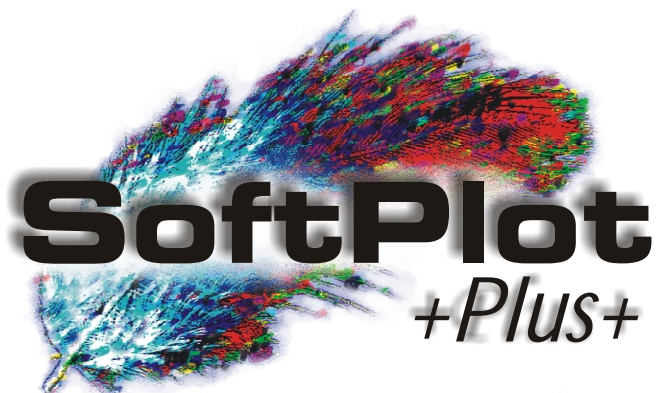




Measurement  
Management Software

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Measurement Management Software

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## Introduction

SoftPlot is designed for putting quality measurement plots into word processor documents and presentation packages. Many instruments, such as spectrum analyzers and network analyzers, have the capability to generate a hard copy of the measurements by connecting a suitable pen-plotter to their GPIB interface. SoftPlot improves on this by using the GPIB to extract only the unformatted data from the instrument and allowing it to be manipulated in a number of ways. For example, the graticule type, style and scaling can be re-defined, and markers and limit lines added. In addition, the graph can be annotated in various ways, and if there are several traces they can be drawn in different pen styles and colours.

The resulting measurement is packaged by SoftPlot in a way that can be electronically pasted into a word processor document (or slide presentation, etc.). This makes use of the Object Linking and Embedding (OLE) feature of Windows applications.

When an embedded or linked SoftPlot object in a document is double-clicked, SoftPlot will be started and the measurement data displayed for editing. These changes are automatically reflected in the destination document when SoftPlot is closed.

A wide range of file formats are handled to allow the import and export of measurement data to other software such as Microwave Office (TM AWR), ADS (TM Agilent), spreadsheets or maths packages. With SoftPlot, the information previously locked up in your hardcopy result is now accessible long after the measurement was done.

# Program Installation

## 1. Hardware Requirements

The minimum system requirements in order to run the software are :

1. Pentium® PC, 200MHz, 64MB RAM, 200MB available disk space.
2. Microsoft® Windows® XP, Vista, 2000, NT4®, ME, or 98.
3. If instrument transfers are required:

a National Instruments (www.ni.com) GPIB card, type PC-IIA, PC-AT, PC-PCI, PC-PCMCIA, PC-USB-A/B/HS;

or a Measurement Computing (www.computerboards.com) GPIB card, type ISA-GPIB, ISA-GPIB/LC, ISA-GPIB-PC2A, PCI-GPIB, PCM-GPIB;

or an Agilent / Hewlett-Packard (www.agilent.com) 82335, 82340/82341, 82350 or 82357 HP-IB card

or an ines (www.inesinc.com) GPIB-PCMCIA, GPIB-PCI card

or an IC Select inc. (www.icselect.com) 488-USB, 488-USB2.

Other GPIB cards with a National Instruments - compatible GPIB-32.DLL driver providing the same programming interface may work, but have not been tested.

## 2. Software Installation

1) If a GPIB card is to be used, this should be installed first. Follow the manufacturer's documentation and use the installation program provided with the card. For National Instruments cards, it is only necessary to install the Windows GPIB-32.DLL driver. For Agilent cards, it is only necessary to install the Agilent SICL32.DLL driver.

NOTE the selection between National Instruments and Agilent cards is selected once SoftPlot is running. Choose **GPIB Card Configuration** from the **Edit** menu, and select the type of card to be used. The default is National Instruments.

