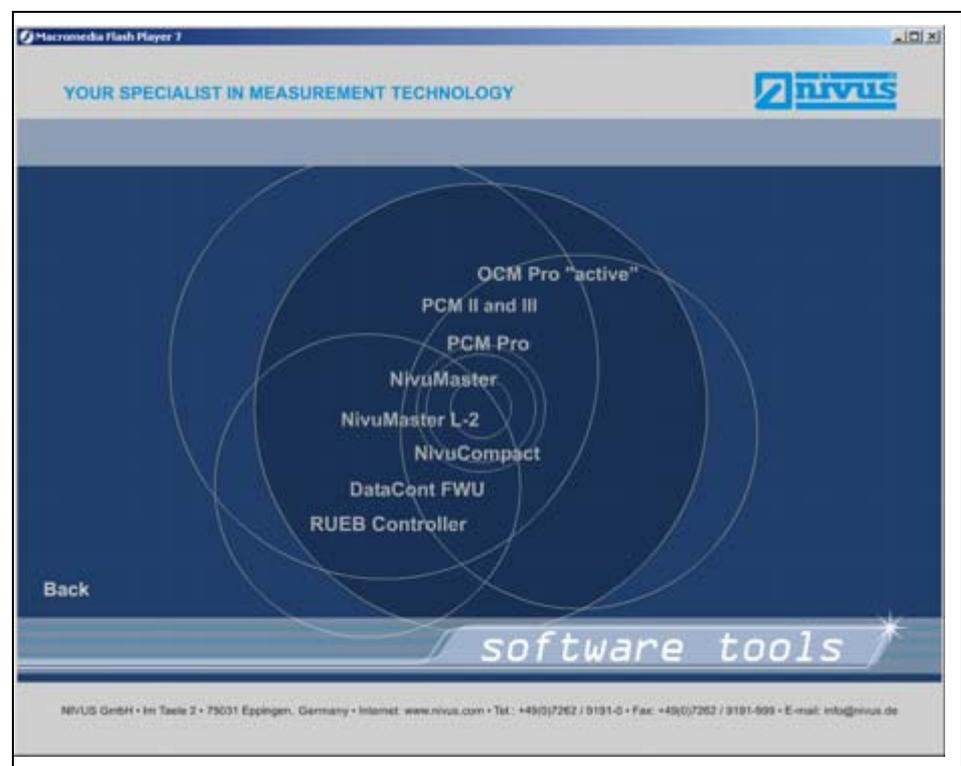


Fig. 5-1 Selecting unit software

The NivuMaster PC-Software will create a sub-folder named >UltraPC< or >BlackBoxPC< under C:\Programs\ (Version xx.)

5.1.1 Copyrights

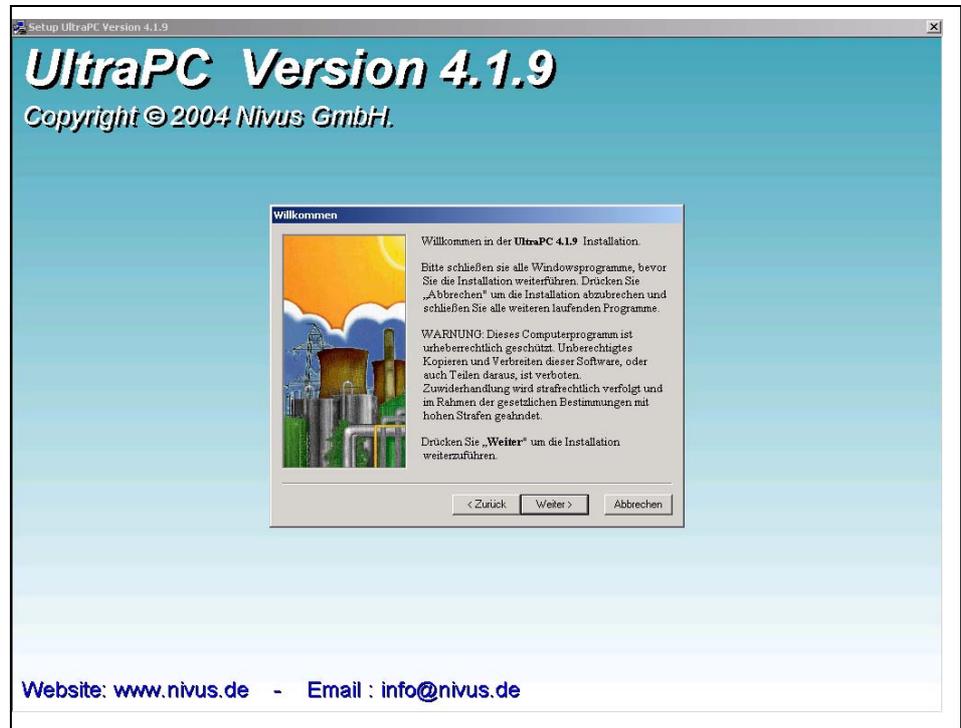


Fig. 5-2 Hints on copyright

5.2 Connection Details

Connection between PC/Laptop and NivuMaster is via a standard RS232 serial interface of PC/Laptop and NivuMaster. The required connecting cable, Type NM00KABEL9POL00 is included in the delivery (chapter 4.1.1).

