



HD DIGITAL **MICROSCOPE IMAGER**

SOFTWARE MANUAL

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Function Keys Explained



Snapshot

Allows you to take a still image

Hot Key: F3

NOTE: The maximum resolution attainable is 5MP (2592 x 1944) for Windows machines and 2MP (1600 x 1200) on Mac systems



Zoom

6x zoom feature works on both streaming image and saved images

Hot Key: +, -



Record

START and STOP recording a video (saved as an AVI video file)

Hot Key: F4



Playback

Automatically plays back the LAST recorded video



Compare

Compare button allows for viewing the live-streamed image with a previously saved picture or video

NOTE: Go to the “Compare feature explained” on page 3 of this manual for more details



Video Setup

Video and snapshot format settings

NOTE: Go to the “Video Setup features explained” on page 5 of this manual for more details

Hot Key: V



Freeze

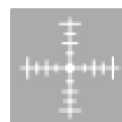
Freeze button “freezes” the live feed. This is great for imaging living creatures

Hot Key: F



Image Properties Settings

Allows for the adjustment of critical image viewing settings like: Brightness, Contrast, Hue, Saturation, White balance, etc.



Cross Hair

This feature will place a cross hair in your streaming image



Save to clipboard

This feature allows you to quickly save a snapshot to the clipboard and then paste that snapshot into imaging software or into a report



Manual

This will open the Celestron Imager HD Software manual

NOTE: Adobe Reader needed to view

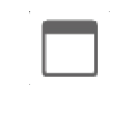


Measurement

This feature allows for measuring and making notes on a saved image

NOTE: Go to the “Measurement feature explained” in this manual for more details

Hot Key: M



Full Screen Zoom

Click icon or double-click on the streaming screen to expand to full screen size, Double-click the screen again to minimize full screen



Power Down

This will close the Celestron Imager HD Software

Hot Key: X

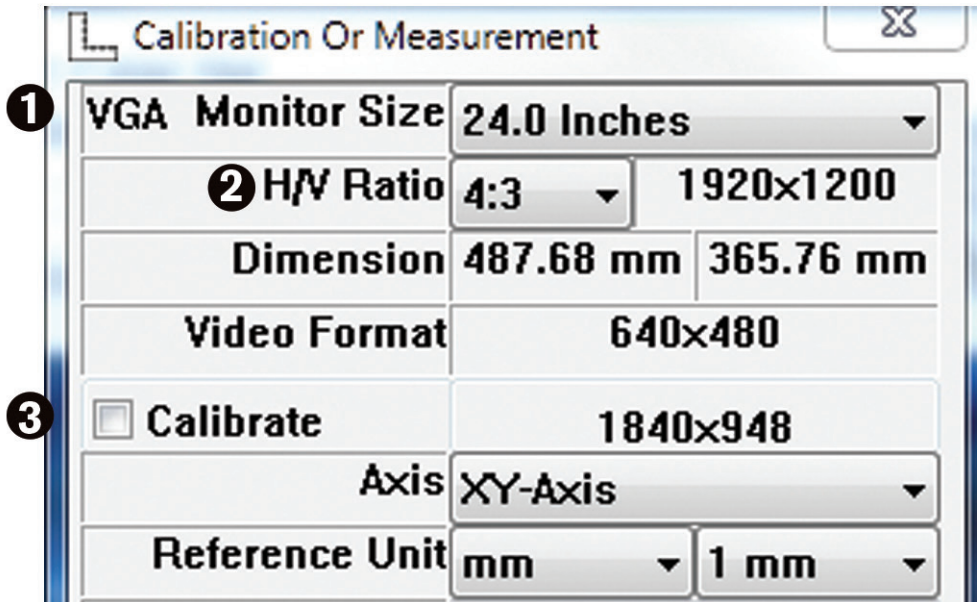
Compare Feature Explained

Compare with one Imager

1. Click on the compare button and a second “compare” window will appear on the screen directly to the right of the streaming screen.

NOTE: For best results, make sure your *monitor resolution* is set at 1440 x 900 and the *video resolution* in the software settings is at 640 x 480.

2. Drag an image from the “list bar” at the bottom of the screen into the new “Comparison screen.”



3. The Streaming screen will still support the “freeze” frame to compare two images.

4. You can also compare two existing pictures using the Compare feature. Just drag the desired picture from the list bar to the left side of the screen to replace the streaming window.

5. Click  or  to return to normal mode.


NOTE: The maximum resolution attainable is 5MP (2592 x 1944) for Windows machines and 2MP (1600 x 1200) on Mac systems.

Compare with Dual Imagers

1. Plug a second Imager into another open USB port on your computer.

2. Click the “Compare” button and the second window will again appear on the right as before.

NOTE: For best results set video settings to a minimum of 640 x 480 pixels.

3. Click  to refresh the image of the second microscope.

NOTE: The 2nd Imager will only support the “snapshot”, “video record” and “preview images” functions.

Compare - Second Imager Function Key List



Imager 2
Enables/Disables the second Imager



Save clipboard
Copies the live image to clipboard



Snapshot
Takes a picture



Video Quality
Allows for the adjustment of critical image viewing settings (on Imager 2) like: Brightness, Contrast, Hue, Saturation, White balance, etc. for second imager



Save BMP HR
This feature combines the two live images being compared in a horizontal or landscape format (default)



Save AVI 2
Allows for recording video through second Imager



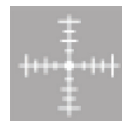
Save BMP VT
This feature combines the two live images being compared in a vertical or portrait format
NOTE: The “Save BMP HR and BMP VT” functions are disabled when comparing a live stream to a previously existing image



Save AVI HR
Allows for saving video with Imager 1 and 2 when in compare mode. (NOTE: Movies are saved in horizontal format and at 640x480 resolution only)



Print Dual Camera
Allows for printing both streaming images when using the “Compare second imager” feature



Cross Hair
This feature places a cross hair in your streaming image(s)

4. To exit the comparison mode, click the



NOTE: If you EXIT out of the Celestron Imager HD software when in Compare mode, compare mode will load again upon restart

NOTE: Imager 2 resolution settings will change in unison with Imager 1 settings

Video Setup Features Explained

When you click the Video Setup button, this window will appear -->

1. Source - Allows a user to choose the image source if there is more than one imager connected to the computer.
NOTE: Webcams and other imaging devices may show up here as well. Disconnect any image devices when using your Celestron Imager HD

2. Video Format - Select your video resolution format here. The choices are:

- 640 x 480 (VGA) 30 fps
- 1024 x 768 (XGA) 30 fps
- 1280 x 720 (SHD) 30 fps
- 1280 x 960 (UGA) 30 fps
- 1920 x 1080 (FHD) 24 fps

3. Video Adjust - This will take you to the “Image Properties Settings” window, where the contrast, hue, white balance, etc. can be adjusted.