2) The installation of SoftPlot is automated by running the installation program on the distribution disk. You will be prompted to choose the name of a new top-level folder, which will be created to keep the program and other files. **C:\Program Files\SoftPlot-7\** is the default, but you may change this. The following files will be transferred into your chosen folder:

- SOFTPLOT.EXE               the main program
- SOFTPLOT.INI               configuration parameters for  
the main program
- SOFTPLOT.HLP               the help system
- TOURGUID.HLP              guided tour help file
- SAMPLES\                    A number of samples files will be  
copied to this directory
- TEMPLATE\                  sample measurement templates

A new program group and icon will be created by the install program before it closes.

3) Registration of the product is required before the program will run. The first time it is started after installation, the registration dialog box will be displayed. Your *Name*, *Company* and *Email Address* will be used to contact you in relation to this software. In the case of customers who have purchased Annual Maintenance, update and renewal information will be sent to this email address. On the distribution disk you will find the *Product Password*.

If you have an Internet connection available, registration occurs immediately you click on the *OK* button. If your Internet connection is via a proxy server, this may be configured at the bottom of the dialog box.

If you don't have an Internet connection, complete the form first, and then you must select the option *No Internet Connection Available*. Then click on the *Save Registration Details* button to save a file that you can attach to an email to "registrations@aphena.com". When you receive an authorisation file from Aphenia, you can load it using the *Load Authorisation File* button and click *OK* to continue. This will reload the form data again, so it is permissible for you to cancel and close the registration form until you have received the authorisation file.

The number of installations allowed using a given Product Password is controlled. This limit is determined by the details of licence that has been purchased. After a successful registration, the remaining number of installations available will be displayed in a message box.

4) Running SoftPlot will cause it to register itself as an OLE server in the system registration database. If SoftPlot is moved to a different drive or directory, or has been upgraded, it will automatically modify the registration details when it is next run.

5) To uninstall SoftPlot, click on Add/Remove Programs in the Windows control panel. If an Internet connection is available at the time of uninstallation, an automatic unregistration occurs and the available number of installations for the associated Product Password is increased.

6) Fonts required:

1. "MS Sans Serif"
2. "Arial"
3. "Arial Narrow"

"Arial Narrow" is distributed on the installation disk and is automatically installed if required. The other fonts come with Windows as standard.

### **3. Further Information**

SoftPlot was written by and is copyright of Aphenia Ltd.. For further information, contact

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## Getting Started with SoftPlot



You can start SoftPlot from the Start button and then navigating to Programs, SoftPlot V7.0 and then clicking on its shortcut. The program will briefly show a start-up banner and then display the main screen. The program is divided into six tabbed pages, dealing with the measurement data presented as a Graph or a Table, and GPIB transfers from Network Analyzers, Spectrum Analyzers, Signal Analyzers and Oscilloscopes.

### 1. Capturing Traces

Choose the Network Analyzer, Spectrum Analyzer, Modulation Analyzer or Oscilloscope, according to the type of instrument you have. Scroll through the Instrument list and choose the name that most closely matches your instrument.

**GPIB:** Connect up the computer to the instrument with a GPIB cable. Then enter its GPIB address into SoftPlot. You may need to set up SoftPlot to match your GPIB Card Configuration.

Note: to search for instruments present on the bus, click to set the cursor in the GPIB Address entry box, and press function key F3. This shows a list of bus addresses of all operational instruments available to SoftPlot. You may choose from the list and click OK to enter that address in the GPIB Address entry box.

**RS-232:** Some instruments are fitted with an RS-232 port, which allows them to be programmed from the PC COM1: or COM2: ports. If you only need to connect to one instrument, and it has a suitable RS-232 port, you can avoid the cost of adding GPIB to your PC. When SoftPlot is running, choose "GPIB Card / Serial / LAN Configuration" from the "Edit" menu, and select "Enable Serial Interface". Then click on the Setup button which will have appeared, in order to configure the PC serial port settings.

**LAN:** LAN connections are available on some newer instruments, and SoftPlot has support for this using Socket Services. On the appropriate instrument transfer page, select LAN (just above the Start Transfer button), and enter the IP address of the instrument.

**VISA:** VISA, or Virtual Instrument Software Architecture is an interface-independent software interface endorsed by the VXIplug&play Systems Alliance. This allows connection to instruments that contain a VISA server (also referred to as a VXI-11 server), and this permits GPIB, TCPIP, Serial and USB connections.

