A new feature in 4Sight software provides highly readable, real-time feedback for easy alignment and production measurement

On-Screen Statistics Aid Measurement

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Introduction

Optical setups commonly require components to be positioned across long measurement distances, in measurement towers or in difficult-to-access areas. Aligning these systems can be a challenge because the measurement computer's monitors are located too far away to provide useful feedback.

To address this challenge, 4D introduced the ability to display statistics in real time, in large, readable fonts, on the primary measurement displays in 4Sight Analysis Software. Used in conjunction with 4Sight's Continuous Measurement mode, on-screen statistics make it easier and faster to align and measure complex optical systems. The feature also provides necessary information for fast quality control checks and volume production measurement.

The on-screen statistics feature, first made available in 4Sight Version 2.7, allows you to display statistics in several 4Sight windows:

- on Contour Plots (2D, false-color height maps)

- in the Floating Live Video window, which shows live output from the camera for alignment, and/or

- in the QC Measurement window, where system and setup repeatability can be verified.

Statistics can be displayed using your choice of font, size and color to make them highly legible even from a distance. You can choose a different set of statistics and different font options for each type of window. Figure 1 shows statistics on a Contour Plot and in a Floating Live Video window.

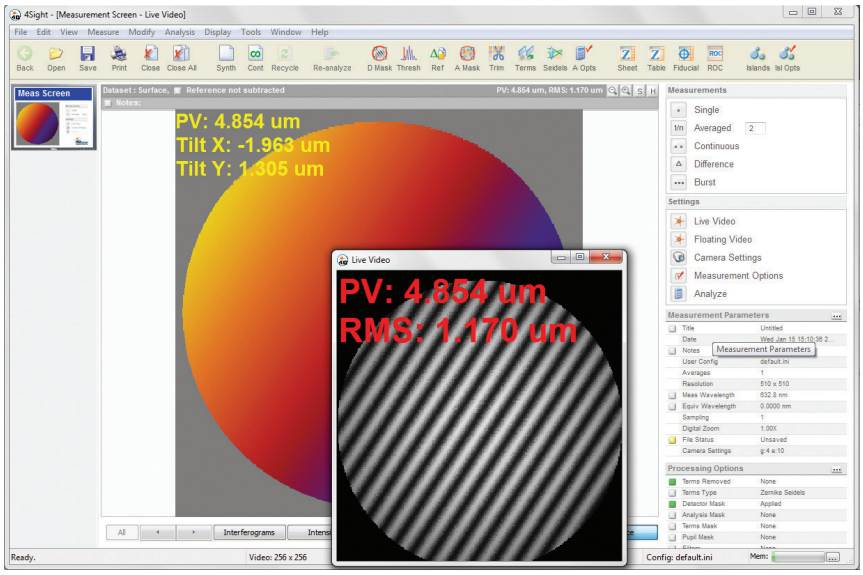


Figure 1. On-screen statistics in a Contour Plot and in the Floating Live Video window.

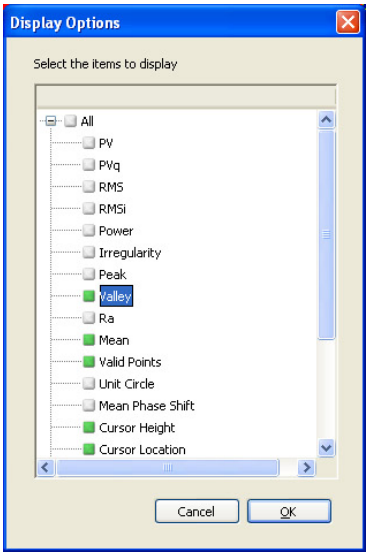
Setting Up On-Screen Statistics

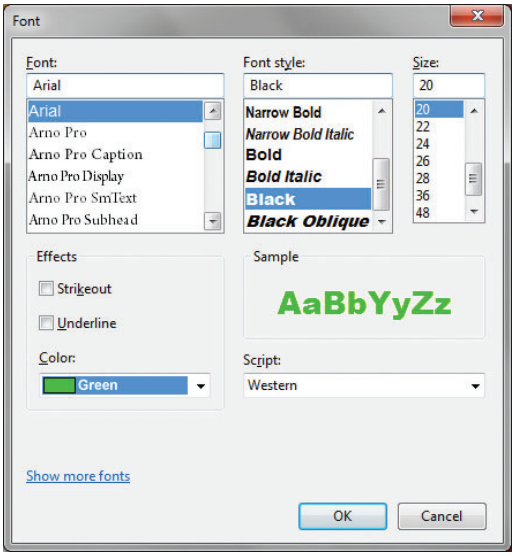
To display on-screen statistics:

1. Right-click on a Contour Plot, Floating Live Video window or QC Measurement window, and choose **Select**

Statistics. The Display Options dialog box will open (Figure 2).

2. Click the box to the left of each statistic you wish to display. Green boxes denote the statistics which will be displayed. Click **OK** to close the dialog box.
3. Right click on a Contour Plot, Floating Live Video window or QC Measurement window, and choose **Select Statistics Font**. The Font dialog box will open (Figure 3).
4. Select the font, style, size and color in which to display the statistics, then click **OK**.





Figures 2 and 3. Select statistics to display, then choose the font, style, size and color in which to display them.

Now, when you make measurements the statistics will be displayed on all selected windows. Each time you take a measurement the statistics will be updated.

The on-screen statistics will also be saved when a measurement window is saved as a bitmap. You can use this feature to easily document the performance and specifications of test optics.

Note that some 4Sight windows, such as the Zernike Worksheet, include smaller, embedded Contour Plots. Due to size restrictions these plots do not include on-screen statistics.

Using On-Screen Statistics

On-screen statistics are useful when you need to be able to see results from a distance. For example, if you are aligning the optics in a long-standoff measurement you may be quite far (sometimes many meters) from the interferometer, and thus from the computer screen. In this case you may choose to display Tilt and Power in large type on the Floating Live Video window so that you can view the results from across the room. Use Continuous Measurement mode to provide immediate, continuous feedback as you adjust the system alignment. In the main 4Sight measurement screen you might choose to view RMS, PV and other measurement parameters in smaller type to view while measuring the optic once the alignment is complete.

The immediate feedback is also useful when aligning an optical system in a measurement tower, when working with a Digital Radius Slide, or when light levels or safety equipment make it difficult to see small screen print.

In a production environment, on-screen statistics let you quickly see the measurement results for each sample part. The feature complements 4Sight's database feature, which lets you log measurement parameters to a comma-delimited database with pass/fail criteria for accurate, rapid analysis.