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# UNITRON®



## TCS *Pro*500

Touch. Capture. Share.

### VMS3.6 Software MANUAL

**CONTENTS**

INTRODUCTION.....3

OPENING THE VSM3.6 IMAGING SOFTWARE .....3

CAPTURING & SAVING IMAGES.....4-5

CALIBRATION.....6-7

SETTING DEFAULT VALUES FOR MEASUREMENT RESULTS.....8

IMAGE MEASUREMENT & ANNOTATION .....9-10

LOADING SAVED IMAGES ..... 11

IMAGE PROPERTY SETTINGS ..... 11

IMAGE ENHANCEMENT ..... 12

SELECTED AREA COUNTING..... 13

DATA RESULTS & DATA EXPORT ..... 14

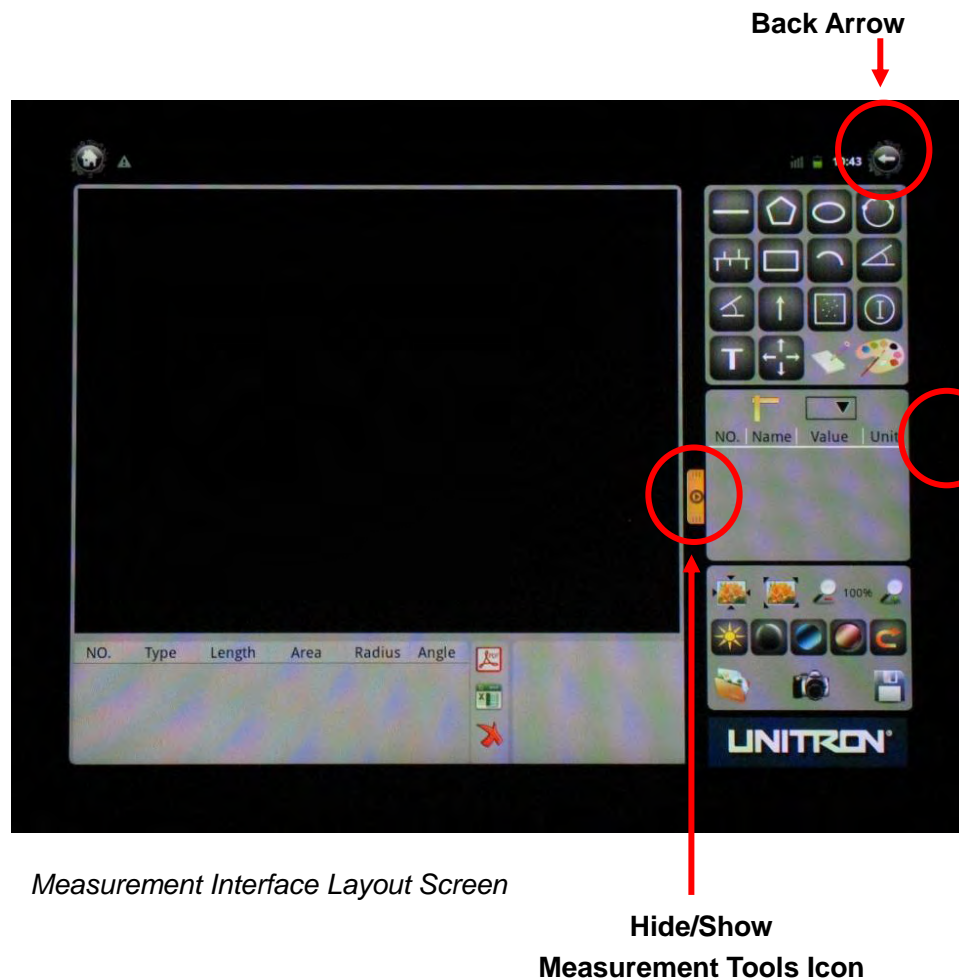
COPYING/SAVING IMAGES TO A DISK ..... 15

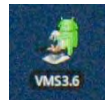
## Introduction

The VMS 3.6 Imaging Software is designed to work with the UNITRON TCS *Pro500* system. The software provides a user with the ability to view images in live video preview and capture still images. Once captured images can be measured, annotated and analyzed for use in inspection environments, laboratories, clinical applications and educational institutions.

For purposes of this User Manual it is assumed that the reader has a working knowledge of microscopy, digital imaging, Android and Windows operating systems as the design of the software incorporates features from both systems.

## Opening the VMS3.6 Software



From the Home Screen, **TOUCH** the VMS3.6 icon  to open the software.

The measurement Interface Layout Screen will appear (shown left).