Connection to the Ultra integrator is done via an RJ12 plug. The connector socket can be found in line with the terminal blocks on the reverse side of the panel mount enclosure and on the front side of the 19" slide-in unit (see details below):

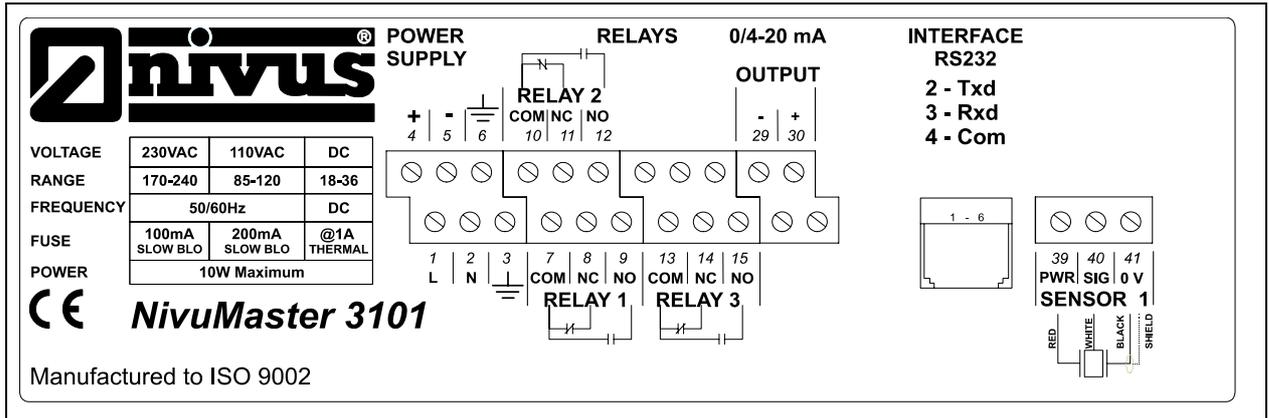


Fig. 5-3 Wiring Diagram Wall Mount Enclosure

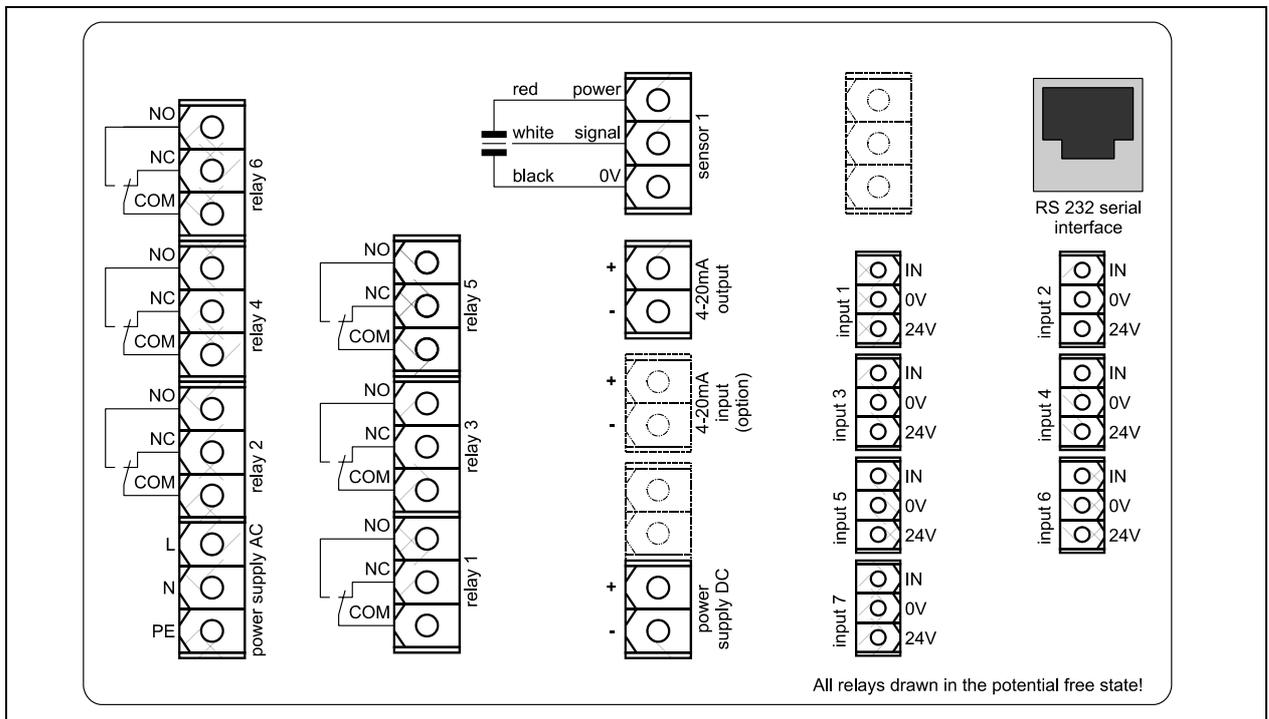


Fig. 5-4 Wiring Diagram Panel mount

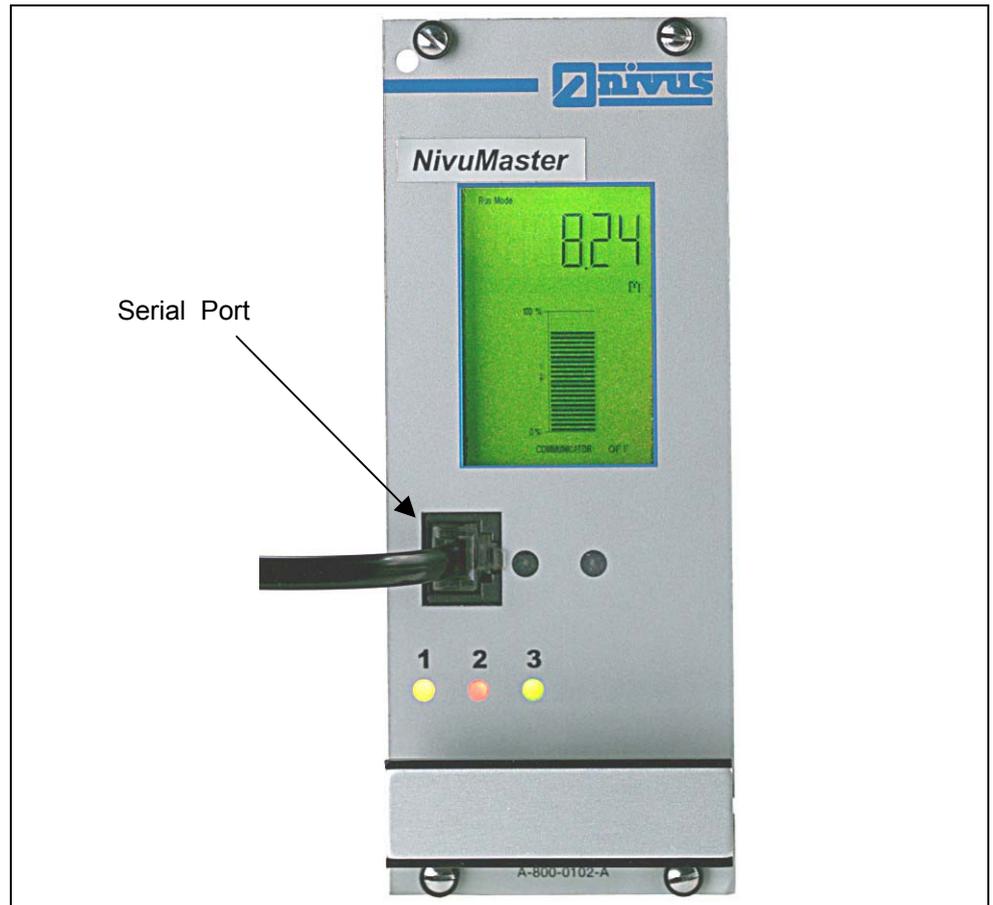


Fig. 5-5 Connection Rack and Panel

5.3 Updates

The latest software versions are available for free download from the NIVUS homepage www.nivus.com.



Please consult the NIVUS head office in order to make sure that your NivuMaster is compatible with the current PC software.

Otherwise there might be compatibility problems with older unit software occurring.

5.4 Further Notes

- Please keep the installation CD in a safe place.
- You are allowed to copy this CD and to pass it on.
- The conditions of use you agreed to on installation are valid.
- Please check regularly if there is a new PC software available.

6 Using the Software

6.1 General

The design of the user interface refers to the WINDOWS standard. This ensures a simple, standardized and clear user interface, which is highly comfortable and helps to avoid mistakes in operation. The intuitive user dialog enables even inexperienced users to easily learn how to operate the program.

6.2 The NivuMaster PC-Software Program Functions

In order to run NivuMaster PC-Software once the installation is complete, double click the shortcut icon that has been installed onto your desktop. This will open the initial screen as shown below. (see Fig. 6-1).



Fig. 6-1 Start screen

On the initial start of the software you are going to be prompted to enter the authorisation code which you can request by using the licensing form available from the NivuMaster software CD. Send the key indicated in >Software Code<, your details as well as your type of unit used by fax to NIVUS or mail to level@nivus.de.

You will receive your authorisation key within the next working days by mail or fax.

In order to continue press the “Remind me later” key. You will be requested to enter your password. (Fig. 6-2).



You need to have administrative rights to unlock the software.

The NivuMaster PC software will run for a period of 30 days without being registered!!!

