

3 CLIO INSTALLATION

3.1 MINIMUM PC CONFIGURATION

The CLIO PB4281 PC board (and its companion SC-01 Signal Conditioner) running the CLIOwin software can be installed in any IBM (or compatible) personal computer with the following minimum system requirements:

- Pentium processor (suggested minimum 166 MHz)
- One free PCI slot
- One free RS-232 serial port
- 32 MB RAM
- 800x600 256 color video adapter
- Microsoft Windows 95, 98, ME, 2000 or XP
- Microsoft Internet Explorer 4.01
- Adobe Acrobat Reader 4

3.2 HARDWARE INSTALLATION

3.2.1 INSTALLING THE PCI CARD

To install the CLIO PB4281 card in your computer you should follow the instructions presented below:

- 1) Disconnect the mains power cable from the PC.
- 2) Open the computer cabinet.
- 3) With the motherboard in front of you, identify a free **PCI** slot. Note that it is preferable to install the CLIO board as far away as possible from the video adapter.
- 4) Insert the CLIO board in the slot and screw it down firmly.
- 5) Close the cabinet.
- 6) Reconnect the mains cable but **don't** switch the computer on until you have connected the SC-01 Signal Conditioner. This topic will be covered in 3.2.2.

3.2.2 CONNECTING THE SC-01 SIGNAL CONDITIONER

To connect the SC-01 Signal conditioner to your PC you need the following cables:

- 1) 1 x RS-232 DB9 Male to DB9 Female 9-poles cable (RadioShack Cat.#26-117) as in Fig.3.1. If the RS-232 connector available on your PC is a DB25 Male, then you also need a DB25 to DB9 serial adapter (RadioShack Cat.#950-0271); **do not use a mouse adapter** as they usually don't connect all the serial contacts. This cable is not supplied in the Lite version of the CLIO system.

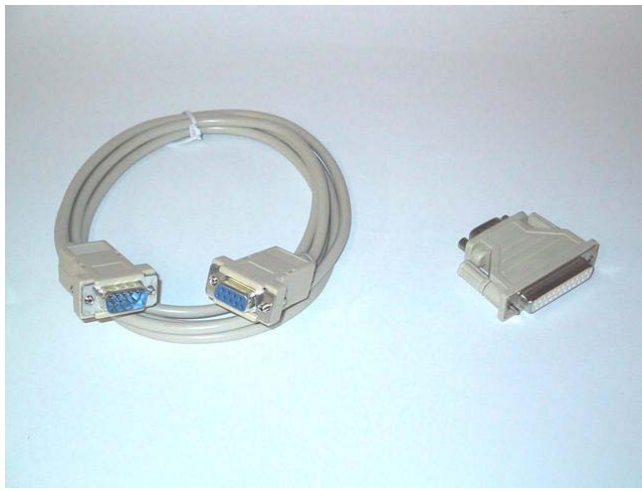


Figure 3.1

- 2) 2 x Stereo mini jack to two RCA plugs (red plus black) audio cable (RadioShack Cat.#42-2481). These cables are not supplied in the Lite version of the CLIO system. If you are going to realize these cables (Fig.3.2) be sure that **the black RCA plug is connected to the jack's tip** (the inner contact). Please note that, on the market, are present already made cables that have reversed connection.



Figure 3.2

- 3) 1 x DB15 Male to DC plug (always supplied with your CLIO system).



Figure 3.3

To connect the SC-01 Signal Conditioner do the following:

- 1) Connect one audio cable from the card 'Line Out' plug to the two RCA plugs on the rear panel of SC-01 labeled 'FROM PC'; red plug channel B, black plug channel A.
- 2) Connect one audio cable from the card 'Line In' plug to the two RCA plugs on the rear panel of SC-01 labeled 'TO PC'; red plug channel B, black plug channel A.
- 3) Connect the DC supply cable from the DB15 connector on the card to the dc plug on the rear of SC-01.
- 4) Connect the RS-232 cable from SC-01 to a free RS-232 port in your computer.

Fig.3.4 shows the audio and dc connections as they should be realized.



Figure 3.4

Your CLIO system hardware installation and connection is now finished. The connections between the PB4281, SC-01 and your PC **shouldn't normally be changed**; you will always use, in everyday work, the SC-01 front panel connectors (Fig.3.5).

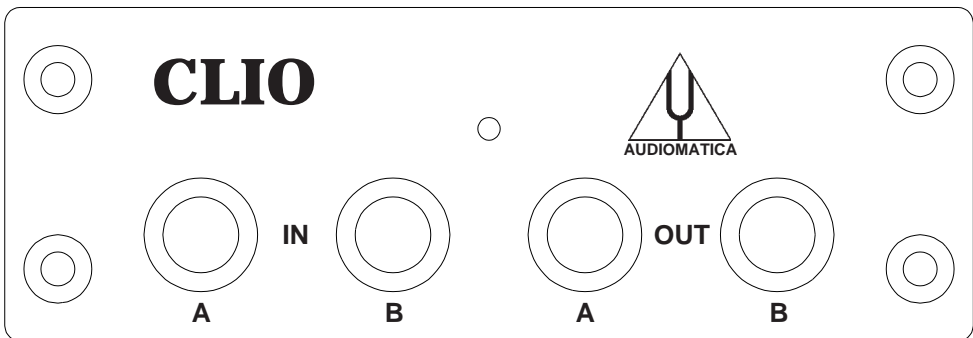


Figure 3.5

3.3 HARDWARE REGISTRATION WITH WINDOWS

The hardware registration procedure is started automatically the first time you switch your computer on, after you have physically installed the CLIO PB4281 PCI card.

If you are installing under:

- Windows 95, 98 or Millennium goto section 3.3.1.
- Windows 2000 goto section 3.3.2.
- Windows XP goto section 3.3.3.

3.3.1 HARDWARE REGISTRATION UNDER WINDOWS 9x

The procedures described refer directly (and are described with examples and figures) to the Windows 98 operating system, English version; they can be applied with only minor modifications and appropriate translations to all languages and to Windows 95 or Windows Me.

Let's now switch the PC on.