4. AVI - AVI allows you to browse and setup a folder on your computer where your videos will be stored.

5. Timelapse - Check this box to create a time lapse video. After checking box you will then select the rate at which you will record a 1 second video. (For example, if you choose 5:1, every 5 seconds the imager will record 1 second of video concurrently; choosing 60:1, every 60 seconds (or 1 minute) the imager will take a one second video.)

6. BMP - BMP allows you to browse and setup a folder on your computer where your snapshots will be stored
NOTE: if you prefer to save the snapshots in jpeg format, select the check box “save as jpeg”.

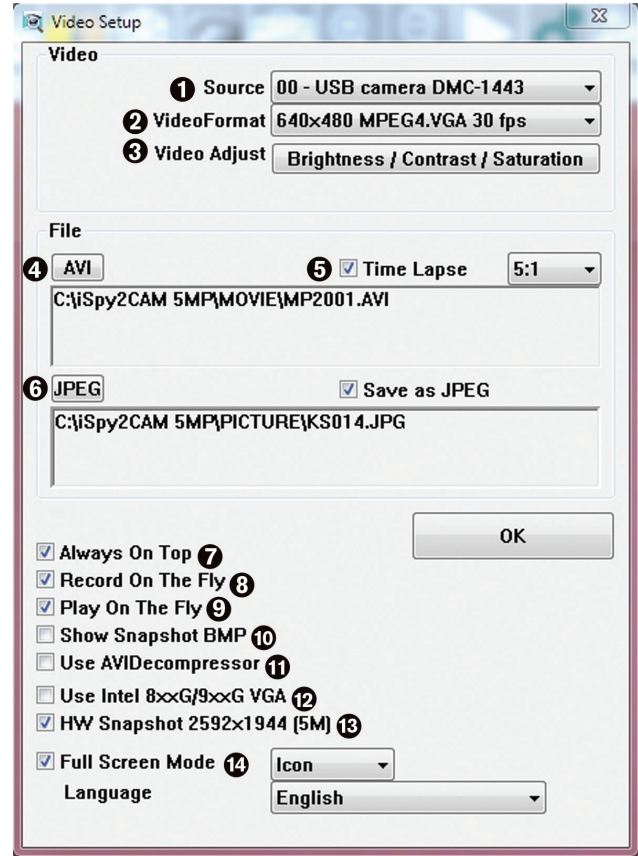
7. Always on top - Checking this box makes the Celestron Imager HD software stay on the top layer of any software windows you might have open on your computer.

8. Record on the FLY - This allows you to start viewing, streaming and recording right away, with no need to setup a folder to save the pictures to the computer. If not checked, you will be prompted to setup a destination folder.

9. Play on the Fly - This will make the video play immediately after recording.

10. Show Snapshot BMP - After taking a snapshot the preview window will appear.

11. USE AVIDecompressor - This is only for computers running Windows XP SP2 or older. DO NOT select this box if your operating system is newer than that.



12. Use Intel 8xxG/9xxG VGA - On some computer systems with an Intel chip, the preview image can be abnormal. If you are experiencing this, check this box.

13. HW Snapshot 2592x1944 - Mark the box and you can save the picture with maximum resolution of 2592x1944 (5-MP) when you click the hardware snapshot button.

14. Full Screen mode - Selecting this box makes the Celestron Imager HD open in “full screen” mode by default. You can also fine tune the full screen mode choosing any of the below features:

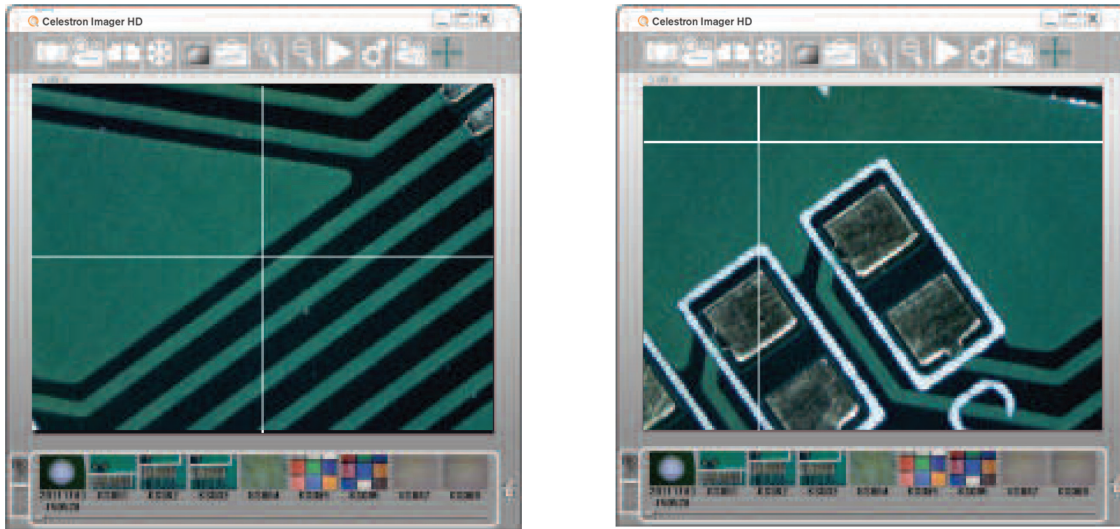
4:3 - Selecting “4:3” keeps the live streaming window in a 4:3 aspect ratio. This ratio is necessary for using the measurement feature.

Full - “Selecting “FULL” keeps the live streaming window expanded to fill your monitor.:

Icon - Selecting “ICON” will display the preview live stream in full screen, but the Celestron Imager HD software icons will be visible. Again, some elements of your specimens may be distorted in this configuration.

Cross Hairs

1. In the live stream if you click the cross hair button the cross hair will appear.
2. You can move the center position of the cross hair by right clicking on the screen where you want the center to be.



NOTE: The cross hair will show up in your snapshots and can be helpful when you want to highlight a section of the specimen.

3. To deactivate the cross hair function, click on the cross hair button.
4. To re-center the cross hair in your live stream, right click the cross hair button.