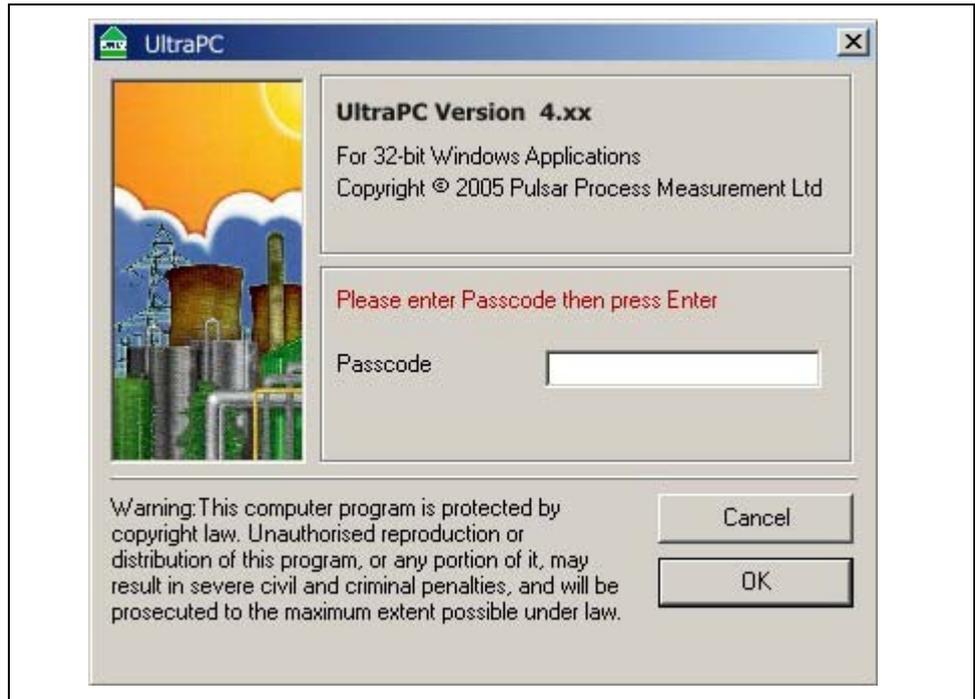


Fig. 6-2 Password Request

Type in the password (default = 1997) and press the >Enter< key on the keyboard or >OK< to run your program. The program can now be used by users without administrative rights as well.

6.3 The Start Screen

Once having the NivuCompact PC software opened you will see a display similar to the one below (see Fig. 6-3)

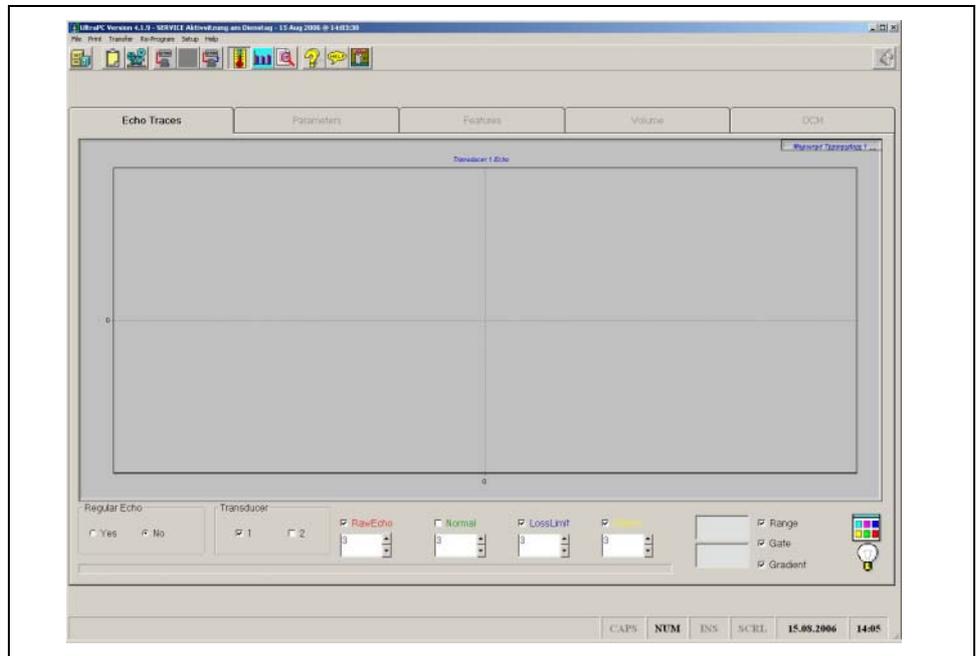


Fig. 6-3 Start Screen

The start screen is going to indicate any options available. Some options are greyed out and cannot be used before e.g. parameters have been downloaded from the unit or an existing parameter file has been opened. The volume and OCM (volume measurement) settings can be displayed only if the NivuMaster parameters have been set respectively. To achieve this either parameters from the unit have to be downloaded or an existing parameter file which is using the respective unit settings must be opened.

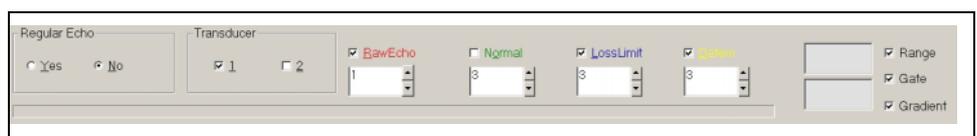


Fig. 6-4 Display parameters for echo profile

Point (1) Update Echo

Either enable or disable the current echo signal transmission from the connected NivuMaster (see Chap. 5.2) by using the function Update Echo >YES/NO<. The echo signals are subdivided as described in Fig. 7-1.

In case of an error message appearing please refer to Chapter 8 of this manual.

Point (2) Sensor

This point is to define how many sensors are to be indicated simultaneously in case of e.g. comparative measurements (see Chap.7.1.1).

Point (3) Progress Lines

You can set the update rate of individual progress lines here.