NOTE: To exit the software, **PRESS** the Return button on the right side of the TCS *Pro500* **OR**

**TOUCH** the back arrow in the upper right corner.

**TOUCH** Exit or Save and Exit on the pop up screen to exit.

To **Hide** the Measurement Tools, **TOUCH** the Hide/Show Measurement Icon.

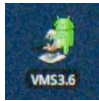
To **Show** the Measurement Tools, **TOUCH** the Hide/Show Measurement Tools Icon.

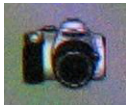
## Capturing & Saving Images


With the TCS Pro500 you can take and save images using the VSM3.6 software (*useful if you wish to do immediate analysis, measurement or annotation*), or just with the camera only (*useful if you wish to take and save multiple photos before analysis*).


You can save images to the TCS Pro500's internal storage and then copy to a USB flash drive, or a mini SD card.

## Using the VMS3.6 Software

**TOUCH** the **VMS3.6** software icon  to open the application

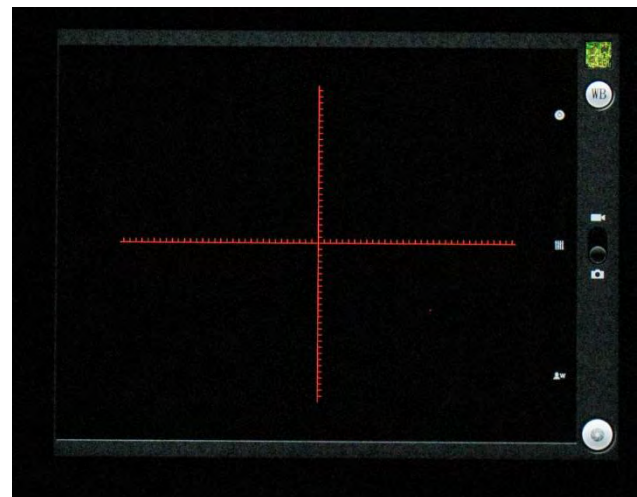
**TOUCH** the **CAMERA** icon  to bring up the camera screen.

**TOUCH** the **CAPTURE IMAGE/SHUTTER** icon  to take the picture -- you will get a message that the camera is taking the picture and then will hear a shutter sound if the sound is on and the volume is turned up enough to hear.

**TOUCH** the **OK** icon  that will appear where the shutter button was on the lower right side of screen.



VMS3.6 Software Screen



Camera Screen

## Capturing & Saving Images *(continued)*

### Using the VMS3.6 Software

**TOUCH** the **SAVE** icon



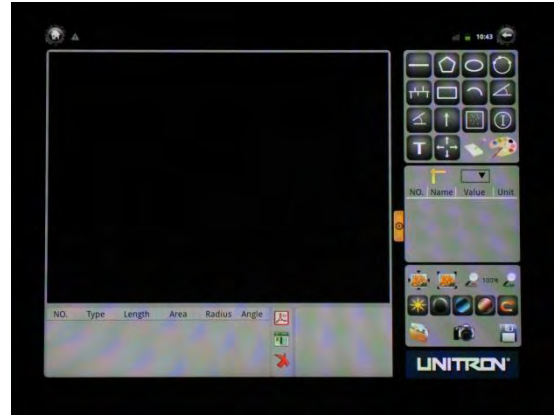
The Save Image window opens and you can rename the file here before saving.

To rename the file, **TOUCH** and **HOLD** the area where the name appears (as numbers) and **TOUCH SELECT ALL** in the pop up screen – this will select the entire name and bring up the keyboard.

Type in the name using the keyboard and **TOUCH SAVE** (you should see a message “Saving . . .” then “Saved Sucessfully” when it is saved).

**NOTE:** *You can measure, annotate, and manipulate your image here – please refer to the VMS3.6 Manual for instructions on how to do this.*

The TCS Pro500 saves the photo to the internal memory and within the **ES File Explorer** folder and then within the **vms3 6 folder**.

