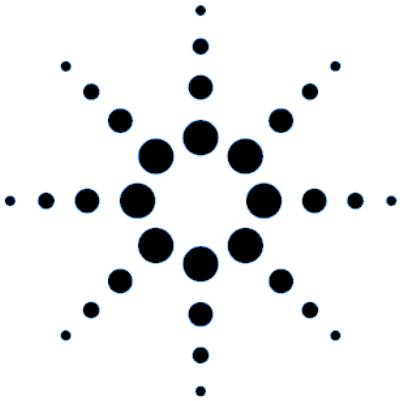

Quick Start Guide

Agilent Technologies 14565A Device Characterization Software

for Windows 95, Windows 98, and Windows NT 4.0

Agilent Technologies

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Description

What the Agilent 14565A Will Do

The Agilent Technologies 14565A Device Characterization Software is an easy-to-use graphical user interface for the Agilent 66300-series Dynamic Measurement DC Sources. With it, you can:

- Control output and measurement functions from a single screen.
- View an oscilloscope-like display of dynamic output measurements.
- Superimpose up to two stored waveforms on active waveform data.
- Get measurement details by zooming in on active waveforms.
- View calculated measurements based on active waveforms.
- Save and recall waveform data.

What the Agilent 14565A Will Not Do

The Agilent 14565A Device Characterization Software does not:

- Control instruments other than Agilent dc sources.
- Provide drivers for other GPIB instruments.
- Operate with Windows 3.1.

System Requirements

PC

- 486DX66 (minimum)
- 16 Mbytes RAM
- 4 Mbytes of disk space

32-bit Platforms

- Windows 98
- Windows 95
- Windows NT 4.0

Supported I/O

- Agilent 82340B, 82341C, 82341D, 82335B[1]
- National AT GPIB/TNT, AT GP-IB/TNT PnP (Windows 95)
- RS-232

[1]The Agilent 82335B is only supported for Windows 95, provided you have either the E2094F or E2094E I/O library.

Supported Dc Source Models

- Agilent 66309B/D
- Agilent 66311A/B/D
- Agilent 66312A/66332A
- Agilent 66319B/D; 66321B/D

Installing and Running the Software

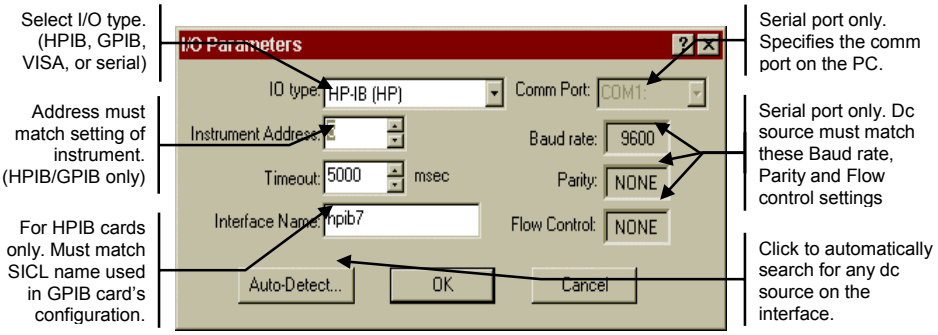
NOTE: Before running the Agilent 14565A application, you must have installed and connected your dc source to the PC using the appropriate interface cable. You must also have the appropriate interface card installed and configured. If you are using an Agilent interface card, you must have the appropriate 32-bit SICL or VISA library drivers installed.

1. Place Disk #1 in the A: drive of your computer and run SETUP.EXE.
2. Follow the directions on the screen to install the software. The README.TXT file contains product updates or corrections that are not documented in the help file. Use any text editor to open and read this file.
3. To run the Agilent 14565A application, click on its desktop icon. You can also click on the **Start** button and select:

   Programs | Agilent 4565A DCS | Agilent 14565A DCS

Configuring the I/O

Make sure that the dc source is turned on. To configure the I/O, select the **I/O Configuration** command in the Edit menu. This step is necessary to establish communication with the dc source. The I/O configuration screen comes up automatically when you turn Simulation mode off in the Source menu.
Note that the serial port is much slower than the HP-IB interface.



