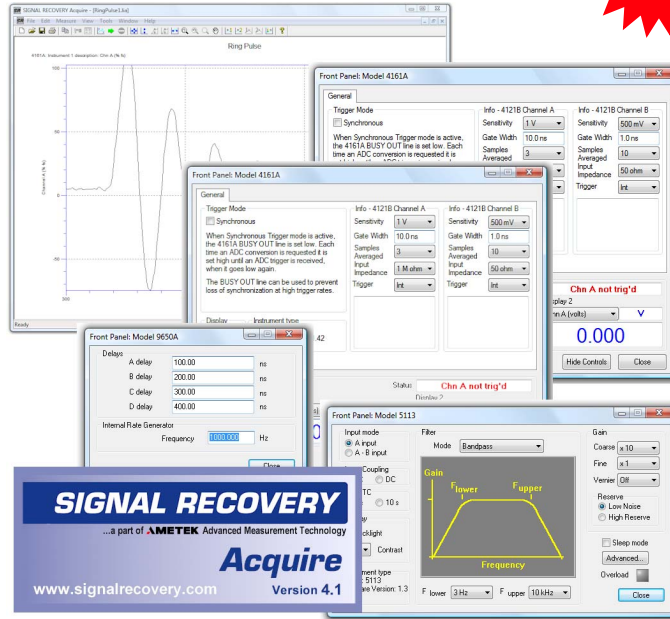# Acquire

Data Acquisition Software

FEATURES

- **Operates with all current *SIGNAL RECOVERY* Lock-in Amplifiers, Boxcar Averagers, and the Model 5113 Preamplifier**

- **Suitable for Windows XP/Vista**

- **Remote Front Panel mode**

- **Experiment Recording mode - take data versus time, frequency or auxiliary ADC values**

- **Input and output triggers**

- **Method and Data storage**

- **ASCII text export utility**

- **GPIB or RS232 operation**

- **Free demonstration version available**

APPLICATIONS

- **Record outputs versus time**

- **Frequency response measurements**

- **Transient recording**

- **Remote control of instruments**

DESCRIPTION

Acquire is a comprehensive data acquisition package designed to operate most current and many former ***SIGNAL RECOVERY*** instruments from a personal computer. It is suitable for use with all our lock-in amplifiers, boxcar averager, and 5113 preamplifier, and operates via Ethernet, USB, RS232, or GPIB (IEEE-488) interfaces. For most users, the software eliminates the need for them to write control software, so that they can concentrate on the task of taking data. It will also prove invaluable for others who simply want to operate an instrument from a remote location or who wish to integrate their instrument with other computer controlled systems. Up to ten instruments can be controlled at the same time.

The package provides two principal modes of operation. First, in remote front panel mode virtually all of the functions of the connected instrument(s) can be controlled from the computer via a series of simple dialogs. The software is instrument sensitive and adjusts the content of these dialogs automatically to reflect the measurement capabilities and functions available in the connected unit. The data outputs to be displayed can be chosen from the range available and these are then clearly shown on-screen.

The second mode, experiment recording, allows selected instrument outputs to be recorded as a function of time, with the additional option of sweeping certain outputs (e.g. oscillator frequency, auxiliary DAC voltage, digital filter frequency, digital delay and/or digital port setting) as the experiment proceeds. When used with a lock-in amplifier, any auxiliary ADC inputs can be configured as trigger inputs, allowing data to be logged as function of external trigger events.

As data is acquired, it is displayed on screen and can be printed, as well as being saved for later use. Displayed plots can use a variety of line formats, while four curve cursors allow direct readout of measured values. However, with the very wide range of applications in which SIGNAL RECOVERY instruments can be used, it is not possible to anticipate every possible format in which the acquired data will be displayed. Hence many users take advantage of the export function to save the data to disk for display and/or further manipulation using other software.

A comprehensive help system is built in and free support is available to registered users.

www.signalrecovery.com

Specifications

Compatible Instruments

Acquire will operate the **_SIGNAL RECOVERY_** Models 4161A, 5105, 5106, 5113, 5110(A), 5209, 5210, 7124, 7220, 7260, 7225, 7225BFP, 7265, 7270, 7280, 7280BFP, 7310, and 9650A. Up to ten instruments can be operated simultaneously.
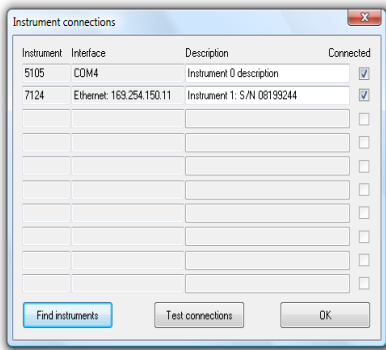

Instrument Connections Dialog

Capabilities

Instrument Connection

The package automatically detects compatible instruments connected via Ethernet, USB, RS232 or GPIB interfaces and displays a connections dialog where the instruments can be allocated meaningful names.