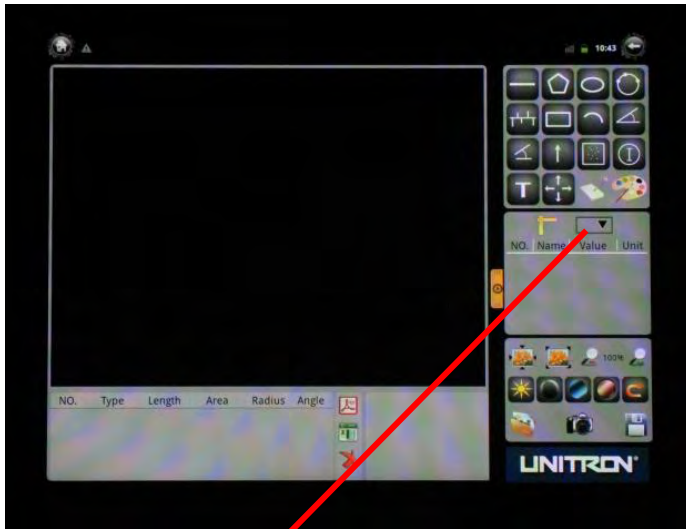


VMS3.6 Software Screen





## Calibration – *MUST BE PERFORMED WITH A MOUSE*



To calibrate your TCS *Pro500* to give accurate measurement results, it is recommended that during the initial set-up of your system, the user calibrates each objective magnification that will be used.

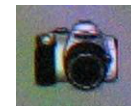
**IMPORTANT:** Calibration must be performed via MOUSE OPERATION ONLY to ensure accuracy.

Instructions in this section for Calibration requires the use of a mouse – connect a mouse via the mini USB 2.0 side port using the USB 2.0 converter cable supplied with the TCS *Pro500*.

*After calibrating, you can revert back to the TOUCH screen by removing the mouse.*

To calibrate:

1. **PLACE** a stage micrometer on the microscope stage and focus on the stage micrometer.



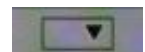
2. **CLICK** the Camera icon to obtain a live preview of your stage micrometer. Adjust the lighting on the microscope and other camera settings to obtain a good, sharp image on the screen.



3. **CLICK** the Shutter icon (lower right part of the screen to capture the image.




4. **CLICK** the OK icon that is now displayed where the Shutter icon was – this will save the image into the Measurement Interface Layout Screen.




5. **CLICK** the Scale Measurement Unit icon (middle right area of the screen) and select the correct scale for which you will be doing measurements – the default scale is um.

## Calibration (continued)



6. **CLICK** the Calibration icon , the Data Calibration window will pop up – **CLICK** “Yes” where it asks “Start to draw calibrated straight line! Yes/No”.

7. **CLICK** the Straight Line icon  to select/highlight it. (This icon is the first icon in the Measurement Tools icon group in the upper right of the screen.)


8. **CLICK** on the screen and drag to draw a “calibration line” to indicate the span of the standard you wish to be the calibration line increment. For example, drawing a line that spans 10 increments of a 0.1um stage micrometer will specify a 10 micron calibration line.

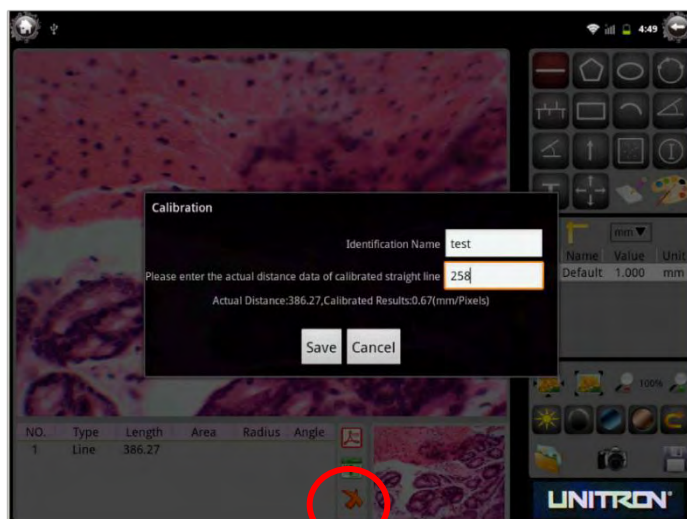
9. Move the cursor point to a start place on the micrometer for the line to be drawn. Left click and hold the mouse and move the cursor to the end place of your desired calibration line, then release the mouse button. After releasing the mouse click on another area of the image -- a pop-up dialog box will appear asking the user to identify the name of the calibration and length of the line drawn. Enter the information as requested and click “Save.”

10. The screen will return to the **Measurement Interface** screen. The **Data Area** will contain the information about the line and the **Calibration Area** will display No. (number designation), Name, Value and Unit information. To type in any of these boxes, **CLICK** inside the box you wish to type in to bring up the keyboard. **CLICK** Save when you have finished to close the keyboard and the Calibration pop up window.