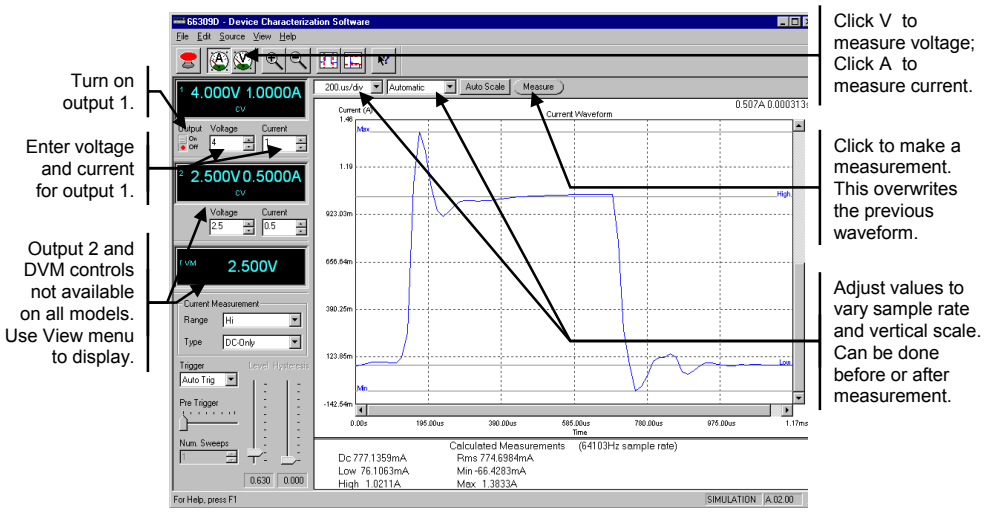
If there seems to be no communication between the Agilent 14565A application and the dc source, select **Auto Detect** to detect any dc sources connected to your pc. Also, try resetting the I/O interface by clicking the red reset button. This also resets the dc source to its default settings.

NOTE: If you program the Agilent dc source from the front panel of the unit, you will need to refresh or update the Agilent 14565A application. Go to the **View** menu and select the **Reread Instrument State** command.

Performing Basic Operations

The **Main** window appears when you run the Agilent 14565A application. From this window you can control the output of the dc source and view output measurements.

NOTE: Not all controls are displayed when you initially run the Agilent 14565A application. Output 2 controls are only available on Agilent 66309B/D and 66319B/D. DVM controls are only available on Agilent 66311D/66309D and 66319D/66321D.



To display a sample waveform:

- Select the **Load Waveform** command in the File menu, and then select **DemoWaveform1.txt**.
- Select **Active Waveform** in the Load Waveform Location dialog box. The waveform should match the one shown in the above figure.

To set the voltage, current, and resistance levels:

- Click in the field labeled **Voltage**, type in the desired output voltage and press Enter.
- Enter a current limit value in the field labeled **Current**.
- For units that have programmable output resistance, enter a resistance value in the field labeled **Resistance**.

To turn on the output:

- Enable the dc source output by pressing the **ON** button. On some models, each output has its own output control. If the message **OVLD** appears in the display, set the Current Measurement control to the Hi Range.