Preview Saved Images

You can drag an image thumbnail from the list bar into the live stream window or simply double-click the thumbnail in the image bar.



Drawing mode

Click the Drawing mode button and a "Paint" window will open, allowing you to add notes, shapes etc. to your image before saving.



Save file

Click this button to save as a new file.

NOTE: The default file name will be the DATE and TIME that the image was saved. It will be previewed on your list bar and saved to your pre-determined folder on your computers hard drive. To rename, go to the destination file.

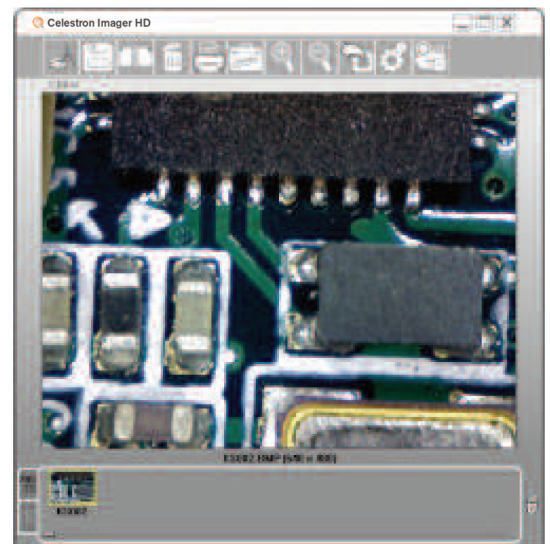
Hot Key: S



Go Back

Clicking this icon will bring you back to the live streaming window.

NOTE: For other function keys refer to page 8.



Measurement Function

Click the Measurement button, and a freeze frame of the live stream image will appear in the new measurement window.

Instructions for the Measurement window:

1. VGA monitor size

Select the size of your monitor.

2. H/V ratio

Select your monitor's aspect ratio.

3. Calibrate

This will open a new window in which to calibrate the measurement feature. (See the Measurement calibration instruction on the next page for details).

4. Measure

Here you will get more specific on how you want to measure.

Accuracy

Choose your tolerance of accuracy. The numbers represent decimal points and you can select up to 9 which would be .000000001.

Mode

The Mode is defining what type of measuring you will do: Line (point A to point B), Angle, Circle (diameter), Ellipse, Rectangle (area), Triangle and 3 dot radius.

5. Date/Time

Check the box if you want to record the date and time of when the measurements were taken.

6. Notes

Click this window and then make notes. These notes will show up on the final image with dimensions.

7. Ruler guides

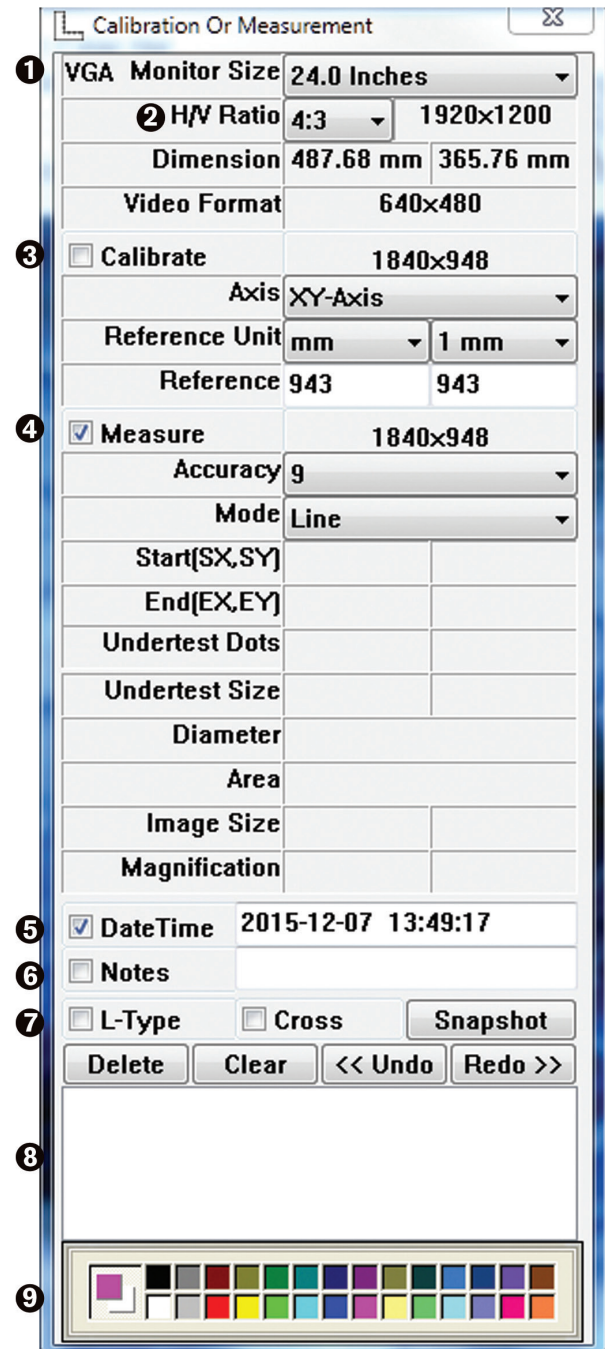
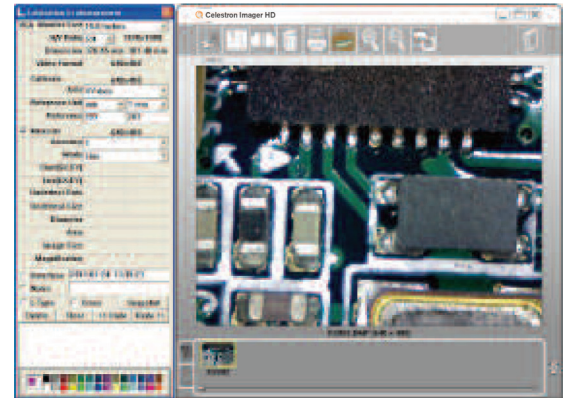
Check the L-type or Cross if you want this function.

8. Record history

Record the measurement actions. It allows the user to delete a record or clear all history records.

9. Color

Here you choose the color of your measurement lines and words.



Measurement Calibrate

1. With the imager in place, place a calibration ruler on your microscope stage, and focus.

NOTE: For calibrating with a high power compound microscope, use a clear ruler with very small increments and make sure to use the smallest objective available.

