

# i-Solution quickstart - Lumenera

The following procedures are some of the more commonly used items in the i-Solutions lite software. The package can perform many other functions. See the manual for more detail.

## MEASURING:

In order to measure specimen features a calibration table needs to be created. This is very straightforward for compound microscopes (fixed magnification lenses) but zoom microscopes are only consistent if they have 'click' stops for magnification.

## CALIBRATION:

i-Solutions provides 3 methods of calibration; manual, semi-automatic, and automatic.

- **Manual:** provides most accurate calibration since the user specifies the actual point to point region to calibrate with. Select MEASURE>CALIBRATION>CALIBRATION to access the procedure. (see pg 101)
- **Semi-automatic:** uses a mouse drag but automatically determines the defining calibration lines. Select MEASURE>CALIBRATION>Semi-auto (see pg 106)
- **Auto:** uses a standard stage micrometer and detects the lines automatically. Only requires user to specify line spacing. Select MEASURE>CALIBRATION>Auto (see pg 105)

## MEASUREMENTS:

Measurements can be taken on both captured images and live preview images.

**Captured image:** (see pg 110)

- Use ACQUIRE>IMAGE CAPTURE to do initial setup of the camera and calibrations
- Select calibration scale to be used (from previous calibration) either from the *spatial calibration icon* on the toolbar or by MEASURE>CALIBRATION>CALIBRATION and the appropriate named calibration (e.g. 100x lense)
- Select measurement tool to use (e.g. Point to point) from ToolList (enable by VIEW>ToolList) or by selecting MEASURE> MANUAL MEASUREMENTS>tool
- Measure by using left mouse click and hold as appropriate

**LIVE measurements:** (see pg 59, pg 110)

- Use ACQUIRE>IMAGE CAPTURE to do initial setup of the camera and calibrations
- Select ACQUIRE>LIVE MEASUREMENTS to activate the live preview screen
  - It is best to have the ToolList activated as described previously in order to have quick access to all measurement tools(enable by VIEW>ToolList)
- Select measurement tool from list and select calibration scale to be used from the *Spatial calibration icon* on the upper toolbar (looks like a scale with double arrow line)
- Use left mouse button to perform the measurement(s). The image can then be saved with the measured values or discarded.
- An icon on the live preview window can also display the values of all measurements (looks like a diagonal double ended arrow) which can be sent to an EXCEL file.

## **MULTI-FOCUS**

Multi-focus is a process that allows multiple images of a specimen taken at different focal planes to be combined for a complete in-focus final image. Software depth-of-field is performed and only the focused portions of each image are used for the resultant image. (see pg 94)

- Activate Context window to view images (VIEW>Context Window)
- Acquire 2 or more images of the same sample at different focus settings.
- Select images to be summed from the context window:
  - To select images and specify the order of the images, click the left mouse button while holding down the <Ctrl> button on the keyboard. The images will be selected in order. They can be de-selected by the same procedure.
- Apply focus enhancement (PROCESS>Focus Enhancement). This procedure may take some time depending on the number of images and processor speed. The process can be terminated at any time by pressing the <ESC> button.

\* **NOTE:** Multi-focus is only effective with vertical optical systems. Images captured with stereozoom models usually don't combine well due to the inherent 5° angle of the optics in most stereo models.