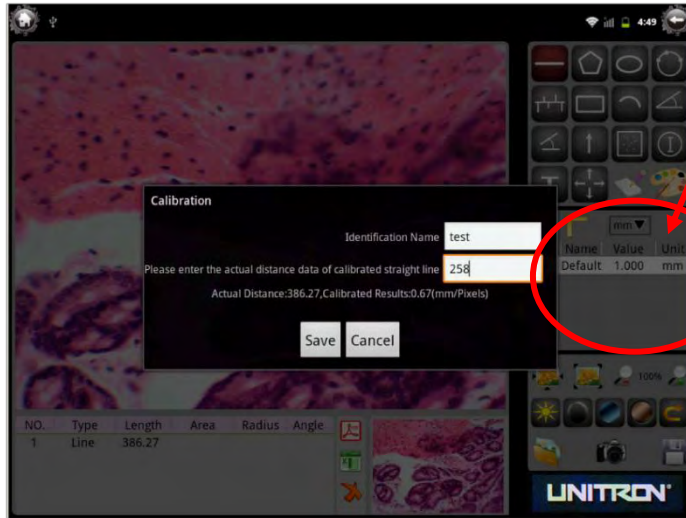
11. If you are not satisfied with the calibration you can delete it. To delete it: **CLICK** the name to **highlight** it in the Results Window at the bottom of the screen and **CLICK** delete from the pop up screen. Repeat the above steps until you are satisfied.

To delete ALL the Calibrations in the Results Window

**CLICK** the  icon on the bottom right of the Results Window and then PRESS Delete from the pop up screen. Repeat the above steps until you are satisfied.





# Setting Default Values for Measurement Results



To use an existing saved calibration as a default value select the saved calibration from the stored calibrations on the right side of the screen. **TOUCH** the screen to highlight the calibration you want to use and **TOUCH** “Set as Default Value” from the pop up screen.

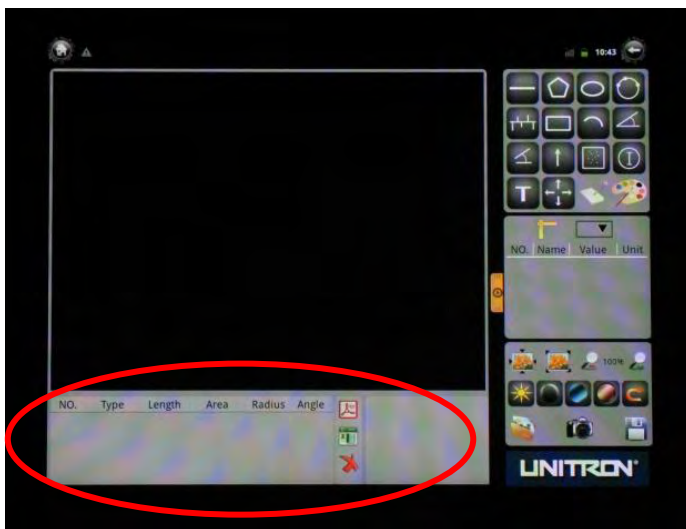
The data results can be exported as a Report in PDF or Excel document format.

**PDF Export** – **TOUCH** the Pdf button  in the Results Window.

**Excel Export** – **TOUCH** the Excel button  in the Results Window.

The Report will be saved in a folder named report within the vms3\_6 folder.

You can access this folder by **TOUCHING** the folder icon on the bottom right of the VMS3.6 software screen, then **TOUCH** ES File Explorer in the pop up window, then **TOUCH** the vms3\_6 folder – then locate and **TOUCH** the report folder to open the report folder. **TOUCH** the document you want to view to open it.




Results Window

NO.	Type	Length	Area	Radius	Angle
1	NO.1				
2	Line	153.44			
3	Oval	887.92	25126.62		
4	Angle				97.85
5	Line	190.04			



## Image Measurement & Annotation

When using the Image Measurement tools, measurements will appear in the Results Window. To **DELETE** any, measurement you do not want, **TOUCH** the name to highlight it in the Results Window at the bottom of the screen and **PRESS** delete from the pop up screen.

**TOUCH** the  icon on the bottom right of the Results Window and then **TOUCH** Delete from the pop up screen to **DELETE ALL** measurements in the Results Window.

**TOUCH** any of the tools to select them.



**Line Measurement** -- measures length.



**Polygon Measurement** –

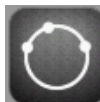
Upon drawing the polygon a Check Mark icon appears in the upper left corner of the screen – **TOUCH** this icon to confirm.



**Oval Measurement** – to measure the area and perimeter of an oval



**Rectangle Measurement** – to measure the area and perimeter of a rectangle



**Three-point Circle Measurement** – to measure the radius, area and perimeter of a circle.



**Distance Between Points & Lines Measurement** – to measure the distance between points and lines.



Upon using the Distance Between Points & Lines a Check Mark icon appears in the upper left corner of the screen – **TOUCH** this icon to confirm the distance between one point.