To make a measurement:

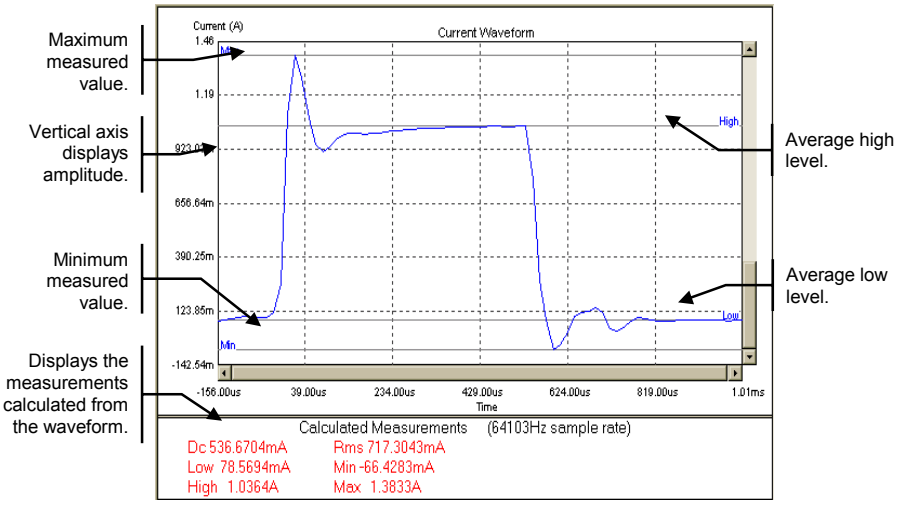
- Click the **A** button to select current measurements; click the **V** button to select voltage measurements.
- Click the **Measure** button to make the measurement.
- Adjust the time/div and amps/div fields to adjust the sample rate and vertical scale. Click **Auto Scale** to fit the display to the acquired waveform.

To view the output 2 controls and the DVM display:

- If your dc source has a second output or a DVM input, go to the **View** menu and check the item that you wish to display.
  ✔ Second Output
  ✔ Digital Voltmeter
  If the item is greyed out, your dc source does not have this feature.

Display Area

The display area displays the output measurement after the Measure button is pressed. Only measurements from the main output can be displayed. The following figure describes the various measurements displayed in the window.



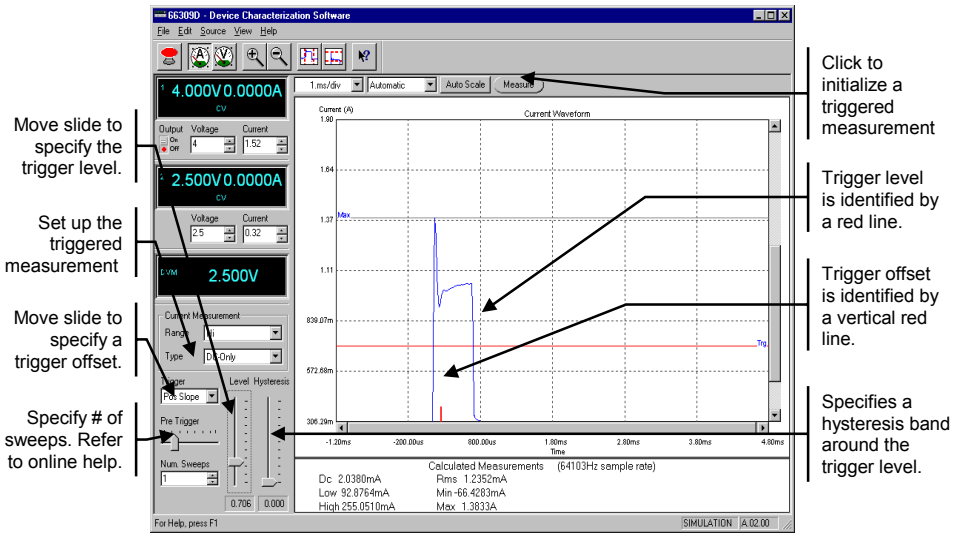
The values in the measurement area at the bottom of the display are calculated from the all of the data that is captured in the display. If horizontal markers have been set, measurements are calculated only from the data between the markers. Refer to Performing Measurements on Waveforms.