As soon as Windows is started the 'Add New Hardware Wizard' automatically detects the CLIO card:

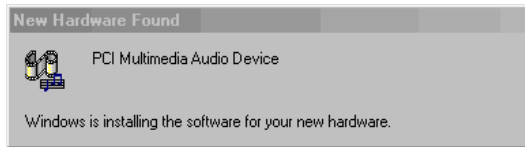


Figure 3.6

You will then be prompted with the dialog boxes in Fig.3.7. Press 'Next' and then select 'Search for the best driver for your device (Recommended)'.

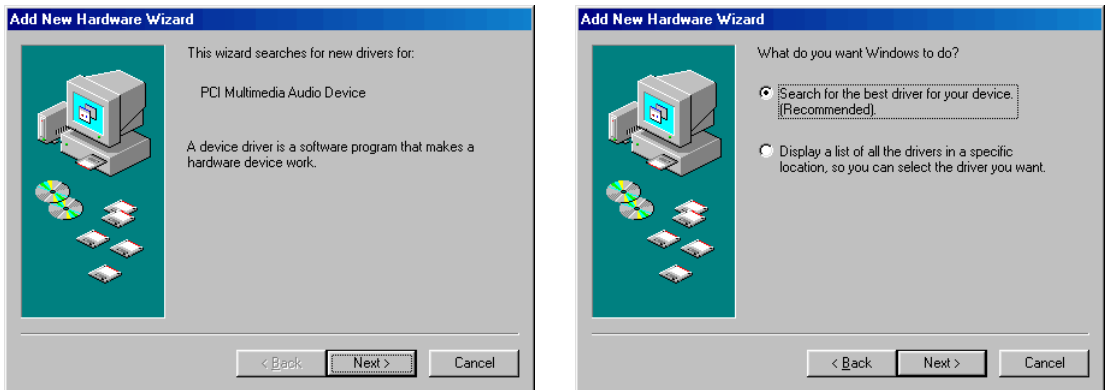


Figure 3.7

At the successive prompt Select 'Specify a location', then insert the CLIOWin CD-ROM in the CD-ROM drive and press the 'Browse...' button. Choose the CLIOPCI.INF file inside the \INF directory inside the CD-ROM (see Fig.3.8).

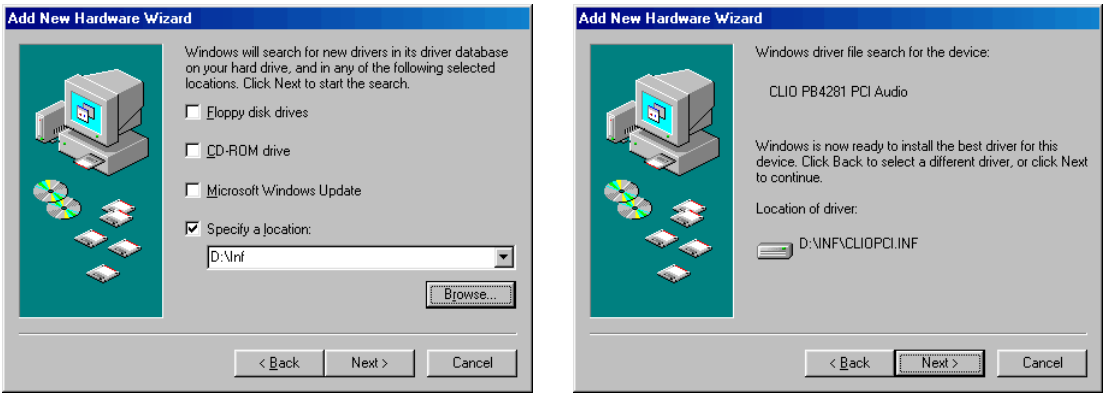


Figure 3.8

You should now be prompted by the following message of success (Fig. 3.9).

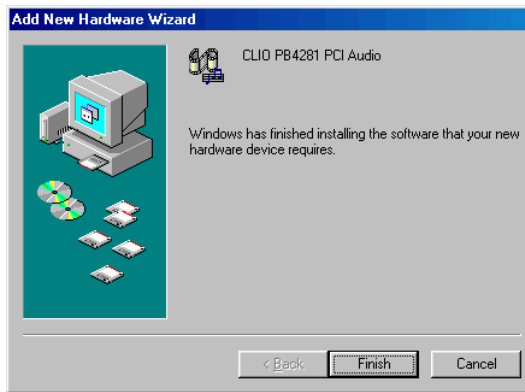


Figure 3.9

Let's now verify that the hardware installation and registration is OK. Click with the **right** mouse button on the 'My Computer' icon on the Windows desktop. Then click 'Properties' and select the 'Device Manager' tab as in Fig. 3.10.

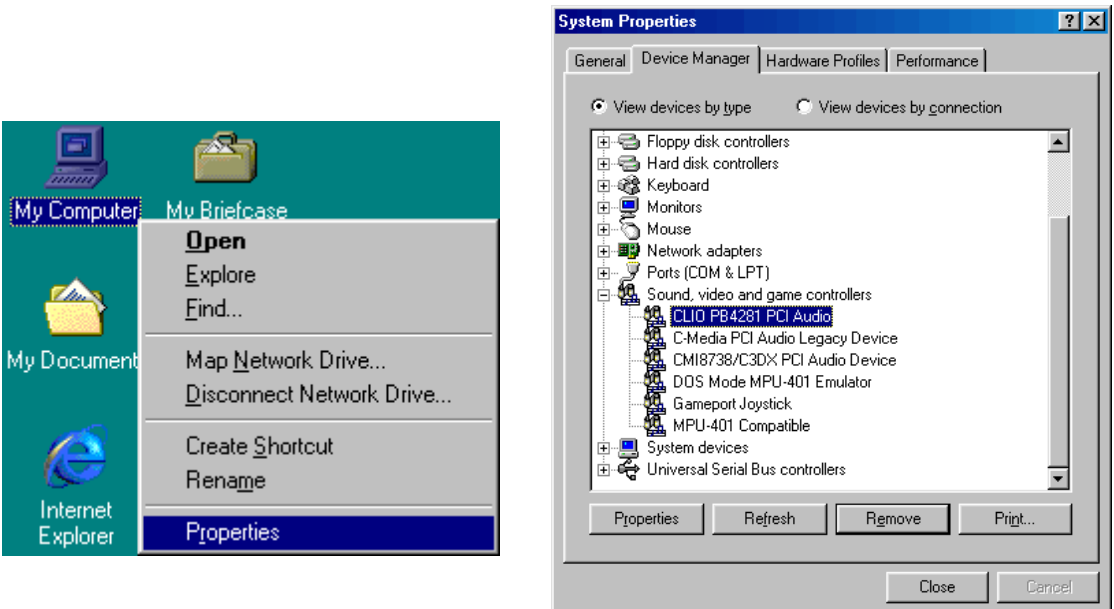


Figure 3.10

The presence of the 'CLIO PB4281 PCI Audio' under 'Sound, video and game controllers' ensures us that we did the right job.