**Radian Measurement** – to measure radius and radian.



**Angle Measurement** – to measure the incline of an angle.



**Included Angle of Two Lines Measurement** – to measure the included angle of two lines.



**Set Drawing Arrows** – to set the arrow type:



**Draw Arrow** – to draw an arrow.

## Image Measurement & Annotation *(continued)*



**Labeling With Numbers** -- to allow for sequential numbering of items on the image sample. **TOUCH** the icon, then the area you want to number and the software will label the areas touched on the image in sequential order.



**Labeling With Text** – to add text to an image.

**TOUCH** the icon, then the area on the image where you want the text to be displayed.

**TOUCH** the white area in the Enter Text pop up box to bring up the keyboard.

Label Text

Enter Text:

Set as Default Confirm Cancel

**TYPE** your text

**TOUCH** “Confirm” to place the text in the image.



Set Font Size

12 14 16 18 20 22

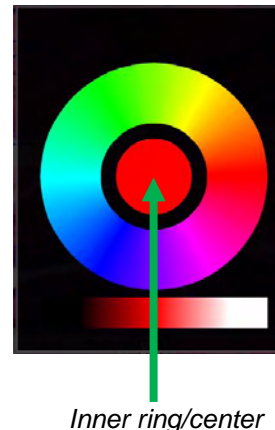
**Font Size** – to change the text and number font size.

**NOTE:** changing the font size will change ALL the text and numbers uniformly – either before or after you type or number the image.



**Color Setting** – to choose the color of lines, shapes, measurements, etc.

To change the color, **TOUCH** the icon to bring up the color wheel/palette.



*Inner ring/center*

**TOUCH** the area on the color wheel that you wish to change to, then **TOUCH** the inner ring/center to confirm/change it.

**NOTE:** changing the color will change ALL the text, numbers, shapes, etc. uniformly – either before or after you make your annotations.

## Loading Saved Images

You can load saved images into the VMS3.6 software to measure and annotate at any time.



**Load Saved Images** -- to load images from the system hard drive in the Gallery or within the VMS3.6 software, or from an SD Card or a USB Flash drive.

To load an image, **TOUCH** the icon to bring up the ES File Explorer/Gallery/Quickoffice Pro pop up window.

**TOUCH** the bar next to the Gallery or the ES File Explorer to open and locate the image you want.

**TOUCH** the image again to bring it into the VMS3.6 Software.

### IMAGE FILE LOCATIONS

#### ES File Explorer

**DCIM folder** – the default location on the internal hard drive where images with the **Camera** icon were taken are stored. These also can be retrieved from the Gallery.

**VMS3\_6 folder** – the default location on the internal hard drive where images with the **VMS3.6 software** were taken are stored. These also can be retrieved from the Gallery.

**extsd folder** – where **SD Card** images can be retrieved (from an inserted SD Card).

**udisk folder** – where **USB Flash card** images can be retrieved (from a USB connected Flash drive).

#### Gallery

Also the default location on the internal hard drive where images with the **Camera** only or with the **VMS3.6 software** were taken are stored. – these also can be retrieved from the DCIM folder (Camera) or VMS3\_6 folder (imaging software) within ES File Explorer.

## Image Property Settings



**Full Screen** -- to fill the entire screen with the complete image.



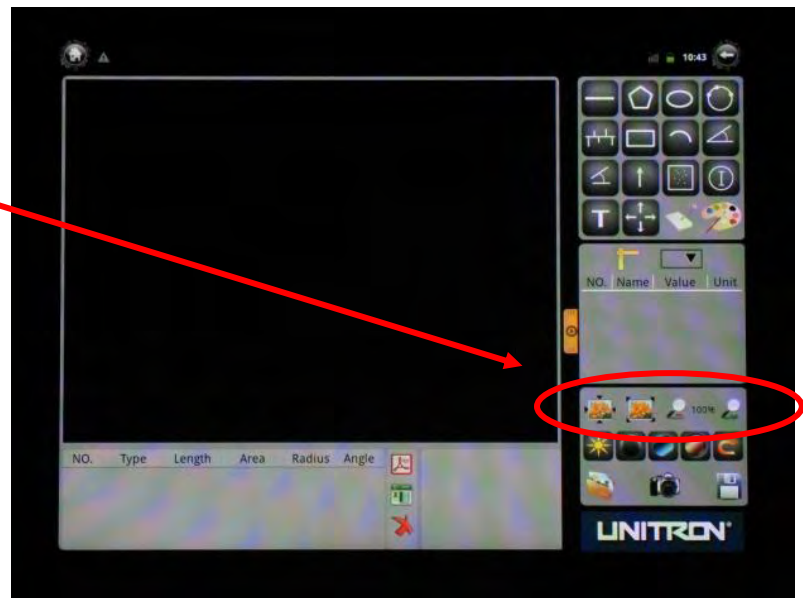
**Maximize Image** – to enlarge the image -- you can then **TOUCH** the image and drag it to view different areas of the image.