Calculated measurements at the bottom of the display may not agree exactly with values shown on the front panel of the instrument if the sample rate of the display differs significantly from the instrument's front panel sample rate.

Making Triggered Measurements

Triggered measurements let you control when the measurement trigger will occur. The following figure describes the various trigger controls.

NOTE: If you do not know where to set the trigger level, you can make a measurement with the trigger set to Auto Trig. Then view the measurement to see where to place the trigger level. Set the trigger controls and make another measurement.



- Click the **A** button to select current measurements; click the **V** button to select voltage measurements.
- Set the **time/div** control to a value that is appropriate for the load's transient timing.
- Select a trigger setting. Choose from **Pos Slope**, **Neg Slope**, or **Either Slope** to set up the triggered measurement.
- Adjust the **Level** slide control until the trigger level is at the point where the trigger should occur. The trigger level is displayed as a red horizontal line on the display.

NOTE: The trigger level cannot go negative. Set the trigger control to **Auto Trig** to trigger negative waveforms.

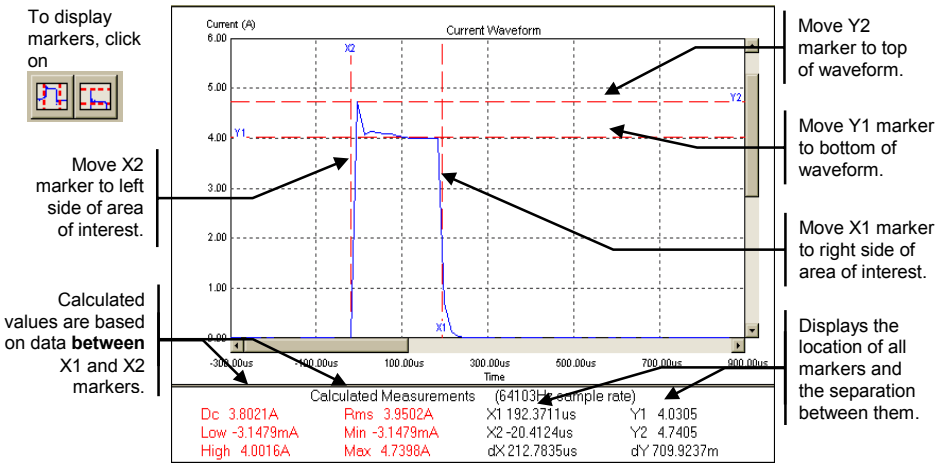
- Use the **Pre-Trigger** control to show pre-trigger waveform information. When this control is used, the trigger point will be displayed as a short vertical red line on the bottom of the waveform display graph.

- To prevent signal noise from triggering a measurement, you can adjust the **Hysteresis** slide control to create a hysteresis band around the trigger level. The hysteresis band is shown in yellow. Triggers cannot occur inside the hysteresis band.
- Use the Envelope control to more accurately average the High level of multiple current pulses (refer to the online Help for more information).
- Click the **Measure** button to initiate the triggered measurement.
- The display should now show the voltage or current waveform starting at the trigger level.
- Change the **amps/div** control to adjust the vertical scale or press the **Auto Scale** button to maximize the displayed waveform size.

Performing Measurements on Waveforms

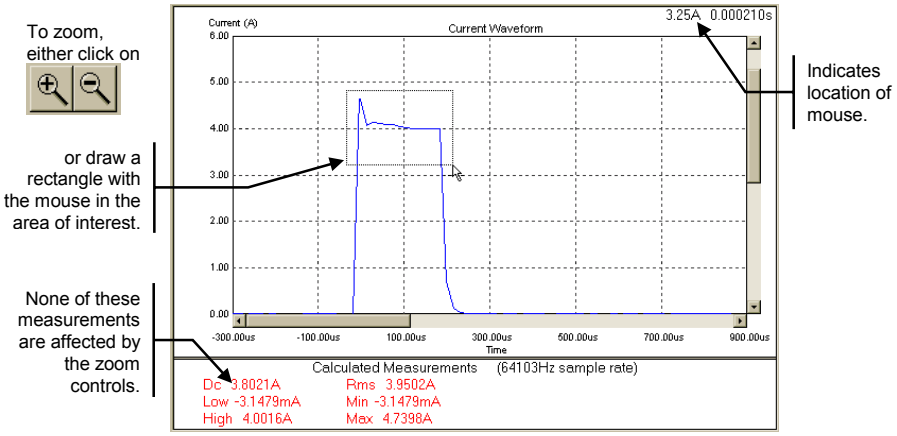
Use the marker controls to make precise waveform measurements.