3.3.2 HARDWARE REGISTRATION UNDER WINDOWS 2000

The procedures described refer directly (and are described with examples and figures) to the Windows 2000 Professional operating system, English version; they can be applied with appropriate translations to all languages.

Let's now switch the PC on.

As soon as Windows is started the 'Found New Hardware Wizard' automatically detects the CLIO card:

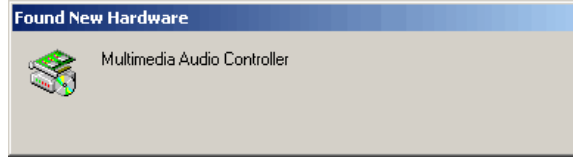


Figure 3.11

You will then be prompted with the dialog boxes in Fig.3.12. Press 'Next' and then select 'Search for a suitable driver for my device (Recommended)'.

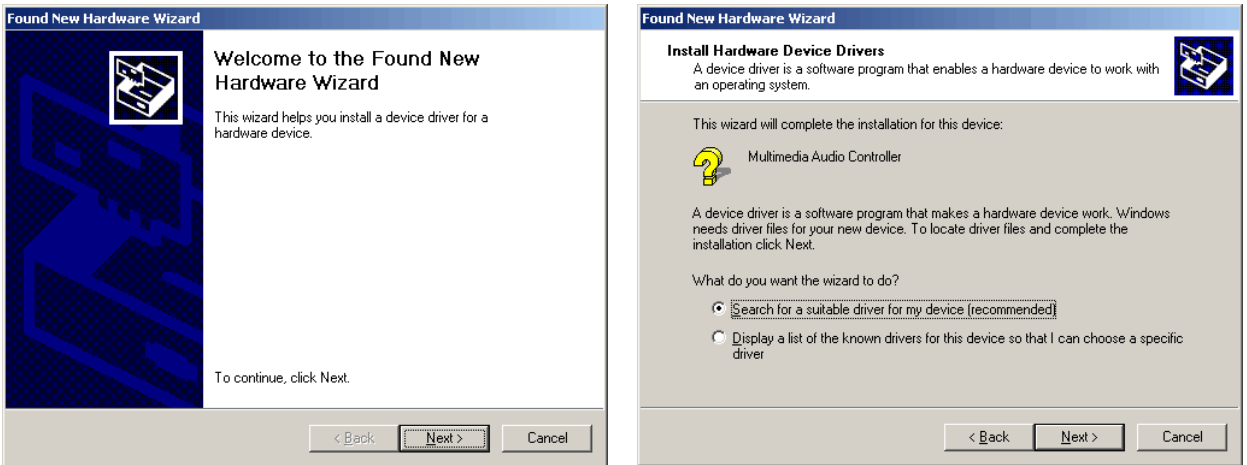


Figure 3.12

At the successive prompt Select 'Specify a location', then insert the CLIOwin CD-ROM in the CD-ROM drive and press the 'Browse...' button. Choose the CLIO2K.INF file inside the \INF2K directory inside the CD-ROM (see Fig.3.13).

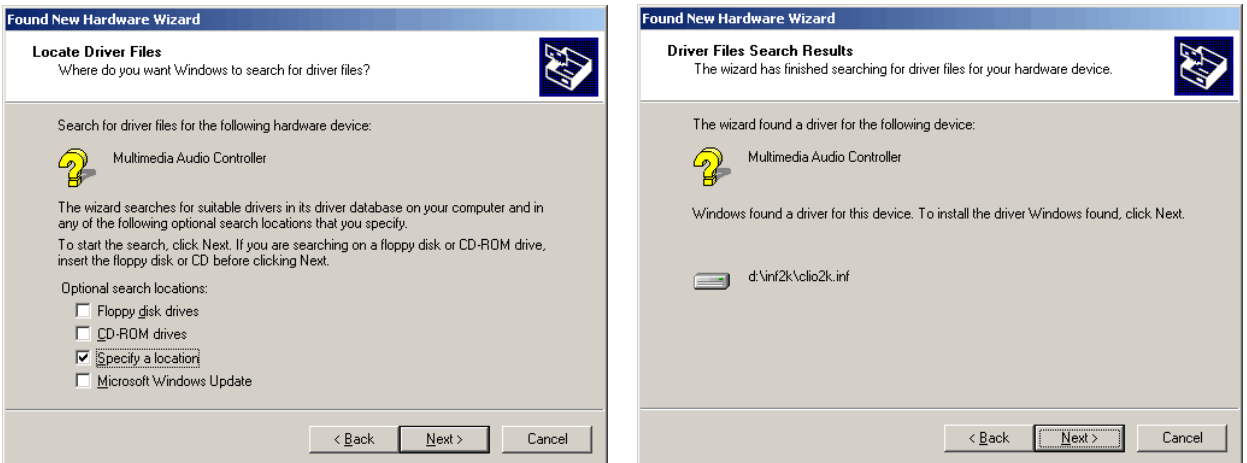


Figure 3.13

Ignore Microsoft's warning message about Digital Signature, answer 'Yes' to the prompt and reach the end of the wizard.