**Zoom Out** – to zoom out of the image –each **TOUCH** of the icon will make the image smaller by 10%.



**Zoom In** – to zoom in the image – each **TOUCH** of the icon will make the image larger by 10%.



## Image Enhancement – Saturation/Contrast/Brightness

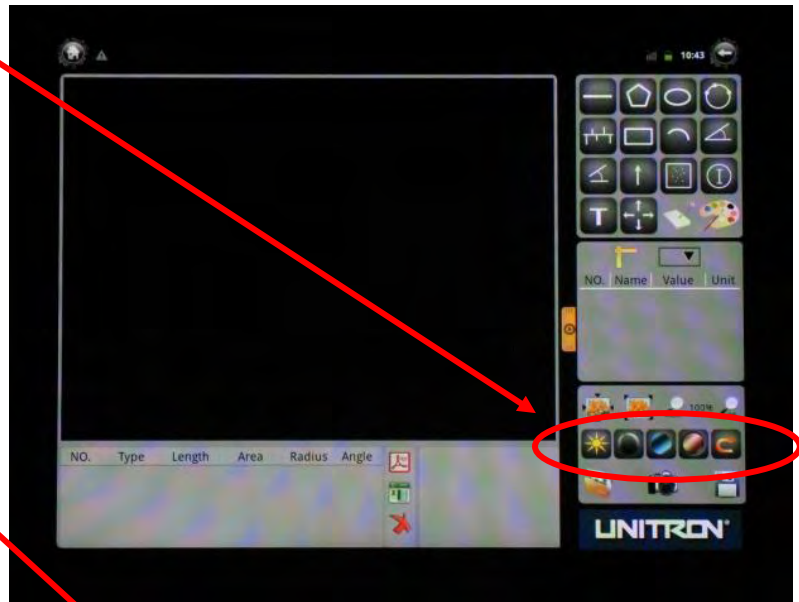


**Image Enhancement** -- to adjust saturation, contrast and brightness of an image.

**TOUCH** the icon to open the parameter slider setting pop up.

**TOUCH** and **DRAG** the sliders to adjust to desired levels.

**TOUCH** the Hide/Show Measurement Tools to confirm and return to the Measurement Tools palettes.



**Grayscale** – to change image from color to grayscale.



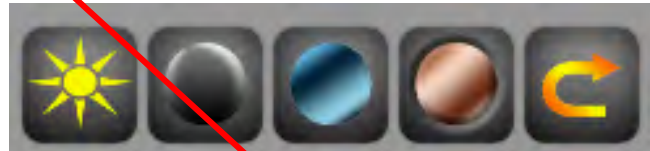
**Anti-phase** – to simulate a phase image.



**Emboss** – to emboss the image.



**Undo** – to undo any of the above changes/revert back to original.





# Selected Area Counting



**Region of Interest** -- to operate the Region of Interest are for counting.

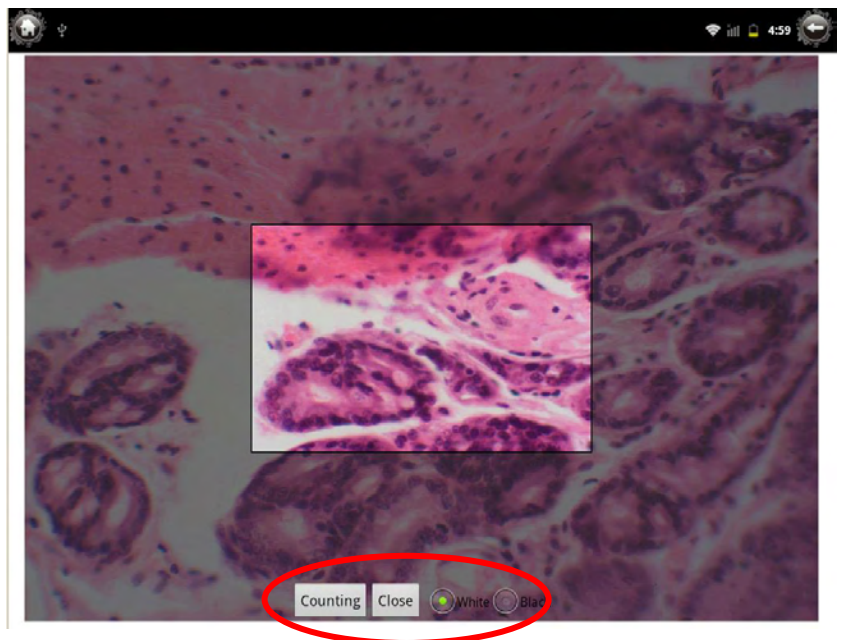
**TOUCH** the icon to open the Region of Interest screen.