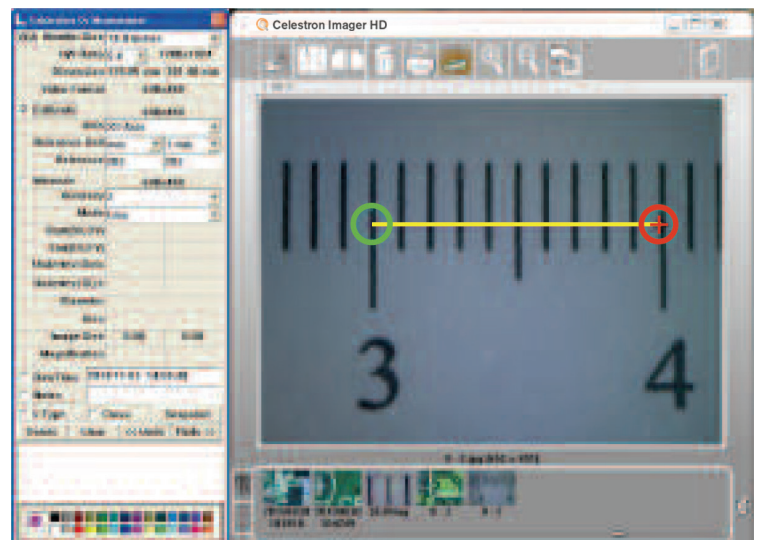
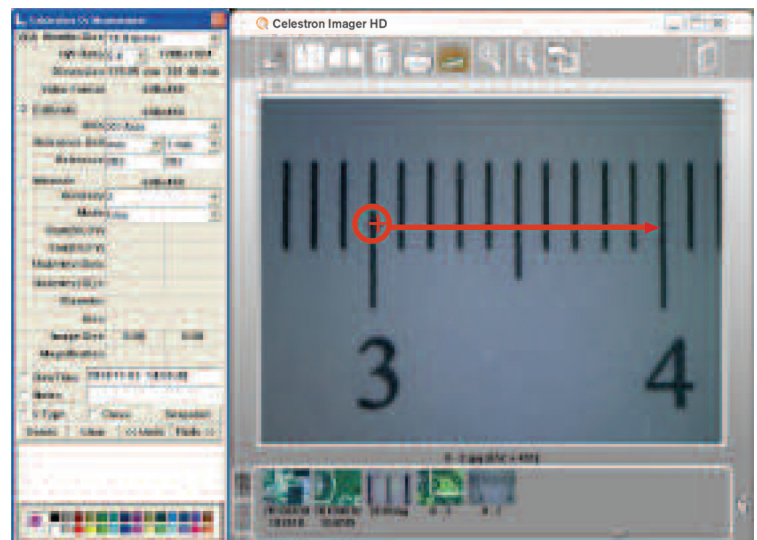
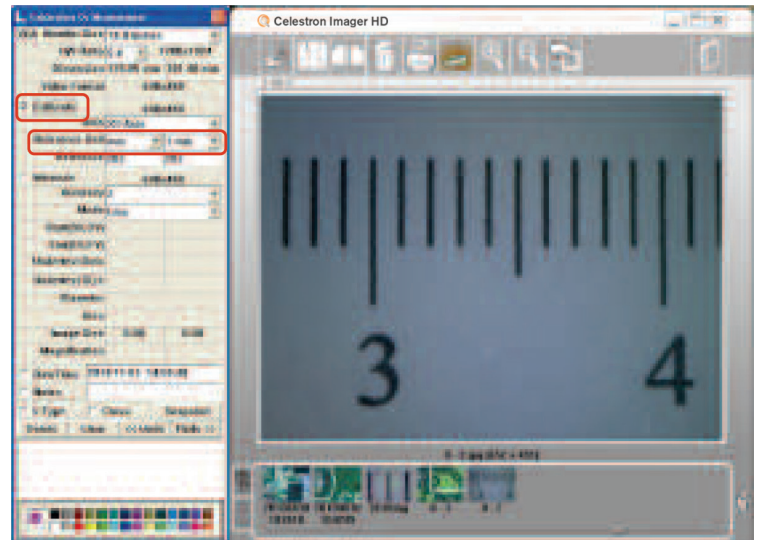
2. Take a snapshot of the ruler.

3. Select the “Measurement” button, and the “Calibration or Measurement” window will appear.

4. Select “Calibrate”, and choose the “Reference Unit” that is the largest dimension visible on your snapshot. For example: Choose a known unit, that you can measure, like a millimeter or centimeter.

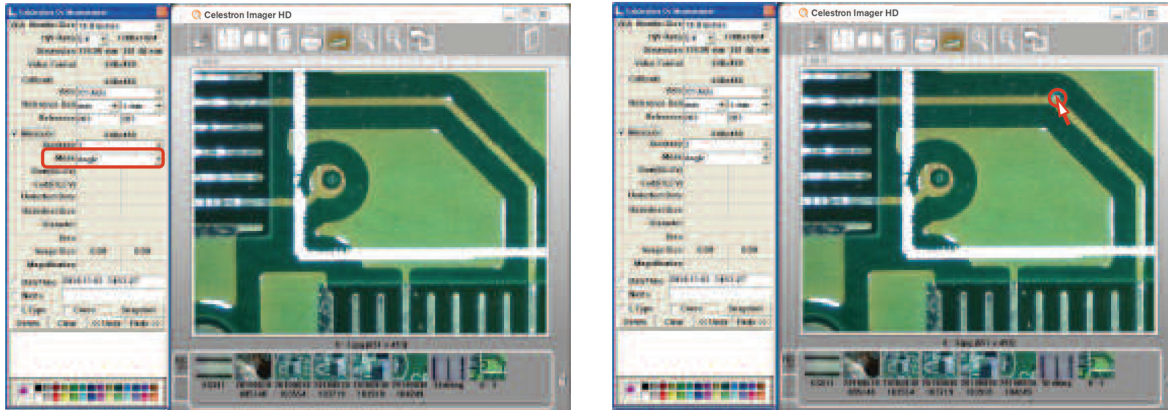
5. Holding the right mouse button, drag a line from point A to point B along the “known distance”, then release the right mouse button. The calibration is now complete.

6. Now open the image you would like to do actual measuring on, or return to the streaming window and select the “measurement” button.