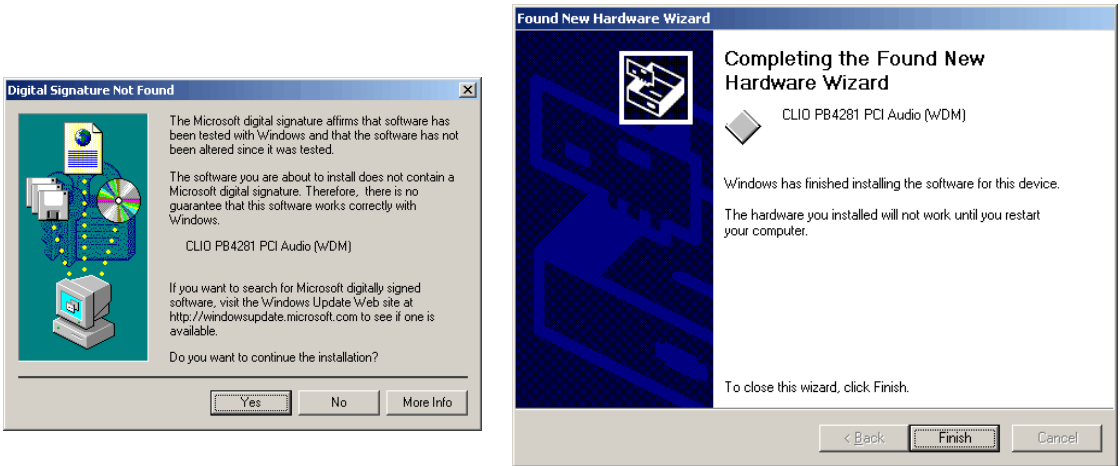


Figure 3.14

Let's now verify that the hardware installation and registration is OK.

Click with the **right** mouse button on the 'My Computer' icon on the Windows desktop. Then click 'Properties', select the 'Hardware' tab and press the 'Device Manager' button as in Fig. 3.15.

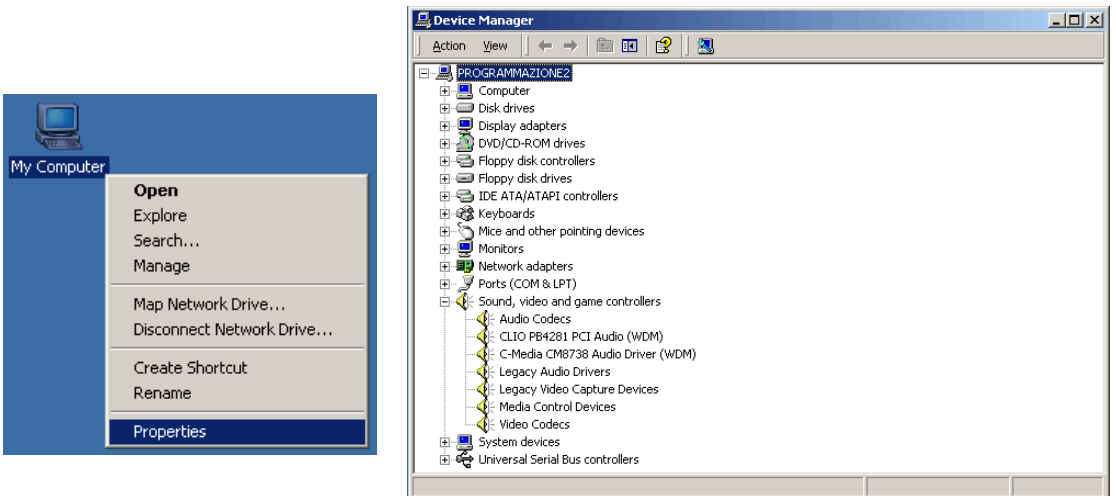


Figure 3.15

The presence of the 'CLIO PB4281 PCI Audio (WDM)' under 'Sound, video and game controllers' ensures us that we did the right job.

3.3.3 HARDWARE REGISTRATION UNDER WINDOWS XP

The procedures described refer directly (and are described with examples and figures) to the Windows XP Professional operating system, English version; they can be applied with only minor modifications and appropriate translations to all languages and to Windows XP Home.

Let's now switch the PC on.

As soon as Windows is started the 'Found New Hardware Wizard' automatically detects the CLIO card:



Figure 3.16

Windows XP is the only operating system that is able to install a driver for the CLIO card; the problem is that **it is not the correct one and needs to be updated.**

Let's now check what driver XP installed. Click with the **right** mouse button on the 'My Computer' icon on the Windows desktop. Then click 'Properties', select the 'Hardware' tab and press the 'Device Manager' button as in Fig. 3.17.

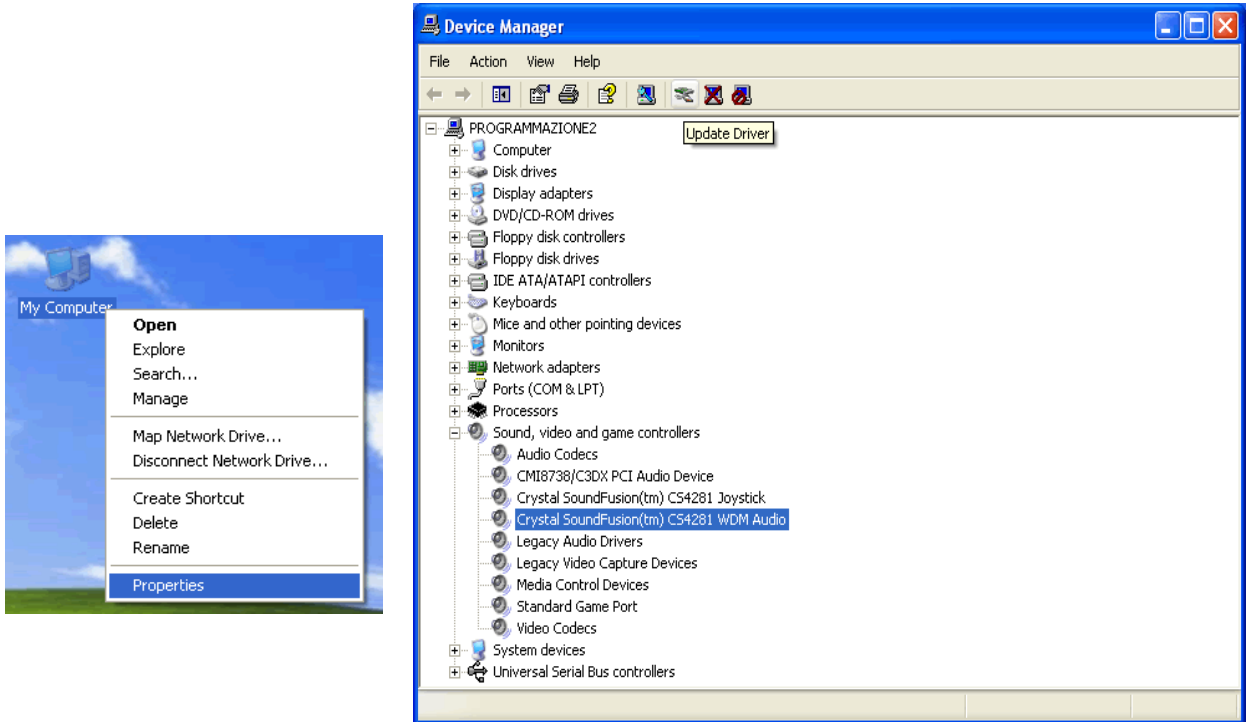


Figure 3.17

XP installed a driver for the Crystal hardware accelerator that the CLIO PB4281 card is using. Press the 'Update Driver' button and enter the 'Hardware Update Wizard' (Fig. 3.18).