Remote Front Panel

All functions of the connected instrument(s) may be controlled remotely, with selectable on-screen display of outputs from those available. The display updates regularly, depending on speed of computer but typically at 2 - 3 Hz. The control panel can be shown in two sizes, one with tabs for the instrument controls and the second with just the output meter displays.
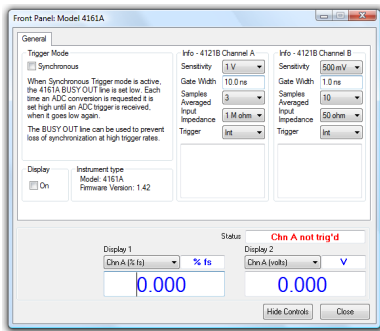
Remote Front Panel - Controls and Outputs Displayed

Remote Front Panel - Outputs for two instruments displayed
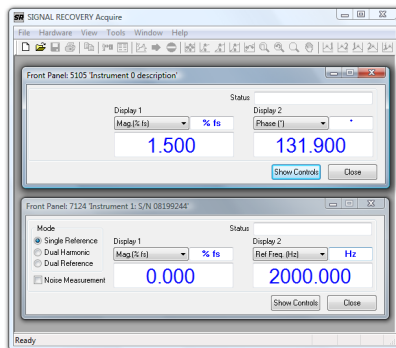
Front panel operation of the connected instrument(s) is inhibited while the software is running to prevent unauthorized interference with settings.

Define Experiment

Users can define an experiment in which Y-axis data will be recorded as a function of an X-axis variable. The X-axis may be chosen as follows:-

◆ *Models 5105, 5106, 9650A, 5113*
Time only - Data acquisition may only be initiated from the software.

◆ *Model 7310*
Time, digital filter frequency, digital output port value, and trigger events.

◆ *All others*
Time, oscillator frequency, oscillator amplitude, auxiliary DAC output voltage, digital output port value, and trigger events. Data acquisition can initiated directly from the software or on receipt of a trigger, and can then either free-run or be on the basis of one point per trigger.

The Y-axis data to be recorded is selected from the outputs provided by the instrument(s). Hence, for example, dual phase lock-ins may record X, Y, Magnitude and Phase outputs; the 7310 Noise Rejecting Voltmeter can record output voltage, maximum and minimum outputs; the 4161A can record Channel 1 and Channel 2 voltage. Between one and eight outputs can be recorded in a given experiment.

File Storage and Data Display

Acquired data may be stored and recalled from disk, and displayed on user-adjustable axes. The line format used on plots can be selected, and four curve cursors allow direct readout of data point values.
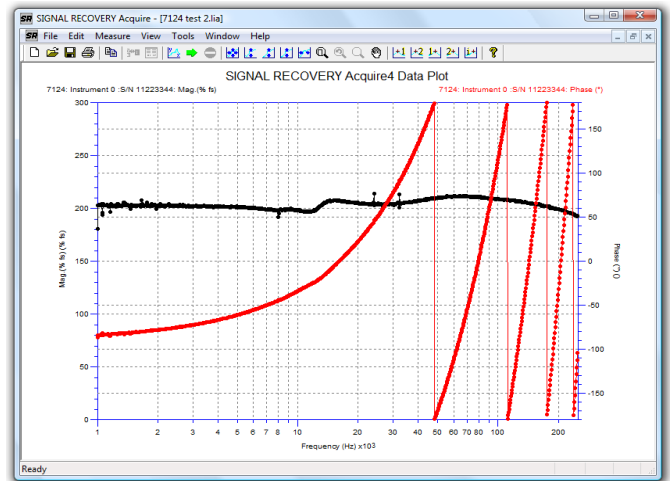
Typical Data Plot
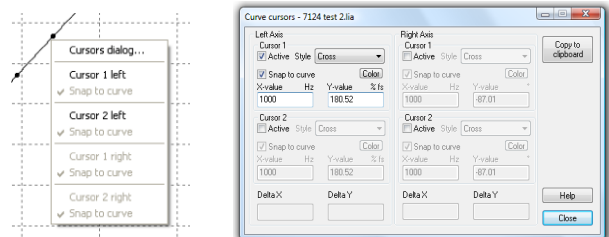
Curve cursors for easy readout of data values

Software

Data plots may be manipulated for optimum display prior to printing, and can be copied to the clipboard for subsequent pasting into other applications.