**TOUCH** and **DRAG** the small window to select the area to be counted.

To **ADJUST** the size of the small selection window, **TOUCH** any side and drag to enlarge or reduce.

The default counting area is set to "White". **TOUCH** the icon to select "Black".

**TOUCH** the "Counting" button to calculate within the selected area of the small window.





## Data Results & Data Export

The statistical results of the counting will appear on the right side of the screen. You can then export the data as a Report in PDF or Excel document format.

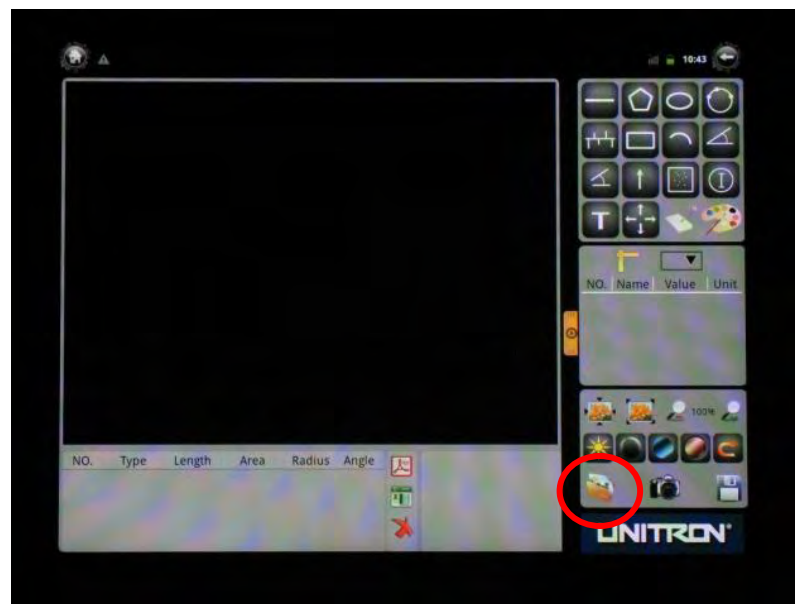
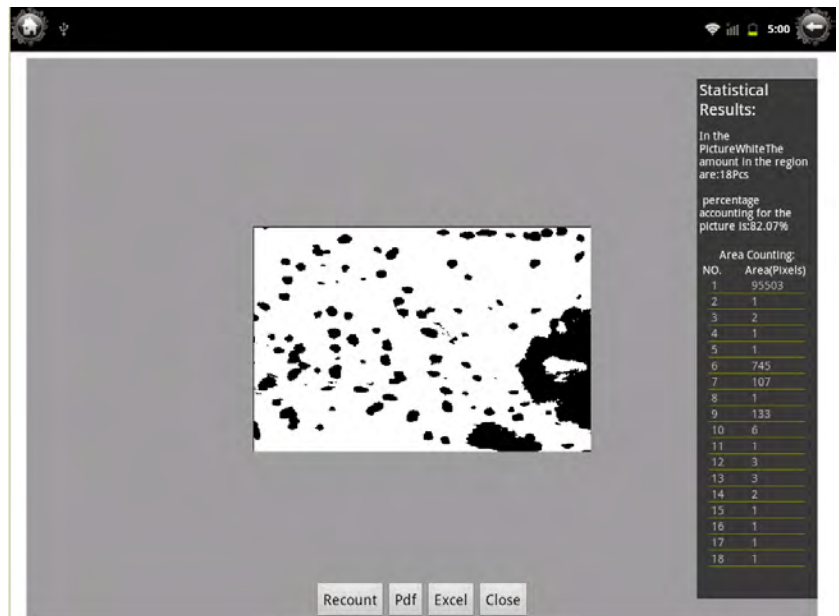
**PDF Export** – **TOUCH** the Pdf button below.

**Excel Export** – **TOUCH** the Excel button below.

**Recount** – **TOUCH** this button to perform a recount of the selected area.

The Report will be saved in a folder named report within the vms3\_6 folder.