Select 'Install from a list or specific location (Advanced)' and click 'Next'; then select 'Don't search. I will choose the driver to install' and click 'Next' again.

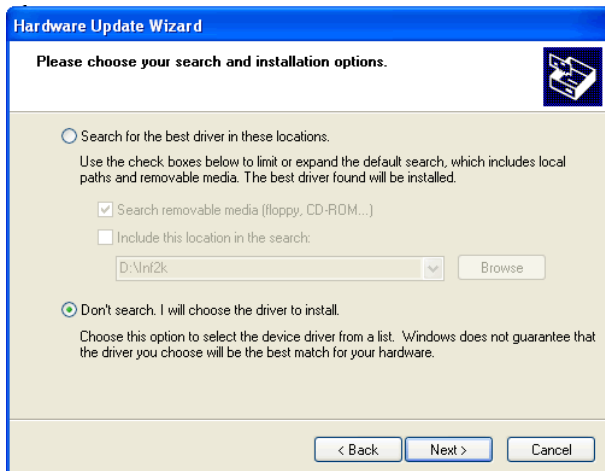
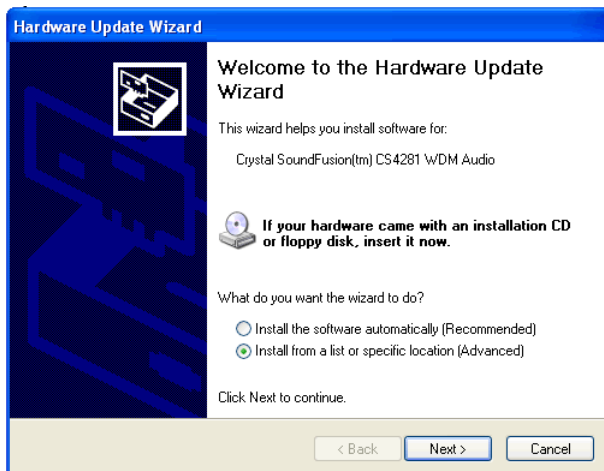


Figure 3.18

Insert the CLIOWin CD-ROM, press 'Have Disk' and choose the CLIO2K.INF file inside the \INF2K directory of the CD-ROM (see Fig. 3.19).

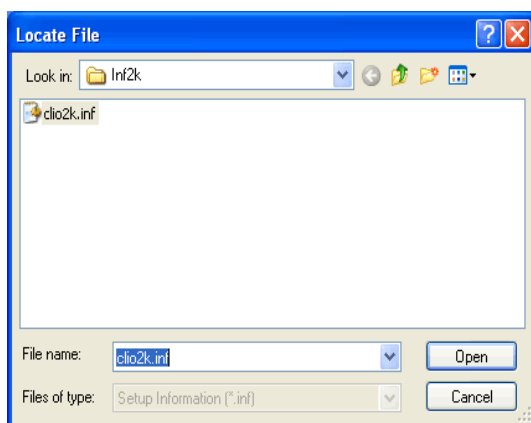
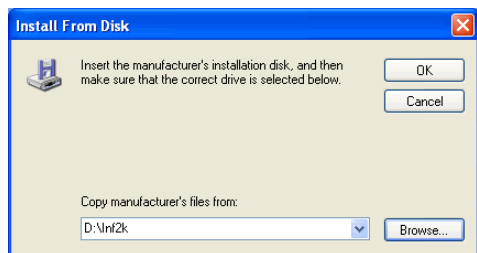


Figure 3.19

Ignore the message 'This driver is not digitally signed!', press 'Next'; **ignore** the subsequent message about Windows Logo testing, press 'Continue Anyway' (Fig. 3.20).

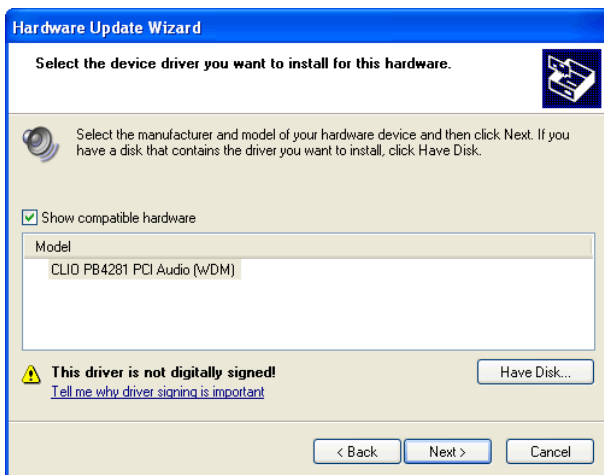


Figure 3.20

You should be prompted by the following message of success.

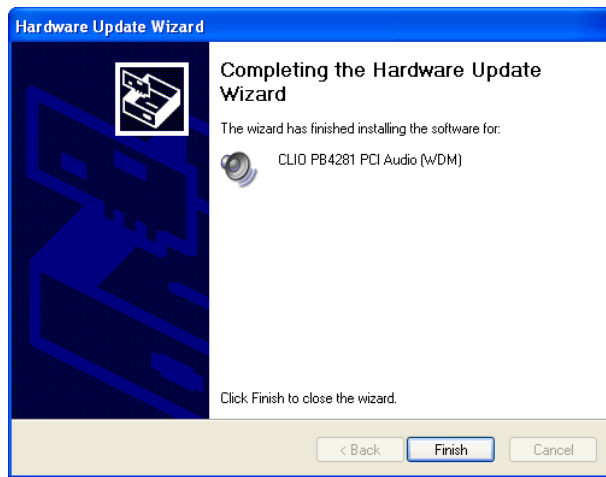


Figure 3.21

Let's now verify that the hardware installation and registration is OK.