Data can also be exported to ASCII text files suitable for import to third party software to allow further analysis.

Ordering Information

Acquire includes the software supplied on CD and a 83-page instruction manual. It is also possible to download the full program from the **www.signalrecovery.com** website. When installed, this runs in a demonstration mode, known as DemoAcquire, but can be converted to the full program by purchasing an Activation Code.

Acquire is licenced for use on a single computer; for multiple or redistribution licenses please contact us first.

Optional Accessories

Model CE0114S	National Instruments PCI-GPIB Interface Board	
Model CE0115S	National Instruments USB-GPIB Interface Cable	
Model CE0116S	USB-RS232 Serial Adaptor	
Model SC0073	2m GPIB cable	
Model SC0067	4m GPIB cable	
Model SC0066	1m GPIB cable	
Model C01001	9F - 9F Null Modem RS232 cable (for models 5105 and 5106)	
Model C01002	9F - 25M Null Modem RS232 cable (for models 5109, 5110, 5209 and 5210)	
Model C01003	9F - 9M Null Modem RS232 cable (for models 7124, 7220, 7260, 7225, 7225BFP, 7265, 7270, 7280 and 7280BFP)	
Model K02001	25F - 9M RS232 adapter.	
Model 796190	6' (2 meter) long USB type A to type B cable for connecting model 7124 and 7270 to the USB port on a computer	

Points	Time s	7265: Instrument 0 description: Osc Frequency Hz			7265: Instrument 0 description: Mag.(% fs) % fs	7265: Instrument 0 description: Phase (°) °
0	0	1.00E+01			8.91E+01	−1.11E+00
1	0.28	1.19E+01			9.92E+01	−9.83E+00
2	0.5	1.38E+01			9.87E+01	−1.24E+01
3	0.72	1.57E+01			9.79E+01	−1.49E+01
4	1.05	1.76E+01			9.69E+01	−1.87E+01
5	1.27	1.95E+01			9.63E+01	−2.01E+01
6	1.54	2.14E+01			9.52E+01	−2.35E+01
7	1.82	2.33E+01			9.40E+01	−2.64E+01

Export Data as ASCII Text Files

Free Demonstration Version

We offer a version of the program, DemoAcquire, which allows you try out the software and decide whether or not the full version will meet your needs. You can download it and the instruction manual from our website at **www.signalrecovery.com**
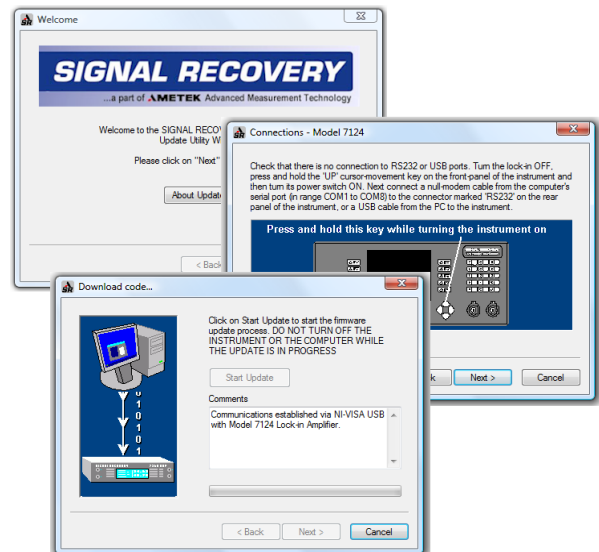

Firmware Updates
for DSP Lock-in Amplifiers

The operating firware in all *SIGNAL RECOVERY* DSP lock-in amplifierscan be updated to the latest version by downloading Update Packs from the **www.signalrecovery.com** website. Each pack contains the firmware, release notes, installation program, and full instructions making it a very simple task to keep your instrument completely up to date. All that is required in addition is a Windows PC and a suitable RS232 or USB cable.

All models can be updated via the RS232 interface; the models 7124 and 7270 can in addition be updated via USB.

Firmware Update Utility