- To view the horizontal and vertical markers, click on the marker buttons on the toolbar. Use the mouse to position the marker.



You can also zoom in on a specific area of the waveform. Zooming in only rescales the display, no calculations are performed in the zoom area.

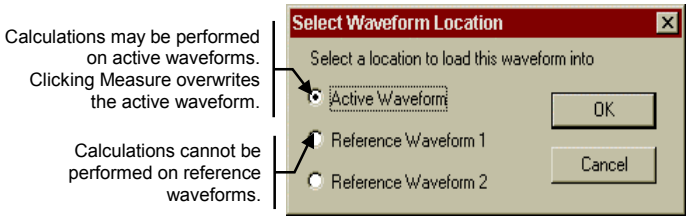
- To zoom in on a specific area on the display, use either the zoom in button on the toolbar, use the mouse to draw a rectangle on the display.
- To zoom out, use either the zoom out button or place the cursor in the display area and right-click on the mouse. Then select **Zoom Out**.



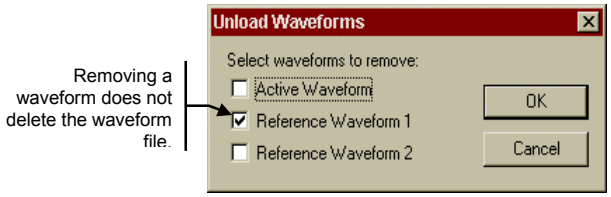
Placing a Waveform on the Display

Up to two reference waveforms can be shown on the display along with the measured or active waveform. This is useful if you want to compare waveform measurements to a "standard" or reference waveform to make a pass/fail determination on the measurement. Waveforms are displayed in different colors, which can be edited by selecting Edit/Preferences. Measurement calculations can only be done on active waveforms, not reference waveforms.

- Select the **Load Waveform** command in the File menu to load a waveform.
- Enter the filename of the waveform in the Open dialog box. The default location for waveforms is **C:\ Program Files \ Agilent \ 14565A DCS**.
- Select **Active Waveform** in the Select Waveform Location dialog box only if you want to perform measurements on the loaded waveform.



- Use the **Remove Waveform** command in the **File** menu to remove a loaded waveform from the display.



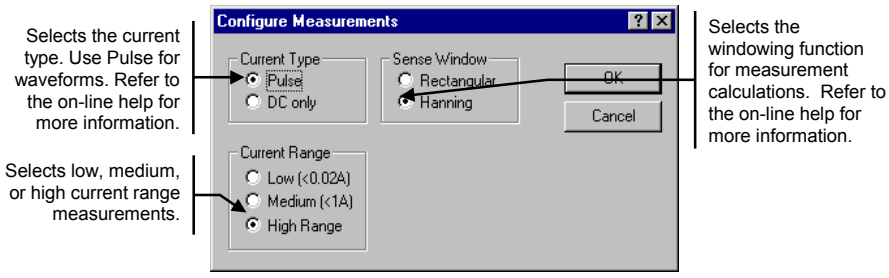
Printing and Saving Measurement Data

The Agilent 14565A application supports printing and print previewing of the display. Use the **Print Preview** command in the File menu to preview the display. Use the **Print** command to print the display to your default printer.