The lower the value set, the more often progress lines are going to be updated.

Point (4) Position Indicator

The fields indicate both distance as well as amplitude level of the current mouse position within the evaluation window. Use this tool in order to measure and, if desired, to record an echo signal in various positions/areas.

Point (5) Display

The button >Area< serves to either show or to hide near and far area. Clicking the >Window< button will turn the measurement window on or off, the button >Slope< is going to either turn on or off the gradient of the background colour (increasing contrast from bright to dark).

Zooming into Echo Profile Areas

It is possible to zoom into a certain echo profile area. To zoom in, mark the desired area by drawing the mouse from top left to bottom down while holding the left mouse button down. To get back to normal view, move the mouse as described previously from bottom right to top left. You are free to use any desired area of the profile.

6.4 Communication Port Configuration

Once the NivuMaster PC-Software is open click on >Settings<, choose your Com Port and then press "Save" and "Exit".

The NivuMaster PC-Software will set up the Com port you will be using to the following configuration::

- Baud Rate 19200,
- 8 (data bits),
- 1 (stop bit),
- N (no parity).

After exiting >Setup< go to > Regular Echo < at the bottom left of the screen and press > yes <.

After a few moments an echo profile should appear. If an error message comes up, consult the troubleshooting section of this manual Chapter

6.5 Security and Passwords

Your NivuMaster PC-Software will cease to function after 30 days unless it has been registered with us and you have received your unique authorisation code. The program has two layers of password protection. The password is entered at the opening screen (Fig. 6-2).

- | | |
|-------------------|---|
| 1997 | The operator pass code will enable access to all parameters required to program your application. |
| Service pass code | This Code will give you access to service parameters which can be used to enhance the functionality of the Ultra unit in difficult applications. These settings however should be performed only with the support of NIVUS personnel. |

6.6 Drop-Down Menus

The drop-down menus as well as the icons are deactivated if the echo profile is active. Please deactivate the "Update Echo" function in order to access the menus.

6.6.1 File

The >File< menu serves for opening echo or parameter files. It additionally will close the NivuMaster PC-Software or the device connection. Parameter files can be saved only if the parameters have been transmitted to the NivuMaster before.

6.6.2 Print

The print menu gives you three options.

- | | |
|-------------------------|---|
| Print echo traces | will open a tee chart preview of the current displayed profile which you can alter to suit your requirements before printing. |
| Print parameter list | prints (all) parameters |
| Print changed parameter | prints only parameters that have been changed from their factory default values. |

6.6.3 Transfer

The transfer menu enables you to get parameters from the unit, send parameters to the unit, and program single parameters. These three options, are mimicked by the icons (see chapter 6.7) with the Computer and Ultra motif. For sending and receiving parameters follow the on screen commands. When you have uploaded the parameters from your unit a list of changed parameters will appear in the right hand side of your screen, pressing the toggle parameters icon (fourth from right) will, alternately clear the screen, show all parameters, clear the screen and show changed parameters again.

For single parameter programming, press the connector icon and, when the Interactive Programming display window appears, press the connector icon, this will connect your computer to your unit, key in the required parameter number, and press the read key. Set the value to the required amount and press send: the modifications will be verified.



Note:

pressing the Hard Default or Factory Default icons will restore factory parameters to your unit and information will be lost if not previously saved.

6.6.4 Settings / programming

In this menu you can assign the COM port the NivuCompact is connected to.



Only via access code 552621

The NivuMaster PC-Software is multilingual. Toggle between the languages (currently German, English and French) during operation.

Enter the code >552621< to enable this option.

The settings will be saved by clicking the >Floppy< symbol. Exit the menu by clicking on >Cancel<. Entries will be aborted without being saved.

6.7 Icons

The symbols (icons) are for straightforward operation of the NivuCompact PC software. If an icon is greyed out then that function is not accessible (e.g. chapter 6.6)

File



Clicking on this icon will enable you to search for any echo profiles or parameter files that you wish to open, view, or examine.

Clipboard



Clicking on this icon will paste the current viewed echo profile into your clipboard, from where it can be pasted into a document such as "Word" for recording, viewing or reporting.

Recording



Clicking on the Record icon will open a small sub-screen. (see chapter 7.1.1)

Parameter Manipulation

The next three icons are to do with parameter extraction, parameter download and single parameter programming.



This icon enables you to get parameters from the NivuCompact. Please follow the on screen commands.

After transmitting parameters from the NivuCompact a list of the modified parameters will be indicated on the right-hand side of the screen.



Pressing >  < will toggle between

- „Erase display“,
- „Show all parameters“
- „Erase display“
- „Show modified parameters“.



This icon enables you to send parameters to the unit.



Enter single parameters. (Direct programming):

display window >connection< appears. This will connect your computer to your NivuCompact. Key in the parameter number required and press the >read< key. Change the value to the required amount and press >send<, the changed will be verified..



Note: pressing the Hard Default or Factory Default icons will restore factory parameters to your unit and information will be lost if not previously saved.

Temperature Display



Clicking on this icon will enable a small graph of temperature in the top right hand corner of the screen to be displayed. Clicking the icon again will switch the display off (temperature values are going to be indicated only if the NivuMaster echo evaluation has been enabled, see Fig. 7-1 Point 1).