Click with the **right** mouse button on the 'My Computer' icon on the Windows desktop. Then click 'Properties', select the 'Hardware' tab and press the 'Device Manager' button as in Fig. 3.22.

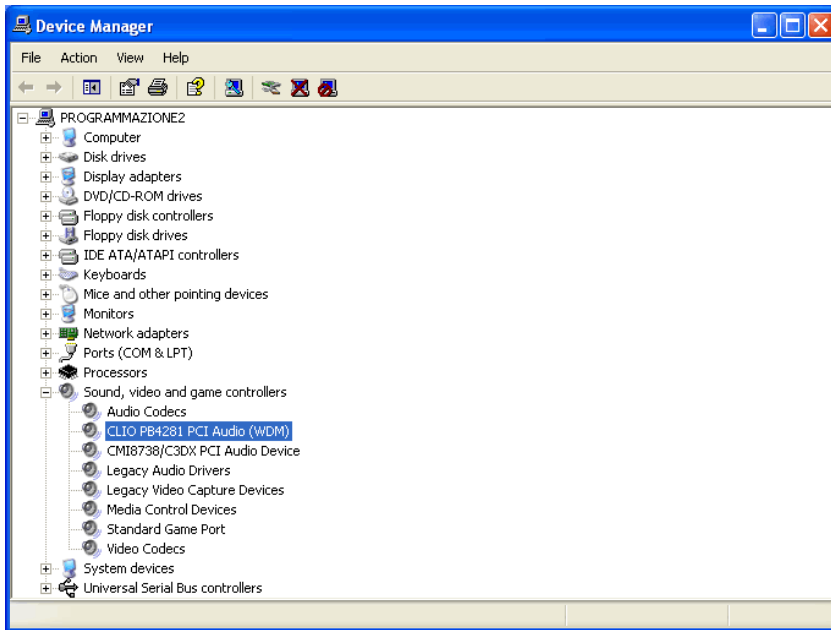


Figure 3.22

The presence of the 'CLIO PB4281 PCI Audio (WDM)' under 'Sound, video and game controllers' (in place of the previously installed Crystal driver) ensures us that we did the right job.

3.3.4 IMPORTANT ADVICE

When in presence of another soundcard let the CLIO card **not to be the preferred one**. In this way all system sounds will be played by the other device. Open the audio properties under the Control Panel and select the second card as the preferred. The example in Fig. 3.23 refers to a C-Media audio device under Windows 2000 Professional (refer also to Fig.3.15 for a device map of the same PC).

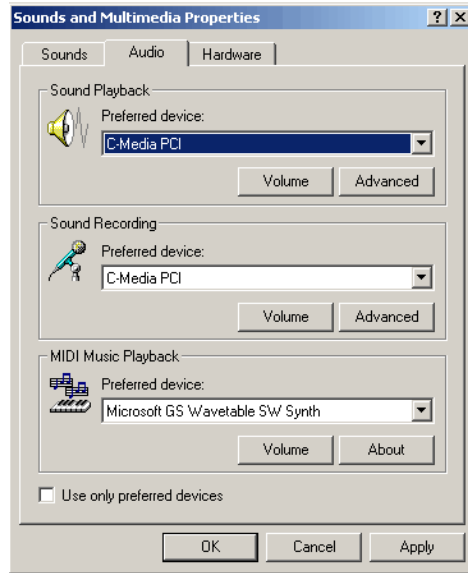


Figure 3.23

3.4 SOFTWARE INSTALLATION

This paragraph deals with **software installation**.

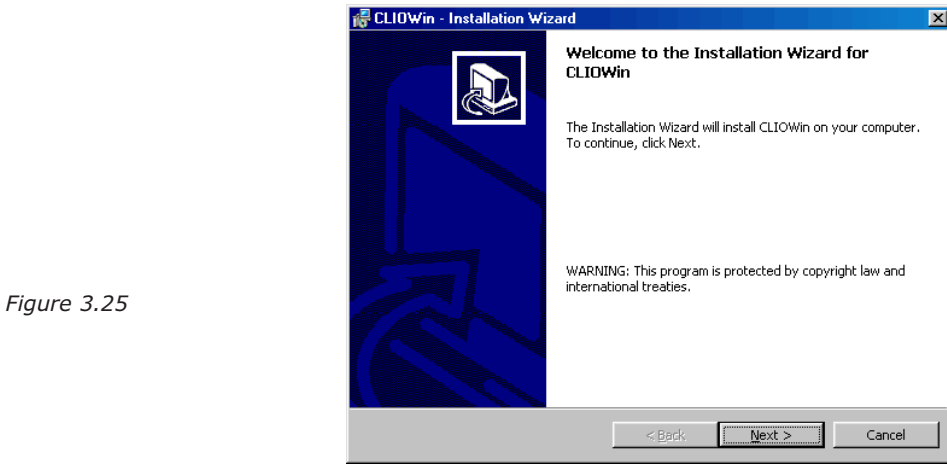
The CLIOWin software is provided either on its own CD-ROM or, in electronic format, as a single, self-extracting, executable file.



In the first case the CD-ROM root will contain a file named **setup.exe** while in the second the file will be named with your system's serial number (**41947124.exe** as in Fig. 3.24); click on these files to start the software installation (Fig.3.25).

If you are installing under Windows 2000 or XP please be sure to have administrative rights.

The procedure is completely automatic and will only request you to accept the Software End User's License Agreement and input some information in order to correctly install CLIOWin; the software installer will also check your operating system version and, in certain cases, will request you to restart Windows in order to finalise the installation.



After completing successfully this procedure take note of the installation directory of CLIOWin (usually C:\Program Files\Audiomatica\Cliowinpci).

3.5 THE 'CLIO BOX'

A few words about the SC-01 Signal Conditioner.



Figure 3.26

This unit is needed to correctly interface analog signals to the PB-4281 PC card; it is also important as it has an internal reference used to calibrate the system and because it stores the system's serial number inside its internal EEPROM; Fig.3.27 shows how to find your CLIO system serial number and SC-01 firmware release (after you have removed the upper cover).