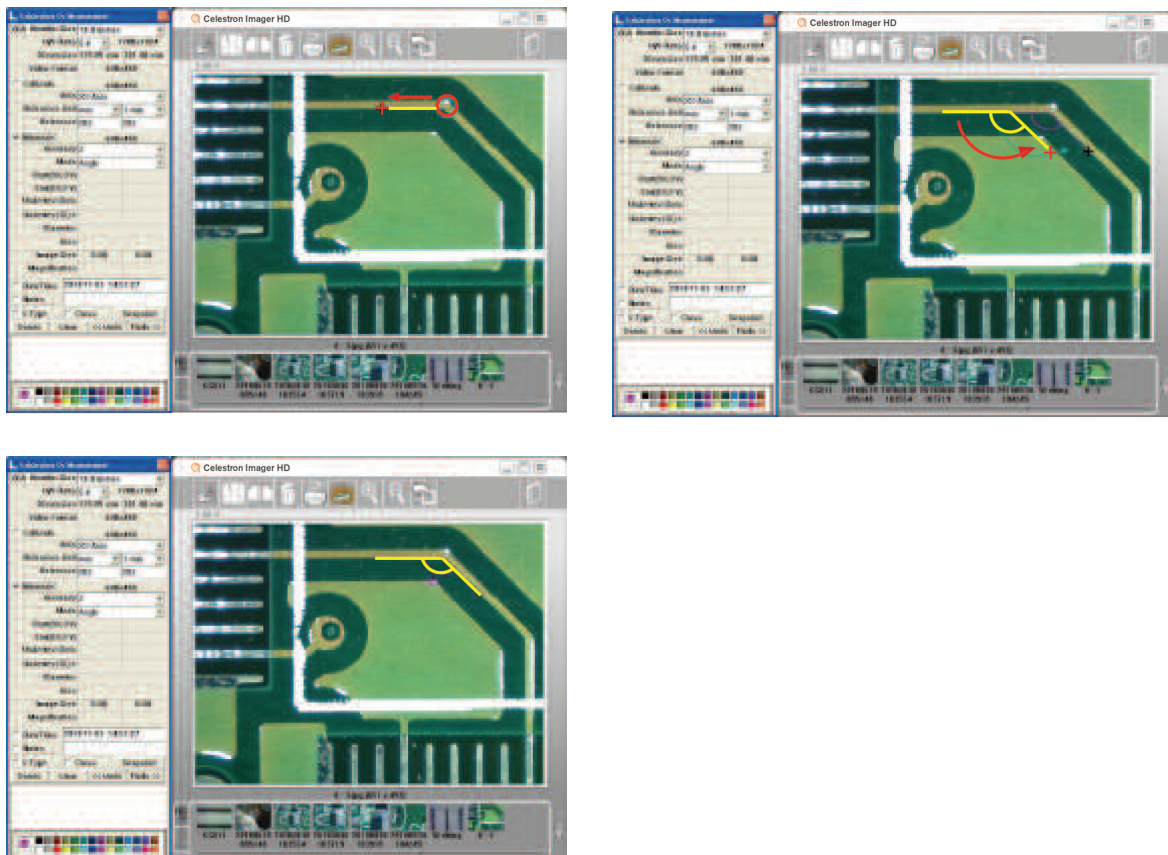


Making an Angle Measurement

1. Select the “Measure” box. Then select the “Angle” Mode. Set the “Accuracy” to the number of decimal points you want to use.
2. Hold the right button of the mouse at the first point.
3. Drag to the left side and release the right button of the mouse.



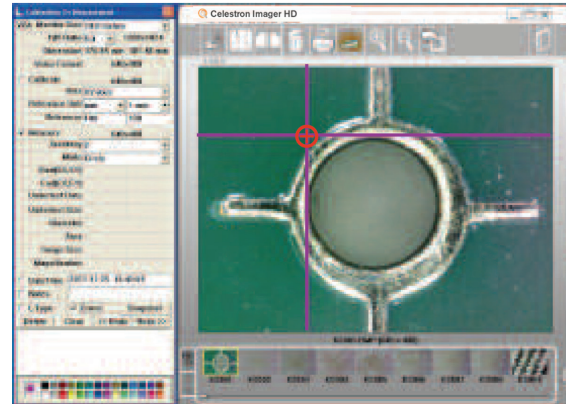
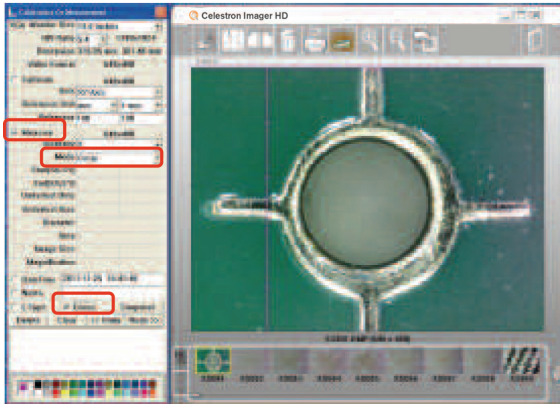
4. Hold the right button of the mouse and drag to the other side counterclockwise.
5. Release the right button of the mouse, and the angle measurement will appear



Making a Circle Measurement

1. Select the "Measure" box, then the "Circle" Mode.
2. Check the "Cross" function.
3. Hold the right button of the mouse at the upper left of the object.

NOTE: Use the X axis cross line, aligned with the top of the object and the Y axis cross line with the left-most point of the object.

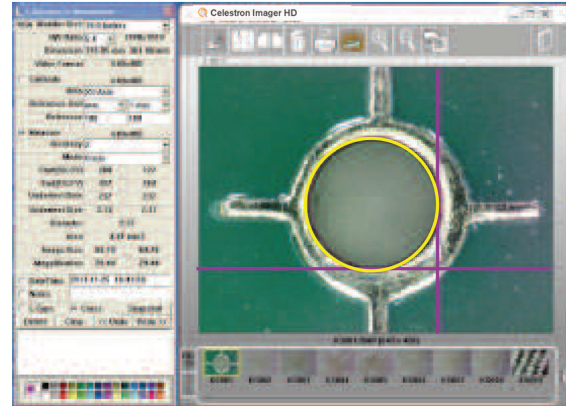
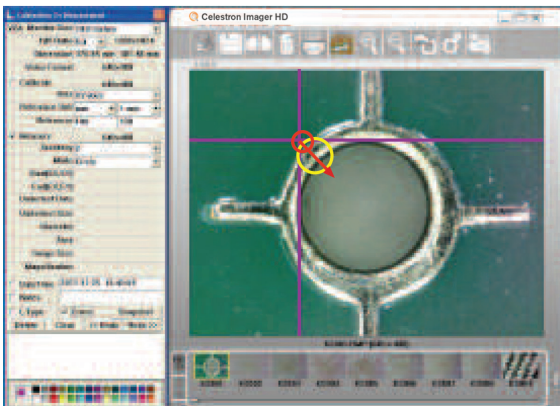


4. Drag to the lower right of the object.

NOTE: Use the X axis cross line, aligned with the bottom of the object and the Y axis cross line with the right-most point of the object.