Level Display



Clicking on this icon will enable a small graph of level in the top right hand corner of the screen to be displayed. Clicking the icon again will switch the display off (level values are going to be indicated only if the NivuMaster echo evaluation has been enabled, see Fig. 7-1 Point 1).

Status Display



Clicking on this icon will enable a small list of relevant information about the performance of the unit to be displayed in the top right hand corner of the screen. Clicking the icon again will switch the display off (status values are going to be indicated only if the NivuMaster echo evaluation has been enabled, see Fig. 7-1 Point 1).

Modified Parameters Display



When you have uploaded the parameters from your unit (or from your laptop) a list of modified parameters will appear in the right hand side of your screen.

Pressing the >toggle parameters< icon (fourth from right) will:

- - clear the screen
- - show all parameters (modified parameters highlighted in red)
- - show modified parameters.

System Information



This icon will enable a small list of relevant information regarding the type of unit (e.g. software version, hardware version, number of relays etc) to be viewed. Clicking the icon again will switch the display off (this function is not available before respective parameter data has been downloaded from the NivuMaster or an existing parameter file has been opened).

Help



Clicking on this icon will bring up a screen with a list of four subjects. Re-Programming, Upload/Download Parameters, View/Record/Playback Tapes and Registration and Support. Clicking on any subject will give you some more user information.

Exit



Clicking on the exit icon will take you out of the program.



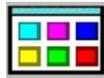
Attention: The program will terminate without saving the parameters automatically!
Therefore parameters always have to be saved manually.

Backlight Display



Clicking on the backlight icon which is in the bottom right hand corner of the screen will turn the backlight for the echo display on and off.

Background Colour



Clicking on the icon will display a colour palette, which allows to adjust the echo display background.

(only in combination with activated backlight!)

Minimieren



Minimise window (BlackBox PC only)

The program window is going to minimise and will move to the PC task bar. Clicking the minimised window on the task bar is going to maximise it again.

Modem Controls



Icon for modem setup (BlackBox PC only)

(currently not available)

6.7.1 Two Transducer Viewing

In order to view a second transducer's echo profile as in the case of a differential application, you should tick the transducer two tab at the bottom of the screen. Two profiles will now appear in the display (these will take twice as long to update). Toggling between the two will switch either on or off.

6.7.2 Cross Hairs

You can use the cross hairs as a measuring tool. Simply use your mouse to position the arrow where the measurement is required and view the readings for distance and signal return (millivolts) in the boxes at the bottom right hand corner of your display. You can also use this tool to magnify any part of the echo you would like to view more closely, use the right mouse button to draw a box around the part of the echo you wish to view. To return the display to normal draw a box on any part of the display that is blank.

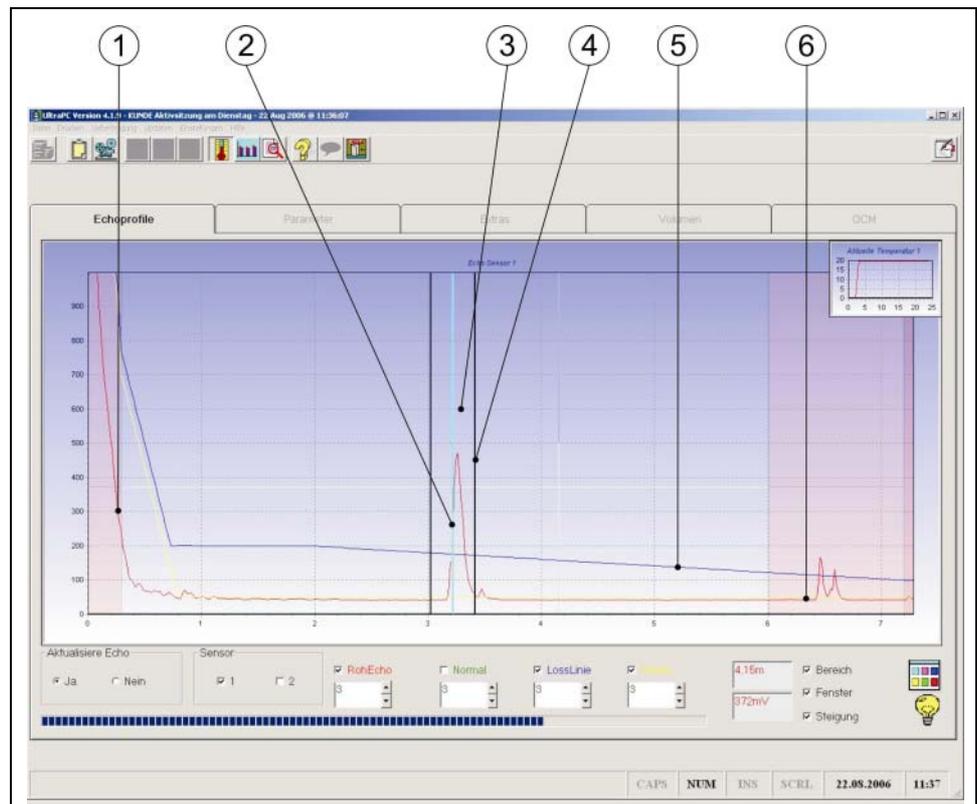
7 How to Use NivuMaster PC-Software

This chapter focuses on how to use the main features of NivuCompact PC software in greater detail:

- How to record and view echo profiles.
- How to record and alter parameters
- How to upgrade the instruments software.