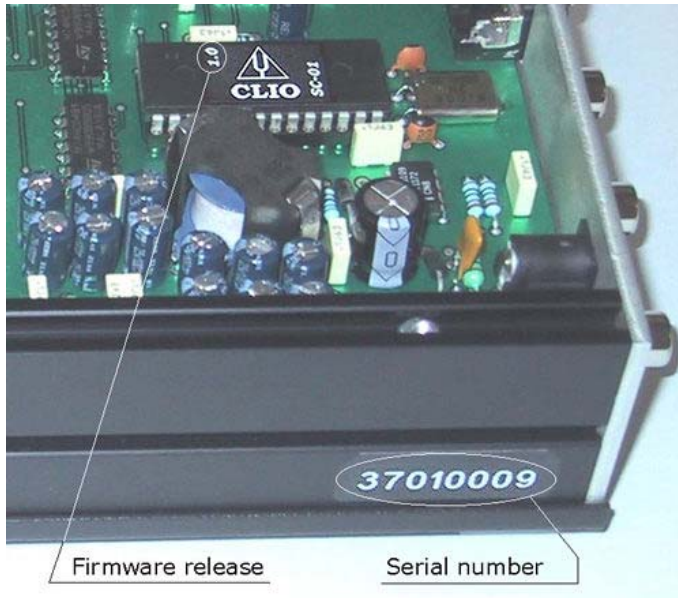


Figure 3.27

The serial number is very important and should be mentioned each time you get in contact with Audiomatica, either for technical support or for software upgrade.

When using your CLIO system you will normally use the SC-01 front connectors; the connections between the SC-01 and the PB-4281 card are normally left untouched. As you'll become extremely familiar with this hardware unit we are going to give it a nickname: from now on we will call it **'the CLIO Box'**. Also the CLIOwin software is referring to it with this nickname.

3.6 RUNNING CLIOWIN FOR THE FIRST TIME

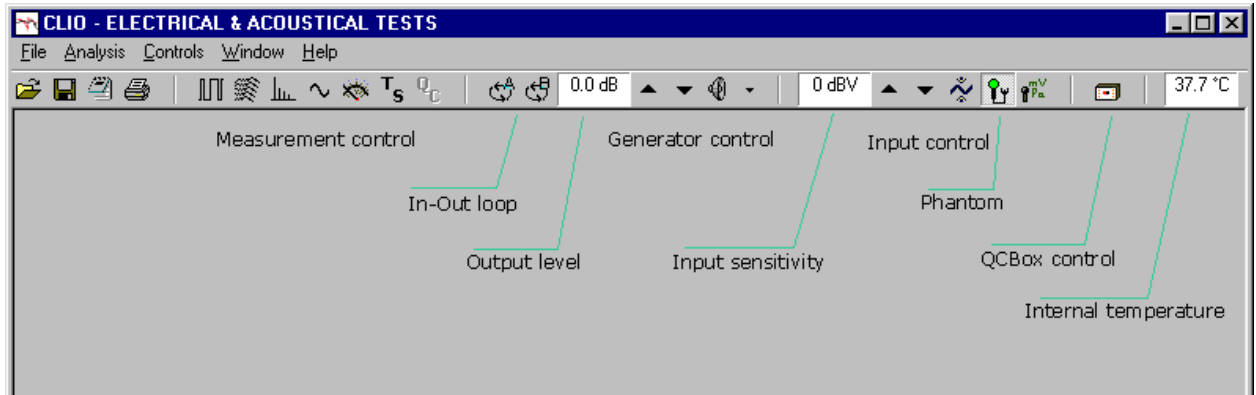
If you have completed the preceding installation procedure, you are ready to run CLIOWin!

The steps hereafter described will guide you through a complete verification of the system performance and operation.

From the **Start Menu** choose **Programs**, then **ClIowinpci** and click on the CLIOWin icon.



The program should start smoothly and present the main desktop.



If the proper serial port has not been selected, or if the serial cable is not connected you may receive the following message.





To select the correct serial port go to **File>Setup>Hardware** (see also 6.3.6).

Should CLIOWin display an error message take note of it and go to the troubleshooting section (Chapter 4).

3.6.1 INITIAL TEST

Let's now execute our first test measurement: play and capture an 1kHz sinusoid.

First of all click on the In-Out Loop  button for channel A; in this way the CLIO Box connects output A with input A with an internal relay. This connection is very important as lets you capture and analyze a signal generated by CLIO without the need for an external connecting cable.

Then click on the generator icon  to play the 1kHz sinusoid (1031.25Hz to be exact;

more on this later; it's the default signal). Then press the **F4** keystroke to invoke the Multi-Meter as in Fig.3.28.

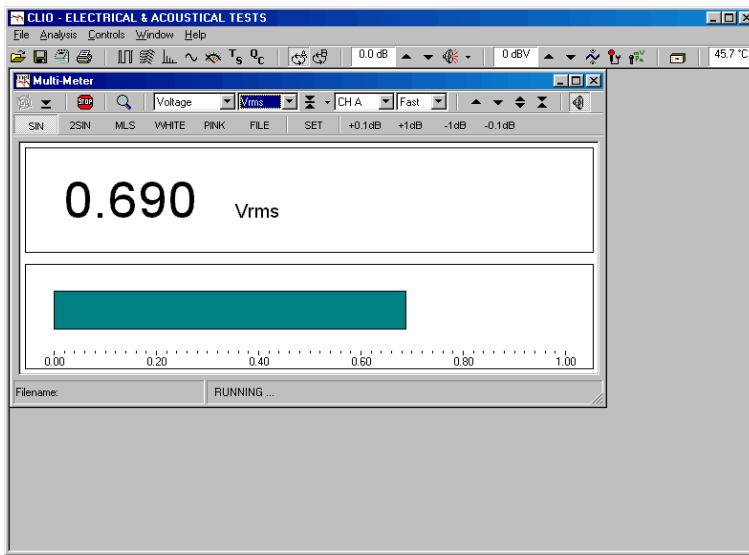


Figure 3.28

If everything is OK you should obtain a reading of circa 0.7V, variable between a minimum of 0.6V and a maximum of 0.9V which is the mean output level of a sinusoidal signal when the system is not calibrated.

To conclude your initial test execute the calibration procedure described in the following section.

Repeating the test described after the system has been calibrated you would get the reading of 0.77V (-2.2dBV) which is the calibrated output level of a sinusoidal signal.