In C:\program files\softplot-7\lan utils you will find SktClient.exe, which can be used to help establish basic communication between the PC and the instrument. Enter simple SCPI commands such as "\*IDN?" to establish that the network link is working.

NOTE: The Agilent PNA series of network analyzers have a network connection but do not implement Socket Services. Copy C:\program files\softplot-7\lan utils\ PNASocketSvr.exe to your instrument and run it on the PNA's PC to implement the required socket services functionality.

Generally, SoftPlot is programmed to extract the live, updating trace on the screen of the instrument. On some instruments with more than one simultaneous channel, the Measurement Data selection box allows you to specify which channel to transfer.

Now choose the destination of the transfer. There are 100 trace data stores arranged in a 10 x 10 grid. The ordering of the grid is important for network analyzer transfers when the stores are used to represent an S-Parameter matrix.

Before clicking on the Start Transfer Button, you may wish to select the options at the bottom of the screen, and enter a meaningful name in the Trace Label box - this is used as the default trace label when the trace is added to the graph later.

Now click on the Start Transfer button. If all is well, the data transfer progress should be observable in the status line at the bottom of the screen. If an error occurs, see GPIB Transfer Troubleshooting in the on-line help documentation.

## **2. Displaying Traces with the Graph Screen**

The Graph Screen is used to present the measurement data in a similar form to the hardcopy produced by the instrument directly on a plotter. A number of graticule types and styles are available. The 100 data stores can be viewed in any combination as up to 100 separate traces, formatted differently and assigned to either the left or right vertical axis. Each vertical axis has an independent scale and display format. There are independent X-axes and a primary common x-axis for all the data stores and traces..

## **3. Saving Measurements**

Measurement data is saved in SoftPlot files (\*.SPT) using the **Save** and **Save As** menu functions. This file format stores all measurements (whether displayed or not), and all other graph display settings.

It is also possible to **Export** files in Touchstone SxP format, spreadsheet (\*.CSV), tab - delimited (\*.TXT), Citifile (\*.D) and MathCad (\*.PRN) file formats, as well as a range of graphics formats (BMP, TIF, JPG, WMF)..

## **4. Inserting SoftPlot measurements into other applications**

SoftPlot uses Object Linking and Embedding (OLE) to allow you to either embed the entire measurement and its data within a report or presentation, or alternatively to insert the graph with a link back to the SoftPlot file. Your starting point can be either from SoftPlot or from your word processor or presentation package.

### **4.1. Starting from within SoftPlot**

The simplest method is to start SoftPlot with the required measurement displayed, and to embed it in the destination document.

- a) Right-click on the graph and choose **Copy OLE Object**, or select **Copy SoftPlot OLE Object** from the **Edit** menu
- b) Switch to the word processor package and paste it in. To create a link to the original SoftPlot file rather than to embed a copy of it, choose **Paste Special** rather than **Paste**, and then select **Link to File** (or **Paste Link**).

## 4.2. Starting from another program

If you are drafting a report or creating a slide presentation, and you want to pull in a SoftPlot measurement, you can do so in the following way:

- a) Go to the place where you want the graph to appear. Choose **Insert Object** from the **Insert** or **Edit** menu. Select "SoftPlot Measurement" from the list of available objects and click on the "OK" button. This will run SoftPlot in embedding mode, which alters some of the menus.
- b) Then use SoftPlot to transfer the measurement from your equipment, or **Import** an existing file.
- c) Choose **Exit and Return to filename** from the **File Menu**, and you will return to a new graph in your document.

To create a link to an existing file, use the **Create from File** option after selecting **Insert Object**.

## 4.3. Editing SoftPlot measurement objects

After inserting your SoftPlot measurement into a document, it is possible to alter it, simply by double - clicking on the graph. This will cause SoftPlot to run and automatically load the embedded measurement data or the linked file, ready for editing. Choose **Exit and Return to filename** from the **File Menu**, and you will return to an updated graph in your document.

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