Use the **Save Waveform** command in the File menu to save the voltage or current measurement data to an ASCII text file that you specify in the Save As dialog box. All of the data points that comprise a waveform are logged in a 2-column Time/Voltage or Time/Current format. The information can be imported into a database or spreadsheet, or edited by a text editor. This is useful if you need to create a reference waveform that you would normally not be able to create by just taking a measurement.

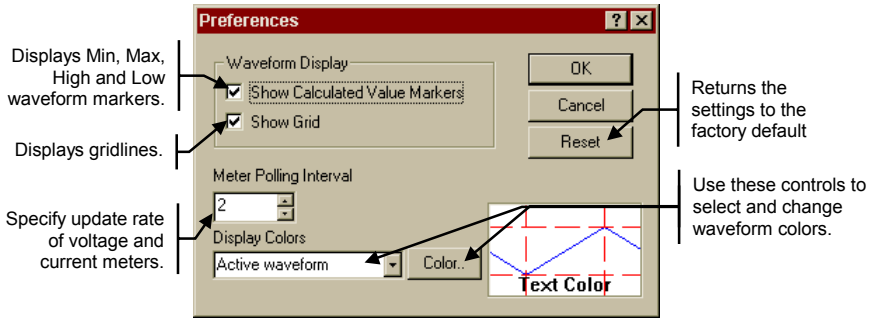
Advanced Measurement Settings

To configure output measurements, select the **Measurement Settings** command in the Source menu.



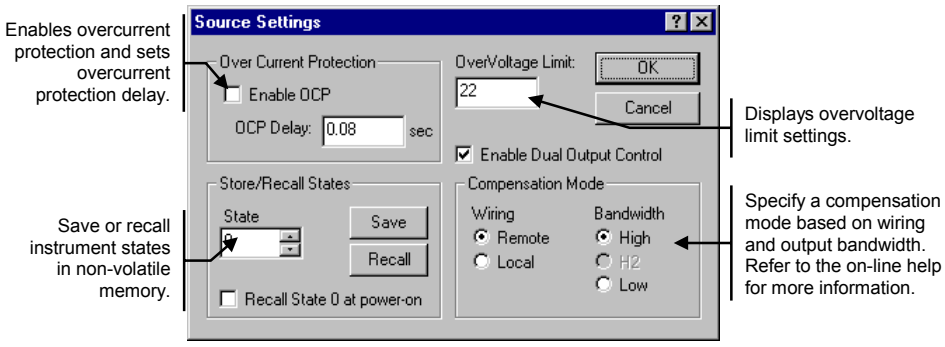
Display Preferences

To configure display preferences, select the **Preferences** command in the Edit menu.



Source Settings

To display the protection settings of the dc source that is presently being controlled, select the **Source Settings** command in the Source menu.



Sample Waveforms

Several sample waveforms are provided with the Agilent 14565A application. If you do not have a dc source connected to your PC, you can still become familiar with the application by trying out the various display functions using the sample waveforms. Use the **Load Waveform** command in the File menu to load one of the sample waveforms.

DemoWaveform1.txt

This waveform is a single transmit current pulse from a cellular phone. It clearly shows the location of the Max, High, Min, and Low measurement points.

DemoWaveform2.txt

This waveform is also a single transmit current pulse from a cellular phone. Its main features are the multiple low-level signals. Note that the High and Low levels of the waveform are based on the two portions of the measurement (out of a total of 1024 equally divided portions), that have the most high or low points - and that include at least 1.25% of the total measurement points.

DemoWaveform3.txt

This waveform includes three transmit current pulses from a cellular phone. Note that in this case, the High and Max values are the same. This is because no portion of the measurement above the 50% point includes at least 1.25% of the total measurement points.

Warranty

This Agilent Technologies software product is warranted against defects in materials and workmanship for a period of 90 days from date of delivery. During the warranty period, Agilent Technologies will, at its option either repair or replace parts which prove to be defective.

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