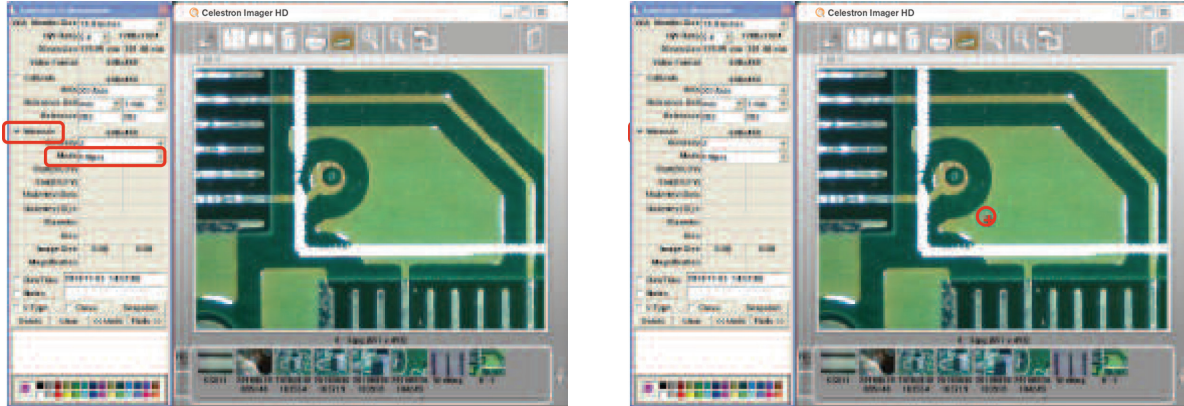
5. Release the right button of the mouse, and the circle measurement will appear.

NOTE: "D" refers to the diameter, "A" refers to the area of the circle.

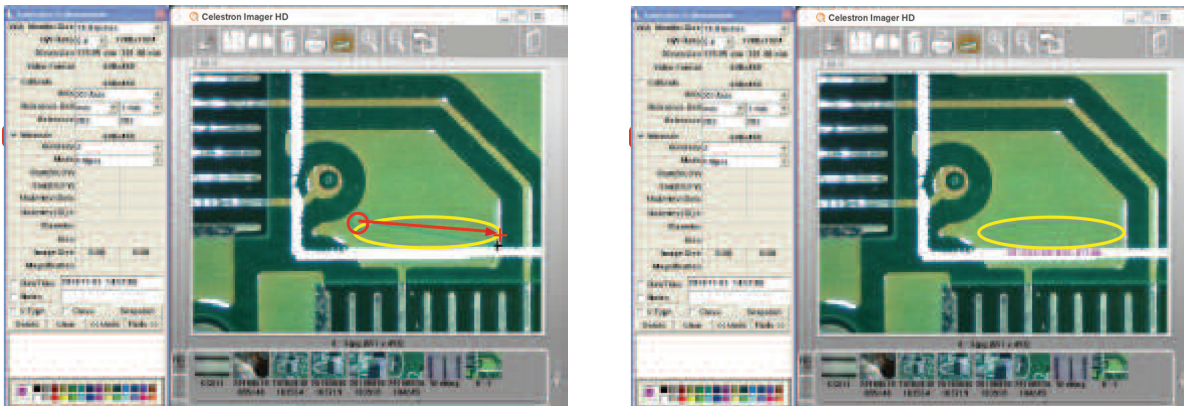


Making an Ellipse Measurement

1. Check the "Measure" box, then select the "Ellipse" Mode.
2. Hold the right button of the mouse at the upper left of the object.

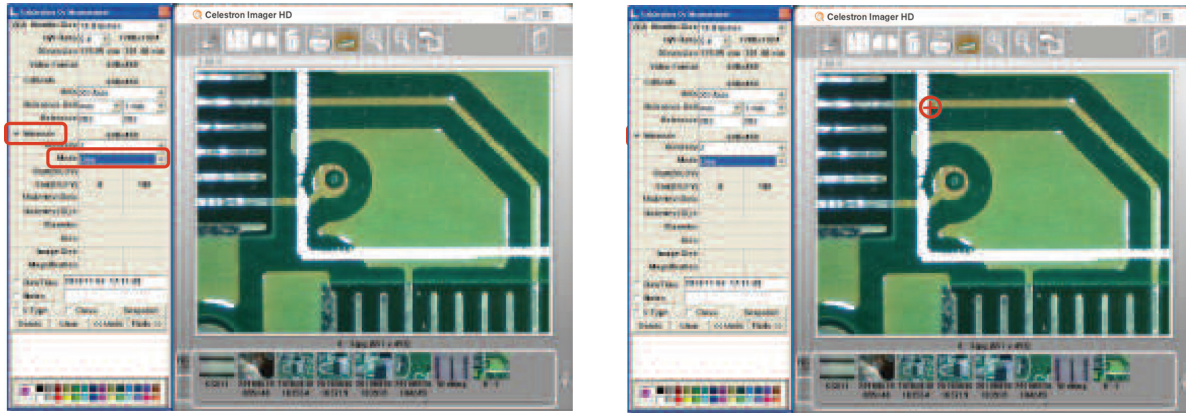


3. Drag to the lower right of the object.
4. Release the right button of the mouse, and the ellipse measurement will appear.
NOTE "D1" means X axis diameter, "D2" means Y axis diameter, and "A" means area.