You can access this folder by **TOUCHING** the folder icon on the bottom right of the VMS3.6 software screen, then **TOUCH** ES File Explorer in the pop up window, then **TOUCH** the vms3\_6 folder – then locate and **TOUCH** the report folder to open the report folder. **TOUCH** the document you want to view to open it.



# Copying/Saving Images to a Disk

To save the image to a disk – USB Flash or Micro SD card, **TOUCH** the folder icon in the VMS3.6 Software window.

**TOUCH** ES File Explorer in the pop up window, then locate and **TOUCH** the vms3\_6 folder to bring up the images taken with the camera.

**Make sure you have your USB Flash drive or Micro SD card installed before proceeding.**

Locate the image you want to copy and **TOUCH** and **HOLD** and then select Copy from the pop up window. This will put a copy on the clipboard.

**TOUCH** the Back Arrow (upper right side of pad) once to bring you to the ES File Explorer folder.

For **USB Flash drive**, **TOUCH** the udisk folder and then pull open the clipboard by dragging it up from the bottom to the top of the screen and then let go.

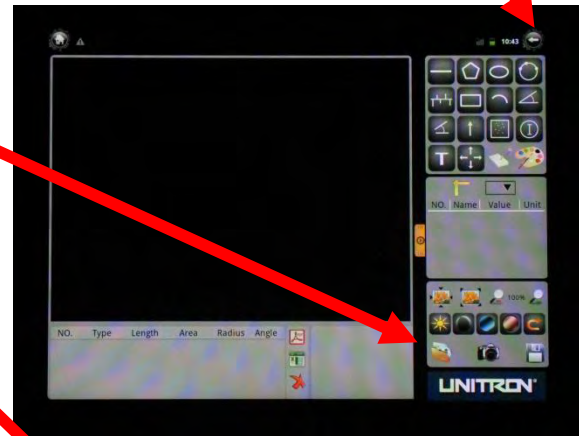
For **Mini SD Card**, **TOUCH** the extsd folder and **then the DCIM folder** and then pull open the clipboard by dragging it up from the bottom to the top of the screen and then let go.

Locate your image and **TOUCH** and **HOLD** and then select **Paste** from the pop up window. This will copy the image onto your USB Flash drive or Micro SD card.

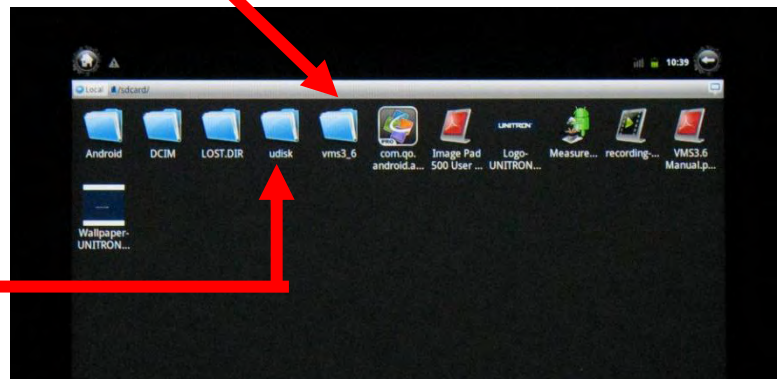
## Deleting Images

To delete an image from the VMS3.6 folder, simply **TOUCH** and **HOLD** the image and select Delete from the pop up menu.

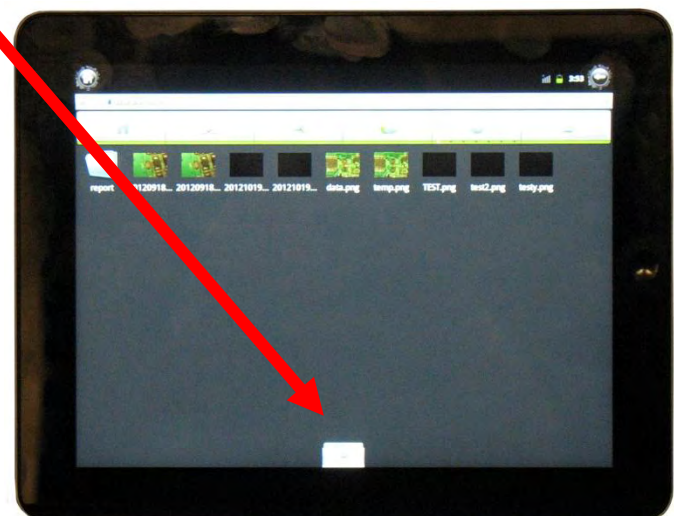
Back Arrow



VMS3.6 Software Screen



ES File Explorer Folder/Screen



Clipboard