The software is commonly going to be used in conjunction with installed and operated NivuMaster ultrasonic measurement units.

If the program or an active application have been opened, a display similar to Fig. 7-1 will be indicated.



- 1 Raw Echo (red trace)
- 2 Measurement
- 3 Normalisation (green trace)
- 4 Gate / Measurement window
- 5 Loss Limits (blue trace)
- 6 DATEM (yellow trace)

Fig. 7-1 Active Applications Screen

7.1.5 DATEM

The yellow trace is known as the D.A.T.E.M. trace (Digitally Adaptive Tracking of Echo Movement). This is the clever part of the system and is designed to ensure any false echoes that occur are masked out as and when they appear in front of the true echo thus ensuring the integrator maintains its fix on the true echo. Other ultrasonic units can be set up at the commissioning stage by taking a so-called current image (P21 of NivuMaster) of the measurement place. This is where the NivuMaster is being "told" the current measurement point and all false echoes are going to be determined. The NivuMaster will mark these false echoes and will dynamically adapt to its environment as soon as conditions change (e.g. sedimentation on manhole steps). NivuMaster will dynamically mask these false echoes out as they occur, the yellow trace will move to cover any false echoes ensuring they will not cause problems with incorrect readings and pumps being held on.

7.1.6 The Gate

The gate (measurement window) is represented by the two vertical lines surrounding the current measurement point. It acts as an agitator filter, in that, any spurious echo which appears in the profile that is seen by the unit to be better than the true echo has to be in the same place for five shots (adjustable) before the gate will move to it. It is also a damping filter, in that, when the gate moves (either to a new echo or to follow the echo moving within the gate) it will do so at the set damping rate.

7.1.7 The Measurement Line

The measurement line, this is the light blue line within the gate that marks where the unit is measuring, the measured value can be read off the horizontal axis on the echo profile. The blue line picks up on the most vertical part of the leading edge of the echo where it is deemed to be the most accurate.

7.2 Recording & Playback

In order to record profiles you must of course be connected to your instrument, at the bottom left of the page click on Yes and an echo profile should appear in your display.

Clicking on the Record icon will open a small sub-screen. If you are viewing echoes you will see four buttons appear:

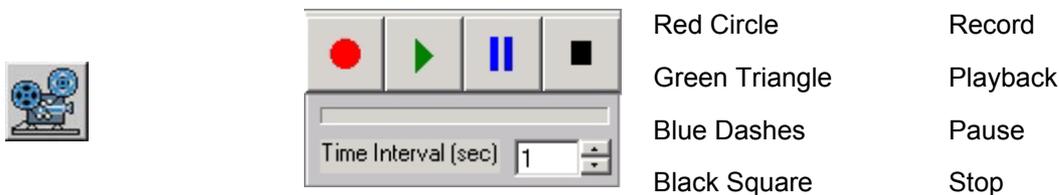


Fig. 7-2 Functions Recording mode

The 'red circle' will begin recording any echoes you are currently viewing.

The 'green triangle' will playback any previously recorded echo profiles.

The 'blue dashes' will pause any playback.

The 'black square' will stop any recording or playback, if you are stopping recording the program will ask you for a file name for your echo profile.

There is also a recording interval adjustment underneath the four buttons in case a recording over a long period of time is required

Saved echo profiles can be e-mailed to NIVUS for expert analysis.

level@nivus.de

The available minimum recording time shall be 2 minutes.

7.3 Parameter Editing and Recording

In order to download parameters from a unit click on the 'get parameters from unit' icon and follow the on screen instructions. You cannot upload parameters from your unit whilst you are viewing echoes. Your parameters will be saved in a file with the name of your choice.

If you want to modify parameters of available measurement places you need to open them first. Open the desired parameter sets under >File – open Parameter file< to proceed. The user window is going to reveal additional buttons such as >Parameters<. This menu is to modify all parameters (subdivided in various areas).



Fig. 7-3 Buttons for parameter data

For example if you want to modify the functions of a relay, you have to click on the desired menu (Relays).

Application	Relays	PumpAdv	
Relay 1			
Type	<input type="text" value="0"/>		
Type - Options: 0=NotUsed,1=Alarm,2=Pump,3=Control,4=Miscellaneous Default=0			
Relay 2			
Type	<input style="background-color: red;" type="text" value="1"/>		
Function	<input type="text" value="0"/>		
Relay 3			
Type	<input style="background-color: red;" type="text" value="1"/>	Set1 <input type="text" value="0"/>	Allocation <input type="text" value="1"/>
Function	<input style="background-color: red;" type="text" value="1"/>	Set2 <input type="text" value="0"/>	FailSafe <input type="text" value="0"/>
ID/Group	<input type="text" value="1"/>	Closures	<input type="text" value="0"/>

Fig. 7-4 Relay function options

The only option to select whilst using the basic setting is >Type< (see Relay 1). Enter the relay function here in order to unlock additional functions. You can view additional options if you move the cursor to the field and wait for a moment. This action will bring up a list of possible settings.