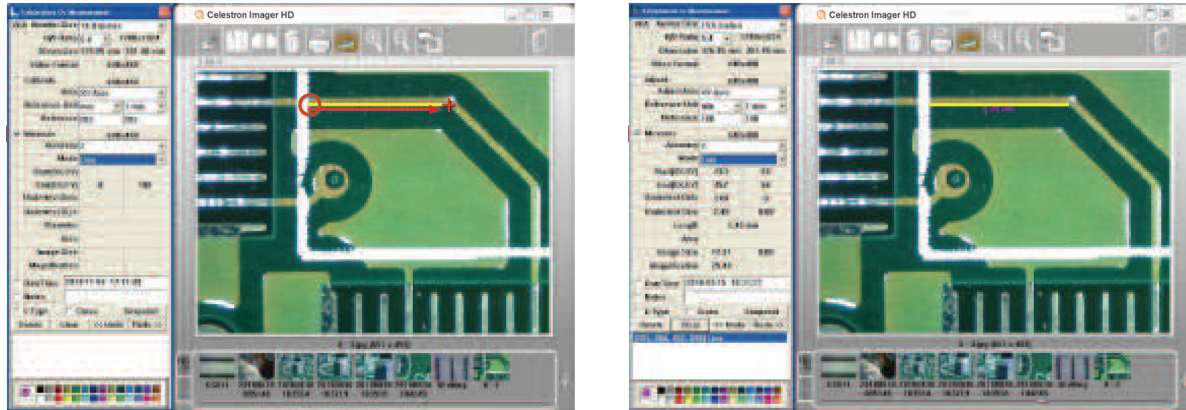


Making a Straight Line Measurement

1. Check the "Measure" box, then select the "Line" Mode.
2. Hold the right button of the mouse at the left side of the object.

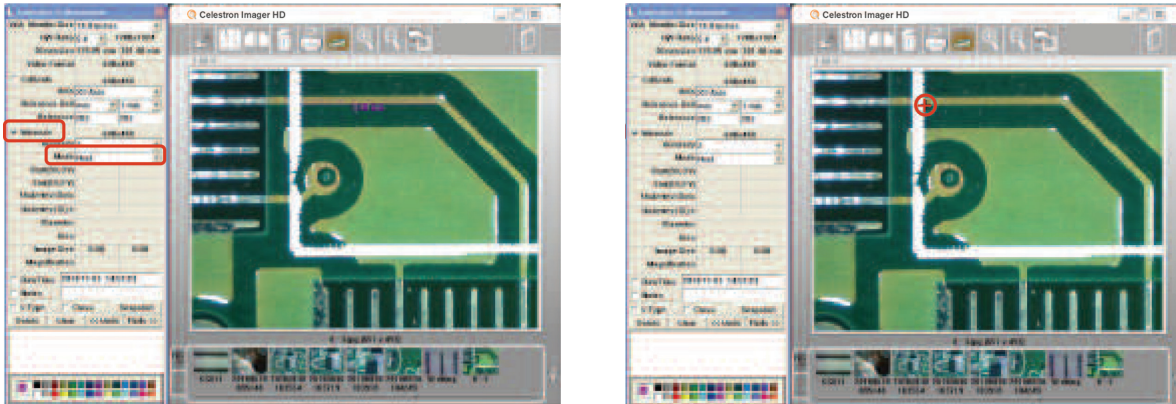


3. Drag to the right side of the object.
4. Release the right button of the mouse, and the line measurement will appear. The number means the length.

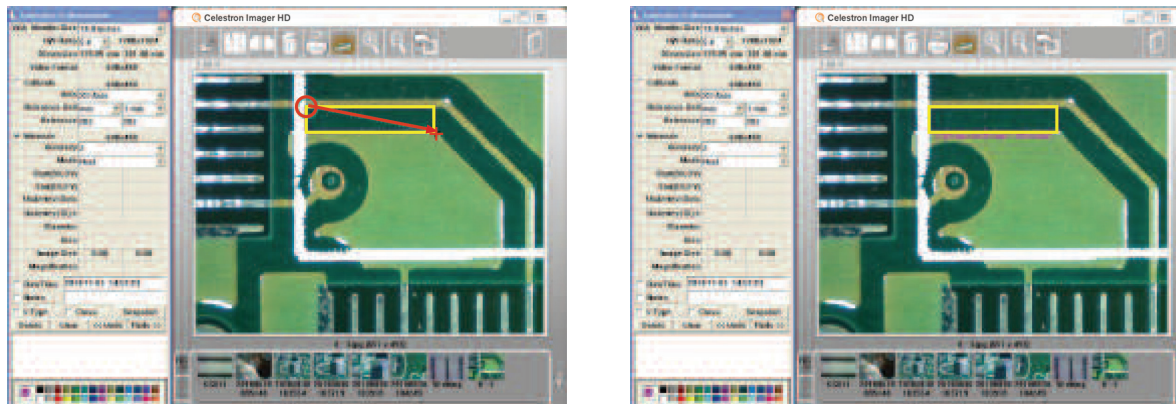


Making a Rectangle Measurement

1. Check the “Measure” box, then select the “Rectangle” Mode.
2. Hold the right button of the mouse at the upper left of the object.

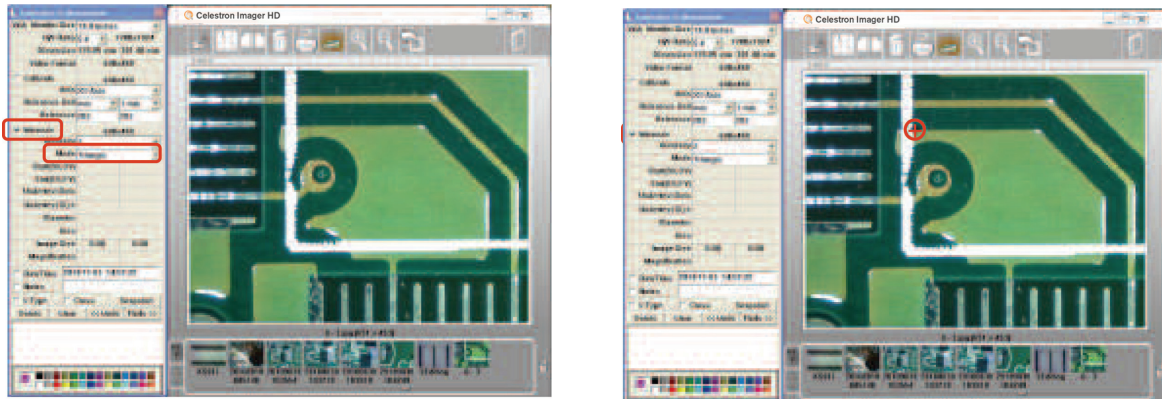


3. Drag to the lower right of the object.
 4. Release the right button of the mouse and the rectangle will show up.
- NOTE:** The result displays the “area” of the rectangle, or the length x width.