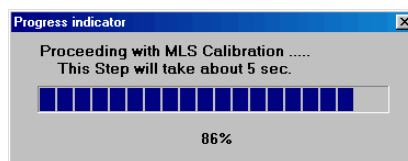
3.7 SYSTEM CALIBRATION

This section describes how to perform the system calibration.

Be sure that, any time you perform a calibration, the system has warmed up for, at least, 15/20 minutes.

Leave the CLIO Box plugs unconnected.

Select **Calibration** from the **File** menu (6.3.5); answer **yes** to the initial prompt; this will run an automatic procedure that will last several minutes. The calibration procedure is completely automatic and several progress indicators will accompany all the executed measurements. At the end of it your CLIO system should be calibrated and ready to execute measurements.



At the end of the calibration process it is always mandatory to verify the calibration itself; this is done by two simple measurements as described in the following section.

3.7.1 CALIBRATION VALIDATION

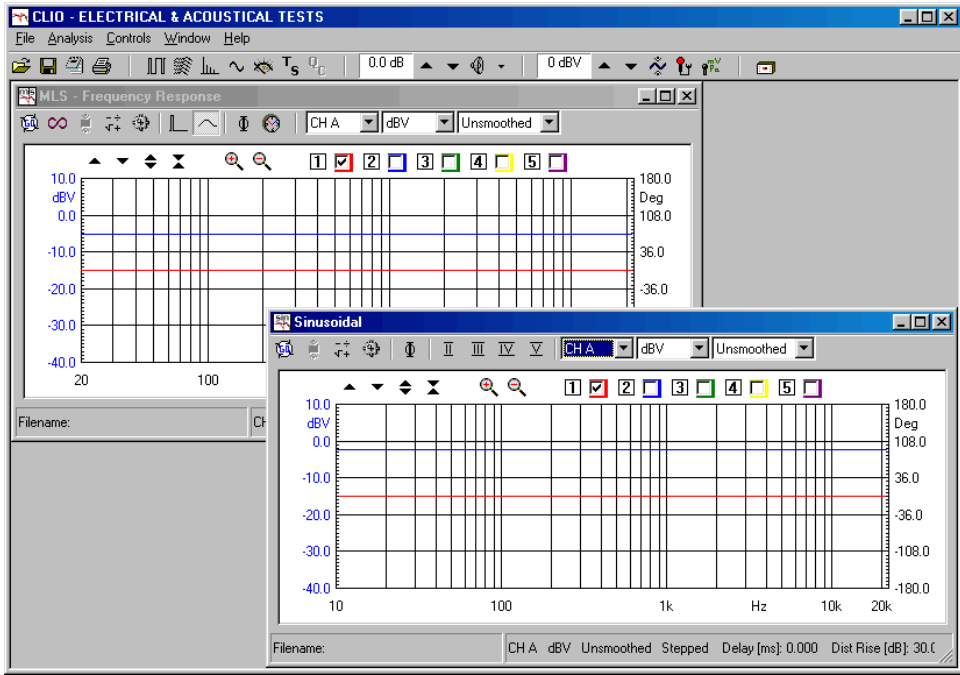








Figure 3.29

To verify the calibration first check that the generator output level is set to 0dBu (refer to 5.4.3 for details).

Press the channel A In-Out Loop button .

Then click on the MLS button  to invoke the MLS control panel. Press the Go  button to execute an MLS frequency response measurement; after about **1 second** you should obtain the desired result, a straight line (blue) as in Fig.3.29. You can click on the graph and inspect the amplitude of the measured signal: you should obtain a reading around -5.2dBV, this is the correct output level of the MLS signal with the generator output set to 0dBu.

Then click on the Sinusoidal button  to invoke the Sinusoidal control panel as in Fig.3.29. Press the Go  button to execute a Sinusoidal frequency response measurement; after about **35 seconds** you should obtain the desired result, again a straight line (blue) as in Fig.3.29. You can click on the graph and inspect the amplitude of the measured signal: you should obtain a reading around -2.2dBV, this is the correct output level of the sinusoidal signal with the generator output set to 0dBu.

To assess a 100% correct calibration you need also to inspect phase responses of both measurements. To do this press the phase button  and verify that you obtain a straight line (red curves in Fig.3.29) also for phase responses; the readings in this case should be around zero degrees in both cases.

As last test let's repeat the 1kHz tone test described in 3.5.1. The expected result is shown in Fig.3.30.

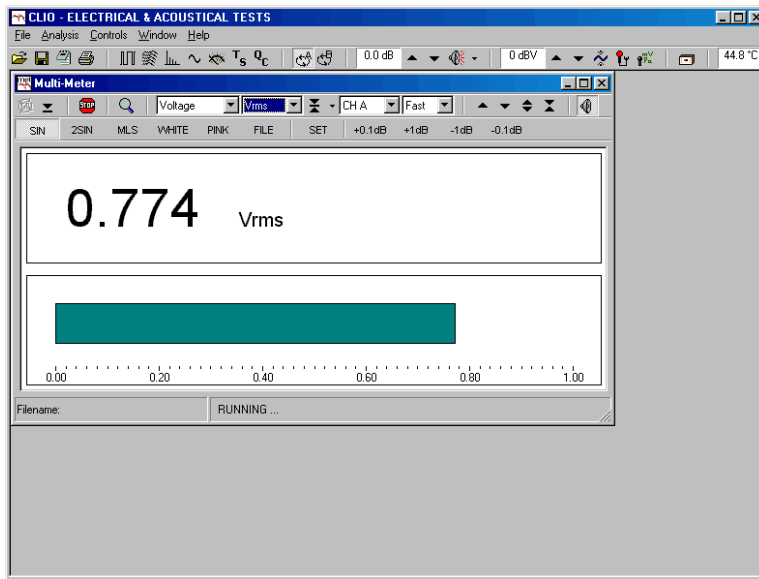


Figure 3.30

3.8 CLIO SERIAL NUMBER AND DEMO MODE

Each CLIO system has its own **serial number** which plays an important role since the CLIOwin software is hardware protected and relies on a correct serialization in order to run.

Refer to 3.5 to identify your system's serial number.

If the CLIOwin software doesn't find a CLIO Box with a correct serial number gives a warning message and enters what is called a **DEMO mode**; in this way it is possible to run CLIOwin also in a PC where there is not installed the CLIO hardware and perform postprocessing and other off line jobs.