Additional options (see Relay 2) are not going to be indicated before the relay type has been set. Additional setting options are going to be indicated as soon as the function has been set (see Relay 3).

If a box is highlighted red it means that this parameter has been changed from its factory setting.

To modify parameters, click on the parameter you wish to change, then clear the screen using the backspace key on the PC keyboard and enter the new value required.

If all necessary modifications have been finished it is possible to save the modified parameter data by using the menu >File – save Parameters from File< which allows to transmit the data to the NivuMaster later. To transmit the modified settings to NivuMaster without being saved previously, go to the 'send parameters to unit' icon and follow the on-screen instructions.



Additional Information

Remember to always use the same software version or higher whilst uploading parameters which have been downloaded from another unit. E.g. if you have downloaded a parameter program from a unit with 4.6.1E software version then it can only be uploaded to a unit containing software version 4.6.1E or higher.

If in doubt contact NIVUS.

7.4 Upgrading your Instrument Software

Due to constant development of the unit software, new settings or applications might be possible to be implemented. In this case please consult NIVUS in order to perform a transmitter update.

If an application requires certain features your unit may not support, consult NIVUS in order to carry out an update.



Due to reasons of safety and warranty only NIVUS personnel is allowed to carry out unit updates.

8 Troubleshooting

This section describes some problem symptoms, with suggestions as to what to do.

Error	Reason	Solution
Error message on installation	Operating system or drivers might be too old	Installation of Windows 9x or higher. Update of operating system
	Conflicts with other PC software	Close down all other Windows applications that you may be running.
	Insufficient capacity of data carrier	<ul style="list-style-type: none"> - clean up data carrier to provide free space - defragment data carrier
	no administrative rights	<ul style="list-style-type: none"> - Installation as administrator - request rights from administrator
PC-Software will not open	faulty installation	Install PC-Software again
	Conflicts with other PC software	Close down all other Windows applications that you may be running.
	Insufficient RAM capacity	<ul style="list-style-type: none"> - Close down all other Windows applications that you may be running. - Enlarge/update PC RAM
	Installation period has ended	Contact the distributor, apply for a licence and get your software registered
PC-Software will not communicate	Power supply	<ul style="list-style-type: none"> - Check power supply - Check the cable is installed correctly - Check mains/unit fuse
	PC/Laptop	<ul style="list-style-type: none"> - Set COM port used in PC software - plug interface cable into COM port set - replace interface cable
	NivuMaster Transmitter	<ul style="list-style-type: none"> - plug RJ12 interface plug into NivuMaster interface port - terminate NivuMaster parameter setting mode
Parameters are not going to be transmitted	Power supply	<ul style="list-style-type: none"> - Check power supply - Check the cable is installed correctly - Check mains/unit fuse
	PC/Laptop	<ul style="list-style-type: none"> - Set COM port used in PC software - plug interface cable into COM port set - in case of setting individual parameters enable unit connection previously - replace interface cable
	NivuMaster Transmitter	<ul style="list-style-type: none"> - plug RJ12 interface plug into NivuMaster interface port - terminate NivuMaster parameter setting mode

Fault	Eventual Reason	Remedy
The display will not show echo profiles.	Power supply	<ul style="list-style-type: none"> - Check power supply - Check the cable is installed correctly - Check mains/unit fuse
	PC/Laptop	<ul style="list-style-type: none"> - Set COM port used in PC software - plug interface cable into COM port set - set >Update Echo / Yes< - replace interface cable
	NivuMaster Transmitter	<ul style="list-style-type: none"> - plug RJ12 interface plug into NivuMaster interface port - terminate NivuMaster parameter setting mode
The display will not show Gate / Measurement Windows	PC/Laptop	<ul style="list-style-type: none"> - >Windows< option disabled - load current parameter settings from NivuMaster
	NivuMaster Transmitter	<ul style="list-style-type: none"> - Check if P880 is correctly set - Check if P881 is correctly set - execute system reset (P930)
The display will not show near or far area	PC/Laptop	<ul style="list-style-type: none"> - >Area< option disabled - load current parameter settings from NivuMaster
	NivuMaster Transmitter	<ul style="list-style-type: none"> - Check if P102 is correctly set - Check if P105 is correctly set - Check if P108 is correctly set - execute system reset (P930)
The display will not show DATEM line	PC/Laptop	<ul style="list-style-type: none"> - >Datem< not set - load current parameter settings from NivuMaster
	NivuMaster Transmitter	<ul style="list-style-type: none"> - Check P20 - execute system reset (P930)
The display will not show Loss Line	PC/Laptop	<ul style="list-style-type: none"> - >LossLinie< not set - load current parameter settings from NivuMaster
	NivuMaster Transmitter	execute system reset (P930)
Error message on saving Parameter/Echo profile	Data carrier	<ul style="list-style-type: none"> - clean up data carrier or delete unused programs / files - remove data carrier write protection - request rights to write on data carrier from administrator
NivuMaster Transmitter is slow to accept key presses.	Communication still enabled	<ul style="list-style-type: none"> - terminate echo update function - terminate parameter transmission - terminate connection to NivuMaster (only in case of entering individual parameters)

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