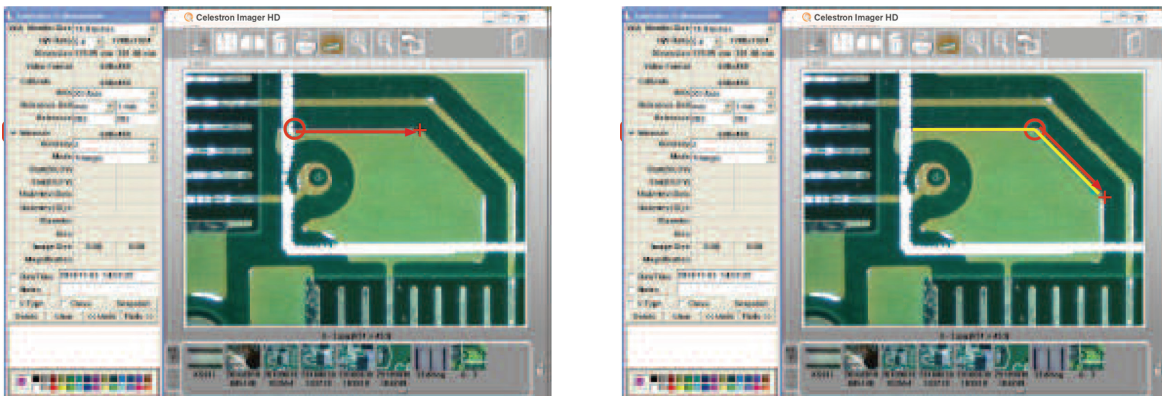


Making a Triangle Measurement

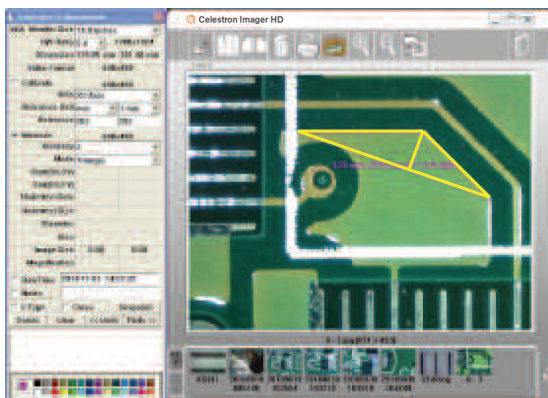
1. Check the "Measure" box, then select the "Triangle" Mode.
2. Hold the right button of the mouse at the first point of the object.



3. Drag to the second point and release.
4. Immediately hold the right button of the mouse again at the second point of the object, then drag to the third point of the object.

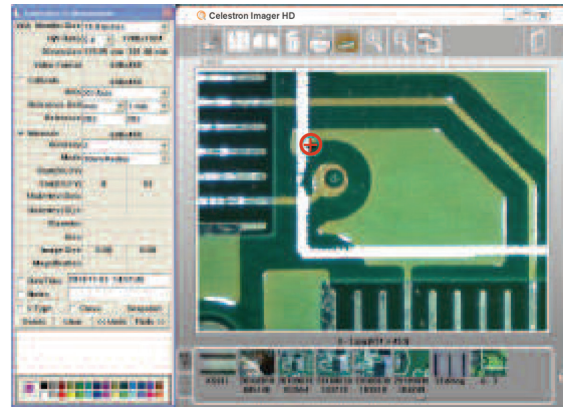
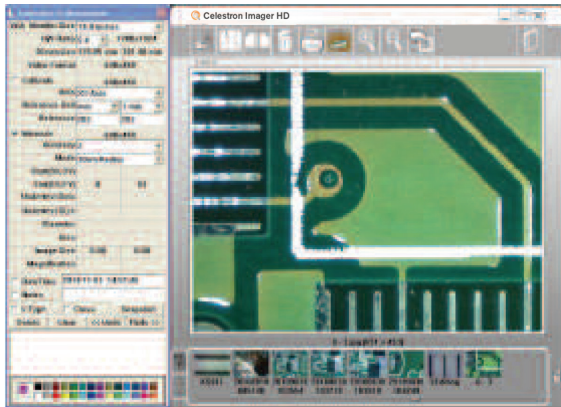


5. Release the right button of the mouse, and the Triangle measurement will appear.
- NOTE:** The result displays the "area" of the triangle, or the "length x base / 2"

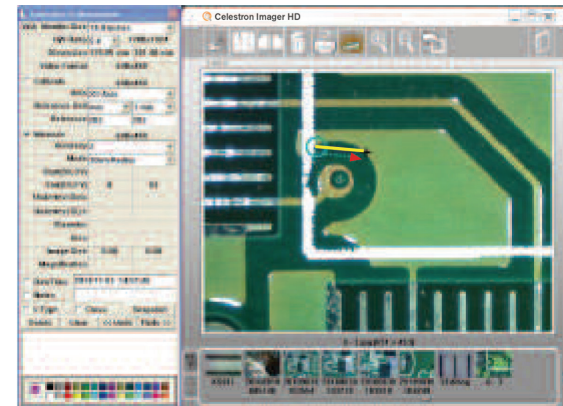
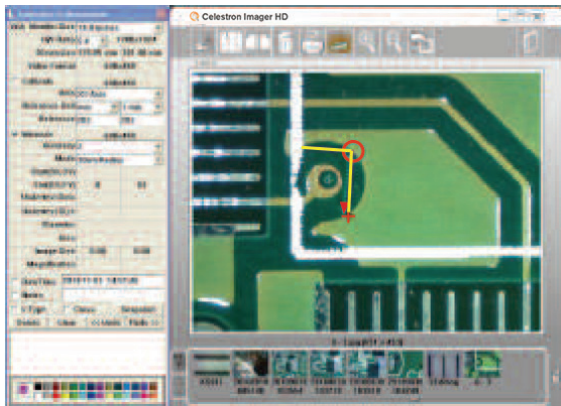


Making a Radius/Arc Measurement

1. Check the "Measure" box, then select the "3DotRadius."
2. Hold the right button of the mouse at the first point of the arc.



3. Drag to the second point of the arc and release.
4. Immediately hold the right button of the mouse again at the second point of the arc, then drag to the third point of the arc.



5. Release the right button of the mouse, and the arc measurement will appear.
- NOTE:** "R"= Radius, "A"= Angle, "L"=Arc

